

Report Conditions

This report is produced solely for the benefit of GCP and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a visual site inspection, reference to accessible referenced historical records, information supplied by those parties referenced in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive research. Where ground contamination is suspected but no physical site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to activities related to the site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, perhaps in higher concentrations, elsewhere on the site cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question as such bodies often have unpublished, more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG. In time improved practices or amended legislation may necessitate a re-assessment.

The assessment of ground conditions within this report is based upon the findings of the study undertaken. We have interpreted the ground conditions in between locations on the assumption that conditions do not vary significantly. However, no investigation can inspect each and every part of the site and therefore changes or variances in the physical and chemical site conditions as described in this report cannot be discounted.

The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed cannot be absolute due to the limitations of time and resources imposed by the agreed brief and the possibility of unrecorded previous use and abuse of the site and adjacent sites. The report concentrates on the site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists further extensive research will be required before the effects can be better determined.

APPENDIX C1: BOREHOLE LOGS

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status		Borehole Number			
						Easting: 548780.00 Northing: 251251.00 Level: 18.16mAOD Depth: 5.45m Logger: M+DC Type: WLS Inclination: 90°											
Method, Plant and Crew						Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT		
0.00 1.20	1.20 5.45	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Bereetta T46	M. Bainbridge M. Bainbridge	1.20 5.45	300 150	4.00	150	1.20	-	-	1.10	20		Approved By: CP		
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				Tests / Results		
											Depth (m)	Ref					
MADE GROUND: (Crop over) Soft dark brown slightly gravelly sandy CLAY with abundant rootlets. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse flint. (TOPSOIL) MGR(TS)							0.45	17.71			0.30 0.30	B D					
Soft mottled grey and orangish brown slightly sandy CLAY with some organic material. Sand is fine to coarse.. (ALLUVIUM) ALV(C)							0.80	17.36			0.50 0.50	B D					
Soft dark brown mottled grey slightly sandy CLAY with rare fragments of very weak chalk. Sand is fine to coarse. Some organic material. (ALLUVIUM) ALV(C)							1.10	17.06			0.85 0.85	B D			1		
Spongey black clayey silty pseudo-fibrous PEAT. (ALLUVIUM)) ALV(C)							1.20	16.96			1.10 1.10 1.20 - 1.65 1.20 - 1.65	B D D UT					
UT100 Sample description: Firm dark brown clayey silty pseudo-fibrous PEAT with occasional fine to medium rootlets. (ALLUVIUM) ALV(C)							1.43	16.73			1.50 - 1.60	D					
UT100 Sample description: Light brown slightly gravelly clayey SAND. Gravel is fine to medium, subangular to subrounded flint. (ALLUVIUM) ALV(G)							1.47	16.69			1.65 - 1.70	D					
UT100 Sample description: Soft to firm light brown mottled dark brown very sandy CLAY with some organic material. (ALLUVIUM) ALV(C)							1.65	16.51			1.90 - 2.00	D			2		
Spongey black pseudo-fibrous PEAT. (ALLUVIUM)) ALV(C)							1.80	16.36			2.00 - 2.45	SPTLS	SPT(S) 2.00m, N=8 (1,2/2,2,2,2)				
Loose dark brown slightly gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (ALLUVIUM) ALV(G)											2.30 - 2.40	D					

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-OBC-01								
					Easting: 551276.00 Northing: 249617.00 Level: 26.71mAOD Depth: 8.00m Logger: DC Type: RC Inclination: 90°															
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 6.50	1.20 6.50 8.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20 6.50	300 150	7.50	150	11/03	18:00	8.00	-		Approved By:	CP					
														Start Date:	11/03/2021					
														Finish Date:	12/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
													Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Brown clayey gravelly very sandy SILT with occasional flint cobbles. Frequent rootlets. Gravel is angular to sub-rounded fine to coarse flint and rare brick. Sand is fine to coarse. (PLOUGHED TOPSOIL).								0.40	26.31				0.10 0.20 0.20 0.40 0.50 0.50	ES1 D1 ES2 B1 D2 ES3						
MGR(TS) Loose brown clayey SAND and GRAVEL with occasional flint cobbles. Sand is fine to coarse. Gravel is angular to sub-angular, fine to coarse flint. (RIVER TERRACE DEPOSITS)								0.60	26.11											
RTD Medium dense orangish, brown very sandy, slightly silty GRAVEL with high cobble content. Gravel is angular to sub-angular, fine to coarse flint. (RIVER TERRACE DEPOSITS)								1.20	25.51				1.00 1.00 1.00 1.20 - 1.30 1.20 - 1.65	B2 D3 ES4 D4 SPTLS5						SPT(S) 1.20m, N=27 (3,4/6,7,6,8)
RTD Medium dense brownish orange, very gravelly SAND. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse and some cobbles of flint with rare chalk nodules and quartzite. (RIVER TERRACE DEPOSITS)								1.61	25.10				1.70 - 1.80	D6	1.20 2.00	100	0	0		
RTD ...from 1.52m to 1.61m bgl: sandy clay laminations.								2.00	24.71				2.00 - 2.45	SPTLS7						SPT(S) 2.00m, N=40 (4,6/9,10,10,11)
Medium dense orange, slightly gravelly SAND with black speckled. Sand is fine to medium. Gravel is subangular to subrounded, flint and rare chalk nodules.								2.54	24.17				2.00 3.00		100	0	0			
Dense greyish brown, sandy, angular to subrounded, fine to coarse GRAVEL of flint and quartzite. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)													3.00 - 3.45 3.00 - 3.45	D9 SPTLS9					SPT(S) 3.00m, N=29 (3,5/6,6,7,10)	
RTD Medium dense orange, very sandy, silty GRAVEL. Sand is fine to medium. Gravel is angular to is subrounded fine to coarse flint. (RIVER TERRACE DEPOSITS)								3.44	23.27				3.60	D10	3.00 4.00	100	0	0		
Structureless CHALK composed of slightly to moderate orange stained white sub-angular to sub-rounded GRAVEL. Clasts are very weak to weak, low-density with occasional brown speckles. Occasional grey marly pockets around large chalk clasts. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm)													3.90 4.00 - 4.10 4.00 - 4.45	D8 D11 SPTLS1 2					SPT(S) 4.00m, N=5 (1,2/1,2,1,1)	
...from 3.44m to 3.58m bgl: moderate orange staining.													4.00 5.00		100	0	0			
													4.90 - 5.00 5.00 - 5.45	D13 SPTLS1 4					SPT(S) 5.00m, N=13 (1,2/2,3,4,4)	
													5.50 - 5.60	D16	5.00 6.50	100	0	0		
													6.40 - 6.50 6.50 - 6.95	D3 D16					SPT(S) 6.50m, N=13 (2,3/2,3,3,5)	
Structureless CHALK composed of fine to coarse, subangular white chalk GRAVEL with some cobbles. Clasts are very weak, low-density. Matrix is occasional or stained white. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								6.75	19.96				6.80 - 6.90	D17	6.50 8.00	NI	83	0	0	
													7.50 - 7.60	D18						
EOH at 8.00m - Target depth achieved.								8.00	18.71											

<div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div>		Project: Cambridge South East Transport – Phase 2		Location Details						Status		Borehole Number								
		Location: Cambridge		Easting: 551309.00 Northing: 249638.00						FINAL		BH-OBC-02								
		Client: Greater Cambridge Partnership		Level: 25.53mAOD Depth: 30.50m																
				Logger: DC Type: RC																
				Inclination: 90°																
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300			08/03	17:00	18.50	-	-	Approved By:	CP					
1.20	6.50				09/03	14:00			10/03	17:30							30.50			
6.50	30.50				11/03	08:30												30.50		
												Start Date: 08/03/2021								
												Finish Date: 08/03/2021								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Structureless CHALK composed of fine to coarse, subangular silty sandy GRAVEL and COBBLES. Clasts are moderately orange stained white extremely weak to weak low density with some inoceramid and mytilid shell fragments. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc) ...from 10.20m bgl: with heavy orange staining (between 10.20 and 10.35m bgl with moderate to heavy orange leisegang banding). ...from 10.73m bgl becoming white with slight orange staining.								11.00	14.53				10.20 - 10.30	D26	9.50 11.00	NI	100	0	0	SPT(S) 12.50m, N=24 (3,4/5,6,6,7)
Partial recovery (50%) of Structureless CHALK. Composed of fine to coarse, subangular silty sandy GRAVEL and COBBLES. Clasts and matrix are white with some slight orange staining, extremely weak to very weak low density. With some inoceramid and mytilid shell fragments (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)													10.90 - 11.00	D27						
Zone of core loss attributable to SPT disturbance.													11.80 - 11.90	D28						
Very weak, low-density, very shelly (gritty) white CHALK with some orange staining. Shell fragments comprise bivalves (mytilids) and brachiopods. Discontinuity 1). Joints are 80 to 90 degrees, subvertical, open, clean with some slight orange staining and brown speckling. Discontinuity 2.) Bedding are 0 to 10 degrees, subvertical, open, clean with some slight orange staining and brown speckling [40/60/130]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B4) ...from 13.54m to 13.63m bgl: moderate orange staining.								12.50	13.03			12.50	C30 PLT30	NR	76	35	0	SPT(S) 15.50m, N=43 (5,8/10,10,11,12)		
Weak, low to medium-density very shelly (gritty) white with some orange staining CHALK. Shell fragments comprise bivalves (mytilids) and brachiopods. Discontinuity 1). Joints are 80 to 90 degrees, subvertical, open, clean with some slight orange staining and brown speckling. Discontinuity 2). Bedding is 0 to 10 degrees, open, clean with some slight orange staining and brown speckling [40/80/130]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 14.00m to 14.75m bgl moderate orange staining. ...at 14.50m bgl: with moderate orange staining along discontinuity faces. ...from14.60 to 14.75m bgl: with moderate orange staining along discontinuity faces. ...at 15.21m bgl 5mm thick slightly plastic marl seam. ...at 15.49m bgl: complete Orbirhynchia cuvieri. ...from 15.00 to 17.00m bgl: Bedding 40.80/130 (Grade B4/3) ...at 15.74m bgl: slight orange staining. ...at 16.01m bgl: thin<2mm slightly plastic marl seam. ...at 16.32m bgl: complete Orbirhynchia cuvieri (brachiopod). ...from 14.24m bgl thin <1mm marl seams. ...at 16.32m bgl: complete Orbirhynchia cuvieri (brachiopod). ...from 16.71m to 17.00m bgl: slight to moderate orange staining.							12.86	12.67			12.80 12.80 12.80 - 12.90 13.30 13.30 - 13.40 DPLT	C31 PLT31 DPLT C32 DPLT								
Weak, low-density white CHALK with rare shell fragments, occasional black zoophycos streaks and occasional orange staining. Discontinuity 1). Joints are 90 degrees, subvertical, open, clean with orange staining. Discontinuity 2). Bedding is 0 to10 degrees, subhorizontal, open, clean with orange staining [70/80/100]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...at 17.75m bgl: 10mmm thick slightly plastic grey and orange marl seam. ...at 17.88m bgl heavy orange staining and extremely weak chalk. ...from 17.92m to 18.20m bgl moderate orange staining. ...from 18.90m to 19.05m bgl: heavy orange staining. ...at 19.06m bgl: 10mm thick slightly plastic grey marl seam.							14.00	11.53			13.90 - 14.00 14.10 - 14.20 DPLT DPLT 14.80 - 14.90 DPLT 15.30 - 15.40 DPLT 15.50 - 15.95 SPTLS3 7 15.80 15.80 15.80 - 15.90 DPLT 16.40 16.40 - 16.50 DPLT 16.80 - 16.90 DPLT	C38 PLT38 DPLT C39 DPLT C44 PLT44 DPLT D45 D65	14						97	70
Weak, low-density white CHALK with rare shell fragments, occasional black zoophycos streaks and occasional orange staining. Discontinuity 1). Joints are 90 degrees, subvertical, open, clean with orange staining. Discontinuity 2). Bedding is 0 to10 degrees, subhorizontal, open, clean with orange staining [70/80/100]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...at 17.75m bgl: 10mmm thick slightly plastic grey and orange marl seam. ...at 17.88m bgl heavy orange staining and extremely weak chalk. ...from 17.92m to 18.20m bgl moderate orange staining. ...from 18.90m to 19.05m bgl: heavy orange staining. ...at 19.06m bgl: 10mm thick slightly plastic grey marl seam.								17.40	8.13			17.60 - 17.70 DPLT 18.30 - 18.40 DPLT 18.50 - 18.95 SPTLS4 3 18.80 18.80 18.80 - 18.90 DPLT 19.50 - 19.70 D45 D65 19.90 - 20.00 DPLT	17.00 18.50	10	99	35	0	SPT(S) 18.50m, 50 (25 for 20mm/50 for 25mm)		
Weak, low to medium-density white CHALK. Multiple thin wispy griotte marls and occasional partings of light grey chalk. Discontinuity 1). Joints are 70 to 80 degrees, inclined, open, clean but with some marl, chalk clasts and comminuted chalk. Discontinuity 2). Bedding is 0 to 10 degrees, inclined, open, clean but with some marl, chalk clasts and communited chalk [70/100/150]. (PLENUS MARLS MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...at 19.36m bgl: 5mm thick cemented marl seam. ...from 19.48m to 19.52m bgl: slightly plastic grey marl seam. ...from 19.52m to 19.72m bgl: zone of multiple orangish grey marl seams with many marl matrix and white chalk intraclasts. ...from 19.77m bgl: black staining along joint face and black zoophycos streaks.								19.07	6.46			18.80 18.80 18.80 - 18.90 DPLT 19.50 - 19.70 D45 D65 19.90 - 20.00 DPLT	18.50 20.00	10	96	78	27			
Observations / Remarks							Drilling Fluid						Hammer Information							
1. Groundwater strike at 2.70, rising to 2.00m bgl (20minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %							
							1.20	18.50			Air / Mist	BB4	63							
							Groundwater						Project Number							
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks															
							784-B025563													

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					Easting: 551309.00 Northing: 249638.00 Level: 25.53mAOD Depth: 30.50m Logger: DC Type: RC Inclination: 90°													
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT			
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20	300			08/03	17:00	18.50	-	-	Approved By:	CP			
1.20	6.50				6.50	-			09/03	14:00	17:30	-	-					
6.50	30.50				30.50	-			10/03	17:30	30.50	-	-					
									11/03	08:30	30.50	-	-	Start Date:	08/03/2021			
														Finish Date:	08/03/2021			
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD
Very weak to weak, low and medium-density slightly grey white with rare small pockets of orange staining CHALK. With zoophycos streaks. Discontinuity 1). Joints are 80 to 90 degrees, closed, clean. Discontinuity 2). Bedding is 0 to 10 degrees, closed, clean with black staining [70/110/140]. (ZIG ZAG CHALK FORMATION, Grade B3) EOH at 30.50m - Target depth achieved.								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97		30.40 - 30.50 30.40 - 30.50	B3 DPLT						
								30.50	-4.97									

784-B025563

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details <div>Easting: 551324.00 Northing: 249657.00</div> <div>Level: 25.50mAOD Depth: 30.50m</div> <div>Logger: CE Type: RC</div> <div>Inclination: 90°</div>					Status <div>FINAL</div>		Borehole Number <div>BH-OBC-03</div>						
										Sheet 1 of 4								
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT				
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20	300	13.50	150	18/03	18:00	30.50	-	-	Approved By: CP				
1.20	5.00				5.00	-			19/03	08:30	30.50	-	-					
5.00	30.50				30.50	-												
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
										Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Firm * dark brown slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of flint. (TOPSOIL) MGR(TS)						0.30	25.20			0.20	B							
Soft light orangish brown slightly gravelly very sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of flint. Cobbles are angular flint. (ALLUVIUM) ALV(C)						0.80	24.70			0.50	B	ES3						
Medium dense orangish brown clayey, very sandy, angular to subangular, fine to coarse flint GRAVEL with moderate cobble content. Sand is fine to coarse. Cobbles are angular flint. (RIVER TERRACE DEPOSITS) RTD						1.80	23.70			1.00	B							
										1.20 - 1.65	SPTLS1					SPT(S) 1.20m, N=16 (2,3/3,4,4,5)	1	
										1.30 - 1.40	D2							
										1.20				100	0	0		
										2.00								
Structureless CHALK composed of cream with orange brown staining, slightly gravelly, sandy SILT. Gravels are fine to medium, angular to subangular, very weak, low-density with rare flints. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm)						3.00	22.50			1.90 - 2.00	D3	SPTLS4					SPT(S) 2.00m, N=16 (2,3/3,3,4,6)	2
										2.00 - 2.45								
										2.50 - 2.60	D5							
										2.00				100	0	0		
										3.00								
Structureless CHALK composed of cream with orangish brown staining slightly gravelly SILT. Gravel is angular to subangular fine to medium very weak low density chalk. Rare angular fine to coarse flint. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm).										3.00 - 3.45	SPTLS6						SPT(S) 3.00m, N=14 (2,3/4,4,3,3)	3
										3.20 - 3.30	D7							
										3.50 - 3.60	D8							
										3.00				100	0	0		
										4.00								
										4.00								
										4.00								
										4.80 - 4.90	D11							
										5.00 - 5.45	SPTLS1	2					SPT(S) 5.00m, N=12 (1,2/2,3,3,4)	5
Zone of core loss attributable to SPT disturbance with minimal recovery of saturated comminuted chalk.						5.00	20.50											
Partial recovery (50% possible dislocation from above zone of core loss) of saturated Structureless CHALK composed of cream slightly gravelly SILT. Gravel is angular to subangular fine to medium very weak low density chalk. Rare angular fine to coarse flint. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm).						5.75	19.75											
										5.00								
										6.50								
										6.00 - 6.10	D13							
(Saturated) Structureless CHALK composed of cream slightly gravelly SILT. Gravel is angular to subangular fine to medium very weak low density chalk. Rare angular fine to coarse flint. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm)						6.50	19.00											
										6.90 - 7.00	D14							
										7.30 - 7.40	D15							
										6.50								
										8.00								
										NI								
										100								
										0								
Structureless CHALK composed of cream, fine to medium, subangular, GRAVEL. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc) **						7.70	17.80											
										7.80 - 7.90	D16							
Zone of core loss attributable to SPT disturbance. **						8.00	17.50											
...from 8.00 to 30.50m bgl: minor striations on core assumed to be from the core catcher noted throughout.						8.10	17.40											
										8.00 - 8.45	SPTLS1	7					SPT(S) 8.00m, N=20 (2,3/3,3,5,9)	8
Significant drilling disturbance. Recovered as non-intact weak medium density white gritty shelly fine to coarse CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc / Possibly structured prior to drilling disturbance)																		
										8.00								
										NI								
										90								
										20								
										10								
Weak, low to medium density, white gritty shelly CHALK with orangish brown staining and abundant shell fragments including mytilids. Discontinuity set 1) Bedding is 0 to 10 degrees closely spaced undulating rough partially open. [60 ? / 80 ? / 100 ?] Discontinuity set 2) Joints are 80 to 90 degrees planar rough tight with orangish brown staining. (HOLLYWELL NODULAR CHALK FORMATION, low density, Grade C3 ?)						9.20	16.30											
										8.90 - 9.00	DPLT							
										9.40 - 9.50	DPLT							
							</											

<div><div><div><div><div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div></div>										<div>Easting: 551324.00</div> <div>Level: 25.50mAOD</div> <div>Logger: CE</div>				<div>Northing: 249657.00</div> <div>Depth: 30.50m</div> <div>Type: RC</div> <div>Inclination: 90°</div>				<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-03</div>	
														Sheet 2 of 4							
Method, Plant and Crew								Diameter		Casing				Drilling Progress by Time				Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	18/03	18:00	30.50	-	-	Approved By:	CP						
1.20	5.00	Dynamic Windowless Sampling Rotary Core	Beretta T59	T. Parkin	5.00	-			19/03	08:30	30.50	-	-	Start Date:	18/03/2021						
5.00	30.50		Beretta T59	T. Parkin	30.50	-								Finish Date:	18/03/2021						
Strata Description								Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
													Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Significant drilling disturbance. Recovered as non-intact weak medium density white gritty shelly fine to coarse CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc / Possibly structured prior to drilling disturbance)									10.40	15.10			10.50 - 10.60	DPLT	9.50 11.00	NI	90	40	10	SPT(S) 11.00m, N=32 (3,5/6,7,8,11)	
Weak medium density white gritty shelly CHALK with orangish brown staining and abundant shell fragments including mytiloids. Discontinuity set 1) Bedding is 0 to 10 degrees closely spaced undulating rough partially open [60 ? / 80 ? / 100 ?] Discontinuity set 2) Joints are 80 to 90 degrees planar rough tight with orangish brown staining. (HOLLYWELL NODULAR CHALK FORMATION, Grade C3 ?)									11.00	14.50			11.00 - 11.45	SPTLS		NR					
Zone of core loss attributable to SPT disturbance. **									11.22	14.28			11.40 - 11.50	DPLT							
Significant drilling disturbance. ** Recovered as non-intact weak medium density white gritty shelly fine to coarse CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc / Possibly structured prior to drilling disturbance)									11.60	13.90					11.00 12.50	NI	85	20	20	SPT(S) 14.00m, N=30 (3,4/4,6,7,13)	
Weak, medium-density white gritty shelly CHALK with orangish brown staining and abundant shell fragments including mytilids. Discontinuity set 1) Bedding is 0 to 10 degrees closely spaced undulating rough partially open. Discontinuity set 2) Joint is 80 to 90 degrees planar rough tight with orangish brown staining. (HOLLYWELL NODULAR CHALK FORMATION, ?) ** Intact core section noted from photo.									11.75	13.75			12.00 - 12.10	DPLT							
Significant drilling disturbance. ** Recovered as non-intact weak medium density white gritty shelly fine to coarse CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc / Possibly structured prior to drilling disturbance)									12.35	13.15						ND					
Weak, medium-density white gritty shelly CHALK with orangish brown staining and abundant shell fragments including mytilids. (HOLLYWELL NODULAR CHALK FORMATION, ?) ** Intact core section noted from photo.									12.50	13.00			12.90 - 13.00	DPLT		NR				SPT(S) 17.00m, 50 (25 for 120mm/50 for 45mm)	
Zone of core loss.									12.65	12.85											
Significant drilling disturbance. ** Recovered as non-intact weak medium density white gritty shelly fine to coarse CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc / Possibly structured prior to drilling disturbance)									13.25	12.25			13.50 - 13.60	DPLT	12.50 14.00	ND	90	20	20		
Weak, medium-density white gritty shelly CHALK with orangish brown staining and abundant shell fragments including mytilids. Discontinuity set 1) Bedding is 0 to 10 degrees closely spaced undulating rough partially open. Discontinuity set 2) Joint is 80 to 90 degrees planar rough tight with orangish brown staining. (HOLLYWELL NODULAR CHALK FORMATION, ?) ** Intact core section noted from photo.									13.55	11.95			13.90 - 14.00 14.00 - 14.45	DPLT SPTLS		NI				SPT(S) 20.00m, 50 (25 for 35mm/50 for 45mm)	
Significant drilling disturbance. ** Recovered as non-intact weak medium density white gritty shelly fine to coarse CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc / Possibly structured prior to drilling disturbance)									14.00	11.50			14.50 - 14.60	DPLT	14.00 15.50	14	95	60	10		
Weak, medium-density white CHALK with orangish brown staining and abundant shell fragments. Discontinuity set 1) Bedding is 0 to 10 degrees closely spaced undulating rough partially open [50/80/180]. Discontinuity set 2) Joints are 80 to 90 degrees planar rough tight with orangish brown staining. (HOLLYWELL NODULAR CHALK FORMATION, Grade C3) ...from 15.20m bgl: becoming greenish grey.									15.50	10.00			15.20 15.20 - 15.30	PLT DPLT							
Zone of core loss									15.65	9.85							NR				
Weak to moderately weak, low to medium-density light greenish grey yellowish grey CHALK with orangish brown staining and rare shell fragments. Discontinuity set 1) Bedding is 0 to 10 degrees closely to medium spaced undulating smooth tight and clean [60/100/220]. Discontinuity set 2) Joints are 60 to 80 degrees planar rough tight and clean. (HOLLYWELL NODULAR CHALK FORMATION, low to medium density, Grade B3)													15.50 17.00		11	90	70	33	SPT(S) 17.00m, 50 (25 for 120mm/50 for 125mm)		
Weak, low to medium-density greenish grey with yellowish staining marly CHALK. Frequent zoophycos streaks and wispy grottles throughout. Discontinuity 1) Joints are 80 to 90' planar rough tight to closed and clean. Discontinuity 2) Bedding is 0 to 10', very close to close, undulating smooth partly open to tight and clean [20/40/70]. (PLENUS MARLS MEMBER, HOLLYWELL NODULAR CHALK FORMATION, Grade B4) ...from 17.25m bgl: becoming pale grey. ...at 17.30m bgl: marl seam. ...from 17.40 to 17.52m bgl: band of intraclastic chalk. ** ...at 17.80m bgl: marl seam. ...at 18.01m bgl: marl seam. ...at 18.30m bgl: marl seam.									17.00	8.50			16.80 - 16.90 17.00 - 17.45	PLT DPLT SPTLS3 1		NI					
												17.30	PLT								
													17.00 18.50		21	100	80	0	SPT(S) 20.00m, 50 (25 for 35mm/50 for 45mm)		
												18.10 - 18.20	DPLT								
Weak, medium-density white and pale grey, with black speckling along fracture planes, CHALK. Discontinuity 1) Joints are 60 to 80' planar smooth. Discontinuity 2) Bedding is 0 to 10, close to medium, planar smooth tight to closed and clean. [80/120/210] (ZIG ZAG CHALK FORMATION, Grade A3)									18.40	7.10			18.70 - 18.80	DPLT							
													18.50 20.00		15	100	90	7	SPT(S) 20.00m, 50 (25 for 35mm/50 for 45mm)		
												19.50 - 19.60	DPLT								
									20.00	5.50			20.00 - 20.45	SPTLS							
Observations / Remarks										Drilling Fluid				Hammer Information							
1. Groundwater strike at 2.60, rising to 1.95m bgl (20minutes). 2. Upon completion exploratory hole backfilled with bentonite. 3. Minor striations from a new core catcher noted on core photographs from 8.00 to 30.50m bgl. * Denotes drillers description ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
										1.20	30.50			Air / Mist	BB4	63					
										Groundwater				Project Number							
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563					

[illegible]

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-OBC-03				
					Easting: 551324.00 Northing: 249657.00 Level: 25.50mAOD Depth: 30.50m Logger: CE Type: RC Inclination: 90°											
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50		
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT	
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20 5.00 30.50	300 - -	13.50	150	18/03 19/03	18:00 08:30	30.50 30.50	- -		Approved By:	CP	
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
										Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD
Weak, medium-density white and pale grey, with black speckling along fracture planes, CHALK. Discontinuity 1) Joints are 60 to 80' planar smooth. Discontinuity 2) Bedding is 0 to 10' close to medium, planar smooth, tight to closed and clean [70/150/310]. (ZIG ZAG CHALK FORMATION, medium density, Grade A3) EOH at 30.50m - Target depth achieved.						30.50	-5.00			30.10 - 30.20	DPLT					

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status		Borehole Number								
					Easting: 551344.00 Northing: 249667.00 Level: 25.46mAOD Depth: 30.50m Logger: CE Type: RC Inclination: 90°															
							FINAL		BH-OBC-04											
									Sheet 1 of 4											
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20 5.00 30.50	300 - -	13.50	150	15/03 16/03	18:00 18:00	18.50 30.50	- -	-	Approved By:	CP					
															Start Date: 15/03/2021					
															Finish Date: 16/03/2021					
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
<p>MADE GROUND: Soft dark brown slightly sandy, slightly gravelly CLAY. Sand is fine. Gravel comprises angular to subangular, fine to medium flint, with occasional fine chalk and a low flint cobble content. (TOPSOIL)</p> <p>MGR(TS)</p> <p>Soft to firm light orangish brown sandy, slightly gravelly CLAY with fine gravel size pockets of orange brown fine to medium sand. Sand is fine to medium Gravel comprises angular to subangular, fine to coarse flint with a low flint cobble content. (ALLUVIUM)</p> <p>ALV</p> <p>Loose light grey very sandy clayey GRAVEL. Gravel is fine to medium flint. Sand is fine to medium. (RIVER TERRACE DEPOSITS)</p> <p>RTD</p> <p>Firm light grey occasionally mottled orange very gravelly, sandy CLAY. Gravel is subangular to subrounded. fine to medium flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)</p> <p>RTD</p> <p>Medium dense orangish brown mottled grey clayey gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint and chalk with localised pockets of very sandy clay. (RIVER TERRACE DEPOSITS)</p> <p>RTD</p> <p>Firm grey gravelly sandy CLAY. Gravel is subangular, fine to coarse flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)</p> <p>RTD</p> <p>...from 2.00m to 2.50m bgl: highly disturbed from SPT.</p> <p>Medium dense orangish brown mottled grey clayey gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint and chalk with localised pockets of very sandy clay. (RIVER TERRACE DEPOSITS)</p> <p>RTD</p> <p>Structureless CHALK composed of silty subangular gravel. Gravel is very weak, low-density, subangular to subrounded fine to medium white with rare brown staining. Chalk matrix is uncompact and cream subangular silt. Rare gravels of subangular flint. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)</p>						0.45	25.01			0.10 0.20	ES1 ES2									
											0.50 0.50 0.50 - 1.00	B B1 D								
											1.00 1.00	B B2 D								
											1.20 - 1.65 1.20 - 1.65 1.30 - 1.40	SPTLS1 D								SPT(S) 1.20m, N=8 (2,2/1,2,2,3)
																1.20 2.00		100	0	0
											1.80	23.66				1.80 - 1.90	D			
											2.00	23.46				2.00 - 2.45 2.00 - 2.45 2.20 - 2.30	D SPTLS2 D			
																				SPT(S) 2.00m, N=20 (2,2/3,4,5,8)
																2.00 3.00		100	0	0
											2.80	22.66								
						3.00	22.46				3.00 - 3.45 3.10 - 3.20	SPTLS3 D								
															SPT(S) 3.00m, N=5 (1,1/1,2,1,1)					
											3.60 - 3.70	D								
											4.00 - 4.45 4.20 - 4.30	SPTLS4 D								
															SPT(S) 4.00m, N=5 (1,0/0,1,1,3)					
											4.00 5.00		100	0	0					
											4.70 - 4.80	D								
											5.00 - 5.45	SPTLS6								
											5.30 - 5.40	D								
											5.00 6.50		NI	100	0	0				
											6.20 - 6.30	D								
											6.90 - 7.00	D								
											6.50 8.00		NI	100	0	0				

<div><div><div><div><div><div></div></div><div><div>Tt</div></div></div><div><div>TETRA TECH</div></div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="5">Location Details</td> <td colspan="2">Status</td> <td colspan="3">Borehole Number</td>										Location Details					Status		Borehole Number						
					Easting: 551344.00		Northing: 249667.00		FINAL		BH-OBC-04												
					Level: 25.46mAOD		Depth: 30.50m																
					Logger: CE		Type: RC																
					Inclination: 90°						Sheet 2 of 4												
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT								
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	15/03	18:00	18.50	-	-	Approved By:	CP								
1.20	5.00	Dynamic Windowless Sampling	Beretta T59	T. Parkin	5.00	-			16/03	18:00	30.50	-	-	Start Date:	15/03/2021								
5.00	30.50	Rotary Core	Beretta T59	T. Parkin	30.50	-								Finish Date:	16/03/2021								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring											
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results				
Drilling disturbed: Recovered as non-intact very weak, low-density coarse, subangular to subrounded, off-white with light orange brown staining CHALK gravel, possibly disturbed intracrastic chalk. ** (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc ?)								10.10	15.36			10.30 - 10.40	DPLT	9.50 11.00	NI	70	40	10					
Drilling disturbed: Very weak, low-density white with yellow staining and brown specks gritty shelly intracrastic CHALK. Some discernible structure: Discontinuities in bedding areas are close [50 ? / 60 ? / 70?], open and infilled with gravelly silty comminuted chalk. Undulating sub-horizontal joints difficult to determine due to drilling induced fractures. (HOLLYWELL NODULAR CHALK FORMATION, Grade C ? 3 ?)								11.00	14.46			10.90 - 11.00	DPLT						SPT(S) 11.00m, N=15 (2,3/3,4,4,4)				
Zone of core loss attributable to SPT disturbance and blow out.								11.15	14.31			11.00 - 11.45	SPTLS8		NR								
Drilling disturbed: Recovered as non-intact very weak, low-density coarse, subangular to subrounded off white with light orange brown staining gritty shelly CHALK gravel, possibly disturbed intracrastic / structured chalk but more likely to be Grade Dc. **. Shells are mytilids. (HOLLYWELL NODULAR CHALK FORMATION, Grade Dc ?)												11.50 - 11.60	D	11.00 12.50	NI	90	5	0					
												12.80 - 12.90	D		NR								
												13.30 - 13.40	DPLT	12.50 14.00	NI	80	10	0					
...from 13.70m to 13.77m bgl: band of yellow grey staining.								13.80	11.66			13.80 - 13.90	DPLT										
Weak, low-density white with brown specks gritty shelly CHALK. Shells are mytilids. Discontinuity 1). Bedding is subhorizontal, close spaced [50/60/60], tight or partly open and infilled with silt or clean, rough undulating. Discontinuities 2) Joints are difficult to discern / describe due to drilling induced fractures. (HOLLYWELL NODULAR CHALK FORMATION, Grade B ? 3 ?)								14.00	11.46			14.00 - 14.45	SPTLS9		NI				SPT(S) 14.00m, N=29 (4,6/8,5,7,9)				
Significant drilling disturbance and possibly intraclastic recovered as fine to medium gravel ** with 50 to 100mm thick bands / pockets of Weak, low-density white with brown specks gritty shelly CHALK. Shells are mytilids. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade B ? 3 ?)												14.00 15.50			100	33	0						
Weak, low-density white with brown specks gritty shelly CHALK. Shells are mytiloids. Discontinuity 1) Joints difficult to discern due to drill induced fracture: clean, tight and subvertical. Discontinuity 2) Bedding is close, partly open, infilled with silt or clean. Rough undulating subhorizontal [50/60/60]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3 ?)								15.00	10.46			15.30 - 15.40	DPLT		ND								
...at 15.10m bgl: heavy orange brown staining.								15.50	9.96						NR								
Zone of core loss attributable to blow out.								15.65	9.81						NI								
Significant drilling disturbance, recovery non-intact: Weak, low-density white with brown specks gritty shelly CHALK. gravel Shells are mytilids. (HOLLYWELL NODULAR CHALK FORMATION, ?)								16.10	9.36			16.00 - 16.10	EW4 DPLT	15.50 17.00		90	50	10					
Weak, low to medium-density greenish grey and white marly CHALK. Orange brown staining along fracture planes and occasional black specks throughout. Wispy griotes throughout. Discontinuity 1) Sub vertical joints are clean and tight. Discontinuity 2) Bedding is sub horizontal 0 - 10 ' , close, open or tightly closed, clean or partly filled with silt, rough and undulating [50/100/150]. (PLENUS MARLS MEMBER, HOLLYWELL NODULAR CHALK FORMATION, Grade B3)												16.70 - 16.80	DPLT		ND/ >10								
...from 16.85 to 16.95: significant drilling disturbance recovered as fine gravel - possible brecciated infill**.												17.00 - 17.45	SPTLS10						SPT(S) 17.00m, 50 (9,13/50 for 225mm)				
...from 17.20 to 17.30: significant drilling disturbance recovered as coarse gravel - possible turning at 17.30 on a marl seam**												17.20 - 17.30	DPLT										
...from 17.55 to 17.65: significant drilling disturbance recovered as coarse gravel - with possible matrix blow out. **															NI/14 ?	100	70	60					
...from 17.70 to 17.75: core catcher striations noted - slightly inclined and indicative of possible turning (see 17.80 to 18.05) **												17.00 18.50											
...from 17.80 to 18.05: significant drilling disturbance recovered as fine to coarse gravel - possible turning at 17.80 on a marl seam **								18.00	7.46			18.25	CUCS										
Weak, low to medium-density white with black specks and rare orange brown staining CHALK. Occasional wispy griotes throughout. Discontinuity 1) Bedding is Subhorizontal 0 - 10' , close to medium, tight and clean, rough and planar [50/100/150]. (ZIG ZAG CHALK FORMATION, low density, Grade A3)												18.80 18.80 - 18.90	CPLT DPLT										
...from 18.30 to 18.50m bgl: core catcher striations.																							
...from 18.50 to 18.70m bgl: with core catcher striations **												18.50 20.00		15	100	33	20						
...from 18.50 to 18.80: significant drilling disturbance recovered as coarse gravel / cobbles **												19.50 19.50 - 19.60	CPLT DPLT										
...from 18.70 to 20.00m bgl: locally non-intact and recovered as fine, angular gravel. **												20.00 - 20.45	SPTLS11						SPT(S) 20.00m, 50 (25 for 85mm/50 for 95mm)				
Observations / Remarks										Drilling Fluid					Hammer Information								
1. Groundwater encountered at 1.00, rising to 0.86m bgl (20 minutes).										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %							
2. Upon completion exploratory hole installed with 50mm groundwater monitoring pipes to 3.00 and 19.00m bgl.										1.20	30.50			Air / Mist	BB4	63							
* Denotes drillers description										Groundwater					Project Number								
** Denotes observation from core photo										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks								
NR - No Recovery																							
NI - Non-intact																							
ND - Not discernible															784-B025563								

<div><div><div><div><div><div></div></div><div><div>Tt</div></div></div><div><div>TETRA TECH</div></div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						<div>Location Details</div> <div>Easting: 551344.00 Northing: 249667.00</div> <div>Level: 25.46mAOD Depth: 30.50m</div> <div>Logger: CE Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-04</div>					
												Sheet 3 of 4							
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT					
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	15/03	18:00	18.50	-	-	Approved By: CP					
1.20	5.00	Dynamic Windowless Sampling	Beretta T59	T. Parkin	5.00	-			16/03	18:00	30.50	-	-	Start Date: 15/03/2021					
5.00	30.50	Rotary Core	Beretta T59	T. Parkin	30.50	-								Finish Date: 16/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
Weak, low to medium-density white with black specks and rare orange brown staining CHALK. Occasional wispy griotes throughout. Discontinuity 1) Bedding is Subhorizontal 0 - 10' , close to medium, tight and clean, rough and planar [50/100/150]. (ZIG ZAG CHALK FORMATION, low density, Grade A3) ...from 20.00 to 24.40: with core catcher striations. Localised non-intact 20 to 50mm diameter / thickness pockets / layers of fine gravel - probably drilling induced ** ...from 23.80m bgl: pyritised trace fossils. Drilling induced zones of fractures up to 50mm along discontinuity planes. Heavy black speckling along joint planes. Apertures are smooth and planar. ...from 25.10 to 25.20m bgl: chonical core section ends with slight orange staining - possible turning on a marl seam **												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
												20.20 - 20.30	DPLT						
												20.80 - 20.90	DPLT	20.00 21.50	12	100	66	33	
												21.50 21.50 - 21.60	CPLT DPLT						
												21.90 - 22.00	DPLT						
												21.50 23.00		10	100	80	50		
												22.50 - 22.60	DPLT						
												23.00 - 23.45	SPTLS12					SPT(S) 23.00m, 50 (25 for 25mm/50 for 40mm)	
												23.20 23.20 - 23.30	CPLT DPLT						
												23.00 24.50		12	100	90	20		
												24.00 - 24.10	DPLT						
												24.40 - 24.50	DPLT						
												24.80 24.80 - 24.90	CPLT DPLT						
												24.50 26.00		11	95	90	40		
												25.80 - 25.90	DPLT						
Zone of core loss attributable to SPT disturbance and blow out.							26.00	-0.54				26.00 - 26.45	SPTLSPLT		NR			SPT(S) 26.00m, 50 (25 for 10mm/50 for 40mm)	
Weak low to medium-density white with black specks and rare orange brown staining CHALK. With core catcher striations and localised non-intact 20 to 50mm diameter / thickness pockets / layers of fine gravel throughout - probably drilling induced ** . Occasional wispy griotes and pyritised trace fossils throughout. Substantial drilling induced fractures throughout. Discontinuity 1) Joints are subvertical 70-90' , tight and clean. Heavy black speckling along joint planes. Discontinuity 2) Bedding is subhorizontal 0 - 10' , close to medium, tight and clean, rough and planar [50/100/150]. (ZIG ZAG CHALK FORMATION, medium density, Grade A3)							26.15	-0.69				26.20 - 26.30	DPLT						
												26.00 27.50		9	90	20			
												27.30 - 27.40	DPLT						
												27.90 - 28.00	DPLT						
												27.50 29.00		9	100	50			
												28.50 28.50 - 28.60	CPLT DPLT						
Significant drilling / SPT induced disturbance recovered as Weak low to medium density white with black specks and rare orange brown staining CHALK. gravel. Occasional wispy griotes throughout. Discontinuities not discernible due to drilling disturbance. (ZIG ZAG CHALK FORMATION, ?)							29.00	-3.54				29.00 - 29.45	SPTLSPLT		NR			SPT(S) 29.00m, 50 (25 for 10mm/50 for 15mm)	
												29.20 - 29.30	DPLT						
												29.00 30.50		NI	90	10			
Observations / Remarks											Drilling Fluid				Hammer Information				
1. Groundwater encountered at 1.00, rising to 0.86m bgl (20 minutes). 2. Upon completion exploratory hole installed with 50mm groundwater monitoring pipes to 3.00 and 19.00m bgl. * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
											1.20	30.50			Air / Mist	BB4	63		
											Groundwater					Project Number			
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks			
											784-B025563								

[illegible]

<div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>								Location Details				Status FINAL		Borehole Number BH-OBC-05																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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1.20	5.00	Dynamic Windowless Sampling	Beretta T59	T. Parkin	5.00	-			15/03	18:00	30.50			Start Date: 12/03/2021																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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MADE GROUND: Soft to firm brown, gravelly, sandy, very clayey SILT. Sand is fine to coarse. Gravel is sub-angular to angular, fine to coarse flint and occasional chalk. Frequent rootlets. (TOPSOIL)								0.40	25.01																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

Project: Cambridge South East Transport – Phase 2										Location Details				Status		Borehole Number								
Location: Cambridge										Easting: 551353.00 Northing: 249660.00				FINAL		BH-OBC-05								
Client: Greater Cambridge Partnership										Level: 25.41mAOD Depth: 30.50m														
										Logger: DC				Type: RC										
										Inclination: 90°														
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time						Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT									
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	12/03	18:00	17.00	-	-	Approved By:	CP									
1.20	5.00	Dynamic Windowless Sampling Rotary Core	Beretta T59 Beretta T59	T. Parkin T. Parkin	5.00 30.50	- -			15/03	18:00	30.50	-	-	Start Date:	12/03/2021									
5.00	30.50													Finish Date:	15/03/2021									
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring												
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results					
Significant drilling disturbance. Structureless CHALK recovered as brown speckled gravelly comminuted off-white SILT with some shell fragments. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc ?)												10.10 - 10.20	D											
														9.50 11.00	NI	100	15	0						
Very weak to weak, low to medium-density off-white speckled brown very shelly gritty CHALK. Discontinuity 1) Joints 60 to 80', inclined, open, infilled with chalk clasts and commuted chalk, rough, undulating, brown stained. Discontinuity 2) Bedding 0 to 10', very close to close, open, infilled with chalk clasts and commuted chalk, rough, undulating, brown stained [20/30/40]. (HOLLYWELL NODULAR CHALK FORMATION, low density, Grade B5)								10.66	14.75			10.90 - 11.00	DPLT						11					
												11.30 - 11.40	DPLT											
Very weak to weak, low to medium-density, brown speckled, very shelly gritty CHALK. Shells comprise mytilids, other unidentified bivalves, and brachiopods. Discontinuity 1). Joints 60 to 80', inclined, undulating, rough, open and infilled with chalk clasts and commuted chalk, brown stained. Discontinuity 2) Bedding 0 to 10' , close, rough, undulating, open and infilled with chalk clasts and commuted chalk, brown stained [70/110/130]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 11.90m to 12.33m bgl: intraclastic chalk conglomerate with white chalk and very heavily brown speckled chalk clasts in a chalk matrix. ...from 12.00m bgl medium-density chalk. ...at 12.49m bgl:10mm thick marl seam with chalk intraclasts. ...at 12.55m bgl: with orange staining. ...at 13.25m bgl: with orange staining. ...at 13.60m bgl: with orange staining. ...at 13.95m bgl: with orange staining. ...from 14.40 to 14.70m bgl: Non-intact, possibly intraclastic. ** ...from 14.60m to 14.82m bgl: moderate orange staining. ...at 15.00m bgl: slight orange staining and 5mm thick pale grey slightly plastic marl seam.								11.66	13.75			12.40 - 12.50 12.50 - 12.60 12.50 - 12.95	DPLT DPLT SPTLS		16	100	50	0		SPT(S) 12.50m, N=30 (2,3/5,8,9,8)	12			
												13.00 - 13.10	DPLT		12.50 14.00	14	100	45	0	13				
												13.70 - 13.80	DPLT											
												14.40 - 14.50	DPLT			NI ND NI				14				
												14.00 15.50	DPLT DPLT				76	21	0					
												15.00 - 15.10	DPLT			16				15				
												15.40 - 15.50 15.50 - 15.95	DPLT SPTLS							SPT(S) 15.50m, N=50 (5,9/50 for 240mm)	16			
Very weak to weak, low to medium-density, white CHALK with brown speckles. Discontinuity 1) Joints are 70 to 90', closed to open, clean, slightly undulating. Polished some with a smear of greenish brown and grey clay with lots of black and brown speckles/ staining. Discontinuity 2) Bedding 0 to 10', close, closed to open, clean, slightly undulating. Polished some with a smear of greenish brown and grey clay with lots of black and brown speckles/staining [60/120/160] (MELBOURN ROCK MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 15.90m to 15.93m bgl: slight orange staining. ...from 16.07m bgl: with slight orange staining around joints. ...from 16.78m to 16.84m bgl: slight greenish grey marl. ...at 17.27m bgl: moderate orange staining.								15.50	9.91			16.50	D											
Weak, medium and high-density, slightly greenish white CHALK with greenish grey marl seams up to 60mm thick, black zoophycos streaks and rare orange staining. Discontinuity 1) Joints are 80 to 90' , closed to open, clean, undulating, polished with heavy brown speckles. Discontinuity 2) Bedding 0 to 10' , close, undulating, rough, closed to open, clean, with heavy black speckles and some orange staining [60/100/230] (PLENUS MARLS MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 17.61m to 17.66m bgl greenish grey slightly plastic marl seam. ...from 17.95m to 18.02m bgl: greenish grey slightly plastic marl seam. ...from 17.95m to 18.14m bgl: slight orange staining. ...from 18.08m to 18.10m bgl: greenish grey slightly plastic marl seam. ...from 18.19m to 18.23m bgl: greenish grey slightly plastic marl seam. ...from 18.31m bgl: greenish grey slightly plastic marl seam.								17.48	7.93			17.00	DPLT											17
Zone of core loss attributed to SPT disturbance and blow out. Weak, medium and high-density, slightly greenish white CHALK with greenish grey marl seams up to 60mm thick, black zoophycos streaks and rare orange staining. Discontinuity 1) Joints are 80 to 90' , closed to open, clean and polished with heavy brown speckles. Discontinuity 2) Bedding 0 to 10' , close, closed to open, undulating, rough, clean with heavy black speckles and some orange staining [60/100/230]. (PLENUS MARLS MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 19.24m to 19.32m bgl: greenish grey marl seam.												17.40 - 17.50	D		17.00 18.50	10	100	59	27					
												18.40 18.50 - 18.95	DPLT SPTLS			NR				SPT(S) 18.50m, 50 (25 for 15mm/50 for 30mm)	18			
								18.50	6.91															
								18.98	6.43												19			
								19.34	6.07															
												20.00 - 20.10	D								20			
Observations / Remarks										Drilling Fluid						Hammer Information								
1. Groundwater strike at 2.80, rising to 2.71m bgl (20 minutes) 2. Upon completion exploratory hole backfilled with bentonite * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not discernible										From (m) To (m) Return Min % Colour Type						Serial No. Energy Ratio %								
										1.20 30.50						BB4 63								
										Groundwater						Project Number								
										Strike (m) Casing (m) Sealed (m) Time (min) Rose To (m) Remarks														
																784-B025563								

		Project: Cambridge South East Transport – Phase 2		Location Details				Status		Borehole Number										
		Location: Cambridge		Eastings: 551353.00		Northing: 249660.00		FINAL		BH-OBC-05										
		Client: Greater Cambridge Partnership		Level: 25.41mAOD		Depth: 30.50m														
				Logger: DC		Type: RC		Inclination: 90°		Sheet 3 of 4										
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time				Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	12/03	18:00	17.00	-	-	Approved By:	CP					
1.20	5.00	Dynamic Windowless Sampling	Beretta T59	T. Parkin	5.00	-			15/03	18:00	30.50			Start Date:	12/03/2021					
5.00	30.50	Rotary Core	Beretta T59	T. Parkin	30.50	-								Finish Date:	15/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Very weak to weak, low to medium-density white CHALK with rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 90' , closed with black speckles, undulating, smooth. Discontinuity 2) Bedding 0 to 10' , close, undulating, closed and smooth with black speckles [20/40/100]. (ZIG ZAG CHALK FORMATION, Grade A4) ...from 20.56m bgl: with some pale grey trace fossil marks. ...at 20.97m bgl : slight orange staining. ...at 21.16m bgl: some orange staining and mineralisation. ...at 21.37m bgl: orange stained sponge bed. ...at 21.65m bgl: 3mm thick white slightly plastic marl seam.								21.80	3.61			20.00 21.50		20	100	21	7			SPT(S) 21.50m, 50 (25 for 25mm/50 for 40mm)
Very weak to weak, low to medium-density white CHALK with rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 90' , closed, undulating, smooth with black speckles. Discontinuity 2) Bedding is 0 to 10' , close, closed, undulating, smooth with black speckles [80/100/150]. (ZIG ZAG CHALK FORMANTION, Grade A3) ...from 21.83m to 21.88m bgl: grey marl seam with orange stained core. ...from 22.00m bgl: with thin wispy griotte marls and 10mm thick cemented plastic grey marl seam. ...at 22.50m bgl: orange mineralisation.												21.50 21.50 - 21.95 21.60	DPLT SPTLS DPLT							
												22.00	DPLT							
												21.50 23.00		17	100	78	17			
												22.90	DPLT							
												23.10	DPLT							
												23.40	DPLT							
												23.00 24.50		13	100	55	17			
												24.20 - 24.25	CSS							
												24.40 24.50 - 24.95 24.60	DPLT SPTLS DPLT						SPT(S) 24.50m, 50 (25 for 10mm/50 for 15mm)	
												25.00	DPLT							
												24.50 26.00		14	100	64	15			
												25.90	DPLT							
												26.00 - 26.10	DPLT							
Very weak to weak, low to medium-density white CHALK with rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 90' , closed undulating, smooth with black speckles. Discontinuity 2). Bedding 0 to 10' , close, undulating, smooth with black speckles, open and infilled. [90/140/180]. (ZIG ZAG CHALK FORMATION, low density, Grade B3) ...from 26.00m bgl: occasional orange staining and mineralisation with trace fossil burrows. ...at 26.50m bgl: slight orange staining. ...at 26.88m bgl: slight orange mineralisation.								26.00	-0.59			26.70 - 26.80	DPLT	26.00 27.50	12	100	90	30		
												27.40 - 27.50 27.50 - 27.95	DPLT SPTLS						SPT(S) 27.50m, 50 (25 for 10mm/50 for 25mm)	
												28.00 - 28.10	DPLT							
												27.50 29.00		12	100	82	38			
												28.60 - 28.70	DPLT							
												29.20 - 29.30	DPLT							
												29.00 30.50		9	92	27	27			
												30.00 - 30.10	DPLT							
Observations / Remarks											Drilling Fluid					Hammer Information				
1. Groundwater strike at 2.80, rising to 2.71m bgl (20 minutes) 2. Upon completion exploratory hole backfilled with bentonite * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											1.20	30.50			Air / Mist	BB4	63			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
																784-B025563				

[illegible][illegible]

<div><div><div>Tt</div></div><div>TETRA TECH</div></div>		Project: Cambridge South East Transport – Phase 2		Location Details				Status		Borehole Number										
		Location: Cambridge		Easting: 551335.00 Northing: 249644.00																
		Client: Greater Cambridge Partnership		Level: 25.55mAOD Depth: 30.50m		FINAL		BH-OBC-06												
				Logger: DC Type: RC																
				Inclination: 90°																
Method, Plant and Crew						Diameter		Casing				Drilling Progress by Time				Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	17/03	18:00	17.45	-	-	Approved By:	CP					
1.20	4.00	Dynamic Windowless Sampling Rotary Core	Beretta T59 Beretta T59	T. Parkin T. Parkin	4.00	-			18/03	18:00	30.50			Start Date:	17/03/2021					
4.00	30.50				30.50	-								Finish Date:	18/03/2021					
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Recovery non-intact: Extremely weak to very weak, low to medium-density, white with occasional orange staining and brown specks, gritty CHALK gravel with abundant shell fragments (mainly mytilids and brachiopods). Some structure discernible: Discontinuity set 1) Joints are 80 - 90 ' undulating rough partially open to open and clean. Discontinuity set 2) Bedding is 0 - 10 ' open up to 30mm infilled with comminuted chalk and chalk clasts with some orange staining undulating rough [30 ? / 50 ? / 200 ?]. (HOLLYWELL NODULAR CHALK FORMATION, low to medium density, Grade C4 ?) ...at 10.18m bgl: moderate orange staining. ...from 10.37 to 10.55m bgl: slight orange staining.											10.80 - 10.90	DPLT		9.50 11.00	NI	86	33	13	SPT(S) 11.00m, N=29 (2,3/5,6,9,9)	
												11.00 - 11.45	SPTLS							
Extremely weak to very weak, low to medium-density, white with occasional orange staining and brown specks, gritty CHALK with abundant shell fragments (mainly mytilids and brachiopods). Discontinuity set 1) Joints are 80 - 90 ' undulating rough partially open to open and clean. Discontinuity set 2) Bedding is 0 - 10 ' partly open to open up to 30mm infilled with comminuted chalk and chalk clasts with some orange staining undulating rough [40/80/140]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C3) ...from 11.50 to 14.00m bgl: pockets of medium density CHALK. ...from 12.00m bgl: some large mytilid shell fragments noted. ...at 12.10m bgl: slight orange staining.							11.30	14.25			11.30 - 11.40	DPLT			11.00 12.50		95	60	0	SPT(S) 14.00m, N=50 (7,10/50 for 230mm)
												12.30 - 12.40	DPLT							
...at 13.00m bgl: thin wispy griotte marls. ...at 13.10m bgl: small Mytaloides labiatus and Orbirhynchia cuvieri (brachiopod). ...at 13.32m bgl: some slight orange staining.											13.00 - 13.10	DPLT		12.50 14.00	14	95	30	0		
												13.80 - 13.90	DPLT							
...from 14.00m bgl: becoming less shelly and gritty.											14.00 - 14.45	DPLT								
												14.50 - 14.60	DPLT							
...at 14.62m bgl: slightly plastic 10mm thick marl seam with embedded small chalk clasts.													14.00 15.50	14	89	10	0			
Very weak to weak, low to medium-density, yellowish white CHALK with some shell fragments. Discontinuity 1). Joints 90 sub vertical, closed to partially open, clean slightly undulating rough slightly polished with black, orange and brown staining with occasional pockets/nodules of high density chalk. Discontinuity 2). Bedding 0 - 10 subvertical closed and partially open clean with some white chalk clasts slightly undulating rough with orange, black and orange staining. [60/100/120]. (MELBOURN ROCK MEMBER, HOLLYWELL NODULAR CHALK FORMATION, medium density, Grade B3). ...at 15.40m bgl: Orbirhynchia cuvieri (brachiopod) noted. ...at 16.18m bgl: moderate orange staining. ...between 16.36m and 16.50m bgl: heavy orange staining. ...at 16.80m bgl: thin grey cemented wispy griotte marls. ...from 16.80 to 16.85m bgl: polished striated infilled with grey and black with orange staining 30' inclined fracture.							15.27	10.28			15.30 - 15.40	DPLT								
												15.80 - 15.90	DPLT							
Zone of core loss attributable to SPT disturbance and blow out. Very weak to weak, low to medium-density, yellowish white CHALK with multiple black zoophycos and wispy griotte marls with occasional thick slightly plastic greenish grey orange stained marl seams up to 100mm, but usually 20 to 30mm thick. Discontinuity set 1) joints 70 -90 irregular to subvertical closed to partially open clean some with rare grey clay smear and black staining undulating smooth polished to rough. Discontinuity set 2) Bedding 0 - 10 subvertical closed and partially open clean with some white chalk clasts slightly undulating rough with orange, black and orange staining [80/90/190]. (PLENUS MARLS MEMBER, HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...at 17.64m bgl: <10mm thick slightly plastic marl seam. ...at 18.04m bgl: <10mm thick slightly plastic marl seam. ...at 18.12m bgl: <20mm thick slightly plastic marl seam. ...at 18.15m bgl: <20mm thick slightly plastic marl seam. ...at 18.25m bgl: <15mm thick slightly plastic marl seam. ...between 18.50m and 18.71m bgl: marl band with chalk layers. ...at 18.81m bgl: <15mm thick slightly plastic marl seam. ...between 19.19m and 19.35m bgl: pale grey slightly plastic marl band (possible Plenus Marls Member base marker at erosional surface boundary).							17.00	8.55			17.00 - 17.45	SPTLS								SPT(S) 17.00m, 50 (25 for 15mm/50 for 25mm)
												17.30 - 17.40	DPLT							
Very weak to weak low to medium-density white CHALK with some wispy griotte marls with occasional small iron pyrite filled tubes of <1mm diameter relict trace fossil burrows. Fracturing is mainly drilling induced, discernable features include: Discontinuity 1). Joints 6-90 irregular to subvertical closed to partially open, clean smooth to slightly rough slightly undulating to planar with heavy black staining. Discontinuity 2). Bedding 0 - 10 subvertical closed and partially open, clean with some white chalk clasts slightly undulating rough with orange, black and orange staining [30 ? / 50 ? / 130 ?]. (ZIG ZAG CHALK FORMATION, Probably Grade B4 ?)							17.35	8.20			17.00 18.50			80	78	30				
												18.00 - 18.10	DPLT							
											18.90 - 19.00	DPLT			20					
							19.35	6.20			18.50 20.00			100	60	13				
											19.90 - 20.00	DPLT						SPT(S) 20.00m, 50 (25 for 25mm/50 for 45mm)		
												20.00 - 20.45	SPTLS							
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater strike at 3.10, rising to 1.70m bgl (20minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 7.00m bgl. * Denotes drillers description ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										1.20	30.50			Air / Mist	BB4	63				
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
																784-B025563				

	Project: Cambridge South East Transport – Phase 2				Location Details				Status		Borehole Number										
	Location: Cambridge				Eastings: 551335.00 Northing: 249644.00				FINAL		BH-OBC-06										
	Client: Greater Cambridge Partnership				Level: 25.55mAOD Depth: 30.50m																
				Logger: DC Type: RC				Inclination: 90°													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT							
0.00	1.20	Inspection Pit	Hand Excavated	T. Parkin	1.20	300	13.50	150	17/03	18:00	17.45	-	-	Approved By: CP							
1.20	4.00	Dynamic Windowless Sampling	Beretta T59	T. Parkin	4.00	-			18/03	18:00	30.50			Start Date: 17/03/2021							
4.00	30.50	Rotary Core	Beretta T59	T. Parkin	30.50	-								Finish Date: 18/03/2021							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Very weak to weak low to medium-density white CHALK with some wispy griotte marls with occasional small iron pyrite filled tubes of <1mm diameter relict trace fossil burrows. Fracturing is mainly drilling induced, discernable features include: Discontinuity 1). Joints 6- -90 irregular to subvertical closed to partially open, clean smooth to slightly rough slightly undulating to planar with heavy black staining. Discontinuity 2). Bedding 0 - 10 subvertical closed and partially open, clean with some white chalk clasts slightly undulating rough with orange, black and orange staining [30 ? / 50 ? / 130 ?]. (ZIG ZAG CHALK FORMATION, Probably Grade B4 ?) ...at 21.00m bgl: some inclined joints polished with a smear of grey clay and orange staining. ...at 21.24m bgl: slight orange staining. ...at 21.78m bgl: 5mm thick grey cemented marl seam. ...at 22.16m bgl: 5mm thick grey cemented marl seamat 22.18m bgl: 5mm thick grey cemented marl seam.								22.50	3.05		20.30 - 20.40	DPLT									21
										20.90 - 21.00	DPLT	20.00 21.50	NI	100	20						
										21.40 - 21.50	DPLT										
										21.90 - 22.00	DPLT										
										21.50 23.00		NI	100	20							
										23.00 - 23.45	SPTLS							SPT(S) 23.00m, 50 (25 for 15mm/50 for 25mm)			
										23.30 - 23.40	DPLT										
										23.00 24.50		NI	96	60							
										24.00 - 24.10	DPLT										
										24.70 - 24.80	DPLT	24.50 26.00	NI	92	28						
Very weak to weak, low to medium-density white CHALK with some wispy griotte marls with occasional small iron pyrite filled tubes of relict trace fossil burrows. Fracturing is mainly drilling induced, discernable features include: Discontinuity 1). Joints 60 -90' irregular to subvertical closed to partially open clean smooth to slightly rough slightly undulating to planar with heavy black staining. Discontinuity 2). Bedding 0 - 10 subvertical closed and partially open clean with some white chalk clasts slightly undulating rough with orange, black and orange staining [50 ? / 90 ? / 240 ?]. (ZIG ZAG CHALK FORMATION, low to medium density, Probably Grade B3 ?) ...from 22.50 to 26.50m bgl: significant drilling / SPT induced fracturing and disturbance ...at 22.98m bgl: slight orange staining. ...at 23.56m bgl: iron pyrite nodule. ...at 25.98m bgl: iron pyrite nodule. ...at 26.10m bgl: thin wispy griotte marls. ...at 26.56m bgl: slight orange staining. ...at 26.76m bgl: slight orange staining. ...at 26.87m bgl: Rare Inoceramid (bivalve) shell fragments. ...at 27.49m bgl: iron pyrite nodule. ...from 27.50 to 29.00m bgl: significant drilling induced fracturing and disturbance								25.50 - 25.60	DPLT												
								26.00 - 26.45	SPTLS							SPT(S) 26.00m, 50 (25 for 10mm/50 for 20mm)					
								26.10 - 26.20	DPLT												
								26.80 - 26.90	DPLT	26.00 27.50	14	99	90	12							
								27.10 - 27.20	DPLT												
								28.30 - 28.40	DPLT	27.50 29.00	NI	100	45								
								29.00 - 29.45	SPTLS							SPT(S) 29.00m, 50 (25 for 10mm/50 for 20mm)					
								29.10 - 29.20	DPLT												
								29.00 30.50		14	100	84	12								
								29.90 - 30.00	DPLT												
Observations / Remarks							Drilling Fluid							Hammer Information							
1. Groundwater strike at 3.10, rising to 1.70m bgl (20minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 7.00m bgl. * Denotes drillers description ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not discernible							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %								
							1.20	30.50			Air / Mist	BB4	63								
							Groundwater							Project Number							
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563															

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details					Status FINAL		Borehole Number BH-OBC-06							
							Easting: 551335.00 Northing: 249644.00 Level: 25.55mAOD Depth: 30.50m Logger: DC Type: RC Inclination: 90°														
							Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT							
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20	300	13.50	150	17/03 18/03	18:00 18:00	17.45 30.50	-	-	Approved By: CP							
1.20	4.00				-	Start Date: 17/03/2021															
4.00	30.50				-	Finish Date: 18/03/2021															
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
<div>Very weak to weak, low to medium-density white CHALK with some wispy griotte marls with occasional small iron pyrite filled tubes of relict trace fossil burrows. Fracturing is mainly drilling induced, discernable features include: Discontinuity 1). Joints 60 -90' irregular to subvertical closed to partially open clean smooth to slightly rough slightly undulating to planar with heavy black staining. Discontinuity 2). Bedding 0 - 10 subvertical closed and partially open clean with some white chalk clasts slightly undulating rough with orange, black and orange staining [50 ? / 90 ? / 240 ?]. (ZIG ZAG CHALK FORMATION, low to medium density, Probably Grade B3 ?)</div> <div>EOH at 30.50m - Target depth achieved.</div>							<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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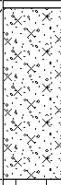
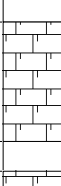
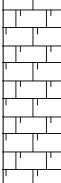
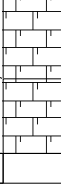
<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="5"><div>Location Details</div><div>Easting: 551303.00 Northing: 249624.00</div><div>Level: 26.32mAOD Depth: 30.50m</div><div>Logger: DC Type: RC</div><div>Inclination: 90°</div></td> <td colspan="2"><div>Status</div><div>FINAL</div></td> <td colspan="3"><div>Borehole Number</div><div>BH-OBC-07</div></td>					<div>Location Details</div> <div>Easting: 551303.00 Northing: 249624.00</div> <div>Level: 26.32mAOD Depth: 30.50m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-07</div>								
										Sheet 2 of 4										
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20 5.00 30.50	300 - -	13.50	150	22/03 23/03	17:30 17:30	18.50 30.50	- -	-	Approved By:	CP					
															Start Date:	22/03/2021				
															Finish Date:	23/03/2021				
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Structureless white mottled orange CHALK composed of silty GRAVEL. Clasts are extremely weak to weak, low to medium-density, angular to subrounded, fine to coarse speckled brown. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc) ...at 10.42m bgl: complete Mylatoides labiatus (Brachiopod)													9.50 11.00	NI	68	6	0			
Very weak, low to medium-density off-white shelly CHALK. (HOLLYWELL NODULAR CHALK FORMATION, ?) Zone of core loss attributable to SPT disturbance and blow out.							10.90 11.00	15.42 15.32			10.90 - 11.00 11.00 - 11.45	DPLT SPTLS		ND				SPT(S) 11.00m, N=18 (3,3/4,4,4,6)		
Significant drilling disturbance, recovery non-intact: Very weak, low to medium-density, medium to coarse, subangular yellowish white shelly CHALK gravel with orangish brown staining. (HOLLYWELL NODULAR CHALK FORMATION ? , ?)							11.33	14.99						NR						
Very weak, low to-medium density yellowish white shelly CHALK with orangish brown staining. Shell fragments are bivalves and brachiopods including mylatoids. Discontinuity 1) Joints are 70 ' undulating rough, open infilled with white chalk clasts. Discontinuity 2) Bedding is 0 to 10 ' close, undulating rough, open infilled with white chalk clasts [70/90/190]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C3) ...from 11.86m to 12.86m bgl: multiple marl seams. ...from 11.90 to 12.20m bgl: recovery is non-intact and comprises chalk gravel in comminuted chalk matrix (possibly intraclastic). **							11.60	14.72			11.60 - 11.70	DPLT	11.00 12.50	ND	78	10	8			
Zone of core loss with significant drilling induced disturbance and blow out of fines (recovery non-intact).							12.50	13.82			12.40 - 12.50	DPLT		NI						
Very weak, low-density yellowish white shelly CHALK with orangish brown staining. Shell fragments are bivalves and brachiopods including mytilids. Discontinuity 1) Joints are 70 ' undulating rough, open infilled with white chalk clasts. Discontinuity 2) Bedding is 0 to 10 ' , close, undulating rough open infilled with white chalk clasts. [70/90/190]. (HOLLYWELL NODULAR CHALK FORMATION, low density, Grade C3) ...from 13.72m to 14.00m bgl: multiple marl seams. Recovery is non-intact and comprises chalk gravel in comminuted chalk / marl matrix (possibly intraclastic). ** ...at 13.80m bgl: complete Orbirhynchia cuvieri and Gibbithyrus semiglobosa (Brachiopods).							12.90	13.42			13.10 - 13.20	DPLT	12.50 14.00	ND	73	20	8			
Zone of core loss attributable to SPT disturbance and blow out. **							14.00 14.10	12.32 12.22			14.00 - 14.45	SPTLS		NR				SPT(S) 14.00m, N=29 (2,4/5,7,8,9)		
Weak, medium-density yellowish white CHALK with rare shell fragments. Discontinuity 1) Joints are 70 to 90 ' undulating rough, closed to partially open, clean with occasional infill of white chalk clasts. Discontinuity 2) Bedding is 0 to 10 ' undulating rough, closed to partially open, clean with occasional infill of white chalk clasts [70/90/190]. (Transitional Beds, HOLLYWELL NODULAR CHALK FORMATION, Grade C3) ...from 14.30 to 14.90m bgl: recovery non-intact (possibly intraclastic). **											14.30 - 14.40	DPLT		NI						
											14.00 15.50			NI	90	20	0			
											15.00 - 15.10	DPLT		ND						
							15.50	10.82			15.40 - 15.50	DPLT								
Weak, medium-density yellowish white CHALK with rare shell fragments. Discontinuity 1) Joints are 70 to 90 ' undulating rough, closed to partially open clean with occasional infill of white chalk clasts. Discontinuity 2) Bedding is 0 to 10 ' undulating rough, closed to partially open, clean with occasional infill of white chalk clasts [50/70/100]. (MELBOURN ROCK MEMBER, HOLYWELL NODULAR CHALK FORMATION, medium density, Grade C3) ...from 15.55m to 15.70m bgl: high density chalk.											16.00 - 16.10	DPLT	15.50 17.00	18	92	40	0			
...from 17.00 to 17.40m bgl: zone of core damage attributable to SPT disturbance. **											16.80 - 16.90	DPLT								
Weak, medium-density yellowish greenish greyish white CHALK with black zoophycos streaks and occasional wispy griotte marls. Discontinuity 1) Joints are 60 to 90 ' stepped to undulating rough, closed to open, infilled with white chalk clasts. With black staining and greenish grey clay smear. Discontinuity 2) Bedding is 0 to 10 ' very close to close, undulating rough, open and infilled with white chalk clasts. [50/60/130]. (PLENUS MARLS MEMBER, HOLLYWELL NODUALR CHALK FORMATION, Grade C3) ...at 17.35m bgl: 10mm thick,slightly greenish orangish grey marl seam. ...from 18.00 to 18.35m bgl: significant drilling disturbance - possibly intraclastic. ...at 18.18m bgl: 5mm thick, slightly greenish orangish grey marl seam. ...at 18.28m bgl: 10mm thick, slightly greenish orangish grey marl seam. ...at 18.32m bgl: 20mm thick, slightly greenish orangish grey marl seam. ...at 18.45m bgl: 10mm thick, slightly greenish orangish grey marl seamat 18.49m bgl: 10mm thick, slightly greenish orangish grey marl seam. ...from 18.80m to 19.04m bgl: pale grey slightly plastic marl seam.							17.18	9.14			17.30 - 17.40	DPLT	17.00 18.50		NI					SPT(S) 17.00m, N=39 (5,7/7,9,11,12)
											17.60 - 17.70	DPLT								
											17.90 - 18.00	DPLT		18	100	56	0			
											18.20 - 18.30	D								
											18.80 - 18.90	D								
Very weak, low-density white CHALK with occasional black zoophycos streaks and wispy griotte marls. Drilling disturbance with some discernable features: Discontinuity 1) Joints are 60 to 90 ' undulating rough, closed to partially open, clean. Discontinuity 2) Bedding is 0 to 10 ' very close to close, undulating rough, closed to partially open, clean with black staining [35/50/130]. (ZIG ZAG CHALK FORMATION, Grade B4)							19.04	7.28			18.50 20.00			16	99	64	0			
											19.50 - 19.60	DPLT								
											20.00 - 20.45	DPLT								
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater strike at 3.80 rising to 2.75m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipes to 10.00 and 29.00m bgl. * Denotes drillers description ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										1.20	30.50			Air / Mist	BB4	63				
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
																784-B025563				

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Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50		
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT			
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Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD
Very weak, low-density white CHALK with occasional black zoophycos streaks and wispy griotte marls. Drilling disturbance with some discernable features: Discontinuity 1) Joints are 60 to 90 ' undulating rough, closed to partially open, clean. Discontinuity 2) Bedding is 0 to 90 ' undulating rough, closed to partially open, clean with black staining [35/50/130]. (ZIG ZAG CHALK FORMATION, Grade B4) ...from 20.00 to 20.50m bgl: zone of significant core damage attributable to SPT disturbance. ** ...from 20.12m bgl: grey flasar marls. ...from 20.69m bgl: with very pale grey relict trace fossil burrows. ...from 20.93m bgl: occasional pyrite filled relict fossil burrows.																	SPT(S) 20.00m, 50 (25 for 130mm/50 for 120mm)	
Very weak, low-density white CHALK with occasional very pale grey relict trace fossil burrows. Discontinuity 1) Joints are 60 to 90 ' undulating rough, close, clean. Discontinuity 2) Bedding is 0 to 10' close, undulating rough, closed to partially open, clean with black staining [60/90/160]. (ZIG ZAG CHALK FORMATION, low density, Grade B3) ...at 21.86m bgl: grey wispy griotte marls.																		
...from 23.00 to 23.30m bgl: zone of core damage attributable to SPT disturbance. **																		
...from 24.00 to 24.50m bgl: with significant drilling disturbance.																		
Very weak, low-density light grey CHALK with occasional very pale grey relict trace fossil burrows. Discontinuity 1) Joints are 60 to 90' undulating rough, closed to partially open, clean. Discontinuity 2) Bedding is 0 to 10 ' very close to close, undulating rough, closed to partially open, clean with black staining [40/90/150]. (ZIG ZAG CHALK FORMATION, low density, Grade B3) ...from 24.88m to 24.93m bgl: multiple wispy grey marls. ...at 25.32m bgl: grey flasar marl.																		
...from 26.00 to 26.50m bgl: zone of core damage and loss (15%) attributable to SPT disturbance. **																		
...from 26.50 to 27.50m bgl: significant drilling induced fracturing and disturbance																		
...from 26.70m to 26.80m bgl: Inoceramus pictus (Bivalve).																		
...from 27.50 to 29.00m bgl: significant drilling induced fracturing and disturbance.																		
...from 29.00 to 29.10m bgl: zone of core damage attributable to SPT disturbance. **																		
...at 29.22m bgl: pale grey flasar marl.																		

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0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T59 Beretta T59	T. Parkin T. Parkin T. Parkin	1.20 5.00 30.50	300 - -	13.50	150	22/03 23/03	17:30 17:30	18.50 30.50	- -		Approved By:	CP			
														Start Date:	22/03/2021			
														Finish Date:	23/03/2021			
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Very weak, low-density light grey CHALK with occasional very pale grey relict trace fossil burrows. Discontinuity 1) Joints are 60 to 90' undulating rough, closed to partially open, clean. Discontinuity 2) Bedding is 0 to 10 ' very close to close, undulating rough, closed to partially open, clean with black staining [40/90/150]. (ZIG ZAG CHALK FORMATION, low density, Grade B3)							30.50	-4.18			30.40 - 30.50	DPLT						
EOH at 30.50m - Target depth achieved.																		

<div><div><div><div><div></div><div>TETRA TECH</div></div></div><div><div>Project:</div><div>Cambridge South East Transport – Phase 2</div></div><div><div>Location:</div><div>Cambridge</div></div><div><div>Client:</div><div>Greater Cambridge Partnership</div></div></div></div>		<div><div>Location Details</div><div><div>Easting: 551411.00</div><div>Northing: 249712.00</div><div>Level: 25.21mAOD</div><div>Depth: 30.50m</div><div>Logger: DC</div><div>Type: RC</div><div>Inclination: 90°</div></div></div>		<div><div>Status</div><div>FINAL</div></div>	<div><div>Borehole Number</div><div>BH-OBC-08</div></div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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<div><div>Method, Plant and Crew</div><div><div><div>From (m)</div><div>To (m)</div><div>Type</div><div>Plant Used</div><div>Crew</div></div><div><div><div>0.00</div><div>1.20</div><div>Inspection Pit</div><div>Hand Excavated</div><div>M. Bainbridge</div></div><div><div>1.20</div><div>5.00</div><div>Dynamic Windowless Sampling</div><div>Beretta T46</div><div>M. Bainbridge</div></div><div><div>5.00</div><div>30.50</div><div>Rotary Core</div><div>Atlas 186</div><div>M. Bainbridge</div></div></div></div></div>				<div><div>Diameter</div><div><div>Depth (m)</div><div>Diam (mm)</div></div><div><div>1.20</div><div>300</div></div><div><div>5.00</div><div>-</div></div><div><div>30.50</div><div>-</div></div></div>		<div><div>Casing</div><div><div>Depth(m)</div><div>Diam (mm)</div></div><div><div>4.50</div><div>200</div></div></div>		<div><div>Drilling Progress by Time</div><div><div>Date</div><div>Time</div><div>Depth (m)</div><div>Casing (m)</div><div>Water (m)</div></div><div><div>16/03</div><div>18:00</div><div>18.50</div><div>-</div><div>-</div></div><div><div>17/03</div><div>18:00</div><div>30.50</div><div>-</div><div>-</div></div></div>				<div><div>Scale:</div><div>1:50</div></div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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<div><div>Strata Description</div></div>				<div><div>Legend</div></div>	<div><div>Depth (m)</div></div>	<div><div>Reduced Level (mAOD)</div></div>	<div><div>Water Level (m)</div></div>	<div><div>Inst / Backfill</div></div>	<div><div>Samples, Tests and Rotary Coring</div><div><div>Depth (m)</div><div>Ref</div><div>Core Run</div><div>FI</div><div>TCR</div><div>SCR</div><div>RQD</div><div>Tests / Results</div><div></div></div></div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
<div>Zone of core loss attributable to possible blow out / compression.</div> <div>Structureless white CHALK composed of silty GRAVEL. Clasts are very weak to weak, low to medium-density with brown specks and rare shell fragments. Matrix is white with some yellowish white. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc / Possible infilled solution feature.)</div> <div>...between 10.62m and 10.85m bgl: rounded brown stained cobble of cortex flint noted within a white chalk matrix and some cobbles of white gritty chalk. The cobble shows signs of liesegang banding.</div> <div>Structured intraclastic slightly yellowish brown speckled white shelly CHALK. Shells are mytilids (forming clasts). Discontinuity 1). Subvertical joints 40' closed, clean with little or no staining. Discontinuity 2). Subhorizontal bedding 0 -10' [50/80/ ?]. (HOLLYWELL MYTILOID GRITBEDS ?, HOLYWELL NODULAR CHALK FORMATION, ?)</div> <div>Zone of core loss attributable to SPT disturbance and blow out.</div> <div>Nodular / intraclastic slightly yellowish brown speckled white shelly CHALK. Shells are mytilids (forming clasts). Discontinuity 1) Joints are subvertical 40 ' closed, clean with little or no staining. Discontinuity 2) Subhorizontal bedding 0 -10'. (HOLLYWELL MYTILOID GRITBEDS ?, HOLYWELL NODULAR CHALK FORMATION, medium density, unable to grade (nodular / intraclastic)</div> <div>...at 11.52m bgl: slight orange staining.</div> <div>...at 11.90m bgl: slight orange staining.</div> <div>Structured yellowish brown speckled white shelly CHALK. Discontinuity 1). Subvertical joints 40', closed clean with little or no staining. Discontinuity 2). Subhorizontal bedding 0 -10', closed clean with little or no staining. (HOLLYWELL MYTILOID GRITBEDS ?, HOLYWELL NODULAR CHALK FORMATION, ?)</div> <div>Zone of core loss attributable to blow out.</div> <div>Weak, medium to high-density slightly brown speckled white CHALK with some mytilid shell fragments. Discontinuity 1). Joints 80 - 90' inclined sub vertical, closed and partially open, clean undulating rough with orange staining with some rare grey marl. Discontinuity 2). Bedding 0 - 10 closed and partially open, clean undulating rough with orange staining with some rare grey marl. [50/70/130]. (HOLLYWELL MYTILOID GRITBEDS ?, HOLLWELL NODULAR CHALK FORMATION, Grade B3)</div> <div>...from 13.00m bgl: some large Mytaloid Inoceramidae shell fragments.</div> <div>...between 13.10m and 14.00m bgl: becoming medium to high-density chalk.</div> <div>...at 13.35m bgl: slight orange staining.</div> <div>...at 13.49m bgl: slight orange staining.</div> <div>...at 13.91m bgl: slight orange staining.</div> <div>...at 14.33m bgl: sight orange staining.</div> <div>...at 14.56m bgl: moderate heavy orange staining.</div> <div>...at 14.65m bgl: moderate heavy orange staining.</div> <div>...at 17.77m bgl: 10mm thick cemented grey marl seams.</div> <div>Weak, medium to high-density, slightly gritty occasional brown speckled white CHALK with some mytilid and other shell fragments. Discontinuity 1). Joints 70-90' inclined to subvertical, closed and partially open, clean undulating rough with orange staining. Discontinuity 1). Bedding 0 - 10' closed and partially open, clean undulating rough with orange staining [40/70/100]. (HOLYWELL NODULAR CHALK FORMATION, medium density, Grade B3)</div> <div>...at 15.32m bgl: moderate orange staining.</div> <div>...at 15.38m bgl: moderate orange staining.</div> <div>...at 16.00m bgl: <5mm thick grey cemented marl seam.</div> <div>...at 16.25 bgl: moderate orange staining.</div> <div>...at 16.38m bgl: <5mm thick grey cemented marl seam.</div> <div>...at 16.43m bgl: moderate orange staining.</div> <div>...from 16.60m bgl: becoming very weak to weak low-density chalk.</div> <div>...at 16.63m bgl: slight orange staining.</div> <div>...at 16.76m bgl: slight orange staining.</div> <div>...at 16.78m bgl: <5mm thick grey cemented marl seam.</div> <div>Zone of core loss attributable to SPT disturbance and blow out.</div> <div>Weak, medium to high-density, slightly gritty occasionally brown speckled white CHALK with some mytilid and other shell fragments. Possibly intraclastic. Significant drilling disturbance, discernible structure includes: Discontinuity 1) Joints 70-90' inclined sub-vertical, closed to partially open, clean undulating rough with orange staining. Discontinuity 2) Bedding 0 - 10' subhorizontal, closed to partially open, clean, undulating rough, with orange staining. [40/70/100]. (MELBOURN ROCK MEMBER ?, HOLYWELL NODULAR CHALK FORMATION, Grade B3)</div> <div>...at 17.42m bgl: slight orange staining.</div> <div>...at 17.55m bgl: <5mm thick grey cemented marl seam.</div> <div>...at 17.60m bgl: orange stained sponge bed.</div> <div>...at 17.71m bgl: orange stained sponge bed.</div> <div>...at 17.93m bgl: <5mm thick slightly cemented slightly greenish marl seam.</div> <div>...at 17.99m bgl: Mytiloides labiatus. (bivalve) noted.</div> <div>...at 18.00m bgl: <5mm thick slightly cemented slightly greenish marl seam.</div> <div>...at 18.12m bgl: Orbirhynchia cuvier (brachiopod) noted.</div> <div>...between 18.12m and 18.27m bgl: moderate orange staining along joint surface.</div> <div>at 18.39m bgl: slight orange staining.</div> <div>Zone of core loss attributable to blow out.</div> <div>Weak medium to high-density, slightly gritty occasionally brown speckled white CHALK with some mytilid and other shell fragments. Discontinuity 1) Joints 70-90' inclined sub-vertical closed to partially open, clean undulating rough with orange staining. Discontinuity 2) Bedding 0 - 10' subhorizontal closed to partially open, clean undulating rough with orange staining. [40/70/100]. (MELBOURN ROCK MEMBER ?, HOLYWELL NODULAR CHALK</div>				<div><div>10.30</div></div>	<div><div>14.91</div></div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

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From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	16/03 17/03	18:00 18:00	18.50 30.50	- -	-	Approved By:	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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<p>Very weak to weak, low-density slightly greyish white CHALK with occasional light greenish grey trace fossil burrows including zoophycos spreiten and lobes with black zoophycos streaks with some thin wispy griotte marls. Discontinuity 1) Joints 70 inclined striated polished smooth clean closed with a slight smear of greenish grey and orange stained clay with black speckling. Discontinuity 2) Bedding 0 - 10' striated polished smooth clean closed and open ** with a slight smear of greenish grey and orange stained clay with black speckling with localised widening of bedding joints suggestive of blow out **. [90/110/140]. (ZIG ZAG CHALK FORMATION, Grade B3)</p> <p>...at 27.83m bgl: orange stained sponge bed.</p> <p>...at 28.11m bgl: grey plastic marl seam with chalk intraclasts.</p> <p>...at 28.85m bgl: orange stained sponge bed.</p> <p>Zone of core loss attributable to SPTS and blow out with possible dislocation. **</p> <p>Partial recovery (45%) with significant drilling disturbance and possible dislocation from above: Very weak to weak, low-density slightly greyish white CHALK with occasional light greenish grey trace fossil burrows including zoophycos spreiten and lobes with black zoophycos streaks. (ZIG ZAG CHALK FORMATION, ?)</p> <p>...from 30.00 to 30.30m bgl: recovered as comminuted chalk.</p> <p>...between 30.08 and 30.50m bgl: recovered as silty chalk gravel in comminuted chalk - possibly intraclastic.</p> <p>...from 30.30 to 30.50m bgl: recovered as non-intact coarse gravel.</p> <p>EOH at 30.50m - Target depth achieved.</p>							30.50	-5.29																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details				Status FINAL		Borehole Number BH-OBC-09											
						Easting: 551423.00 Northing: 249707.00 Level: 25.19mAOD Depth: 30.00m Logger: CE Type: RC Inclination: 90°																	
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT								
0.00 1.20 5.00	1.20 5.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.00	300 - -	6.00	200	18/03 19/03	18:00 18:00	15.00 30.00	- -	-	Approved By:	CP								
Strata Description						Legend		Depth (m)		Reduced Level (mAOD)		Water Level (m)		Inst / Backfill		Samples, Tests and Rotary Coring							
																Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Firm * dark brown, slightly sandy, slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse flint and chalk. Cobbles are angular to subangular flint. (TOPSOIL) MGR(TS) Firm * orangish brown, slightly gravelly, very sandy CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse flint and chalk. (ALLUVIUM) ALV(C) Firm * mottled and grey brown, slightly gravelly, very sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse chalk and flint. (ALLUVIUM) ALV(C) UT100 Sample: 'Firm greyish brown very sandy gravelly CLAY' * Cutting Shoe sample description: 'gravel'. * Medium dense yellowish brown mottled light grey, silty, very gravelly, fine to coarse SAND. Gravel is subangular to subrounded, fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD						  		0.35	24.84			0.50	D										
								1.00 1.20	24.19 23.99			1.00 1.00 1.20 - 1.65 1.30	D ES UT W										
Structureless CHALK composed of cream and yellowish brown, sandy, gravelly SILT. Gravel is very weak, low-density, rounded, medium to coarse white with orange brown specks chalk and flint. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dm)								1.60 1.65	23.59 23.54			1.65 - 1.70	D	1.20 2.00			50	0	0	SPT(S) 2.00m, N=14 (2,3/4,4,3,3)			
								2.00 - 2.10 2.00 - 2.45	D SPTLS			2.00 3.00	100	0			0						
Structureless CHALK composed of subangular GRAVEL. Gravel is very weak, low-density with black specks chalk. Matrix is white and cream with rare angular flints. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)								2.80	22.39			2.90 - 3.00 3.00 - 3.45	D SPTLS							SPT(S) 3.00m, N=9 (2,3/2,2,2,3)			
								3.50	21.69			3.00 4.00	100									0	0
Zone of core loss attributable to SPT disturbance.								4.00	21.19			4.00 - 4.45 4.10 - 4.20	SPTLS D							SPT(S) 4.00m, N=7 (1,1/2,1,2,2)			
								4.20	20.99			4.00 5.00	80									0	0
Zone of core loss attributable to SPT disturbance.								5.00	20.19			5.00 - 5.45 5.10 - 5.20	SPTLS D	NR						SPT(S) 5.00m, N=10 (1,2/2,3,2,3)			
								5.20	19.99			5.00 6.00	NI									80	0
Structureless CHALK composed of silty GRAVEL. Gravel is subangular, weak, low-density white with brown specks. Matrix is white cream chalk. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)										5.80 - 5.90	D	NI											
										6.80 - 6.90 7.00 - 7.10	D D											6.00 7.50	90
Significant drilling disturbance: Recovered as Structureless CHALK composed of silty GRAVEL. Clasts are very weak, low-density white cream with rare orange brown staining. (HOLLYWELL NODULAR CHALK FORMATION ? , low density, Grade Dc)								7.50	17.69			7.50 - 7.60 7.50 - 7.95	D SPTLS							SPT(S) 7.50m, N=12 (1,2/3,3,3,3)			
								8.10 - 8.20 8.90 - 9.00	D D			7.50 9.00	NI									100	0
Structureless CHALK composed of silty, sandy GRAVEL. Clasts are subangular to subrounded, very weak to weak, low-density cream and white with yellow staining chalk. Matrix is uncompact and cream. Rare inoceramids throughout. (HOLLYWELL NODULAR CHALK ? , Grade Dc)								9.50	15.69			9.50 - 9.60	D	9.00 10.50	NI	100	0	0					
Observations / Remarks										Drilling Fluid					Hammer Information								
1. Groundwater strike at 1.30, rising to 1.10m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Chalk grade assumed from SPT N. *** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %							
										1.20	30.00			Air / Mist	73694	65							
										Groundwater					Project Number								
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563							
										1.30	-	4	20	1.05									

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										Sheet 2 of 3										
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 5.00	1.20 5.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.00	300 - -	6.00	200	18/03 19/03	18:00 18:00	15.00 30.00	-	-	Approved By:	CP					
														Start Date:	18/03/2021					
														Finish Date:	19/03/2021					
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Structureless CHALK composed of silty, sandy GRAVEL. Clasts are subangular to subrounded, very weak to weak, low-density cream and white with yellow staining chalk. Matrix is uncompact and cream. Rare inoceramids throughout. (HOLLYWELL NODULAR CHALK ?, Grade Dc)							10.50	14.69			10.40 - 10.50 10.50 - 10.95	D SPTLS						SPT(S) 10.50m, N=39 (2,4/8,8,10,13)		
Zone of core loss attributable to SPT disturbance and blow out.														NR						
Significant drilling disturbance, recovery non-intact: Weak, low-density cream shelly CHALK gravel with orangish brown staining. Mytilids and pyritized trace fossils throughout. (HOLLYWELL NODULAR CHALK FORMATION ?, ?)							11.00	14.19			11.00 - 11.10	DPLT	10.50 12.00	NI	66	10	10			
Weak, low-density cream shelly CHALK with orangish brown staining. Mytilids and pyritized trace fossils throughout. Discontinuity 1). Joints are 70 to 90 ' , planar, rough, tight and clean. Discontinuity 2). Bedding is 0 to 10' very close to close, undulating, rough tight, open, clean [90/50/120?]. (HOLLYWELL NODULAR CHALK, Grade B4)							11.50	13.69						ND/ >6?						
Zone of core loss attributable to blow out (with possible dislocation attributable to blow out from bedding in the unit below***)							12.00	13.19						NR						
Weak, low-density cream shelly CHALK with orangish brown staining. Mytilids and pyritized trace fossils throughout. Discontinuity 1) Joints are 70 to 90 ' planar rough tight and clean. Discontinuity 2) Bedding is 0 to 15' , very close to close, undulating, rough, open with widening suggestive of blow out*** and clean [50/80/120]. (HOLLYWELL NODULAR CHALK FORMATION, Possibly Grade C3 ?)							12.45	12.74			12.70 - 12.80	DPLT	12.00 13.50	>13	70	33	7			
...between 12.80m and 13.00m bgl: drilling induced fractures.																				
...from 12.90 to 13.00m bgl: recovered as fine to medium gravel -possible blow out of matrix ***.							13.40	11.79			13.30 - 13.40	DPLT		NI						
...from 13.10 to 13.30m bgl: chonical core sections with radial markings - possible evidence of turning and blow out. ***							13.50	11.69			13.50 - 13.95	SPTLS						SPT(S) 13.50m, N=43 (1,0/4,11,12,16)		
Significant drilling disturbance, recovery non-intact: Weak, low-density cream shelly CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION ?, ?)														NR						
Zone of core loss attributable to SPT disturbance and blow out.													13.50 15.00		50	0	0			
Significant drilling disturbance, recovery non-intact: Weak, low-density, shelly cream CHALK gravel with orangish brown staining. Mytilids and pyritized trace fossils throughout. (HOLLYWELL NODULAR CHALK FORMATION, ?)							14.25	10.94						NI						
...from 14.50m bgl: recovery is fine to coarse, subangular chalk gravel.***											14.80 - 14.90	DPLT		ND						
Weak, low-density cream shelly CHALK with orangish brown staining (intact core at base of run with no discernible discontinuities). Mytilids and pyritized trace fossils throughout. (HOLLYWELL NODULAR CHALK FORMATION, ?)							14.90	10.29												
No recovery							15.00	10.19												
Significant drilling disturbance, partial non-intact recovery (33%): Weak, low-density cream shelly CHALK gravel with orangish brown staining. Structure not discernible. Mytilids and pyritized trace fossils throughout. (HOLLYWELL NODULAR CHALK FORMATION, ?)														NR						
No recovery attributable to SPT disturbance.											15.00 16.50				33	5	0			
Significant drilling disturbance, partial non-intact recovery: Weak, low-density, cream shelly CHALK gravel with orangish brown staining. Structure not discernible. Mytilids and pyritized trace fossils throughout. (HOLLYWELL NODULAR CHALK FORMATION, Grade ?)							16.00	9.19			16.10 - 16.20	DPLT		NI						
Significant drilling disturbance, with partial recovery: Weak, low-density, cream shelly CHALK with orangish brown staining. Structure not discernible (possibly intraclastic with chalk gravel in flasar marl***). Heavy black speckling, and yellow orange staining along possible fractures. Mytilids and pyritized trace fossils throughout. (HOLLYWELL NODULAR CHALK FORMATION, Grade ?)							16.50	8.69			16.50 - 16.95	DPLT		NR				SPT(S) 16.50m, 50 (22,3/50 for 100mm)		
No recovery attributable to blow out.																				
Significant drilling disturbance / likely blow out with partial non-intact recovery: Weak low-density, cream shelly CHALK gravel with orangish brown staining. Mytilids and pyritized trace fossils throughout. Structure not discernible. Heavy black speckling and yellow orange staining along clast surfaces. (HOLLYWELL NODULAR CHALK FORMATION, ?)							16.90	8.29			16.50 17.50			NI	10	10	0			
Weak, low-density cream shelly CHALK with orangish brown staining. Mytilids and pyritized trace fossils throughout. Structure not discernible. (Intact core section at the base of the run). Heavy black speckling and yellow orange staining along core ends. (HOLLYWELL NODULAR CHALK FORMATION, ?)							17.20	7.99			17.30 - 17.40	DPLT		ND						
Weak, low-density cream shelly CHALK with orangish brown staining. Mytilids and pyritized trace fossils throughout. Structure not discernible. (Intact core section at the base of the run). Heavy black speckling and yellow orange staining along core ends. (HOLLYWELL NODULAR CHALK FORMATION, ?)							17.50	7.69						NR						
Weak, low and medium-density with localised bands of weak, high-density pale grey and white marly CHALK with localised blow out and probably drilling induced brecciation ***. Discontinuity 1) Joints are tight and clean. Black speckling along discontinuity planes. Discontinuity 2) Bedding is 0 to 10' , close, planar, rough, tight and open (with possible blowout***), clean [60/80/150]. (PLENUS MARLS MEMBER, HOLLYWELL NODULAR CHALK FORMATION, Grade B3)							18.00	7.19			17.50 18.50			NI	50	10	0			
...between 18.50 and 18.90m bgl: 'yellow grey alteration banding' (possible flasar marl***).																				
...between 18.60m and 18.63m bgl: Marl seam.							18.40	6.79			18.40 - 18.50	DPLT		ND						
...at 18.90m bgl: Actinocanamax plenus (Plenus Marls Member marker brachiopod fossil).							18.50	6.69												
...between 19.20m and 19.25m bgl: marl seam.											18.80 - 18.90	DPLT	18.50 19.50	NI/ >13?	100	50	10			
Weak, low and medium-density, white and pale grey CHALK. Wispy Griottes and black speckling along fracture planes throughout. Localised drilling induced brecciation or infill of angular gravel (unable to discern) ***. Occasional pyritized trace fossils throughout. Discontinuity 1) Joints are subvertical 60 - 90' tight, open, clean and planar. Discontinuity 2) Bedding is 0 - 10', close, tight or very tight and clean [60/80/150]. (ZIG ZAG CHALK FORMATION, low density, Grade B3)							19.40	5.79			19.50 - 19.95 19.60 - 19.70	SPTLS DPLT						SPT(S) 19.50m, 80 (25 for 70mm/80 for 85mm)		
																		20		
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater strike at 1.30, rising to 1.10m bgl (20 minutes).										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
2. Upon completion exploratory hole backfilled with bentonite.										1.20	30.00			Air / Mist	73694	65				
* Denotes drillers description.										Groundwater					Project Number					
** Chalk grade assumed from SPT N.										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
*** Denotes observation from core photograph.																				
NR - No Recovery																				
NI - Non-intact																				
ND - Not discernible																				

<div><div><div><div><div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div></div>						<div>Location Details</div> <div>Eastings: 551423.00 Northing: 249707.00</div> <div>Level: 25.19mAOD Depth: 30.00m</div> <div>Logger: CE Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-09</div>							
												Sheet 3 of 3									
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT							
0.00 1.20 5.00	1.20 5.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.00	300 - -	6.00	200	18/03 19/03	18:00 18:00	15.00 30.00	- -	-	Approved By: CP							
												Start Date: 18/03/2021			Finish Date: 19/03/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Weak, low and medium-density, white and pale grey CHALK. Wispy Griottes and black speckling along fracture planes throughout. Localised drilling induced brecciation or infill of angular gravel (unable to discern) ***. Occasional pyritized trace fossils throughout. Discontinuity 1) Joints are subvertical 60 - 90' tight, open, clean and planar. Discontinuity 2) Bedding is 0 - 10', close, tight or very tight and clean [60/80/150]. (ZIG ZAG CHALK FORMATION, low density, Grade B3) ...between 20.00m and 20.10m bgl: marl seam. ...between 20.30 and 20.38m bgl: marl seam.												20.50 - 20.60	DPLT	19.50 21.00	NI/ >15?	100	50	6			
												20.90 - 21.00	DPLT								
												21.40 - 21.50	DPLT								
...from 21.70m bgl: drilling induced fractures.												21.00 22.50		11	100	50	10				
...between 22.20m and 22.28m bgl: band of low-density chalk. ...between 22.20m and 22.30m bgl: yellow discoloration. ...from 22.25 to 22.50m bgl. possible dislocation along 1) indicated by truncated flasar marl ***. ...from 22.50 to 23.00m bgl: significant SPT induced disturbance.												22.50 - 22.95	SPTLS						SPT(S) 22.50m, 50 (25 for 65mm/50 for 60mm)		
												22.70 - 22.80	DPLT								
...between 23.20m and 23.25m bgl: marl seam.												22.50 24.00		11	100	40	20				
												23.80 - 23.90	DPLT								
Zone of core loss attributable to blow out.								24.00	1.19												
Significant drilling disturbance, recovery mainly non-intact: Weak, medium-density white and pale grey CHALK. Wispy Griottes and black speckling along fracture planes throughout. Occasional pyritized trace fossils throughout. Some discernible structure: Discontinuity 1). Joints possibly subvertical 60 - 90' , tight ? , clean ? , planar ? , smooth ? and inclined ? . Discontinuity 2). Bedding is possibly subhorizontal 0 - 10', close ? , tight and clean ? [60 ? / 80 ? / 150 ?). (ZIG ZAG CHALK FORMATION, Grade ?) ...between 24.70m and 25.30m bgl: heavy drilling induced fractures.								24.20	0.99					24.50 - 24.60	DPLT	24.00 25.50	NI/>9?	90	20	0	
														25.30 - 25.40	DPLT						
Zone of core loss attributed to SPT disturbance and blow out.								25.50	-0.31					25.50 - 25.95	SPTLS					SPT(S) 25.50m, 50 (25 for 45mm/50 for 60mm)	
Significant disturbance attributable to SPT, recovery non-intact: Weak, medium-density white and pale grey CHALK gravel.								25.75	-0.56							NR					
Weak, medium-density, white and pale grey CHALK. Wispy Griottes and black speckling along fracture planes and occasional pyritized trace fossils throughout. Discontinuity 1) Joints are subvertical 60 - 90', tight, clean, planar, smooth with black staining. Discontinuity 2) Bedding is 0 - 10' , close, very tight to tight and open (with possible blow out) ***, clean, planar and smooth [60/80/150]. (ZIG ZAG CHALK FORMATION, Grade B ? 3)								25.90	-0.71					25.50 27.00		7	84	66	30		
														26.60 - 26.70	DPLT						
														26.70 - 26.80	DPLT						
Zone of core loss attributable to blow out.								27.00	-1.81							NR					
Weak, medium-density, white and pale grey CHALK. Wispy Griottes and black speckling along fracture planes and occasional pyritized trace fossils throughout. Discontinuity 1) Joints are subvertical 60 - 90', tight and clean, planar, smooth with black staining. Discontinuity 2) Bedding is 0 - 10' , close, very tight to tight and open (with possible blow out) ***, clean, planar and smooth [50/80/200]. (ZIG ZAG CHALK FORMATION, Grade B ? 3)								27.10	-1.91					27.50 - 27.70	CSS	27.00 28.50	12	94	60	20	
														27.80 - 27.90	DPLT						
...from 28.30 to 28.50m bgl: significant drilling disturbance, recovery largely non-intact gravel.																NI					
Zone of core loss attributed to SPT disturbance and blow out.								28.50	-3.31					28.50 - 28.95	SPTLS		NR			SPT(S) 28.50m, 50 (25 for 85mm/50 for 95mm)	
Weak, medium-density, white and pale grey CHALK. Wispy griottes and black speckling along fracture planes and occasional pyritized trace fossils throughout. Discontinuity 1) Joints are subvertical 60 - 90', tight, clean, planar, smooth with black staining. Discontinuity 2) Bedding is 0 - 10' close, very tight to tight and open (with possible blow out) ***, clean, planar and smooth [50/80/200]. (ZIG ZAG CHALK FORMATION, Grade B ? 3) ...at 28.70m bgl: sponge fossils.								28.60	-3.41					28.70 - 28.80	DPLT	28.50 30.00	12	94	50	33	
														29.70 - 29.80	DPLT						
EOH at 30.00m - Target depth achieved.								30.00	-4.81												
Observations / Remarks												Drilling Fluid						Hammer Information			
1. Groundwater strike at 1.30, rising to 1.10m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Chalk grade assumed from SPT N. *** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not discernible												From (m)	To (m)	Return Mln %	Colour	Type	Serial No.	Energy Ratio %			
												1.20	30.00			Air / Mist	73694	65			
												Groundwater						Project Number			
												Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
																		784-B025563			

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="4"><div>Location Details</div><div>Easting: 551436.00 Northing: 249728.00</div><div>Level: 25.46mAOD Depth: 30.50m</div><div>Logger: EH+DC Type: RC</div><div>Inclination: 90°</div></td> <td colspan="2"><div>Status</div><div>FINAL</div></td> <td colspan="2"><div>Borehole Number</div><div>BH-OBC-10</div></td>				<div>Location Details</div> <div>Easting: 551436.00 Northing: 249728.00</div> <div>Level: 25.46mAOD Depth: 30.50m</div> <div>Logger: EH+DC Type: RC</div> <div>Inclination: 90°</div>				<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-10</div>									
								Sheet 1 of 4											
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)		To (m)		Type	Plant Used	Crew		Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT		
0.00 1.20 5.00		1.20 5.00 30.50		Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Bereetta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge		1.20 5.00 30.50	300 - -	9.50	200	10/03 11/03	17:30 18:30	9.50 30.50	- -	-	Approved By: CP		
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						Start Date: 10/03/2021	Finish Date: 13/03/2021	
											Depth (m)	Ref	Core Run	FI	TCR	SCR			RQD
MADE GROUND: Firm * brown, gravelly, very sandy SILT with rootlets. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint. (MADE GROUND) MGR(C)							0.40	25.06				0.10 0.20 0.20	ES D ES						
Medium dense * orangish brown, slightly clayey, very silty, gravelly SAND. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSIT).							0.90	24.56				0.50 0.50 0.50	B D D ES						
RTD ...from 0.80m bgl: becoming slightly clayey and silty.							1.20	24.26				1.00 1.00 1.00 1.20 - 1.65 1.30 - 1.40	B D ES SPTLS D					SPT(S) 1.20m, 52 (25 for 140mm/52 for 170mm)	
Dense * orangish brown, silty, sandy, subangular to subrounded, fine to coarse flint and chalk GRAVEL. Sand is fine to medium. (RIVER TERRADE DEPOSITS)																			
Very dense orangish brown, mottled white gravelly SAND. Sand is fine to medium. Gravel comprises fine to coarse, angular to subrounded flint and chalk. Chalk clasts are extremely weak to very weak. (RIVER TERRACE DEPOSITS / HOLLYWELL NODULAR CHALK FORMATION Transition ? Grade Dc)														1.20 2.00		100	0	0	
RTD ...from 1.60m bgl: gravel is predominantly chalk.							2.20	23.26				1.90 - 2.00 2.00 - 2.45	D SPTLS						SPT(S) 2.00m, N=11 (1,0/3,2,3,3)
Structureless white CHALK composed of GRAVEL and COBBLES. Clasts are extremely weak to weak, low-density with orange staining. Matrix is light orange brown. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)												2.50 - 2.60	D	2.00 3.00		100	0	0	
...at 2.90m bgl: with small nodular thin white cortex flints.												3.00 - 3.10 3.00 - 3.45	D SPTLS						SPT(S) 3.00m, N=11 (1,2/2,3,3,3)
...from 3.65m bgl: with medium-density chalk cobbles.												3.80 - 3.90	D	3.00 4.00		100	0	0	
Structureless CHALK composed of off-white GRAVEL and COBBLES. Clasts are extremely weak to weak, low to medium-density. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)							3.79	21.67				4.00 - 4.45	SPTLS						SPT(S) 4.00m, N=10 (1,2/2,3,3,3)
...at 4.42m bgl: moderate orange staining.												4.30 - 4.40	D	4.00 5.00		100	0	0	
...at 4.92m bgl: small nodular thick white cortex flint.							5.00	20.46				4.90 - 5.00 5.00 - 5.45	D SPTLS						SPT(S) 5.00m, N=14 (2,3/4,3,3,4)
Minimal recovery (20%) - possible blow out of sand infill of dissolution feature. * : Off-white silty (chalky), medium SAND.												5.00 6.50		NR		20	0	0	
No recovery - possible blow out of sand infilled dissolution feature. *												6.40 - 6.50	D			NI			

<div><div><div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status		Borehole Number								
						Easting: 551436.00 Northing: 249728.00 Level: 25.46mAOD Depth: 30.50m Logger: EH+DC Type: RC Inclination: 90°																
												FINAL						BH-OBC-10				
												Sheet 3 of 4										
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT							
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	9.50	200	10/03 11/03	17:30 18:30	9.50 30.50	- -	-	Approved By:	CP							
												Start Date: 10/03/2021										
												Finish Date: 13/03/2021										
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring											
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results				
Very weak to weak low-density white CHALK with black zoophycos streaks. Discontinuity 1). Joints are 80 to 90', closed to open, rough, planar with black speckles. Discontinuity 2). Bedding is 0 to 10' close, closed to open, rough, undulating with black speckling [90/100/250]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 19.60 to 19.70m bgl: non-intact, possible brecciated chalk infill of 2), or possible drilling disturbance ** ...at 19.75m bgl: with rare greenish pale grey trace fossil burrows and marl seam. ...at 19.98m bgl: slight orange staining. ...from 20.72m bgl: with occasional orange speckling. ...at 21.25m bgl: orange staining and mineralisation. ...at 21.37m bgl: with wispy marls. ...at 21.44m bgl: with wispy marls. ...at 22.61m bgl: orange stained sponge bed. ...at 21.93m bgl: 10mm thick grey marl seam. ...at 22.08m bgl: orange stained sponge bed.							22.60	2.86				20.40 - 20.50	DPLT	20.00 21.50	12	95	45	19	SPT(S) 21.50m, 50 (6,10/50 for 100mm)	21		
												21.15 - 21.35	CSS									
												21.50 - 21.95	SPTLSS PT CSS									
												21.60 - 21.80										
												21.90 - 22.00	DPLT	21.50 23.00	13	100	91	40				
												22.60 - 22.80	DPLT									
												23.50 - 23.60	DPLT	23.00 24.50	ND/ >13? NR	80	50	20				
												23.90 - 24.00	DPLT		ND							
												24.40 - 24.50	DPLT		NI							
												24.50 - 24.95	SPTLS		ND							
Some drilling disturbance: Very weak to weak, low-density, slight greyish white CHALK with black zooplycos streaks. Discontinuity 1). Joints are 80 to 90', closed to open, rough, planar with black speckles. Discontinuity 2). Bedding is 0 to 10' , close, closed to open, rough, undulating with black speckling [80/110/240]. (ZIG ZAG CHALK FORMATION, Grade B ? 3 ?) ...from 22.78m to 22.87m bgl: polished black speckled grey clay smearing along 70° inclined fracture. ...from 23.00 to 23.40m bgl: SPT induced fracturing. ...from 23.40 to 23.80m bgl: partial recovery (40%) with possible blow out of natural or drill induced brecciation. ** ...at 23.60m bgl: slight orange staining and iron mineralisation. ...at 23.82m bgl: greyish white marl seam with chalk intraclasts. ...at 23.96m bgl: 10mm thick pale grey marl seam. ...from 24.10 to 24.40m bgl: significant drilling disturbance, recovery non-intact angular, fine to coarse gravel. ...at 24.46m bgl: orange staining and mineralisation.							24.50	0.96				24.90 - 25.00	DPLT	24.50 26.00	16	90	50	0	SPT(S) 24.50m, 50 (2,14/50 for 105mm)	25		
												25.90 - 26.00	DPLT									
												26.30 - 26.40	DPLT									
												26.90 - 27.10	CSS	26.00 27.50	11	80	66	21				
												27.30 - 27.40	DPLT									
												27.50 - 27.95	SPTLSS PT		NI							
												27.80 - 27.90	DPLT									
												28.40 - 28.50	DPLT	27.50 29.00	14	95	87	6				
												28.80 - 28.90	DPLT									
												Very weak to weak, low-density white CHALK with black zooplycos streaks. Discontinuity 1). Joints are 80 to 90', closed to open, rough, planar with black speckles. Discontinuity 2). Bedding is 0 to 10' , close, , tight to open, rough, undulating with black speckling [70/100/130]. (ZIG ZAG CHALK FORMATION, low density, Grade B3) ...from 27.50 to 27.80m bgl: disturbance attributable to SPT, recovery non-intact with possible blow out of drill induced brecciation. ** ...at 27.97m bgl moderate to heavy orange staining on fracture face. ...from 28.46m to 28.53m bgl: moderately orange stained greenish grey clay smeared black speckled polished, undulating, 70 degrees, inclined fracture.									27.50	-2.04
29.00 - 29.10																						
29.20 - 29.30																						
29.40 - 29.50																						
29.60 - 29.70																						
29.80 - 29.90																						
30.00 - 30.10																						
30.20 - 30.30																						
30.40 - 30.50																						
Minimal recovery (25%) with significant drilling disturbance, including evidence of turning: Very weak to weak, low-density white CHALK with black zoophycos streaks. Discernible structure: Discontinuity 1). Joints are 80 to 90', closed to open, rough, planar with black speckles. Discontinuity 2). Bedding is 0 to 10', closed to open, rough, undulating with black speckling. (ZIG ZAG CHALK FORMATION, ?)							29.00	-3.54												29.00 30.50		
												30.00 - 30.10										
												30.20 - 30.30										
												30.40 - 30.50										
												30.60 - 30.70										
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												31.00 - 31.10										
												31.20 - 31.30										
												31.40 - 31.50										
												31.60 - 31.70										
Observations / Remarks										Drilling Fluid					Hammer Information							
1. Groundwater strike at 1.60, rising to 1.50m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %						
										1.20	30.50			Air / Mist	73694	65						
										Groundwater					Project Number							
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks							
															784-B025563							

<div><div><div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status		Borehole Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
						Easting: 551436.00 Northing: 249728.00 Level: 25.46mAOD Depth: 30.50m Logger: EH+DC Type: RC Inclination: 90°						FINAL		BH-OBC-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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<div>Minimal recovery (25%) with significant drilling disturbance, including evidence of turning: Very weak to weak, low-density white CHALK with black zoophycos streaks. Discernible structure: Discontinuity 1). Joints are 80 to 90', closed to open, rough, planar with black speckles. Discontinuity 2). Bedding is 0 to 10', closed to open, rough, undulating with black speckling. (ZIG ZAG CHALK FORMATION, ?)</div> <div>EOH at 30.50m - Target depth achieved.</div>							30.50	-5.04				30.40 - 30.50	DPLT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

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										Sheet 1 of 4											
<div><div>Method, Plant and Crew</div><div><div><div>From (m)</div><div>To (m)</div><div>Type</div><div>Plant Used</div><div>Crew</div></div><div><div><div>0.00</div><div>1.20</div><div>8.00</div></div><div><div>1.20</div><div>8.00</div><div>30.50</div></div><div><div>Inspection Pit</div><div>Dynamic Windowless Sampling</div><div>Rotary Core</div></div><div><div>Hand Excavated</div><div>Beretta T46</div><div>Atlas 186</div></div><div><div>M. Bainbridge</div><div>M. Bainbridge</div><div>M. Bainbridge</div></div></div></div></div>						<div><div>Diameter</div><div><div>Depth (m)</div><div>Diam (mm)</div></div><div><div>1.20</div><div>8.00</div><div>30.50</div></div><div><div>300</div><div>-</div><div>-</div></div></div>		<div><div>Casing</div><div><div>Depth(m)</div><div>Diam (mm)</div></div><div><div>12.00</div><div>200</div></div></div>		<div><div>Drilling Progress by Time</div><div><div>Date</div><div>Time</div><div>Depth (m)</div><div>Casing (m)</div><div>Water (m)</div></div><div><div>12/03</div><div>18:00</div><div>8.00</div><div>-</div><div>-</div></div><div><div>15/03</div><div>18:00</div><div>23.00</div><div>-</div><div>-</div></div><div><div>16/03</div><div>18:00</div><div>30.50</div><div>-</div><div>-</div></div></div>						<div><div>Scale: 1:50</div><div>Checked By: RT</div><div>Approved By: CP</div><div>Start Date: 12/03/2021</div><div>Finish Date: 16/03/2021</div></div>					
<div><div>Strata Description</div><div></div></div>						<div><div>Legend</div><div></div></div>	<div><div>Depth (m)</div><div></div></div>	<div><div>Reduced Level (mAOD)</div><div></div></div>	<div><div>Water Level (m)</div><div></div></div>	<div><div>Inst / Backfill</div><div></div></div>	<div><div>Samples, Tests and Rotary Coring</div><div><div>Depth (m)</div><div>Ref</div><div>Core Run</div><div>FI</div><div>TCR</div><div>SCR</div><div>RQD</div><div>Tests / Results</div><div></div></div></div>										
<div>MADE GROUND: Firm * brown very gravelly, very sandy CLAY. Sand is fine to coarse. Gravel is subangular, fine to coarse flint and chalk. (TOPSOIL) MGR(TS)</div>						<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div><div>0.10</div><div>0.20</div><div>ES</div><div>ES</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></d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<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status FINAL		Borehole Number BH-OBC-11						
						Easting: 551442.00 Northing: 249720.00 Level: 25.41mAOD Depth: 30.50m Logger: EH+CE Type: RC Inclination: 90°														
						Sheet 3 of 4														
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP					
0.00 1.20 8.00	1.20 8.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 8.00 30.50	300 - -	12.00	200	12/03 15/03 16/03	18:00 18:00 18:00	8.00 23.00 30.50	- - -	-	Start Date: 12/03/2021	Finish Date: 16/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Zone of core loss attributable to SPT disturbance and blow out.																				
Weak, medium-density, white and creamish grey marly CHALK. Discontinuity 1) Joints are sub vertical tight to open. Discontinuity 2) Bedding is sub horizontal, close, rough, undulating, tight or open and infilled with gravelly silty comminuted chalk [50/70/90]. (PLENUS MARL MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 21.00 to 21.10m bgl: with plastic marl seams.								20.45	4.96			20.60 - 20.70	DPLT	20.00 21.50	NR	70	50	23	21	
								21.10	4.31			21.40 - 21.50	DPLT							
Weak, low to medium-density white CHALK with frequent black specks along fracture planes. Discontinuity 1) Joints are 70 - 90', open and clean. Discontinuity 2) Bedding 0 - 10', close, rough and planar, tight and open with silty gravelly comminuted chalk infill. [60/70/110]. (ZIG ZAG CHALK FORMATION, Grade C3) Significant drilling induced disturbance, recovery mainly non-intact.; Weak, medium-density white with local pale grey brands CHALK with orange brown staining, black specks and rare inoceramids throughout. Many drilling induced fractures. Discernible structure includes: Discontinuity 1) Joints are 70 - 90' open with silt infill. Discontinuity 2) Bedding is 0 - 10' , probably close to medium, rough and planar, , probably tight to open with silt infill [100/150/240]. (ZIG ZAG CHALK FORMATION, Probably Grade B ? 2 ?)								21.50	3.91			21.70 - 21.80	DPLT	21.50 23.00	NI	100	33	10	22	
											22.40 - 22.50	DPLT								
Weak, medium-density, white with local pale grey brands CHALK with orange brown staining, black specks and rare inoceramids throughout. Discontinuity 1) Joints are 70 - 90' open with silt infill. Discontinuity 2) Bedding is 0 - 10', close to medium, rough and planar, probably tight to open with silt infill [100/150/240]. (ZIG ZAG CHALK FORMATION, medium density, Grade B2) ...from 25.00 to 26.00m bgl: with drilling induced fractures.								23.00	2.41			23.00 - 23.45	SPTLS						SPT(S) 23.00m, 50 (25 for 77mm/50 for 85mm)	23
											23.20 - 23.30	DPLT								
											23.80 23.80 - 24.05	CUCS CSS	23.00 24.50	12	90	80	65	24		
											24.80 - 24.90	DPLT						25		
											25.10 - 25.20	DPLT	24.50 26.00	12	100	70	60			
No recovery attributable to SPT disturbance and blow out.								26.00	-0.59			26.00 - 26.45	SPTLS		NR				SPT(S) 26.00m, 50 (25 for 90mm/50 for 120mm)	26
Weak, medium-density, white with local pale grey brands CHALK with orange brown staining, black specks and rare inoceramids throughout. Discontinuity 1) Joints are 70 - 90' open with silt infill. Discontinuity 2) Bedding is 0 - 10', close to medium, rough and planar, probably tight to open with silt infill [100/150/240]. (ZIG ZAG CHALK FORMATION, medium density, Grade B2) ...from 28.25 to 29.00m bgl: with drilling induced fractures, recovery is mainly non-intact.								26.25	-0.84			26.30 - 26.40	D						27	
											26.70 - 26.80	DPLT	26.00 27.50	10	80	75	70			
											27.20 - 27.30	DPLT						28		
											27.40 - 27.50	DPLT								
													ND					29		
											27.50 29.00			100	50	50				
											28.50 - 28.60	DPLT		NI				SPT(S) 29.00m, 50 (25 for 80mm/50 for 140mm)	29	
											29.00 - 29.45	SPTLS						30		
											29.10 - 29.20	DPLT	29.00 30.00	10 / ND	100	80	50			
											29.70 - 29.80	DPLT		NI						
Observations / Remarks											Drilling Fluid				Hammer Information					
1. Groundwater strike at 1.90, rising to 1.55m bgl (20 minutes). 2. Upon completion exploratory hole installed with 2 x 63mm groundwater monitoring pipes to 17.00m and 2.50m bgl. * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											1.20	30.50			Air / Mist	73694	65			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
											784-B025563									

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details				Status FINAL		Borehole Number BH-OBC-11							
						Easting: 551442.00 Northing: 249720.00		Level: 25.41mAOD Depth: 30.50m											
						Logger: EH+CE		Type: RC		Inclination: 90°		Sheet 4 of 4							
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20 8.00	1.20 8.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 8.00 30.50	300 - -	12.00	200	12/03 15/03 16/03	18:00 18:00 18:00	8.00 23.00 30.50	- - -	-	Approved By:	CP				
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
										Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
<div>Weak, medium-density, white with local pale grey brands CHALK with orange brown staining, black specks and rare inoceramids throughout. Discontinuity 1) Joints are 70 - 90' open with silt infill. Discontinuity 2) Bedding is 0 - 10', close to medium, rough and planar, probably tight to open with silt infill [100/150/240]. (ZIG ZAG CHALK FORMATION, medium density, Grade B2)</div> <div>EOH at 30.50m - Target depth achieved.</div>						30.50	-5.09			30.40 - 30.50	DPLT								
					Observations / Remarks									Drilling Fluid				Hammer Information	
1. Groundwater strike at 1.90, rising to 1.55m bgl (20 minutes). 2. Upon completion exploratory hole installed with 2 x 63mm groundwater monitoring pipes to 17.00m and 2.50m bgl. * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not Discernible									From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
									1.20	30.50			Air / Mist	73694	65				
									Project Number										
									Groundwater				784-B025563						
									Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="5"><div>Location Details</div><div>Easting: 551453.00 Northing: 249740.00</div><div>Level: 25.74mAOD Depth: 30.50m</div><div>Logger: EH Type: RC</div><div>Inclination: 90°</div></td> <td colspan="2"><div>Status</div><div>FINAL</div></td> <td colspan="3"><div>Borehole Number</div><div>BH-OBC-12</div></td>										<div>Location Details</div> <div>Easting: 551453.00 Northing: 249740.00</div> <div>Level: 25.74mAOD Depth: 30.50m</div> <div>Logger: EH Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-12</div>				
															Sheet 1 of 4						
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT	Approved By:	CP				
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Window Sampler Rotary Core	Hand Excavation Tools Beretta T46 Atlas 186	Bainbridge Bros Ltd Mike and Luke Bainbridge Mike and Luke Bainbridge	1.20 5.00 30.50	300 - -	10.50	150	04/03 05/03	17:30 16:00	14.45 30.50	- -	-	Start Date:	04/03/2021	Finish Date:	05/03/2021				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
MADE GROUND: Soft to firm sandy gravelly very clayey SILT. Gravel is angular to subrounded fine to coarse flint and brick. (TOPSOIL) MGR(TS) Firm yellowish brown, gravelly, very sandy CLAY with a high cobble content. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk. Cobbles are subangular to subrounded flint. (RIVER TERRACE DEPOSITS) RTD								0.35	25.39			0.10 0.20 0.20	ES1 B1 ES2								
												0.50 0.50	D1 ES3								
Zone of sample loss attributable to SPT disturbance.								1.20	24.54			1.00 1.00 1.00 1.20 - 1.65 1.40 - 1.50	B B2 D2 ES4 SPTLS3 D4					SPT(S) 1.20m, N=24 (5,6/7,5,6,6)			
Medium dense light brown, gravelly medium to coarse SAND. Gravel is subangular to rounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS) RTD ...at 1.66m bgl: cobble of medium dense white chalk. Structureless CHALK composed of brownish white gravelly SILT. Gravel is extremely weak to weak, low-density, subangular to subrounded, fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dm) Zone of sample loss attributable to SPT disturbance. Structureless CHALK composed of brownish white gravelly SILT. Gravel is extremely weak to weak, low-density, subangular to subrounded, fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dm) ...at 3.12m bgl: flint replaced echinoderm. ...from 3.23m bgl: with occasional cobbles of weak, low-density chalk. ...from 3.33 to 3.42m bgl: moderate orange staining. ...from 3.55 to 3.66m bgl: moderate orange staining.												1.20 2.00								SPT(S) 2.00m, N=10 (1,2/2,2,3,3)	
								1.50	24.24			2.00 - 2.45 2.10 - 2.20	SPTLS5 D6								
												2.60 - 2.70	D7	2.00 3.00	85	0	0				
								1.95 2.00	23.79 23.74			3.00 - 3.45 3.20 - 3.30	SPTLS8 D9						SPT(S) 3.00m, N=10 (1,2/2,2,3,3)		
												3.70 - 3.80	D10	3.00 4.00	100	0	0				
Zone of core loss attributable to SPT disturbance.								4.00	21.74			4.00 - 4.45	SPTLS1 1						SPT(S) 4.00m, N=10 (1,1/2,3,2,3)		
Structureless CHALK composed of brownish white gravelly SILT. Gravel is extremely weak to weak, low-density, subangular to subrounded fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dm) ...from 4.80 to 4.85m bgl: moderate orange staining.												4.30 - 4.40	D12	4.00 5.00	70	0	0				
								4.30	21.44			4.80 - 4.90	D13								
												5.00 - 5.45 5.00 - 6.50 5.20 - 6.20 5.40 - 5.50	SPTLS1 4 C1 C D15							SPT(S) 5.00m, N=16 (2,3/4,4,3,5)	
								6.23	19.51			5.90 - 6.00	D16	5.00 6.50	NI	100	0	0			
												6.40 - 6.50 6.50 - 8.00	D17 C2								
Significant drilling disturbance and recovered as white light brown CHALK composed of silty GRAVEL. Clasts are extremely weak to weak, low-density, subangular to subrounded, fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc ? / Possibly structured)								6.90	18.84					NI							
Very weak, low-density white speckled brown, slightly gritty shelly CHALK. Shell fragments are disarticulated bivalve and brachiopod fragments. Zones of drilling disturbance (as indicated) / possibly Grade Dc infill. Discernible structure: Discontinuity 1) Joints are 70 to 90' close to partly open, clean with occasional orangish brown staining. Discontinuity 2) Bedding is 0 to 10' close, open and infilled with chalk clasts with occasional orangish brown staining [50/100/150]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C3 ?) ...from 6.90 to 7.05m bgl: non-intact - likely from drilling disturbance, but possible horizon of Grade Dc. ** ...from 7.30 to 7.55m bgl: non-intact - likely from drilling disturbance, but possible horizon of Grade Dc. **												7.10 7.10 - 7.20	D D18	6.50 8.00	NI						
No recovery attributable to SPT / drilling disturbance and blow out.								8.00	17.74			7.60 - 7.70	D19								
												8.00 - 8.45 8.00 - 9.50 8.20 - 8.30	SPTLS2 0 C3 D21							SPT(S) 8.00m, N=17 (2,2/4,4,4,5)	
Partial recovery and highly disturbed by drilling, recovery mainly non-intact: Very weak low-density white speckled brown CHALK gravel and some cobbles. (HOLLYWELL NODULAR CHALK FORMATION ?, unable to grade ?) Very weak, low-density white speckled brown, slightly gritty shelly CHALK with occasional cemented marl seams (<2mm thick). Shell fragments are disarticulated bivalve and brachiopod fragments. Discontinuity 1) Joints are 70 to 90' closed to partly open, clean with occasional orangish brown staining. Discontinuity set 2) Bedding is 0 to 10' close, clean, open infilled with chalk clasts with occasional orangish brown staining [50/150/200]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C3) ...from 9.50 to 9.80m bgl: significant drilling disturbance and recovered as non-intact gravel.								9.00	16.74			8.70 - 8.80	D22	8.00 9.50	44	0	0				
												9.20 - 9.30	D23								
								9.50	16.24			9.50 - 11.00	C4								
												9.70 - 9.80	D24	NI							
																			10		
Observations / Remarks											Drilling Fluid				Hammer Information						
1. Groundwater strike at 1.40, rising to 1.15m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 20.00m bgl. * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
											1.20	30.50			Air / Mist	73694	65				
											Groundwater				Project Number						
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
											1.40	-	4	20	1.15						
															784-B025563						

		Project: Cambridge South East Transport – Phase 2				Location Details				Status		Borehole Number													
		Location: Cambridge				Easting: 551453.00 Northing: 249740.00																			
Client: Greater Cambridge Partnership						Level: 25.74mAOD Depth: 30.50m				FINAL		BH-OBC-12													
						Logger: EH Type: RC																			
						Inclination: 90°						Sheet 3 of 4													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50									
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT										
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Window Sampler Rotary Core	Hand Excavation Tools Beretta T46 Atlas 186	Bainbridge Bros Ltd Mike and Luke Bainbridge Mike and Luke Bainbridge	1.20 5.00 30.50	300 - -	10.50	150	04/03 05/03	17:30 16:00	14.45 30.50	- -	-	Approved By:	CP										
														Start Date:	04/03/2021										
														Finish Date:	05/03/2021										
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring													
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results						
Very weak, medium-density greyish white CHALK with occasional pale grey zoophycos trace marks and wispy grey marls throughout. Discontinuity set 1) Joints are 70 to 90' closed and clean. Discontinuity 2) Bedding is 0 to 10', close to medium, closed and clean [110/150/270]. (ZIG ZAG CHALK FORMATION, medium density, Grade A3)												20.10 20.10 - 20.20	PLT DPLT												
												20.90 - 21.00	DPLT	20.00 21.50	8	100	98	25							
...from 21.50 to 21.70m bgl: significant drilling disturbance, recovery non-intact. ** ...at 21.70m bgl orangish stained sponge bed.												21.20 - 21.30 21.20 - 21.30	B1 DPLT												
												21.70 21.70 - 21.80	PLT DPLT		NI										
...at 22.05m bgl: cemented 5mm thick marl seam .												22.00 22.00 - 22.20	UCS DUCS												
												22.00 22.00 - 22.20	UCS DUCS	21.50 23.00	6	100	80	22							
...from 22.39m to 22.56m bgl: with wispy griotte marls. ...from 22.60m to 22.61m bgl : slightly plastic marl seam.												22.80 - 22.90	DPLT												
												23.00 - 23.10 23.00 - 23.10 23.00 - 23.45	DPLT PLT SPTLS							SPT(S) 23.00m, 50 (25 for 85mm/50 for 95mm)					
...from 24.22m bgl : possible conjugate joint set. Some joints are polished and smeared with black clay.												23.80 23.80 - 23.90	PLT DPLT	23.00 24.50	8	100	98	40							
												24.40 - 24.50 24.40 - 24.50 24.50 - 24.60	DPLT PLT DPLT												
...at 25.00m bgl: orange stained sponge bed. ...from 25.20 to 25.30m bgl: subvertical joint with black polished clay surface.												25.20 - 25.30	DPLT	24.50 26.00	7	98	71	30							
Very weak, medium-density greyish white CHALK with occasional pale grey zoophycos trace marks and multiple wispy marls. Discontinuity 1) Joints are 70 to 90' closed and clean. Discontinuity 2) Bedding is 0 to 10' close, closed and clean [70/100/200]. (ZIG ZAG CHALK FORMATION, Grade A3) ...at 26.41m bgl: grey plastic marl seam. ...at 26.55m bgl orange stained sponge bed.								26.00	-0.26			25.90 - 26.00 26.00 - 26.10 26.00 - 26.45	DPLT DPLT SPTLS						SPT(S) 26.00m, 50 (25 for 75mm/50 for 80mm)						
												26.60 - 26.70 26.80 - 26.90 26.90 - 27.00	DPLT DPLT DPLT	26.00 27.50	7	100	92	12							
...at 27.19m bgl: small pocket of high density, probably iron mineralised orange speckled chalk. ...at 27.37m bgl: orange staining.												27.30 - 27.40	DPLT												
...at 27.80m bgl: orange staining.												27.90 - 28.00	DPLT												
...at 28.36m bgl orange staining. ...from 28.60m to 28.69m bgl: liesegang banding.												27.50 29.00		7	80	72	11								
Partial recovery with significant SPT disturbance: Very weak, medium-density greyish white CHALK. Discernible structure: Discontinuity 1) Bedding is 0 to 10' probably close, probably closed and clean (70 ? / 100 ? / 200 ?). (ZIG ZAG CHALK FORMATION, Grade A ? 3 ?)								29.00	-3.26			29.00 - 29.45	SPTLS						SPT(S) 29.00m, 50 (25 for 60mm/50 for 80mm)						
												30.00 - 30.10	DPLT												
Observations / Remarks												Drilling Fluid					Hammer Information								
1. Groundwater strike at 1.40, rising to 1.15m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 20.00m bgl. * Denotes drillers description ** Denotes observation from core photo NR - No Recovery NI - Non-intact ND - Not Discernible												From (m)		To (m)		Return Min %		Colour		Type		Serial No.		Energy Ratio %	
												1.20		30.50						Air / Mist		73694		65	
												Groundwater					Project Number								
												Strike (m)		Casing (m)		Sealed (m)		Time (min)		Rose To (m)		Remarks		784-B025563	

[illegible]

<div><div><div><div><div></div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div></div>						<div>Location Details</div> <div>Easting: 551461.00 Northing: 249732.00</div> <div>Level: 25.69mAOD Depth: 30.50m</div> <div>Logger: EH+AT+DC Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-13</div>						
												Sheet 1 of 4								
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	5.00	200	08/03 09/03	17:30 18:00	9.50 30.50	-	-	Approved By:	CP					
														Start Date:	08/03/2021					
														Finish Date:	11/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Soft to firm brown clayey gravelly very silty fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse flint. Cobbles are angular to subrounded coarse flint. (TOPSOIL)								0.45	25.24			0.10 0.20	ES1 ES2							
MGR(TS) Medium dense * orangish brown, slightly clayey, silty, very gravelly fine to coarse SAND with low cobble content. Gravel is angular to subangular, fine to coarse flint and chalk. Cobbles are angular to subangular flint. (RIVER TERRACE DEPOSITS)								0.90	24.79			0.50 0.50	D1 ES3							
RTD Structureless CHALK composed of off-white mottled yellowish brown, gravelly silty SAND. Gravel is fine to coarse, angular to subrounded flint and very weak chalk. Occasional pocket of orange brown, fine to coarse sand. (RIVER TERRACE DEPOSITS / HOLLYWELL NODULAR CHALK FORMATION ? Transition , Grade Dm)								1.20	24.49			1.00 1.00 1.00 1.00	B B1 D2 ES4						SPT(S) 1.20m, 50 (7,11/50 for 170mm)	
Very dense light brown very sandy angular to subangular fine to coarse GRAVEL of flint. Sand is fine to coarse.. (RIVER TERRACE DEPOSITS / HOLLYWELL NODULAR CHALK FORMATION Transition)								1.35	24.34			1.20 - 1.30 1.20 - 1.65	D3 SPTLS4	1.20 2.00		100	0	0		
RTD Structureless CHALK composed of off-white silty GRAVEL. Gravel is weak, low-density white chalk and frequent angular fine to coarse flint. (RIVER TERRACE DEPOSITS / HOLLYWELL NODULAR CHALK FORMATION ? Transition, Grade Dc)								1.65	24.04			1.80 - 1.90 2.00 - 2.45	D5 SPTLS6						SPT(S) 2.00m, N=13 (2,3/3,4,3,3)	
Medium dense light orange brown, very sandy, angular to subangular, fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS / HOLLYWELL NODULAR CHALK FORMATION Transition)								2.35	23.34			2.60 - 2.70	D7	2.00 3.00	100	0	0			
RTD ...from 1.75 to 2.30m bgl: orange brown ** ...at 1.96 to 2.00m bgl: 50mm thick band of structureless white CHALK ** ...from 2.30m bgl: becoming light orange brown and possibly silty (gradation back into Grade Dc chalk) ** ...from 2.30m bgl: becoming light orange brown **												3.00 - 3.45 3.30 - 3.40	SPTLS8 D9	3.00 4.00			100	0	0	SPT(S) 3.00m, N=11 (1,2/2,3,3,3)
Structureless white CHALK composed of light orange brown silty GRAVEL. Gravel is weak, low-density white chalk and occasional angular, fine to coarse flint. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)												3.80 - 4.00 4.00 - 4.45	D10 SPTLS1 1	4.00 5.00					SPT(S) 4.00m, N=15 (2,3/2,4,4,5)	
...from 4.50m bgl: becoming off-white ** and less silty.												4.30 - 4.40 4.00 5.00	D12	4.00 5.00	85	0	0			
No recovery, split liner with possible dislocation of sample below.								5.00	20.69			5.00 - 5.45	SPTLS1 3						SPT(S) 5.00m, N=16 (2,3/3,5,4,4)	
														5.00 6.50	NR	33	0	0		
Partial recovery (33%), possible dislocation from above: Weak, low to medium-density white CHALK. Discontinuity 1) Joints are 60 to 90' closed clean. Discontinuity 2) Bedding is 0 to 10' close, partially open to open and infilled with chalk clasts with occasional brown specks [30/90/120]. (HOLLYWELL NODUALR CHALK FORMATION, medium density, Grade C3)								6.00	19.69			6.00 6.00 - 6.10	PLT DPLT							
...at 6.45m bgl: with small nodular flints (20-30mm) with a thick white cortex. Possibly part of the Glyndebourne tubular flints.								6.50	19.19			6.40 - 6.50 6.40 - 6.50 6.50 - 8.00	DPLT PLT B2							
No recovery.												6.50 8.00		NR	0	0	0			
Weak, low-density white CHALK with brown specks. No structure discernible. (HOLLYWELL NODULAR CHALK FORMATION, ?)																				
No recovery with striations noted on liner - possible dislocation of sample. **																				
Significant drilling disturbance, possible blow out and dislocation from above**, recovery non-intact: Weak, low-density white CHALK gravel with some cobbles with brown specks. (HOLLYWELL NODULAR CHALK FORMATION, ?)								8.00	17.69			8.00 - 8.45	SPTLS1 6		NR				SPT(S) 8.00m, N=9 (1,2/2,2,3,2)	
Weak, low-density white CHALK with brown specks. Discontinuity 1) Joints are 60 to 90'closed clean and open infilled with chalk breccia**. Discontinuity 2) Bedding is 0 to 10' close, partially open to open infilled with chalk clasts with occasional brown specks. [30/90/120]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C4)								8.05	17.64											
...from 9.00 to 9.50m bgl: thin flaser marl seams (<1mm) and inoceramid shell fragments.								8.35	17.34			8.50 - 8.60	DPLT		NI					
Significant drilling disturbance, recovery non-intact: Weak, low-density white CHALK gravel with some cobbles with brown specks. (HOLLYWELL NODULAR CHALK FORMATION, ?)								8.65	17.04			8.00 9.50		100	40	20				
No recovery attributable to blow out.																				
Significant drilling disturbance, partially non-intact, possible compression associated with blow out.** Weak, low-density white slightly shelly CHALK with brown specks. Shell fragments are Mytiloides labiatus, and other unidentified bivalves / brachiopods. Discernible structure: Discontinuity 1) Joints are 90' closed to partially open, clean with brown speckling. Discontinuity 2) Bedding is 0 to 10', partially open to open, infilled with chalk clasts with some brown specks [70/80/ ?], (HOLLYWELL NODULAR CHALK FORMATION, Possibly Grade Dc Interbedded with B4 ?)								9.40	16.29											
								9.50	16.19											
								9.84	15.85			9.80 - 9.90	DPLT							
Observations / Remarks										Drilling Fluid				Hammer Information						
1. Groundwater strike at 1.90m, rising to 1.61m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										1.20	30.50			Air / Mist	73694	65				
										Groundwater				Project Number						
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
										1.90	-	-	20	1.61		784-B025563				

<div><div><div><div><div></div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div></div>										<div>Location Details</div> <div>Easting: 551461.00 Northing: 249732.00</div> <div>Level: 25.69mAOD Depth: 30.50m</div> <div>Logger: EH+AT+DC Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-13</div>														
										Sheet 2 of 4																					
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50															
From (m)		To (m)		Type	Plant Used	Crew		Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT													
0.00 1.20 5.00		1.20 5.00 30.50		Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge		1.20 5.00 30.50	300 - -	5.00	200	08/03 09/03	17:30 18:00	9.50 30.50	- -	-	CP	Approved By:													
																		Start Date:	08/03/2021												
																		Finish Date:	11/03/2021												
Strata Description										Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring																
															Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results									
Significant drilling disturbance, partially non-intact, possible compression associated with blow out.** Weak, low-density white slightly shelly CHALK with brown specks. Shell fragments are Mytiloides labiatus, and other unidentified bivalves / brachiopods. Discernible structure: Discontinuity 1) Joints are 90' closed to partially open, clean with brown speckling. Discontinuity 2) Bedding is 0 to 10', partially open to open, infilled with chalk clasts with some brown specks [70/80/ ?], (HOLLYWELL NODULAR CHALK FORMATION, Possibly Grade Dc Interbedded with B4 ?) ...from 10.12m to 10.66m bgl: recovered as non-intact gravel. ...at 10.33m bgl: 1mm thick wispy marl seam noted. ...at 10.77m bgl 1mm thick marl seam and relict pinnate shear zone noted.											11.00	14.69			10.40 - 11.00	DPLT	9.50 11.00	NI	75	16	0		SPT(S) 11.00m, N=20 (3,3/4,4,6,6)	11							
Significant drilling disturbance with zones of non-intact recovery and blow out: Weak, low to medium-density yellowish white shelly CHALK with frequent thin marls. Discernible structure: Discontinuity 1) Joints are 80 to 90' probably partially open, clean with occasional orange staining. Discontinuity 2) Bedding is 0 to 10' close, open infilled with chalk clasts clean with orange staining [60 ? / 80 ? / 100 ?]. (HOLLYWELL NODULAR CHALK FORMATION, medium density, Possibly Grade Dc interbedded with C3 ?) ...from 11.00m bgl: large whole mytilid shells. ...from 11.56m to 11.72m bgl: with moderate orange staining. ...from 11.97 to 12.18m bgl: subvertical fracture with moderate to heavy orange staining with relict pinnate shearing. ...from 11.97 to 12.18m bgl: multiple thin marl seams with some white chalk intraclasts.											12.50	13.19			11.00 - 11.45	SPTLS2 0		ND/ >5?							12						
Significant drilling disturbance with zones of non-intact recovery, possible blow out and related core compression: Weak, low to medium-density yellowish white shelly CHALK with frequent thin marls. Discernible structure: Discontinuity 1) Joints are 80 to 90' partially open, clean with occasional orange staining. Discontinuity 2) Bedding is 0 to 10' close, open and infilled with chalk clasts clean with orange staining [60 ? / 80 ? / 100 ?]. (HOLLYWELL NODULAR CHALK FORMATION, Possibly Grade Dc interbedded with C3 ?) ...from 13.15m to 13.28m bgl heavy orange staining with occasional slight oxide mineralisation. ...from 13.32 to 13.86m bgl: liesegang banding noted. ...from 13.63 to 13.86m bgl: greenish grey marl seams noted. ...at 13.90m bgl: complete shell of Orbirhynchia cuvica (Brachiopod). ...at 13.99mbgl: complete shell of Orbirhynchia cuvica.											14.00	11.69			11.30 11.30 - 11.40	PLT DPLT		11.00 12.50	NI/ >15?	86	70	7				13					
Significant drilling disturbance (with possible blowout related compression**), recovery mainly non-intact: Weak, low to medium-density yellowish white with orange staining shelly CHALK with frequent thin marls. Discernible structure: Discontinuity set 1) Joints are 80 to 90' partially open, clean with occasional orange staining. Discontinuity 2) Bedding is 0 to 10' close, open infilled with chalk clasts clean with orange staining [60 ? / 80 ? / 100 ?]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C ? 3 ?) ...from 14.55m bgl: orange staining. ...from 15.03m to 15.23m bgl: thin greenish grey marl seams noted. ...from 15.10 to 15.22m bgl: slight orange staining. ...from 15.26m bgl: marl seams become very thin.											14.55	11.14			12.30 - 12.40	DPLT										14					
Significant drilling disturbance (with possible blowout related compression**), recovery non-intact: Weak, low-density white CHALK gravel with orange staining. (HOLLYWELL NODULAR CHALK FORMATION, ?)) ...from 16.00 to 16.70m bgl: frequent thin marl seams noted. ...from 16.45m to 16.50m bgl: with heavy orange staining.											15.80	9.89			12.70 - 12.80	DPLT		NR							15						
Very weak to weak, medium-density greenish grey orangish white CHALK with marl seams up to 50mm thick and associated brecciation (possibly drilling induced) of surrounding chalk. Discontinuity 1) Joints are 80 to 90' partially open clean. Discontinuity 2) Bedding is 0 to 10' very close to close, closed to partly open, clean with black and orange specks and black zoophycos streaks [50/100/200]. (PLENUS MARL MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 17.40 to 17.53m bgl: FOYLE MARL ...from 17.50 to 17.80m bgl: possible intraclastic horizon comprising coarse / cobble size subangular off-white chalk in a light brown matrix. ** ...from 17.57 to 17.62m bgl: syndimentary normal extension fault (~20mm off-set). ...from 17.91 to 17.96m bgl: marl seam. ...from 18.00 to 18.05m bgl: marl seam. ...from 17.91 to 17.96m bgl: marl seam. ...from 18.28 to 18.30m bgl: marl seam. ...at 18.36m bgl: thin flaser marls. ...at 18.46m bgl: thin flaser marl.											17.00	8.69			13.50 - 13.60	DPLT	12.50 14.00	NI	70	36	8			SPT(S) 14.00m, 50 (9,11/50 for 160mm)	16						
Weak, low to medium-density light grey CHALK with localised minor brecciation associated with marl seams ** and black zoophycos streaks. Discontinuity 1) Joints are 80 to 90'closed clean, with grey staining. Discontinuity 2) Bedding is 0 to 10' close, closed to partially open, clean with black and orange specks [100/130/190]. (ZIG ZAG CHALK FORMATION, medium density, Grade B3) ...from 19.07 to 19.10m bgl: greenish MARL band.											19.10	6.59			13.90 - 14.00 14.00 - 14.45	DPLT SPTLS2 7		NR							17						
															14.60 - 14.70	DPLT	14.00 15.50	NI/ >8?	74	23	0		SPT(S) 17.00m, 50 (25 for 80mm/50 for 100mm)	18							
															15.30 15.30 - 15.40	PLT DPLT								19							
															15.80 - 15.90	DPLT		NR						20							
															16.10 - 16.20	DPLT	15.50 17.00	NI	85	10	0				21						
															16.80 - 16.90	D32									22						
															17.00 - 17.45	SPTLS3 3									23						
															17.50 - 18.25 17.50 - 18.25	D D34	17.00 18.50	13	100	86	43				24						
															18.40 - 18.50 18.50 - 18.60	DPLT PLT DPLT									25						
															19.30 - 19.40 19.30 - 19.40	DPLT PLT	18.50 20.00	8	95	54	11				26						
															19.90 - 20.00 20.00 - 20.45	DPLT SPTLS3 9									27						
Observations / Remarks										Drilling Fluid										Hammer Information											
1. Groundwater strike at 1.90m, rising to 1.61m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)										To (m)		Return Min %		Colour		Type		Serial No.		Energy Ratio %	
										1.20										30.50						Air / Mist		73694		65	
										Strike (m)										Casing (m)		Sealed (m)		Time (min)		Rose To (m)		Remarks		Project Number	
																														784-B025563	

		Project: Cambridge South East Transport – Phase 2		Location Details				Status		Borehole Number															
		Location: Cambridge		Easting: 551461.00 Northing: 249732.00																					
		Client: Greater Cambridge Partnership		Level: 25.69mAOD Depth: 30.50m				FINAL		BH-OBC-13															
		Logger: EH+AT+DC Type: RC																							
						Inclination: 90°																			
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time				Scale: 1:50											
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT										
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	5.00	200	08/03	17:30	9.50	-	-	Approved By:	CP										
1.20	5.00	Dynamic Windowless Sampling	Beretta T46	M. Bainbridge	5.00	-			09/03	18:00	30.50			Start Date:	08/03/2021										
5.00	30.50	Rotary Core	Atlas 186	M. Bainbridge	30.50	-								Finish Date:	11/03/2021										
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring													
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results						
Weak, low to medium-density light grey CHALK with localised minor brecciation associated with marl seams ** and black zoophycos streaks. Discontinuity 1) Joints are 80 to 90'closed clean, with grey staining. Discontinuity 2) Bedding is 0 to 10' close, closed to partially open, clean with black and orange specks [100/130/190]. (ZIG ZAG CHALK FORMATION, medium density, Grade B3) ...at 20.53m bgl: with orange staining. ...from 20.60m bgl occasional pale greyish white trace fossils (possibly zoophycos). ...at 20.99m bgl: with orange staining. ...from 21.00m bgl: with rare iron pyrite in thin tubes. ...from 21.11 to 21.22m bgl: heavy orange oxide mineralisation.												20.70 - 20.80	DPLT	20.00 21.50	14	100	83	51	SPT(S) 20.00m, 50 (25 for 85mm/50 for 110mm)	21					
													21.70 - 21.80	DPLT											
													22.00 - 22.10 22.00 - 22.10	B1 DPLT	21.50 23.00	9	100	84	13						
...from 21.80 to 21.83m bgl: very marly pocket. ...from 22.00 to 23m bgl: close, subvertical, curvilinear fracture. ...at 22.02m bgl: slightly orange staining - possible sponge bed. ...from 22.34 to 22.41m bgl: white marly pocket noted. ...from 22.40m bgl: with pale grey wispy griotte marls and thin marl seams. ...at 22.76m bgl: 20mm thick cemented marl seam. ...from 22.81 to 22.91m bgl: Conglomerate comprising medium to coarse, angular off-white CHALK intraclasts (60%) within a light brown marl matrix (40%). Zoophycos with Iron mineralisation noted within intraclasts.													22.90 - 23.00 23.00 - 23.10 23.00 - 23.45	DPLT DPLT SPTLS4 4						SPT(S) 23.00m, 50 (25 for 80mm/50 for 95mm)	23				
													23.00 - 24.00	DPLT	23.00 24.50	18	100	50	18						
													24.30 - 24.40	DPLT											
Drilling disturbance, locally non-intact: Weak low-density white CHALK with frequent trace fossil burrows infilled with pyrite. Discontinuity 1) Joints are 80 to 90' closed, clean with grey staining. Discontinuity 2) Bedding is 0 to 10' very close to close, closed to partially open clean with black and orange specks [30/60/120]. (ZIG ZAG CHALK FORMATION, Grade B4) ...from 24.20 to 24.35m bgl: conjugate joint set.								23.40	2.29				24.50 - 24.60	DPLT											
													25.00 25.00 - 25.20	UCS DPLT	24.50 26.00	10	100	90	45						
													25.30 25.30 - 25.40 25.40 - 26.00 25.40 - 26.00	PLT DPLT DPLT PLT											
Drill disturbance with localised brecciation: Weak, low to medium-density white CHALK with frequent trace fossil burrows infilled with pyrite. Discontinuity 1) Joints are 80 to 90' probably closed, clean with grey staining. Discontinuity 2) Bedding is 0 to 10' close, closed to partially open, clean with black and orange specks [110/160/210]. (ZIG ZAG CHALK FORMATION, medium density, Grade B3) ...from 25.00m bgl: becoming pale grey. ...from 25.51m bgl: with some very light orange leisegang banding and a <1mm diameter, 10mm long belemnite fossil noted.								24.50	1.19				26.00 - 26.10 26.00 - 26.10 26.00 - 26.45	B2 DPLT SPTLS							SPT(S) 26.00m, 50 (25 for 79mm/50 for 95mm)	26			
													26.00 - 27.50		26.00 27.50	16	99	78	15						
													27.40 27.40 - 27.50 27.50 27.50 - 27.75 27.80 - 28.00	PLT DPLT UCS DUCS											
Weak, low-density pale grey CHALK with frequent trace fossil burrows infilled with pyrite. Discontinuity 1) Joints are 75 to 90'closed to partially open, clean with black and occasional moderate orange staining. Discontinuity 2) Bedding is 0 to 10' close, closed to open clean with black and orange staining [60/110/120]. (ZIG ZAG CHALK FORMATION, Grade B3)								26.12	-0.43				28.20 - 28.30	DPLT	27.50 29.00	8	100	98	70						
													28.60 - 28.80 28.70	DUCS UCS											
													28.90 28.90 - 29.00 29.00 - 29.45 29.00 - 29.45	PLT UCS DPLT B3 SPTLS6 1	29.00 30.50	12	100	82	27						
Very weak to weak, low to medium-density light grey CHALK with occasional trace fossil burrows infilled with pyrite and rare zoophycos streaks. Discontinuity set 1) Joints are 90 degrees closed and clean. Discontinuity set 2) Bedding is 0 to 10 degrees closely to medium spaced closed and clean (140/200/280). (ZIG ZAG CHALK FORMATION, Grade A2) From 28.20m to 28.44m bgl multiple grey marl seams. ...from 28.20 to 28.44m bgl: thin grey marl seam following relict 75' inclined joint. ...from 29.00 to 29.15m bgl: disturbed by SPT, recovery non-intact gravel.								27.50	-1.81				29.10 - 29.20 29.60 - 29.70 29.70 - 29.90	DPLT DPLT DUCS							SPT(S) 29.00m, 50 (25 for 80mm/50 for 85mm)	29			
Very weak to weak low to medium-density light grey CHALK with occasional trace fossil burrows infilled with pyrite and rare zoophycos streaks. Discontinuity 1) Joints are 90' closed and clean. Discontinuity 2) Bedding is 0 to 10' close to medium, closed and clean [140/200/280]. (ZIG ZAG CHALK FORMATION, Grade A3) ...at 29.78m bgl: slight orange staining. ...between 29.90 to 30.10m bgl: conjugate joint set.								29.69	-4.00																
Observations / Remarks											Drilling Fluid				Hammer Information										
1. Groundwater strike at 1.90m, rising to 1.61m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %								
											1.20	30.50			Air / Mist	73694	65								
											Groundwater							Project Number							
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563																			

[illegible]

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="6">Location Details</td> <td colspan="2" rowspan="3">Status FINAL</td> <td colspan="4" rowspan="2">Borehole Number BH-OBC-14</td>						Location Details						Status FINAL		Borehole Number BH-OBC-14			
						Eastings: 551472.00 Northings: 249753.00 Level: 26.44mAOD Depth: 30.00m Logger: EH+GT Type: RC Inclination: 90°											
						Sheet 1 of 3											
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT		
0.00 1.20	1.20 30.00	Inspection Pit Rotary Core	Hand Excavated Atlas 186	M. Bainbridge M. Bainbridge	1.20 30.00	300 -	12.00	150	25/02 26/02 01/03	17:00 17:00 16:30	6.00 22.50 30.00	- - -		Approved By:	CP		
														Start Date:	25/03/2021		
														Finish Date:	26/03/2021		
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD
MADE GROUND: Firm brown, sandy gravelly SILT with low cobble content and occasional rootlets. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint and chalk. Cobbles are subangular to subrounded flint. (TOPSOIL) MGR(TS)							0.65	25.79			0.10 0.20 0.20	ES1 B ES2					
Structureless CHALK composed of off-white mottled yellowish brown, silty gravelly fine to medium SAND. Gravel is subangular to subrounded, fine to coarse, extremely weak, low-density with occasional flint. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dm)											0.50 0.50 0.55	D ES3 B					
Minimal recovery (10%) from split liner: Structureless CHALK composed of cream / very light orangish brown slightly silty GRAVEL. Gravel is medium to coarse, subangular with angular (non-rinded) black flint. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc ?)							1.20	25.24			1.00 1.00 1.20 - 1.50 1.20 - 2.20	B ES4 D B					SPT(S) 1.20m, 50 (2,7/50 for 145mm)
No recovery							2.20	24.24			1.20 2.20		NI	10	0	0	
											2.20 - 3.20	B					
											2.20 3.20		NI	0	0	0	
Structureless CHALK composed of cream silty GRAVEL. Gravel is very weak, low to medium-density, subangular to subrounded, fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)							3.20	23.24			3.20 - 3.65 3.30 - 3.40	SPTLS D					SPT(S) 3.20m, N=13 (2,2/2,3,4,4)
											4.00 - 4.10	D					
No recovery with striations on liner indicating possible dislocation**.							4.50	21.94									
														NR			
Partial recovery (50%) with possible dislocation from above **: Structureless CHALK composed of cream silty GRAVEL. Clasts are very weak, low to medium-density, cream subangular to subrounded, fine to coarse with occasional flint and localised light orange brown staining. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc) ...from 5.37m to 5.58m bgl: orange staining.							5.25	21.19			4.50 6.00	D		50	0	0	
											5.50 - 5.60		NI				
Structureless CHALK composed of cream silty GRAVEL. Clasts are very weak, low to medium-density, cream, subangular to subrounded, fine to coarse with occasional flint and localised light orange brown staining. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc) ...from 6.10m bgl: with frequent flint gravel.							6.00	20.44			6.00 - 6.45 6.20 - 6.30	SPTLS D					SPT(S) 6.00m, N=12 (2,3/3,3,3,3)
											6.00 7.50		NI	100	0	0	
											7.00 - 7.10	D					
Structureless CHALK composed of cream silty GRAVEL. Clasts are very weak, low to medium-density, cream subangular to subrounded, fine to coarse. With light orange brown staining. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)							7.50	18.94			7.70 - 7.80	D					
											7.50 9.00		NI	100	0	0	
No recovery attributable to SPT disturbance**.							9.00	17.44			8.90 - 9.00 9.00 - 9.45	D SPTLS					SPT(S) 9.00m, N=14 (1,2/2,4,3,5)
Structureless CHALK composed of cream silty GRAVEL. Clasts are very weak, low to medium-density, cream, subangular to subrounded, fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)							9.20	17.24			9.20 - 9.30	D		NR			
											9.00 10.50		NI	90	0	0	
											10.00 - 10.10	D					
Observations / Remarks										Drilling Fluid				Hammer Information			
1. Groundwater strike at 2.40, rising to 1.70m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %	
										1.20	30.00			Air / Mist	73694	65	
										Groundwater						Project Number	
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks		
2.40	2	-	20	1.70		784-B025563											

<div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						<div>Location Details</div> <div>Eastings: 551472.00Northings: 249753.00</div> <div>Level: 26.44mAODDepth: 30.00m</div> <div>Logger: EH+GTType: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-OBC-14</div>						
												Sheet 2 of 3								
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20	1.20 30.00	Inspection Pit Rotary Core	Hand Excavated Atlas 186	M. Bainbridge M. Bainbridge	1.20 30.00	300 -	12.00	150	25/02 26/02 01/03	17:00 17:00 16:30	6.00 22.50 30.00	- - -		Approved By:	CP					
												Start Date: 25/03/2021								
												Finish Date: 26/03/2021								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Structureless CHALK composed of cream silty GRAVEL. Clasts are very weak, low to medium-density, cream, subangular to subrounded, fine to coarse. (HOLLYWELL NODULAR CHALK FORMATION ? , Grade Dc)																				
Weak, low to high-density, white shelly CHALK with occasional orange staining. Discontinuity 1) Joints are 30' , closed to partly open, clean with orange staining. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open with rare orange grey staining [60/80/120]. (HOLLYWELL NODULAR CHALK FORMATION, high density, Grade B3) ...at 10.89m bgl: 10mm thick grey marl seam.								10.70	15.74			10.80 - 10.90	D							11
												10.50 12.00		15	100	80	10			
...from 12.00 to 12.20m bgl: significant disturbance attributable to SPT - recovered as non-intact gravel.												11.80 - 11.90	DPLT							
...at 12.40m bgl: with wispy griottes												12.00 - 12.45	SPTLS		NI				SPT(S) 12.00m, 50 (25 for 95mm/50 for 55mm)	
												12.30 - 12.40	D		15					
...from 12.90 to 13.50m bgl: significant drilling disturbance, recovery mainly intact gravel with structure discernible possibly intraclastic **.												12.80 - 12.90	D	12.00 13.50		100	60	0		
												13.20 - 13.30	D		NI/15?				13	
...from 13.50 to 14.10m bgl: significant drilling disturbance, recovery mainly intact gravel with structure discernible. Possibly intraclastic with some matrix blow out **.												13.80 - 13.90	DPLT		NI/9?					
												13.50 15.00			100	60	24		14	
Weak medium-density white CHALK with occasional shell fragments. Discontinuity 1) Joints are 60 to 70' closed to partly open, clean with slightly orange staining. Discontinuity 2) Bedding is 0 to 10' , close to medium, closed to partly open, clean with grey and orange staining [80/160/240]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...at 14.42m bgl: wispy griottes. ...from 14.60 to 15.00m bgl: drilling disturbance, recovery is locally intact gravel with structure discernible, possibly intraclastic **.								14.10	12.34			14.90 - 15.00 14.90 - 15.00 15.00 - 15.45 15.10 - 15.20	D DPLT SPTLS DPLT		9					SPT(S) 15.00m, 50 (25 for 140mm/50 for 40mm)
Significant drilling disturbance (attributable to SPT) ** recovered as weak, medium-density, fine to coarse, subangular to angular off-white, non-intact CHALK gravel and rare cobbles with some orange brown staining on surfaces. (HOLLYWELL HODULAR CHALK FORMATION ? Unable to grade due to drilling disturbance, probably structured ?) ...at 15.40m bgl: with orange staining.								15.00	11.44			15.00 16.50		NI						
Weak, medium-density white CHALK with occasional shell fragments. Discontinuity 1) Joints are 60 to 80' closed to partly open, clean with slightly orange staining. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open, clean with grey and orange staining [80/110/160]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 16.35 to 16.45m bgl: drilling disturbance, recovery mainly intact gravel with structure discernible, possibly intraclastic **.								15.50	10.94			16.00 - 16.10	DPLT		12?	95	46	24		
Significant drilling disturbance recovery non-intact: CHALK composed of fine to coarse, subangular to angular GRAVEL. Clasts are weak, medium-density, off-white with orange brown surface staining. (HOLLYWELL HODULAR CHALK FORMATION ? , Unable to grade due to drilling disturbance, probably structured ?)								16.50	9.94			17.00 - 17.10	D	16.50 18.00	NI	86	24	19		
												17.60 - 17.70	DPLT		ND					
Weak, medium-density yellowish white CHALK with orange staining. Discontinuity 1) Joints are 60' closed to partly open infilled with chalk clasts and clean. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open clean [60/100/160]. (HOLLYWELL HODULAR CHALK FORMATION, Grade B3) ...from 17.60 to 17.90m bgl: drilling disturbance, recovery mainly intact gravel with structure discernible, possibly intraclastic **.								17.50	8.94			17.90 - 18.00 18.00 - 18.45	D SPTLS		NI					SPT(S) 18.00m, 50 (25 for 70mm/50 for 90mm)
Significant drilling disturbance (attributable to SPT) recovery non-intact: Weak, medium-density, fine to coarse, subangular to angular off white, CHALK gravel with some orange brown staining on surfaces. (HOLLYWELL HODULAR CHALK FORMATION ? , Unable to grade due to drilling disturbance, probably structured ?)								18.40	8.04			18.70 - 18.80	DPLT	18.00 19.50		90	65	0		
Weak, medium to high-density, yellowish white CHALK with orange staining. Discontinuity 1) Joints are 60' closed to partly open, infilled with chalk clasts and clean. Discontinuity 2) Bedding is 0 to 10' close, closed to partly open, clean [60/100/160]. (MELBOURN ROCK MEMBER ? , HOLLYWELL HODULAR CHALK FORMATION, high density, Grade B3) ...from18.47m to 18.55m bgl: with marl seams.								19.50	6.94			19.30 - 19.40	DPLT		9					
Significant drilling disturbance recovery non-intact: Weak, medium-density fine to coarse, subangular to angular off-white, CHALK gravel and rare cobbles. (HOLLYWELL NODULAR CHALK FORMATION ? , Unable to grade due to drilling disturbance, probably structured ?) ...from19.75m to 19.90m bgl: with marl seams.								20.00	6.44			19.70 - 19.80	D		NI					
																			20	
Observations / Remarks										Drilling Fluid				Hammer Information						
1. Groundwater strike at 2.40, rising to 1.70m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										1.20	30.00			Air / Mist	73694	65				
										Groundwater				Project Number						
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
																784-B025563				

<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div>Project:</div><div>Location:</div><div>Client:</div></div><div><div>Cambridge South East Transport – Phase 2</div><div>Cambridge</div><div>Greater Cambridge Partnership</div></div></div></div><div><div><div>Location Details</div><div>Easting: 551472.00 Northing: 249753.00</div><div>Level: 26.44mAOD Depth: 30.00m</div><div>Logger: EH+GT Type: RC</div><div>Inclination: 90°</div></div></div><div><div><div>Status</div><div>FINAL</div></div></div><div><div><div>Borehole Number</div><div>BH-OBC-14</div></div></div></div>						Sheet 3 of 3											
						Scale: 1:50											
						Checked By: RT											
Approved By: CP																	
Start Date: 25/03/2021																	
Finish Date: 26/03/2021																	

Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Samples, Tests and Rotary Coring									
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)											
0.00 1.20	1.20 30.00	Inspection Pit Rotary Core	Hand Excavated Atlas 186	M. Bainbridge M. Bainbridge	1.20 30.00	300 -	12.00	150	25/02 26/02 01/03	17:00 17:00 16:30	6.00 22.50 30.00	- - -	-											

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
						Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Weak, medium-density yellowish white CHALK with 200mm thick marl bands and frequent trace fossils. Discontinuity 1) Joints are 50 to 90' closed to partly open with clay infill, polished with black staining. Discontinuity 2) Bedding is 0 to 10', close, closed to partly open [40/100/200]. (PLENUS MARLS MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3)		21.00	5.44			20.40 - 20.50	D	19.50 21.00	11	100	58	0			
Weak, low-density greyish white CHALK. Discontinuity 1) Joints are 70-80" closed to partly open and clean. Discontinuity 2) Bedding is 0 to 10' close, closed and clean [60/100/160]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 21.41m to 21.56m bgl: with marl seams.		21.00	5.44			20.70 - 20.80	DPLT								
	21.00 - 21.45					SPTLS							SPT(S) 21.00m, 50 (25 for 115mm/50 for 70mm)		
	21.00 22.50						11	100	80	9					
	22.30 - 22.40					DPLT									
...from 22.50m to 23.00m bgl: subvertical joint with possible slickensides.		21.00	5.44			22.50 - 22.60	DPLT								
Significant drilling disturbance (attributable to SPT) recovered as weak, medium-density fine to coarse, subangular to angular off white, non-intact greyish-white CHALK gravel. (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)	23.20 - 23.45					CSS	22.50 24.00	10	100	76	14				
	23.90 24.00 - 24.45					DPLT SPTLS							SPT(S) 24.00m, 50 (25 for 55mm/50 for 20mm)		
	24.90 - 25.00					DPLT	24.00 25.50	11	96	60	20				
Weak, low to medium-density, light grey CHALK with trace fossil burrows, orange staining and frequent marl beds. Localised zones / bands (30 to 100mm diameter / thick) of weak, low-density fine to coarse gravel (possibly intraclastic / drill induced brecciation **). Discontinuity 1) Bedding is 0 to 10' closed and open, occasionally clean but also with silt and gravel infill (possibly drill induced /disturbed marly / intraclastic infill **). (ZIG ZAG CHALK FORMATION, medium density, Grade C3 ?)from 24.58m to 24.67m bgl: marl seams.		24.00	2.44			25.80 - 25.90	D	25.50 27.00	12	100	62	10			
...from 25.95m to 26.10m bgl: marl seams.		24.40	2.04			27.00 - 27.45	SPTLS								
...from 27.00 to 27.45m bgl: significant drilling disturbance attributable to SPT.		28.50	-2.06			27.70 - 27.80	D	27.00 28.50		100	65	9			
	28.30 - 28.40					DPLT									
	28.50 - 28.67					CSS									
	28.90 - 29.00					DPLT									
Weak, low-density light grey CHALK with occasional trace fossils. Localised zones / bands (30 to 100mm diameter / thick) of weak, low-density, fine to coarse gravel / brecciation (possible drill disturbed intraclastic / marl zones **). Discontinuity 1) Bedding is 0 to 20', close, closed and open, clean with gravel / breccia infill (possibly drill disturbed infill), [50/90/200]. (ZIG ZAG CHALK FORMATION, Grade C3)		30.00	-3.56			29.30 - 29.40	DPLT	28.50 30.00	13	100	75	20			
EOH at 30.00m - Target depth achieved.															

Observations / Remarks						Drilling Fluid				Hammer Information			
1. Groundwater strike at 2.40, rising to 1.70m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible						From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %	
						1.20	30.00			Air / Mist	73694	65	
						Groundwater						Project Number	
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks								
						784-B025563							

<div><div><div>TETRA TECH</div></div></div>		Project: Cambridge South East Transport – Phase 2		Location: Cambridge				Client: Greater Cambridge Partnership		Location Details				Status		Borehole Number			
						Easting: 551480.00 Northing: 249746.00 Level: 26.47mAOD Depth: 30.50m Logger: Type: RC Inclination: 90°				FINAL		BH-OBC-15							
																Sheet 1 of 4			
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT					
0.00 1.20 9.50	1.20 9.50 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 9.50 30.50	300 - -	13.50	150	02/03 03/03	17:30 17:15	18.50 30.50	-	-	Approved By: CP					
														Start Date: 01/03/2021					
														Finish Date: 03/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Soft to firm dark brown, slightly gravelly, silty, fine to coarse SAND with occasional rootlets. Gravel is angular to subrounded, fine to coarse flint. (TOPSOIL) MGR(TS)								0.30	26.17			0.10 0.20	ES ES						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm
Medium dense brownish white yellowish orange, slightly gravelly, fine to coarse SAND with low cobble content. Gravel is subangular to rounded, fine to coarse flint. Cobbles are subrounded flint. (RIVER TERRACE DEPOSITS) RTD												0.50 0.50	D ES						PID 0.50m, 0.0ppm
Medium dense greyish brown, very sandy, silty, angular to subrounded, fine to coarse flint and chalk GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) RTD								1.25	25.22			1.00 1.00 1.20 - 1.65	B ES SPTLS						PID 1.00m, 0.0ppm
Partial recovery (50%): Medium dense, brownish white yellowish orange, slightly gravelly, fine to coarse SAND with low cobble content. Gravel is subangular to rounded, fine to coarse flint. Cobbles are subrounded flint. (RIVER TERRACE DEPOSITS) RTD								2.00	24.47			2.00 - 2.45 2.30	SPTLS W						SPT(S) 1.20m, N=16 (2,3/3,4,5)
...between 2.00 to 2.60m bgl: cobble of flint noted (possible cause of core loss).																			
Structureless light brown white CHALK composed of gravelly SILT. Gravel is subrounded to rounded, fine to medium, very weak to weak, low to medium-density chalk. (Grade Dm)								2.90	23.57			2.80 - 2.90 2.90 - 3.00 3.00 - 3.45	D D SPTLS						SPT(S) 2.00m, N=9 (2,3/3,2,2)
...from 2.99m to 3.02m bgl: fine to medium gravel size fragments of nodular flint (fragmented by drilling).								3.14	23.33										
Structureless white CHALK composed of silty GRAVEL. Gravel is subrounded to angular, fine to coarse, weak low-density chalk. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)												3.50 - 3.60	D	3.00 4.00		100			SPT(S) 3.00m, N=9 (1,2/3,2,2)
...from 3.40m bgl with rare black speckling.																			
...from 3.98m bgl: with slight orange staining.								4.00	22.47			4.00 - 4.45	SPTLS						SPT(S) 4.00m, N=8 (1,2/2,2,2)
No recovery attributable to SPT disturbance. **								4.20	22.27										
Structureless white CHALK composed of silty GRAVEL. Gravel is subrounded to angular, fine to coarse, weak, low-density chalk. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)												4.50 - 4.60	D	4.00 5.00		80			
...from 4.40 to 4.73m bgl: with moderate orange staining. Gravel becoming moderately strong.																			
...at 4.89m bgl: with possible relict (well weathered) 10mm thick marl seam.								5.00	21.47			5.00 - 5.45	SPTLS						SPT(S) 5.00m, N=8 (2,1/1,2,2,3)
No recovery attributable to SPT disturbance. Chalk residue and striations on liner - possible dislocation of sample below **.																			
Partial recovery (55%), possible dislocation from above: Structureless CHALK composed of weak to very weak, low-density white GRAVEL with occasional orange staining. Possible relict discontinuities (possibly open joints: 60-75'). (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								5.60	20.87			6.00 - 6.10	D	5.00 6.50		55			
No recovery attributable to SPT disturbance. Striations noted on liner - possible dislocation. **								6.50	19.97			6.50 - 6.95	SPTLS						SPT(S) 6.50m, N=10 (1,2/2,3,2,3)
Partial recovery (50%), possible dislocation from above / possible void compression: Structureless CHALK composed of weak to very weak, low-density, white, fine to medium GRAVEL with occasional orange staining. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								7.25	19.22			7.70	D			44			
...at 7.87m bgl: orange staining.																			
...at 7.92m bgl: possible 5mm thick relict orange stained marl seam.								8.00	18.47			8.20 - 8.30	DPLT						
No recovery - possible void compression.								8.20	18.27										
Structureless CHALK composed of weak to very weak, medium density, white fine to coarse GRAVEL and COBBLES. With possible matrix blow out. ** (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)												8.00 9.50				66	0	0	
...at 9.02m bgl: orange staining.																			
...at 9.21m bgl: slight orange staining.																			
...at 9.24m bgl: medium angular gravel size fractured (drilling disturbance) flint.																			
...at 9.47m bgl: slight orange staining.								9.50	16.97			9.40 - 9.50 9.50 - 9.95 9.60 - 9.70	D SPTLS DPLT						SPT(S) 9.50m, N=33 (3,5/6,7,10,10)
Partial recovery: Structureless CHALK composed of weak to very weak, low-density white fine to medium GRAVEL. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								9.60	16.87										
No recovery - possible slippage or blow out **.																			
...from 9.60 to 10.10m bgl: zone of core loss (possible slippage or blow out).																			
Observations / Remarks											Drilling Fluid					Hammer Information			
1. Groundwater strike at 2.30m bgl, rising to 2.19m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 29.00m bgl. * Denotes drillers description. ** Denotes observation from core photograph.											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
											1.20	30.50			Air / Mist	73694	65		
NR - No Recovery NI - Non-intact ND - Not Discernible											Groundwater					Project Number			
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks			
											2.30	-	-	20	2.15		784-B025563		

		Project: Cambridge South East Transport – Phase 2				Easting: 551480.00 Northing: 249746.00				Status		Borehole Number															
		Location: Cambridge				Level: 26.47mAOD Depth: 30.50m																					
		Client: Greater Cambridge Partnership				Inclination: 90°				FINAL		BH-OBC-15															
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50											
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT												
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	13.50	150	02/03	17:30	18.50	-	-	Approved By:	CP												
1.20	9.50	Dynamic Windowless Sampling Rotary Core	Beretta T46 Atlas 186	M. Bainbridge	9.50	-			03/03	17:15	30.50			Start Date:	01/03/2021												
9.50	30.50				30.50	-								Finish Date:	03/03/2021												
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring															
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results								
No recovery - possible slippage or blow out **. Partial recovery with possible dislocation from above: Structureless CHALK composed of weak to very weak, low-density, white fine to medium GRAVEL. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc) Drilling disturbance: Very weak to weak, low-density very shelly CHALK recovered as non-intact gravel. Shell fragments are inoceramids, and other unidentified bivalves and brachiopods. (HOLLYWELL NODULAR CHALK FORMATION ?) ...at 10.25m bgl: small thin tubular cortex flint. ...at 10.27m bgl: orange staining. ...at 10.28m bgl: with slight orange staining. ...at 10.58m bgl: with slight orange staining. No recovery - possible blow out.								10.10	16.37																		
								10.24	16.23																		
Significant drilling disturbance, recovery non-intact: Very weak to weak, low to medium-density white shelly CHALK gravel. (HOLLYWELL NODULAR CHALK FORMATION, Grade, ?) Very weak to weak, low to medium-density white shelly CHALK with occasional wispy marl seams. Shell fragments are mytilids, inoceramids, and other unidentified bivalves. Discontinuity 1) Joints are 30 to 70' , closed, partly open and possibly open (with matrix blow out) ** with light grey staining. Discontinuity 2) Bedding is 0 to 10' , very close to close, closed to partly open and possibly open (with matrix blow out) ** with some light grey staining, brown specks and some wispy grey marl seams. [50/60/100]. (HOLLYWELL NODULAR CHALK FORMATION, Grade C4 ?) ...from 12.10 to 12.35m bgl: possible localised blow out suggesting open joints. ** ...from 12.50 to 12.80m bgl: significant disturbance attributable to SPT - recovered as non-intact gravel. ** ...at 12.60m bgl: small nodular thin white cortex flint with fossilised mytilid shell fragments. ...from 13.00 to 14.00m bgl: recovery largely non-intact gravel - possibly drilling disturbed intraclastic zone with minor blow out. **,								11.75	14.72																		
								11.85	14.62																		
Very weak to weak, low to medium-density shelly gritty CHALK. Shell fragments are mytilids, inoceramids, and other unidentified bivalves and brachiopods. Discontinuity 1) Joints are 60 to 70' closed to partly open, clean with occasional orangish brown specks. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open, clean with occasional orangish brown specks [100/110/130]. (HOLLYWELL NODULAR CHALK FORMATION / MELBOURN ROCK MEMBER transition ?, Grade B3) ...from 14.00 to 14.20m bgl: significant drilling disturbance - recovery non-intact. ...at 14.31m bgl: 20mm thick grey marl seam. ...at 14.42m bgl: 30mm thick grey marl seam. ...from 14.70m bgl: reduced fossil shell content. ...from 15.15 to 15.25m bgl: non-intact / brecciated zone (possible drill disturbed intraclastic horizon)**. ...from 15.50 to 15.95m bgl: significant drilling disturbance attributable to SPT - minimal recovery of non-intact chalk gravel. **, ...from 15.15 to 15.25m bgl: non-intact / brecciated zone (possible drill disturbed intraclastic / brecciated horizon)**. ...at 16.27m bgl: slight orange staining ...from 16.30 to 16.40m bgl: non-intact / brecciated zone (possible drill disturbed intraclastic / brecciated horizon)**. ...at 16.48m bgl: slight orange staining ...at 16.60m bgl: slight orange staining ...at 16.73m bgl: slight orange staining ...at 16.83m bgl: slight orange staining ...at 17.22m bgl: thin (<2mm thick) grey marl seam. ...at 17.44m bgl: brachiopod fossil fragment - possibly Terebratulina striatula (lampshell). ...at 17.69m bgl: then grey marl seam. ...at 17.87m bgl: thin grey marl seam. ...from 18.10 to 18.45m bgl: moderate orange staining along inclined fracture and into surrounding chalk (concentrated at bedding / joint intersection at 18.45m bgl) with associated brecciation**.								14.00	12.47																		
Significant drilling disturbance, minimal recovery attributable to SPT and blow out of non-intact chalk gravel. Weak, medium-density white CHALK with rare shell fragments with many greenish grey wispy grotte marls. Discontinuity 1) Joints are 70' , closed to partly open, clean with orange staining. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open, clean with orange staining [60/100/120]. (MELBOURN ROCK MEMBER ?, HOLLYWELL NODULAR CHALK FORMATION, Grade B3). ...at 18.96m bgl: greenish grey marl seam with large brachiopod shell fragments. Marl shows sedimentation flow. ...at 19.60m bgl: thin greenish grey, slightly plastic marl seam. ...at 19.76m bgl: orange staining. ...from 19.80 to 19.90m bgl: zone of multiple wispy grotte marl seams up to 5mm thick.								18.50	7.97																		
								18.83	7.64																		
Observations / Remarks							Drilling Fluid							Hammer Information													
1. Groundwater strike at 2.30m bgl, rising to 2.19m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 29.00m bgl. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %														
							1.20	30.50			Air / Mist	73694	65														
							Groundwater							Project Number													
							Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563														

		Project: Cambridge South East Transport – Phase 2		Location Details				Status		Borehole Number																									
		Location: Cambridge		Easting: 551480.00 Northing: 249746.00 Level: 26.47mAOD Depth: 30.50m Logger: Type: RC Inclination: 90°				FINAL		BH-OBC-15																									
		Client: Greater Cambridge Partnership								Sheet 3 of 4																									
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time				Scale: 1:50																					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																				
0.00 1.20 9.50	1.20 9.50 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 9.50 30.50	300 - -	13.50	150	02/03 03/03	17:30 17:15	18.50 30.50	- -	-	Approved By:	CP																				
Strata Description						Legend		Depth (m)		Reduced Level (mAOD)		Water Level (m)		Inst / Backfill		Samples, Tests and Rotary Coring																			
																Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results												
Weak, medium-density white CHALK with rare shell fragments with many greenish grey wispy grotite marls. Discontinuity 1) Joints are 70' , closed to partly open, clean with orange staining. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open, clean with orange staining [60/100/120]. (MELBOURN ROCK MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3).								20.10		6.37				20.20 - 20.30		DPLT		20.00 21.50		11		100		90		40		SPT(S) 21.50m, 50 (25 for 105mm/50 for 100mm)							
Very weak to weak, low to medium-density, greyish white CHALK with black zoophycos streaks and multiple bands of grey marls and wispy grotite marls. Discontinuity1) Joints are 50 to 70' , closed to partly open, clean with black orange and brown staining. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open, clean with black orange and brown staining [120/150/200]. (PLENUS MARLS MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION, Grade B3) ...from 20.10 to 20.20m bgl greenish grey slightly plastic marl seam with orange staining. ...at 20.46m bgl: 5mm thick marl seam. ...at 20.58m bgl: 10mm thick marl seam. ...from 20.64 to 20.86m bgl: greenish grey slightly plastic marl seam. ...at 21.00m bgl: bedding (2) becomes slickensided. ...at 21.28m bgl: 15mm thick slightly plastic marl seam. ...at 21.30m bgl: 70' inclined polished and slickensided joint								21.40		5.07				21.30 - 21.40		DPLT		21.50 - 21.95		SPTLS		21.65 - 21.75		DPLT		21.50 23.00		12		100		62		15	
Very weak, low-density, slightly grey CHALK with rare orange staining and rare zophycos pale grey trace fossils with rare wispy grotite marls. Discontinuity 1) Joints are 70' , closed to partly open, clean with occasional black straining. Discontinuity 2) Bedding is 0 to 10' , close, closed to partly open, clean with occasional black staining [90/100/130]] (PLENUS MARL MEMBER ? , HOLLYWELL NODULAR CHALK FORMAMATION, Grade B3)								23.30		3.17				23.40 - 23.60		CSS		23.60 - 23.70		DPLT		23.00 24.50		9		99		95		25					
Very weak, low-density, slightly grey CHALK with occasional orange staining (almost iron mineralisation pockets). Discontinuity 1) Joints are 70' , closed to partly open, clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, closed, clean [120/150/260]. (ZIG ZAG CHALK FORMATION, Grade A3) ...at 23.55m bgl: occasional black zoophycos streaks.								24.50		1.97				24.50 - 24.95		SPTLS		24.70 - 25.20		CSS		24.50 26.00		7		98		80		50					
Very weak, medium-density, light grey CHALK with occasional orange staining. Discontinuity 1) Joints are 70' , closed to partly open, clean. Discontinuity 2) Bedding is 0 to 10' , medium, closed, clean [200/430/700]. (ZIG ZAG CHALK FORMATION, medium density, Grade A2) ...at 25.23m bgl: large iron pyrite nodule.								25.50		0.97				25.50 - 25.60		DPLT		26.00 27.50		64		60		24		SPT(S) 24.50m, 50 (25 for 65mm/50 for 40mm)									
Very weak, medium-density, slightly grey CHALK with occasional orange staining. Discontinuity 1) Joints are 70' , closed to partly open, clean. Discontinuity 2) Bedding is 0 to 10' , close, closed, clean [80/100/120]. (ZIG ZAG CHALK FORMATION, Grade A3) ...from 25.50 to 26.00m bgl: possible conjugate joint set with chalk breccia build up at 25.68m bgl. No recovery - possible blow out of brecciated zone.								26.00		0.47				26.90 - 27.00		DPLT		27.00		EW		27.20 - 27.40		CSS		27.50 - 27.60		DPLT		SPTLS		27.50 - 27.95			
Very weak, medium-density, light grey CHALK with occasional orange staining. Discontinuity 1) Joints are 70' , closed to partly open, clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, closed clean [80/120/250]. (ZIG ZAG CHALK FORMATION, medium density, Grade A3) ...from 27.40 to 27.50m bgl: cemented marl seam. No recovery attributable to SPT disturbance and blow out.								26.50		-0.03				26.90 - 27.00		DPLT		27.00		EW		27.20 - 27.40		CSS		27.50 - 27.60		DPLT		SPTLS		27.50 - 27.95			
Very weak, medium-density, light grey CHALK with occasional orange staining. Discontinuity 1) Joints are 70' , closed to partly open, clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, closed, clean [80/120/250]. (ZIG ZAG CHALK FORMATION, Grade A3) ...from 28.10m bgl: becoming slightly darker grey with light grey banding. ...from 28.30m bgl: iron pyrite nodule.								27.50		-1.03				27.50 - 27.60		DPLT		27.50 - 27.95		SPTLS		28.00 - 28.10		DPLT		27.50 29.00		13		95		60		30	
								27.80		-1.33				28.90 - 29.00		DPLT		29.00 - 29.10		D		29.00 - 30.00		DPLT		29.00 30.50		10		100		80		35	
Observations / Remarks																																			
1. Groundwater strike at 2.30m bgl, rising to 2.19m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 29.00m bgl. * Denotes drillers description. ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible																																			

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-OBC-15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
					Easting: 551480.00 Northing: 249746.00 Level: 26.47mAOD Depth: 30.50m Logger: Type: RC Inclination: 90°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
0.00 1.20 9.50	1.20 9.50 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 9.50 30.50	300 - -	13.50	150	02/03 03/03	17:30 17:15	18.50 30.50	- -		Approved By:	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Very weak, medium-density, light grey CHALK with occasional orange staining. Discontinuity 1) Joints are 70° , closed to partly open, clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, closed, clean [80/120/250]. (ZIG ZAG CHALK FORMATION, Grade A3)							30.50	-4.03			30.40 - 30.50	DPLT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

Project: Cambridge South East Transport – Phase 2										Location Details				Status		Borehole Number				
Location: Cambridge										Easting: 546013.00 Northing: 254447.00				FINAL		BH-PTR-01				
Client: Greater Cambridge Partnership										Level: 14.76mAOD Depth: 10.50m										
										Logger: EH+CE Type: RC										
										Inclination: 90°										
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	9.00	150	21/04	17:00	10.50	-		Approved By:	CP					
1.20	3.00	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	3.00	-								Start Date:	20/04/2021					
3.00	10.50	Rotary Core	Beretta T41	M. Bainbridge	10.50	-								Finish Date:	20/04/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
MADE GROUND: Grass over brown clayey sandy gravelly SILT with occasional rootlets. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse flint and brick. (TOPSOIL)								0.45	14.31			Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
												0.10 0.20	ES1 ES2						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm	
MGR(TS) MADE GROUND: Firm * yellow mottled greyish brown slightly gravelly silty sandy CLAY. Sand is fine to medium. Gravel is subrounded, fine to coarse sandstone. (TOPSOIL)								1.00	13.76			0.50 0.50 - 0.60	ES3 D						PID 0.50m, 0.0ppm	
Soft to firm mottled yellowish brown very sandy silty CLAY. Sand is fine to coarse. (ALLUVIUM)												1.00 1.00	B ES4 D UT D					PID 1.00m, 0.0ppm		
ALV(C) UT100 Sample.								1.20	13.56			1.00 - 1.10 1.20 - 1.65 1.40 - 1.50								
Stiff grey slightly sandy silty CLAY. Sand is fine. With occasional rootlet remains. (ALLUVIUM)								1.65	13.11			1.65 - 1.70 1.80 - 1.90	D B	1.20 2.00		50	0	0		
No recovery attributable to SPT disturbance. SPT Sample description: Firm to stiff greyish brown mottled cream with orangish staining slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine angular to rounded flint and chalk. (ALLUVIUM ?)								2.00	12.76			2.00 - 2.45	SPTLS						SPT(S) 2.00m, N=8 (1,2/2,1,2,3)	
ALV(C) Stiff grey slightly sandy silty CLAY. Sand is fine. With occasional rootlet remains. (ALLUVIUM)								2.45	12.31			2.50 - 2.60	D	2.00 3.00		100	0	0		
UT100 Sample Description: Very stiff grey sandy clayey SILT.								3.00	11.76			3.00 - 3.45	UT							
Partial recovery of (saturated) Structureless CHALK composed of silty, fine to coarse, subangular, extremely weak, low-density grey with some orange staining marly GRAVEL. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)								3.45	11.31			3.45 - 3.50	D							
												3.80 - 3.90	D	3.00 4.50		33	0	0		
															NI					
No recovery attributable to SPT disturbance. SPT Liner Description: Recovered as Soft to firm light grey slightly gravelly silty CLAY. Gravel is fine sub-angular to sub-rounded flint and chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)								4.50	10.26			4.40 - 4.50 4.50 - 4.95	D SPTLS						SPT(S) 4.50m, N=19 (3,3/4,4,5,6)	
								4.95	9.81			5.10 - 5.20	D		NR					
No recovery (possible compression / blowout - no residue on liner **)								5.25	9.51					4.50 6.00		50	12	10		
Partial recovery (possible compression**) of Structureless light grey CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, extremely weak, low-density chalk. Matrix is grey with occasional orange brown staining. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dc)								5.80	8.96						NI					
Very weak, low-density grey CHALK. Discontinuity 1) Bedding is 0 to 10' close, planar smooth closed clean [60/80/90]. (WEST MELBURY MARLY CHALK FORMATION, Grade B3 ?)								6.00	8.76			5.90 - 6.00 6.00 - 6.45	DPLT SPTLS						SPT(S) 6.00m, N=27 (4,5/5,5,8,9)	
No recovery attributable to SPT disturbance. SPT Liner description: (recovered as) Firm to very firm dark grey mottled white with orangish brown staining slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine sub-angular to rounded flint and chalk.								6.20	8.56						NR					
Significant disturbance attributable to SPT, recovery non-intact: Very weak, low-density grey CHALK gravel.								6.75	8.01			6.50 - 6.60	DPLT	6.00 7.50		NI				
Very weak, low-density grey CHALK with possible intraclastic horizons **. Discontinuity 1) Bedding is 0 to 10' close, planar smooth, closed, clean [60/80/90]. (WEST MELBURY MARLY CHALK FORMATION, Grade B3?)												6.90 - 7.00	D			ND		80	0	0
...from 7.00 to 7.30m bgl: possibly intraclastic**.												7.30 - 7.40	DPLT			NI				
																NI				
...from 7.78m to 7.80m bgl: marl seam.																9				
												8.30 - 8.40	DPLT	7.50 9.00			100	25	12	
...from 8.32m to 8.35m bgl: marl seam.																NI				
...from 8.60 to 8.90m bgl: recovery non-intact gravel / brecciated - possibly intraclastic **.												9.00 - 9.45	SPTLS			ND				
																ND/ >6? NI				SPT(S) 9.00m, N=36 (4,5/7,9,11)
...from 9.50 to 9.60m bgl: recovery non-intact gravel / brecciated - possibly intraclastic **.												9.50 - 9.60	DPLT	9.00 10.50			100	50	30	
...from 9.80m to 9.87m bgl: marl seam.												10.00 - 10.10	DPLT							
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater strike at 10.10, rising to 0.70m bgl (20minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										3.00	10.50			Air / Mist	DART449	64				
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563				

<div><div><div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details					Status		Borehole Number					
							Easting: 546013.00 Northing: 254447.00 Level: 14.76mAOD Depth: 10.50m Logger: EH+CE Type: RC Inclination: 90°					FINAL		BH-PTR-01					
							Sheet 2 of 2												
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT					
0.00 1.20 3.00	1.20 3.00 10.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 10.50	300 - -	9.00	150	21/04	17:00	10.50	-		Approved By: CP					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Very weak, low-density grey CHALK with possible intraclastic horizons **. Discontinuity 1) Bedding is 0 to 10' close, planar smooth, closed, clean [60/80/90]. (WEST MELBURY MARLY CHALK FORMATION, Grade B3?) ...from 10.20 to 10.40m bgl: recovery non-intact gravel / brecciated - possibly intraclastic **. ...from 10.23m to 10.30m bgl: marl seam. EOH at 10.50m - Target depth achieved.								10.50	4.26			10.40 - 10.50	DPLT		ND/ >6?				
																			11
																			12
																			13
																			14
																			15
																			16
																			17
																			18
																			19
																			20
Observations / Remarks										Drilling Fluid				Hammer Information					
1. Groundwater strike at 10.10, rising to 0.70m bgl (20minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										3.00	10.50			Air / Mist	DART449	64			
										Groundwater				Project Number					
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563													
10.10	9	-	20	0.70															

<div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div><div>Eastings: 545993.50</div><div>Northings: 254427.00</div><div>Level: 14.82mAOD</div><div>Depth: 10.50m</div><div>Logger: HP+DC</div><div>Type: RC</div><div>Inclination: 90°</div></div> <div><div>Status</div><div>FINAL</div></div> <div><div>Borehole Number</div><div>BH-PTR-02</div></div>																		
										Sheet 1 of 2								
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT				
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	9.00	150	21/04	21:00	5.45 10.30	-	-	CP				
1.20	3.00				22/04	18:00												
3.00	10.50				23/04	19:00												
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
MADE GROUND: Grass over dark brown slightly gravelly clayey sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint with brick fragments. MGR(C)								0.15	14.67			0.10	ES1				PID 0.10m, 0.0ppm	
								0.25	14.57			0.20	ES2					PID 0.20m, 0.0ppm
MADE GROUND: Orangish brown slightly clayey silty gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse flint with brick and glass fragments. Cobbles are subangular flint. MGR(G)								0.50	14.32			0.50	D				PID 0.50m, 0.0ppm	
												0.50	ES3					
MADE GROUND: Soft brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium sandstone. MGR(C)								1.10	13.72			1.00	B				PID 1.00m, 0.0ppm	
								1.20	13.62			1.00	D					
MADE GROUND: Soft grey mottled brown silty very sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to medium flint. MGR(C)								1.35	13.47			1.20 - 1.30	D					
												1.20 - 1.65	UT					
MADE GROUND: Loose orangish brown mottled grey slightly gravelly clayey fine to coarse SAND. Gravel is subrounded to rounded fine flint. MGR(C)								1.65	13.17			1.65 - 1.70	B	1.20 2.00	100	0	0	
												1.70	EW1					
UT100 Sample description: MADE GROUND: Stiff light brown mottled light grey gravelly very sandy CLAY. Gravel is fine to medium, sub-angular to sub-rounded flint ? and chalk ? with possible ceramic fragment ? ** MGR(C)								1.87	12.95			1.90 - 2.00	D				SPT(S) 2.00m, N=4 (1,1/1,1,1,1)	
												2.00 - 2.45	SPTLS					
UT100 Sample description: Firm light grey slightly gravelly sandy silty CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint ? ** and chalk ? ** (ALLUVIUM) ALV(C)								3.00	11.82			2.80 - 2.90	D				SPT(S) 3.00m, N=14 (2,3/3,3,3,5)	
												3.00 - 3.45	SPTLS					
Soft brownish grey slightly sandy CLAY. Sand is fine to medium. (ALLUVIUM) ALV(C)												3.20 - 3.30	D					
												3.30 - 3.40	D					
Structureless grey CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, extremely weak, low-density marly chalk. Matrix is grey with occasional orange staining. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dc)								3.50	11.32									
Significant drilling disturbance attributed to SPT. Recovered as comminuted grey marly CHALK. SPT Liner description: Firm grey and brown with occasional orangish patches sandy gravelly marly SILT. Sand is fine to coarse. Gravel is fine to medium angular to sub-rounded flint. (WEST MELBURY MARLY CHALK FORMATION ?)								3.85	10.97			4.00 - 4.10	DPLT	3.50 4.50		65	7	0
No recovery - possible blow out. Partial recovery and significant drilling disturbance: Extremely weak, low-density, grey marly CHALK. Discernible structure: Discontinuity 1) Joints are 60 to 90' probably irregular inclined, closed planar. Discontinuity 2) Bedding is 0 to 10' hard to determine due to drilling disturbance [20 ? / 30 ? / 70 ?]. (WEST MELBURY MARLY CHALK FORMATION, ?) ...from 4.18m to 4.27m bgl: chalk marl seam. ...from 4.40 to 4.50m bgl: chalk marl seam.								4.50	10.32			4.50 - 4.95	SPTLS				SPT(S) 4.50m, N=17 (2,2/3,3,5,6)	
No recovery attributable to SPT disturbance. Extremely weak, low-density grey CHALK. Possibly intraclastic ** and structure is difficult to determine. Discernible structure: Discontinuity 1) Joints are 60 to 90' probably planar, smooth, closed, clean with occasional black staining. Discontinuity 2) Bedding is 0 to 10' very close to close, planar smooth, closed clean with occasional black staining [20 ? / 50 ? / 70 ?]. (WEST MELBURY MARLY CHALK FORMATION, Grade A ? 4 ?) ...from 5.15m to 5.22m bgl: slight orange staining. ...from 5.33m to 5.40m bgl: slight orange staining. ...from 5.35m to 5.44m bgl marly chalk seam. ...from 6.00 to 6.45m bgl: SPT disturbance - recovery non-intact. ...from 7.12m bgl : slight orange staining. ...from 7.35m bgl: becoming dark bluish grey.								4.80	10.02			4.80 - 4.90	DPLT					
												5.30	EW9	4.50 6.00		80	44	0
															NI/30			
												5.90 - 6.00	DPLT					
												6.00 - 6.45	SPTLS					
												6.30 - 6.40	DPLT					
														6.00 7.50		95	80	0
															NI/30			
No recovery attributable to possible blow out. Extremely weak, low-density grey CHALK. Possibly intraclastic ** and structure is difficult to determine. Discernible structure: Discontinuity 1) Joints are 60 to 90' probably planar smooth, closed clean, with occasional black staining. Discontinuity 2) Bedding is 0 to 10' probably very close to close, planar smooth closed clean with occasional black staining [20 ? / 50 ? / 70 ?]. (WEST MELBURY MARLY CHALK FORMATION, Grade A ? 4 ?)								7.50	7.32			7.25	EW1					
												7.40 - 7.50	D					
Extremely weak, low-density grey chalky MARL. Discontinuity 1) Joints are 60 to 90' irregular inclined, closed planar. Discontinuity 2) Bedding is 0 to 10' , hard to determine due to drilling disturbance [20 ? / 30 ? / 70 ?]. (WEST MELBURY MARLY CHALK FORMATION, ?)								7.80	7.02									
Extremely weak, low-density grey marly CHALK. Discontinuity 1) Joints are 60 to 90' irregular inclined, closed planar. Discontinuity 2) Bedding is 0 to 10' and hard to determine due to drilling disturbance [20 ? / 30 ? / 70 ?]. (WEST MELBURY MARLY CHALK FORMATION, ?) ...from 8.77m to 8.89m bgl: intraclastic chalky MARL with chalk clasts..								8.02	6.80									
								8.50	6.32			8.30 - 8.40	D	7.50 9.00		77	0	0
															NI/40			
								8.80	6.02			8.90 - 9.00	D					
												9.00 - 9.45	SPTLS					
Extremely weak, low-density grey chalky MARL. Discontinuity 1) Joints are 60 to 90' irregular inclined, closed planar. Discontinuity 2) Bedding is 0 to 10' , hard to determine due to drilling disturbance [20 ? / 30 ? / 70 ?]. (WEST MELBURY MARLY CHALK FORMATION, ?)								9.00	5.82								SPT(S) 9.00m, N=40 (3,4/10,9,10,11)	
No recovery attributable to SPT disturbance. SPT Liner description: Firm to hard green and grey with orange to reddish brown staining slightly sandy marl SILT. Sand is marl and fine to medium. (WEST MELBURY MARLY CHALK FORMATION, ?)								9.50	5.32			9.50 - 9.60	D	9.00 10.50		67	0	0

<div><div><div><div><div></div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div></div>						Location Details						Status FINAL		Borehole Number BH-PTR-03						
						Easting: 545991.00 Northing: 254368.00 Level: 13.91mAOD Depth: 8.20m Logger: DC Type: RC Inclination: 90°														
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20	1.20 8.20	Inspection Pit Rotary Core	M13 M13	A. Courtney A. Courtney	1.20 8.20	300 -	8.20	150	16/03	17:30	8.20	-	-	Approved By:	CP					
														Start Date:	15/03/2021					
														Finish Date:	16/03/2021					
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Dark brown slightly gravelly clayey silty fine to coarse SAND with occasional rootlets. Gravel is subangular to subrounded fine to coarse flint. (TOPSOIL) MGR(TS)							0.35	13.56			0.50 - 0.60	D1								
Stiff light grey slightly sandy, slightly gravelly silty CLAY. Sand is fine to coarse. Gravel comprises subangular to subrounded, fine to coarse flint. (ALLUVIUM) ALV(C)							0.70	13.21			1.00 - 1.10 1.00 - 1.10 1.20 - 1.65	B1 D2 D3						SPT(S) 1.20m, N=17 (1,3/4,4,5,4)		
Stiff light grey mottled orange slightly sandy CLAY with lenses of fine to medium fine to medium sand. Rare 1-3mm diameter rootlets, and rare fine to medium gravel size iron sulfide nodules. (ALLUVIUM) ALV(C)							1.20	12.71			1.20 2.20		NR		50	0	0			
No recovery attributable to SPT disturbance. SPT Liner description: Stiff orangish brown very sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium angular to sub-rounded flint.							1.70	12.21					NI							
Firm to stiff very thinly laminated grey orange slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint. (ALLUVIUM) ALV(C)							2.20	11.71			2.10 - 2.20	D								
No Recovery.											2.20 3.20		NR	0	0	0				
No recovery. SPT Liner sample description: Comminuted CHALK recovered as Stiff grey with orangish brown streaking slightly sandy marl SILT. Sand is fine to medium. (ALLUVIUM / WEST MELBURY MARLY CHALK FORMATION Transition ?)							3.20	10.71			3.20 - 3.65	D4						SPT(S) 3.20m, N=20 (4,4/5,6,5,4)		
ALV(C)							3.65	10.26			4.00	EW1								
No recovery. No recovery. SPT Liner sample description: Firm brownish grey with orange staining slightly clayey slightly gravelly SILT. Sand is fine to coarse. Gravel is fine sub-rounded chalk and flint.							4.20	9.71			4.20 - 4.65	D5						SPT(S) 4.20m, N=23 (4,4/5,6,6,6)		
No recovery.							4.65	9.26			4.20 5.20		NR	10	0	0				
Minimal recovery (10%) of Structured light grey CHALK with rare shell fragments and occasional orange staining within relict trace fossil burrows. (WEST MELBURY MARLY CHALK FORMATION ?)							5.10	8.81 8.71						NI						
No recovery.							5.20				5.20 6.20		NR	10	0	0				
Minimal recovery (10%) of Structured light grey CHALK with rare shell fragments and occasional orange staining within relict trace fossil burrows. (WEST MELBURY MARLY CHALK FORMATION ?)							6.10	7.81 7.71			6.20 7.20		NR	100	0	0				
No recovery. Striations on liner indicate possible dislocation. ** SPT Liner description: Marly CHALK recovered as soft to firm creamy grey with occasional dark grey pockets slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine sub-angular to rounded chalk and flint.							7.20	6.71			7.10 - 7.20 7.20 - 7.65	D D6						SPT(S) 7.20m, N=24 (4,5/5,6,6,7)		
Significant drilling disturbance. Recovery non-intact with possible dislocation of core from above**. Recovered as weak, low to medium-density, light grey, coarse, subangular CHALK gravel with rare shell fragments and occasional orange staining within relict trace fossil burrows. Some discernible structure: Probable Discontinuity 1). Joints are 60 to 90' probably clean, closed to open with some light orangish brown staining. Discontinuity 2). Bedding is probably clean, closed to open with some light orangish brown staining. (WEST MELBURY MARLY CHALK FORMATION, ?)							7.60	6.31			7.20 8.20		NR	60	0	0				
EOH at 8.20m - Target depth achieved.							8.20	5.71			8.00 - 8.10	DPLT								
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater seepage at 1.10m bgl. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										1.20	8.20			Air / Mist	30-7	50				
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
										1.10	-	-	20	1.10	Seepage	784-B025563				

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										Sheet 1 of 2									
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT					
0.00 1.20	1.20 10.70	Inspection Pit Rotary Core	M13 M13	A. Courtney A. Courtney	1.20 10.70	300 -	10.00	150	17/03 18/03	18:00 18:00	5.00 10.70	-	-	CP					
										Approved By:		Start Date: 17/03/2021		Finish Date: 18/03/2021					
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Loose to medium dense, dark brown, slightly gravelly, clayey, silty, fine to coarse SAND with occasional rootlets. Gravel is subangular to subrounded, fine to coarse flint.							0.35	13.56			0.10 0.20	ES ES							
MGR(G) Medium dense, light grey mottled orange, slightly clayey, slightly gravelly, fine to coarse SAND. Gravel is subangular to subrounded, fine to medium flint and chalk. (ALLUVIUM) ALV(G)							0.90	13.01			0.50 0.50	D ES							
Medium dense, light greenish grey mottled orange, gravelly, very sandy CLAY. Gravel is subangular to subrounded, fine to medium flint and chalk. (ALLUVIUM) ALV(C)							1.20	12.71			1.00 1.00 1.00 - 1.20 1.20 - 1.65	D ES B SPTLS						SPT(S) 1.20m, N=11 (1,2/3,2,3,3)	
No recovery attributable to SPT disturbance. SPT Liner sample description: Stiff orangish brown, very sandy, gravelly SILT. Sand is fine to coarse. Gravel is fine to medium, angular to sub-rounded flint and flint cortex fragments. (ALLUVIUM) ALV(C)							1.65	12.26			1.20 2.20		NR		10	0	0		
No recovery. Possible dislocation**.							2.10	11.81			2.10 - 2.20 2.20 - 2.65	D U-NR		NI				Ublows=30 Recovery=0%	
Minimal recovery (10%) and possible dislocation from above**: Firm grey mottled orange, slightly gravelly, sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint and chalk. (ALLUVIUM) ALV(C)							2.20	11.71			2.20 2.70		UT100		100	0	0		
UT100 Sample: No recovery.							2.65	11.26			2.65		DCS		NI				
Structureless bluish grey CHALK composed of silty GRAVEL. Gravel is extremely weak, low-density grey chalk. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dc)							2.70	11.21			3.10 - 3.20 3.20 - 3.65	D SPTLS		NR		20	0	0	
No recovery. Possible dislocation**.							3.10	10.81			4.10 - 4.20 4.20 - 4.65	D UT		NI				SPT(S) 3.20m, N=19 (4,4/4,4,5,6)	
Minimal recovery (10%) and possible dislocation from above **: Extremely weak, low-density grey CHALK with some black staining, some orange staining in trace fossil burrows and rare shell fragments. Discernible structure: Discontinuity 1). Probably bedding is 0 to 10', close, clean, closed, smooth undulating [5/10/?]. (WEST MELBURY MARLY CHALK FORMATION ?, ?)							3.20	10.71			4.55		DCS						
No recovery attributable to SPT disturbance. SPT Liner sample description: Comminuted CHALK recovered as Soft to firm greenish grey with orange staining slightly sandy slightly gravelly marly SILT. Sand is fine to coarse. Gravel is fine sub-angular to sub-rounded, chalk and flint coretex fragments. (WEST MELBURY MARLY CHALK FORMANTION ?, Probably Grade Dm ?)							4.10	9.81			4.90		EW		NR		35	0	0
No recovery. Possible dislocation**.							4.20	9.71			5.20 - 5.30	D		4.65 5.50	NR				
Minimal recovery (10%) and possible dislocation from above **: Recovered as non-intact CHALK gravel in a light grey mottled orange comminuted chalk matrix with some shell fragments. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dm / Dc)							4.65	9.26			5.50 6.50		NR		0	0	0		
UT100 Sample Description: Stiff light grey, slightly sandy, very silty CLAY.							5.15	8.76			6.50 - 6.95	SPTLS						SPT(S) 6.50m, N=15 (3,4/3,3,4,5)	
No recovery. Possible dislocation **.							5.50	8.41			6.50 7.50		NR		0	0	0		
Partial recovery (30%) and possible dislocation from above **: Recovered as non-intact CHALK gravel in a light grey mottled orange comminuted chalk matrix with some shell fragments. (WEST MELBURY MARLY CHALK FORMATION ?, Probably Grade Dm / Dc ?)							6.50	7.41			7.50 - 7.95	UT		UT				Ublows=30 Recovery=100%	
No recovery attributable to blow out.							6.95	6.96			7.80 - 8.25	SPTLS							
UT100 Sample Description: Soft light grey, slightly sandy, very silty CLAY (assumed marly CHALK**). (WEST MELBURY MARLY CHALK FORMATION ?, ?)							7.50	6.41			8.20 9.20		NR		10	0	0		
UT100 Sample description: Stiff light grey, slightly sandy, very silty CLAY (assumed marly CHALK**). (WEST MELBURY MARLY CHALK FORMATION ?, ?)							7.75	6.16			9.10 - 9.20	D		NI				SPT(S) 7.95m, N=30 (3,7/7,8,7,8)	
UT100 Sample description: Stiff light grey, slightly sandy, very silty CLAY (assumed marly CHALK**). (WEST MELBURY MARLY CHALK FORMATION ?, ?)							7.95	5.96			9.20 10.70		NR		45	20	15		
No recovery attributable to SPT disturbance. SPT Liner Sample description: Comminuted CHALK recovered as Very stiff creamy grey with orangish brown and red streaks slightly gravelly SILT. Gravel is fine sub-rounded flint.							8.20	5.71											
No recovery. Possible blow out after failed dynamic sample run with dislocation of recovery below **.							9.00	4.91											
Cored after failed dynamic sample run, possible dislocation from above**. Minimal recovery (10%), non-intact: Light grey mottled orange CHALK gravel in a comminuted light grey chalk matrix with some shell fragments. (WEST MELBURY MARLY CHALK FORMATION ?, ?)							9.20	4.71											
No recovery. Possible dislocation of core **.							10.00	3.91											
Observations / Remarks										Drilling Fluid						Hammer Information			
1. No groundwater strikes recorded during drilling. 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 6.00m bgl. * Denotes drillers description **Denotes observation from core photograph										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										1.20	10.70			Air / Mist	30-7	50			
NR - No Recovery NI - Non-intact ND - Not Discernible										Groundwater						Project Number			
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
																784-B025563			

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div><div>Location Details</div><div>Easting: 545993.00 Northing: 254368.00</div><div>Level: 13.91mAOD Depth: 10.70m</div><div>Logger: DC Type: RC</div><div>Inclination: 90°</div></div> <div><div>Status</div><div>FINAL</div></div> <div><div>Borehole Number</div><div>BH-PTR-03A</div></div>						Sheet 2 of 2																
						Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50	
						From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT	
0.00 1.20	1.20 10.70	Inspection Pit Rotary Core	MI3 MI3	A. Courtney A. Courtney	1.20 10.70	300 -	10.00	150	17/03 18/03	18:00 18:00	5.00 10.70	- -	-	Approved By:	CP							
														Start Date:	17/03/2021							
														Finish Date:	18/03/2021							
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring											
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results				
<div>Partial recovery (30%) and possible dislocation from above **: Extremely weak to very weak, low-density light grey marly CHALK with some orange staining in trace fossil burrows. Discontinuity 1). Joints are 70 to 80', (possibly partly induced), probably closed to open, clean, planar, rough with very slight orange staining. Discontinuity 2). Bedding is 0 to 10', probably close, probably closed to open, clean, undulating, rough with very slight orange staining. (WEST MELBURY MARLY CHALK FORMATION, Probably Grade B ? 3 ?) ...from 10.00 to 10.40m bgl: striations on core possibly from core catcher noted. ...from 10.25m bgl: becoming dark bluish grey banded.</div> <div>Possible dislocation from above**, significant drilling disturbance, recovery non-intact: Extremely weak to very weak, low-density light grey marly CHALK gravel with some orange staining. (WEST MELBURY MARLY CHALK FORMATION ? , ?) ...at 10.40m bgl: possible very small Moutonithyris dutempleana (Brachiopod) and Arenaciarcula beaumonti (Terebratulid). ...from 10.50m bgl: becoming dark bluish grey with some orange speckled chalk. EOH at 10.70m - Target depth achieved.</div>							10.40	3.51				10.10 - 10.20	DPLT		ND							
							10.70	3.21				10.40 - 10.50 10.50 - 10.60 10.50 - 10.60	DPLT B D		NI							

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														Sheet 1 of 2						
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 2.20	1.20 2.20 10.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated MI3 MI3	A. Courtney A. Courtney A. Courtney	1.20 2.20 10.45	300 - -	10.00	150	10/03	17:30	10.45	-	-	Approved By:	CP					
														Start Date: 10/03/2021						
														Finish Date: 10/03/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
MADE GROUND: Dark brown, silty, slightly gravelly CLAY with occasional rootlets. Gravel is subangular to subrounded, fine to medium flint. (TOPSOIL) MGR(TS)								0.40	13.49			0.10	ES1							
Stiff light grey mottled orangish brown, very sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint, nodular chalk and rare fine iron pyrite nodules, with occasional 1 to 3mm diameter rootlets. (ALLUVIUM) ALV(C) ...at 1.05m bgl: rare iron-pyrite nodule (3mm).												0.50 0.50 - 0.60	ES2 D							
												1.00 - 1.10	B						1	
Soft to firm light grey mottled orange, very sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk. With up to 2mm diameter live and decaying roots extending vertically. (ALLUVIUM / WEST MELBURY MARLY CHALK FORMATION Transition, Grade Dm) ALV(C)								1.20	12.69			1.20 - 1.65 1.30 - 1.40	SPTLS D					SPT(S) 1.20m, N=6 (1,1/2,2,1,1)		
Firm light bluish grey, very sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. With up to 2mm diameter live and decaying roots extending vertically. (ALLUVIUM / WEST MELBURY MARLY CHALK FORMATION Transition, Grade Dm) ALV(C)								1.70	12.19			1.80 - 1.90 2.00 - 2.10	D D	1.20 2.20		100	0	0		
Structureless CHALK composed of gravelly SILT. Clasts are extremely weak to very weak, low-density slightly orange stained with brown speckles. (WEST MELBURY MARLY CHALK FORMATION, Grade Dm) ALV(C)								2.15 2.20	11.74 11.69					2.20 3.20	NR	10	0	0		
No recovery - possible blow out.								3.05	10.84			3.10 - 3.20 3.20 - 3.65	D SPTLS		NI				SPT(S) 3.20m, N=29 (2,6/6,7,8,8)	3
Minimal recovery (15%), recovery non-intact: Very weak, low-density bluish grey clayey CHALK gravel. (WEST MEBURY MARLY CHALK FORMATION, ?)								3.20	10.69					3.20 4.20	NR	30	0	0		
No recovery - attributable to SPT disturbance / blow out.												4.10 - 4.20	D		NI				4	
Minimal recovery (25%) with significant drilling induced disturbance, recovery non-intact: Light bluish grey comminuted CHALK with some cobbles of weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION, ?)								3.90	9.99					4.20 5.20	NR					
No recovery with striations on liner possibly indicative of sample dislocation. **								4.20	9.69					4.20 5.20	NR	95	0	0		
Significant drilling disturbance and possible dislocation from above: Recovered as grey comminuted CHALK. (WEST MELBURY MARLY CHALK FORMATION, ?)								4.60	9.29			5.10 - 5.20 5.20 - 5.65	D SPTLS		NI				SPT(S) 5.20m, N=35 (3,8/9,8,8,10)	5
Significant drilling disturbance, possible dislocation from above **: Extremely weak, low-density, light bluish grey with some light orange staining CHALK. With some small tubes infilled with pyrite and thin marl seams. Discernible structure: Discontinuity 1) Joints 90' probably partly open with brown clay smearing and staining. (WEST MELBURY MARLY CHALK FORMATION, ?)								5.00	8.89			5.20 6.00		NR		25	0	0		
No recovery - attributable to SPT disturbance / blow out.								5.20	8.69			5.90 - 6.00	D		NI					
SPT Liner description: Light brown slightly gravelly sandy CLAY.								5.60	8.29					6.00 7.00	NR	30	0	0		
Partial recovery (50%), significant drilling disturbance, possible dislocation from above: Recovered as light grey comminuted CHALK. (WEST MELBURY MARLY CHALK FORMATION, ?)								6.00	7.89					6.00 7.00	NR					
No recovery - possible blow out.												6.90 - 7.00 7.00 - 7.45	D SPTLS		NI				SPT(S) 7.00m, N=20 (1,4/5,5,5,5)	7
Partial recovery (30%): Extremely weak, low-density, grey CHALK with inoceramid shell fragments and possible localised karstic features. Discernible structure includes: Discontinuity 1) Joints 90' , vertical, partly open with brown clay smearing and staining. (WEST MELBURY MARLY CHALK FORMATION, ?)								6.70	7.19			7.00 8.00		NR	5	0	0			
No recovery - attributable to SPT disturbance / blow out.								7.00	6.89					7.00 8.00	NR					
Minimal recovery (10%) of grey comminuted CHALK. (WEST MELBURY MARLY CHALK FORMATION, ?)								7.90 8.00	5.99 5.89					8.00 9.00	NR NR	30	0	0		8
No recovery.															NR					
Minimal recovery (30%) of grey comminuted CHALK. (WEST MELBURY MARLY CHALK FORMATION, ?)								8.70	5.19						NR					
No recovery.								9.00	4.89			9.00 10.00				0	0	0		9
												10.00 - 10.45	SPTLS						SPT(S) 10.00m, N=25 (4,5/6,6,7,6)	10
Observations / Remarks										Drilling Fluid				Hammer Information						
1. No groundwater strikes recorded. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
NR - No Recovery NI - Non-intact ND - Not Discernible										2.20	10.45			Air / Mist	30-7	50				
										Groundwater				Project Number						
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
																784-B025563				

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						Easting: 545952.00 Northing: 254216.00 Level: 13.89mAOD Depth: 10.45m Logger: DC Type: RC Inclination: 90°						FINAL		BH-PTR-05																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
0.00 1.20 2.20	1.20 2.20 10.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated MI3 MI3	A. Courtney A. Courtney A. Courtney	1.20 2.20 10.45	300 - -	10.00	150	10/03	17:30	10.45	-	-	Approved By:	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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					Easting: 545951.00 Northing: 254200.00 Level: 13.81mAOD Depth: 15.65m Logger: DC Type: RC Inclination: 90°														
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20 3.20	1.20 3.20 15.65	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated M13 M13	A. Douglas A. Douglas A. Douglas	1.20 3.20 15.65	300 - -	15.00	150	19/03 22/03 23/03	17:00 18:00 18:00	5.00 10.00 15.65	- - -	-	Approved By:	CP				
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
										Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND Dark brown, slightly gravelly, silty CLAY with occasional rootlets.. Gravel is subangular to subrounded, fine flint and quartz. (TOPSOIL) MGR(TS)						0.35	13.46				0.10	ES1							
Firm grey mottled orange, slightly sandy, slightly gravelly, very silty CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse flint. (ALLUVIUM) ALV(C)											0.50 - 1.65	B1							
											1.00	ES2				1			
											1.20 - 1.65	D				SPT(S) 1.20m, N=7 (1,0/2,2,1,2)			
											1.40 - 1.60	D							
											1.20 2.20			90	0	0			
Structureless grey CHALK composed of silty GRAVEL. Gravel is extremely weak to weak, low-density, subangular to subrounded, fine to coarse with occasional orange staining and rare shell fragments. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dc)						1.68	12.13				2.10 - 2.20 2.20 - 2.65 2.21 - 2.30	D SPTLS D				SPT(S) 2.20m, N=10 (2,3/3,3,2,2)			
											2.20 3.20			90	0	0			
											3.10 - 3.20 3.20 - 3.65	D SPTLS				3			
No recovery - attributable to SPT disturbance / possible blow out.						3.20	10.61				3.20 4.20			NR	10	0	0		
											4.10 - 4.20 4.20 - 4.65	D SPTLS			NI		4		
Minimal recovery (10%): Structureless grey CHALK composed of silty GRAVEL. Gravel is extremely weak to weak, low-density, subangular to subrounded, fine to coarse with occasional orange staining and rare shell fragments. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dc ?) ...at 4.10m bgl: small pockets of heavy orange staining and mineralisation.						4.10 4.20	9.71 9.61				4.20 5.20			NR	15	0	0		
No recovery - attributable to SPT disturbance / possible blow out.											5.10 - 5.20	D			NI		5		
Minimal recovery (15%) significant drilling disturbance, recovery non-intact: Very weak to weak, low-density grey marly CHALK gravel and cobbles. (WEST MELBURY MARLY CHALK FORMATION ? , possibly structured ?)						5.05 5.20	8.76 8.61				5.20 6.20			NR	30	0	0		
No recovery - possible blow out.											6.10 - 6.20 6.20 - 6.65	D SPTLS			NI		6		
Partial recovery (30%) significant drilling disturbance, recovery non-intact: Very weak to weak, low-density grey marly CHALK gravel and cobbles. (WEST MELBURY MARLY CHALK FORMATION, Possibly structured ?)						5.90 6.20	7.91 7.61				6.20 7.70			NR	0	0	0		
																	7		
											7.90 - 8.00	D			NR NI		8		
Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discontinuity 1). Joints are 60 to 80', clean, closed, smooth, polished with no staining. Discontinuity 2). Bedding is 0 to 10', close, clean, closed, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3) ...from 7.80 to 8.00m bgl: with significant drilling disturbance (recovery non-intact). ...from 8.39m to 8.55m bgl: with light grey chalk following joints. ...at 8.61m bgl: with slight orange staining.											7.70 9.20			ND/ >14?	86	52	0		
											8.60 - 8.70	DPLT							
											9.10 - 9.20 9.20 - 9.65	DPLT SPTLS			NI ND		9		
No recovery - attributable to SPT disturbance / possible blow out.						9.20	4.61				9.20 10.70			NR	40	16	16		
																	10		
						10.00	3.81												
Observations / Remarks										Drilling Fluid					Hammer Information				
1. Groundwater seepage at 1.10m bgl. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph Location revisited to obtain UT100 sample at 1.60 to 1.70 (see BH-PTR-06A and BH-PTR-06B). NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										3.20	15.65			Air / Mist	30-7	50			
										Groundwater					Project Number				
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
										1.10	-	-	20	1.10	Seepage	784-B025563			

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					Easting: 545951.00 Northing: 254200.00 Level: 13.81mAOD Depth: 15.65m Logger: DC Type: RC Inclination: 90°												
					FINAL				BH-PTR-06								
									Sheet 2 of 2								
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT		
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated M13 M13	A. Douglas	1.20	300	15.00	150	19/03	17:00	5.00	-	-	Approved By: CP	Start Date: 19/03/2021		
1.20	3.20			A. Douglas	3.20	-			22/03	18:00	10.00	-					
3.20	15.65			A. Douglas	15.65	-			23/03	18:00	15.65	-	Finish Date: 23/04/2021				
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
Partial recovery (40%): Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discontinuity 1) Joints are 60 to 80', inclined, clean, closed, smooth, polished with no staining. Discontinuity 2) Bedding is 0 to 10', close, clean, probably closed, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Probably Grade A?3)						10.70	3.11			10.50 - 10.60	CSS	ND					
No recovery - possible blow out.																	
Drilling disturbance, recovery mainly non-intact, possibly locally intraclastic **: Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discernible structure: Discontinuity 1). Joints are 60 to 80', probably inclined, clean, closed, smooth, polished with no staining. Discontinuity 2). Bedding is 0 to 10', close, clean, closed or open with brecciated / intraclastic infill, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Probably Grade B3 ?) ...from 11.35m to 11.55m bgl: medium-density chalk.						11.35	2.46			10.70 12.20		41	10	0			
No recovery - attributable to SPT disturbance / possible blow out.						12.20	1.61			12.20 - 12.65	SPTLS	NR				SPT(S) 12.20m, 50 (25 for 20mm/50 for 20mm)	
Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discontinuity 1). Joints are 60 to 80' , inclined, clean, closed, smooth, polished with no staining. Discontinuity 2). Bedding is 0 to 10' , close, clean, closed, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3)						12.50	1.31			12.60 - 12.70	D						
Extremely weak to very weak, medium to high-density dark grey marly CHALK with trace fossil burrows and abundant shell fragments. Discontinuity 1) Joints are 60 to 80' , inclined, clean, closed, smooth, polished with no staining. Discontinuity 2) Bedding is 0 to 10 degrees, close, clean, closed, smooth, polished with no staining [100/150/220]. ('DIXONI LIMESTONE' ? , WEST MELBURY MARLY CHALK FORMATION, Grade A3) ...at 13.10m bgl: Inoceramus CRIPPSII (bivalve).						12.70	1.11			12.20 13.70		6	80	55	17		
Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discontinuity 1). Joints are 60 to 80' , inclined, clean, closed, smooth, polished with no staining. Discontinuity 2). Bedding is 0 to 10' , close, clean, closed, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3)						13.40	0.41			13.20 - 13.40	CSS						
Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discontinuity 1). Joints are 60 to 80' , inclined, clean, closed, smooth, polished with no staining. Discontinuity 2). Bedding is 0 to 10' , close, clean, closed, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3)						13.70	0.11			13.40 - 13.50	DPLT						
No recovery - possible blow out. ...from 14.00 to 14.30m bgl: with grey chalk residue on liner, possibly indicative of core dislocation **.						14.30	-0.49			14.40 - 14.50	DPLT	13.70 15.20		58	25	0	
Extremely weak to very weak, low-density dark bluish grey marly CHALK with some fragments of shells. Discontinuity 1). Joints are 60 to 80' , inclined, clean, closed, smooth, polished with no staining. Discontinuity 2). Bedding is 0 to 10' , close, clean, closed, smooth, polished with no staining [40/90/120]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3) ...at 15.00m bgl: sharks tooth, possibly Cretalamna appendiculata. ...at 15.10m bgl: high-density chalk nodule.						15.20	-1.39			15.20 - 15.65	SPTLS					SPT(S) 15.20m, N=42 (4,9/10,12,10,10)	
No recovery (SPT only)						15.65	-1.84										
EOH at 15.65m - Target depth achieved.																	

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										Sheet 1 of 2										
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 4.20	1.20 4.20 15.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated MI3 MI3	A. Courtney A. Courtney A. Courtney	1.20 4.20 15.00	300 - -	10.50	150	08/03 09/03	17:30 17:30	7.50 15.00	- -	-	Approved By:	CP					
										Start Date:		08/03/2021								
										Finish Date:		09/03/2021								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Dark brown silty CLAY with occasional rootlets. (TOPSOIL) MGR(TS)								0.33	13.54			0.10 0.20	ES1 ES2							
Soft light greyish brown mottled orange, very sandy silty CLAY. Sand is fine to coarse. (ALLUVIUM) ALV(C) ...between 1.00 and 1.20m bgl: becoming very light grey and mottled orange.												0.50 0.50 - 0.60	ES3 D							
Soft to firm greenish grey mottled orangish brown, slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse chalk and flint. With both live and dead / decaying roots up to 3mm diameter extending vertically to depths of 1.85m bgl. Becoming sandier towards the base. (ALLUVIUM) ALV(C) ...from 1.80m bgl: becoming slightly laminated.								1.20	12.67			1.00 1.00 - 1.10 1.20 - 1.30	ES4 D D						SPT(S) 1.20m, N=5 (1,1/1,1,1,2)	
Structureless CHALK composed of light grey gravelly SILT. Gravel is extremely weak, low-density, angular to subangular ,occasionally orange stained. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dm) No recovery - attributable to SPT disturbance.								1.90	11.97			1.90 - 2.00	D			100	0	0		
								2.20	11.67			2.20 - 2.65	SPTLS						SPT(S) 2.20m, N=12 (2,3/3,3,2,4)	
												2.20 3.20			20	0	0			
Significant drilling disturbance, minimal recovery (20%): Extremely weak, low-density grey CHALK with occasional orange staining on possible discontinuity surfaces. Recovered as non-intact gravel and cobbles. (WEST MELBURY MARLY CHALK FORMATION ?, Unable to grade due to drilling disturbance, probably structured ?) No recovery.								3.00	10.87			3.10 - 3.20	D							
								3.20	10.67											
Significant drilling disturbance with minimal recovery (10%): Extremely weak, low-density grey CHALK with occasional orange staining on possible discontinuity surfaces. Recovered as non-intact gravel and cobbles. (WEST MELBURY MARLY CHALK FORMATION ? Unable to grade due to drilling disturbance, probably structured ?) ...at 4.10m bgl: Orbirhynchia multicosata (Rhynchonellid). No recovery - attributable to SPT disturbance / possible blow out.								4.10	9.77			4.10 - 4.20 4.20 - 4.65	D SPTLS						SPT(S) 4.20m, N=28 (3,5/6,6,8,8)	
Significant drilling disturbance:, partial recovery (30%): Extremely weak, low-density grey CHALK with occasional orange staining on possible discontinuity surfaces. Recovered as non-intact gravel and cobbles. (WEST MELBURY MARLY CHALK FORMATION ?, Unable to grade due to drilling disturbance, probably structured ?) No recovery - possible blow out.								4.70	9.17			4.20 5.00		NR		30	0	0		
								5.00	8.87			4.90 - 5.00	D		NI					
Minimal recovery (20%) of comminuted chalk SILT. (WEST MELBURY MARLY CHALK FORMATION ?) Significant drilling disturbance, partial recovery (30%): Extremely weak, low-density grey CHALK with occasional orange staining recovered as non-intact gravel. (WEST MELBURY MARLY CHALK FORMATION ?, Unable to grade due to drilling disturbance, probably structured ?) No recovery - possible blow out.								5.85	8.02			5.90 - 6.00	D		5.00 6.50		40	0	0	
								6.00	7.87						NI					
								6.50	7.37			6.40 - 6.50	D							
												7.00	EW1	6.50 7.50	NR		20	0	0	
Significant drilling disturbance, partial recovery (30%): Very weak, low-density grey CHALK cobbles with some orange staining. Possible discontinuity surfaces black stained with a smear of black clay. (WEST MELBURY MARLY CHALK FORMATION, Possibly Grade B ?) No recovery - attributable to SPT disturbance / possible blow out.								7.20	6.67			7.40 - 7.50 7.50 - 7.95	D SPTLS		NI				SPT(S) 7.50m, N=25 (1,3/5,5,7,8)	
								7.50	6.37						NR					
												7.50 8.50			40	0	0			
Significant drilling disturbance, partial non-intact recovery (30%): Very weak low-density grey CHALK cobbles with some orange staining. Possible discontinuity surfaces black stained with a smear of black clay. (WEST MELBURY MARLY CHALK FORMATION, Possibly Grade B ?) Significant drilling disturbance:, recovery non-intact Extremely weak low-density dark bluish grey CHALK gravel. (WEST MELBURY MARLY CHALK FORMATION, Probably structured ?) No recovery - possible blow out.								8.10	5.77			8.40 - 8.50	D		NI					
								8.40	5.47											
								8.50	5.37											
												8.50 9.50		NR		40	0	0		
Partial recovery (40%), significant drilling disturbance, recovery non-intact: Weak, low to medium-density dark bluish grey CHALK gravel with ammonite / cephalopod relief markings (unidentified due to fragmentation). (WEST MELBURY MARLY CHALK FORMATION, Probably structured ?) No recovery - possible blow out.								9.10	4.77			9.40 - 9.50	DPLT		NI					
								9.50	4.37						NR					
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater strike at 3.20m bgl. 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 15.00m bgl. * Denotes drillers description **Denotes observation from core photograph										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										1.20	15.00			Air / Mist	30-7	50				
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
										3.20	-	-	20	3.20		784-B025563				

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div colspan="5">Location Details</div> <div>Easting: 545961.00</div> <div>Northing: 254192.00</div> <div>Level: 13.87mAOD</div> <div>Depth: 15.00m</div> <div>Logger: GD+DC</div> <div>Type: RC</div> <div>Inclination: 90°</div> <div>Status</div> <div>FINAL</div> <div>Borehole Number</div> <div>BH-PTR-07</div> <div>Sheet 2 of 2</div>					Scale: 1:50	
					Checked By: RT	
					Approved By: CP	
Start Date: 08/03/2021						
Finish Date: 09/03/2021						

Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time							Samples, Tests and Rotary Coring							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)										
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated MI3 MI3	A. Courtney A. Courtney A. Courtney	1.20	300	10.50	150	08/03 09/03	17:30 17:30	7.50	-	-	15.00									
1.20	4.20				4.20																		
4.20	15.00				15.00	-					-												

Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
										Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
No recovery - possible blow out.																			
Minimal recovery (15%), significant drilling disturbance, recovery non-intact: Weak, low to medium-density dark bluish grey CHALK gravel with ammonite / cephalopod relief markings (unidentified due to fragmentation). (WEST MELBURY MARLY CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)						10.30	3.57												
No recovery - attributable to SPT disturbance / possible blow out.						10.50	3.37												
											10.40 - 10.50	D	9.50		20	0	0		
											10.50 - 10.95	SPTLS	10.50	NI					

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details <div>Eastings: 545947.00 Northing: 254166.00</div> <div>Level: 13.94mAOD Depth: 16.50m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>					Status <div>FINAL</div>		Borehole Number <div>BH-PTR-08</div>									
										Sheet 1 of 2											
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	4.50	200	22/03	18:00	9.00	-	-	Approved By:	CP						
1.20	3.00	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	3.00	-			23/03	18:00	16.50	-	-	Start Date:	22/03/2021						
3.00	16.50	Rotary Core	Beretta T41	M. Bainbridge	16.50	-								Finish Date:	23/03/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
MADE GROUND: Dark brown slightly gravelly silty CLAY with occasional rootlets. Gravel is subangular to subrounded fine to medium flint and quartz. (TOPSOIL) MGR(TS)								0.40	13.54			0.10 0.20	ES1 ES2								
Soft light greyish brown mottled orange very sandy, very silty, slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint. (ALLUVIUM) ALV(C)												0.50 0.50	D1 ES3								
UT100 Sample Description: Firm to stiff light brown mottled grey very sandy very silty CLAY with rare fine gravel and rare medium sized rootlets. (ALLUVIUM) ALV(C)								1.20	12.74			1.00 1.00 1.00 1.00 1.20 - 1.65 1.30 1.50 - 1.60 1.65 - 1.70	B1 D D2 ES4 UT1 EW7 D5 B2								
...from 1.54m bgl: becoming very gravelly. Gravel is fine to medium, subangular to subrounded. No recovery.								1.57	12.37					1.20			40	0	0		
Soft very thinly laminated orangish brown and light grey mottled orange sandy CLAY with occasional decayed organic material. Sand is fine to coarse. (ALLUVIUM) ALV(C)								1.65	12.29					2.00							
Structureless grey CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, extremely weak to very weak, low-density. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dc)								2.08	11.86			2.00 - 2.45 2.20 - 2.30	EW1 SPTLS4 D5						SPT(S) 2.00m, N=6 (1,2/1,1,2,2)		
...between 2.34m to 2.42m bgl: slight orange staining. Some clasts have <1mm diameter pyrite infilled burrows/tubes.														2.00 3.00			100	0	0		
...at 2.78m bgl: some slight residual liesegang banding. No recovery attributable to SPT disturbance.								3.00	10.94			2.90 - 3.00 3.00 - 3.45	D2 SPTLS7						SPT(S) 3.00m, N=9 (2,2/2,3,2,2)		
Partial recovery (30%) with significant disturbance attributable to SPT: Extremely weak to weak, low-density CHALK with some pyrite filled burrows <1mm diameter. Discernible structure: Discontinuity 1). Joints are 70 to 90 degrees, probably irregular, clean with black speckling, slight undulating, polished/smooth. Discontinuity 2). Bedding is 0 to 10 degrees, probably very close, clean with black speckling, slightly undulating, polished/smooth [20 ? / 30 ? / 40 ?]. (WEST MELBURY MARLY CHALK FORMATION, Grade B4?)								4.00	9.94			4.00 - 4.45 4.10 - 4.20	SPTLS8 D3			NR		33	20	0	SPT(S) 4.00m, N=11 (2,2/3,3,2,3)
...at 4.30m bgl: with moderate orange staining. Zone of core loss attributable to SPT disturbance and blow out.								4.50	9.44			4.50 - 4.95	SPTLS1 0			ND/10				SPT(S) 4.50m, N=17 (3,4/4,5,3,3)	
Significant drilling disturbance, recovery non-intact: Probably Structured grey CHALK. Recovered as a comminuted chalk and gravels. (WEST MELBURY MARLY CHALK FORMATION ?, unable to grade due to drilling disturbance)								5.02	8.92			5.10 - 5.20	D11	4.50 6.00		NI		65	0	0	
Extremely weak, low-density grey CHALK MARL with some pockets of orange pyrite <5mm diameter, fragments of inoceramid shell fragments and possible fragments of sponges <1mm diameter. Discontinuity 1) Joints are 70 degrees, inclined, clean, closed, some slotted but polished, smooth with some slight black staining. Discontinuity 2). Bedding is 0 degrees, close, clean, closed, some slotted but polished, smooth with some slight black staining [70/100/140]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3)								6.00	7.94			5.90 - 6.00	D12								
...at 6.39m bgl: with slight orange staining.														6.00 7.50		11	100	82	40		
...from 6.60m to 6.70m bgl: band of chalk marl LIMESTONE.																					
...at 6.80m bgl: with slight orange staining.																					
...at 6.89m bgl: with slight orange staining.																					
...from 6.90m to 7.20m bgl: band of chalk marl LIMESTONE.																					
...at 7.05m bgl:10mm diameter iron pyrite nodule.																					
...at 7.28m bgl: possible small pockets of phosphatic sandy material.																					
...from 7.35m to 7.50m bgl: band of chalk marl LIMESTONE.																				SPT(S) 7.50m, N=20 (3,3/4,5,5,6)	
...from 8.00m to 8.15m bgl: band of chalk marl LIMESTONE.														7.50 9.00		ND	100	100	0		
Extremely weak, low to medium-density dark grey CHALK MARL with high content of light and dark grey relict trace fossil burrows. Structure not discernible due to high clay / marl content. (WEST MELBURY MARLY CHALK FORMATION, medium density)								8.50	5.44			8.40 - 8.50	DPLT								
...at 9.01m bgl: with slight orange staining.																					
...from 9.30m to 9.38m bgl: band of very weak low density marly chalk LIMESTONE.																					
														9.00 10.50		ND	100	90	90		
														9.90 - 10.00 10.00 - 10.30	DPLT UCS						
Observations / Remarks										Drilling Fluid					Hammer Information						
1. Groundwater not recorded. Water added from 3.00m bgl.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
2. Upon completion exploratory hole installed with 2 x 63mm groundwater monitoring pipes to 15.00m and 2.50m bgl.										3.00	16.50			Water	DART449	64					
* Denotes drillers description										Groundwater					Project Number						
**Denotes observation from core photograph										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						
NR - No Recovery																784-B025563					
NI - Non-intact																					
ND - Not Discernible																					

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div colspan="5">Location Details</div> <div colspan="2">Status</div> <div colspan="2">Borehole Number</div>																				
					Eastings: 545947.00 Northing: 254166.00					FINAL		BH-PTR-08								
					Level: 13.94mAOD Depth: 16.50m					Inclination: 90°		Sheet 2 of 2								
Logger: DC Type: RC																				
Method, Plant and Crew					Diameter		Casing			Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	4.50	200	22/03 23/03	18:00 18:00	9.00 16.50	-	-	Approved By:	CP					
1.20	3.00				3.00															
3.00	16.50				16.50	-										-				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
Extremely weak, low to medium-density dark grey CHALK MARL with high content of light and dark grey relict trace fossil burrows. Structure not discernible due to high clay / marl content. (WEST MELBURY MARLY CHALK FORMATION, medium density)								10.50	3.44			10.40 - 10.50 10.50 - 10.95	DPLT SPTLS2 4		NR	50	50	35	SPT(S) 10.50m, N=28 (3,5/5,7,9)	
Zone of core loss attributable to SPT disturbance.																				
Extremely weak, low-density dark grey CHALK MARL with high content of light and dark grey relict trace fossil burrows. (WEST MELBURY MARLY CHALK FORMATION, structure not discernible due to high clay / marl content)								11.25	2.69			11.25 - 11.35 11.50	DPLT EW6	10.50 12.00						
...from 11.25m to 11.40m bgl: band of weak medium density marly chalk LIMESTONE. ...at 11.37m bgl: 60mm long by 2mm diameter tube (possible belemnite) mineralised with marcasite/iron pyrite. ...from 11.40m to 11.52m bgl: band of low density LIMESTONE. ...from 11.55m to 11.78m bgl: abundant fragments of inoceramids and other unidentified brachiopods. ...at 11.75m bgl: complete small Orbirhynchia parkinsoni (brachiopod) shell.								12.00	1.94			11.90 - 12.00 12.00 12.00 - 12.10	DPLT EW1 DPLT							
Extremely weak, low-density dark grey CHALK MARL with high content of light and dark grey relict trace fossil burrows. Structure obscured by clay / marl smearing, where discernible: Discontinuity 1). Joints are 70 °, probably inclined, clean, closed, some slotted but polished, smooth with some slight black staining. Discontinuity 2). Bedding is 0 °, probably close to medium, clean, closed, some slotted but polished, smooth with some slight black staining [100 ° / 250 ° / 350 °]. (WEST MELBURY MARLY CHALK FORMATION, ?)											12.80 - 12.90	DPLT	12.00 13.50	>6?	100	92	87	SPT(S) 13.00m, N=33 (4,5/6,8,8,11)		
...from 12.00m to 12.51m bgl: band of weak medium density marly CHALK. ...from 12.87m to 13.05m bgl: possible zone of conjugate jointing. ...from 13.10m to 13.16m bgl: band of weak medium density marly chalk. ...from 13.50m to 13.70m bgl: occasional brachiopod and other unidentified shell fragments. ...from 13.50m to 14.00m bgl: with large vertical 90 degrees joint, clean, closed, smooth, polished. ...from 13.66m to 13.75m bgl: band of marly chalk LIMESTONE with trace Chondrite fossils. ...at 13.75m bgl: black sponge bed. ...at 13.80m bgl: complete Inoceramus CRIPPSII (brachiopod). ...at 14.00m bgl: unidentified Ammonite. ...from 14.00m to 14.19m bgl: band of weak medium-density marly chalk. ...from 14.34m to 14.47m bgl: band of weak medium-density marly chalk.											13.40 - 13.50 13.50 - 13.95	DPLT SPTLS3 0								
...from 15.05m to 15.15m bgl: band of medium to high-density LIMESTONE.											13.90 - 14.00	DPLT								
...from 15.70m bgl: high-density.											14.90 - 15.00	DPLT								
											15.40 - 15.50	DPLT								
											15.70 - 16.20	UCS	15.00 16.50	>7?	100	100	80			
EOH at 16.50m - Target depth achieved.								16.50	-2.56											

<div><div><div><div></div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						<div>Location Details</div> <div>Easting: 545961.00 Northing: 254165.00</div> <div>Level: 13.90mAOD Depth: 15.00m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-09</div>						
												<div>Sheet 1 of 2</div>								
<div>Method, Plant and Crew</div> <div><div>From (m)To (m)</div><div>Type</div><div>Plant Used</div><div>Crew</div></div>						<div>Diameter</div> <div><div>Depth (m)Diam (mm)</div><div>1.20300</div><div>3.00-</div><div>15.00-</div></div>		<div>Casing</div> <div><div>Depth(m)Diam (mm)</div><div>4.50200</div></div>		<div>Drilling Progress by Time</div> <div><div>DateTime</div><div>19/0318:00</div><div>22/0310:30</div><div>15.0015.00</div></div> <div><div>Casing (m)Water (m)</div><div>-</div><div>-</div></div>						<div>Scale: 1:50</div> <div>Checked By: RT</div> <div>Approved By: CP</div> <div>Start Date: 18/03/2021</div> <div>Finish Date: 22/03/2021</div>				
<div>Strata Description</div>						<div>Legend</div>	<div>Depth (m)</div>	<div>Reduced Level (mAOD)</div>	<div>Water Level (m)</div>	<div>Inst / Backfill</div>	<div>Samples, Tests and Rotary Coring</div> <div><div>Depth (m)RefCore RunFI TCR SCR RQD</div><div>Tests / Results</div></div>									
<div>MADE GROUND: Soft brown slightly gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular fine to coarse flint and chalk. (TOPSOIL) MGR(TS)</div>							0.50	13.40			0.10 ES1									
<div>Soft cream brown mottled yellow, slightly gravelly, sandy, silty CLAY. Sand is fine to coarse. Gravel is angular, fine to medium chalk. With black gravel size pockets of organic material. (ALLUVIUM) ALV(C)</div>							1.20	12.70			0.20 ES2	B1 D1 ES3								
<div>Soft to firm brown mottled light grey and orange, slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint. (ALLUVIUM) ALV(C) ...from 1.70m to 1.82m bgl: with pockets of gravelly sand and decayed roots up to 4mm diameter.</div>							2.00	11.90			1.00 B2 D2	ES4 SPTLS3								
<div>UT100 Sample Description: Firm off white slightly sandy clayey SILT. (ALLUVIUM) ALV(C)</div>							2.28	11.62			1.20 - 1.65									
<div>UT100 Sample Description: Firm Light brown very sandy silty CLAY. With lenticular band of off-white SILT**. (ALLUVIUM) ALV(C)</div>							2.45	11.45			1.50 - 1.60 D4	1.20 TCR								
<div>Structureless grey CHALK composed of gravelly SILT. Gravels are very weak to weak, low-density with rare orange staining. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dm)</div>							3.00	10.90			2.00 - 2.45 UT1									
<div>Structureless grey CHALK composed of silty GRAVEL. Gravels are very weak to weak, low-density with rare orange staining. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dc)</div>							2.75	11.15			2.20 - 2.30 D5	2.00 SCR								
<div>Zone of core loss attributable to SPT disturbance and wash out. No recovery - possible wash out.</div>							3.50	10.40			2.90 - 3.00 D6	3.00 SPTLS7								
<div>Structureless grey CHALK composed of silty GRAVEL and COBBLES. Gravels are very weak to weak, low-density with rare orange staining. Cobble content increases with depth. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dc)</div>							4.10	9.80			3.00 - 3.45									
<div>Drilling disturbance: Extremely weak to very weak, low-density grey marly CHALK with occasional orange staining from trace fossil burrows. Discernible structure: Discontinuity 1) Joints are 70 to 90 ' inclined, sub-vertical, closed to partly open, clean planar undulating with some black and orange speckling. Discontinuity 2) Bedding is 0 to 10 ' , close ? , subhorizontal, planar smooth closed clean. (WEST MELBURY MARLY CHALK FORMATION, Grade B 2 ?)</div>							4.50	9.40			4.10 - 4.20 D8									
<div>...from 4.50 to 4.60m bgl: high-density. ...at 4.75m bgl: Inoceramus CRIPPSII (bivalve).</div>							5.02	8.88			4.40 - 4.50 DPLT	4.50 - 4.60 DPLT								
<div>Extremely weak, low-density grey very marly CHALK with rare small gastropods / cephalopods in orange stained pockets. Discontinuity 1) Joints are 70 to 80 ' planar smooth closed clean. Discontinuity 2) Bedding is 0 to 10 ' planar smooth closed clean but hard to distinguish. (WEST MELBURY MARLY CHALK FORMATION, Grade A ? 2 ?)</div>							6.20	7.70			4.50 D6	6.00 SPTLS1	6	100	86	73				
<div>...at 5.30m bgl: 10mm diameter 30mm long tube of iron pyrite (probably a relict burrow). ...from 6.00m bgl: hard to distinguish discontinuity sets due to the texture and marl content within the chalk.</div>							6.20	7.70			6.00 - 6.45 SPTLS1	1	ND							
<div>Extremely weak, low-density grey very marly CHALK with rare small <1mm diameter gastropods / cephalopods in orange stained firm silt pockets. Discontinuity 1). Joints are 70 to 80 ' , inclined, clean, closed, planar, smooth. Discontinuity 2). Bedding is 0 to 10 ' , close, clean, closed, planar, smooth [50/90/140]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3)</div>							6.20	7.70			6.30 - 6.40 DPLT									
<div>...from 6.50m bgl: with phosphate iron nodules up to 10mm diameter. ...at 6.95m bgl: with possible ammonite cast / imprint. ...at 7.00m bgl: Inoceramus CRIPPSII (bivalve)</div>							6.20	7.70			6.90 - 7.00 DPLT	6.00 TCR	9	95	95	50				
<div>...at 7.89m bgl: slight orange staining.</div>							8.20	8.30			7.40 - 7.50 DPLT	7.50 - 7.60 DPLT								
<div>...at 8.80m bgl: slight orange staining. ...from 8.90m bgl: becoming less marly. ...from 9.00m bgl: unable to discern structure / discontinuities due to texture / marl content. ...at 9.36m bgl: slight orange staining. ...at 9.55m bgl: slight orange staining.</div>							8.20	8.30			8.90 - 9.00 DPLT	9.00 - 9.10 DPLT								
<div>Extremely weak, low-density banded bluish grey and dark bluish grey very marly CHALK. Structure difficult to identify due to the texture / marl content: Discontinuity 1) Joints are 70 ' probably stepped smooth closed clean with occasional orange staining. Discontinuity 2). Bedding is 0 to 10 ' probably close, undulating smooth closed clean with occasional orange staining [70/100/130]. (WEST MELBURY MARLY CHALK FORMATION, Grade A3 ?)</div>							9.80	4.10			9.00 - 9.45 SPTLS1	8								
<div>...at 9.80m bgl: slight orange staining.</div>							9.80	4.10			9.80 - 9.90 DPLT									
<div>...at 9.80m bgl: slight orange staining.</div>							9.80	4.10			9.80 - 9.90 DPLT									
<div>...at 9.80m bgl: slight orange staining.</div>							9.80	4.10			9.80 - 9.90 DPLT									
<div>Observations / Remarks</div> <div>1. Groundwater strike at 2.60m, rising to 0.89m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible</div>										<div>Drilling Fluid</div> <div><div>From (m)To (m)</div><div>Return Min %</div><div>Colour</div><div>Type</div></div>						<div>Hammer Information</div> <div><div>Serial No.</div><div>Energy Ratio %</div></div>				
<div>1. Groundwater strike at 2.60m, rising to 0.89m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible</div>										<div>3.0015.00</div>						<div>DART44964</div>				
<div>1. Groundwater strike at 2.60m, rising to 0.89m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible</div>										<div>Groundwater</div> <div><div>Strike (m)Casing (m)Sealed (m)Time (min)</div><div>2-20</div><div>Rose To (m)Remarks</div><div>0.89</div></div>						<div>Project Number</div> <div>784-B025563</div>				

<div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>					Location Details					Status FINAL		Borehole Number BH-PTR-10								
					Eastings: 545959.00 Northing: 254147.00 Level: 13.98mAOD Depth: 6.45m Logger: DC Type: RC Inclination: 90°															
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP					
0.00 1.20 4.00	1.20 4.00 6.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 4.00 6.45	300 - -	4.50	150	18/03	18:30	6.45	-	-	Start Date: 18/03/2021	Finish Date: 18/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND Soft to firm brown slightly gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular fine to coarse flint. (TOPSOIL) MGR(TS)								0.50	13.48			0.50	D1							
Firm pale grey mottled yellow, sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular fine to coarse, weak, low-density pale grey with yellow staining chalk. (ALLUVIUM) ALV(C)								1.20	12.78			1.00 1.00	B1 D2						1	
Zone of core loss attributable to SPT disturbance. SPT Liner Sample Description: Brown very sandy very silty CLAY. (ALLUVIUM) ALV(C)								1.50	12.48			1.20 - 1.65	SPTLS3						SPT(S) 1.20m, N=8 (1,2/2,2,2,2)	
Stiff to firm greenish grey mottled orange, slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse flint and very weak to weak, low-density chalk. With live and decaying vertical roots up to 5mm in diameter. (ALLUVIUM) ALV(C)												1.50 - 1.60	D1	1.20 2.00		50	0	0		
Structureless CHALK composed of gravelly SILT. Gravel is angular to subangular, fine to coarse, very weak to weak low-density chalk with occasional orange staining. Matrix is grey. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dm)								2.55	11.43					1.90 - 2.00 2.00 - 2.10 2.00 - 2.45	D5 D6 SPTLS7					SPT(S) 2.00m, N=9 (2,1/2,2,2,3)
								2.76	11.22					2.00 3.00		100	0	0		
Structureless CHALK composed of silty angular to subangular, fine to coarse GRAVEL. Clasts are very weak to weak, low-density grey chalk with occasional orange staining. Matrix is grey. (WEST MELBURY MARLY CHALK FORMATION ?, Grade Dc)								3.00	10.98			2.90 - 3.00 3.00 3.00 3.00 - 3.45 3.10 - 3.20	D8 EW1 EW3 SPTLS9 D10	3.00 4.00		100	0	0	SPT(S) 3.00m, N=13 (2,3/3,3,3,4)	
Structureless CHALK composed of (firm) sandy slightly gravelly CLAY. Sand is fine. Gravel is angular to rounded fine to medium grey mottled orange slightly flint and chalk. With some decayed roots. (Highly weathered WEST MELBURY MARLY CHALK FORMATION ?, Grade Dm)								3.70	10.28											
Structureless CHALK composed of gravelly SILT. Clasts are very weak to weak, low-density grey fine to coarse, subangular to subrounded chalk with occasional orange staining. Matrix is grey with inoceramid fragments. (WEST MELBURY NODULAR CHALK FORMATION ?, Grade Dm)								4.20	9.78			3.90 - 4.00 4.00 - 4.45	D11 SPTLS1 2	4.00 4.50		90			SPT(S) 4.00m, N=14 (2,2/3,3,4,4)	
Structureless CHALK composed of silty angular to subangular, fine to coarse GRAVEL. Clasts are very weak to weak, low-density grey chalk with occasional orange staining. Matrix is grey with inoceramid fragments. (WEST MELBURY NODULAR CHALK FORMATION ?, Grade Dc)								4.70	9.28			4.30 - 4.40	D13							
Extremely weak to very weak, low to high-density light grey CHALK with occasional orange staining in relict trace fossil burrows. Discontinuity 1) Joints are 70 to 90 ' planar rough, closed to open, clean with occasional black staining. Discontinuity 2) Bedding is 0 to 10 ', close, planar rough, closed to partly open, clean with occasional black staining [30/50/100]. (WEST MELBURY MARLY CHALK FORMATION, Grade B4) ...at 5.25m bgl: with orange stained sponge bed. ...at 5.40 to 5.50m bgl: high-density.										4.90 - 5.00	DPLT						5			
No recovery - SPT only.										5.40 - 5.50	DPLT	4.50 6.00	20	95	27	0				
										5.90 - 6.00 6.00 - 6.45	DPLT SPTLS1 7						SPT(S) 6.00m, N=30 (3,5/5,7,7,11)			
EOH at 6.45m - Target depth achieved.								6.45	7.53											

Project: Cambridge South East Transport – Phase 2										Location Details				Status		Borehole Number					
Location: Cambridge										Easting: 545991.00 Northing: 253978.00				FINAL		BH-PTR-12					
Client: Greater Cambridge Partnership										Level: 15.46mAOD Depth: 11.45m											
										Logger: DC Type: RC				Inclination: 90°							
Method, Plant and Crew										Diameter		Casing		Drilling Progress by Time						Scale: 1:50	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	10.50	150	16/03	18:00	6.00	-	-	Approved By:	CP						
1.20	4.00				4.00	-	17/03	10:00	11.45	-	-										
4.00	11.45				11.45	-															
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
MADE GROUND: Soft to firm brown, slightly gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is fine to coarse, subangular flint. (TOPSOIL) MGR(TS)								0.45	15.01			0.10	ES1								
												0.20	ES2								
Structureless light grey marly CHALK composed of gravelly SILT. Gravel is subrounded to subangular, fine to coarse, very weak to weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)												0.50	D1								
												0.50	ES3								
...from 2.00m to 2.25m bgl: with slight orange staining.												1.00	B1						SPT(S) 1.20m, N=13 (2,2/3,3,4)		
												1.00	D2								
...from 2.60m to 2.63m bgl: with slight orange staining.												1.00	ES4								
												1.00	ES4								
...from 2.81m to 2.91m bgl: with slight orange staining.												1.20 - 1.65	SPTLS3								
												1.30 - 1.40	D4								
Zone of core loss attributable to SPT disturbance. Striations noted on liner - possibly indicative of downward dislocation of sample **.												1.20									
												2.00									
Possible dislocation from above ** : Structureless light grey marly CHALK composed of gravelly SILT. Gravel is subrounded to subangular, fine to coarse, very weak to weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)												2.00 - 2.10	D5						SPT(S) 2.00m, N=7 (2,2/2,1,2,2)		
												2.00 - 2.45	SPTLS6								
...from 2.60m to 2.63m bgl: with slight orange staining.												2.00									
												3.00									
...from 2.81m to 2.91m bgl: with slight orange staining.												2.80 - 2.90	D7								
												3.00 - 3.45	SPTLS8								
Zone of core loss attributable to SPT disturbance. Striations noted on liner - possibly indicative of downward dislocation of sample **.												3.00							SPT(S) 3.00m, N=10 (2,2/2,2,3,3)		
												3.00 - 3.45	SPTLS8								
Possible dislocation from above ** : Structureless light grey marly CHALK composed of gravelly SILT. Gravel is subrounded to subangular, fine to coarse, very weak to weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)												3.00									
												4.00									
...at 3.50m bgl: medium-density chalk COBBLE.												3.70 - 3.80	D9								
												3.70 - 3.80	D9								
...at 3.73m bgl: medium-density chalk COBBLE.												4.00 - 4.45	SPTLS1						SPT(S) 4.00m, N=14 (2,3/3,3,4,4)		
												4.00 - 4.45	0								
Zone of core loss attributable to SPT disturbance. Striations noted on liner - possibly indicative of downward dislocation of sample **.												4.00									
												4.00									
Possible dislocation from above ** : Structureless light grey marly CHALK. Composed of gravelly SILT. Gravel is subrounded to subangular, fine to coarse very weak to weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)												4.60 - 4.70	D11								
												4.60 - 4.70	D11								
...from 4.76m to 4.88m bgl: slight orange staining.												5.00									
												5.00									
No recovery - possible blow out.												5.00									
												5.00									
Partial recovery (40%) : Structureless light grey marly CHALK composed of gravelly SILT. Gravel is subrounded to subangular, fine to coarse, very weak to weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)												5.70 - 5.80	D12								
												5.70 - 5.80	D12								
Structureless light grey marly CHALK composed of gravelly SILT. Gravel is subrounded to subangular, fine to coarse, very weak to weak, low-density chalk. (WEST MELBURY MARLY CHALK FORMATION ? , Grade Dm)												6.20 - 6.30	D13								
												6.20 - 6.30	D13								
Significant drilling / SPT disturbance, partial recovery (50%), non-intact: Very weak low-density light grey CHALK gravel. (WEST MELBURY MARLY CHALK FORMATION, ?)												6.00									
												6.00									
Extremely weak to very weak, low-density grey CHALK MARL. Discontinuities 1) Joints are 60 to 90 ' , irregular, undulating, closed, clean and polished with black staining. Discontinuity 2) Bedding is 0 to 10 ' , closed clean, difficult to to determine spacings due to marl content [NI / 20 ? / 50 ?]. (WEST MELBURY MARLY CHALK FORMATION, Grade A5 ?)												7.30 - 7.40	D14								
												7.30 - 7.40	D14								
...from 8.46m to 8.78m bgl: slight orange staining.												7.50 - 7.95	SPTLS1						SPT(S) 7.50m, N=20 (4,4/4,5,5,6)		
												7.50 - 7.95	5								
...from 8.87m to 9.14m bgl moderate orange staining along closed vertical fracture.												7.80 - 7.90	D16								
												7.80 - 7.90	D16								
Zone of core loss. Striations noted on liner - possibly indicative of downward dislocation of sample **.												8.30 - 8.40	D17								
												8.30 - 8.40	D17								
Zone of core loss. Striations noted on liner - possibly indicative of downward dislocation of sample **.												8.50	EW1								
												8.50	EW2								
Zone of core loss. Striations noted on liner - possibly indicative of downward dislocation of sample **.												8.00									
												8.00									
Zone of core loss. Striations noted on liner - possibly indicative of downward dislocation of sample **.												9.10 - 9.20	D18								
												9.10 - 9.20	D18								
Zone of core loss. Striations noted on liner - possibly indicative of downward dislocation of sample **.																					
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<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					<div>Location Details</div> <div>Easting: 546317.00 Northing: 253581.00</div> <div>Level: 16.94mAOD Depth: 6.50m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-13</div>										
												Sheet 1 of 1										
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50								
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT							
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	6.00	150	15/03 16/03	18:30 13:15	6.50	-	-	Approved By:	CP							
1.20	5.00				4.00	-					Start Date:					15/03/2021						
5.00	6.50				6.50	-											Finish Date:	16/03/2021				
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring												
MADE GROUND: Soft dark brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse flint. (TOPSOIL) MGR(TS) Firm friable brown slightly gravelly very sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint. (ALLUVIUM) ALV(C) Structureless CHALK composed gravelly SILT. Clasts are light grey subangular to subrounded, fine to coarse, extremely weak to very weak low-density. Matrix is light grey with localised orange staining. (ZIG ZAG CHALK FORMATION, Grade Dm)						0.30	16.64			0.50	D1	Core Run	FI	TCR	SCR	RQD	Tests / Results					
						0.60	16.34			1.00 1.00	B1 D2											
										1.20 - 1.65 1.40 - 1.50	SPTLS3 D4							1.20 2.00	100	0	0	SPT(S) 1.20m, N=10 (2,2/2,3,2,3)
										1.90 - 2.00 2.00 - 2.45	D5 SPTLS6											SPT(S) 2.00m, N=8 (2,2/2,2,2,2)
Structureless light grey CHALK composed of silty subangular to subrounded fine to coarse GRAVEL and COBBLES. Clasts are extremely weak low-density light grey with occasional orange staining within relict fossil burrows. Matrix is light grey. (ZIG ZAG CHALK FORMATION, Grade Dc) Very weak to weak low density light grey CHALK with occasional orange staining. Discontinuities set 1) Joints are 80 to 90 degrees open infilled with chalk clasts and comminuted chalk, clean with occasional orange staining. Discontinuity set 2) Bedding is 0 to 10 degrees open infilled with chalk clasts and comminuted chalk clean with occasional orange staining. (ZIG ZAG CHALK FORMATION, Grade C5) Significant disturbance attributable to SPT recovered as light grey comminuted CHALK with pockets of moderate to heavy orange staining. (ZIG ZAG CHALK FORMATION, unable to grade but likely to be structureless)						2.00	14.94			2.40 - 2.50	D7	2.00 3.00	100	0	0	SPT(S) 3.00m, N=9 (1,2/2,2,2,3)						
						2.50	14.44			2.90 - 3.00 3.00 - 3.45	D8 SPTLS9					SPT(S) 4.00m, N=12 (2,2/3,3,3,3)						
Zone of core loss attributable to SPT disturbance and failed rotary core run (reverted to dynamic sampling). Significant drilling disturbance attributed to failed rotary core run between 4.00 to 5.00m bgl (subsequently reverted to dynamic sampling), recovered as light grey comminuted CHALK with pockets of moderate to heavy orange staining. (ZIG ZAG CHALK FORMATION, unable to grade but likely to be structureless) ...from 4.35m to 5.00m bgl: with bands of slight to moderate orange staining.						3.00	13.94			3.50 - 3.60	D10	3.00 4.00	100	0	0	SPT(S) 5.00m, N=13 (2,3/3,3,3,4)						
						4.00	12.94			4.00 4.00 - 4.45	EW4 SPTLS1 1		NR			SPT(S) 5.00m, N=13 (2,3/3,3,3,4)						
Structureless, possibly intraclastic ** gravelly CHALK composed of marly SILT with occasional orange staining. Clasts are very weak, low-density light grey chalk. Matrix is grey. (ZIG ZAG CHALK FORMATION, Grade Dm)						4.35	12.59			4.40 - 4.50	D12	4.00 5.00		65	0	0	SPT(S) 5.00m, N=13 (2,3/3,3,3,4)					
										4.90 - 5.00 5.00 - 5.45	D13 SPTLS1 4		NI			SPT(S) 5.00m, N=13 (2,3/3,3,3,4)						
EOH at 6.50m - Target depth achieved.						5.96	10.98			5.90 - 6.00	D16	5.00 6.50	NI	100	0	0						
						6.50	10.44			6.40 - 6.50	D17											
						</																

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					Easting: 546572.00 Northing: 253450.00 Level: 18.61mAOD Depth: 10.66m Logger: EH+DC Type: RC Inclination: 90°					FINAL		BH-PTR-14									
					Sheet 2 of 2																
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00 1.20 4.00	1.20 4.00 10.95	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 4.00 10.95	300 - -	9.00	150	24/03	18:00	10.66	-		Approved By:	CP						
														Start Date:	24/03/2021						
														Finish Date:	24/03/2021						
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
<div>Extremely weak to weak, low-density, grey with some orange staining around darkish grey and light grey relict fossil burrows, marly CHALK with rare inoceramid fragments. Discontinuity 1) Joints are 70 to 90 ' undulating rough, closed, clean with occasional black specks. Discontinuity 2) Bedding is 0 to 10 ' , close, partly open to open, infilled with comminuted chalk and grey chalk clasts with occasional black staining [110/120/240]. (ZIG ZAG CHALK FORMATION, Grade C3) ...at 10.00m bgl: orange stained sponge bed. ...at 10.18m bgl: orange stained sponge bed. No recovery SPT only. SPT Liner sample description: Grey marly CHALK.</div> <div>EOH at 10.66m - Target depth achieved.</div>							10.50 10.66	8.11 7.95			10.30 - 10.40 10.50 - 10.95	DPLT SPTLS2 3							SPT(S) 10.50m, 50 (8,16/50 for 160mm)		
										</											

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							Easting: 547384.00		Northing: 252988.00			FINAL		BH-PTR-15										
							Level: 30.76mAOD		Depth: 10.50m															
							Logger: EH+CE		Type: RC															
							Inclination: 90°																	
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time							Scale: 1:50								
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT										
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	6.00	150	25/03	18:30	10.50	-		Approved By: CP										
1.20	3.00				3.00	-									Start Date: 25/03/2021									
3.00	10.95				10.95	-										Finish Date: 25/03/2021								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring												
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results					
Weak, low-density light grey (marly**) CHALK with brown specs and occasional brown staining. Inoceramids and wispy griottes throughout. Discontinuity 1) Bedding is 0 to 10 degrees close, planar rough tight and open clean [50/80/150]. (ZIG ZAG CHALK FORMATION, Grade B3)								10.50	20.26			10.30 - 10.40	DPLT											
EOH at 10.50m - Target depth achieved.																								
Observations / Remarks																								
1. Groundwater not encountered. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible							Drilling Fluid							Hammer Information										
							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %											
							3.00	7.50			Air / Mist	DART449	65											
							Groundwater							Project Number										
							Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks												
						784-B025563																		

784-B025563

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div><div>Easting: 547679.00</div><div>Northing: 252701.00</div><div>Level: 38.80mAOD</div><div>Depth: 9.00m</div><div>Logger: EH+DC</div><div>Type: RC</div><div>Inclination: 90°</div></div> <div><div>Status</div><div>FINAL</div></div> <div><div>Borehole Number</div><div>BH-PTR-16</div><div>Sheet 1 of 2</div></div>																						
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP							
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	9.00	150	26/03	18:00	9.00	-		Start Date: 25/03/2021	Finish Date: 26/03/2021							
1.20	3.00				3.00	-																
3.00	9.00				9.00	-																
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
<p>MADE GROUND: Loose brown, clayey sandy gravelly SILT with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse chalk and flint. (TOPSOIL)</p> <p>MGR(TS)</p> <p>Structureless CHALK composed of off-white mottled light brown gravelly SILT. Gravel is subangular to subrounded, fine to coarse very weak low-density chalk. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm)</p> <p>Structureless CHALK composed of white with black specks, silty sandy subangular to subrounded, fine to coarse GRAVEL. Clasts are very weak, low-density. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)</p> <p>Significant drilling induced disturbance, recovery mainly non-intact, locally intact: Very weak to weak, low to medium-density white CHALK gravel. Discernible structure: Discontinuity 1) Joints 60 to 90 ' , subvertical to irregular, partly open to open, infilled with comminuted chalk and white chalk clasts, with a smear of grey with black specks clay / marl, undulating and rough. Discontinuity 2) Bedding 0 to 10 ' , subvertical to irregular, partly open to open infilled with comminuted chalk, white chalk clasts and a smear of grey with black specks clay / marl, undulating and rough [30 ? / 50 ? / 100 ?]. (MELBOURN ROCK MEMBER ?, HOLLYWELL NODULAR CHALK FORMATION, Possibly Grade C4 ?)</p> <p>...at 1.40m bgl: with high-density chalk nodules.</p> <p>...at 1.83m bgl: with high-density chalk nodules.</p> <p>Zone of core loss attributable to SPT disturbance.</p> <p>SPT Liner description: CHALK recovered as greyish cream slightly sandy gravelly SILT. Sand is fine to coarse. Clasts are fine to medium, angular to subrounded chalk and flint cortex.</p> <p>Significant drilling disturbance recovery non-intact: Very weak to weak, low to medium-density white CHALK gravel. (MELBOURN ROCK MEMBER ?, HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc / Possibly structured)</p> <p>...at 1.58m bgl: with high-density chalk nodules.</p> <p>...at 2.78m bgl: with high-density chalk nodules.</p> <p>...at 2.98m bgl: 20mm thick slightly plastic orangish grey marl seam.</p> <p>Zone of core loss attributable to SPT disturbance.</p> <p>SPT Liner description: Loose dark creamy grey silty sandy chalk GRAVEL.</p> <p>Drilling / SPT disturbance:, partially intact: Very weak to weak, low to medium-density white CHALK. Discernible structure: Discontinuity 1) Joints 60 to 90' subvertical, irregular, partly open to open infilled with comminuted chalk, white chalk clasts and a smear of grey with black specks clay / marl, undulating and rough. Discontinuity 2) Bedding 0 to 10 ' , close, partly open to open infilled with comminuted chalk, white chalk clasts and a smear of grey with black specks clay / marl, undulating and rough, [20 ? / 30 ? / 100 ?]. (MELBOURN ROCK MEMBER ?, HOLLYWELL NODULAR CHALK FORMATION, Grade C4 ?)</p> <p>...from 3.40m bgl: with wispy griotte marls and flasar marl seams.</p> <p>...from 3.88 to 4.00m bgl: intraclastic chalk comprising fine to coarse, subangular white chalk in a light grey marly chalk matrix.</p> <p>Extremely weak to weak, low to high-density yellowish white CHALK with frequent marl seams, pinnate shears and possible intraclastic horizons. Discontinuity 1) Joints are 90' undulating rough closed to partly open clean. Discontinuity 2) Bedding is 0 to 10 ' , close to very close, undulating rough, closed to partly open clean [50/70/130]. (PLENUS MARLS MEMBER ?, HOLLYWELL NODULAR CHALK FORMATION, high density, Grade B3)</p> <p>...from 4.00m bgl frequent relict pinnate shears and marl seams.</p> <p>...from 4.27m to 4.40m bgl orangish greenish grey marly chalk.</p> <p>Zone of core loss attributable to SPT disturbance - striations noted on core liner (indicative of possible downward dislocation) **.</p> <p>SPT Liner description: CHALK recovered as light greyish brown slightly gravelly SILT. Clasts are fine, subangular to subrounded.</p> <p>Possible dislocation from above zone of core loss. ** Extremely weak to weak, low to medium-density yellowish white CHALK with frequent marl seams, pinnate shears and possible intraclastic horizons. Discontinuity 1) Joints are 90 ' , undulating rough, closed to partly open clean. Discontinuity 2) Bedding is 0 to 10 ' , very close to close, undulating rough closed to partly open clean [50/70/130]. (PLENUS MARLS MEMBER ?, HOLLYWELL NODULAR CHALK FORMATION, Grade B3)</p> <p>...from 5.03m to 5.10m bgl: plastic marl seam.</p> <p>...from 5.70m to 5.82m bgl: grey plastic and cemented marl seam.</p> <p>Extremely weak to weak, low to medium-density pale greyish white CHALK. Discontinuity 1) Joints are 50 to 90 ' irregular to subvertical, closed, clean planar rough with a very slight black speckling. Discontinuity 2) Bedding is 0 to 10', close, irregular to subvertical, closed, clean planar rough with a very slight black speckling [60/80/180]. (WHITE BEDS ?, ZIG ZAG CHALK FORMATION, Grade A3)</p> <p>Zone of core loss attributable with SPT disturbance - striations noted on core liner (indicative of possible downward dislocation) **.</p> <p>SPT Liner description: CHALK recovered as cream grey mottled dark grey slightly gravelly SILT. Clasts are fine, subangular to subrounded.</p> <p>Possible downward dislocation. ** : Extremely weak to weak, low to medium-density pale greyish white CHALK. Discontinuity 1) Joints are 50 to 90 ' , irregular to subverical, closed to partly open infilled, clean planar rough with a very slight black speckling.. Discontinuity 2) Bedding is 0 to 10 ' , close, irregular to subvertical, closed clean planar rough with a very</p>								0.30	38.50			0.10	ES1									
										0.60	38.20			0.50	D1							
										1.20	37.60			1.00	B1							
														1.00	D2							
														1.20 - 1.30	D3							
														1.20 - 1.65	SPTLS4							SPT(S) 1.20m, N=13 (2,3/3,3,3,4)
																		1.20				
																		2.00				

[illegible]

<div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>						<div>Location Details</div> <div>Easting: 547800.00 Northing: 252509.00</div> <div>Level: 26.48mAOD Depth: 6.45m</div> <div>Logger: DJ Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-17</div>					
						Sheet 1 of 1													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP	Start Date: 26/03/2021	Finish Date: 27/03/2021		
0.00 1.20 3.00	1.20 3.00 6.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 6.45	300 - -	4.50	150	27/03	14:00	6.45	-							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Grass over firm light brown, slightly sandy slightly gravelly CLAY with abundant rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk. (TOPSOIL)								0.30	26.18										
MGR(TS) Structureless CHALK composed of cream gravelly SILT. Gravel is angular to subangular, fine to coarse, very weak, low-density chalk with occasional brownish yellow stains. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								0.90	25.58										
Structureless CHALK composed of white, slightly sandy silty GRAVEL. Gravel is subangular, fine to coarse, very weak to weak low to medium-density chalk with occasional brownish yellow stains. (ZIG ZAG CHALK FORMATION ?, Grade Dc)								1.20	25.28									SPT(S) 1.20m, N=12 (2,2/2,3,3,4)	
Structureless CHALK composed of slightly sandy, fine to coarse, subangular GRAVEL. Clasts are very weak to weak, medium to high-density light grey CHALK with occasional orange staining, dark grey staining ** and black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dc)														1.20 2.00		100	0	0	
Zone of core loss attributable to SPT disturbance.								2.00	24.48										
SPT Liner sample description: Recovered as Light brownish grey silty slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to medium sub-angular to sub-rounded, CHALK and flint. Occasional rootlets. (likely Grade Dc ?)								2.20	24.28									SPT(S) 2.00m, N=12 (2,3/3,2,3,4)	
Very weak to weak, low to medium-density light grey CHALK. Discontinuity 1) Joints are 70 to 85' planar to undulating, rough, open with occasional black specks. Discontinuity 2) Bedding is 10 to 15' extremely close, planar rough open with occasional orangish brown staining. Possibly locally intradlastic.** (ZIG ZAG CHALK FORMATION, Grade C5)								3.00	23.48										
Zone of core loss attributable to SPT disturbance and blow out.								3.50	22.98										
SPT liner description: Recovered as brownish grey with orange streaks (possible zoophycos) ** marly chalk SILT. (ZIG ZAG CHALK FORMATION)																			
Weak low-density light grey CHALK with rare inoceramids throughout. Discontinuity 1) Joints are tight undulating, rough with black specks and orange brown staining following discontinuity planes. Discontinuity 2) Bedding is 0 to 10 degrees, subhorizontal, very closely to closely spaced, tight, planar and rough and infilled with comminuted chalk [40/60/100]. (ZIG ZAG CHALK FORMATION, low density, Grade B4)								3.80	22.68										
Significant drilling disturbance, recovery non-intact: Weak low-density light grey CHALK with rare Inoceramids throughout. Discernible structure: Discontinuity 1) Joints are probably tight undulating, rough with black specks and orange brown staining following discontinuity planes. Discontinuity 2) Bedding is 0 to 10' probably subhorizontal, very closely to closely spaced, tight, planar and rough and infilled with comminuted chalk [40 ? / 60 ? / 100 ?]. (ZIG ZAG CHALK FORMATION, Grade B4 ?)								4.50	21.98										
Weak, low to medium-density cream and pale grey CHALK with rare pyritised trace fossils and inoceramids throughout. Discontinuity1) Joints are 80 to 90 ' , planar, rough, tight and clean with rare pyritised trace fossils throughout. Discontinuity 2) Bedding is 0 to 10 ' , very closely to closely spaced, planar rough tight and clean [50/60/100]. (ZIG ZAG CHALK FORMATION, low density, Grade B4)																			
SPT Liner sample description: Recovered as Cream with orangish staining slightly gravelly chalk SILT. Gravel is fine angular to sub-rounded chalk and possible flint. (ZIG ZAG CHALK FORMATION, structured chalk ?)								6.00	20.48									SPT(S) 6.00m, N=21 (2,4/4,4,6,7)	
EOH at 6.45m - Target depth achieved.								6.45	20.03										
									</										

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						<div>Location Details</div> <div>Eastng: 547867.00 Northing: 252091.00</div> <div>Level: 20.36mAOD Depth: 10.50m</div> <div>Logger: CE Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-18</div>			
												Sheet 1 of 2					
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT			
0.00 1.20 3.00	1.20 3.00 10.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 10.50	300 - -	9.00	150	30/03	18:45	10.50	-	-	Approved By: CP			
														Start Date: 29/03/2021			
														Finish Date: 30/03/2021			
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
							Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
MADE GROUND: Grass over firm light brown slightly sandy slightly gravelly CLAY with abundant rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk. (TOPSOIL)							0.25	20.11			0.20	ES1					
MGR(TS)											0.50	D1					
Structureless cream CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to coarse very weak, low-density chalk with occasional yellow staining. Matrix is light brown. (ZIG ZAG CHALK FORMATION ?, Grade Dm / RIVER TERRACE DEPOSITS Transition)							0.90	19.46									
Structureless white CHALK composed of slightly silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium density-chalk with occasional yellow staining. (ZIG ZAG CHALK FORMATION ?, Grade Dc / RIVER TERRACE DEPOSITS Transition)							1.20	19.16			1.00 1.00 1.20 - 1.65 1.30 - 1.40	B1 D2 SPTLS3 D4			SPT(S) 1.20m, N=21 (2,4/4,5,5,7)		
Medium dense light brown mottled orangish brown gravelly very clayey fine to medium SAND. Gravel is subangular to subrounded, fine to medium flint and chalk. (Possible infilled dissolution / karstic feature ZIG ZAG CHALK FORMATION / RIVER TERRACE DEPOSITS Transition)							1.65	18.71			1.80 - 2.00 2.00 - 2.45	D1 SPTLS6	1.20 2.00	100	0		
RTD															SPT(S) 2.00m, N=20 (3,3/4,5,5,6)		
Structureless CHALK composed of silty sandy GRAVEL. Gravel is pale grey subangular, fine to coarse very weak, low-density. (ZIG ZAG CHALK FORMATION, Grade Dc)													2.00 3.00	100	0		
Very weak, low-density white pale grey CHALK with black specks and occasional brown staining. Structure obscured by drilling disturbance. (ZIG ZAG CHALK FORMATION, ?)							2.90	17.46			2.90	DPLT					
Very weak, low to medium-density white pale grey CHALK with black specks and occasional brown staining. Discontinuity 1) Joints are 70 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10' close, planar smooth tight and clean [40/50/100]. (ZIG ZAG CHALK FORMATION, medium density, Grade A4)							3.00	17.36			3.00 - 3.45	SPTLS8			SPT(S) 3.00m, N=27 (4,4/5,7,7,8)		
											3.30	DPLT		ND/ >13?			
...from 3.90 to 4.10m bgl: brecciated / possibly intraclastic **. ...from 4.00m to 4.10m bgl: pyritized trace fossils.											3.80 - 3.90	DPLT	3.00 4.50	90	60		
													NI				
No recovery attributable to SPT disturbance and blow out.							4.50	15.86			4.30 - 4.40 4.40 4.50 - 4.95	DPLT EW3 SPTLS1 2		ND/ >13?	SPT(S) 4.50m, N=31 (3,5/6,8,8,9)		
Very weak, low-density white pale grey CHALK with black specks and occasional brown staining. Discontinuity 1) Joints are 70 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10' close, planar smooth tight and clean [40/50/100]. (ZIG ZAG CHALK FORMATION, Grade A4)							4.70	15.66			5.10 - 5.20	DPLT	4.50 6.00	9	90		
...from 4.70 to 4.95m bgl: minor SPT disturbance. ...from 5.10 to 6.00m bgl: with brecciated zones (possible drill disturbance along discontinuity planes) **.															50		
															20		
Very weak, low-density pale grey CHALK with black specks and occasional brown staining. Discontinuity 1) Joints are 70 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10', close, planar smooth, tight and clean [40/50/100]. (ZIG ZAG CHALK FORMATION, low density, Grade A3)							6.00	14.36			5.90 - 6.00 6.00 - 6.45 6.10 - 6.20	DPLT SPTLS1 5 DPLT		NI			
...from 6.00 to 6.20m bgl: minor SPT disturbance. **															SPT(S) 6.00m, N=34 (4,8/8,7,9,10)		
											6.80 - 6.90	DPLT	6.00 7.50	16	100		
															90		
Significant disturbance attributable to SPT, recovery non-intact: Weak, medium-density, pale grey CHALK gravel. (ZIG ZAG CHALK FORMATION, ?)							7.50	12.86			7.40 - 7.50 7.50 - 7.95 7.70 - 7.80	DPLT SPTLS1 9 DPLT		NI			
...from 7.50m to 9.00m bgl: rare inoceramids throughout.							7.70	12.66									
Weak, medium-density, pale grey CHALK with occasional orange brown staining and black specks. Discontinuity 1) Joints are 80 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10' medium, planar smooth closed and clean [200/240/300]. (ZIG ZAG CHALK FORMATION, Grade A2)											8.20 - 8.40 8.50 - 8.80	UCSUCS UCSUCS	7.50 9.00	9	100		
															80		
															60		
Significant drilling / SPT induced fractures throughout: Weak to medium-density, pale grey CHALK with occasional orange brown staining and black specks. With rare pyritised trace fossils throughout. Discernible structure: Discontinuity 1) Joints are 80 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10', medium, planar smooth closed and clean [200/240 ? / 300 ?]. (ZIG ZAG CHALK FORMATION, Probably Grade A2 ?)							9.00	11.36			9.00 - 9.10 9.00 - 9.45	DPLT SPTLS2 3					
											9.00 10.50		>8?	100	66		
															20		
Observations / Remarks						Drilling Fluid						Hammer Information					
1. Groundwater strike at 4.50, rising to 4.37m bgl (20minutes).						From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 5.00m bgl.						3.00	10.50			Air / Mist	DART449	65					
3. Downhole UXO magnetometry at GL, 1.20, 2.00, 3.00, 4.50 and 6.00m bgl.						Groundwater						Project Number					
* Denotes drillers description						Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						
**Denotes observation from core photograph						4.50	3		9	20	4.37	784-B025563					
NR - No Recovery																	
NI - Non-intact																	
ND - Not Discernible																	

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details				Status FINAL		Borehole Number BH-PTR-18					
						Easting: 547867.00 Northing: 252091.00		Level: 20.36mAOD Depth: 10.50m						Logger: CE Type: RC			
						Inclination: 90°		Sheet 2 of 2									
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT		
0.00 1.20 3.00	1.20 3.00 10.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 10.50	300 - -	9.00	150	30/03	18:45	10.50	-		Approved By:	CP		
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD
<div>Significant drilling / SPT induced fractures throughout: Weak to medium-density, pale grey CHALK with occasional orange brown staining and black specks. With rare pyritised trace fossils throughout. Discernible structure: Discontinuity 1) Joints are 80 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10', medium, planar smooth closed and clean [200/240 ? / 300 ?]. (ZIG ZAG CHALK FORMATION, Probably Grade A2 ?)</div> <div>EOH at 10.50m - Target depth achieved.</div>							10.50	9.86		10.10 - 10.20	DPLT						
										Observations / Remarks						Drilling Fluid	
From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %											
<div>1. Groundwater strike at 4.50, rising to 4.37m bgl (20minutes).</div> <div>2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 5.00m bgl.</div> <div>3. Downhole UXO magnetometry at GL, 1.20, 2.00, 3.00, 4.50 and 6.00m bgl.</div> <div>* Denotes drillers description</div> <div>**Denotes observation from core photograph</div> <div>NR - No Recovery</div> <div>NI - Non-intact</div> <div>ND - Not Discernible</div>						3.00	10.50			Air / Mist	DART449	65					
						Groundwater						Project Number					
						Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						
												784-B025563					

<div><div><div><div><div></div><div></div></div><div><div>Tt</div><div>TETRA TECH</div></div></div><div><div>Project:</div><div>Cambridge South East Transport – Phase 2</div></div><div><div>Location:</div><div>Cambridge</div></div><div><div>Client:</div><div>Greater Cambridge Partnership</div></div></div></div>					Location Details					Status		Borehole Number								
					Easting: 548263.00 Northing: 251424.00 Level: 18.71mAOD Depth: 6.00m Logger: DC Type: RC Inclination: 90°					FINAL		BH-PTR-19								
												Sheet 1 of 1								
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20	1.20 6.00	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Beretta T41	M. Bainbridge M. Bainbridge	1.20 6.00	300 -	5.00	150	26/02	18:00	6.00	-		Approved By:	CP					
														Start Date:	25/03/2021					
														Finish Date:	26/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Loose dark brown slightly gravelly clayey fine SAND. Gravel is subangular to subrounded, fine to medium flint. (TOPSOIL) MGR(TS)								0.40	18.31			0.10 0.20	ES1 ES2						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm	
Loose brown, slightly gravelly clayey fine SAND. Gravel is subangular to subrounded, fine to medium flint. (RIVER TERRACE DEPOSITS) RTD												0.50 0.50	D1 ES3					PID 0.50m, 0.0ppm		
												1.00 1.00 1.00 - 1.10 1.20 - 1.65	B1 ES4 D2 UT1					PID 1.00m, 0.0ppm		
UT100 Description: Soft to firm gravelly, very sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular flint. ** (ALLUVIUM) ALV(C)								1.20	17.51											
Loose brown grey mottled orange and light grey with occasional black specks towards base, gravelly, fine to medium SAND. Gravel is subangular to rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD								1.65	17.06			1.65 - 1.70 1.70 - 2.00	D3 D							
...from 2.20m bgl: becoming very gravelly.												2.00 - 2.45	SPTLS4	1.70 2.00		100	0	0	SPT(S) 2.00m, N=9 (1,2/2,2,3,2)	
Loose brownish orange mottled grey and white, sandy subangular to rounded, fine to coarse GRAVEL comprising flint and low to medium-density chalk. (RIVER TERRACE DEPOSITS) RTD								2.30	16.41			2.40 - 2.50	D5	2.00 3.00		100	0	0		
...from 2.62 to 2.64m bgl: 20mm thick horizon of fine to coarse, gravelly SAND. ...from 2.67 to 2.69m bgl: 20mm thick horizon of fine to coarse, gravelly SAND.								2.72	15.99			2.90 - 3.00 3.00 - 3.45 3.00 - 3.45	D6 8 SPTLS7						SPT(S) 3.00m, N=7 (2,1/2,2,2,1)	
Stiff greyish brown with occasional orange brown banding, slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded, fine to coarse flint and low to medium-density chalk. (RIVER TERRACE DEPOSITS) RTD								3.43	15.28			3.25	EW2							
...from 3.00m bgl: soft to firm.												3.50 3.50 - 3.60	EW1 D8	3.00 4.00		100	0	0		
Loose greyish brown, sandy, subangular to rounded, fine to coarse GRAVEL comprising flint and chalk. Sand is medium to coarse. (RIVER TERRACE DEPOSITS) RTD								3.75	14.96			4.00 - 4.10 4.00 - 4.45 4.00 - 4.45	D9 D10 SPTLS1						SPT(S) 4.00m, N=9 (2,2/2,2,2,3)	
Loose light grey off-white, very sandy, silty subangular to rounded, fine to coarse GRAVEL of flint and chalk. Sand is medium to coarse. (RIVER TERRACE DEPOSITS) RTD								4.45	14.26			4.40 - 4.60	D11	4.00 5.00		100	0	0		
Loose orange sandy, subangular to rounded, fine to coarse GRAVEL comprising flint and chalk. Sand is medium to coarse. (RIVER TERRACE DEPOSITS) RTD								4.65	14.06											
Loose brownish grey, very sandy, very clayey, subangular to rounded, fine to coarse GRAVEL comprising flint and chalk with a low cobble content. Sand is medium to coarse. Cobbles are angular to subangular flint. (RIVER TERRACE DEPOSITS) RTD												4.90 - 5.00 5.00 - 5.45	D12 SPTLS1						SPT(S) 5.00m, N=7 (1,2/2,2,1,2)	
Structureless CHALK composed of (firm) grey with occasional localised orange staining, gravelly SILT. Clasts are medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								5.65	13.06			5.30 - 5.40	D14	5.00 6.00		100	0	0		
EOH at 6.00m - Target depth achieved.								6.00	12.71			5.90 - 6.00	D15							
																	</			

<div><div><div><div></div><div></div></div><div><div>Tt</div><div>TETRA TECH</div></div></div><div><div>Project:</div><div>Cambridge South East Transport – Phase 2</div></div><div><div>Location:</div><div>Cambridge</div></div><div><div>Client:</div><div>Greater Cambridge Partnership</div></div></div>		Location Details				Status		Borehole Number												
		Easting: 548249.00 Northing: 251330.00 Level: 18.36mAOD Depth: 10.45m Logger: GL Type: RC Inclination: 90°				FINAL		BH-PTR-20												
								Sheet 1 of 2												
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 7.00	1.20 7.00 10.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavation Tools Beretta T46 Beretta T46	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 7.00 10.45	300 150 131	7.00	150	23/02	18:00	10.45	-		Approved By:	CP					
														Start Date:	23/02/2021					
														Finish Date:	23/02/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Firm dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular fine to coarse flint. (TOPSOIL) MGR(TS)								0.40	17.96			0.10 0.20 0.25	ES1 ES2 B1						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm	
Firm brown mottled orange slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse flint. (ALLUVIUM) ALV(C)								0.90	17.46			0.50 0.50 0.65 0.80	D1 ES3 B2 W5					PID 0.50m, 0.0ppm		
Medium dense * black peaty clayey fine SAND. (ALLUVIUM) ALV(G)								1.20	17.16			1.00 1.00 1.20 - 1.65 1.20 - 1.65	B3 ES4 B UT1					PID 1.00m, 0.0ppm	1	
UT100 Sample																				
Medium dense * light to medium brown, slightly clayey, very gravelly medium to coarse SAND. Gravel is angular to subrounded, fine to coarse flint, sandstone (subrounded) and chalk (angular). (RIVER TERRACE DEPOSITS) RTD								1.65	16.71			1.65 - 1.70	D2							
UT100 Sample (No Recovery)								2.00	16.36			2.00 - 2.45	UT-NR2	1.70 2.00		100	0	0		2
Includes possible gain of failed UT100 material from 1.65 to 2.00m bgl: Medium dense, dark brown, slightly clayey, sandy angular to subrounded, fine to coarse GRAVEL of flint and chalk with occasional organic material. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) RTD								2.45	15.91			2.40 - 2.85 2.40 - 2.85	D4 SPTLS4					SPT(S) 2.40m, N=13 (2,2/3,3,3,4)		
												2.80 - 3.00	D5	2.40 3.00		60	0	0		
Medium dense, light brown, clayey very sandy, angular to subrounded, fine to coarse flint and chalk GRAVEL. Sand is medium to coarse. (RIVER TERRACE DEPOSITS) RTD								3.00	15.36			3.00 - 3.45 3.00 - 3.45	D6 SPTLS6					SPT(S) 3.00m, N=17 (1,3/3,4,5,5)	3	
												3.50 - 3.60	D7	3.00 4.00		90	0	0		
Structureless light grey CHALK composed of slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to subrounded, fine to coarse, very weak, medium to high-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								4.00	14.36			3.90 - 4.00 4.00 - 4.45	D8 SPTLS9					SPT(S) 4.00m, N=11 (2,2/2,2,3,4)	4	
...between 4.00m to 4.20m bgl: with angular to subangular fine to coarse gravel of flint.												4.50 - 4.60	D10	4.00 5.00		100	0	0		
...from 4.50 to 4.80m bgl: pale orangeish brown and silty **. Gravel is high-density.																				
												4.90 - 5.00 5.00 - 5.45 5.00 - 5.45	D11 D12 SPTLS1 2					SPT(S) 5.00m, N=10 (1,2/2,2,2,3)	5	
												5.40 - 5.50	D13	5.00 6.00		100	0	0		
...from 5.70 to 5.90m bgl: orange staining **.												6.00 - 6.10	D14							
												6.40 - 6.50	D15	6.00 7.00		100	0	0		
...from 6.25m to 6.30m bgl: band of subangular to subrounded, fine to coarse flint gravel.												6.90 - 7.00 7.00 - 7.45	D16 SPTLS1 7					SPT(S) 7.00m, N=8 (1,2/2,2,2,2)	7	
												7.40 - 7.50	D18							
...from 7.60m to 7.80m bgl: very soft.												7.90 - 8.00	D19	7.00 8.50	NI	100	0	0		
												8.50 - 8.60	D20							
...from 8.10m to 8.20m bgl: very soft.												8.90 - 9.00	D21	8.50 10.00	NI	95	0	0		
												9.50 - 9.60	D22							
...at 9.10m bgl: with orange staining.												9.90 - 10.00	D23							
...from 9.50 to 10.00m bgl: core catcher striations observed on the core run surface.												10.00 - 10.45	SPTLS2 4					SPT(S) 10.00m, N=11 (2,1/2,3,2,4)	10	
...from 9.90 to 10.00m bgl: gravel is medium density.																				
Observations / Remarks											Drilling Fluid				Hammer Information					
1. Groundwater strikes at 0.80 and 6.40m bgl, rising to 0.55 and 2.20m bgl respectively. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											7.00	10.00			Air / Mist	73694	65			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
											0.80 6.40	- 6	4 -	20 20	0.55 2.20		784-B025563			

<div><div><div>Tt</div><div>TETRA TECH</div></div></div> <div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>							Location Details					Status		Borehole Number												
							Easting: 548294.00 Northing: 251358.00 Level: 18.41mAOD Depth: 15.50m Logger: GL Type: RC Inclination: 90°																			
														FINAL					BH-PTR-21							
												Sheet 2 of 2														
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50												
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT											
0.00 1.20 7.00	1.20 7.00 15.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavation Tools Beretta T46 Atlas Copco 186 Beretta T46 Atlas Copco 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 7.00 15.50	300 - -	12.00	150	23/02 24/02	17:30 17:30	7.00 15.50	- -	-	Approved By:	CP											
															Start Date:	23/02/2021										
															Finish Date:	24/02/2021										
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring														
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results							
Structureless cream to off-white CHALK composed of gravelly SILT. Clasts are fine to coarse, subangular to subrounded, weak, low-density chalk with rare flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...from 10.00 to 10.20m bgl: Zone of sample loss attributed to SPT disturbance.								15.50	2.91		13.00 - 13.10 13.00 - 13.45	D D15	10.00 11.50	NI	73	0	0	SPT(S) 13.00m, N=15 (2,3/3,4,3,5)								
																			11							
																				12						
																					13					
																						14				
																							15			
																								16		
																									17	
																										18
20																										
	EOH at 15.50m - Target depth achieved.																									
	Observations / Remarks										Drilling Fluid				Hammer Information											
	1. Groundwater encountered at 1.30m, rising to 1.15m bgl (20mins). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 4.00m bgl. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %									
											7.00	15.50			Air / Mist	73694	65									
											Groundwater				Project Number											
	Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563																			

<div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>						Location Details						Status FINAL		Borehole Number BH-PTR-22																	
						Easting: 548303.00		Northing: 251364.00																							
						Level: 18.48mAOD		Depth: 18.00m																							
						Logger:		Type: RC		Inclination: 90°																					
						Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time				Scale: 1:50											
From (m)		To (m)		Type		Plant Used		Crew		Depth (m)		Diam (mm)		Depth(m)		Diam (mm)		Date		Time		Depth (m)		Casing (m)		Water (m)		Checked By: RT			
0.00 1.20 7.00		1.20 7.00 18.00		Inspection Pit Dynamic Windowless Sampling Rotary Core		Hand Excavated Beretta T41 Beretta T41		M. Bainbridge M. Bainbridge M. Bainbridge		1.20 7.00 18.00		300 - -		6.00		150		24/02 25/02		17:30 15:45		11.50 18.00		- -		-		Approved By: CP			
Strata Description						Legend		Depth (m)		Reduced Level (mAOD)		Water Level (m)		Inst / Backfill		Samples, Tests and Rotary Coring										Approved By: CP					
																Depth (m)		Ref		Core Run		FI		TCR		SCR		RQD		Tests / Results	
MADE GROUND: Crop over dark brown clayey slightly gravelly fine to coarse SAND with occasional rootlets. Gravel is subangular to rounded fine to coarse flint. (TOPSOIL) MGR(TS)								0.65		17.83						0.00 - 0.10 0.10 - 0.20		ES1 ES1 ES2										PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm			
Loose * orangish brown, gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded, fine to coarse flint. Cobbles are subangular flint. (ALLUVIUM) ALV(G)								1.20		17.28						0.50 0.50		D1 ES3										PID 0.50m, 0.0ppm			
UT100 Sample description: Soft brown very gravelly, very sandy CLAY. Sand is fine to coarse, gravel is fine to medium angular flint. ** (ALLUVIUM) ALV(C)								1.65		16.83						1.00 1.00 1.00 1.20 - 1.65		B1 D2 ES4 UT1										PID 1.00m, 0.0ppm			
Loose to medium dense brown silty clayey silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint. (ALLUVIUM)								2.00		16.48						1.65 - 1.70 1.90 - 2.00 2.00 - 2.45		D3 D4 UT2		1.70 2.00		100		0		0		2			
ALV(G) UT100 Sample description: Brown very gravelly clayey SAND. Sand is fine to coarse. Gravel is fine to coarse angular flint. ** (ALLUVIUM) ALV(G) Medium dense orange brown sandy angular to subangular fine to coarse GRAVEL of flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) RTD								2.45		16.03						2.45 - 2.50 2.50 - 2.60		D5 D6		2.50 3.00		100		0		0		3			
No recovery - attributable to SPT disturbance.								3.00		15.48						3.00 - 3.45		D7										SPT(S) 3.00m, N=29 (4,6/6,7,8)			
Medium dense light greyish orange, slightly clayey silty gravelly, fine to coarse SAND. Gravel is angular to subangular, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS) RTD								3.20		15.28						3.20 - 3.30 3.20 - 3.30		D D8		3.00 4.00		100		0		0		4			
Structureless grey with orange staining CHALK composed of gravelly SILT. Gravel is angular to subrounded, fine to coarse extremely weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								3.70		14.78						3.80 - 3.90		D9										SPT(S) 4.00m, N=27 (3,4/5,7,8)			
Orange brownish orange gravelly fine becoming coarse SAND. Gravel comprises fine, angular flint. Either; 1) noting abrupt change at 4.70mbgl; possible gain from the River Terrace Deposits resulting from over purge into the chalk soils disturbed by the SPT (and subsequent collapse from above on extraction of the tricone), ** or; 2) noting gradation / texture; an infilled solution feature. ** MGR(G)								4.00		14.48						4.00 - 4.45		D10		4.00 5.00		100		0		0		5			
Structureless grey CHALK composed of gravelly SILT with occasional orange staining and banding and occasional black flecks. Gravel is angular to subrounded, fine to coarse extremely weak to weak low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								4.70		13.78						4.90 - 5.00 5.00 - 5.45		D11 D12		5.00 6.00		60		0		0		6			
No recovery attributable to SPT disturbance and blow out. ...at 5.00m to 5.40mbgl: Zone of no sample recovery, attributed to SPT disturbance.								5.00		13.48						5.80 - 5.90 6.00 - 6.10 6.00 - 6.45		D13 D14 D15		6.00 7.00		100		0		0		SPT(S) 5.00m, N=19 (2,2/4,4,5,6)			
Structureless grey CHALK composed of gravelly SILT with occasional orange staining and banding and occasional black flecks. Gravel is angular to subrounded, fine to coarse extremely weak to weak low to medium density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...from 5.40 to 5.50m bgl: Orange brown slightly gravelly coarse SAND. (Possible gain from <3.60m bgl).								5.30		13.18						6.45 - 6.50		B2		6.00 7.00		100		0		0		SPT(S) 6.00m, N=22 (3,3/4,4,7,7)			
Possible section of intact core / band of structured chalk **.								6.90		11.58						6.90 - 7.00 7.00 - 7.45		D16 D17										SPT(S) 7.00m, N=23 (4,4/4,6,6,7)			
No recovery attributable to SPT disturbance and blow out.								7.00		11.48						7.00 - 7.45						NR						7			
Structureless grey CHALK composed of silty GRAVEL with occasional orange staining. Gravel is angular to subrounded, fine to coarse, extremely weak to weak low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dc)								7.50		10.98						8.00 - 8.10		D18		7.00 8.50		46		16		7		8			
...at 8.45m bgl: orange staining - possible sponge bed. No recovery - possible blow out.								8.50		9.98						8.35 - 8.50		DPLT										9			
Significant drilling disturbance, partial recovery, non-intact: Extremely weak, low-density light grey CHALK cobbles with rare orange staining. (ZIG ZAG CHALK FORMATION ?, ?)								9.60		8.88						9.90 - 10.00 9.90 - 10.00		D D19				NR		31		0		0		SPT(S) 7.00m, N=23 (4,4/4,6,6,7)	
								10.00		8.48																		SPT(S) 10.00m, N=10 (2,2/3,2,2,3)		10	
Observations / Remarks														Drilling Fluid								Hammer Information									
1. Groundwater encountered at 2.90m, rising to 1.83m bgl (20mins). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description ** Denotes laboratory description of split UT100 sample. NR - No Recovery NI - Non-intact ND - Not Discernible														From (m)		To (m)		Return Min %		Colour		Type		Serial No.		Energy Ratio %					
														7.00		18.00						Air / Mist		73694		64					
														Strike (m)		Casing (m)		Sealed (m)		Time (min)		Rose To (m)		Remarks		Project Number					
2.90		2		4		20		1.83				784-B025563																			

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="6">Location Details</td> <td colspan="2" rowspan="2">Status FINAL</td> <td colspan="2" rowspan="2">Borehole Number BH-PTR-22</td>						Location Details						Status FINAL		Borehole Number BH-PTR-22							
						Easting: 548303.00 Northing: 251364.00 Level: 18.48mAOD Depth: 18.00m Logger: Type: RC Inclination: 90°															
						Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time					Scale: 1:50
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT							
0.00 1.20 7.00	1.20 7.00 18.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 7.00 18.00	300 - -	6.00	150	24/02 25/02	17:30 15:45	11.50 18.00	- -	-	Approved By: CP							
														Start Date: 25/02/2021							
														Finish Date: 25/02/2021							
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
Partial recovery attributable to SPT disturbance: Structureless grey CHALK composed of gravelly SILT. Gravel is angular to subrounded, fine to coarse, extremely weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)																					
Structureless grey CHALK composed of gravelly SILT . Gravel is angular to subrounded, fine to coarse, extremely weak to weak low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...at 11.70m bgl: with orange staining. ...at 11.93m bgl: with orange staining.							11.50	6.98			11.40 - 11.50	D20		10.00 11.50	NI	32	0	0			11
Structureless grey CHALK composed of gravelly SILT . Gravel is angular to subrounded, fine to coarse, extremely weak to weak low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...at 12.40m bgl: <10mm thick orange sand layer (possible infilled dissolution feature).											11.70 - 11.80	D21								12	
											12.10 - 12.20	D22		11.50 13.00	NI	100	0	0			
No recovery from initial core run from 13.00 to 14.50 (subsequent borehole depth at 13.90m bgl).							13.00	5.48												SPT(S) 13.00m, N=13 (2,3/3,3,3,4)	13
Significant drilling disturbance from previous failed run from 13.00 to 14.50m bgl. Recovered as: Subrounded to rounded, low sphericity, medium to coarse CHALK gravel in a voided matrix (possible matrix blowout). (ZIG ZAG CHALK FORMATION ?)							13.90 14.00	4.58 4.48			14.00 - 14.10 14.00 - 14.10	D D23								14	
Significant drilling disturbance from previous failed run from 13.00 to 14.50m bgl: Structureless grey CHALK composed of gravelly SILT . Gravel is angular to subrounded, fine to coarse, extremely weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							14.50	3.98			13.90 15.00			NI	150	8	0				
Structureless grey CHALK composed of gravelly SILT with cobbles of chalk **. Gravel is angular to subrounded, fine to coarse, extremely weak to weak, low to high-density chalk. (ZIG ZAG CHALK FORMATION ? , Grade Dm) No recovery - possible blow out.							15.00	3.48			14.90 - 15.00 14.90 - 15.00	D D24								15	
Structureless grey CHALK composed of gravelly SILT with cobbles of chalk. Clasts are angular to subrounded, fine to coarse, extremely weak to weak low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							15.40	3.08			15.30 - 15.40	D25		15.00 16.50		NI	76	0	0		16
Drill disturbed with matrix blow out: Light grey medium to coarse, subangular CHALK gravel. ...from 16.50 to 16.70m bgl: reduced recovery, attributable to SPT disturbance.							16.50	1.98			16.40 - 16.50	D26				NR				SPT(S) 16.50m, N=27 (3,5/6,6,7,8)	17
Structureless grey CHALK composed of gravelly SILT with nodular hard and soft zones. Gravel is angular to subrounded, fine to coarse, extremely weak to weak, low to high-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							16.75	1.73			16.70 - 16.80	D27									
											17.20 - 17.30	D28		16.50 18.00		NI	95	30	0		
...from 17.70m to 18.00m bgl orange staining.											17.70 - 17.80	D									
							17.90 - 18.00				D29										
EOH at 18.00m - Target depth achieved.							18.00	0.48												18	
																				19	
																				20	
Observations / Remarks										Drilling Fluid					Hammer Information						
1. Groundwater encountered at 2.90m, rising to 1.83m bgl (20mins). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description ** Denotes laboratory description of split UT100 sample. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
										7.00	18.00			Air / Mist	73694	64					
										Groundwater					Project Number						
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						
																784-B025563					

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="6">Location Details</td> <td colspan="2" rowspan="2">Status</td> <td colspan="2" rowspan="2">Borehole Number</td>						Location Details						Status		Borehole Number					
						Easting: 548333.00 Northing: 251293.00 Level: 18.30mAOD Depth: 30.65m Logger: Type: RC Inclination: 90°													
												FINAL		BH-PTR-23					
								Sheet 1 of 4											
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT					
0.00 1.20 15.00	1.20 15.00 30.65	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand digging tools. Beretta T46 Atlas Copco 186 Beretta T46 Atlas Copco 186	Mike and Luke Bainbridge Mike and Luke Bainbridge Mike and Luke Bainbridge	1.20 15.00 30.65	300 150 150	34.65	150	15/02 16/02 17/02	18:00 18:30 18:00	7.00 20.00 30.65	- - -	-	Approved By: CP					
										Start Date: 13/02/2021									
										Finish Date: 17/02/2021									
Strata Description						Legend		Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Very soft dark brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is angular to subrounded, fine flint. (TOPSOIL) MGR(TS)												0.10 0.20	ES1 ES2						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm
Laboratory description: MADE GROUND: Brown gravelly SAND. MGR(G)								0.50	17.80			0.50 0.50	D ES3						PID 0.50m, 0.0ppm
								1.20	17.10			0.90 1.00 1.00 1.20 - 1.65	ES4 B ESS UT						PID 1.00m, 0.0ppm
UT100 Sample description: Soft dark brown very gravelly very sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse angular. ** ...from 1.20m to 1.40m bgl small white snail shells (72mm). ...from 1.55m bgl clay content increase (becoming slightly sandy)								1.65	16.65			1.60 - 1.70 1.65	D D	1.20 2.00	60	0	0		
Soft brown becoming dark brown / black slightly gravelly PEAT. Gravel is angular, fine to medium flint. Slight organic odour. (ALLUVIUM)								2.00	16.30			2.00 - 2.45	UT						
ALV(C) UT100 Sample description: Very soft dark brown gravelly, very sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular flint. ** (ALLUVIUM)								2.50	15.80			2.45 - 2.50	D						
Minimal recovery (10%): Very soft, light to medium brown, slightly sandy, slightly gravelly CLAY. Sand is fine to medium. Gravel comprises fine to medium, angular to subangular flint. Also see BH-PTR-23A and BH-PTR-23B. (ALLUVIUM)								2.90	15.40			2.80 - 3.00 3.00 - 4.00 3.00 - 4.45 3.00 - 4.45	D B D SPTLS	2.50 3.00	10	0	0		
D/S liners from 3.00m to 6.00m bgl split during drilling progression and were recovered as bulk samples. Engineers and laboratory description of B and D samples (possibly indicative of limited recovery of coarse faction): Very soft to soft brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, angular to subangular flint.												3.00 4.00						SPT(S) 3.00m, N=6 (1,2/2,1,1,2)	
Failed UT100 (recovered as a bulk sample): Brown very gravelly very sandy CLAY. (ALLUVIUM ?)								4.00	14.30			4.00 - 4.45 4.00 - 4.45 4.00 - 4.45	B UT UT-NR						
ALV(C) No recovery.								4.45	13.85			4.50 - 4.95	SPTLS	4.00 5.00	0	0		SPT(S) 4.50m, N=5 (1,0/1,1,1,2)	
Liner split during drilling progression, recovered as a bulk sample: Structureless grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium-density chalk.								5.00	13.30			5.00 - 5.45 5.00 - 6.00	SPTLS B					SPT(S) 5.00m, 3 (0,1/1,1,1,1)	
												5.00 6.00			0	0			
(Wet / saturated): Structureless grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ? , Grade Dm) ...from 6.00m and 6.40m bgl occasional flint gravel.								6.00	12.30			6.00 - 6.45	SPTLS					SPT(S) 6.00m, N=5 (1,1/1,1,1,2)	
												6.50 - 6.60	D	6.00 7.00	100	0			
												7.00 - 7.10 7.00 - 7.45	D SPTLS					SPT(S) 7.00m, N=6 (1,2/1,1,2,2)	
												7.00 8.00			100	0			
												8.00 - 8.45	SPTLS					SPT(S) 8.00m, N=5 (1,0/1,1,1,2)	
												8.50 - 8.60	D	8.00 9.00	90	0			
Minimal recovery (10%): Structureless grey white CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ? , Grade Dm)								9.00	9.30			9.00 - 9.45	SPTLS					SPT(S) 9.00m, N=6 (0,0/1,1,2,2)	
												9.00 10.00			10	0			
								10.00	8.30			10.00 - 10.45	SPTLS					SPT(S) 10.00m, N=11 (1,1/2,3,3,3)	
Observations / Remarks						Drilling Fluid						Hammer Information							
1. Groundwater encountered at 0.90m bgl. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes laboratory description of UT100 sample. *** Observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible						From (m)						To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
						15.00						30.50				73694	65		
						Groundwater						Project Number							
						Strike (m)						Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks			
						0.90						-	-	20	0.75		784-B025563		

<div><div><div><div></div><div></div></div><div><div>Tt</div><div>TETRA TECH</div></div></div><div><div>Project:</div><div>Cambridge South East Transport – Phase 2</div></div><div><div>Location:</div><div>Cambridge</div></div><div><div>Client:</div><div>Greater Cambridge Partnership</div></div></div>				<div>Location Details</div> <div>Eastings: 548333.00 Northing: 251293.00</div> <div>Level: 18.30mAOD Depth: 30.65m</div> <div>Logger: Type: RC</div> <div>Inclination: 90°</div>				<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-23</div>									
								Sheet 2 of 4											
<div>Method, Plant and Crew</div>					<div>Diameter</div>		<div>Casing</div>		<div>Drilling Progress by Time</div>					<div>Scale: 1:50</div>					
<div>From (m)</div> <div>0.00 1.20 15.00</div>	<div>To (m)</div> <div>1.20 15.00 30.65</div>	<div>Type</div> <div>Inspection Pit Dynamic Windowless Sampling Rotary Core</div>	<div>Plant Used</div> <div>Hand digging tools. Beretta T46 Atlas Copco 186 Beretta T46 Atlas Copco 186</div>	<div>Crew</div> <div>Mike and Luke Bainbridge Mike and Luke Bainbridge Mike and Luke Bainbridge</div>	<div>Depth (m)</div> <div>1.20 15.00 30.65</div>	<div>Diam (mm)</div> <div>300 150 150</div>	<div>Depth(m)</div> <div>34.65</div>	<div>Diam (mm)</div> <div>150</div>	<div>Date</div> <div>15/02 16/02 17/02</div>	<div>Time</div> <div>18:00 18:30 18:00</div>	<div>Depth (m)</div> <div>7.00 20.00 30.65</div>	<div>Casing (m)</div> <div>- - -</div>	<div>Water (m)</div> <div>- - -</div>	<div>Checked By: RT</div> <div>Approved By: CP</div> <div>Start Date: 13/02/2021</div> <div>Finish Date: 17/02/2021</div>					
<div>Strata Description</div>						<div>Legend</div>	<div>Depth (m)</div>	<div>Reduced Level (mAOD)</div>	<div>Water Level (m)</div>	<div>Inst / Backfill</div>	<div>Samples, Tests and Rotary Coring</div>								
											<div>Depth (m)</div>	<div>Ref</div>	<div>Core Run</div>	<div>FI</div>	<div>TCR</div>	<div>SCR</div>	<div>RQD</div>	<div>Tests / Results</div>	
<div>No recovery attributable to SPT disturbance.</div>																			
<div>(Wet / saturated): Structureless yellowish white CHALK composed of slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium-density. (ZIG ZAG CHALK FORMATION, Grade Dm)</div>							10.30	8.00											
<div>Weak, low-density greyish white CHALK. No discernible structure. (ZIG ZAG CHALK FORMATION, ?)</div>							10.80	7.50											
<div>Significant disturbance attributbale to SPT: Structureless yellowish pale grey CHALK composed of slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium-density. (ZIG ZAG CHALK FORMATION ?, Grade Dm)</div>							11.00	7.30			11.00 - 11.45	SPTLS						SPT(S) 11.00m, N=9 (1,0/1,2,3,3)	11
<div>(Wet / saturated): Structureless yellowish pale grey CHALK composed of slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low to medium-density. (ZIG ZAG CHALK FORMATION ?, Grade Dm)</div>													11.00 12.00			100	0		
<div>...from 12.30 to 12.35m bgl: cobble of high-density chalk.</div>																			
<div>...from 12.65 to 13.00m bgl: cobble of high-density chalk.</div>													12.00 13.00			100	0		
											</								

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		Eastings: 548333.00 Northing: 251293.00 Level: 18.30mAOD Depth: 30.65m Logger: Type: RC Inclination: 90°				FINAL		BH-PTR-23										
								Sheet 3 of 4										
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT			
0.00 1.20 15.00	1.20 15.00 30.65	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand digging tools. Beretta T46 Atlas Copco 186 Beretta T46 Atlas Copco 186	Mike and Luke Bainbridge Mike and Luke Bainbridge Mike and Luke Bainbridge	1.20 15.00 30.65	300 150 150	34.65	150	15/02 16/02 17/02	18:00 18:30 18:00	7.00 20.00 30.65	- - -	-	Approved By:	CP			
															Start Date:	13/02/2021		
															Finish Date:	17/02/2021		
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Significant disturbance attributable to SPT, recovery non-intact: Light grey, coarse, subangular CHALK gravel. (ZIG ZAG CHALK FORMATION ?, ?)							20.25	-1.95			20.20 20.20	DPLT PLT						
Significant drilling disturbance, recovery non-intact: Weak, low-density, grey white CHALK gravel with occasional black specks. (ZIG ZAG CHALK FORMATION ?, ?)													20.00 21.50	NI	87	13	13	
Weak, medium to high-density light grey marly CHALK. Discontinuity 1) Bedding is 0-10'. ** No discernible joints. (ZIG ZAG CHALK FORMATION, high density, ? 3)							21.30	-3.00			21.30 21.30 - 21.50	UCS CSS			ND			
Significant drilling disturbance, recovery non-intact: Very weak, medium-density cream greyish white CHALK gravel. (ZIG ZAG CHALK FORMATION, ?)							21.50	-3.20						NI				
Weak, medium to high-density greyish cream CHALK. Discontinuity 1) Joints are 70-90' irregular ? ** clean to lightly stained orange, open with thin grey clay infill. 2) Bedding is 0-10', close to medium [100/200/ ?]. (ZIG ZAG CHALK FORMATION, Grade B3 ?)							21.90	-3.60			21.90 - 22.00	CSS						
											21.50 23.00			4	97	47	19	
Significant disturbance attributable to SPT, recovery non-intact: Cream grey silty fine CHALK gravel (saturated). (ZIG ZAG CHALK FORMATION, ?)							23.00	-4.70			23.00 - 23.45	SPTLS						SPT(S) 23.00m, N=35 (4,6/6,6,10,13)
...from 23.00 to 23.50m bgl: Zone of sample disturbance, attributable to SPT disturbance. Recovered as fine to coarse, subangular chalk GRAVEL (wet / saturated).							23.50	-5.20			23.50 23.50 - 23.70 23.70 - 24.00	UCS CSS UCS CSS	23.00 24.50			87	47	35
Weak, medium to high-density greyish white with light brown banding (possible flasar marl**) CHALK. Discontinuity 1) Bedding is 0-10' close to medium, closed and partly open, clean with slight orange staining [100/250/ ?]. (ZIG ZAG CHALK FORMATION, high density, Grade B 2 ?)											24.00 24.00 - 24.20 24.20 - 24.50	PLT DPLT PLT DPLT				3		
...at 24.10m bgl: 22mm open horizontal discontinuity (bedding?) infilled with silty clay .																		
Significant disturbance attributable to SPT, recovery non-intact and saturated: Cream grey silty fine to medium CHALK gravel. (ZIG ZAG CHALK FORMATION, ?)							24.50	-6.20										
Weak to moderately strong, medium to high-density greyish white with brown (possible flasar marl **) banding CHALK. Discontinuity 1) Joints are 50' open with a thin grey clay infill (>1mm) with slight yellow brown staining and occasional black specks. Discontinuity 2) Bedding is 10' close, open with a thin grey clay infill (>1mm) with slight yellow brown staining [50/100/200]. (ZIG ZAG CHALK FORMATION, Grade B3)							24.90	-6.60					24.50 26.00			97	45	19
Weak, high-density, greyish white CHALK with occasional orange staining. Discontinuity 1) Bedding is 10-20° close to medium, clean, possibly closed, with occasional black specks on surfaces [100/200/300]. (ZIG ZAG CHALK FORMATION, high density, Grade A3)							26.00	-7.70			26.00 - 26.45	SPTLS						SPT(S) 26.00m, 34 (25 for 80mm/34 for 20mm)
...at 26.00 to 26.05m bgl: minor localised SPT induced fracturing.																		
...from 26.35 to 26.45m bgl: slight, possibly drill induced, brecciation.																		
...at 26.70m bgl: with slight orange staining.													26.00 27.50		5	100	93	73
...from 26.70 to 27.40m bgl: with inclined core catcher striations indicating slight turning. **																		
...at 27.10m bgl: with slight orange staining.																		
...from 27.40 to 27.50m bgl: possible drill induced sub-vertical fractures**.																		
Weak to moderately strong, medium to high-density greyish white CHALK with slight orange staining. Discontinuity 1) Bedding is 0-10', very close to close, clean., tight. [100/200/350]. (ZIG ZAG CHALK FORMATION, high density, Grade A3)							27.50	-9.20			27.30 - 27.40							

[illegible][illegible]

<div><div><div>Tt</div><div>TETRA TECH</div></div><div><div>Project:</div><div>Cambridge South East Transport – Phase 2</div></div><div><div>Location:</div><div>Cambridge</div></div><div><div>Client:</div><div>Greater Cambridge Partnership</div></div></div>						<div>Location Details</div> <div><div>Easting: 548333.00</div><div>Northing: 251292.00</div></div> <div><div>Level: 18.30mAOD</div><div>Depth: 3.05m</div></div> <div><div>Logger: RT</div><div>Type: WLS</div></div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-23B</div>	
						Sheet 1 of 1									
<div>Method, Plant and Crew</div> <div><div>From (m)</div><div>To (m)</div><div>Type</div><div>Plant Used</div><div>Crew</div></div> <div><div>0.00</div><div>1.20</div><div>Inspection Pit</div><div>Hand Excavator</div><div>Endeavor Drilling</div></div> <div><div>1.20</div><div>3.05</div><div>Dynamic Windowless Sampling</div><div>Dando Terrier</div><div>Endeavor Drilling</div></div>					<div>Diameter</div> <div><div>Depth (m)</div><div>Diam (mm)</div></div> <div><div>1.20</div><div>300</div></div> <div><div>3.05</div><div>116</div></div>		<div>Casing</div> <div><div>Depth(m)</div><div>Diam (mm)</div></div> <div><div></div><div></div></div>		<div>Groundwater</div> <div><div>Strike (m)</div><div>Casing (m)</div><div>Sealed (m)</div><div>Rose To (m)</div><div>Time (mins)</div><div>Remarks</div></div> <div><div>1.65</div><div>-</div><div>-</div><div>1.65</div><div>10</div><div></div></div>						
<div>Strata Description</div>					<div>Legend</div>	<div>Depth (m)</div>	<div>Reduced Level (mAOD)</div>	<div>Water Level (m)</div>	<div>Inst / Backfill</div>	<div>Samples and Testing</div> <div><div>Depth (m)</div><div>Ref</div><div>Tests / Results</div></div>					
<div>MADE GROUND: Very stiff / dry friable grey brown clayey sandy gravelly SILT. Sand is fine to coarse. Gravel comprises fine to coarse, sub rounded to angular flint. (TOPSOIL) MGR(TS)</div>					<div></div>	<div>0.20</div>	<div>18.10</div>								
<div>MADE GROUND: Firm grey brown clayey sandy gravelly SILT. Sand is fine to coarse. Gravel comprises fine to coarse, sub rounded to angular flint. (TOPSOIL) MGR(TS)</div>					<div></div>										
<div>Soft to firm grey brown mottled dark grey sandy, gravelly clayey organic SILT. (ALLUVIUM) ALV(C)</div>					<div></div>	<div>1.00</div>	<div>17.30</div>								
<div>UT100 Sample</div>					<div></div>	<div>1.20</div>	<div>17.10</div>			<div>1.20 - 1.65</div> <div>1.20 - 1.65</div>	<div>UT</div> <div>UT1</div>	<div>Ublows=20 Recovery=70%</div>			
<div>(Cutting Shoe) Soft grey brown mottled dark grey clayey, sandy, very gravelly organic SILT. Gravel comprises fine to coarse, sub angular to angular flint. (ALLUVIUM) ALV(C)</div>					<div></div>	<div>1.65</div>	<div>16.65</div>								
<div>Firm dark brown slightly clayey / silty, gravelly very sandy amorphous PEAT. Sand is fine to medium, Gravel comprises fine to medium, subangular to angular flint. (ALLUVIUM) ALV(C)</div>					<div></div>	<div>1.75</div>	<div>16.55</div>								
<div>Very soft dark brown slightly silty, sandy, gravelly organic CLAY. Sand is fine to coarse. Gravel comprises fine to coarse subrounded to subangular flint. (ALLUVIUM) ALV(C)</div>					<div></div>	<div>1.90</div>	<div>16.40</div>								
<div>(Medium dense) orange brown sandy fine to coarse, subangular to angular flint GRAVEL. (ALLUVIUM) ALV(G)</div>					<div></div>	<div>2.00</div>	<div>16.30</div>								
<div>Soft to firm brown silty CLAY. (ALLUVIUM) ALV(C)</div>					<div></div>	<div>2.20</div>	<div>16.10</div>								
<div>UT100 Sample</div>					<div></div>	<div>2.50</div>	<div>15.80</div>			<div>2.50 - 2.95</div>	<div>UT2</div>	<div>Ublows=37 Recovery=100%</div>			
<div>(Cutting Shoe) Soft to firm brown silty CLAY. (ALLUVIUM) ALV(C)</div>					<div></div>	<div>2.95</div>	<div>15.35</div>								
<div>EOH at 3.05m - Target depth achieved.</div>					<div></div>	<div>3.05</div>	<div>15.25</div>								

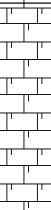
Project: Cambridge South East Transport – Phase 2							Location Details					Status		Borehole Number							
Location: Cambridge							Easting: 548347.00 Northing: 251295.00					FINAL		BH-PTR-24							
Client: Greater Cambridge Partnership							Level: 18.35mAOD Depth: 30.15m														
							Logger: EH Type: RC														
							Inclination: 90°														
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP						
0.00	1.20	Inspection Pit	Hand digging tools	Bainbridge Bros Ltd.	1.20	300	15.00	150	09/02	17:00	15.00	15.00									
1.20	15.00	Dynamic Windowless Sampling	Beretta T46	Bainbridge Bros Ltd.	15.00	150			10/02	17:00	20.40	15.00	1.95								
15.00	30.00	Rotary Core	Beretta T46																		
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Soft dark brown, slightly sandy, gravelly CLAY with occasional rootlets. Sand is fine. Gravel is fine to coarse, angular to sub-angular flint. (TOPSOIL) MGR(TS)								0.20	18.15				B1								
Very soft light brown, gravelly, very sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to sub-angular flint. (TOPSOIL) MGR(TS)													B2								
Very soft light brown mottled orange, gravelly, slightly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to sub-angular flint. (ALLUVIUM) ALV(C)								0.90	17.45												
No recovery attributable to SPT disturbance.								1.20	17.15				SPTLS3 B4	1.20 - 1.65 1.20 - 2.00					SPT(S) 1.20m, N=3 (1,0/1,0,1,1)	1	
SPT Liner sample description: Very soft light brown mottled dark brown and orange, gravelly, slightly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular flint. (ALLUVIUM) ALV(C)								1.65	16.70					1.20 2.00		0					
No recovery.								2.00	16.35				SPTLS5	2.00 - 2.45					SPT(S) 2.00m, N=6 (1,1/2,1,1,2)	2	
Very soft light brown mottled orange, gravelly, slightly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to sub-angular flint. (ALLUVIUM) ALV(C)								2.25	16.10							100					
...from 2.20m to 2.25m bgl: occasional lenses of dark brown peat.								2.85	15.50				SPTLS6	3.00 - 3.45					SPT(S) 3.00m, N=11 (2,3/3,2,3,3)	3	
Soft light grey, sandy, slightly gravelly, clayey SILT with pockets of plant remains. Sand is fine to coarse. Gravel is fine, rounded chalk with occasional fine, angular flint. (ALLUVIUM) ALV(C)								3.00	15.35												
Loose to medium dense orangish brown, very sandy, angular to subrounded, fine to coarse, flint and chalk GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) RTD								3.35	15.00					3.00 4.00		65	0	0			
No recovery attributable to SPT disturbance.																					
Loose to medium dense, orangish brown, very sandy, angular to subrounded, fine to coarse, flint and chalk GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) RTD								4.00	14.35					4.00 5.00		10	0	0			
No recovery (Medium dense light brown clayey gravelly SAND *)								4.80	13.55												
Minimal recovery (20%): Medium dense * orangish brown, gravelly, fine to coarse SAND with low cobble content. Gravel is subangular to subrounded, fine to coarse flint. Cobbles are subangular up to 70x60x50mm. (RIVER TERRACE DEPOSITS) RTD								5.00	13.35					5.00 6.00		10	0	0			
Minimal recovery (10%): Structureless white grey CHALK composed of slightly gravelly, slightly sandy SILT. Gravel is very weak to weak, low to medium-density, greyish white with rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)																					
Structureless white grey CHALK composed of slightly gravelly, slightly sandy SILT. Gravel is very weak to weak, low to medium-density, greyish white with rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								6.00	12.35				SPTLS7	6.00 - 6.45					SPT(S) 6.00m, N=10 (1,2/2,3,2,3)	6	
														6.00 7.00		100	0	0			
																					
								7.40	10.95					7.00 8.00		100	0	0			
Very weak to weak, medium density grey mottled light orange grey CHALK. No structure discernible. (ZIG ZAG CHALK FORMATION, ?)								7.60	10.75												
Structureless greyish white CHALK composed of slightly gravelly, slightly sandy SILT. Gravel is very weak to weak, low to medium density with rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)													SPTLS8	8.00 - 8.45					SPT(S) 8.00m, N=10 (1,2/2,3,3,3)	8	
														8.00 9.00		100	0	0			
																					
														9.00 10.00		100	0	0			
																					
																					
														10.00 - 10.45	SPTLS9					SPT(S) 10.00m, N=11 (1,2/2,3,3,3)	10
Observations / Remarks										Drilling Fluid					Hammer Information						
1. Groundwater encountered at 0.80m bgl. 2. Upon completion exploratory hole backfilled with bentonite. 3. Samples from GL- 15.00 damaged by frost. The dynamic sample section of BH-PTR-24 was therefore redrilled (see BH-PTR-24A). * Denotes drillers description ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
										15.00	30.00			Air / Mist	73694	65					
										Groundwater					Project Number						
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563															
0.80	-	-	20	0.75																	
2.70	2	2	20	1.06																	

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0.00 1.20 15.00	1.20 15.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand digging tools Beretta T46 Beretta T46	Bainbridge Bros Ltd. Bainbridge Bros Ltd. Bainbridge Bros Ltd.	1.20 15.00 15.00	300 150 150	15.00	150	09/02 10/02	17:00 17:00	15.00 20.40	15.00 15.00	1.95	Approved By: CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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												Sheet 3 of 4						
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50		
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT				
0.00 1.20 15.00	1.20 15.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand digging tools Beretta T46 Beretta T46	Bainbridge Bros Ltd. Bainbridge Bros Ltd. Bainbridge Bros Ltd.	1.20 15.00 15.00	300 150 150	15.00	150	09/02 10/02	17:00 17:00	15.00 20.40	15.00 15.00	1.95	Approved By: CP				
														Start Date: 08/02/2021				
														Finish Date: 10/02/2021				
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Significant drilling disturbance, recovery non-intact: CHALK recovered as slightly sandy, silty, fine to coarse, angular to sub rounded GRAVEL. Clasts are weak, medium-dense greyish white. Matrix is greyish white. (ZIG ZAG CHALK FORMATION ?, Probably structured ?)							20.50	-2.15			20.35 - 20.45	DPLT						SPT(S) 21.00m, N=50 (2,3/50 for 285mm)
Significant drilling disturbance (with indications of turning **), recovery non-intact coarse subangular, weak medium-denisty CHALK gravel with cobbles (<100mm core sections) of Weak medium density greyish white CHALK. Discernible structure: Discontinuity 1) Joints are 80' with grey clay mineralization. Discontinuity 1) Probable bedding is 0-10', close and clean. (ZIG ZAG CHALK FORMATION, ?)							21.00	-2.65			20.60 20.60 - 20.70 20.85 - 20.95 21.00 - 21.10 21.00 - 21.45	CPLT DPLT DPLT D SPTLS	20.50 21.00	ND	100	30	0	
Significant drilling disturbance, attributable to SPT, recovery non-intact: Greyish white, medium to coarse subangular CHALK gravel. Clasts are very weak to weak, low to medium-density. (ZIG ZAG CHALK FORMATION ?, ?)							21.50	-3.15			21.65 21.65 - 21.75 22.00 - 22.10 22.20 - 22.30	CPLT DPLT D DPLT	21.00 22.50		93	40	20	
Weak, medium-density grey marly CHALK. Discontinuity 1) Bedding is subhorizontal, very close to close, clean, lightly stained orange, open with grey clay infill. Mineralisation on internal subhorizontal faces [50/100/150]. (ZIG ZAG CHALK FORMATION, Grade B4)							22.50 22.70	-4.15 -4.35			22.50 22.50 - 22.60 23.60 - 23.70	DPLT D DPLT		NI				SPT(S) 24.00m, 50 (25 for 95mm/50 for 115mm)
Significant drilling disturbance, recovery non-intact: Greyish white, coarse subangular CHALK gravel. Clasts are very weak to weak, low to very high-density. (ZIG ZAG CHALK FORMATION ?, ?)											22.50 24.00			100	27	20		
Weak, medium to high-density grey marly CHALK. Discontinuity 1) Multiple vertical, very close to close joints, clean and light orange stained. Discontinuity 2) Bedding is subhorizontal, close with clay mineralisation. (ZIG ZAG CHALK FORMATION, Grade B4)							24.00	-5.65			24.00 - 24.40 24.00 - 24.45 24.40 - 24.60 24.70 24.70 - 24.80	D SPTLS DPLT CUCS CPLT DPLT	24.00 25.50	5	100	67	53	
Weak, medium to very high-density, grey marly CHALK. Discontinuity 1) Joints are subvertical, close, curviplanar, lightly stained orange with occasional mineralisation. Discontinuity 2) Bedding is sub-horizontal, close, open and infilled (10/20/30) with light grey silt and fine gravel [40/100/150]. (ZIG ZAG CHALK FORMATION, very high density, Grade B4)							25.50	-7.15			25.50 - 25.60 26.00 - 26.10	D DPLT	25.50 27.00	4	100	100	87	SPT(S) 27.00m, 50 (25 for 75mm/50 for 70mm)
Weak, medium to very high-density light grey brown marly CHALK. Discontinuity 1) Bedding is sub-horizontal, medium, clean, closed with grey mineralisation. [150/200/300]. (ZIG ZAG CHALK FORMATION, very high density, Grade A4)											27.00 - 27.45 27.20 - 27.25 27.40 27.40 - 27.50 27.70 27.70 - 27.90 28.00 - 28.30 28.20 28.20 - 28.30 28.40 28.40 - 28.50	SPTLS D CPLT DPLT CUCS CCSS CUCS CCSS CPLT DPLT DPLT D	27.00 28.50	4	90	90	73	
Weak, medium to very high-density, dark grey marly CHALK. Discontinuity 1) Single vertical joint is tight and clean. Discontinuity 2) Bedding is 0-10', close, tight, clean [100/250/300]. (ZIG ZAG CHALK FORMATION, very high density, Grade A2) ...at 28.80m bgl: possible turning along bedding.							28.50	-10.15			29.00 29.00 - 29.20 29.40 - 29.60	CUCS CCSS CUCS CCSS	28.50 30.00	3	100	100	93	
							30.00	-11.65			30.00 - 30.20 30.00 - 30.45	D SPTLS						SPT(S) 30.00m, 50 (25 for 78mm/50 for 77mm)
Observations / Remarks										Drilling Fluid				Hammer Information				
1. Groundwater encountered at 0.80m bgl. 2. Upon completion exploratory hole backfilled with bentonite. 3. Samples from GL- 15.00 damaged by frost. The dynamic sample section of BH-PTR-24 was therefore redrilled (see BH-PTR-24A). * Denotes drillers description ** Denotes observation from core photograph. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
										15.00	30.00			Air / Mist	73694	65		
										Groundwater				Project Number				
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks			
																784-B025563		

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Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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No recovery - SPT only.								30.15	-11.80																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details					Status		Borehole Number					
							Easting: 548348.50 Northing: 251295.00 Level: 18.35mAOD Depth: 15.00m Logger: AA+GL Type: RC Inclination: 90°												
														FINAL					BH-PTR-24A
												Sheet 2 of 2							
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20	1.20 15.00	Inspection Pit Window Sampler	Hand Tools Beretta T46	Bainbridge Bros. Ltd. Bainbridge Bros. Ltd.	1.20 15.00	300 150	7.50	150	12/02	17:00	15.00	7.50	1.91	Approved By:	CP				
														Start Date:	12/02/2021				
														Finish Date:	12/02/2021				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Structureless CHALK composed of white sandy gravelly SILT. Chalk gravel is angular to rounded, extremely weak to weak low to medium-density greyish white. Occasional flint gravel present. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								11.48	6.87			10.50 - 10.60	D20	10.00 11.00		100	0	0	11
Structureless CHALK composed of white sandy gravelly SILT. Chalk gravel is angular to rounded, weak, low to medium-density greyish white. (ZIG ZAG CHALK FORMATION ?, Grade Dm)												11.00 - 11.10	D21						
Structureless CHALK composed of light greyish white slightly sandy gravelly SILT. Chalk gravel is angular to subrounded, extremely weak to weak, low to medium-density greyish white. (ZIG ZAG CHALK FORMATION, ? Grade Dm) No recovery.								12.80	5.55	5.35		11.50 - 11.60	D	11.00 12.00		100	0	0	12
												12.00 - 12.10	D23						
								13.00	5.35			12.50 - 12.60	D24	12.00 13.00		100	0	0	13
												12.80 - 13.00	D25						
								14.00	4.35					13.00 14.00		0	0	0	14
No recovery, with striations & chalk residue on liner indicating possible dislocation. **												14.35	4.00						
Possible dislocation from above: Structureless CHALK composed of light greyish white slightly sandy gravelly SILT. Chalk gravel is angular to subrounded extremely weak to weak, low to medium-density greyish white. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...at 14.60m bgl band of dark orange iron staining.								15.00	3.35			14.50 - 14.60	D26	14.00 15.00		65	0	0	15
EOH at 15.00m - Target depth achieved.																			
																			16
																			17
																			18
																			19
																			20
Observations / Remarks												Drilling Fluid				Hammer Information			
1. Groundwater strikes at 0.85m, rising 0.79m bgl (20minutes) and at 12.80m, rising to 1.91m bgl (20minutes) 2. Backfilled with bentonite on completion. * Denotes drillers description ** Denotes observation from core photograph.												From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %	
												Groundwater							Project Number
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks														
12.80	6	6	20	1.91		784-B025563													

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														Sheet 2 of 4						
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit Window Sampler Rotary Core	Hand digging tools Beretta T41 Rig No. BBL10 Beretta T41 Rig No. BBL10	Matt and Marcus Bainbridge Matt and Marcus Bainbridge	1.20	300	30.45	150	15/02	18:30	6.45	-	-	Approved By:	CP					
1.20	14.00				11.45															
14.00	30.05				17/02	18:00			30.05											
									18/02	08:30	30.05	-	-	Start Date:	15/02/2021					
														Finish Date:	18/02/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
Structureless CHALK composed of light brownish white very gravelly sandy SILT. Gravel is angular subrounded, very weak to weak, low-density with frequent flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								14.00	4.32			10.50 - 10.60	D	10.00 11.00		100	0	0	SPT(S) 11.00m, N=14 (2,2/3,3,4,4)	11
												10.80 - 11.00	D							
												11.00 - 11.45	SPTLS							
												11.50 - 11.60	D	11.00 12.00		100	0	0	SPT(S) 12.00m, N=17 (2,3/4,4,4,5)	12
												11.90 - 12.00	D							
												12.00 - 12.45	SPTLS							
												12.50 - 12.60	D	12.00 13.00		100	0	0	SPT(S) 13.00m, N=19 (2,4/4,4,5,6)	13
												12.80 - 13.00	D							
												13.00 - 13.45	SPTLS							
												13.50 - 13.60	D	13.00 14.00		100	0	0	SPT(S) 14.00m, N=24 (4,5/5,6,6,7)	14
13.90 - 14.00	D																			
14.00 - 14.45	SPTLS																			
No recovery.								14.50	3.82			14.00 15.00		100	0	0	SPT(S) 15.00m, N=31 (3,5/6,6,9,10)	15		
Structureless CHALK composed of light brownish white very gravelly sandy SILT. Gravel is angular subrounded, very weak to weak, low-density with frequent flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								15.10	3.22			15.00 16.50	NI	100	0	0				
Significant drilling disturbance, recovery non-intact with matrix blow out**: Structureless CHALK composed of light brownish white very silty sandy GRAVEL. Clasts are fine to coarse, subrounded to angular, very weak to weak low-density with frequent flint. (ZIG ZAG CHALK FORMATION ?, Grade Dc / Possibly with structured horizons)								17.00	1.32			16.50 18.00	NI	100	0	0	SPT(S) 18.00m, N=30 (4,6/6,7,7,10)	18		
Significant drilling disturbance, recovery non-intact: Structureless CHALK composed of light brownish white GRAVEL (with possible matrix blow out). Clasts are fine to coarse, subrounded to angular, very weak to weak, low-density with frequent flint. (ZIG ZAG CHALK FORMATION, Grade Dc / Possibly with structured horizons)												18.00 - 18.45	D							
												18.70 - 18.80	DPLT		NI	100			0	0
Significant drilling disturbance / possibly intraclastic, recovery mostly non-intact: Weak, low to medium-density, light grey brown white marly CHALK. No discernible structure. (ZIG ZAG CHALK FORMATION, ?)							19.70	-1.38				18.00 21.00						SPT(S) 19.70m, N=30 (4,6/6,7,7,10)	19	
Significant drilling disturbance / possibly intraclastic, recovery mostly non-intact: Weak, low to medium-density light grey brown white marly CHALK. Discernible structure: Discontinuity 1) Bedding is close with breccia / marly intraclastic infill with light to moderate orange staining. (ZIG ZAG CHALK FORMATION, Grade C ? 4 ?)												18.70 - 18.80	DPLT		NI	100	0			0
							Significant drilling disturbance / possibly intraclastic, recovery mostly non-intact: Weak, low to medium-density light grey brown white marly CHALK. Discernible structure: Discontinuity 1) Bedding is close with breccia / marly intraclastic infill with light to moderate orange staining. (ZIG ZAG CHALK FORMATION, Grade C ? 4 ?)													
Observations / Remarks											Drilling Fluid					Hammer Information				
1. Groundwater encountered at 0.70m bgl. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph *** Denotes laboratory description of split UT100 Sample NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
																73694	64			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
																	784-B025563			

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						Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50																											
						From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT																													
0.00	1.20	Inspection Pit Window Sampler Rotary Core	Hand digging tools Beretta T41 Rig No. BBL10 Beretta T41 Rig No. BBL10	Matt and Marcus Bainbridge Matt and Marcus Bainbridge	1.20	300	30.45	150	15/02	18:30	6.45	-	-	CP																																			
1.20	14.00				30.05	200			16/02	18:30	11.45																																						
14.00	30.05								17/02	18:00	30.05	-	-																																				
									18/02	08:30	30.05	-	-	Start Date: 15/02/2021																																			
														Finish Date: 18/02/2021																																			
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring																																						
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results																															
Significant drilling disturbance / possibly intraclastic, recovery mostly non-intact: Weak, low to medium-density light grey brown white marly CHALK. Discernible structure: Discontinuity 1) Bedding is close with breccia / marly intraclastic infill with light to moderate orange staining. (ZIG ZAG CHALK FORMATION, Grade C ? 4 ?)							22.50	-4.18			21.00 - 21.45	SPTLS						SPT(S) 21.00m, 50 (10,13/50 for 135mm)	21																														
											21.00 22.50																																						
											...from 21.80 to 22.00m gl: possible conjugate set (appears open and clean).**							22.50	-4.18			22.50							SPT(S) 22.50m, 50 (10,13/50 for 135mm)	22																			
											Weak, medium-density very lightly stained pale grey marly CHALK. Discontinuity 1) Bedding generally close, clean, open to occasionally moderately wide with wispy marl / silt infill.** Frequent flint [20/60/90]**. (ZIG ZAG CHALK FORMATION, Grade C4)							24.00	-5.68			23.00 - 23.60	CSS						SPT(S) 23.00m, 50 (10,13/50 for 135mm)	23																			
																						23.50 - 25.90	CSS																										
																						23.70 - 23.80	DPLT																										
																						24.00 - 24.45	SPTLS																										
Weak, medium-density pale grey with off-white banding CHALK with occasional orange specks. Discontinuity 1) Bedding is 0-10', close, open, with light orange staining [100/150/200]. (ZIG ZAG CHALK FORMATION, Grade B4) ...from 24.10 to 24.60m bgl: non-intact, possibly attributable to SPT disturbance. **							25.00	-7.18			24.00 24.45							SPT(S) 24.00m, 50 (6,13/50 for 170mm)	24																														
											24.00 25.50																																						
Weak, medium to high-density pale grey brown with off-white banding slightly marly CHALK. Discontinuity 1) Bedding 0-5', close, planar and possibly rough**, open and infilled [100/150/200]. (ZIG ZAG CHALK FORMATION, Grade B5)							25.50	-7.18			25.90 - 26.00	DPLT						SPT(S) 25.50m, 50 (10,13/50 for 135mm)	25																														
											25.50 27.00																																						
Weak, medium to high-density, pale grey brown with off-white banding slightly marly CHALK. Discontinuity 1) 0-10', close to medium, tight and locally moderately wide (possible blow out of infill**) with light moderately stained yellow [150/150/300]. (ZIG ZAG CHALK FORMATION, Grade C3) ...from 27.00 to 27.30m bgl: zone of drilling induced fracturing attributable to SPT.							27.00	-8.68			27.00 - 27.45	SPTLS						SPT(S) 27.00m, 50 (25 for 45mm/50 for 15mm)	27																														
											27.00 28.50																																						
Weak, medium to high-density, light grey marly CHALK. Discontinuity 1) Bedding is 0-20', close, to medium, tight and partly open, clean [40/200/250]. (ZIG ZAG CHALK FORMATION, Grade B3)							28.00	-9.68			28.50 - 29.00	CSS						SPT(S) 28.50m, 50 (25 for 45mm/50 for 15mm)	28																														
											28.50 29.50																																						
							30.00	-11.68			29.00 - 29.10	DPLT						SPT(S) 29.00m, 50 (25 for 45mm/50 for 15mm)	29																														
											29.00 30.00																																						
Observations / Remarks										Drilling Fluid					Hammer Information																																		
1. Groundwater encountered at 0.70m bgl. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph *** Denotes laboratory description of split UT100 Sample NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)					To (m)					Return Min %					Colour					Type					Serial No.					Energy Ratio %									
										Strike (m)					Casing (m)					Sealed (m)					Time (min)					Rose To (m)					Remarks					Project Number									
																																													784-B025563				

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							Easting: 548349.00 Northing: 251266.00 Level: 18.32mAOD Depth: 30.05m Logger: Type: RC Inclination: 90°							Sheet 4 of 4							
							Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT							
0.00 1.20 14.00	1.20 14.00 30.05	Inspection Pit Window Sampler Rotary Core	Hand digging tools Beretta T41 Rig No. B8L10 Beretta T41 Rig No. B8L10	Matt and Marcus Bainbridge Matt and Marcus Bainbridge Matt and Marcus Bainbridge	1.20 30.05	300 200	30.45	150	15/02 16/02 17/02 18/02	18:30 18:30 18:00 08:30	6.45 11.45 30.05 30.05	- - - -		Approved By: CP							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
No recovery. SPT Only.								30.05	-11.73												
EOH at 30.05m - Target depth achieved.																					
Observations / Remarks							Drilling Fluid						Hammer Information								
							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %								
												73694	64								
1. Groundwater encountered at 0.70m bgl. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photograph *** Denotes laboratory description of split UT100 Sample NR - No Recovery NI - Non-intact ND - Not Discernible							Groundwater						Project Number								
							Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks									
													784-B025563								

<div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>								<div>Easting: 548362.00 Northing: 251273.00</div> <div>Level: 18.43mAOD Depth: 30.21m</div> <div>Logger: Type: RC</div> <div>Inclination: 90°</div>				<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-26</div>											
												Sheet 1 of 4													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50									
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT											
0.00	1.20	Inspection Pit	Hand Excavated	Matt and Marcus Bainbridge	1.20	300	22.50	150	08/02	18:00	6.45	-	-	Approved By: CP											
1.20	6.00	Dynamic Windowless Sampling	Beretta T41	Matt and Marcus Bainbridge	30.21	150			09/02	18:00	14.00	-	-	Start Date: 08/02/2012											
6.00	10.00	Rotary Core	Beretta T41	Matt and Marcus Bainbridge					10/02	18:00	21.00	-	-	Finish Date: 12/02/2012											
10.00	15.00	Dynamic Windowless Sampling	Beretta T41	Matt and Marcus Bainbridge					11/02	18:15	25.50	-	-												
15.00	30.21	Rotary Core	Beretta T41	Matt and Marcus Bainbridge					12/02	17:00	30.21	-	-												
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring													
MADE GROUND: Crop over very soft, dark brown, slightly gravelly, slightly sandy CLAY. Sand is fine. Gravel is subangular to subrounded, fine to medium flint. (TOPSOIL) MGR(TS)								0.40	18.03			0.20	ES												
Very soft dark brown, slightly gravelly, slightly sandy CLAY Sand is fine. Gravel is subangular to subrounded, fine to coarse flint. (ALLUVIUM) ALV(C)												0.30	ES							0.40 - 0.50	B	0.50	ES		
Very soft dark brown/black, very gravelly, peaty CLAY with occasional lenses of fine sand. Gravel is angular to subrounded, fine to coarse flint. Slight organic odour. (ALLUVIUM) ALV(C) ...from 1.30m bgl: gravel content increases.								1.25	17.18			0.80 - 0.90	B						SPT(S) 1.20m, N=3 (0,0/1,0,1,1)						
												1.00	ES							1.20 - 1.40	D	1.20 2.00	100	0	0
												1.20 - 1.65	D1							1.20 - 1.65	SPTLS				
												2.00 - 2.45	D							2.00 - 2.45	SPTLS	2.00 3.00	100	0	0
Minimal recovery (20%) of loose * dark grey, slightly sandy, subangular to rounded, coarse flint GRAVEL and dark grey flint COBBLES (up to 100mm diameter). (RIVER TERRACE DEPOSITS ?) RTD								3.00	15.43				3.00 - 4.00	B											
													3.00 - 4.00	D-NR							3.00 4.00	15	0	0	
Structureless CHALK composed of silty, slightly sandy, subangular to subrounded, medium to coarse GRAVEL. Clasts are weak, medium to high-density white, with drilling induced fragments from black flint cobbles. (ZIG ZAG CHALK FORMATION ?, Grade Dc)								4.00	14.43				4.00 - 4.10	D											
													4.60 - 4.80	D							4.00 5.00	100	0	0	
Structureless CHALK composed of off-white, slightly sandy, gravelly SILT. Gravel is angular to subrounded, weak, medium-density greyish white with occasional rounded flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								5.00	13.43				5.30 - 5.50	D											
													5.80 - 6.00	D							5.00 6.00	100	0	0	
Minimal recovery (10%), recovered as a bulk sample: Structureless CHALK composed of off-white silty subangular to subrounded chalk and flint gravel and cobbles up to 100mm diameter. (ZIG ZAG CHALK FORMATION ?)								6.00	12.43				6.00 - 6.45	SPTLS						SPT(S) 6.00m, N=7 (1,1/2,1,2,2)					
													6.00 - 7.50	B							6.00 7.50	NI	10	0	0
Partial recovery (40%) recovered as a bulk sample: Structureless CHALK composed of greyish white / light greyish brown gravelly sandy SILT. Gravel is angular to rounded, weak, low to medium-density with occasional flint. (ZIG ZAG CHALK FORMATION ?)								7.50	10.93				7.50 - 8.25	B											
													7.50 8.25	NI							40	0	0		
Partial recovery (40%): Structureless CHALK composed of slightly silty, sandy GRAVEL and a cobble of weak, medium to high-density light brown chalk in a grey silt matrix. (ZIG ZAG CHALK FORMATION ?, Grade Dc)								8.25	10.18				8.25 - 9.00	D											
													8.80 - 8.90	D							8.25 9.00	NI	40	0	0
Partial recovery (30%): Structureless CHALK composed of silty very sandy GRAVEL and COBBLES of weak, low to medium-density, off-white chalk with localized red staining (ZIG ZAG CHALK FORMATION ?, Grade Dc).								9.00	9.43				9.00 - 10.00	B						SPT(S) 9.00m, N=10 (2,2/2,3,2,3)					
													9.00 - 9.45	SPTLS							9.00 10.00	NI	30	0	0
								10.00	8.43																
Observations / Remarks										Drilling Fluid					Hammer Information										
1. Groundwater strikes at 0.80m and 2.70m bgl, rising to ground level and 1.34 after 20minutes respectively. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. * Denotes drillers description. ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m) To (m) Return Min % Colour Type					Serial No. Energy Ratio %										
										6.00 15.00 10.00 30.00					73694 65										
										Groundwater					Project Number										
										Strike (m) Casing (m) Sealed (m) Time (min) Rose To (m) Remarks															
										0.80 2.70 - 2 - 20 0.00 1.34					784-B025563										

<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div>Tt</div><div>TETRA TECH</div></div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-PTR-26								
					Easting: 548362.00 Northing: 251273.00 Level: 18.43mAOD Depth: 30.21m Logger: Type: RC Inclination: 90°															
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit	Hand Excavated	Matt and Marcus Bainbridge	1.20	300	22.50	150	08/02	18:00	6.45	-	-	Approved By:	CP					
1.20	6.00								09/02	18:00	14.00	-	-							
6.00	10.00	Dynamic Windowless Sampling	Beretta T41	Matt and Marcus Bainbridge	30.21	150			10/02	18:00	21.00	-	-	Start Date:	08/02/2012					
10.00	15.00	Rotary Core	Beretta T41	Matt and Marcus Bainbridge					11/02	18:15	25.50	-	-			Finish Date:	12/02/2012			
15.00	30.21	Dynamic Windowless Sampling	Beretta T41	Matt and Marcus Bainbridge					12/02	17:00	30.21	-	-							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
Structureless CHALK composed of light brownish grey, gravelly sandy SILT. Gravel is angular to rounded, extremely weak low to medium-density with rare nodular flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm).								12.00	6.43			Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
												10.40 - 10.60	D	10.00 11.00			100	0	0	
...from 11.50m bgl: becoming very weak and low density.								12.00	6.43			10.80 - 11.00	D							
												11.50 - 11.60	D	11.00 12.00			100	0	0	
Structureless CHALK composed of light brownish grey, gravelly, sandy SILT. Gravel is subangular to subrounded, extremely weak to moderately strong, low to medium-density. Rare flint fragments (ZIG ZAG CHALK FORMATION ?, Grade Dm).								13.00	5.43			11.80 - 12.00	D							
												12.00 - 12.45	SPTLS						SPT(S) 12.00m, N=7 (2,1/2,2,1,2)	
Structureless CHALK composed of light brownish grey gravelly silty SAND (possibly oolitic ? **). Sand is fine to coarse. Gravel is angular to subrounded, weak, medium-density. (ZIG ZAG CHALK FORMATION ?, Grade Dm / Dc ?)								14.00	4.43			12.40 - 12.50	D	12.00 13.00		100	0	0		
												12.80 - 13.00	D							
Structureless CHALK composed of greyish white, gravelly, sandy SILT. Gravel is angular to rounded, weak to moderately strong, low to medium-density. (ZIG ZAG CHALK FORMATION ?, Grade Dm).								15.00	3.43			13.40 - 13.50	D	13.00 14.00		100	0	0		
												13.80 - 14.00	D							
No recovery attributable to SPT disturbance.								16.00	2.43			14.40 - 14.50	D	14.00 15.00		100	0	0		
												14.80 - 15.00	D							
Significant drilling disturbance, partial recovery (30%), recovery non-intact with possible matrix blow out: Probably Structureless CHALK recovered as slightly sandy GRAVEL and COBBLES. Clasts are weak, medium-density off-white with some localised light orange staining. (ZIG ZAG CHALK FORMATION ?, ?)								16.50	1.93			15.00 - 15.45	SPTLS					SPT(S) 15.00m, N=13 (2,2/2,3,4,4)		
												15.50 - 15.60	D	15.00 16.00	NR	30	0	0		
Reduced recovery (~80% per run), with possible matrix blow out**: Structureless CHALK composed of slightly silty, sandy, subangular to subrounded GRAVEL and COBBLES. Clasts are off-white with some minor orange staining, weak, medium to high-density chalk and medium flint. Matrix is off-white. (ZIG ZAG CHALK FORMATION ?, Grade Dc)								17.00	1.93			16.00 - 16.45	SPTLS	16.00 16.50	NR	0	0	0	SPT(S) 16.00m, N=20 (3,3/4,4,5,7)	
												17.10 - 17.20	DPLT	16.50 18.00	NI	80	0	0		
...from 18.00 to 18.20m bgl: no recovery (blow out of SPT disturbed chalk).								18.00	1.93			18.00 - 18.45	SPTLS					SPT(S) 18.00m, N=11 (1,2/2,3,3,3)		
												18.00 19.50	NI	86	0	0				
...from 18.20 to 18.40m bgl: recovered as medium chalk gravel (matrix blow out).								19.00	1.93											
...from 19.50 to 19.60m bgl: no recovery (blow out)								20.00	1.93											
...from 19.60 to 20.00m bgl: recovered as medium to coarse chalk gravel (matrix blow out).								20.00	1.93											
Observations / Remarks											Drilling Fluid				Hammer Information					
1. Groundwater strikes at 0.80m and 2.70m bgl, rising to ground level and 1.34 after 20minutes respectively. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. * Denotes drillers description. ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											6.00 15.00	10.00 30.00			Air / Mist Air / Mist	73694	65			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				

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													Sheet 3 of 4											
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time						Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT										
0.00	1.20	Inspection Pit	Hand Excavated	Matt and Marcus Bainbridge	1.20	300	22.50	150	08/02	18:00	6.45	-	-	Approved By: CP										
1.20	6.00	Dynamic Windowless Sampling	Beretta T41	Matt and Marcus Bainbridge	30.21	150			09/02	18:00	14.00	-	-	Start Date: 08/02/2012										
6.00	10.00	Rotary Core	Beretta T41	Matt and Marcus Bainbridge					10/02	18:00	21.00	-	-	Finish Date: 12/02/2012										
10.00	15.00	Dynamic Windowless Sampling	Beretta T41	Matt and Marcus Bainbridge					11/02	18:15	25.50	-	-											
15.00	30.21	Rotary Core	Beretta T41	Matt and Marcus Bainbridge					12/02	17:00	30.21	-	-											
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring												
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results					
Reduced recovery (~80% per run), with possible matrix blow out**: Structureless CHALK composed of slightly silty, sandy, subangular to subrounded GRAVEL and COBBLES. Clasts are off-white with some minor orange staining, weak, medium to high-density chalk and medium flint. Matrix is off-white. (ZIG ZAG CHALK FORMATION ?, Grade Dc)													20.20 - 20.30	DPLT										
														19.50 21.00	NI	86	0	0						
Structureless CHALK composed of slightly sandy, very gravelly SILT. Sand is fine. Gravel is subrounded to subangular, weak to medium strength, low-density chalk with some orange brown staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm with localised horizons / zones of Grade Dc)								21.00	-2.57					21.00 - 21.45	SPTLS							SPT(S) 21.00m, N=22 (1,1/3,5,7,7)	21	
...from 21.00 to 21.25m bgl: significant disturbance attributable to SPT: Recovered as fine gravel (matrix blow out).																								
...from 22.50 to 22.70m bgl: significant drilling disturbance, recovered as fine gravel (matrix blow out).																								
Weak, medium to high-density brown greyish white slightly marly CHALK. No discernible discontinuities (due to marl content / smearing). (ZIG ZAG CHALK FORMATION, ?)								22.90	-4.47															
Significant disturbance attributable to SPT, recovery non-intact: Recovered as brown greyish white, sandy, silty, subangular to subrounded CHALK gravel. Clasts are weak, low to medium-density chalk in a greyish white matrix. (ZIG ZAG CHALK FORMATION, ?)								24.00	-5.57					24.00 - 24.45	SPTLS							SPT(S) 24.00m, 50 (4,5/50 for 195mm)	24	
																					</			

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						Easting: 548362.00 Northing: 251272.00 Level: 18.40mAOD Depth: 2.00m Logger: RT Type: WLS Inclination: 90°						FINAL		BH-PTR-26B		
																Sheet 1 of 1
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT	
0.00	2.00	Dynamic Windowless Sampling	Dando Terrier	Endeavor Drilling	2.00	116			1.00	-	-	0.60	15		Approved By: CP	
															Start Date: 04/06/2021	
															Finish Date: 04/06/2021	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
MADE GROUND: Very stiff (friable) grey brown sandy gravelly silty CLAY with rootlets. Sand is fine to medium. Gravel comprises fine to coarse, sub angular to angular flint. (TOPSOIL) MGR(TS)								0.20	18.20			0.90 - 1.35	UT1	Tests / Results		
MADE GROUND: Firm brown mottled orange brown slightly sandy silty CLAY. Sand is fine to coarse. (TOPSOIL) MGR(TS)								0.90	17.50			0.90 - 1.35	UT1	Ublows=5 Recovery=30%		
...from 0.70m bgl: soft.																
UT100 (limited sample observation) : Dark brown PEAT. (ALLUVIUM) ALV(C)								1.35	17.05			0.90 - 1.35	UT1			
(Cutting Shoe) Plastic pseudo-fibrous dark brown slightly silty PEAT. (ALLUVIUM) ALV(C)																
Very soft (saturated) light grey brown CLAY. (ALLUVIUM) ALV(C)								1.45	16.95			0.90 - 1.35	UT1			
...from 1.70m bgl: becoming slightly sandy and gravelly (fine to medium, rounded to sub angular flint).																
(Loose) grey, mottled light grey slightly silty, slightly sandy, very clayey fine to coarse, rounded to subangular flint GRAVEL. (ALLUVIUM) ALV(G)								1.90	16.50			0.90 - 1.35	UT1			
EOH at 2.00m - Target depth achieved.							2.00	16.40								

<div><div><div><div>Tt</div><div>TETRA TECH</div></div></div><div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div></div>							<div><div>Location Details</div><div><div>Eastings: 548366.00</div><div>Northing: 251244.00</div><div>Level: 18.37mAOD</div><div>Depth: 30.00m</div><div>Logger:</div><div>Type: RC</div><div>Inclination: 90°</div></div></div>					<div><div>Status</div><div>FINAL</div></div>		<div><div>Borehole Number</div><div>BH-PTR-27</div></div>		
												Sheet 1 of 3				
<div><div>Method, Plant and Crew</div><div><div><div>From (m)</div><div>To (m)</div><div>Type</div><div>Plant Used</div><div>Crew</div></div><div><div><div>0.00</div><div>1.20</div><div>Inspection Pit</div><div>Hand digging tools</div><div>Matt Brainbridge, Marcus Bainbridge</div></div><div><div>1.20</div><div>7.50</div><div>Window Sampler</div><div>Beretta T41 Rig No. BBL10</div><div>Matt Brainbridge, Marcus Bainbridge</div></div><div><div>7.50</div><div>30.00</div><div>Rotary Core</div><div>Beretta T41 Rig No. BBL10</div><div>Matt Brainbridge, Marcus Bainbridge</div></div></div></div></div>						<div><div>Diameter</div><div><div>Depth (m)</div><div>Diam (mm)</div></div><div><div>30.00</div><div>150</div></div></div>		<div><div>Casing</div><div><div>Depth(m)</div><div>Diam (mm)</div></div><div><div>30.00</div><div>150</div></div></div>		<div><div>Drilling Progress by Time</div><div><div><div>Date</div><div>Time</div><div>Depth (m)</div><div>Casing (m)</div><div>Water (m)</div></div><div><div><div>18/02</div><div>18:00</div><div>6.45</div><div>-</div><div>-</div></div><div><div>19/02</div><div>16:30</div><div>13.50</div><div>-</div><div>-</div></div><div><div>22/02</div><div>17:30</div><div>21.00</div><div>-</div><div>-</div></div><div><div>23/02</div><div>18:00</div><div>30.00</div><div>-</div><div>-</div></div></div></div></div>					<div><div>Scale: 1:50</div><div>Checked By: RT</div><div>Approved By: CP</div><div>Start Date: 18/02/2021</div><div>Finish Date: 23/02/2021</div></div>	
<div><div>Strata Description</div><div><div>MADE GROUND: Soft brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular, fine to coarse flint. (TOPSOIL) MGR(TS)</div><div>Soft brown, mottled orange, gravelly, very sandy, silty CLAY with abundant shell fragments. Sand is fine to coarse. Gravel is subangular, fine to coarse flint. (ALLUVIUM) ALV(C)</div><div>Soft dark brown, slightly gravelly sandy CLAY with occasional angular cobbles of flint and shell fragments. Sand is fine to coarse. Gravel is subangular, fine to coarse flint. (ALLUVIUM) ALV(C)</div><div>Very soft dark brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular flint and chalk. (ALLUVIUM) *** ALV(C)</div><div>Very soft dark brown/black slightly gravelly slightly organic PEAT. Gravel is angular, fine flint. Slight organic odour. (ALLUVIUM) ALV(C)</div><div>Soft brown mottled dark brown, slightly gravelly, slightly sandy CLAY. Sand is fine to coarse. Gravel is fine, angular flint. (ALLUVIUM) *** ALV(C)</div><div>...from 2.30m bgl: with 'some organic material' **.</div><div>Very soft dark brown/black, slightly gravelly amorphous PEAT. Gravel is angular, fine to medium flint. Slight organic odour. (ALLUVIUM) ALV(C)</div><div>...at 2.70m bgl: gravel becomes coarse angular flint.</div><div>Loose light brownish grey, slightly clayey SAND and GRAVEL with low to medium cobble content. Sand is medium to coarse. Gravel is angular to rounded, fine to coarse, angular flint, sandstone and chalk. Cobbles are angular to subangular flint. (RIVER TERRACE DEPOSITS) RTD</div><div>....between 2.80 and 4.00m bgl: flint gravel becomes angular. ...at 3.90m bgl: angular flint cobble.</div><div>No recovery attributable to SPT disturbance. SPT Liner sample description: Brown mottled grey very sandy clayey GRAVEL. (RIVER TERRACE DEPOSITS)*** RTD</div><div>Loose light greyish brown, clayey, sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint and sandstone. (RIVER TERRACE DEPSOITS) ...at 4.60m bgl: becoming very clayey.</div><div>Loose greyish brown, slightly clayey, SAND and GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint and occasional sandstone. (RIVER TERRACE DEPSOSITS) ...at 5.60m bgl: becoming very clayey.</div><div>Orangish brown, slightly clayey, very gravelly SAND with low cobble content. Sand is medium to coarse. Gravel is angular to subangular, fine to coarse flint. Cobbles are angular to subangular flint. (RIVER TERRACE DEPOSITS) RTD</div><div>UT100 Sample</div><div>Structureless CHALK composed of greyish white, slightly sandy, gravelly SILT (50/60% matrix). Gravel is very weak, low-density white, subangular to subrounded, fine to coarse. Occasional weak subangular cobbles. Cobbles are weak, low-density, subangular greyish white. (ZIG ZAG CHALK FORMATION ?, Grade Dm)</div><div>No recovery attributable to SPT disturbance.</div><div>Structureless CHALK composed of cream white, sandy, gravelly SILT (50/60% matrix). Clasts are very weak, low-density cream/white subangular to subrounded . (ZIG ZAG CHALK FORMATION ?, Grade Dm)</div></div></div>						<div><div>Legend</div><div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></d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						Easting: 548366.00 Northing: 251244.00 Level: 18.37mAOD Depth: 30.00m Logger: Type: RC Inclination: 90°												
												FINAL		BH-PTR-27		Sheet 2 of 3		
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT			
0.00	1.20	Inspection Pit	Hand digging tools	Matt Brainbridge, Marcus Bainbridge	1.20	300	30.00	150	18/02	18:00	6.45	-	-	Approved By: CP	CP			
1.20	7.50	Window Sampler	Beretta T41 Rig No. BBL10	Matt Brainbridge, Marcus Bainbridge	7.50	-			19/02	16:30	13.50	-	-					
7.50	30.00	Rotary Core	Beretta T41 Rig No. BBL10	Matt Brainbridge, Marcus Bainbridge	30.00	200			22/02	17:30	21.00	-	-					
									23/02	18:00	30.00	-	-	Start Date:	18/02/2021			
														Finish Date:	23/02/2021			
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Structureless CHALK composed of cream white, sandy, gravelly SILT (50/60% matrix). Clasts are very weak, low-density cream/white subangular to subrounded . (ZIG ZAG CHALK FORMATION ?, Grade Dm)							10.50	7.87			10.50 - 10.95	SPTLS					SPT(S) 10.50m, N=8 (1,1/2,2,1,3)	
Structureless CHALK composed of cream/white, gravelly, slightly sandy SILT. Gravel is weak, low density, white, subangular to rounded with rare slight brown staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm)											10.55	D						
											10.60 - 10.70	CPLT						
											11.00 - 11.10	PLT						
												D					11	
													10.50		NI	100	0	0
													12.00					
													11.50 - 11.60	D				
													12.00 - 12.10	D				12
													12.50 - 12.60	D				
													12.00		NI	100	0	0
													13.00 - 13.10	D				13
Structureless CHALK composed of off-white/cream, gravelly, sandy SILT. Gravel is weak, low-density, angular to subrounded, white with very occasional light orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm).							13.50	4.87			13.50 - 13.60	D					SPT(S) 13.50m, N=8 (2,2/2,2,2,2)	
											13.50 - 13.95	SPTLS						
													14.00 - 14.10	D				14
													13.50		NI	100	0	0
													14.50 - 14.60	D				
Partial recovery (50%) with significant drilling disturbance, recovery non-intact: Greyish white, slightly sandy, silty, fine to coarse, subangular to rounded CHALK gravel and cobbles. Clasts are very weak to weak, low-density white with matrix blow out. Residual matrix is pale greyish / brown. (ZIG ZAG CHALK FORMATION, ?).							15.00	3.37			15.00 - 15.10	D					15	
											15.00							
No recovery.													15.00		NI	50	0	0
													15.70					
													15.70		NR	0	0	0
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										Sheet 1 of 4							
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time							Scale: 1:50	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT		
0.00	1.20	Inspection Pit	Hand digging tools	Mike Bainbridge and Luke Bainbridge	1.20	300	30.00	150	18/02	18:00	14.50	-	-	Approved By: CP	CP		
1.20	7.00	Dynamic Windowless Sampling	Beretta T46 - Atlas Copco 186	Mike Bainbridge and Luke Bainbridge	7.00	150			19/02	17:00	25.00	-	-				
7.00	30.22	Rotary Core	Beretta T46 - Atlas Copco 186	Mike Bainbridge and Luke Bainbridge.	30.22	200			22/02	18:00	30.22	-	-				
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
						Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results				
MADE GROUND: Soft brown, slightly sandy, silty CLAY with frequent rootlets. Sand is fine to coarse. (TOPSOIL) MGR(TS)						0.40	17.86			0.20	ES						
Soft brown mottled white and orange, slightly gravelly, slightly sandy, silty CLAY with occasional pockets of shell fragments. Sand is fine to coarse. Gravel is subrounded, fine to medium chalk. (ALLUVIUM) ALV(C)						0.90	17.36			0.50	D						
Very soft light grey mottled white, slightly gravelly, slightly sandy silty CLAY with dark amorphous peaty / organic pockets and occasional pockets of shell fragments. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse chalk and flint. (ALLUVIUM) ALV(C)						1.20	17.06			1.00	B			1			
Soft to firm, dark brown, slightly gravelly, slightly sandy organic CLAY becoming brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular. *** (ALLUVIUM) ALV(C)						1.65	16.61			1.20 - 1.65	UT						
Very soft to soft, light to medium brown, slightly sandy, slightly gravelly CLAY with low cobble content. Sand is fine. Gravel is angular to subangular, fine to medium flint and occasional sandstone. (ALLUVIUM) ALV(C)						2.00	16.26			1.65 - 1.70	D						
Grey mottled brown very gravelly, very clayey fine to coarse SAND. Gravel is fine to coarse, angular. *** (RIVER TERRACE DEPOSITS) RTD						2.45	15.81			1.80 - 2.00	D	1.70 2.00	100	0	0		
...at 2.10m bgl: becoming light grey. ...between 2.20 and 2.25m bgl: angular fine to coarse flint gravel band.						3.00	15.26			2.00 - 2.45	UT						
Loose light greyish brown, slightly gravelly, very sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded, fine to medium flint, chalk and occasional sandstone. Cobbles comprise flint. (RIVER TERRACE DEPOSITS) RTD						3.40	14.86			2.40 - 2.50	D						
Soft brown mottled light brown and light grey, slightly sandy, very gravelly CLAY. Sand is medium to coarse. Gravel is angular to subrounded, fine to coarse chalk and flint. (RIVER TERRACE DEPOSITS) RTD						4.00	14.26			2.45 - 2.50	D						
Structureless CHALK composed of light grey, slightly sandy, slightly gravelly SILT (70% matrix). Sand is fine. Gravel is very weak, low-density, cream white, subrounded with occasional black speckles. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						4.50	13.76			2.50 - 3.00	B	2.50 3.00	100	0	0		
Minimal recovery attributable to SPT disturbance: Slightly gravelly clayey SAND (possible gain from 2.45 to 3.00m bgl). Sand is fine to coarse. Gravel is angular to subangular fine to coarse flint.						5.00	13.26			3.00 - 3.10	D						
Structureless CHALK composed of brownish cream, slightly sandy, gravelly SILT. (60% matrix). Sand is fine to medium. Gravel is very weak, low-density, white subrounded. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						5.40	12.86			3.00 - 3.45	SPTLS			SPT(S) 3.00m, N=6 (1,1/1,1,2,2)			
Loose light creamy brown, slightly sandy, silty GRAVEL. Sand is fine to coarse. Gravel is angular to subangular, medium to coarse flint and occasional chalk (ZIG ZAG CHALK FORMATION ?, highly weathered flint rich horizon) ...at 5.25m bgl: becoming very silty.						6.00	12.00			3.00 - 4.45	SPTLS						
Structureless CHALK composed of slightly sandy, gravelly SILT (50% matrix). Sand is fine. Gravel is very weak, low-density white subangular to subrounded chalk and occasional flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						6.50	11.50			4.00 - 4.10	D						
...between 5.55 and 5.60m bgl: medium to coarse sand horizon. ...between 6.50 and 6.55m bgl: orange staining around chalk gravels.						7.00	11.26			4.00 - 4.45	SPTLS			SPT(S) 4.00m, N=4 (1,1/1,1,1,1)			
Structureless CHALK composed of greyish cream white, slightly sandy, gravelly SILT (50% matrix). Sand is fine to medium. Gravel is very weak, low-density cream/white, subangular to subrounded chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						8.00	10.76			4.50 - 4.60	D	4.00 5.00	75	0	0		
...at 4.65m bgl: 30mm thick lense of dark brown peat.						9.00	10.26			5.00 - 5.20	D						
Loose light creamy brown, slightly sandy, silty GRAVEL. Sand is fine to coarse. Gravel is angular to subangular, medium to coarse flint and occasional chalk (ZIG ZAG CHALK FORMATION ?, highly weathered flint rich horizon) ...at 5.25m bgl: becoming very silty.						9.50	9.76			5.00 - 5.45	SPTLS			SPT(S) 5.00m, N=7 (1,1/1,1,2,3)			
Structureless CHALK composed of slightly sandy, gravelly SILT (50% matrix). Sand is fine. Gravel is very weak, low-density white subangular to subrounded chalk and occasional flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						10.00	9.26			5.50 - 5.60	D	5.00 6.00	100	0	0		
...between 6.75 and 6.80m bgl: orange staining around chalk gravels.						11.00	8.76			6.00 - 6.20	D						
Structureless CHALK composed of greyish cream white, slightly sandy, gravelly SILT (50% matrix). Sand is fine to medium. Gravel is very weak, low-density cream/white, subangular to subrounded chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						11.50	8.26			6.00 - 6.45	SPTLS			SPT(S) 6.00m, N=8 (1,1/2,2,2,2)			
...between 8.30 and 8.50m bgl: slight orange staining and sand content increase. ...from 8.50 to 8.70m bgl: core catcher striations noted.						12.00	7.76			6.50 - 6.60	D	6.00 7.00	100	0	0		
Structureless CHALK composed of greyish cream white, slightly sandy, gravelly SILT (50% matrix). Sand is fine to medium. Gravel is very weak, low-density cream/white, subangular to subrounded chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)						13.00	7.26			6.90 - 7.10	D						
...at 9.50m bgl: cobble of weak low-density subangular chalk (50x30x20cm).						13.50	6.76			7.00 - 7.45	SPTLS			SPT(S) 7.00m, N=10 (1,2/2,3,2,3)			
						14.00	6.26			7.50 - 7.60	D	7.00 8.50	NI	100			
						14.50	5.76			8.00 - 8.10	D						
						15.00	5.26			8.50 - 8.60	D						
						15.50	4.76			8.50 - 8.95	SPTLS			SPT(S) 8.50m, N=12 (1,3/3,2,3,4)			
						16.00	4.26			9.00 - 9.10	D	8.50 10.00	NI	100			
						16.50	3.76			9.50 - 9.60	D						
						17.00	3.26			10.00 - 10.50	D						
						17.50	2.76										
						18.00	2.26										
						18.50	1.76										
						19.00	1.26										
						19.50	0.76										
						20.00	0.26										
						20.50	-0.24										
						21.00	-0.74										
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						54.50	-34.24										
						55.00	-34.74										
						55.50	-35.24										
						56.00	-35.74										
						56.50	-36.24										
						57.00	-36.74										
						57.50	-37.24										
						58.00	-37.74										
						58.50	-38.24										
						59.00	-38.74										
						59.50	-39.24										
						60.00	-39.74										
						60.50	-40.24										
						61.00	-40.74										
						61.50	-41.24										
						62.00	-41.74										
						62.50	-42.24										
						63.00	-42.74										
						63.50	-43.24										
						64.00	-43.74										
						64.50	-44.24										
						65.00	-44.74										
						65.50	-45.24										
						66.00	-45.74										
						66.50	-46.24										
						67.00	-46.74										
						67.50	-47.24										
						68.00	-47.74										
						68.50	-48.24										

Project: Cambridge South East Transport – Phase 2										Location Details				Status		Borehole Number					
Location: Cambridge										Easting: 548379.00 Northing: 251247.00				FINAL		BH-PTR-28					
Client: Greater Cambridge Partnership										Level: 18.26mAOD Depth: 30.22m											
										Logger: Type: RC											
										Inclination: 90°											
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00	1.20	Inspection Pit	Hand digging tools	Mike Bainbridge and Luke Bainbridge	1.20	300	30.00	150	18/02	18:00	14.50	-	-	Approved By:	CP						
1.20	7.00	Dynamic Windowless Sampling	Beretta T46 - Atlas Copco 186	Mike Bainbridge and Luke Bainbridge	7.00	150			19/02	17:00	25.00	-	-	Start Date:	18/02/2021						
7.00	30.22	Rotary Core	Beretta T46 - Atlas Copco 186	Mike Bainbridge and Luke Bainbridge.	30.22	200			22/02	18:00	30.22	-	-	Finish Date:	22/02/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
Weak, medium-density greyish white orange stained CHALK with brecciated zones of fine gravel (possibly drilling induced) and slight brown staining and occasional black specks Discontinuity 1) Bedding is 0-10' , close, open infilled (0/1/3), with greyish white comminuted chalk [40/50/100]. Discontinuity 2) joints are 70--90' very close [10/40/>60] infilled (0/1/3) with greyish white comminuted chalk . (ZIG ZAG CHALK FORMATION, Grade B ? 4 ?)								20.50	-2.24			Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
												21.00 - 21.10	DPLT								
Weak, medium to high-density greyish white with slight orange staining CHALK with brecciated zones of fine gravel (possibly drilling induced). Discontinuity 1 and 2). Subhorizontal and subvertical fractures (possibly drilling induced / exaggerated), closely spaced [30/50/90] thin infilled (0/1/1) with greyish white comminuted chalk with slight orange staining and rare black specks. (ZIG ZAG CHALK FORMATION, Grade B ? 4 ?) ...from 20.50 to 20.65m bgl: significant drilling disturbance possibly induced by turning of high-density nodules. Recovered as non-intact medium to coarse gravel with matrix blowout. **								22.00	-3.74					20.50 22.00	214?	93	93	7			
Significant drilling disturbance, recovery non-intact: CHALK recovered as greyish white, subrounded, fine to coarse gravel. Sand is fine with slight matrix blow out. Clasts are very weak, low-density. (ZIG ZAG CHALK FORMATION, ?)								22.40	-4.14					22.00 23.50	NI		93	90	0		
Weak, medium to high-density greyish white slightly orange stained CHALK. Discontinuity 1 and 2) Subhorizontal (5-10) bedding and subvertical (0-80) jointing closely spaced [40/70/50] infilled (0/2/3) with comminuted chalk with slight orange staining and occasional black specks. (ZIG ZAG CHALK FORMATION, Grade B3)								23.50	-5.24					23.50 - 23.80	SPTLS					SPT(S) 23.50m, 50 (2,18/50 for 95mm)	
Moderately weak, high-density greyish white with localised minimal orange staining, marly** CHALK. Discontinuity 1) Possible joints are 70' (obscured by marl smearing**). Discontinuity 2) Bedding is 0-5', close to medium, tight and predominantly clean [50/100/200?]. (ZIG ZAG CHALK FORMATION, high density, Grade A3) ...from 23.50 to 23.65m bgl: significant drilling disturbance possibly induced by tuning of high-density nodules / clasts. Recovered as silty non-intact, medium to coarse gravel. ** ...at 24.70m bgl: slight orange staining.								25.00	-6.74					24.00 - 24.20	CSS						
Moderately weak, high-density greyish white with localised light orange staining CHALK. Slight staining with occasional black specks. Discontinuity 1) Bedding is 0-10' , close to medium, open with infill (0/2/3) of comminuted chalk (mostly blown out**) [30/70/350]. (ZIG ZAG CHALK FORMATION, high density, Grade B2)								25.00	-6.74					24.20 - 24.30	DPLT	23.50 25.00	4	100	93	25	
														26.50 - 26.65	SPTLS						
...at 28.25m bgl: core catcher imprint noted. **								25.00	-6.74					27.00 - 27.30	CSS	26.50 28.00	4	100	93	80	
														27.40 - 27.50	DPLT						
...from 29.80m bgl: becoming light grey *.								25.00	-6.74					28.00		28.50	ND	70	60	40	
														28.50							
								25.00	-6.74					28.50		28.50	4	80	67	53	
														30.00							
								30.00	-11.74					29.60 - 29.80	CSS						
								30.00	-11.74					30.00 - 30.22	DPLT SPTLS						
Observations / Remarks											Drilling Fluid					Hammer Information					
1. Groundwater strike at 0.80m bgl, rising to 0.60m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description. ** Denotes observation from core photo. *** Denotes laboratory description of split UT00 sample. NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)		To (m)		Return Min %	Colour	Type	Serial No.	Energy Ratio %		
											7.00		30.00				Air / Mist	73694	64		
											Groundwater					Project Number					
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563				

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[illegible][illegible]

<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div>Project:</div><div>Location:</div><div>Client:</div></div><div><div>Cambridge South East Transport – Phase 2</div><div>Cambridge</div><div>Greater Cambridge Partnership</div></div></div></div></div>							<div><div>Location Details</div><div><div>Easting: 548383.00</div><div>Northing: 251209.00</div><div>Level: 17.34mAOD</div><div>Depth: 30.50m</div><div>Logger: EH+CE</div><div>Type: RC</div><div>Inclination: 90°</div></div></div>					<div><div>Status</div><div>FINAL</div></div>		<div><div>Borehole Number</div><div>BH-PTR-29</div></div>						
											Sheet 2 of 4									
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT						
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	22/03 23/03	18:00 00:00	8.45 30.50	-	-	Approved By: CP						
														Start Date: 22/03/2021						
														Finish Date: 06/04/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Weak, low to high-density pale grey mottled white CHALK with occasional brown staining and black specks. Discernible structure: Discontinuity 1) Joints are 70 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10', close, planar rough closed and clean. (ZIG ZAG CHALK FORMATION, high density, ?)												10.50 - 10.60	DPLT	9.50 11.00	NI/ND	66	20	0	SPT(S) 11.00m, N=42 (3,5/8,9,12,13)	
Structureless CHALK, possibly intraclastic with matrix blow out, composed of slightly sandy silty, subangular to angular GRAVEL. Clasts are weak, low-density, pale grey with occasional black specks. (ZIG ZAG CHALK FORMATION, ? / or Grade Dc ?)								10.60	6.74			10.90 - 11.00	D	SPTLS	NR	50	33	15		
Weak, low-density pale grey mottled white CHALK with occasional brown staining and black specks. Discernible structure: Discontinuity 1) Joints are 70 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10' close, planar, rough, closed and clean. (ZIG ZAG CHALK FORMATION, ?)								10.80	6.54		11.00 - 11.45									
No recovery attributable to SPT disturbance and blow out.								11.00	6.34											
Significant drilling disturbance, recovery mainly non-intact: Structureless, possibly intraclastic. CHALK with matrix blow out composed of slightly sandy silty, subangular to angular GRAVEL. Clasts are weak, low-density, pale grey with occasional black specks. (ZIG ZAG CHALK FORMATION, ? Grade Dc)								11.60	5.74			12.00 - 12.10	DPLT	11.00 12.50	NI/ND					
Weak, low to medium-density pale grey mottled white CHALK with occasional brown staining and black specks. Discernible structure: Discontinuity 1) Joints are 70 to 90' tight and clean. Discontinuity 2) Bedding is 0 to 10' close, planar rough closed and clean. (ZIG ZAG CHALK FORMATION, A?)								11.80	5.54											
Structureless, possibly intraclastic. CHALK composed of slightly sandy silty, subangular to angular GRAVEL. Clasts are weak, low-density, pale grey with occasional black specks. (ZIG ZAG CHALK FORMATION, ? / or Grade Dc ?)								12.00	5.34											
... from 12.20m bgl: rare inoceramid fossils. ...from 12.20 to 12.50m bgl: drilling induced fractures.								12.50	4.84											
No recovery attributable to blow out.								13.20	4.14											
Significant drilling disturbance, recovery non-intact, possibly intraclastic CHALK composed of slightly sandy silty, subangular to angular GRAVEL. Clasts are weak, low-density, pale grey with occasional black specks. (ZIG ZAG CHALK FORMATION, ? or Grade Dc ?)								13.25	4.09			13.60 - 13.70	DPLT							
Partial recovery (non-intact cobbles): Weak low-density pale grey mottled white CHALK with occasional brown staining and black specks. (ZIG ZAG CHALK FORMATION, ?)								14.00	3.34			14.00 - 14.45	SPTLS							
No recovery attributable to SPT disturbance and blow out.																				
Weak low-density pale grey mottled white CHALK with occasional brown staining and black specks and heavy black speckling along discontinuity planes / ends of intact core section**. (ZIG ZAG CHALK FORMATION, ?3)								14.50	2.84			14.50 - 14.60	DPLT							
Possibly intraclastic. Weak low-density pale grey mottled white CHALK with occasional brown staining and black specks and heavy black speckling along discontinuity planes. (ZIG ZAG CHALK FORMATION)								14.70	2.64					14.00 15.50	66	33	15			
Significant drilling disturbance, recovery mainly non-intact, possibly intraclastic with localised matrix blow out: Weak low-density pale grey mottled white CHALK with occasional brown staining and heavy black speckling on discernible discontinuity planes. (ZIG ZAG CHALK FORMATION, ? or Grade Dc ?)								14.90	2.44											
No recovery attributable to blow out								15.40	1.84			15.40 - 15.50	D							
Significant drilling disturbance. Recovery mainly non-intact, possibly intraclastic with localised matrix blow out: Weak, low-density pale grey mottled white CHALK with occasional brown staining and heavy black speckling on discernible discontinuity planes. (ZIG ZAG CHALK FORMATION, ? or Grade Dc)								15.80	1.54			16.00 - 16.10	DPLT	15.50 17.00	NI	80	25	10		
No recovery attributable to SPT disturbance and blow out.								16.80				16.80 - 16.90	D							
								17.00	0.34			17.00 - 17.45	SPTLS							
Significant drilling disturbance: Recovery mainly non-intact: Weak, medium to high-density, pale grey white CHALK with occasional orange staining and black specks. Rare pyritised trace fossils throughout. Discernible structure: Discontinuity 1) Joints are 60 to 80' , planar smooth, closed and clean. Discontinuity1) Bedding is 0 to 10' , close, planar, rough, closed and clean. (ZIG ZAG CHALK FORMATION, high density, Grade B ? 3 ?)								17.30	0.04			17.60 - 17.70	DPLT	17.00 18.50	NI	80	30	8		
...from 18.10 to 18.50m bgl: significant drilling induced disturbance with fracturing / fragmentation obscuring structure.								18.10				18.10 - 18.50	DPLT							
No recovery attributable to blow out.								18.50	-1.16											
Intact core section: Weak, medium density pale grey white CHALK with occasional orange staining and black specks. Occasional inoceramid fossils throughout. (ZIG ZAG CHALK FORMATION, ?/3)								18.80	-1.46			18.70 - 18.80	DPLT							
Significant disturbance with drilling induced fractures and fragmentation obscuring structure, recovery largely non-intact: Weak, medium density pale grey white CHALK with occasional orange staining and black specks. Occasional inoceramid fossils throughout. (ZIG ZAG CHALK FORMATION, ?)								18.90	-1.56					18.50 20.00	NI	80	8	8		
								20.00	-2.66			20.00 - 20.45	D							
Observations / Remarks											Drilling Fluid					Hammer Information				
1. Groundwater encountered at 1.20, rising to 1.00m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. 3. * Denotes drillers description. 4. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											5.00	30.50			Air / Mist	11609	64			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
																	784-B025563			

<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div>Project:</div><div>Location:</div><div>Client:</div></div><div><div>Cambridge South East Transport – Phase 2</div><div>Cambridge</div><div>Greater Cambridge Partnership</div></div></div></div>		Location Details				Status		Borehole Number											
		Easting: 548383.00 Northing: 251209.00 Level: 17.34mAOD Depth: 30.50m Logger: EH+CE Type: RC Inclination: 90°				FINAL		BH-PTR-29											
								Sheet 3 of 4											
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	22/03 23/03	18:00 00:00	8.45 30.50	- -	-	Approved By:	CP				
														Start Date:	22/03/2021				
														Finish Date:	06/04/2021				
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
No recovery attributable to blow out.																			
Significant drilling induced fractures throughout: Weak, medium-density pale grey white CHALK with occasional orange staining and black specks. Occasional inoceramids throughout. Discernible structure: Discontinuity 1) Joints are 60 to 80' planar, smooth, closed and clean. Discontinuity 1) Bedding is 0 to 10' close, planar, rough, closed and clean [40/50/100]. (ZIG ZAG CHALK FORMATION, (1) Grade A? , (2) Grade A ? 3 ?)							20.30	-2.96			20.50 - 20.60 20.60 - 20.70	DPLT D	20.00 21.50	>14?	75	25	6	21	
...from 21.10 to 21.50m bgl: possible localised intraclatic pockets (resulting in non-intact pockets).**											21.30 - 21.40	DPLT							
No recovery attributable to blow out.							21.50	-4.16											
Weak, medium-density, pale grey and off-white CHALK with heavy black speckling and orange brown staining along discontinuity planes. Occasional pyritised trace fossils and inoceramid fossils throughout. Discontinuity 1) Joints are 50 to 80', planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' close, tight or closed and clean [50/100/400]. (ZIG ZAG CHALK FORMATION, Grade A2)							21.65	-4.31			22.00 - 22.10	DPLT	21.50 23.00	5	90	80	50	22	
											22.80 - 22.90	DPLT							
Weak, medium-density, pale grey and white CHALK with heavy black speckling and orange brown staining along discontinuity plants. Occasional pyritised trace fossils and inoceramid fossils throughout. Discontinuity 1) Joints are 50 to 80', planar smooth closed and clean. Discontinuity 2) Bedding is 0 to 10' , close, tight or closed and clean [40/50/100]. (ZIG ZAG CHALK FORMATION, Grade A3) ...from 23.20 to 23.75m bgl: yellow staining along fracture surfaces. ...from 23.75 to 23.77m bgl: 20mm thick marl seam.							23.00	-5.66			23.00 - 23.45	SPTLS						SPT(S) 23.00m, 45 (7,13/45 for 80mm)	23
											23.30 - 23.40	D	23.00 24.50	15	100	90	33		
											24.30 - 24.40	DPLT						24	
Significant drilling disturbance, recovery non-intact cobbles of core with evidence of turning: Weak, medium-density, pale grey and white CHALK with heavy black speckling and orange brown staining along discernible discontinuity planes. (ZIG ZAG CHALK FORMATION, Grade A ? 3 ?)							24.50	-7.16						ND					
Weak, medium-density, pale grey and white CHALK with heavy black speckling and orange brown staining along discontinuity plants. Occasional pyritised trace fossils and inoceramid fossils throughout. Discontinuity 1) Joints are 50 to 80', planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' , close, tight or closed and clean [50/100/300]. (ZIG ZAG CHALK FORMATION, Grade A3)							25.00	-7.66			25.30 - 25.40	DPLT	24.50 26.00	16	90	80	50	25	
											25.80 - 25.90	DPLT							
No recovery attributable to SPT disturbance and blow out.							26.00	-8.66			26.00 - 26.45	SPTLS			NR			SPT(S) 26.00m, 50 (25 for 79mm/50 for 95mm)	26
Weak, medium-density, buff cream and light grey with grey banding CHALK with occasional orange staining. Rare pyritised trace fossils throughout. Discontinuity 1) Joints are 70 to 90' closed and clean. Discontinuity 1) Bedding is 0 to 10' close, planar, smooth, closed and clean [200/250/400]. (ZIG ZAG CHALK FORMATION / WEST MELBURY MARLY CHALK FORMATION Transition ?, Grade A2)							26.37	-9.03			26.70 - 27.10	CSS	26.00 27.50	6	75	75	70	27	
											27.10 - 27.30	CSS							
											27.30 - 27.40	DPLT							
...from 28.20 to 28.30m bgl: 10mm thick marl seam with intraclastic chalk. **											28.30 - 28.40	DPLT	27.50 29.00	6	100	100	80	28	
Weak, low to high-density, grey marly CHALK with rare inoceramids throughout. Discontinuity 1) Joints are 5 to 20' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' close to medium, planar, smooth, closed and clean [80/90/100]. (ZIG ZAG CHALK FORMATION / WEST MELBURY MARLY CHALK FORMATION Transition ?, high density, Grade A3)							28.90	-11.56			29.00 - 29.45	SPTLS						SPT(S) 29.00m, 50 (25 for 85mm/50 for 90mm)	29
											29.30 - 29.40	DPLT	29.00 30.50	6	80	70	50		
											29.80 - 29.90	D						30	
Observations / Remarks										Drilling Fluid					Hammer Information				
1. Groundwater encountered at 1.20, rising to 1.00m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. 3. * Denotes drillers description. 4. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										5.00	30.50			Air / Mist	11609	64			
										Groundwater					Project Number				
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks														
											784-B025563								

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details					Status		Borehole Number								
							Easting: 548383.00 Northing: 251209.00 Level: 17.34mAOD Depth: 30.50m Logger: EH+CE Type: RC Inclination: 90°					FINAL		BH-PTR-29								
							Sheet 4 of 4															
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT								
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	22/03 23/03	18:00 00:00	8.45 30.50	- -		Approved By: CP								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
<div>Weak, low to high-density, grey marly CHALK with rare inoceramids throughout. Discontinuity 1) Joints are 5 to 20' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' close to medium, planar, smooth, closed and clean [80/90/100]. (ZIG ZAG CHALK FORMATION / WEST MELBURY MARLY CHALK FORMATION Transition ?, high density, Grade A3)</div> <div>EOH at 30.50m - Target depth achieved.</div>								30.50	-13.16													
Observations / Remarks																						
1. Groundwater encountered at 1.20, rising to 1.00m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. 3. * Denotes drillers description. 4. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not Discernible										Drilling Fluid				Hammer Information								
										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %						
										5.00	30.50			Air / Mist	11609	64						
										Groundwater				Project Number								
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563																

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details				Status FINAL		Borehole Number BH-PTR-30							
						Easting: 548395.00 Northing: 251217.00 Level: 17.38mAOD Depth: 30.50m Logger: DC Type: RC Inclination: 90°													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	24/03 25/03	18:00 17:30	20.45 30.50	- -	-	Approved By:	CP				
														Start Date:	24/03/2021				
														Finish Date:	25/03/2021				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Firm dark brown, slightly sandy, slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (TOPSOIL)								0.40	16.98			0.50 0.50	B D						
MADE GROUND: Firm dark grey brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (TOPSOIL)								0.70	16.68			1.00 1.00 1.15 1.20 - 1.65 1.30 - 1.40	B D W SPTLS D					SPT(S) 1.20m, N=9 (1,2/2,2,3,2)	1
Loose light orangish brown, sandy, silty, subangular to subrounded, fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)												1.20 2.00				100	0	0	
Stiff light grey mottled orangish brown, slightly sandy, slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS)								1.74	15.64			1.90 - 2.00 2.00 - 2.45	D SPTLS					SPT(S) 2.00m, N=8 (1,1/2,1,2,3)	2
Laboratory classification of sample from 1.90 to 2.00: confirmed non-plastic soil (Brown sandy silty GRAVEL). Inconsistency between descriptions to be checked.												2.00 3.00				100	0	0	
RTD Possible core gain resulting from collapse from 0.70 to 1.74 into the zone disturbed by the SPT: Recovery of loose orangish brown, slightly clayey, sandy, subangular to subrounded, fine to coarse, flint and chalk GRAVEL.								2.93	14.45			2.93 - 3.00 3.00 - 3.45	D SPTLS					SPT(S) 3.00m, N=7 (1,1/1,2,2,2)	3
Structureless light grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm)												3.40 - 3.50	D	3.00 4.00		100	0	0	
...from 3.30m to 3.63m bgl: with slight orange staining.												3.90 - 4.00 4.00 - 4.45	D SPTLS					SPT(S) 4.00m, N=9 (1,2/2,2,2,3)	4
...from 3.75m to 3.82m bgl: liesegang banding.												4.50 - 4.60	D	4.00 5.00		100	0	0	
...from 3.82m to 4.00m bgl: with slight orange staining.												5.00 - 5.45 5.10 - 5.20	SPTLS D					SPT(S) 5.00m, N=11 (1,3/2,3,3,3)	5
...from 4.64m bgl: with slight orange staining and black speckling of gravel faces.												5.90 - 6.00	D	5.00 6.50	NI	100	0	0	
												7.20 - 7.30	D	6.50 8.00	NI	90	0	0	
...at 7.72m bgl: liesegang banding.												7.80 - 7.90	D						
												8.00 - 8.45 8.10 - 8.20	SPTLS D					SPT(S) 8.00m, N=14 (1,3/3,3,4,4)	8
...at 8.64m bgl: slight orange staining.												9.00 - 9.10	D	8.00 9.50	NI	78	0	0	
...at 8.88m bgl: slight orange staining.																			
...at 9.10m bgl: slight orange staining.																			
...from 9.50 to 9.63m bgl: slight orange staining.												9.70 - 9.80	D						
																			10
Observations / Remarks											Drilling Fluid				Hammer Information				
1. Groundwater encountered at 1.15, rising to 1.00m bgl (20 minutes). 4. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 22.00m bgl. 3. * Denotes drillers description. 4. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
											5.00	30.50			Air / Mist	73694	65		
											Groundwater					Project Number			
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks			
											1.15	-	3	20	1.00		784-B025563		

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div><div>Location Details</div><div>Eastings: 548395.00 Northings: 251217.00</div><div>Level: 17.38mAOD Depth: 30.50m</div><div>Logger: DC Type: RC</div><div>Inclination: 90°</div></div> <div><div>Status</div><div>FINAL</div></div> <div><div>Borehole Number</div><div>BH-PTR-30</div></div> <tr><td colspan="10">Sheet 2 of 4</td></tr> <tr><td colspan="6">Method, Plant and Crew</td><td colspan="2">Diameter</td><td colspan="2">Casing</td><td colspan="6">Drilling Progress by Time</td><td colspan="2">Scale: 1:50</td></tr> <tr><td>From (m)</td><td>To (m)</td><td>Type</td><td>Plant Used</td><td>Crew</td><td>Depth (m)</td><td>Diam (mm)</td><td>Depth(m)</td><td>Diam (mm)</td><td>Date</td><td>Time</td><td>Depth (m)</td><td>Casing (m)</td><td>Water (m)</td><td>Checked By:</td><td>RT</td></tr> <tr><td>0.00 1.20 5.00</td><td>1.20 5.00 30.50</td><td>Inspection Pit Dynamic Windowless Sampling Rotary Core</td><td>Hand Excavated Beretta T46 Atlas 186</td><td>M. Bainbridge M. Bainbridge M. Bainbridge</td><td>1.20 5.00 30.50</td><td>300 - -</td><td>4.50</td><td>200</td><td>24/03 25/03</td><td>18:00 17:30</td><td>20.45 30.50</td><td>- -</td><td>-</td><td>Approved By:</td><td>CP</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Start Date:</td><td>24/03/2021</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Finish Date:</td><td>25/03/2021</td></tr> <tr><td colspan="6">Strata Description</td><td></td><td>Legend</td><td>Depth (m)</td><td>Reduced Level (mAOD)</td><td>Water Level (m)</td><td>Inst / Backfill</td><td colspan="5">Samples, Tests and Rotary Coring</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Depth (m)</td><td>Ref</td><td>Core Run</td><td>FI</td><td>TCR</td><td>SCR</td><td>RQD</td><td>Tests / Results</td></tr> <tr><td colspan="6">Structureless light grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...from 10.05 to 10.32m bgl: with chalk cobbles ...at 10.60m bgl: chalk cobble.</td><td></td><td></td><td></td><td></td><td></td><td></td><td>10.20 - 10.30</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9.50 11.00</td><td></td><td>NI</td><td>100</td><td>0</td><td>0</td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>11.00 - 11.45</td><td>SPTLS</td><td></td><td></td><td></td><td></td><td></td><td>SPT(S) 11.00m, N=18 (1,2/2,4,5,7)</td><td>11</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>11.30 - 11.40</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>11.00 12.50</td><td></td><td>NI</td><td>100</td><td>0</td><td>0</td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>11.90 - 12.00</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td>12</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>12.40 - 12.50</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">...at 12.40m bgl: dark orange brown 'powdery iron oxide mineralisation'</td><td></td><td></td><td>12.50</td><td>4.88</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">No recovery attributable to blow out.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">Structureless light grey CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dc) ...from 12.80 to 12.90m bgl: with moderate orange staining. ...from 13.13 to 13.38m bgl: with light orange staining. ...from 13.46 to 13.62m bgl: with moderate orange staining. ...from 13.84 to 14.00m bgl: with light orange staining.</td><td></td><td></td><td>12.80</td><td>4.58</td><td></td><td></td><td>12.90 - 13.00</td><td>D</td><td></td><td></td><td>NR</td><td></td><td></td><td></td><td></td><td>13</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>12.50 14.00</td><td></td><td></td><td></td><td>80</td><td>0</td><td>0</td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>13.90 - 14.00</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>14.00 - 14.45</td><td>SPTLS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>14.10 - 14.20</td><td>DPLT</td><td></td><td>NR/NI</td><td></td><td></td><td></td><td></td><td>SPT(S) 14.00m, N=36 (1,0/4,8,10,14)</td><td>14</td></tr> <tr><td colspan="6">Partial recovery, non-intact attributable to SPT disturbance and blow out: Weak, medium-density CHALK gravel.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">Very weak to weak, low to medium-density grey CHALK with orange staining and rare black zoophycos streaks. 50 to 100mm thick zones of brecciated (Grade Dc) following fractures, possibly drill induced / exaggerated. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION ?, Grade Dc and B3 ?)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>14.00 15.50</td><td></td><td></td><td></td><td></td><td>80</td><td>30</td><td>0</td><td></td></tr> <tr><td colspan="6">Non-intact with matrix blow out: Weak, medium-density CHALK gravel.</td><td></td><td></td><td></td><td></td><td></td><td></td><td>14.90 - 15.00</td><td>DPLT</td><td></td><td></td><td>NI</td><td></td><td></td><td></td><td></td><td>15</td></tr> <tr><td colspan="6">Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Some localised brecciation, possibly drilling induced or exaggerated. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts (breccia) and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade C ? 3) ...from 16.57 to 16.78m bgl: with fine to medium, subangular chalk intraclasts.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">No recovery attributable to SPT disturbance and blow out occurring through run with associated compression.</td><td></td><td></td><td></td><td></td><td></td><td></td><td>15.80 - 15.90</td><td>DPLT</td><td></td><td></td><td>NI</td><td></td><td></td><td></td><td></td><td>16</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>16.10 - 16.20</td><td>DPLT</td><td></td><td></td><td></td><td></td><td>92</td><td>28</td><td>0</td><td></td></tr> <tr><td colspan="6">Very weak to weak, low to medium-density grey CHALK with orange staining, brachiopods, bivalves and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 17.35m to 17.40m bgl: grey mottled orange plastic marl seam with pyrite forming in relict burrows. ...from 17.40m bgl: multiple pale grey and dark grey relict trace fossils.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>17.00 - 17.45</td><td>SPTLS</td><td></td><td></td><td>NR</td><td></td><td></td><td></td><td></td><td>SPT(S) 17.00m, 50 (3,8/50 for 200mm)</td><td>17</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>17.40 - 17.50</td><td>DPLT</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 18.24m to 18.30m bgl orange staining.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>17.00 18.50</td><td></td><td></td><td></td><td>7</td><td></td><td>80</td><td>34</td><td>10</td><td></td></tr> <tr><td colspan="6">No recovery attributable to drilling disturbance and blow out occurring through run with associated compression.</td><td></td><td></td><td></td><td></td><td></td><td></td><td>18.00 - 18.10</td><td>DPLT</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>18</td></tr> <tr><td colspan="6">Very weak to weak, low to medium-density grey CHALK with orange staining and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade B3) ...at 18.90m bgl: Mantelliceras mantelli fossil (ammonite).</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>18.50</td><td>EW14</td><td></td><td></td><td>NR</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>18.65</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6">Significant drilling disturbance, recovery mainly non-intact: Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating to planar, polished, partly open to open, with orange staining and clay smears. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, with orangish brown staining [70/90/180]. (ZIG ZAG CHALK FORMATION, Grade B ? 3 ?) ...at 19.05m bgl: orange stained sponge bed. ...at 19.70m bgl: frequent shell fragments.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>18.90 - 19.00</td><td>DPLT</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>19</td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>18.50 20.00</td><td></td><td></td><td></td><td>NI/ >13?</td><td></td><td>80</td><td>30</td><td>12</td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>19.70 - 19.80</td><td>DPLT</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="6"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>20.00 - 20.45</td><td>DPLT</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>20</td></tr> <tr><td colspan="10">Observations / Remarks</td><td colspan="5">Drilling Fluid</td><td colspan="5">Hammer Information</td></tr> <tr><td colspan="10">1. Groundwater encountered at 1.15, rising to 1.00m bgl (20 minutes).</td><td>From (m)</td><td>To (m)</td><td>Return Min %</td><td>Colour</td><td>Type</td><td>Serial No.</td><td>Energy Ratio %</td></tr> <tr><td colspan="10">4. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 22.00m bgl.</td><td>5.00</td><td>30.50</td><td></td><td></td><td>Air / Mist</td><td>73694</td><td>65</td></tr> <tr><td colspan="10">3. * Denotes drillers description.</td><td colspan="5">Groundwater</td><td colspan="5">Project Number</td></tr> <tr><td colspan="10">4. ** Denotes observation from core photo.</td><td>Strike (m)</td><td>Casing (m)</td><td>Sealed (m)</td><td>Time (min)</td><td>Rose To (m)</td><td>Remarks</td><td></td></tr> <tr><td colspan="10">NR - No Recovery</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="10">NI - Non-intact</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="10">ND - Not Discernible</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="10"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td 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Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	24/03 25/03	18:00 17:30	20.45 30.50	- -	-	Approved By:	CP															Start Date:	24/03/2021															Finish Date:	25/03/2021	Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring																	Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	Structureless light grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...from 10.05 to 10.32m bgl: with chalk cobbles ...at 10.60m bgl: chalk cobble.												10.20 - 10.30	D																					9.50 11.00		NI	100	0	0														11.00 - 11.45	SPTLS						SPT(S) 11.00m, N=18 (1,2/2,4,5,7)	11													11.30 - 11.40	D																					11.00 12.50		NI	100	0	0															11.90 - 12.00	D							12													12.40 - 12.50	D								...at 12.40m bgl: dark orange brown 'powdery iron oxide mineralisation'								12.50	4.88												No recovery attributable to blow out.																					Structureless light grey CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dc) ...from 12.80 to 12.90m bgl: with moderate orange staining. ...from 13.13 to 13.38m bgl: with light orange staining. ...from 13.46 to 13.62m bgl: with moderate orange staining. ...from 13.84 to 14.00m bgl: with light orange staining.								12.80	4.58			12.90 - 13.00	D			NR					13														12.50 14.00				80	0	0														13.90 - 14.00	D																				14.00 - 14.45	SPTLS																				14.10 - 14.20	DPLT		NR/NI					SPT(S) 14.00m, N=36 (1,0/4,8,10,14)	14	Partial recovery, non-intact attributable to SPT disturbance and blow out: Weak, medium-density CHALK gravel.																					Very weak to weak, low to medium-density grey CHALK with orange staining and rare black zoophycos streaks. 50 to 100mm thick zones of brecciated (Grade Dc) following fractures, possibly drill induced / exaggerated. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION ?, Grade Dc and B3 ?)																																	14.00 15.50					80	30	0		Non-intact with matrix blow out: Weak, medium-density CHALK gravel.												14.90 - 15.00	DPLT			NI					15	Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Some localised brecciation, possibly drilling induced or exaggerated. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts (breccia) and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade C ? 3) ...from 16.57 to 16.78m bgl: with fine to medium, subangular chalk intraclasts.																						No recovery attributable to SPT disturbance and blow out occurring through run with associated compression.												15.80 - 15.90	DPLT			NI					16													16.10 - 16.20	DPLT					92	28	0		Very weak to weak, low to medium-density grey CHALK with orange staining, brachiopods, bivalves and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 17.35m to 17.40m bgl: grey mottled orange plastic marl seam with pyrite forming in relict burrows. ...from 17.40m bgl: multiple pale grey and dark grey relict trace fossils.																																		17.00 - 17.45	SPTLS			NR					SPT(S) 17.00m, 50 (3,8/50 for 200mm)	17													17.40 - 17.50	DPLT									Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 18.24m to 18.30m bgl orange staining.																																		17.00 18.50				7		80	34	10		No recovery attributable to drilling disturbance and blow out occurring through run with associated compression.												18.00 - 18.10	DPLT								18	Very weak to weak, low to medium-density grey CHALK with orange staining and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, partly open to open, infilled with chalk clasts and black staining. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, infilled with chalk clasts and black staining [60/90/200]. (ZIG ZAG CHALK FORMATION, Grade B3) ...at 18.90m bgl: Mantelliceras mantelli fossil (ammonite).																																		18.50	EW14			NR																		18.65										Significant drilling disturbance, recovery mainly non-intact: Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating to planar, polished, partly open to open, with orange staining and clay smears. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, with orangish brown staining [70/90/180]. (ZIG ZAG CHALK FORMATION, Grade B ? 3 ?) ...at 19.05m bgl: orange stained sponge bed. ...at 19.70m bgl: frequent shell fragments.																																		18.90 - 19.00	DPLT								19													18.50 20.00				NI/ >13?		80	30	12														19.70 - 19.80	DPLT																					20.00 - 20.45	DPLT								20	Observations / Remarks										Drilling Fluid					Hammer Information					1. Groundwater encountered at 1.15, rising to 1.00m bgl (20 minutes).										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %	4. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 22.00m bgl.										5.00	30.50			Air / Mist	73694	65	3. * Denotes drillers description.										Groundwater					Project Number					4. ** Denotes observation from core photo.										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks		NR - No Recovery																	NI - Non-intact																	ND - Not Discernible																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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(ZIG ZAG CHALK FORMATION, Grade B ? 3 ?) from 20.00 to 20.30m bgl: non-intact with matrix blow out: Very weak to weak, low to medium-density CHALK gravel. ...at 20.48m bgl: orange stained sponge bed. ...from 20.50m to 20.67m bgl: orange stained liesegang banding. ...from 20.85m to 20.93m bgl: plastic marl seams.</td><td rowspan="2"></td><td rowspan="2">21.50</td><td rowspan="2">-4.12</td><td rowspan="2"></td><td rowspan="2"></td><td>20.30 - 20.40</td><td>DPLT</td><td rowspan="2">20.00 21.50</td><td rowspan="2">NI</td><td rowspan="2">80</td><td rowspan="2">18</td><td rowspan="2">0</td><td rowspan="2">SPT(S) 20.00m, 50 (25 for 105mm/50 for 100mm)</td></tr> <tr><td>21.20 - 21.30</td><td>DPLT</td></tr> <tr><td colspan="7">Non-intact with matrix blow out: Very weak to weak, low to medium-density CHALK gravel.</td><td></td><td>21.80</td><td>-4.42</td><td></td><td></td><td>21.80 - 21.90</td><td>DPLT</td><td rowspan="2">21.50 23.00</td><td rowspan="2">NI</td><td rowspan="2">95</td><td rowspan="2">25</td><td rowspan="2">17</td><td rowspan="2"></td></tr> <tr><td colspan="7">Significant drilling disturbance, recovery mainly non-intact: Very weak to weak, low to medium-density grey CHALK with orange staining and rare black zoophycos streaks. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' , very close to close, undulating, smooth, closed and clean (20/50/130). (ZIG ZAG CHALK FORMATION, Grade A ? 4?). ...at 22.38m bgl: grey plastic marl seam. ...from 22.38m to 22.52m bgl: multiple marl seams.</td><td></td><td>22.50</td><td>-5.12</td><td></td><td></td><td></td><td>ND</td></tr> <tr><td colspan="7">Very weak to weak, low to medium-density grey CHALK with orange staining and rare black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' , undulating, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' , close, undulating smooth closed and clean (100/120/150). (ZIG ZAG CHALK FORMATION, Grade A3). Partial recovery attributable to SPT disturbance and blow out, recovery non-intact cobbles: Very weak to weak, medium density grey CHALK.</td><td></td><td>23.00</td><td>-5.62</td><td></td><td></td><td>23.00 - 23.45</td><td>SPTLS</td><td rowspan="2">23.00 24.50</td><td rowspan="2">NR/NI</td><td rowspan="2">62</td><td rowspan="2">32</td><td rowspan="2">20</td><td rowspan="2">SPT(S) 23.00m, 50 (25 for 56mm/50 for 10mm)</td></tr> <tr><td colspan="7">Very weak to weak, low to medium density grey CHALK with frequent pyrite tubes and relict trace burrows and orange staining. Discontinuity 1) Joints are 70 to 90' , undulating to planar, rough, closed and clean with occasional black staining. Discontinuity 2) Bedding is 0 to 10' , undulating to planar, rough, closed, clean with occasional black staining [70/130/430]. 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Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	24/03 25/03	18:00 17:30	20.45 30.50	- -	-	Start Date: 24/03/2021	Finish Date: 25/03/2021	Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring				Significant drilling disturbance, recovery mainly non-intact: Very weak to weak, low to medium-density, grey CHALK with orange staining and rare black zoophycos streaks. Discernible structure: Discontinuity 1) Joints are 70 to 80' , undulating to planar, polished, partly open to open, with orange staining and clay smears. Discontinuity 2) Bedding is 0 to 10' , close, undulating, smooth, partly open to open, with orangish brown staining [70/90/180]. 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<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-PTR-30						
					Eastings: 548395.00 Northing: 251217.00 Level: 17.38mAOD Depth: 30.50m Logger: DC Type: RC Inclination: 90°													
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT			
0.00 1.20 5.00	1.20 5.00 30.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas 186	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 5.00 30.50	300 - -	4.50	200	24/03 25/03	18:00 17:30	20.45 30.50	- -	-	Approved By:	CP			
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						Start Date:	24/03/2021	
										Depth (m)	Ref	Core Run	FI	TCR	SCR			RQD
Very weak, low to high-density, dark grey marly CHALK. Discontinuity 1) Joints are 70 to 90' , undulating, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, undulating, smooth, closed and clean [60/120/380]. (ZIG ZAG CHALK FORMATION, high density, Grade A3)						30.50	-13.12			30.30 - 30.40 30.30 - 30.40	D PLT DPLT							
EOH at 30.50m - Target depth achieved.																		

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					<div>Location Details</div> <div>Eastings: 548402.00 Northing: 251183.00</div> <div>Level: 17.20mAOD Depth: 30.00m</div> <div>Logger: CE Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-31</div>									
										Sheet 1 of 3											
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00 1.20 6.00	1.20 6.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas T46	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 6.00 30.00	300 - -	9.00	200	30/03 31/03	18:30 19:00	21.00 30.00	- -	-	Approved By:	CP						
															Start Date:	30/03/2021					
															Finish Date:	31/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Soft brown, slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (TOPSOIL)								0.35	16.85			0.25 0.25	B D								
MGR(TS)												0.50 0.50 0.50	B D ES1								
MADE GROUND: Soft orangish brown CLAY. (TOPSOIL)								0.65	16.55			1.00 1.00 1.00	B B D								
MGR(TS)												1.10 1.20 - 1.30 1.20 - 1.65	B D D SPTLS								
Soft to firm dark brown, slightly gravelly very sandy CLAY. Gravel is subangular to rounded, fine to coarse flint. (ALLUVIUM)																					
ALV(C)												1.20 2.00			100	0	0	SPT(S) 1.20m, N=5 (1,2/1,1,1,2)			
...from 1.60m bgl: becoming orangish grey and gravelly.								1.80	15.40			1.80 - 1.90	D								
Loose orangish brown, silty, clayey, fine to coarse SAND. (ALLUVIUM)								2.00	15.20			2.00 - 2.45	SPTLS						SPT(S) 2.00m, N=7 (1,0/1,2,2,2)		
ALV(C)																					
Partial recovery (40%) of loose orangish brown, very sandy, clayey, subangular to subrounded, fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)												2.50 - 2.60	D	2.00 3.00		40	0	0			
																					
No recovery attributable to SPT disturbance.								3.00	14.20			2.90 - 3.00 3.00 - 3.45	D SPTLS								
Medium dense grey brown, slightly sandy, angular to subrounded, fine to coarse flint GRAVEL. Sand is fine to coarse. ** (RIVER TERRACE DEPOSITS)								3.10	14.10			3.20 - 3.30 3.30 - 3.40	D D							SPT(S) 3.00m, N=12 (2,3/4,3,2,3)	
Medium dense orangish brown, silty very sandy subangular to subrounded, fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)								3.40	13.80			3.80 - 3.90	D	3.00 4.00		90	0	0			
												4.00 - 4.45 4.10 - 4.20 4.20 - 4.30	SPTLS D D							SPT(S) 4.00m, N=11 (2,3/3,2,2,4)	
												4.80 - 4.90	D	4.00 5.00		100	0	0			
Structureless light grey CHALK with yellow staining composed of gravelly SILT. Gravel is subangular to subrounded fine to coarse very weak low density. (ZIG ZAG CHALK FOMRATION ?, Grade Dm)								4.95	12.25			5.00 - 5.45	SPTLS							SPT(S) 5.00m, N=10 (2,2/2,2,3,3)	
No recovery attributable to SPT disturbance.								5.00	12.20			5.30 - 5.40	D	5.00 6.00		70	0	0			
Structureless light grey with yellow staining CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, very weak low-density. Matrix is light grey with orangish brown staining (ZIG ZAG CHALK FORMATION ?, Grade Dc)								5.40	11.80			5.90 - 6.00 6.00 - 6.45	D SPTLS							SPT(S) 6.00m, N=8 (2,1/2,2,2,2)	
No recovery attributable to SPT disturbance.								6.00	11.20							NR					
												6.80 - 6.90	D	6.00 7.50		50	0	0			
Partial recovery (50%) of structureless light grey CHALK with yellow staining composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse very weak low-density. Matrix is light grey with orangish brown staining (ZIG ZAG CHALK FORMATION ?, Grade Dc)								6.75	10.45			7.40 - 7.50	D			NI					
																					
Structureless light grey with yellow staining CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, very weak low-density. Matrix is light grey with orangish brown staining (ZIG ZAG CHALK FORMATION ?, Grade Dc)								7.50	9.70			8.00 8.00 - 8.10	EW11 D	7.50 9.00		NI	100	0	0		
												8.50 - 8.60	D								
												8.90 - 9.00 9.00 - 9.45	D25 SPTLS								SPT(S) 9.00m, N=14 (2,3/3,3,4,4)
												9.20 - 9.30	D27								
												9.70 - 9.80	D28	9.00 10.50		NI	100	0	0		
																					
																					
																					
Observations / Remarks										Drilling Fluid					Hammer Information						
1. Groundwater encountered at 1.10m bgl.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
2. Upon completion exploratory hole installed with 50mm groundwater monitoring pipe to 11.00m bgl.										6.00	30.00			Air / Mist	73694	65					
**Observation from DS / Core run photography.										Groundwater					Project Number						
NR - No Recovery										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						
NI - Non-intact										1.10	-	-	20	1.10		784-B025563					
ND - Not Discernible																					

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="5"><div>Location Details</div><div>Eastings: 548402.00Northings: 251183.00</div><div>Level: 17.20mAODDepth: 30.00m</div><div>Logger: CEType: RC</div><div>Inclination: 90°</div></td> <td colspan="2"><div>Status</div><div>FINAL</div></td> <td colspan="2"><div>Borehole Number</div><div>BH-PTR-31</div></td>										<div>Location Details</div> <div>Eastings: 548402.00Northings: 251183.00</div> <div>Level: 17.20mAODDepth: 30.00m</div> <div>Logger: CEType: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-31</div>			
										Sheet 2 of 3										
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 6.00	1.20 6.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas T46	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 6.00 30.00	300 - -	9.00	200	30/03 31/03	18:30 19:00	21.00 30.00	- -	-	Approved By:	CP					
														Start Date:	30/03/2021					
														Finish Date:	31/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Structureless light grey with yellow staining CHALK composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, very weak low-density. Matrix is light grey with orangish brown staining (ZIG ZAG CHALK FORMATION ?, Grade Dc)												10.30 - 10.40	D29							
												11.00 - 11.10	D30	10.50 12.00	NI	100	0	0		11
												11.60 - 11.70	D31							
No recovery attributable to SPT disturbance and blow out.								12.00	5.20			12.00 - 12.45	SPTLS		NR				SPT(S) 12.00m, N=50 (3.9/50 for 229mm)	12
Partial recovery (50%), significant drilling induced fractures: Very weak to weak, low to very high-density grey CHALK with orangish brown staining and black specks. (ZIG ZAG CHALK FORMATION, low to very high-density, Possibly Grade B3 ? **) ...from 12.90m to 13.20m bgl: drilling induced disturbance, recovered as non-intact fine to coarse, angular grey chalk**.								12.75	4.45			12.80 - 12.90	DPLT	12.00 13.50		50	6	0		13
Partial recovery, non-intact with matrix blow out: Very weak to weak, low-density grey CHALK. (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)								13.50	3.70			13.40 - 13.50	DPLT		NR					
Significant drilling disturbance, possibly intraclastic with drill induced brecciation **, recovery generally non-intact: Fine to coarse, very weak to weak, low-density grey CHALK gravel with orangish brown staining and black specks. (ZIG ZAG CHALK FORMATION, Grade Dc or possibly Grade B ? 5 ? **)								13.80	3.40			13.90 - 14.00	DPLT	13.50 15.00	NI	90	69	0		14
												14.70 - 14.80	DPLT							
Partial recovery attributable to SPT disturbance, non-intact with matrix blow out: Very weak to weak, low-density grey CHALK. (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)								15.00	2.20			15.00 - 15.45	SPTLS		NR				SPT(S) 15.00m, 50 (25 for 100mm/50 for 95mm)	15
Significant drilling disturbance, possibly intraclastic with matrix blow out **, recovery is generally non-intact: Fine to coarse, very weak to weak, low density grey CHALK gravel with orangish brown staining and black specks. (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)								15.40	1.80			15.20 - 15.30	DPLT							
												15.60 - 15.70	DPLT	15.00 16.50	NI	90	0	0		16
Significant drilling disturbance, recovery non-intact: Weak, low to medium-density light grey CHALK including coarse gravel size core fragments. (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)								16.50	0.70			16.40 - 16.50	DPLT							
Drilling disturbance with possible matrix blow out: Weak, low to medium-density light grey CHALK with black specks and rare orangish brown staining. Possibly intraclastic with localised minor matrix blow out ** (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)								16.90	0.30			16.70 - 16.80	DPLT		NI					17
Weak, low to medium-density light grey CHALK with black specks and rare orangish brown staining. Discontinuity 1) Joints are 80 to 90 °, closed, planar, smooth. Discontinuity 2) Bedding is 0 to 10' close, undulating, smooth, tight and clean [60/100/110]. (ZIG ZAG CHALK FORMATION, Grade B3)								17.50	-0.30			16.50 18.00				80	20	0		
No recovery - possible drop out.								17.80	-0.60			17.70 - 17.80	DPLT		ND/10?					
Significant drilling induced disturbance, recovery generally non-intact: Fine to coarse, weak, low to medium-density, light grey CHALK gravel with black specks and rare orange brown staining. Possibly intraclastic with localised matrix blow out **. (ZIG ZAG CHALK FORMATION, Unable to grade due to drilling disturbance, probably structured ?)								18.00	-0.80			18.00 - 18.45	SPTLS		NR				SPT(S) 18.00m, 50 (25 for 55mm/50 for 60mm)	18
												18.30 - 18.40	DPLT							
												18.80 - 18.90	D	18.00 19.50	NI	95	0	0		19
Weak, low to medium-density, light grey CHALK with black specks and rare orange brown staining. Discontinuity 1) Joints randomly orientated, open with moderately wide apertures - possibly from blowout of matrix / breccia.** Discontinuity 2) Bedding is 0 to 10 °, close, undulating, smooth, open to wide with breccia infill (possibly formed from drill disturbed intraclastic zones with matrix blow out **), and clean [60/100/110]. (ZIG ZAG CHALK FORMATION, Probably Grade C3 ?)								19.60	-2.40			19.40 - 19.50	D							
												19.70 - 19.80	DPLT						20	
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater encountered at 1.10m bgl. 2. Upon completion exploratory hole installed with 50mm groundwater monitoring pipe to 11.00m bgl. **Observation from DS / Core run photography. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										6.00	30.00			Air / Mist	73694	65				
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
																784-B025563				

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div colspan="4">Location Details</div> <div colspan="2">Status</div> <div colspan="2">Borehole Number</div>																				
						Eastings: 548402.00 Northings: 251183.00				FINAL		BH-PTR-31								
						Level: 17.20mAOD Depth: 30.00m				Inclination: 90°		Sheet 3 of 3								
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 6.00	1.20 6.00 30.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T46 Atlas T46	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 6.00 30.00	300 - -	9.00	200	30/03 31/03	18:30 19:00	21.00 30.00	- -	-	Approved By:	CP					
														Start Date:	30/03/2021					
														Finish Date:	31/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Weak, low to medium-density, light grey CHALK with black specks and rare orange brown staining. Discontinuity 1) Joints randomly orientated, open with moderately wide apertures - possibly from blowout of matrix / breccia.** Discontinuity 2) Bedding is 0 to 10 ', close, undulating, smooth, open to wide with breccia infill (possibly formed from drill disturbed intraclastic zones with matrix blow out **), and clean [60/100/110]. (ZIG ZAG CHALK FORMATION, Probably Grade C3 ?) ...from 20.00 to 20.08m bgl; sponge bed.												20.20 - 20.30	DPLT	19.50 21.00	12?	90	25	10		
No recovery attributable to SPT disturbance and blow out.								21.00	-3.80			21.00 - 21.45	SPTLS		NR				SPT(S) 21.00m, 50 (25 for 80mm/50 for 85mm)	21
Weak, low to medium-density light grey CHALK with black specks and rare orange brown staining. (ZIG ZAG CHALK FORMATION, Unable to grade due to core length, probably structured ?) Significant drilling disturbance, recovery non-intact: Weak, low to high-density light grey, fine to coarse CHALK gravel with black specks and rare orange brown staining. Possibly breccia infill or intraclastic chalk with matric blow out **. (ZIG ZAG CHALK FORMATION, low to high-density, Unable to grade due to drilling disturbance, probably structured ?) ...from 21.50 to 22.50m bgl: rare pyritised trace fossils.								21.30	-4.10			21.50 - 21.60	DPLT	21.00 22.50		66	5	0		22
Weak, low to medium-density light grey CHALK with black specks and rare orange brown staining. Discontinuity 1) Joints randomly orientated, open with moderately wide apertures - possibly from blowout of matrix / breccia**. Discontinuity 2) Bedding is 0 to 10 ', close, undulating, smooth, open to occasionally wide with breccia infill (possibly intraclastic with matrix blow out **), and clean [60/100/110]. (ZIG ZAG CHALK FORMATION, Probably Grade C3 ?) ...from 23.74 to 23.79m bgl sponge bed.								21.50	-4.30			22.10 - 22.20	D		NI					
								22.50	-5.30			22.90 - 30.00	DPLT	22.50 24.00	12?	90	10	0		23
												23.50 - 23.60	DPLT							
Weak, medium-density, light grey CHALK with black specks and orangish brown staining with occasional inoceramids and pyritised trace fossils throughout. Discontinuity 1) Joints are 60 to 80', tight, clean and planar. Discontinuity 2) Bedding is 0 to 10 ', close, undulating, smooth, tight and clean [60/100/210]. (ZIG ZAG CHALK FORMATION, Grade B3) ...from 24.00 to 24.10m bgl: SPT induced disturbance, recovered as intact fine to coarse, angular grey chalk**.								24.00	-6.80			24.00 - 24.45	SPTLS						SPT(S) 24.00m, 50 (25 for 70mm/50 for 35mm)	24
												24.20 - 24.30	D							
												24.80 - 24.90	D	24.00 25.50	8	100	40	32		25
												25.40 - 25.50	D							
												26.00 - 26.10	DPLT	25.50 27.00	8	100	90	50		26
												26.60 - 26.70	DPLT							
...from 27.00 to 27.10m bgl: SPT induced disturbance, recovered as non-intact coarse, angular grey chalk**.												27.00 - 27.45 27.10 - 27.20	SPTLS DPLT		NI			SPT(S) 27.00m, 50 (25 for 70mm/50 for 40mm)	27	
												27.60 - 27.70	DPLT	27.00 28.50	8	90	70	30		28
												28.20 - 28.30	DPLT							
												28.80 - 28.90	DPLT						29	
												29.40 - 29.50	DPLT	28.50 30.00	9	100	90	70		
																			30	
EOH at 30.00m - Target depth achieved.								30.00	-12.80											
Observations / Remarks											Drilling Fluid					Hammer Information				
1. Groundwater encountered at 1.10m bgl. 2. Upon completion exploratory hole installed with 50mm groundwater monitoring pipe to 11.00m bgl. **Observation from DS / Core run photography. NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											6.00	30.00			Air / Mist	73694	65			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
																	784-B025563			

Project: Cambridge South East Transport – Phase 2										Location Details				Status		Borehole Number					
Location: Cambridge										Easting: 548414.00 Northing: 251187.00				FINAL		BH-PTR-32					
Client: Greater Cambridge Partnership										Level: 17.27mAOD Depth: 30.16m											
										Logger: CE				Type: RC							
										Inclination: 90°											
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	6.00	200	26/03	16:30	21.50	-	-	Approved By:	CP						
1.20	5.00	Dynamic Windowless Sampling	Beretta T46	M. Bainbridge	5.00	-			29/03	18:00	30.16	-	-	Start Date:	26/03/2021						
5.00	30.16	Rotary Core	Atlas 186	M. Bainbridge	30.16	-								Finish Date:	29/03/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Firm dark brown, slightly sandy CLAY with abundant rootlets. Sand is fine to coarse. (TOPSOIL)								0.40	16.87				0.25 D 0.25 D 0.50 B 0.50 B								
MGR(TS)																					
MADE GROUND: Firm orangish brown, sandy CLAY. Sand is fine to coarse. (TOPSOIL)								0.75	16.52												
MGR(TS)																					
Soft greyish brown, slightly gravelly, sandy CLAY with frequent fragments of decaying plant material. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (ALLUVIUM)								1.20	16.07				1.00 D 1.00 D 1.20 - 1.65 UT 1.30 - 1.40 D						1		
ALV(C)																					
Lateral gain of material in core recovery. UT100 Description: Firm dark brown, slightly sandy, organic CLAY with pockets of spongey, dark brown mottled black, pseudo-fibrous to fibrous PEAT with a slight organic odour and frequent fragments of decaying plant material. (ALLUVIUM)								1.65	15.62				1.65 - 1.70 D 1.80 - 1.90 D 1.90 W 2.00 - 2.45 SPTLS		1.70 2.00		150	0	0	SPT(S) 2.00m, N=11 (2,3/2,3,3)	2
ALV(C)																					
Dark grey mottled black black, clayey, fine to coarse organic SAND with frequent shell fragments. Slight organic odour. (ALLUVIUM)								1.90	15.37												
ALV(C)																					
Firm dark brown mottled black, pseudo-fibrous PEAT. (ALLUVIUM)								2.00	15.27												
ALV(C)																					
Partial recovery (attributable to SPT disturbance and possibly drilling induced lateral compression): Medium dense yellowish brown, gravelly, medium to coarse SAND. Gravel is angular to subrounded, fine to coarse flint. (RIVER TERRACE DEPOSITS)								3.00	14.27				2.80 - 2.90 D 3.00 - 3.45 D 3.00 - 3.45 SPTLS							SPT(S) 3.00m, N=15 (1,2/4,3,4,4)	3
RTD																					
Medium dense yellowish brown, gravelly, clayey medium to coarse SAND. Gravel is angular to subrounded, fine to coarse flint. (RIVER TERRACE DEPOSITS)								3.50	13.77				3.60 - 3.70 D 3.90 - 4.00 D 4.00 - 4.45 SPTLS		3.00 4.00		100	0	0		
RTD																					
...from 3.40m bgl: becoming clayey.								4.00	13.27												
...from 3.30 to 3.40mbgl: layer of subangular to angular coarse flint gravel. **																					
Stiff white and yellowish brown, slightly sandy, slightly gravelly, silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (Highly weathered ZIG ZAG CHALK FORMATION ?, Grade Dm)																					
Structureless CHALK composed of pale grey and white, slightly gravelly, sandy SILT. Gravel is very weak, low-density pale grey and white chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)																					
...from 4.00 to 4.30m bgl: light orangish brown.																					
																</					

		Project: Cambridge South East Transport – Phase 2		Location Details				Status		Borehole Number										
		Location: Cambridge		Easting: 548414.00 Northing: 251187.00																
		Client: Greater Cambridge Partnership		Level: 17.27mAOD Depth: 30.16m				FINAL		BH-PTR-32										
				Logger: CE Type: RC																
						Inclination: 90°														
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time				Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	6.00	200	26/03	16:30	21.50	-	-	Approved By:	CP					
1.20	5.00	Dynamic Windowless Sampling Rotary Core	Beretta T46 Atlas 186	M. Bainbridge	5.00	-			29/03	18:00	30.16			Start Date:	26/03/2021					
5.00	30.16				30.16	-								Finish Date:	29/03/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
													Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Significant drilling disturbance, recovery non-intact: Structureless very silty, pale grey with black specs and occasional orange brown staining CHALK composed of weak, low to medium-density non-intact CHALK gravel. Possible structure obscured by fragmentation possibly includes very closely to closely spaced bedding. (ZIG ZAG CHALK FORMATION, ? or Grade Dc)													10.70 - 10.80	D	9.50 11.00	NI	100	0	0	
...from 10.90 to 12.50m bgl: with core catcher striations **													11.00 - 11.45	SPTLS						SPT(S) 11.00m, N=20 (2,4/4,4,6,6)
													11.40 - 11.50	D	11.00 12.50	NI	100	0	0	
...from 12.00 to 12.50m bgl: core catcher striations**.													12.30 - 12.40	D						
No recovery attributable to blow out with possible compression / dislocation of sample below from matrix blow out. **								12.50	4.77							NR				
Weak, low to medium-density, light grey CHALK with black specks and rare orange brown staining. Discernible structure: Discontinuity 1) Bedding (single plane), 10', clean, open (with possible blow out of infill**). (ZIG ZAG CHALK FORMATION, Probably Grade C ? 3 ?)								13.00	4.27				13.00 - 13.10	D	12.50 14.00	ND	66	0	0	
Significant drilling disturbance, recovery non-intact: Weak, low to medium-density, light grey, fine to coarse CHALK gravel with black specks and rare orange brown staining. Possibly intraclastic with matrix blow out ** (ZIG ZAG CHALK FORMATION, ?)								13.30	3.97							NI				
No recovery attributable to SPT disturbance and blow out, with possible associated core compression below.								14.00	3.27				14.00 - 14.45	SPTLS		NR				SPT(S) 14.00m, 50 (25 for 135mm/50 for 150mm)
Weak, low to medium-density, pale grey CHALK with occasional orange brown staining black specks and wispy griottes throughout. Locally brecciated (possibly drill induced or exaggerated, or intraclastic with matrix blow out. **) Discernible structure: Discontinuity 1) Joints are probably 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is probably 0 to10' , close, planar, rough, closed and clean [60 ? / 70 ? / 100 ?]. (ZIG ZAG CHALK FORMATION, Probably Grade B ? 3 ?)								14.15	3.12				14.20 - 14.30	D						
													14.40 - 14.50	DPLT						
													14.80 - 14.90	DPLT	14.00 15.50	8?	86	20	20	
No recovery attributable to blow out.								15.50	1.77				15.30 - 15.40	D						
Significant drilling induced disturbance throughout, recovery generally non-intact: Weak, low to medium-density, pale grey CHALK with occasional orange brown staining black specks and wispy griottes throughout. Brecciated (possibly drilling induced or drilling exaggerated or intraclastic with matrix blow out **). No discernible structure. (ZIG ZAG CHALK FORMATION, ?)								15.70	1.57				16.10 - 16.20	DPLT	15.50 17.00	NI	80	28	0	
...from 15.70 to 15.80m bgl: core catcher striations noted. **													16.80 - 16.90	DPLT						
No recovery attributable to SPT disturbance and blow out.								17.00	0.27				17.00 - 17.45	SPTLS		NR				SPT(S) 17.00m, 50 (25 for 90mm/50 for 152mm)
Weak, low to medium-density pale grey CHALK with occasional orange brown staining black specks, wispy griottes and inoceramids throughout. Discontinuity 1) Joints are 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to10' , close, open with brecciated infill, planar rough closed and clean [60 ? / 70 ? / ?]. (ZIG ZAG CHALK FORMATION, Probably Grade C ? 3 ?)								17.30	-0.03				17.50 - 17.60	DPLT	17.00 18.50	NI/10?	75	40	16	
...from 17.40 to 17.80m bgl yellow discolouration.								17.65	-0.38											
Drilling disturbance: Weak, low to medium-density, pale grey CHALK with occasional orange brown staining black specks, wispy griottes and inoceramids throughout. Local brecciated pockets (possibly drilling induced or drilling exaggerated through intraclastic zones **). Discernible structure: Discontinuity 1) Joints are 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to10' close, planar rough closed and clean [60/70/200]. (ZIG ZAG CHALK FORMATION, Probably Grade C ? 3 ?)								18.50	-1.23				18.80 - 18.90	DPLT						
Drilling disturbance: Weak, medium-density, pale grey CHALK with orange brown staining, black specks, rare pyritised trace fossils and occasional inoceramids throughout. Local brecciated pockets (possibly drilling induced or drilling exaggerated over intraclastic zones **). Discernible structure: Discontinuity 1) Joints are 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to10' close, planar, smooth, closed and clean. [60 ? / 70 ? / 150 ?]. Heavy black staining along joint planes. (ZIG ZAG CHALK FORMATION, Probably Grade B ? 3 ?)													19.50 - 19.60	DPLT	18.50 20.00	NI	95	20	6	
								20.00	-2.73				20.00 - 20.45	SPTLS						
Observations / Remarks											Drilling Fluid					Hammer Information				
1. Groundwater encountered at 1.90m bgl. 2. Upon completion exploratory hole backfilled with bentonite. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
											5.00	30.50			Air / Mist	73694	65			
											Groundwater					Project Number				
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
											784-B025563									

Project: Cambridge South East Transport – Phase 2										Easting: 548414.00 Northing: 251187.00				Status		Borehole Number			
Location: Cambridge										Level: 17.27mAOD Depth: 30.16m									
Client: Greater Cambridge Partnership										Logger: CE Type: RC				FINAL		BH-PTR-32			
										Inclination: 90°									
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time					Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	6.00	200	26/03	16:30	21.50	-	-	Approved By:	CP				
1.20	5.00	Dynamic Windowless Sampling	Bereetta T46	M. Bainbridge	5.00	-			29/03	18:00	30.16	-	-	Start Date:	26/03/2021				
5.00	30.16	Rotary Core	Atlas 186	M. Bainbridge	30.16	-								Finish Date:	29/03/2021				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Weak, medium-density, pale grey CHALK with black specks frequent wispy griottes, inoceramid fragments and rare pyritized fossils. Significant local drilling induced disturbance / fractures and breccia (possibly idrilling nduced or exaggerated, with matrix blow out within intraclastic zones **). Discernible structure: Discontinuity 1) Joints are 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, planar, smooth, closed and clean (60 ? / 150 ? / 210 ?). (ZIG ZAG CHALK FORMATION, medium density, Grade A ? 3 ?)												20.30 - 20.40	DPLT						SPT(S) 20.00m, 50 (25 for 130mm/50 for 120mm)
...from 20.75 to 20.78m bgl: sponge bed.																			
...from 21.35 to 21.39m bgl: sponge beds.												21.00 - 21.10	DPLT	20.00 21.50	NI/8?	100	35	12	21
Partial recovery attributable to drilling disturbance and blow out, non-intact: Weak, medium-density, pale grey coarse CHALK gravel with black specks.								21.50	-4.23										
Weak, medium-density, pale grey CHALK with black specks frequent wispy griottes, inoceramid fragments and rare pyritized fossils. Significant local drilling induced disturbance / fractures and breccia (possibly drilling induced or exaggerated, with matrix blow out within intraclastic zones **). Discernible structure: Discontinuity 1) Joints are 60 to 80' planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' close to medium, planar, smooth, closed and clean (60 ? / 150 ? / 210 ?). (ZIG ZAG CHALK FORMATION, Grade A ? 3 ?)								21.85	-4.58			22.10 - 22.20	D	21.50 23.00	NI/8?	90	33	0	22
...from 22.00 to 22.10m bgl sponge bed.												22.80 - 22.90	DPLT						
...from 22.25 to 22.40m bgl: brecciated horizon of fine to medium CHALK gravel - possibly drilling / turning induced. **								23.00	-5.73			23.00 - 23.45	SPTLS						SPT(S) 23.00m, 50 (25 for 80mm/50 for 100mm)
No recovery attributable to SPT disturbance and blow out with possible associated compression below.								23.20	-5.93						NR				23
Weak, medium to high-density, pale grey CHALK with black specks frequent wispy griottes, inoceramid fragments and rare pyritized fossils. Some local drilling induced disturbance / fractures and breccia (possibly drilling induced or exaggerated, with minor matrix blow out **). Discontinuity 1) Joints are 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' close to medium, planar, smooth, closed and clean (60 ? / 150 ? / 210 ?). (ZIG ZAG CHALK FORMATION, high density, Probably Grade A ? 3 ?)												23.50 - 23.70	DPLT	23.00 24.50	NI/8?	80	35	25	24
...from 23.2 to 23.25m bgl: core catcher striations. **												24.10 - 24.20	DPLT						
...from 24.00 to 24.08m bgl sponge beds.												24.30 - 24.50	CSS						
...from 24.50 to 24.70m bgl: partially recovery - possible matrix / breccia blow out. **												24.90 - 25.00	DPLT	24.50 26.00	NI/11?	90	20	0	25
												25.60 - 25.70	DPLT						
No recovery attributable to SPT disturbance and blow out.								26.00	-8.73			26.00 - 26.45	SPTLS			NR			SPT(S) 26.00m, 50 (25 for 80mm/50 for 95mm)
Weak, high-density, pale grey CHALK with black specks and frequent wispy griottes, inoceramid fragments and rare pyritized fossils. Discontinuity 1) Joints are 60 to 80' , planar, smooth, closed and clean. Discontinuity 2) Bedding is 0 to 10' , close to medium, planar, smooth, closed and clean [60/150/250]. (ZIG ZAG CHALK FORMATION, high density, Grade A3)								26.10	-8.83			26.30 - 26.40	DPLT						
...from 26.30m to 27.50m bgl: bedding becomes close to medium (100/180/350).												26.80 - 27.10	CSS	26.00 27.50	6	80	70	25	27
...from 27.00 to 27.06m bgl: sponge bed.												27.60 - 27.70	DPLT						
																			28
...from 28.50 to 28.52m bgl sponge bed.												28.40 - 28.50	DPLT	27.50 29.00	6	100	80	50	
...from 28.95 to 28.98m bgl sponge bed.												29.00 - 29.45	SPTLS						SPT(S) 29.00m, 50 (25 for 77mm/50 for 85mm)
												29.30 - 29.40	DPLT	29.00 30.50	6	100	90	77	29
								30.00	-12.73										30
Observations / Remarks										Drilling Fluid					Hammer Information				
1. Groundwater encountered at 1.90m bgl. 2. Upon completion exploratory hole backfilled with bentonite. ** Denotes observation from core photo. NR - No Recovery NI - Non-intact ND - Not Discernible										From (m) To (m) Return Min % Colour Type					Serial No. Energy Ratio %				
										5.00 30.50					73694 65				
										Groundwater					Project Number				
										Strike (m) Casing (m) Sealed (m) Time (min) Rose To (m) Remarks									
															784-B025563				

[illegible]

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status FINAL		Borehole Number		
						Easting: 548415.20 Northing: 251187.00 Level: 17.25mAOD Depth: 1.70m Logger: JD Type: WLS Inclination: 90°								BH-PTR-32A		
												Sheet 1 of 1				
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT	
0.00 1.20	1.20 1.70	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Window Sampler	Dynamic sampling Dynamic sampling	1.20 1.70	300 200			0.90	-	-	0.90	15		Approved By: CP	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing			Finish Date: 14/05/2021	
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Soft dark brown, very silty, slightly sandy, slightly gravelly, CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (TOPSOIL) MGR(TS)								1.00 1.20	16.25 16.05			1.20 - 1.70	UT-NR1			
Soft dark brown, slightly silty, slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to angular, fine to coarse flint. (ALLUVIUM) ALV(C) UT100 Sample.																
Cutting shoe sample description: Soft dark brown, slightly silty, slightly sandy, slightly gravelly, peaty CLAY. Sand is fine to coarse. Gravel is subangular to angular, fine to coarse flint. (ALLUVIUM) ALV(C) EOH at 1.70m - Target depth achieved																
													</			

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status FINAL		Borehole Number		
						Easting: 548414.00 Northing: 251185.50 Level: 17.27mAOD Depth: 1.75m Logger: RT Type: WLS Inclination: 90°								BH-PTR-32B		
																Sheet 1 of 1
Method, Plant and Crew					Diameter		Casing			Groundwater					Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks		Checked By: RT
0.00	1.75	Dynamic Windowless Sampling	Dando Terrier	Endeavor Drilling	1.75	116			1.20	-	-	1.00	5			Approved By: CP
																Start Date: 04/06/2021
																Finish Date: 04/06/2021
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Very stiff (friable), off-white SILT. (DRILLING ARISINGS) MGR(C) Firm grey brown, slightly gravelly, silty CLAY. Gravel comprises fine, subangular to angular flint. (ALLUVIUM) ALV(C)								0.05	17.22							
Plastic, soft to firm, dark brown, silty, clayey, amorphous PEAT with complete snail shells up to 10mm dia. (ALLUVIUM) ALV(C)								0.95	16.32							
UT100 Sample description: Dark brown slightly sandy PEAT. (ALLUVIUM) ALV(C)								1.20	16.07			1.20 - 1.65 1.20 - 1.65	UT UT1	Ublows=25 Recovery=100%		
Cutting Shoe sample description: Grey medium SAND. (ALLUVIUM) ALV(C)								1.65	15.62							
EOH at 1.75m - Target depth achieved.								1.75	15.52							

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>										Location Details <div>Easting: 548412.00 Northing: 251165.00</div> <div>Level: 17.47mAOD Depth: 30.00m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>					Status <div>FINAL</div>		Borehole Number <div>BH-PTR-33</div>			
										Sheet 1 of 3										
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP					
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	7.50	200	01/03	18:00	6.45	-	-	Start Date: 01/03/2021	Finish Date: 05/03/2021					
1.20	7.50	Dynamic Windowless Sampling Rotary Core	Beretta T41	M. Bainbridge	7.50	200			02/03	18:00	15.00	-	-							
7.50	30.00		Beretta T41	M. Bainbridge	30.00	-			03/03	18:00	21.00	-	-							
									04/03	18:00	27.00	-	-							
									05/03	17:30	30.00	-	-							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Soft to firm, dark brown, slightly gravelly, sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse flint. (TOPSOIL).								0.40	17.07				0.10	ES1						
MGR(TS)								0.80	16.67				0.20	ES2						
Loose * orange brown and pale grey, slightly silty, gravelly, fine to coarse SAND. Gravel is subangular flint. (ALLUVIUM)								1.00	16.47				0.50	ES3						
ALV(C)								1.10	16.37				0.50 - 0.60	D						
Loose * yellow brown mottled pale grey, slightly gravelly, very silty, fine SAND. Gravel is subangular to subrounded, fine to coarse flint. (ALLUVIUM)													1.00	ES4						
ALV(C)													1.00 - 1.10	B						
Description updated from laboratory PSD (different from inspection pit log): Brown slightly gravelly very sandy CLAY. (ALLUVIUM)													1.00 - 1.10	D						SPT(S) 1.20m, N=6 (1,2/1,2,3,2,1)
ALV(C)													1.20			0	0	0		
No recovery.								2.00	15.47				2.00							
Soft greenish orangish brown sandy, slightly gravelly CLAY. Sand is fine to medium. Gravel is fine, subangular flint. With pockets of very gravelly slightly clayey fine to medium SAND (recovered in SPT Liner). (ALLUVIUM)													2.00 - 2.10	D						SPT(S) 2.00m, N=10 (2,2/2,3,3,2)
ALV(C)													2.00 - 2.45	SPTLS						
Loose orangish brown, clayey, sandy, fine to coarse, angular to subrounded flint and chalk GRAVEL. Sand is fine to medium. (RIVER TERRACE DEPOSITS)								2.60	14.87				2.75	EW1			100	0	0	
RTD								3.00	14.47				3.00	EW12						
Zone of core loss attributable to SPT disturbance.								3.20	14.27				3.00 - 3.10	D						
SPT Liner PSD grading: Loose brown, slightly sandy, slightly silty GRAVEL. (RIVER TERRACE DEPOSITS)													3.00 - 3.45	SPTLS						SPT(S) 3.00m, N=9 (1,2/2,2,2,3)
RTD													3.20 - 3.30	D						
Loose brown, medium to coarse, subangular flint GRAVEL. (RIVER TERRACE DEPOSITS)								3.67	13.80				3.00				100	0	0	
RTD								3.82	13.65				4.00							
Loose greenish orangish brown, clayey, fine to medium, subangular to subrounded flint and chalk GRAVEL. (RIVER TERRACE DEPOSITS)								4.00	13.47				4.00							
Loose orangish brown, sandy, medium to coarse, subrounded to rounded flint and chalk GRAVEL. Sand is medium to coarse. (RIVER TERRACE DEPOSITS)								4.28	13.19				4.00 - 4.45	SPTLS						SPT(S) 4.00m, N=6 (2,2/2,1,1,2)
RTD													4.30 - 4.40	D						
Nodular rinded flint cobble fragmented by drilling / SPT (possible gain from above) **: Loose orange brown very sandy angular to subrounded, fine to coarse rinded flint GRAVEL Sand is fine to coarse. (RIVER TERRACE DEPOSITS)													4.00			100	0	0		
RTD								5.00	12.47				5.00							
Structureless CHALK composed of (firm) light greyish brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded, fine to coarse chalk and flint. (ZIG ZAG CHALK FORMATION ?, RIVER TERRACE DEPOSITS Transition, Grade Dm)								5.20	12.27				5.00 - 5.45	SPTLS						
RTD													5.00				100	0	0	
No recovery attributable to SPT disturbance.								5.71	11.76				5.80 - 5.90	D						
Structureless CHALK composed of (firm) light greyish brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded, fine to coarse chalk and flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								6.00	11.47				6.00 - 6.45	SPTLS						
Structureless CHALK composed of (loose) light orangish grey, slightly sandy, clayey, angular to subangular, medium to coarse GRAVEL of chalk and flint. Sand is fine. (ZIG ZAG CHALK FORMATION ?, Grade Dc)													6.10 - 6.20	D						SPT(S) 5.00m, N=8 (2,2/2,2,2,2)
Structureless light grey CHALK composed of SILT. (ZIG ZAG CHALK FORMATION ?, Grade Dm)													6.00							
Structureless light grey CHALK composed of SILT. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								7.00	10.47				7.00 - 7.10	D			100	0	0	
Split liner, partial recovery of Structureless light grey CHALK composed of SILT. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								7.60	9.87				7.50 - 7.95	SPTLS						
...from 7.70 to 7.90m bgl: orange horizon **													7.70 - 7.80	D						SPT(S) 7.50m, N=6 (1,1/2,1,1,2)
No recovery.								9.00	8.47				7.50			NI	43	0	0	
													9.00							
Significant drilling disturbance, recovery largely non-intact: Very weak, low to medium-density, light grey fine to coarse subangular CHALK gravel. (ZIG ZAG CHALK FORMATION ?, Grade Dc / Possibly with drill disturbed structured horizons)								9.50	7.97				9.00				NR			
													10.50				63	14	0	
													9.90 - 10.00	DPLT						
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater strikes at 1.20m bgl, rising to 0.86m bgl (20 minutes), and at 18.00m bgl (observed from flush returns). Bubbling of flush at ground level in surrounding area noted.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
2. Upon completion exploratory hole installed with 2 x 63mm groundwater monitoring pipes to 28.50m and 4.50m bgl.										7.50	30.00			Air / Mist	DART449	64				
* Denotes drillers description.										Groundwater					Project Number					
** Denotes observation from core photograph										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
NR - No Recovery										1.20	-	-	20	0.86		784-B025563				
NI - Non-intact																				
ND - Not Discernible																				

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												Sheet 2 of 3								
<div>Method, Plant and Crew</div>						<div>Diameter</div>		<div>Casing</div>		<div>Drilling Progress by Time</div>						<div>Scale: 1:50</div>				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT						
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	7.50	200	01/03	18:00	6.45	-	-	Approved By: CP						
1.20	7.50	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	7.50	200			02/03	18:00	15.00	-	-	Start Date: 01/03/2021						
7.50	30.00	Rotary Core	Beretta T41	M. Bainbridge	30.00	-			03/03	18:00	21.00	-	-	Finish Date: 05/03/2021						
									04/03	18:00	27.00	-	-							
									05/03	17:30	30.00	-	-							
<div>Strata Description</div>						<div>Legend</div>	<div>Depth (m)</div>	<div>Reduced Level (mAOD)</div>	<div>Water Level (m)</div>	<div>Inst / Backfill</div>	<div>Samples, Tests and Rotary Coring</div>									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
Significant drilling disturbance, recovery largely non-intact: Very weak, low to medium-density, light grey fine to coarse subangular CHALK gravel. (ZIG ZAG CHALK FORMATION ?, Grade Dc / Possibly with drill disturbed structured horizons)							10.50	6.97			10.40 - 10.50	D		NI				SPT(S) 10.50m, N=4 (0,1/1,1,1,1)	11	
Minimal recovery disturbed by drilling / SPT, recovery non-intact: Very weak, low to medium-density, light grey fine to coarse subangular CHALK non-intact gravel. (ZIG ZAG CHALK FORMATION ?, likely to be Grade Dm with significant blow out or possible voiding)											10.50 - 10.95	SPTLS								
											10.50		NR/NI	14	0	0				
											11.90 - 12.00	DPLT								
No recovery attributable to drill disturbance and blow out - possible compression below.							12.00	5.47											12	
Partial recovery and disturbed by drilling: Structured light grey CHALK with localised brownish grey staining, recovered with 50 to 100mm bands / pockets of Structureless CHALK composed of light grey silty very weak, low density, fine to coarse angular to subangular gravel. (ZIG ZAG CHALK FORMATION ?, Grade Dc)							12.50	4.97			12.60 - 12.70	D	12.00		59	0	0		13	
											12.00		NI							
Significant drilling disturbance, recovery non-intact: Structured light grey, very weak, high-density CHALK with localised brownish grey staining recovered with 50 to 100mm bands / pockets of Structureless CHALK composed of light grey silty very weak, low-density, fine to coarse angular to subangular gravel. (ZIG ZAG CHALK FORMATION ?, high-density, Grade Dc / ?)							13.50	3.97			13.40 - 13.50	D						SPT(S) 13.50m, N=11 (2,3/3,2,2,4)	14	
...13.50 to 14.00m bgl: possible matrix blow out (recovery is non-intact medium gravel)**.											13.50 - 13.95	D								
...between 14.08 and 14.21m bgl: marl bands.											13.70 - 13.80									
											13.50		NI	93	14	0				
											14.70 - 14.80	DPLT								
Significant drilling disturbance: Very weak, low to medium-density light grey CHALK with occasional trace fossils and orange staining with regular 50 to 100mm bands / pockets of Structureless marly CHALK composed of light grey silty very weak, low-density, fine to coarse angular to subangular gravel. (ZIG ZAG CHALK FORMATION, Grade Dc interbedded with structured chalk ?)							15.00	2.47			15.30 - 15.40	D	15.00		NI	100	0	0		15
...from 15.00 to 15.50m bgl: possible matrix blow out (recovery is non-intact coarse gravel)**.											15.00		NI							
											16.20 - 16.30	D							16	
...from 16.50 to 17.00m bgl: possible matrix blow out (recovery is non-intact medium gravel)**.											16.50 - 16.95	SPTLS						SPT(S) 16.50m, N=33 (4,4/6,7,9,11)	17	
											16.50		NI	80	7	7				
											17.80 - 17.90	DPLT							18	
...at 19.30m bgl: brachiopod shell fragments.											18.70 - 18.80	D	18.00		NI	83	12	12		19
...from 19.50 to 19.95m bgl: possible matrix blow out (recovery is non-intact fine to coarse gravel)**.											19.50 - 19.95	SPTLS						SPT(S) 19.50m, N=43 (7,7/9,9,10,15)	20	
...from 19.50 to 20.00m bgl: recovered as non-intact fine to coarse, subangular chalk gravel (attributable to SPT disturbance).																				
Observations / Remarks										<div>Drilling Fluid</div>						<div>Hammer Information</div>				
1. Groundwater strikes at 1.20m bgl, rising to 0.86m bgl (20 minutes), and at 18.00m bgl (observed from flush returns). Bubbling of flush at ground level in surrounding area noted.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
2. Upon completion exploratory hole installed with 2 x 63mm groundwater monitoring pipes to 28.50m and 4.50m bgl.										7.50	30.00			Air / Mist	DART449	64				
* Denotes drillers description.										<div>Groundwater</div>						<div>Project Number</div>				
** Denotes observation from core photograph										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563				
NR - No Recovery										18.00	-	-	20	18.00						
NI - Non-intact																				
ND - Not Discernible																				

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												<div>Sheet 3 of 3</div>																	
<div>Method, Plant and Crew</div>						<div>Diameter</div>		<div>Casing</div>		<div>Drilling Progress by Time</div>						<div>Scale: 1:50</div>													
<div>From (m)</div>		<div>To (m)</div>		<div>Type</div>		<div>Plant Used</div>		<div>Crew</div>		<div>Depth (m)</div>		<div>Diam (mm)</div>		<div>Depth(m)</div>		<div>Diam (mm)</div>		<div>Date</div>		<div>Time</div>		<div>Depth (m)</div>		<div>Casing (m)</div>		<div>Water (m)</div>		<div>Checked By: RT</div>	
0.00		1.20		Inspection Pit		Hand Excavated		M. Bainbridge		1.20		300		7.50		200		01/03		18:00		6.45		-		-		-	
1.20		7.50		Dynamic Windowless Sampling		Beretta T41		M. Bainbridge		7.50		200						02/03		18:00		15.00		-		-		CP	
7.50		30.00		Rotary Core		Beretta T41		M. Bainbridge		30.00		-						03/03		18:00		21.00		-		-		Approved By:	
																		04/03		18:00		27.00		-		-		Start Date: 01/03/2021	
																		05/03		17:30		30.00		-		-		Finish Date: 05/03/2021	
<div>Strata Description</div>										<div>Legend</div>	<div>Depth (m)</div>	<div>Reduced Level (mAOD)</div>	<div>Water Level (m)</div>	<div>Inst / Backfill</div>	<div>Samples, Tests and Rotary Coring</div>														
															<div>Depth (m)</div>	<div>Ref</div>	<div>Core Run</div>	<div>FI</div>	<div>TCR</div>	<div>SCR</div>	<div>RQD</div>	<div>Tests / Results</div>							
Significant drilling disturbance: Very weak, low to medium-density light grey CHALK with occasional trace fossils and orange staining with regular 50 to 100mm bands / pockets of Structureless marly CHALK composed of light grey silty very weak, low-density, fine to coarse angular to subangular gravel. (ZIG ZAG CHALK FORMATION, Grade Dc interbedded with structured chalk ?)											21.00	-3.53				21.20 - 21.30	DPLT		NI	100	7	0		21					
Very weak, low to high-density, grey CHALK with occasional trace fossils and orange staining. Local drill induced zones of brecciation - possibly associated with turning at marl seams ? **. Discernible structure: Discontinuity 1) Bedding is 0-10', close to medium, partly open clean. [60 ? / 100 ? / 210 ?] infilled with silt, sand and fine gravel. (ZIG ZAG CHALK FORMATION, high density, Probably Grade C ? 3 ?) ...from 21.00 to 21.25m bgl: partial recovery attributable to drill disturbance with possible matrix blow out (recovery is non-intact coarse gravel)**.																		21.00 - 22.50		7?	87	59	0		22				
...from 22.24m to 22.40m bgl: marl band.																													
...from 22.50 to 22.75m bgl: partial recovery attributable to drill disturbance with possible matrix blow out (recovery is non-intact coarse gravel)**.																			NI										
...from 22.50 to 22.80m bgl: recovered as non-intact fine to coarse, subangular chalk gravel (attributable to SPT disturbance).																													

<div><div><div><div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status		Borehole Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
						Eastings: 548426.00 Northings: 251167.00 Level: 17.62mAOD Depth: 29.77m Logger: DC Type: RC Inclination: 90°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
0.00 1.20 6.20	1.20 6.20 29.77	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated M13 M13	A. Courtney A. Courtney A. Courtney	1.20 6.20 29.77	300 200 -	19.50	150	01/03 02/03 03/03 04/03	18:00 18:00 18:00 17:30	6.65 16.20 22.20 29.77	- - - -	-	Approved By:	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Minimal recovery, possible dislocation from above** : Weak, low-density grey CHALK with orange staining and frequent bivalve shell fragments. (ZIG ZAG CHALK FORMATION, ?) Minimal recovery with significant drilling disturbance: Weak, low to medium grey CHALK with orange staining and orange specs recovered in high-density, non-intact core sections [? / 100 ? / ?]. (ZIG ZAG CHALK FORMATION, Grade ? 3)							10.20	7.42																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
11.60 - 11.70 11.60 - 11.70 11.70 - 12.15	DPLT PLT SPTLS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

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										Sheet 3 of 3									
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20 6.20	1.20 6.20 29.77	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated MI3 MI3	A. Courtney A. Courtney A. Courtney	1.20 6.20 29.77	300 200 -	19.50	150	01/03 02/03 03/03 04/03	18:00 18:00 18:00 17:30	6.65 16.20 22.20 29.77	- - - -	-	Approved By:	CP				
																Start Date: 01/03/2021			
																Finish Date: 05/03/2021			
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Partial recovery (70%, 60% of which non intact gravel): Very weak, low density, grey CHALK with rare orange staining and rare shell fragments. Significant drilling disturbance. Discernible structure: Discontinuity 1) Joints are 60 to 70' probably closed to partly open with black staining and occasional black clay smear. Discontinuity 2) Bedding is 0 to 10'. probably close, partly open clean with occasional black staining [50 ? / 100 ? / 130 ?]. (ZIG ZAG CHALK FORMATION, Grade B ? / 4 ?)								20.70	-3.08			20.40 - 20.50	DPLT		ND				
Minimal recovery attributable to SPT disturbance and blow out, recovery non-intact: Very weak low-density grey coarse CHALK gravel.								20.90	-3.28			20.70 - 21.15	SPTLS		NR				SPT(S) 20.70m, N=13 (3,3/4,3,2,4)
Significant drilling disturbance, mainly non-intact gravel: Very weak low-density grey CHALK with rare orange staining and rare shell fragments. Discernible structure: Discontinuity set 1) Joints are 60 to 70' probably closed to partly open with black staining and occasional black clay smear. Discontinuity 2) Bedding is 0 to 10'. close, partly open clean with occasional black staining. (ZIG ZAG CHALK FORMATION, Grade B ?)								21.40	-3.78			20.70 22.20		ND/67	92	30	9		
Drill disturbance: Very weak, low-density grey CHALK with rare orange staining and rare shell fragments. Discontinuity 1) Joints are 60 to 70' closed to partly open with black staining and occasional black clay smear. Discontinuity 2) Bedding is 0 to 10'. close, partly open clean with occasional black staining [95/100/130]. (ZIG ZAG CHALK FORMATION, Grade B3)								22.20	-4.58			21.80 - 21.90	DPLT						
Partial recovery attributable to blow out, with significant drilling disturbance, recovery non-intact: Weak, low to high density-density, light grey silty CHALK gravel with orange staining. (ZIG ZAG CHALK FORMATION, high density, ?)												22.10 - 22.20	DPLT						
No recovery attributable to SPT disturbance / blow out.								23.70	-6.08			23.50 - 23.60 23.50 - 23.60 23.70 - 24.15	DPLT PLT SPTLS		NR				SPT(S) 23.70m, 50 (25 for 30mm/50 for 20mm)
Partial recovery with significant drilling disturbance, recovery non-intact with possible blow out of matrix: Weak, low to medium-density light grey coarse CHALK gravel with orange staining. (ZIG ZAG CHALK FORMATION, ?)								24.40	-6.78			23.70 25.20		20	0	0			
No recovery.								25.20	-7.58			25.00 - 25.10	D		NR				
Partial recovery (50%) with possible blow out / compression: Very weak, low-density grey CHALK with orange staining. Discernible structure: Discontinuity 1) Joints are 70 to 90' probably closed to partly open clean. Discontinuity 2) Bedding is 0 to 10' close, probably closed to partly open clean [80 ? / 100 ? / 130 ?]. (ZIG ZAG CHALK FORMATION, Grade B ? 3 ?) ...at 25.71m bgl: 5mm diameter radial purple brown iron pyrite. ...at 26.20m bgl: 10mm thick plastic marl seam.								25.60	-7.98			25.20 26.70		50	46	13			
No recovery attributable to SPT disturbance / blow out.								26.70	-9.08			26.60 - 26.70 26.70 - 27.15	DPLT SPTLS		NR				SPT(S) 26.70m, 50 (25 for 20mm/50 for 20mm)
Significant drilling disturbance, recovery non-intact with possible local blow out: Weak, low-density light grey coarse CHALK gravel. (ZIG ZAG CHALK FORMATION, ?)								26.90	-9.28			26.70 28.20		70	0	0			
No recovery.								28.20	-10.58			28.10 - 28.20	DPLT		NR				
Significant drilling disturbance, recovery non-intact: Weak, low to medium-density light grey silty CHALK gravel. (ZIG ZAG CHALK FORMATION, ?)								28.50	-10.88					73	33	24			
Weak, low to medium-density light grey CHALK with occasional orange staining and inoceramid shell fragments and black zoophycos streaks. Discontinuity 1) Joints are 60 to 80' closed clean with black staining. Discontinuity 2) Bedding is 0 to 10' , close to medium with black staining [30 ? / ? / 300 ?] (ZIG ZAG CHALK FORMATION, Grade A ? 2 ?) ...from 19.20 to 29.60m bgl: with core catcher striations.								28.90	-11.28			28.20 29.70		ND/37					
No recovery - SPT only.								29.70	-12.08			29.60 - 29.70 29.70 - 30.15	DPLT SPTLS					SPT(S) 29.70m, 50 (25 for 50mm/50 for 20mm)	
EOH at 29.77m - Target depth achieved.																			
Observations / Remarks										Drilling Fluid						Hammer Information			
1. Strikes obscured by flush / casing. Groundwater at 1.10m bgl (3.3.21). Bubbling of air-flush noted at ground level on progression of BH. 2. Upon completion exploratory hole backfilled with bentonite. Note : Borehole commenced when the adjacent BH-PTR-33 was progressed to deeper levels (located 14m west). It is therefore possible that air flush from BH-PTR-33 impacted the core recovery and parameters obtained from BH-PTR-34. ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										6.20	29.70			Air / Mist					
										Groundwater						Project Number			
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks														
										784-B025563									

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <td colspan="5"><div>Location Details</div><div>Easting: 548454.00 Northing: 251111.00</div><div>Level: 18.41mAOD Depth: 8.00m</div><div>Logger: DC Type: RC</div><div>Inclination: 90°</div></td> <td colspan="2"><div>Status</div><div>FINAL</div></td> <td colspan="2"><div>Borehole Number</div><div>BH-PTR-35</div></td>					<div>Location Details</div> <div>Easting: 548454.00 Northing: 251111.00</div> <div>Level: 18.41mAOD Depth: 8.00m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-35</div>			
										Sheet 1 of 1					
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT
0.00 1.20 6.00	1.20 6.00 8.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 6.00 8.00	300 200 -	6.00	200	08/03	18:00	8.00	-	-	Approved By:	CP
														Start Date:	08/03/2021
														Finish Date:	10/03/2021
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring					
						Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Firm dark brown slightly gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint. (TOPSOIL)						0.20	18.21			0.10 0.20	ES1 ES2				
MGR(TS) Loose * Orangish brown mottled brown silty gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD Loose * Yellowish brown gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD Medium dense light brownish orange sandy angular to subangular, fine to coarse flint GRAVEL. Sand is medium to coarse. (RIVER TERRACE DEPOSITS) RTD ...from 1.65m bgl: with rounded. coarse, high-density chalk nodules and ironstone. ...from 2.00m bgl: with some cobbles of flint.						0.50	17.91			0.50 0.50	D1 ES3				
						1.20	17.21			1.00 1.00 1.00 1.20 - 1.30 1.20 - 1.65	B1 D2 ES4 SPTLS3 D4			SPT(S) 1.20m, N=14 (2,4/4,4,3,3)	1
										1.20 2.00				100 0 0	
										1.90 - 2.00 2.00 2.00 - 2.45 2.20 - 2.30	D5 EW18 SPTLS6 D7			SPT(S) 2.00m, N=11 (3,3/2,3,3,3)	2
										2.00 3.00				100 0 0	
Firm grey brown slightly gravelly very sandy CLAY. Sand is coarse. Gravel is subangular to subrounded, fine to medium flint and chalk. (RIVER TERRACE DEPSOITS / ZIG ZAG CHALK FORMATION ? Transition) Pale grey mottled brown sandy subangular to rounded fine to coarse GRAVEL of flint and chalk. Sand is medium to coarse. (RIVER TERRACE DEPSOITS / ZIG ZAG CHALK FORMATION ? Transition) Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse and cobble size, weak low to medium-density with occasional orange staining. Clasts contain <1mm diameter, 10mm long tubes of iron pyrite (possible zoophycos). (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...from 3.27m bgl: 40mm diameter cobble sized nodule of black weathered pyrite / marcasite.						2.65 2.74	15.76 15.67			2.80 - 2.90	D8				
						2.95	15.46			3.00 3.00 - 3.45 3.30 - 3.40	EW1 SPTLS9 D10			SPT(S) 3.00m, N=9 (2,2/2,3,2,2)	3
										3.00 4.00				100 0 0	
										3.90 - 4.00 4.00 - 4.45 4.20 - 4.30	D11 SPTLS1 2 D13			SPT(S) 4.00m, N=9 (2,2/2,3,2)	4
										4.00 5.00				100 0 0	
										4.90 - 5.00 5.00 - 5.45	D14 D15			SPT(S) 5.00m, N=9 (2,1/2,2,2,3)	5
										5.30 - 5.40	D16				
										5.00 6.00				100 0 0	
Zone of core loss attributable to SPT disturbance and blow out.						6.00	12.41			5.90 - 6.00 6.00 - 6.45	D17 SPTLS1 8			SPT(S) 6.00m, N=11 (2,2/2,2,3,4)	6
													NR		
						6.60	11.81			6.00 7.00			40 0 0		
Significant drilling disturbance, partial recovery: Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse and cobble size, weak low to medium density with occasional orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm) Zone of core loss attributable to SPT disturbance. Chalk residue, striations noted on core liner indicating possible dislocation. **						7.00	11.41			6.80 - 6.90	D19		NI		
										7.00 - 7.45	SPTLS2 0			SPT(S) 7.00m, N=12 (2,1/2,3,3,4)	7
													NR		
Significant drilling disturbance: with possible dislocation**: Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse and cobble size, weak low to medium density with occasional orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm) ...from 7.50m bgl: moderate orange (oxide) staining with some liesegang banding within a chalk cobble. ...from 7.90m bgl: becoming slightly greenish grey with orange (oxide) staining. EOH at 8.00m - Target depth achieved.						7.50	10.91			7.00 8.00			50 0 0		
						8.00	10.41			7.80 - 7.90	D21		NI		

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status FINAL		Borehole Number			
						Easting: 548502.30 Northing: 251040.00 Level: 18.43mAOD Depth: 2.00m Logger: DF Type: WLS Inclination: 90°								BH-PTR-36A			
														Sheet 1 of 1			
Method, Plant and Crew						Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT		
0.00 1.20	1.20 2.00	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Window Sampler	Dynamic sampling Dynamic Sampling	1.20 2.00	300 200									Approved By: CP		
															Start Date: 14/05/2021		
															Finish Date: 14/05/2021		
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing					
												Depth (m)	Ref	Tests / Results			
MADE GROUND: Brown slightly silty slightly gravelly fine to coarse clayey SAND. Gravel is subangular to well rounded fine to coarse flint. (TOPSOIL) MGR(TS)																	
UT100 - Sampler Damaged. 20% recovery of very soft light brown silty sandy gravelly CLAY. (ALLUVIUM) ALV(C) ...from1.50m to 2.00m bgl: frequent gravel pockets of subangular fine to medium flint.								1.40	17.03								
Soft to firm light brown slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint. (ALLUVIUM) ALV(C)								1.85	16.58								
EOH at 2.00m - Target depth achieved								2.00	16.43								

<div><div><div><div></div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status		Borehole Number						
						Easting: 548650.00 Northing: 250904.00 Level: 18.95mAOD Depth: 12.00m Logger: DC Type: RC Inclination: 90°														
										FINAL		BH-PTR-38								
												Sheet 1 of 2								
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 7.50	1.20 7.50 12.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 7.50 12.00	300 - -	6.00	200	10/03 11/03	16:45 18:00	6.00 12.00	- -	-	Approved By:	CP					
														Start Date: 10/03/2021						
														Finish Date: 13/03/2021						
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Soft dark brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint. (TOPSOIL) MGR(TS)							0.25	18.70			0.10 0.20	ES1 ES2								
Soft to firm orangish brown mottled grey slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint. (ALLUVIUM) ALV(C)											0.50 0.50 0.50	B D ES3						1		
UT100 Sample description: Stiff brown mottled grey gravelly very sandy CLAY. Gravel is fine to coarse, subangular to subrounded. (ALLUVIUM) ALV(C)							1.20	17.75			1.00 1.00 1.00 - 1.10 1.20 - 1.65	D ES4 B UT								
Firm orange mottled light blush grey slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse flint. (ALLUVIUM) ALV(C)							1.65	17.30			1.60 - 1.70	D	1.20 2.00		45	0	0			
Zone of core loss attributable to SPT disturbance. SPT Liner Sample Description: Loose brown gravelly slightly clayey SAND. (ALLUVIUM) ALV(C)							2.00	16.95			2.00 - 2.45 2.10 - 2.20	SPTLS D						SPT(S) 2.00m, N=8 (1,2/1,3,2,2)	2	
Loose to medium dense * brownish grey gravelly medium to coarse SAND. Gravel is subangular to rounded fine to medium flint and chalk. (RIVER TERRACE DEPOSITS) RTD							2.45	16.50			2.50 - 2.60	D	2.00 3.00		100	0	0			
Firm orangish brown slightly gravelly very sandy CLAY. Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS) RTD							2.72	16.23			2.90 - 3.00 3.00 - 3.45 3.00 - 3.45	D D SPTLS						SPT(S) 3.00m, N=8 (2,3/3,2,1,2)	3	
Zone of core loss attributable to SPT disturbance. SPT Liner Sample Description: Soft brown very gravelly very sandy CLAY. (RIVER TERRACE DEPOSITS) RTD							3.60	15.35			3.00 - 4.00		3.00 4.00		40	0	0			
Significant drilling disturbance, partial recovery: Very soft orangish brown slightly gravelly very sandy CLAY. Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS / ZIG ZAG CHALK FORMATION ? Transition) RTD							4.25	14.70			4.00 - 4.45 4.30 - 4.40	D D	4.00 5.00		100	0	0		SPT(S) 4.00m, N=8 (1,2/2,2,2,2)	4
Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with occasional orange staining and rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)											4.90 - 5.00 5.00 - 5.10 5.00 - 5.45	D D SPTLS						SPT(S) 5.00m, N=9 (2,2/2,3,2,2)	5	
...from 5.62m to 5.71m bgl: with slight orange staining.											5.00 - 6.00		5.00 6.00		100	0	0			
											5.80 - 5.90	D								
											6.00 - 6.45	SPTLS						SPT(S) 6.00m, N=13 (2,2/3,3,3,4)	6	
											6.30 - 6.40	D								
											6.90 - 7.00	D	6.00 7.50		100	0	0			
											7.30 - 7.40	D								
Partial recovery (40%): Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with occasional orange staining and rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							7.50	11.45					7.50 9.00	NR		40	0	0		8
											8.50 - 8.60	D		NI						
Zone of core loss attributable to SPT disturbance.							9.00	9.95			9.00 - 9.45	SPTLS						SPT(S) 9.00m, N=11 (1,2/2,2,3,4)	9	
											9.00 - 10.50		9.00 10.50	NR		57	0	0		
Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with occasional orange staining and rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							9.60	9.35			9.70 - 9.80	D							10	
Observations / Remarks										Drilling Fluid						Hammer Information				
1. Groundwater strike at 2.60, rising to 1.99m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										7.50	12.00			Air / Mist	DART449	65				
										Groundwater						Project Number				
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
										2.60	2	5	20	1.99		784-B025563				

<div><div><div><div></div><div>Tt</div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status		Borehole Number											
						Easting: 548650.00 Northing: 250904.00 Level: 18.95mAOD Depth: 12.00m Logger: DC Type: RC Inclination: 90°						FINAL		BH-PTR-38											
												Sheet 2 of 2													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50									
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT										
0.00 1.20 7.50	1.20 7.50 12.00	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 7.50 12.00	300 - -	6.00	200	10/03 11/03	16:45 18:00	6.00 12.00	- -	-	Approved By:	CP										
														Start Date:	10/03/2021										
														Finish Date:	13/03/2021										
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring														
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results							
<p>Structureless light bluish grey CHALK composed of slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk with occasional orange staining and rare black specks. (ZIG ZAG CHALK FORMATION ?, Grade Dm)</p> <p>...from 10.28m bgl: with very weak, low-density cobbles of CHALK with black staining on possible discontinuity services.</p> <p>Partial recovery (45%): Structureless light bluish grey CHALK composed of slightly gravelly SILT becoming silty GRAVEL and COBBLES. Clasts are subangular to subrounded, fine to coarse, extremely weak to very weak, low-density with occasional orange staining and rare black specks. Cobbles have black staining along fracture surfaces. Joint faces are 80 to 90 degrees. (ZIG ZAG CHALK FORMATION ?, Grade Dm becoming Dc)</p>							10.50	8.45			10.40 - 10.50	D		NI	33	0	0	11							
											11.50 - 11.60								D	10.50 12.00	NR				
											11.90 - 12.00								D		NI				
EOH at 12.00m - Target depth achieved							12.00	6.95									12								
																		13							
																		14							
																		15							
																		16							
																		17							
																		18							
																		19							
																		20							
Observations / Remarks						Drilling Fluid						Hammer Information													
1. Groundwater strike at 2.60, rising to 1.99m bgl (20 minutes). 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible						From (m)						To (m)		Return Min %		Colour		Type		Serial No.		Energy Ratio %			
						7.50						12.00								Air / Mist		DART449		65	
						Groundwater						Project Number													
						Strike (m)		Casing (m)		Sealed (m)		Time (min)		Rose To (m)		Remarks		784-B025563							

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					<div>Location Details</div> <div>Easting: 548652.00 Northing: 250860.00</div> <div>Level: 18.78mAOD Depth: 15.45m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>					<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-39</div>							
										Sheet 1 of 2									
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00 1.20 6.00	1.20 6.00 15.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 6.00 15.45	300 - -	12.00	150	12/03	18:00	15.45	-	-	Approved By:	CP				
										Start Date: 12/03/2021					Finish Date: 12/03/2021				
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
MADE GROUND: Dark brown slightly sandy, gravelly SILT / CLAY. Sand is fine to medium. Gravel comprises angular to subrounded, fine to coarse flint. Low flint cobble content. (TOPSOIL) MGR(TS)							0.50	18.28			Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
											0.10	ES1							
MADE GROUND: Firm dark to medium brown sandy gravelly SILT / CLAY. Sand is fine to medium. Gravel comprises angular to rounded, fine to medium flint and occasional chalk. MGR(C)							1.00	17.78			0.50 - 0.60 0.50 - 0.60	B1 D1							
											1.00 - 1.10 1.00 - 1.10 1.00 - 1.10 1.20 - 1.65	B2 D D2 UT1							
Loose orange brown mottled grey silty slightly gravelly SAND with shell fragments. Gravel comprises angular to subrounded, fine to coarse chalk and occasional flint. Sand is fine to coarse. (ALLUVIUM) ALV(C)							1.20	17.58			1.60 - 1.70 1.65 - 1.70	D3 BCS							
											2.00 - 2.45	SPTLS4	1.65 2.00						
UT100 Sample Significant drilling disturbance: Soft grey mottled orangish brown slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium flint. (ALLUVIUM) ALV(C)							1.65	17.13			2.30 - 2.40 2.30 - 2.85	D D5							
											2.00 - 2.85	D5	2.00 3.00						
Firm light grey very thinly laminated slightly gravelly slightly sandy CLAY with frequent decaying organic material including wood and roots. Sand is fine to coarse. Gravel is subrounded to rounded fine to medium chalk and flint. (ALLUVIUM) ALV(C)							2.20	16.58			2.75 - 2.85 2.75 - 2.85 2.75 - 2.85 2.90 - 3.00	B1 D D6 B2							
											2.90 - 3.00 2.90 - 3.00 3.00 - 3.45 3.00 - 3.45 3.45 - 3.50	D7 UT UT2 BCS							
Soft black mottled dark grey sapric amorphous PEAT with localised decaying wood and roots. (ALLUVIUM) ALV(C)							2.73	16.05			3.65 - 3.75 3.65 - 3.75	D D8	3.50 4.00						
											3.90 - 4.00 3.90 - 4.00 4.00 - 4.45 4.00 - 4.45	B3 D9 D SPTLS1							
Soft light grey slightly gravelly, slightly sandy CLAY. Sand is medium to coarse. Gravel comprises fine, rounded to subrounded chalk and flint. (ALLUVIUM) ALV(C)							3.90	14.88			4.10 - 4.20	D11	4.00 5.00						
											4.10 - 4.20	D11	4.00 5.00						
Brown slightly gravelly SAND. Gravel comprises fine to coarse subangular flint. *** (ALLUVIUM) ALV(G)							4.45	14.33			4.90 - 5.00 5.00 - 5.10 5.00 - 5.45	D12 D13 SPTLS1							
											5.00 - 5.45	SPTLS1	5.00 6.00						
Stiff cream, slightly gravelly, slightly sandy, clayey SILT. Gravel is fine to coarse, subangular (chalk). *** Soft light grey slightly gravelly, slightly sandy CLAY. Sand is medium to coarse. Gravel comprises fine, rounded to subrounded chalk and flint. (ALLUVIUM) ALV(C)							6.00	12.78			5.80 - 5.90	D15							
											6.00 - 6.45	SPTLS1	6						
Soft orange mottled light grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to medium chalk and flint. (ALLUVIUM) ALV(C)							7.50	11.28			6.00 - 6.45	SPTLS1	6						
											6.00 - 6.45	SPTLS1	6						
Structureless CHALK composed of light grey gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak low density chalk with occasional black staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm) No recovery. (3No Rotary Core runs attempted between 6.00 and 9.00m bgl failed to recover core)							9.00	9.78			8.10 - 8.20 8.10 - 8.20	B4 D18	7.50 9.00	NI	100	0	0		
											8.10 - 8.20	D18	7.50 9.00	NI	100	0	0		
(Run reverted to Dynamic Sampling- recovery likely disturbed from rotary coring attempts): Structureless CHALK composed of light grey gravelly SILT. Gravel is subangular to subrounded fine to coarse extremely weak low density chalk with occasional black staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm ?) ...from 8.00 to 9.00mbgl: with occasional medium-density chalk clasts. ...at 8.05m bgl: slight orange staining. ...at 8.37m bgl: slight orange staining. ...at 8.62m bgl: slight orange staining.							9.50	9.28			8.90 - 9.00 8.90 - 9.00 9.00 - 9.45	D D19 SPTLS2							
											9.00 - 9.45	SPTLS2	0	NR					
No recovery attributable to SPT disturbance / blow out. Partial recovery: Upper 200mm: Structureless light grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded fine to coarse extremely weak low density chalk with occasional orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm) Lower 400mm: Structureless CHALK composed of light grey silty GRAVEL. Gravel is subangular to subrounded fine to coarse extremely weak to very weak low to density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dc)							10.00	10.10			10.00 - 10.10	D21							
											10.00 - 10.10	D21							
Observations / Remarks										Drilling Fluid					Hammer Information				
1. Groundwater encountered at 0.80, rising to 0.65m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 14.50m bgl. * Denotes drillers description ** Denotes observation from core photograph *** Denotes laboratory UT100 description. Also see BH-PTR-39A and BH-PTR-39B (adjacent Window Sample locations undertaken to recover near surface UT100 samples). NR - No Recovery NI - Non-intact										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										6.00	15.00				DART449	64			
										Groundwater					Project Number				
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
										0.80	-	2	20	0.65					
										784-B025563									

<div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div>		Project: Cambridge South East Transport – Phase 2		Location: Cambridge				Client: Greater Cambridge Partnership		Location Details				Status		Borehole Number										
						Easting: 548652.00 Northing: 250860.00				FINAL				BH-PTR-39												
						Level: 18.78mAOD Depth: 15.45m																				
								Logger: DC Type: RC																		
								Inclination: 90°																		
Method, Plant and Crew								Diameter		Casing		Drilling Progress by Time						Scale: 1:50								
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT												
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	12.00	150	12/03	18:00	15.45	-	-	Approved By: CP												
1.20	6.00				6.00										Start Date: 12/03/2021											
6.00	15.45				15.45	-	-	-	-								Finish Date: 12/03/2021									
Strata Description								Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring													
													Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results						
<p>Partial recovery: Upper 200mm: Structureless light grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded fine to coarse extremely weak low density chalk with occasional orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm)</p> <p>Lower 400mm: Structureless CHALK composed of light grey silty GRAVEL. Gravel is subangular to subrounded fine to coarse extremely weak to very weak low to density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dc)</p> <p>...at 10.20m bgl: slight orange staining.</p> <p>Structureless CHALK composed of light grey silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, extremely weak to very weak, low-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dc)</p> <p>Very weak to weak, low to medium-density light grey CHALK with black zoophycos streaks. Discontinuity 1) Joints are 70 to 80' planar smooth, closed and partly open, clean with occasional black specks. Discontinuity 2) Bedding is 0 to 10' close, planar smooth, closed and partly open, clean with occasional black specks [? / 70 / ?]. (ZIG ZAG CHALK FORMATION, Probably Grade B ? 3 ?)</p> <p>...from 10.67 to 10.93m bgl: with core catcher striations. **</p> <p>...from 10.70m to 10.93m bgl medium density.</p> <p>...from 10.79m to 10.87m bgl orange stained sponge bed.</p> <p>Significant drilling disturbance, recovery non-intact: Very weak to weak, low to medium-density light grey CHALK gravel with black zoophycos streaks. (ZIG ZAG CHALK FORMATION, ?)</p> <p>...at 11.32m bgl orange staining.</p> <p>...at 11.36m bgl: with medium to high-density clasts.</p> <p>...from 11.51m to 11.58m bgl: orange staining.</p> <p>...from 11.65m to 11.76m bgl: with medium to high-density clasts.</p> <p>...from 11.78m bgl: with moderate orange iron staining and mineralisation.</p> <p>No recovery attributable to SPT disturbance and blow out</p> <p>Significant drilling disturbance: and blow out (possibly due to turning of high-density clasts **): Very weak to weak, low to medium-density light grey CHALK with black zoophycos streaks. Discernible structure: Discontinuity 1) Joints are 70 to 80' planar smooth, closed and partly open, clean with occasional black specks. Discontinuity 2) Bedding is 0 to 10' close, planar smooth, closed and partly open, clean with occasional black specks [? / 70 / 200]. (ZIG ZAG CHALK FORMATION, Probably Grade B ? 3 ?)</p> <p>...from 12.30 to 12.60m bgl: with possible matrix blow out (recovery non-intact coarse gravel **).</p> <p>...at 12.44m bgl: with moderate orange staining.</p> <p>...at 12.65m bgl: with moderate orange staining.</p> <p>Significant drilling disturbance: Extremely weak, low-density grey CHALK MARL with occasional layer / bed of medium density CHALK. Discernible structure: Discontinuity 1) Joints 90' clean closed with some black staining. (unable to discern bedding). (ZIG ZAG CHALK FORMATION, Grade A ?)</p> <p>...at 13.03m bgl: with slight orange staining.</p> <p>...at 13.20m bgl: with slight orange staining.</p> <p>No recovery attributable to blow out.</p> <p>Significant drilling disturbance: Extremely weak, low-density grey CHALK MARL with occasional layers / beds of medium-density CHALK. Possible discontinuities: 1) Joints 90' clean closed with some black staining. 2) Bedding (unable to discern). (ZIG ZAG CHALK FORMATION ?, Grade A ?)</p> <p>...from 13.90m to 14.28m bgl medium to high density.</p> <p>...from 14.73m to 14.85m bgl: medium to high density.</p> <p>...at 14.75m bgl: orange stained sponge bed.</p> <p>No recovery - SPT only.</p> <p>EOH at 15.45m - Target depth achieved</p>								10.50	8.28				10.40 - 10.50	D22		NI										
								10.67	8.11				10.70 - 10.80	DPLT		NI										
								10.93	7.85				11.00 - 11.10	D24		ND										
																										11

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details						Status FINAL		Borehole Number	
							Easting: 548653.00 Northing: 250860.00 Level: 18.83mAOD Depth: 2.50m Logger: JD Type: WLS Inclination: 90°								BH-PTR-39A	
							Sheet 1 of 1									
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT	
0.00	1.20	Inspection Pit	Hand Excavated	Dynamic sampling	1.20	300			2.10	-	-	2.10	15		CP	
1.20	2.50	Dynamic Windowless Sampling	Tracked Window Sampler	Dynamic sampling	2.50	200									14/05/2021	
															14/05/2021	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Soft brown slightly silty slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is subangular to angular fine to coarse flint. (ALLUVIUM) ALV(C)								0.60	18.23							
Soft light brown slightly silty slightly gravelly slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to angular fine to coarse flint. (ALLUVIUM) ALV(C)																
EOH at 2.50m - Target depth achieved								2.50	16.33							

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details						Status		Borehole Number	
							Eastng: 548655.00 Northing: 250860.00 Level: 18.84mAOD Depth: 2.70m Logger: RT Type: WLS Inclination: 90°						FINAL		BH-PTR-39B	
							Sheet 1 of 1									
Method, Plant and Crew					Diameter		Casing		Groundwater					Scale: 1:25		
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT	
0.00	2.70	Dynamic Windowless Sampling	Dando Terrier	Endeavor Drilling	2.70	116			2.00	-	-	2.00	5		Approved By: CP	
															Start Date: 03/01/2021	
															Finish Date: 03/01/2021	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
MADE GROUND: Very stiff / friable light brown sandy SILT. (DRILLING ARISINGS) MGR(C) MADE GROUND: Firm brown slightly gravelly sandy SILT. Sand is fine to medium. Gravel comprises fine to coarse, subangular to angular flint. (ALLUVIUM / TOPSOIL) ALV(C)								0.05	18.79							
Firm grey mottled orange brown clayey SILT. (ALLUVIUM) ALV(C)								0.80	18.04							
Soft light orange brown mottled grey silty, sandy, very gravelly CLAY. Gravel comprises fine to coarse, subangular to angular flint. (ALLUVIUM) ALV(C)								1.30	17.54							
UT100 Sample								1.60	17.24			1.60 - 1.95 1.60 - 1.95	UT UT1	Ublows=12 Recovery=100%		
UT100 Sample cutting shoe recovery description: Soft grey silty, organic CLAY. (ALLUVIUM) ALV(C)								2.05	16.79							
UT100 Sample								2.15	16.69		2.15 - 2.60 2.15 - 2.60	UT UT2	Ublows=29 Recovery=100%			
UT100 Sample cutting shoe recovery description: Soft grey silty, organic CLAY. (ALLUVIUM) ALV(C)								2.60	16.24							
EOH at 2.70m - Target depth achieved.								2.70	16.14							

<div><div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div> <div><div>Location Details</div><div>Eastings: 548652.00 Northing: 250844.00</div><div>Level: 19.46mAOD Depth: 18.45m</div><div>Logger: EH+CE Type: RC</div><div>Inclination: 90°</div></div> <div><div>Status</div><div>FINAL</div></div> <div><div>Borehole Number</div><div>BH-PTR-40</div></div>																				
					Sheet 1 of 2															
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT					
0.00 1.20 7.50	1.20 7.50 18.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 7.50 18.45	300 - -	2.50 18.00 -	200 150 -	16/04 19/04 -	18:00 18:30 -	9.00 18.45 -	- - -	- - -	Approved By:	CP					
														Start Date:	16/04/2021					
														Finish Date:	16/04/2021					
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Grass over silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint with brick and concrete fragments. (TOPSOIL) MGR(TS)											0.10 0.20	ES1 ES2						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm		
MADE GROUND: Compacted * Off white mottled light brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse, flint and chalk with brick fragments. (CHALK DERIVED FILL ?) MGR(C)							0.40	19.06			0.50 0.50	D ES3						PID 0.50m, 0.0ppm		
MADE GROUND: Soft * grey brown mottled orange silty sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk, with sandstone and brick fragments, occasional ash and rare metal fragments. MGR(C)							0.90	18.56			1.00 1.00	D ES4						PID 1.00m, 0.0ppm	1	
MADE GROUND: Soft greenish brown and grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel comprises fine to coarse, subangular flint and red brick fragments. MGR(C)							1.20	18.26			1.20 - 1.65 1.20 - 1.65	D SPTLS						SPT(S) 1.20m, N=5 (1,1/1,2,1,1)		
Zone of core loss attributable to SPT disturbance. SPT Liner Sample Description: Brown slightly gravelly very sandy CLAY. (MADE GROUND ?)							1.60	17.86					1.20 2.00		50	0	0			
MADE GROUND: Soft greenish brown and grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel comprises fine to coarse, subangular flint and red brick fragments. MGR(C)							1.95	17.51			1.90 - 2.00 2.00 - 2.45 2.10 - 2.20	D SPTLS D						SPT(S) 2.00m, N=3 (1,1/1,0,0,2)	2	
...from 1.85 to 1.95m bgl: cobble size part red brick.													2.00 3.00		100	0	0			
Soft to firm greyish brown very sandy silty CLAY with occasional shell fragments. Sand is fine to coarse. (ALLUVIUM) ALV(C)											2.80 - 2.90	D								
SPT Liner description: Brown slightly gravelly slightly clayey silty SAND.							3.00	16.46			3.00 - 3.45 3.00 - 3.45 3.01 - 3.10	D SPTLS D						SPT(S) 3.00m, N=3 (1,0/1,0,1,1)	3	
ALV(G)							3.45	16.01					3.00 4.00		100	0	0			
Soft to firm greyish brown silty sandy CLAY with occasional shell fragments. Sand is fine to coarse. (ALLUVIUM)							3.60	15.86												
ALV(C)							4.00	15.46			3.90 - 4.00 4.00 - 4.45	D SPTLS						SPT(S) 4.00m, N=6 (1,2/1,2,1,2)	4	
Structureless CHALK composed of white pale grey gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak, low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							4.45	15.01			4.50 - 4.60	D	4.00 5.00		50	0	0			
No recovery attributable to SPT disturbance / blow out. SPT Liner sample description: CHALK recovered as greyish cream mottled greyish brown gravelly SILT. Clasts are fine to medium, sub-angular to sub-rounded chalk and 1No. flint.											4.90 - 5.00 5.00 - 5.10 5.00 - 5.45	D D SPTLS						SPT(S) 5.00m, N=8 (1,2/2,2,2,2)	5	
Partial recovery (50%) of Structureless CHALK composed of white pale grey gravelly SILT. Gravel is subangular to subrounded, fine to coarse, extremely weak low-density chalk with orange staining. (ZIG ZAG CHALK FORMATION ?, Grade Dm)							5.00	14.46					5.00 6.00		100	0	0			
Structureless CHALK composed of pale grey silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, extremely weak, low-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dc)											5.90 - 6.00 6.00 - 6.45	D SPTLS						SPT(S) 6.00m, N=7 (1,2/2,2,1,2)	6	
											6.40 - 6.50	D			100	0	0			
											7.00 - 7.10	D							7	
																				
											7.90 - 8.00	D							8	
													7.50 9.00		100	0	0			
No recovery attributable to SPT disturbance / blow out. CHALK recovered as cream with orangish staining slightly clayey slightly gravelly SILT. Gravel is fine sub-angular to sub-rounded chalk and flint (1No. flint observed).											8.50 - 8.60	D								
Minimal recovery (25% - with striations from 9.00m bgl on the core liner suggesting downward dislocation of sample). ** Upper 220mm of core sample: Structureless CHALK composed of pale grey silty GRAVEL. Gravel is subangular to subrounded, fine to coarse extremely weak low-density chalk. (ZIG ZAG CHALK FORMATION, Grade Dc), becoming; Lower 80mm of sample: Weak, low-density pale grey with slight black speckling CHALK. No structure discernible. (ZIG ZAG CHALK FORMATION ?, unable to grade)							9.00	10.46			9.00 - 9.45	SPTLS							SPT(S) 9.00m, N=5 (1,1/1,1,1,2)	9
							9.50	9.96					9.00 10.50		25	0	0			
																			10	
Observations / Remarks										Drilling Fluid					Hammer Information					
1. Groundwater encountered at 2.40m and 8.70m bgl, rising to 2.35 and 7.56m bgl respectively. 2. Upon completion exploratory hole backfilled with bentonite. * Denotes drillers description **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										7.50	18.00			Air / Mist	DART449	65				
										Groundwater					Project Number					
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563														
2.40 8.70	2 8	3 -	20 20	2.35 7.56																

Project: Cambridge South East Transport – Phase 2						Location Details				Status		Borehole Number							
Location: Cambridge						Easting: 548744.00 Northing: 250793.00				FINAL		BH-PTR-41							
Client: Greater Cambridge Partnership						Level: 19.83mAOD Depth: 10.50m													
						Logger: EH+DC Type: RC													
						Inclination: 90°													
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT				
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	3.00	200	15/04	18:15	9.00	-	-	Approved By:	CP				
1.20	7.50	Dynamic Windowless Sampling Rotary Core	Beretta T41 Beretta T41	M. Bainbridge	7.50	-	10.50	150	16/04	10:30	10.50	-	-	Start Date:	15/04/2021				
7.50	10.50				10.50	-								Finish Date:	16/04/2016				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
MADE GROUND: Soft to firm brown slightly gravelly slightly clayey sandy SILT with frequent rootlets. Gravel is subangular to subrounded, fine to coarse, flint and sandstone. (TOPSOIL) MGR(TS)								0.35	19.48			0.10	ES1						PID 0.10m, 0.0ppm PID 0.20m, 0.0ppm
												0.20	ES2						
MADE GROUND: Compact * light brown, mottled off-white gravelly sandy CLAY with occasional rootlets. Sand is fine to coarse, with occasional ash fragments. Gravel is subangular to subrounded, fine to coarse flint and chalk. With pockets of grey brown clay. MGR(C)								1.20	18.63			0.50	ES3					PID 1.00m, 0.0ppm	
												0.50 - 1.60	D						PID 0.50m, 0.0ppm
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Firm brownish grey with orangish staining gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine sub-angular to rounded flint and chalk. (MADE GROUND) MGR(C)								1.60	18.23			1.00	B					SPT(S) 1.20m, N=3 (1,1/0,1,1,1)	
												1.00 - 1.10	D						SPT(S) 1.20m, N=3 (1,1/0,1,1,1)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								1.85	17.98			1.20 - 1.65	SPTLS					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												1.60 - 1.70	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.05	17.78			1.90 - 2.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												2.00 - 2.45	SPTLS						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.47	17.36			2.10	EW1					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												2.20 - 2.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.50 - 2.60	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												2.60 - 2.70	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.20 - 3.30	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			2.90 - 3.00	D					SPT(S) 2.00m, N=5 (1,2/1,1,1,2)	
												3.00 - 3.45	D						SPT(S) 2.00m, N=5 (1,2/1,1,1,2)
Firm brown mottled light grey slightly sandy gravelly CLAY. Sand is fine to medium, Gravel is angular to subangular, fine coarse flint and extremely weak, low-density grey marly chalk. (MADE GROUND) MGR(C)								2.83	17.00			3.20 - 3.30	D						

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<div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div> <div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>				<div>Location Details</div> <div>Easting: 548825.00 Northing: 250734.00</div> <div>Level: 20.29mAOD Depth: 10.50m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>				<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-42</div>									
										Sheet 1 of 2									
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT					
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	3.00	200	13/04	18:30	5.00	-	-	Approved By: CP					
1.20	6.00	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	6.00	-	10.50	150	14/04	15:00	10.50	-	-	Start Date: 13/04/2021					
6.00	10.50	Rotary Core	Beretta T41	M. Bainbridge	10.50	-			15/04	11:00				Finish Date: 21/04/2021					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
MADE GROUND: Grass over dark grey sandy slightly gravelly CLAY with abundant roots and rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk with brick red brick fragments. (TOPSOIL)								0.30	19.99			Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
												0.50	ES3						
MADE GROUND: Firm brown mottled orange and grey, sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk, with concrete, brick and coal fragments.								0.80	19.49			0.50 - 0.60	B						
												0.50 - 0.60	D						
MADE GROUND: Firm greyish black slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk, with concrete, brick and asphalt fragments.								1.20	19.09			1.00 - 1.10	B						
												1.00 - 1.10	D						
MADE GROUND: Firm mottled brown, black, grey and orange gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded, fine to coarse flint and chalk, with brick, concrete, fused ash, and mortar fragments.												1.20 - 1.65	D						SPT(S) 1.20m, N=8 (2,2/1,2,2,3)
												1.20 - 1.65	SPTLS						
Firm orange mottled light bluish grey sandy CLAY. Sand is fine to medium. (ALLUVIUM)								2.34	17.95			1.40 - 1.50	ES5						
Zone of core loss. Recovered by the next dynamic sample **. Firm orange mottled light bluish grey sandy CLAY. Sand is fine to coarse. (ALLUVIUM)								2.85	17.44			1.90 - 2.00	ES6						
												2.00 - 2.45	UT100						
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Firm light brownish grey slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is fine to medium sub-angular to rounded chalk and flint. (ALLUVIUM ?)								3.00	17.29			2.20 - 2.30	ES7						
Partial recovery (35%): Stiff light grey mottled white slightly gravelly very sandy CLAY. Sand is fine to medium. Gravel comprises fine to medium, rounded chalk with rare rounded flint. (ALLUVIUM)								4.00	16.29			2.45 - 2.50	D	2.00					
														3.00					
...at 3.83m bgl: pocket of dark brown organic material.								4.35	15.94			2.80 - 2.90	D						
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Stiff light yellowish grey slightly sandy gravelly CLAY/SILT. Gravel is fine to medium sub-angular to sub-rounded chalk and flint. Sand fine to coarse. (ALLUVIUM ?)								5.00	15.29			3.00 - 3.45	SPTLS						SPT(S) 3.00m, N=8 (2,2/2,2,2,2)
												3.10 - 3.20	D						
Stiff light grey mottled white slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is rounded, fine to medium chalk and flint. (ALLUVIUM to ZIG ZAG CHALK FORMATION ? Grade Dm transition)								6.00	14.29			3.90 - 4.00	D						
												4.00 - 4.45	SPTLS						
...from 4.57 to 4.64m bgl: pocket of orange brown staining. ...between 4.91m to 4.96m bgl: brown and orange laminations of sand and clay.								6.50	13.79			4.50 - 4.60	D	4.00					
														5.00					
Structureless light bluish grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to medium, extremely weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								7.50	12.79			5.00 - 5.45	UT-NR						
...from 5.00m to 5.60m bgl: zone of disturbance attributable to failed UT100 sample. ** ...from 5.40m to 5.71m bgl: with orange staining / banding.								8.40	11.89			5.90 - 6.00	D						
												6.00 - 6.45	SPTLS						
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Structureless CHALK composed of cream slightly sandy very gravelly SILT. Sand is fine to coarse. Gravel is fine to medium, angular to sub-rounded very weak, low-density chalk and flint. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								9.00	11.29			6.50	EW6						
No recovery attributable to blow out.								10.00	10.29			6.75	EW1	6.00	NR	0	0	0	
No recovery attributable to blow out.																			
Partial recovery (40%): Structureless light bluish grey CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to medium, extremely weak to weak, low to medium-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)												7.50			NR				
Zone of core loss attributable to SPT disturbance. Possible voiding / dissolution. SPT Liner sample description: Structureless CHALK composed of cream slightly sandy very gravelly SILT. Sand is fine to coarse. Gravel is fine to medium, angular to sub-rounded, very weak, low-density chalk and rinded flint.												8.60 - 8.70	D			40	0	0	
												9.00 - 9.45	SPTLS						SPT(S) 9.00m, N=2 (1,0/0,0,1,1)
												9.00							
														</					

<div>TETRA TECH</div> <div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>						Location Details						Status FINAL		Borehole Number			
						Easting: 548906.00 Northing: 250675.00 Level: 20.44mAOD Depth: 1.30m Logger: EH Type: WLS Inclination: 90°								BH-PTR-43			
								Sheet 1 of 2									
Method, Plant and Crew						Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks			Checked By: RT
0.00 1.20	1.20 1.30	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Beretta T41	M. Bainbridge M. Bainbridge	1.20 1.30	300 -											Approved By: CP
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing					Tests / Results
												Depth (m)	Ref				
MADE GROUND: Grass over brown clayey gravelly sandy SILT with frequent rootlets. Gravel is sub-angular fine to coarse flint. (TOPSOIL) MGR(TS)								0.25	20.19				0.10	ES1	PID 0.10m, 0.0ppm		
MADE GROUND: Loose to medium dense brown slightly clayey silty very gravelly fine to coarse SAND with medium cobble content. Gravel is sub-angular to sub-rounded fine to coarse flint with brick, chalk, breeze block, fused ash, limestone and asphalt fragments. Rare glass and styrofoam fragments. Cobbles are of brick, breeze block and flint. MGR(C)													0.20	ES2	PID 0.20m, 0.0ppm		
MADE GROUND: Firm greyish brown silty sandy very gravelly CLAY. Gravel is sub-angular to sub-rounded fine to coarse flint with brick, chalk, breeze block, fused ash, limestone and asphalt fragments. Frequent cobble size concrete and whole / part brick fragments. MGR(C)													0.50 0.50 - 0.60	ES3 D1	PID 0.50m, 0.0ppm		
MADE GROUND: Firm greyish brown silty sandy very gravelly CLAY. Gravel is sub-angular to sub-rounded fine to coarse flint with brick, chalk, breeze block, fused ash, limestone and asphalt fragments. Frequent cobble size concrete and whole / part brick fragments. MGR(C)								1.00	19.44				1.00 1.00 - 1.10 1.00 - 1.10	ES4 B1 D2	PID 1.00m, 0.0ppm		
...at 1.30m bgl: obstruction (borehole terminated at relocated to BH-PTR-43A). EOH at 1.30m - Pit terminated due to obstruction													1.20 - 1.30	D3	SPT(S) 1.20m, 50 (25 for 0mm/50 for 0mm)		
													2.00	EW7			
													2.50	EW1			

<div></div> <div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>						Location Details						Status FINAL		Borehole Number BH-PTR-43			
						Easting: 548906.00 Northing: 250675.00 Level: 20.44mAOD Depth: 1.30m Logger: EH Type: WLS Inclination: 90°								Sheet 2 of 2			
						Method, Plant and Crew						Diameter		Casing		Groundwater	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT		
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300									Approved By: CP		
1.20	1.30	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	1.30	-									Start Date: 12/04/2021		
															Finish Date: 12/04/2021		
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing					
												Depth (m)	Ref	Tests / Results			
												7.00 7.00	EW1 EW8				
Observations / Remarks							Sampling Runs					Hammer Information					
1. Borehole terminated on a possible concrete obstruction at 1.30m bgl (SPT refusal) and relocated 0.30m northeast (see BH-PTR-43A). 2. Groundwater not encountered. 3. Upon completion exploratory hole backfilled with arisings.							From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %				
												DART449	65				
												Project Number					
										784-B025563							

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<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-PTR-44A												
					Easting: 548988.00 Northing: 250618.00 Level: 20.59mAOD Depth: 10.50m Logger: CE Type: RC Inclination: 90°																			
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50									
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT									
0.00 1.20 6.00	1.20 6.00 10.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 6.00 10.50	300 - -	2.00 9.00	200 150	09/04 12/04	18:00 12:45	6.00 10.50	- -	-	Approved By:	CP									
														Start Date:	09/04/2021									
														Finish Date:	09/04/2021									
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring												
													Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results				
MADE GROUND: Soft to firm brown sandy gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint with brick and concrete fragments. (TOPSOIL)								0.25	20.34															
MGR(TS)								0.50	20.09				0.50 - 0.60	D										
MADE GROUND: Loose to medium dense, dark brown to grey slightly clayey SAND and GRAVEL. *																								
MGR(G)																								
MADE GROUND: Soft to firm brown very sandy CLAY.								1.10	19.49				1.00 - 1.10	D							1			
MGR(G)													1.40 1.50 - 1.60 1.50 - 1.60	ES5 B D	1.20 2.00		0	0	0					
MADE GROUND: Soft grey very sandy gravelly CLAY. Gravel is sub-angular to rounded, fine to coarse chalk with rare brick and concrete fragments. (Ashy *).								1.80	18.79				1.80 - 1.90	D										
MGR(C)								2.00	18.59												2			
MADE GROUND: Structureless pale grey CHALK composed of SILT with occasional yellow staining. (Probable chalk fill)																								
MGR																								
No recovery (possibly attributable to the compression of the Peat horizon from 2.90 to 3.60m bgl). **								2.60	17.99				2.20 2.20	D ES6					PID 2.20m, 0.0ppm					
MADE GROUND ? (Possible dislocation attributable to the compression of the underlying peat horizon) ** : Stiff brown grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine flint.								2.90	17.69															
MGR(C)													3.00 3.00 3.00 - 3.45	D ES7 SPTLS					SPT(S) 3.00m, N=4 (1,1/1,1,1,1) PID 3.00m, 0.0ppm			3		
Possible collapse from above (with possible drill induced compression) ?																								
DS Liner recovery : Firm black dark brown pseudo-fibrous PEAT with occasional decaying plant fragments. (?)								3.60	16.99															
								3.70	16.89															
SPT Liner description from 3.00 to 3.45m bgl : Loose dark brown mottled grey silty sandy GRAVEL. Sand is fine to coarse. Gravel is fine to medium angular to sub-rounded flint and chalk. (?)								4.00	16.59															
.....at < 3.00m bgl (within the 0.50m unpenetrated section of the 1.5m long liner from DS run 3.00 to 4.00m bgl) approximately 300mm of gain: Structureless CHALK composed of SILT with occasional yellow staining - possible chalk fill collapsed from 1.80 to 2.00m bgl (recovered as D sample at 3.00m bgl)																				SPT(S) 4.00m, N=4 (1,2/1,1,1,1) PID 4.00m, 0.0ppm			4	
Stiff brown and grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular fine flint. (ALLUVIUM)								4.70	15.89															
ALV(C)																								
Structureless pale grey CHALK composed of slightly sandy slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse very weak, low-density chalk (ZIG ZAG CHALK FORMATION ?, Grade Dm)								5.00	15.59				5.00 - 5.45	SPTLS						SPT(S) 5.00m, N=3 (1,1/1,0,1,1)			5	
No recovery. attributable to SPT disturbance.																								
SPT Liner sample description: CHALK recovered as greyish cream mottled dark brown slightly gravelly SILT with pockets of silty sandy GRAVEL. Sand is fine to coarse. Clasts are fine angular to sub-rounded chalk and flint. Occasional roots.													5.50 - 5.60	D	5.00 6.00	100	0	0						
Partial recovery (30%): Structureless pale grey CHALK composed of slightly sandy slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse, very weak, low-density chalk (ZIG ZAG CHALK FORMATION ?, Grade Dm ?)								6.00	14.59				6.00 - 6.45	SPTLS						SPT(S) 6.00m, N=5 (1,2/1,2,1,1)			6	
Structureless pale grey CHALK composed of slightly sandy very gravelly SILT. Gravel is subangular to subrounded, fine to coarse very weak low-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								6.45	14.14						6.00 7.50	NR	20	0	0					
No recovery attributable to SPT disturbance and blow out.																								
SPT Liner sample description: CHALK recovered as white mottled brownish black slightly gravelly SILT with occasional rootlets. Clasts are fine, angular to subrounded with brownish cream staining.													7.30 - 7.40	D		NI							7	
Minimal recovery (20%): Structureless pale grey CHALK composed of slightly sandy very gravelly SILT. Gravel is subangular to subrounded, fine to coarse, very weak, low-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)								7.50	13.09															
No recovery attributable to possible blow out.																							8	
No recovery attributable to SPT disturbance and blow out.								9.00	11.59				9.00 - 9.45	SPTLS							SPT(S) 9.00m, N=3 (1,1/1,1,0,1)			9
SPT Liner description: Structureless pale grey CHALK composed of slightly sandy very gravelly SILT. Gravel is subangular to subrounded, fine to coarse, very weak, low-density chalk. (ZIG ZAG CHALK FORMATION ?, Grade Dm)																								
								9.45	11.14						9.00 10.50	NR	0	0	0					
No recovery attributable to blow out.																								

<div>TETRA TECH</div> <div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>						Location Details						Status FINAL		Borehole Number BH-PTR-45		
						Easting: 549861.00 Northing: 250045.00 Level: 26.87mAOD Depth: 2.65m Logger: CE Type: WLS Inclination: 90°										
						Sheet 1 of 2										
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: RT	
0.00	1.20	Inspection Pit	Hand Excavated	J. Riseborough	1.20	300	2.00	150							Approved By: CP	
1.20	2.65	Dynamic Windowless Sampling	M13	J. Riseborough	2.65	150									Start Date: 24/03/2021	
															Finish Date: 24/03/2021	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Grass over soft to firm greyish brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint with brick and fused ash fragments. (TOPSOIL) MGR(TS)								0.52	26.35			0.10	ES1			
												0.20	ES2			
												0.50	D1			
MADE GROUND: Loose to medium dense dark brown clayey gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse flint with brick, quartz and fused ash fragments. MGR(G)								1.20	25.67			0.50	ES3	SPT(S) 1.20m, N=9 (1,2/2,2,3,2)		
												1.00	B1			
												1.00	D2			
MADE GROUND: Firm dark brown black sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint with brick, ash, fused ash and mudstone fragments. MGR(C)								2.65	24.22			1.00	ES4	SPT(S) 2.20m, N=42 (5,10/13,8,9,12)		
												1.20 - 1.65	SPTL53			
												1.50 - 1.60	D4			
...at 2.65m bgl: requirement for aquifer protection seal identified (due to Made Ground). Borehole terminated and relocated to BH-PTR-45A. EOH at 2.65m - Borehole terminated due to aquifer protection requirements.								2.65	24.22			2.00	ES5			
												2.10 - 2.20	D5			
												2.20 - 2.65	D6			
</																

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details							Status		Borehole Number	
							Easting: 549861.00 Northing: 250045.00							FINAL		BH-PTR-45	
							Level: 26.87mAOD Depth: 2.65m							Logger: CE Type: WLS		Inclination: 90°	
Method, Plant and Crew					Diameter		Casing		Groundwater							Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By:	RT	
0.00	1.20	Inspection Pit	Hand Excavated	J. Riseborough	1.20	300	2.00	150							Approved By:	CP	
1.20	2.65	Dynamic Windowless Sampling	M13	J. Riseborough	2.65	150									Start Date:	24/03/2021	
															Finish Date:	24/03/2021	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing					
												Depth (m)	Ref	Tests / Results			
												7.50	EW1				

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						<div>Location Details</div> <div>Easting: 549859.00 Northing: 250029.00</div> <div>Level: 26.85mAOD Depth: 10.50m</div> <div>Logger: DC Type: RC</div> <div>Inclination: 90°</div>						<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-PTR-45A</div>						
												Sheet 1 of 2								
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT						
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	7.50	150	07/04	18:00	6.45	-	-	Approved By: CP						
1.20	4.50	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	4.50	-			08/04	13:00	10.50	-	-	Start Date: 07/04/2021						
4.50	10.50	Rotary Core	Beretta T41	M. Bainbridge	10.50	-								Finish Date: 08/04/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
MADE GROUND: Crop over soft to firm brown, gravelly very sandy CLAY with abundant rootlets. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse flint and chalk with fused ash and concrete fragments.												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel comprises subangular to rounded, fine to coarse flint with fused ash and concrete fragments.								0.80	26.05			0.50	D							
MGR(C)								1.20	25.65			1.00	D1						1	
MADE GROUND: Stiff brown mottled white very sandy gravelly CLAY. Sand is fine to coarse. Gravel comprises rounded to subrounded, fine to medium chalk and flint.												1.20	D					SPT(S) 1.20m, N=35 (6,7/8,9,9,9)		
MGR(C)												1.20 - 1.65	SPTLS					PID 1.60m, 0.0ppm		
...from 1.50 to 1.70m bgl: with some organic material and a cobble of asphalt with associated unbound asphalt gravels.								1.85	25.00			1.60	ES5	1.20		100	0	0		
Stiff brown mottled white very gravelly CLAY. Gravel is subrounded to rounded, fine to coarse chalk and flint. (ALLUVIUM)								2.00	24.85			2.00 - 2.45	D					SPT(S) 2.00m, N=45 (7,9/11,11,11,12)	2	
ALV(C)								2.20	24.65			2.30	ES6	2.00		100	0	0	PID 2.30m, 0.0ppm	
Structureless white CHALK composed of silty GRAVEL. Gravel is subangular, fine to coarse, extremely weak low-density chalk, and flint. Discernible remnant inclined fractures widened by dissolution and infilled with clay. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								2.50	24.35											
Structureless CHALK composed of angular to subangular, fine to coarse off-white GRAVEL. Clasts are extremely weak, low-density. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								3.10	23.75					2.50		40	0	0	3	
No recovery - with minor evidence of dislocation (chalk residue on liner **)												3.40 - 3.50	D					SPT(S) 3.50m, N=14 (3,1/3,3,4,4)		
Partial recovery (40%) with possible dislocation from above: Structureless CHALK composed of angular to subangular, fine to coarse off-white GRAVEL. Clasts are extremely weak, low-density. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								3.50	23.35			3.50 - 3.95	SPTLS							
No recovery attributable to SPT disturbance and blow out.														3.50		40	0	0	4	
SPT Liner description: Probably Structureless CHALK recovered as angular to sub-rounded fine to coarse GRAVEL with soft brownish grey sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to medium angular to sub-rounded, weak low-density chalk flint. (Grade Dm or Dc ?)								4.10	22.75			4.40 - 4.50	D					SPT(S) 4.50m, N=42 (6,7/9,9,10,14)		
Partial recovery (40%): Structureless CHALK composed of angular to subangular, fine to coarse off-white GRAVEL. Clasts are extremely weak, low-density. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dc)								4.50	22.35			4.50 - 4.95	SPTLS		NI					
Disturbed by SPT recovery mainly non-intact: White CHALK composed of angular to subangular, fine to coarse off-white GRAVEL. Clasts are extremely weak, low-density. (HOLLYWELL NODULAR CHALK FORMATION ?, structured but unable to grade due to disturbance)								4.70	22.15			4.70 - 4.80	D						5	
Extremely weak, low to medium-density white CHALK. Discontinuity 1) Joints are 90° undulating rough, closed to partly open with infill of fine chalk clasts and black specks. Discontinuity 2) Bedding is 0 to 10' close, undulating rough, closed to partly open with infill of fine chalk clasts, clean with black specks [50/90/120]. (HOLLYWELL NODULAR CHALK FORMATION, medium density, Grade B3)												5.70 - 5.80	DPLT		4.50	10	100	20	0	
...from 5.67m to 5.87m bgl: multiple plastic wispy griotte marls.												6.00 - 6.45	SPTLS						SPT(S) 6.00m, 50 (7,12/50 for 160mm)	6
...from 6.00 to 6.30m bgl: SPT induced fractures.												6.20 - 6.30	DPLT			NI				
Very weak to weak, low to medium-density white shelly CHALK. Discontinuity 1) Joints are 70 to 90° undulating rough partly open to closed, clean with black specks. Discontinuity 2) Bedding is 0 to 10' close, undulating rough, partly open to closed clean with black specks [60/100/200]. (HOLLYWELL NODULAR CHALK FORMATION, medium density, Grade B3)								6.58	20.27			6.00		7.50	14	100	95	23		7
...from 7.90m to 8.80m bgl: regular thin wispy grey marl seams.												7.00 - 7.10	DPLT							
...from 8.75m to 8.80m bgl: pale grey marl seam.												7.70 - 7.80	DPLT							
...from 9.00 to 9.25m bgl: non-intact (SPT induced brecciation)												8.10 - 8.20	DPLT	7.50	8	100	90	80		8
Extremely weak to very weak low density white CHALK with occasional orange staining and multiple marl seams. Discontinuity 1) Joints are 80 to 90° undulating rough, party open clean with occasional black specks. Discontinuity 2) Bedding is 0 to 10' close, undulating rough, partly open to open infilled grey marl [50/100/200]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3)								9.10	17.75			8.90 - 9.00	DPLT						SPT(S) 9.00m, 44 (6,13/44 for 95mm)	9
...from 9.10m to 9.27m bgl: grey marl seam.												9.00 - 9.45	SPTLS		NI					
...at 9.64m bgl: grey marl seam.												9.10 - 9.20	D	9.00	10.50	100	33	15		
...at 9.27m bgl: grey marl seam.																				
...from 9.77m to 10.20m bgl: grey marly chalk.												10.00 - 10.10	D							10
Observations / Remarks										Drilling Fluid				Hammer Information						
1. Groundwater strike at 6.80 rising to 6.20m bgl (20 minutes).										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 10.00m bgl.										4.50	10.50			Air / Mist	DART449	65				
2. Bentonite aquifer protection seal introduced at 2.50m bgl.										Groundwater				Project Number						
* Denotes drillers description										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks					
**Denotes observation from core photograph										6.80	3	-	20	6.20						
NR - No Recovery										784-B025563										
NI - Non-intact																				
ND - Not Discernible																				

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details						Status FINAL		Borehole Number BH-PTR-45A																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
						Easting: 549859.00 Northing: 250029.00 Level: 26.85mAOD Depth: 10.50m Logger: DC Type: RC Inclination: 90°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20	300	7.50	150	07/04 08/04	18:00 13:00	6.45 10.50	-	-	Approved By:	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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<div>Extremely weak to very weak low density white CHALK with occasional orange staining and multiple marl seams. Discontinuity 1) Joints are 80 to 90' undulating rough, party open clean with occasional black specks. Discontinuity 2) Bedding is 0 to 10' close, undulating rough, partly open to open infilled grey marl [50/100/200]. (HOLLYWELL NODULAR CHALK FORMATION, Grade B3)</div> <div>Very weak, low-density, pale greyish white CHALK. Discontinuity 1) Joints are irregular closed clean, undulating smooth with no staining. No bedding through 300mm section [? / ? / 300 ?]. (ZIG ZAG CHALK FORMATION ? , Grade A ? 2 ?)</div> <div>EOH at 10.50m - Target depth achieved</div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											</

Project: Cambridge South East Transport – Phase 2										Status				Borehole Number								
Location: Cambridge										FINAL				BH-TH-01								
Client: Greater Cambridge Partnership																						
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT							
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	10.50	150	31/03	15:00	12.45	-		Approved By:	CP							
1.20	3.00	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	3.00	-								Start Date:	31/03/2021							
3.00	12.45	Rotary Core	Beretta T41	M. Bainbridge	12.45	-								Finish Date:	31/03/2021							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
MADE GROUND: Vegetation over firm, dark brown, slightly gravelly, slightly clayey, fine SAND with occasional rootlets (1.2mm diameter). Gravel is subangular to subrounded, fine to coarse flint and rare chalk. (TOPSOIL)								0.35	28.65				0.10 0.20	ES1 ES								
MGR(TS) Loose orange and brown, gravelly, slightly clayey, fine SAND with rare rootlets (up to 2mm diameter). Gravel is subangular to subrounded, fine to coarse flint (mainly flint cortex fragments) and rare chalk. With some medium gravel size pockets of orange brown silty SAND. (RIVER TERRACE DEPOSITS)								0.60	28.40				0.50 0.50	D ES								
RTD Dense * off-whitish brown, gravelly, very sandy CLAY. Gravel is subangular to subrounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS)								1.20	27.80				1.00 1.00 1.00	B D ES						1		
RTD Dense light brown, very gravelly, fine to medium SAND. Gravel is subangular to angular, fine to medium, weak low to medium-density, off-white with orange staining chalk. (RIVER TERRACE DEPOSITS)								1.43	27.57				1.20 - 1.30 1.20 - 1.65	D SPTLS	1.20 2.00		100	0	0	SPT(S) 1.20m, N=38 (3,8/9,9,12)		
RTD Dense orangish brown, slightly gravelly, fine to medium SAND. Gravel is subangular to subrounded, fine to medium flint (mainly cortex fragments). (RIVER TERRACE DEPOSITS)								1.73	27.27				1.60 - 1.70	D								
Structureless white CHALK composed of silty GRAVEL. Gravel is very weak to weak, low to medium density. Matrix is white. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION UNDIFFERENTIATED ?, Grade Dc)								2.00	27.00				1.90 - 2.00 2.00 - 2.45 2.10 - 2.20	D SPTLS D						2		
SPT Liner sample description: Medium dense orangish brown, gravelly, fine to medium SAND. Gravel is angular to subrounded, fine to medium flint (possible infilled dissolution feature within the HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?)								2.25	26.75						2.00 3.00		100	0	0	SPT(S) 2.00m, N=14 (2,3/3,4,3,4)		
Structureless white CHALK composed of silty GRAVEL. Clasts are very weak to weak, low to medium density. Matrix is white. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dc)								3.00	26.00				2.80 - 2.90 3.00 - 3.45	D SPTLS						3		
...at 2.64m bgl: thin slightly plastic grey marl seam <3mm thick. ...from 2.82 to 2.83m bgl: thin slightly plastic grey marl seam with white chalk intraclasts. ...at 2.93m bgl: slight orange staining.								3.90	25.10				4.00	D	3.00 4.50	NR		61	0	0		
No recovery. SPT Liner description: Recovered as white silty CHALK gravel. Clasts are very weak, low-density.								4.50	24.50				4.40 - 5.00 4.50 - 4.95	D SPTLS		ND					4	
Partial recovery (40%): Extremely weak to weak, low to medium-density white CHALK with occasional black specks. Discontinuity 1) Joints are 70 to 90' , undulating, rough, open to partially open with infill of comminuted chalk and white chalk clasts with no staining. Discontinuity 2) Bedding is 0 to 10' , probably very close, undulating, rough, open to partially open with infill of communited chalk and white chalk clasts. No staining [15 ? / 20 ? / 55 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ? 5 ?)								4.95	24.05				5.70 - 5.80	D							5	
...at 4.46m bgl: slightly plastic grey marl seam (up to 5mm thick).								6.00	23.00				6.00 - 6.45	SPTLS		NR					SPT(S) 4.50m, N=6 (1,2/2,1,2,1)	
No recovery. SPT Liner description: Recovered as white silty very weak, low-density CHALK gravel.								6.20	22.80				6.40 - 6.50	DPLT		NI					6	
Significant drilling disturbance with drilling induced fractures: Extremely weak to weak, low to medium-density white CHALK with occasional black specks. Discernible structure: Discontinuity 1) Joints are 70 to 90' , undulating, rough, open to partially open and infilled with communited chalk and white chalk clasts with no staining. Discontinuity 2) Bedding is 0 to 10' , very close, undulating, rough, open to partially open and infilled with comminuted chalk and white chalk clasts with no staining. [15 ? / 20 ? / 55 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION UndifferentiatedN, Grade B ? 5 ?)								6.54	22.46				6.00 7.50		11		85	60	11		7	
...at 5.18m bgl: thin slightly plastic marl seam. ...at 5.40m bgl: complete Gibbithyris semiglobosa (Cenomanian brachiopod) with small thin white cortex finger flint.								7.50	21.50				7.40 - 7.50	DPLT								
No recovery attributable to SPT disturbance. SPT Liner description: CHALK recovered as white silty very weak, low-density GRAVEL.								8.10	20.90				8.40 - 8.50	DPLT		NR		55	30	0		
Significant disturbance attributable to SPT, recovery non-intact: CHALK recovered as extremely weak to very weak, low-density white gravel. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, ?)								9.00	20.00				8.90 - 9.00 9.00 9.00 - 9.45	DPLT EW SPTLS		NR					SPT(S) 6.00m, N=13 (1,2/3,3,4,3)	
Extremely weak to very weak, low-density white CHALK with rare shell fragments and occasional faint relict fossil burrows. Discontinuity 1) Joints are 80 to 90' , slightly undulating, rough, closed, clean with rare black specks. Discontinuity 2) Bedding is 0 to 10, close, slightly undulating, rough, closed clean with rare black specks [50/100/190]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, low density, Grade A3)								9.10	19.90							NI					8	
Extremely weak to very weak, low-density white CHALK with rare shell fragments and occasional faint relict fossil burrows. Discontinuity 1) Joints are 80 to 90' , slightly undulating, rough, closed, clean with rare black specks. Discontinuity 2) Bedding is 0 to 10' , close, slightly undulating, rough, closed, clean with rare black specks [50/100/190]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated?, low density, Grade A3)								9.40	19.60				9.60 - 9.70	DPLT	9.00 10.50	8		70	66	30		9
																				10		
Observations / Remarks											Drilling Fluid					Hammer Information						
1. Groundwater strike at 8.80m, rising to 8.15m bgl (20 minutes). 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 12.00m bgl. * Denotes drillers description ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible											From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %					
											3.00	12.00			Air / Mist	BB2	64					
											Groundwater					Project Number						
											Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						
											8.80	8	-	20	8.15		784-B025563					

[illegible]

<div><div><div><div><div><div></div></div><div><div>Tt</div></div></div><div><div>TETRA TECH</div></div></div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>						Location Details				Status		Borehole Number								
						Easting: 551914.00		Northing: 249856.00		FINAL		BH-TH-02								
						Level: 29.50mAOD		Depth: 10.50m												
						Logger: DC		Type: RC												
						Inclination: 90°						Sheet 1 of 2								
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP					
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	9.00	150	31/03	19:00	6.45	-	-							
1.20	3.00	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	3.00	-			01/04	13:00	10.50	-	-							
3.00	10.50	Rotary Core	Beretta T41	M. Bainbridge	10.50	-								Start Date: 31/03/2021	Finish Date: 31/03/2021					
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Loose * dark brown, slightly gravelly SAND. Gravel is sub-angular, fine to coarse flint. (TOPSOIL) MGR(TS)							0.08	29.42			0.10	ES								
											0.20	ES								
(MADE GROUND: Loose * dark brown, slightly clayey, gravelly SAND. Sand is fine to coarse. Gravel is sub-angular to rounded, fine to coarse flint and rare chalk. (TOPSOIL) MGR(TS)							0.40	29.10			0.50	D								
											0.50	ES								
Medium dense * orangish brown, slightly gravelly SAND. Sand is fine to coarse. Gravel is sub-angular to rounded, fine to coarse flint and rare chalk. (RIVER TERRACE DEPOSITS) RTD							0.70	28.80			1.00	B								
											1.00	D								
Medium dense * yellowish brown very gravelly, slightly clayey, silty SAND. Sand is fine to coarse. Gravel is sub-angular to rounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS) RTD							1.20	28.30			1.00	ES								
											1.00	D								
Loose orangish brown, gravelly SAND. Sand is fine to medium. Gravel is angular to sub-rounded, fine to medium flint. (RIVER TERRACE DEPOSITS) RTD							1.37	28.13			1.20 - 1.30	SPTLS								
											1.20 - 1.65	D								
Loose brownish off-white gravelly SAND. Sand is fine to medium. Gravel is angular to sub-rounded, fine to medium chalk. (RIVER TERRACE DEPOSITS) RTD							1.59	27.91			1.40 - 1.50	D	1.20							
											1.60 - 1.70	D	2.00							
...at 1.40m bgl: with fractured black flint. ...from 1.48m to 1.50m bgl: with layer of brown gravelly sand. ...from 1.53m to 1.59m bgl: with solid very weak, low density chalk cobble.							1.79	27.71			1.90 - 2.00	D								
											2.00 - 2.45	SPTLS								
Medium dense greyish brown gravelly SAND. Sand is fine to medium. Gravel is angular to sub-angular, fine to medium flint. (RIVER TERRACE DEPOSITS) RTD							2.00	27.50			2.10 - 2.20	D								
												D								
Extremely weak low-density white CHALK. Discontinuity 1). Joints are 70 to 90', inclined, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10', open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ?)							2.20	27.30												
No recovery attributable to SPT disturbance. Some chalk residue / striations on liner suggestive of dislocation. **							3.00	26.50			2.90 - 3.00	D								
											3.00 - 3.45	SPTLS								
Possible slight dislocation from above (~200mm): Extremely weak, low-density white CHALK. Significant drilling induced fractures. Discernibel structure: Discontinuity 1). Joints are 70 to 90', subvertical, inclined, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10, probably very close to close, subhorizontal, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ?)							3.75	25.75												
No recovery attributable to SPT disturbance and blow out. SPT Liner description: CHALK recovered as white silty, very weak, low-density GRAVEL.							4.50	25.00			4.30 - 4.40	DPLT								
											4.50 - 4.95	SPTLS								
Partial recovery (50%) of Extremely weak, low-density white CHALK. Significant drilling induced fractures. Discernible structure: Discontinuity 1). Joints are 70 to 90', inclined, open infilled with communitated chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10', close, open, infilled with communitated chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough [50 ? / 60 ? / 80 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ? 3 ?)							5.27	24.23												
...at 2.33m bgl: with dissolution bedding joint up to 3mm infilled with brown clay. ...at 2.42m bgl: very small thin white cortex tabular flint (5mm diameter). ...at 2.72m bgl: small thin white cortex tabular flint (15mm thick).							6.00	23.00			4.50									
											6.00									
No recovery attributable to SPT disturbance and blow out. SPT Liner description: CHALK recovered as white silty very weak, low-density GRAVEL.							6.20	22.80			6.00 - 6.45	SPTLS								
											6.20 - 6.30	DPLT								
Extremely weak, low-density white CHALK. Discontinuity 1). Joints are 80 to 90', inclined, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10', very close to close, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough [20/30/40]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, low density, Grade B4)							6.90	22.30			6.00									
											6.90									
...at 3.97m bgl slight orange staining. ...from 4.30m bgl chalk becomes slightly gritty.							7.40	21.80			6.90 - 7.00	DPLT	16	94	80	28				
											7.00 - 7.10	DPLT								
No recovery attributable to SPT disturbance and blow out. SPT Liner description: CHALK recovered as white silty very weak, low-density GRAVEL.							7.70	21.30			7.40 - 7.50	DPLT								
											7.50 - 7.60	DPLT								
Extremely weak, low-density white CHALK. Discontinuity 1). Joints are 80 to 90', inclined, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10', very close to close, open infilled with comminuted chalk and white chalk clasts with rare black speckling and rare orange staining surfaces, slightly undulating, slightly rough [20/30/40]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, low density, Grade B4)							8.17	21.33			7.70 - 7.80	DPLT								
											7.80 - 7.90	DPLT								
...at 5.77m bgl: small tabular/finger shaped thin white cortex flint with a half concrete ring of chalk in the central section of flint. ...from 6.00m bgl: Discontinuity set 2) Bedding [60/90/150] with some shell fragments. ...at 7.21m bgl: with some thin wispey griotte marls. ...at 7.25m bgl: 4mm thick orangish grey slightly plastic marl seam with chalk intraclasts. ...from 7.50 to 7.60m bgl: no recovery attributable to SPT disturbance and blow out. ...from 7.90m to 8.17m bgl: zone of multiple flasar marl, wispey griottes and grey slightly plastic marls.							9.00	20.50			8.20 - 8.30	DPLT	9	100	90	65				
											8.30 - 8.40	DPLT								
...at 5.77m bgl: small tabular/finger shaped thin white cortex flint with a half concrete ring of chalk in the central section of flint. ...from 6.00m bgl: Discontinuity set 2) Bedding [60/90/150] with some shell fragments. ...at 7.21m bgl: with some thin wispey griotte marls. ...at 7.25m bgl: 4mm thick orangish grey slightly plastic marl seam with chalk intraclasts. ...from 7.50 to 7.60m bgl: no recovery attributable to SPT disturbance and blow out. ...from 7.90m to 8.17m bgl: zone of multiple flasar marl, wispey griottes and grey slightly plastic marls.							9.30	20.20			8.90 - 9.00	DPLT								
											9.00 - 9.45	SPTLS								
											9.30 - 9.40	DPLT	9.00							
											10.50									

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>					Location Details					Status FINAL		Borehole Number BH-TH-03						
					Easting: 551924.00 Northing: 249841.00 Level: 29.44mAOD Depth: 10.50m Logger: CE Type: RC Inclination: 90°													
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP			
0.00 1.20 3.00	1.20 3.00 10.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 10.50	300 - -	9.00	150	01/04 04/04	18:00 11:30	6.45 10.50	- -	-	Start Date: 01/04/2021	Finish Date: 01/04/2021			
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Vegetation over soft to firm dark brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse flint. (TOPSOIL) MGR(TS)							0.30	29.14			0.50	D						
Loose light brown gravelly fine to coarse SAND. Gravel is subangular to rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD							0.80	28.64			1.00 1.00 1.20 - 1.30 1.20 - 1.65	B D ES1 D SPTLS					SPT(S) 1.20m, N=6 (2,2/1,2,1,2)	
Loose yellowish brown and white, very gravelly fine to medium SAND. Gravel is subangular to rounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS) RTD											1.20 2.00			100	0	0		
No recovery attributable to SPT disturbance. SPT Liner description: Recovered as fine to medium SAND.							2.00	27.44			1.90 - 2.00 2.00 - 2.45	D SPTLS					SPT(S) 2.00m, N=10 (2,2/2,2,3,3)	
...at 2.00m bgl: becoming medium dense.							2.20	27.24										
Medium dense yellowish brown and white, gravelly fine to medium SAND. Gravel is subangular to rounded, fine to coarse flint and chalk. (RIVER TERRACE DEPOSITS) RTD							2.55	26.89			2.40 - 2.50	D	2.00 3.00		80	0	0	
Structureless white CHALK with rare black specks composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, very weak to weak low-density chalk. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dc)							3.00	26.44			3.00 - 3.45	SPTLS					SPT(S) 3.00m, N=10 (2,3/2,3,2,3)	
Minimal recovery (20%) of highly disturbed light brown, sandy silty, fine to coarse, nodular cortex flint and white chalk GRAVEL. (HOLLYWELL NODULAR CHALK FORMATION ?, Grade Dm ?)													3.00 4.50	NR	0	0	0	
Structureless white CHALK with rare black specks composed of silty GRAVEL. Gravel is subangular to subrounded, fine to coarse, very weak to weak, low-density chalk. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated?, Grade Dc)							4.50	24.94			4.50 - 4.60 4.50 - 4.95	D SPTLS					SPT(S) 4.50m, N=16 (2,3/3,4,4,5)	
Significant drilling disturbance. Weak low-density white and cream CHALK with occasional yellow staining. Possibly intraclastic **. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, low density, unable to grade due to drilling disturbance ?)							4.65	24.79			5.10 - 5.20	DPLT	4.50 6.00	NI	100	10	0	
Zone of core loss attributable to SPT disturbance. Chalk residue / striations noted on liner indicating possible dislocation **. SPT Liner description: Recovered as silty white CHALK gravel.							6.00	23.44			5.90 - 6.00 6.00 - 6.45	DPLT SPTLS		NR			SPT(S) 6.00m, N=23 (3,4/5,5,6,7)	
Significant drilling disturbance with possible dislocation (possible indentation from SPT noted from 6.40 to 6.80**). Weak low-density white and cream CHALK. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, ?).							6.40	23.04			6.90 - 7.00	DPLT	6.00 7.50	NI	75	10	10	
Significant drilling disturbance, recovery non-intact weak, low-density white CHALK gravel.							7.50	21.94						NI				
Weak, low-density white CHALK with occasional yellow staining and black specks. Discontinuity 1) Joints are 80 to 90' subvertical rough tight and clean. Discontinuity 2) Bedding is 0 to 10' close, open to partly open, clean [30/60/100]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade C4)							7.65	21.79			7.70 - 7.80	DPLT	7.50 9.00		90	10	10	
											8.50 - 8.60	DPLT		6				
											9.00 - 9.45	SPTLS					SPT(S) 9.00m, N=28 (4,4/6,7,7,8)	
											9.20 - 9.30	DPLT	9.00 10.50		80	10	0	

Project: Cambridge South East Transport – Phase 2										Location Details				Status		Borehole Number						
Location: Cambridge										Easting: 551893.00 Northing: 249821.00				FINAL		BH-TH-04						
Client: Greater Cambridge Partnership										Level: 28.90mAOD Depth: 12.45m												
										Logger: DC Type: RC												
										Inclination: 90°												
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT							
0.00	1.20	Inspection Pit	Hand Excavated	M. Bainbridge	1.20	300	10.50	150	06/04	18:00	12.45	-		Approved By:	CP							
1.20	3.00	Dynamic Windowless Sampling	Beretta T41	M. Bainbridge	3.00	-								Start Date:	06/04/2021							
3.00	12.45	Rotary Core	Beretta T41	M. Bainbridge	12.45	-								Finish Date:	22/04/2021							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
MADE GROUND: Loose brown silty SAND with abundant rootlets. (TOPSOIL) MGR(TS)								0.40	28.50				0.50	D								
Loose * dark orange brown slightly gravelly fine to medium SAND. Gravel comprises fine to coarse, subangular to angular flint and flint cortex fragments. (RIVER TERRACE DEPOSITS) RTD								0.90	28.00				1.00 1.00 1.20 - 1.30 1.20 - 1.65	B D D SPTLS					SPT(S) 1.20m, N=13 (3,3/3,3,4,3)			
Firm orangish brown very gravelly very sandy CLAY. Gravel is sub-angular to rounded, fine to medium flint, and fine to medium, subangular, moderately strong, high-density chalk. (RIVER TERRACE DEPOSITS) RTD								2.00	26.90				1.90 - 2.00 2.00 - 2.45	D SPTLS					SPT(S) 2.00m, N=22 (4,5/6,6,6,4)			
Medium dense light brown mottled white gravelly SAND. Gravel is sub-angular to rounded fine to medium flint (mainly cortex fragments) and high density chalk clasts. (RIVER TERRACE DEPOSITS) RTDat 2.35m bgl: with orangish brown iron cemented siltstone nodule.								2.44	26.46				2.40 - 2.50	D	2.00 3.00		100	0	0	SPT(S) 3.00m, N=11 (2,3/2,3,3,3)		
Medium dense orangish brown gravelly SAND. Gravel is sub-angular to rounded fine to medium flint (mainly cortex fragments) and high density chalk. (RIVER TERRACE DEPOSITS) RTD								2.83	26.07				2.90 - 3.00 3.00 - 3.45	D SPTLS								
Structureless white CHALK composed of extremely weak to very weak, low-density clasts. Matrix is white with some blue speckles. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dc) ...at 2.92m bgl: with orange staining.								3.00	25.90													
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Recovered as slightly gravelly CHALK silt (orange brown medium sand seam noted). (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dm ? / Dc ?) Structureless white CHALK composed of silty GRAVEL. Clasts are weak to very weak, low-density. Matrix is white with some blue speckles. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dc) ...from 3.20 to 3.40m bgl: recovery is mainly non-intact coarse CHALK gravel - possibly attributable to SPT disturbance and blow out of fines. **								3.20	25.70				3.40 - 3.50	D								
Extremely weak to very weak, low-density white CHALK with rare black and brown speckles, with 200 to 450mm thick zones / beds of possibly intraclastic silty chalk GRAVEL. **. Discernible structure: Irregular open joints (unable to determine bedding). (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , low density, Grade C ? 5 ? interbedded with Grade Dc) ...at 4.29m bgl: with slight orange staining along relict trace fossil burrows. ...from 4.50 to 4.90m bgl: Bedding [10/20/65]. ...from 4.73m bgl: thin pale grey and orange speckled marl seam (<5mm thick). ...at 5.30m bgl: small pockets of heavy iron staining and some mineralisation. ...from 5.50 to 6.00m bgl: Bedding [10/20/65].								4.00	24.90				4.20 - 4.30	D								
													4.50 - 4.95	SPTLS						SPT(S) 4.50m, N=17 (3,3/4,4,4,5)		
													4.90 - 5.00	D								
													4.50 6.00	NI/ND		90	0	0	0			
													5.70 - 5.80	D								
													6.00 - 6.45	SPTLS						SPT(S) 6.00m, N=15 (3,2/3,4,4,4)		
													6.40 - 6.50 6.40 - 6.50	DPLT PLT								
													6.00 7.50	NI		94	40	0				
													7.00 - 7.10 7.00 - 7.10	DPLT PLT								
Very weak, low-density white CHALK. Discontinuity 1). Joints are 80 to 90', subvertical, open, clean, slightly undulating, slightly rough with some black speckling. Discontinuity 2). Bedding is 0 to 10', close, open, clean, slightly undulating, slightly rough with some black speckling [40/70/230]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , low density, Grade B ? 3 ?) ...at 7.74m bgl: with orange stained relict sponge bed. ...at 8.16m bgl: 10mm thick greenish grey plastic marl seam. ...at 8.31m bgl: 20mm thick grey plastic marl seam.								7.50	21.40				7.90 - 8.00 7.90 - 8.00	DPLT PLT								
													7.50 9.00		17	96	50	17				
													8.50 - 8.60 8.50 - 8.60	DPLT PLT								
Very weak, low-density white CHALK. Discontinuity 1). Joints are 70', closed to open, clean, slightly undulating, slightly rough with some black speckling. Discontinuity 2). Bedding is 0 to 10', close, subhorizontal, open, clean, slightly undulating, slightly rough with some black speckling [70/140/180]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade B3) ...from 9.00 to 9.30m bgl: drilling induced disturbance / fracturing form SPT **.								9.00	19.90				9.00 - 9.45	SPTLS							SPT(S) 9.00m, N=19 (2,4/4,4,5,6)	
													9.30 - 9.40	D								
													9.00 10.50		13	100	75	30				

[illegible]

<div>Project: Cambridge South East Transport – Phase 2</div> <div>Location: Cambridge</div> <div>Client: Greater Cambridge Partnership</div>										<div>Easting: 551903.00Northing: 249840.00</div> <div>Level: 29.32mAODDepth: 12.45m</div> <div>Logger: DCType: RC</div> <div>Inclination: 90°</div>				<div>Status</div> <div>FINAL</div>		<div>Borehole Number</div> <div>BH-TH-05</div>			
														Sheet 1 of 2					
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50			
From (m)		To (m)		Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT			
0.00 1.20 3.00		1.20 3.00 12.45		Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 12.45	300 - -	10.50	150	06/04	16:00	12.45	-	-	Approved By: CP			
																Start Date: 06/04/2021			
																Finish Date: 22/04/2021			
Strata Description									Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring					
										Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Loose * dark brown, slightly clayey, slightly gravelly, fine to coarse SAND with abundant rootlets. Gravel is sub-angular to sub-rounded, fine to coarse flint. (TOPSOIL)										0.30	29.02								
MGR(TS)																			
Loose * orangish brown, very clayey, silty, slightly gravelly, fine to coarse SAND. Gravel is sub-angular to sub-rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS)																			
RTD																			
Loose * light brown gravelly, silty, fine to coarse SAND. Gravel is sub-angular to sub-rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS)										1.00	28.32								
RTD										1.20	28.12								
Medium dense light brown mottled white, gravelly SAND. Gravel is angular to sub-angular, fine to medium, weak white chalk . Sand is fine to medium. (RIVER TERRACE DEPOSITS)										1.33	27.99								
RTD										1.37	27.95								
Medium dense dark brown, gravelly silty, fine to medium SAND. (RIVER TERRACE DEPOSITS)										1.96	27.36								
RTD										2.00	27.32								
Medium dense light brown, gravelly, medium SAND. Gravel is sub-angular to rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS)										2.10	27.22								
RTD																			
Structureless CHALK composed of white very weak to weak, low-density gravelly very clayey SAND. Matrix is white. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dc)										2.85	26.47								
No recovery attributable to SPT disturbance.										3.00	26.32								
Structureless CHALK composed of white, very weak to weak, low-density, sandy, silty GRAVEL. Matrix is white. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dc)										3.35	25.97								
Extremely weak to weak, low-density white CHALK with rare small shell fragments. Discontinuity 1). Joints are 80 to 90', subvertical, open, infilled with white chalk clasts and comminuted chalk, undulating, rough with some rare black speckling. Discontinuity 2). Bedding is 0 to 10' , close ?, undulating rough, open, infilled with white chalk clasts and comminuted chalk with some rare black speckling [? / 30 / ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, low density, Grade C ? 4 ?)																			
Zone of core loss attributed to SPT disturbance.																			
Significant drilling disturbance, recovery mainly non-intact: Extremely weak to weak, low to medium-density white CHALK gravel (possibly intraclastic**) with rare small shell fragments. Discernible structure (where intact): Discontinuity 1). Joints are 80 to 90', subvertical, open, infilled with white chalk clasts and comminuted chalk, undulating, rough with some rare black speckling. Discontinuity 2). Bedding is 0 to 10 ' very close ?, open, infilled with white chalk clasts and comminuted chalk, undulating, rough with some rare black speckling [20 ? / 30 ? / 60 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade C ? 4 ? interbedded with Grade Dc ?)																			
...at 4.19m bgl: with orange stained sponge bed.																			
...at 5.52m bgl: with orange stained sponge bed.																			
No recovery attributable to SPT disturbance and blow out.										6.00	23.32								
Significant drilling disturbance attributable to SPT, recovery non-intact CHALK gravel.										6.30	23.02								
Extremely weak to weak, low-density white CHALK with rare small shell fragments. Discontinuity 1). Joints are 80 to 90', open, undulating, rough, open, infilled with white chalk clasts and comminuted chalk with some rare black speckling. Discontinuity 2). Bedding is 0 to 10', close, undulating, rough, open, infilled with white chalk clasts and comminuted chalk, with some rare black speckling [25/60/360]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, low density, Grade C4)										6.40	22.92								
...at 8.06m bgl: very small thin white finger/tabular flint. (indicative of GLYNBOURNE TUBULAR FLINT MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION)																			
...at 8.13m bgl: 40mm diameter nodular flint cobble with a thick white cortex. (indicative of GLYNBOURNE TUBULAR FLINT MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION)																			
...from 8.24 to 8.40m bgl: zone of multiple wispey griottes and flasar grey marls. (possibly GUN GARDENS MAIN MARL MEMBER ? , HOLLYWELL NODULAR CHALK FORMATION)																			
Very weak to weak, low-density white CHALK with rare inoceramid and mytilid fragments. Discontinuity 1). Joints are 80 to 90', closed, clean with rare speckling, slight undulating, rough. Discontinuity 2). Bedding is 0 to 10', close, slightly undulating, rough, closed to open, clean with rare speckling, [? /150/ ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade B ? 3 ?)										8.40	20.92								
No recovery attributable to SPT disturbance and blow out.										9.00	20.32								
Very weak to weak, low-density white CHALK with rare inoceramid and mytilid fragments. Discontinuity 1). Joints are 80 to 90', slightly undulating, rough, closed, clean with rare speckling. Discontinuity 2). Bedding is 0 to 10', close, slightly undulating, rough, closed to open, clean with rare speckling [70/150/270]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, low density, Grade B3)										9.10	20.22								
...at 9.17m bgl: slight orange staining - possible sponge bed.																			
Observations / Remarks										Drilling Fluid						Hammer Information			
1. Groundwater encountered at 7.50m bgl.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 2.00m bgl.										3.00	12.00			Air / Mist	BB1	65			
* Denotes drillers description										Groundwater						Project Number			
** Denotes observation from core photograph										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks				
NR - No Recovery										7.50	8	-	20	6.15					
NI - Non-intact																			
ND - Not Discernible																			
																784-B025563			

784-B025563

<div><div><div>Tt</div><div>TETRA TECH</div></div><div>Project: Cambridge South East Transport – Phase 2</div><div>Location: Cambridge</div><div>Client: Greater Cambridge Partnership</div></div>							Location Details					Status FINAL		Borehole Number BH-TH-05						
							Easting: 551903.00 Northing: 249840.00 Level: 29.32mAOD Depth: 12.45m Logger: DC Type: RC Inclination: 90°													
Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time					Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT	Approved By: CP	Start Date: 06/04/2021	Finish Date: 22/04/2021			
0.00 1.20 3.00	1.20 3.00 12.45	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated Beretta T41 Beretta T41	M. Bainbridge M. Bainbridge M. Bainbridge	1.20 3.00 12.45	300 - -	10.50	150	06/04	16:00	12.45	-								
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
Very weak to weak, low-density white CHALK with rare inoceramid and mytilid fragments. Discontinuity 1). Joints are 80 to 90', slightly undulating, rough, closed, clean with rare speckling. Discontinuity 2). Bedding is 0 to 10', close, slightly undulating, rough, closed to open, clean with rare speckling [70/150/270]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, low density, Grade B3) ...at 11.02m bgl slight orange staining - possible sponge bed. ...at 11.76m bgl: slight orange staining - possible sponge bed. ...at 11.93m bgl slight orange staining - possible sponge bed. No recovery (SPT) only.								12.00	17.32				10.30 - 10.40	DPLT					SPT(S) 12.00m, N=32 (3,5/7,7,9,9)	
													10.70 - 10.80	DPLT						
													11.00 - 11.10	DPLT	10.50 12.00	9	98	86		28
													11.90 - 12.00 12.00 - 12.45	DPLT SPTLS						
EOH at 12.45m - Target depth achieved								12.45	16.87											
Observations / Remarks 1. Groundwater encountered at 7.50m bgl. 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 2.00m bgl. * Denotes drillers description ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible												Drilling Fluid					Hammer Information			
												From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
												3.00	12.00			Air / Mist	BB1	65		
												Groundwater					Project Number			
												Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	784-B025563		

784-B025563

Project: Cambridge South East Transport – Phase 2 Location: Cambridge Client: Greater Cambridge Partnership						Location Details						Status FINAL		Borehole Number BH-TH-06							
						Easting: 551914.00		Northing: 250042.00		Level: 31.65mAOD						Depth: 8.65m		Logger: DC		Type: RC	
						Inclination: 90°															
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT						
0.00	0.50	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated M13 M13	J. Riseborough J. Riseborough J. Riseborough	0.50	200	7.00	150	31/03	18:00	8.65	-		Approved By:	CP						
0.50	1.20				1.20																
1.20	8.65				8.65																
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring										
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results			
MADE GROUND: Dark brown gravelly slightly sandy CLAY. Gravel is sub-angular to sub-rounded, fine to coarse flint and chalk. (TOPSOIL) MGR(TS)							0.30	31.35			0.10 0.20	ES1 ES2									
MADE GROUND: Dark brown gravelly clayey SAND. Gravel is sub-angular to sub-rounded, fine to coarse flint and chalk. (TOPSOIL) MGR(TS)							0.50	31.15			0.40 0.50 0.50 - 0.60	D ES3 D									
Structureless white CHALK composed of gravelly SILT. Clasts comprise extremely weak to weak, low-density chalk with angular to subrounded, fine to coarse flint. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dm) ...from 0.50 to 1.05m bgl; layer of gravelly brown sand. Gravel is fine to coarse, angular to subrounded flint. (possible infilled dissolution pipe).							1.20	30.45			1.00 1.00 - 1.10 1.20 - 1.65	B D SPTLS					SPT(S) 1.20m, N=14 (4,4/2,4,4,4)				
Zone of core loss attributed to SPT disturbance, with possible dislocation of sample below due to split liner.							1.72	29.93					1.20 2.20	NR NI	48	0	0				
Possible dislocation from above: Structureless white CHALK composed of gravelly SILT. Gravel is extremely weak to weak, low-density chalk and angular to sub-rounded, fine to coarse flint. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ? , Grade Dm)							2.20	29.45			2.00 - 2.10 2.20 - 2.65	D SPTLS					SPT(S) 2.20m, N=20 (4,5/3,6,5,6)				
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Extremely weak to very weak, low-density white CHALK recovered as non-intact gravel.							2.65	29.00			2.20 3.20		NR	5	0	0					
Significant drilling disturbance. Minimal recovery (5%) of extremely weak to very weak, low-density white CHALK recovered as non-intact gravel.							3.20	28.45			3.20 - 3.65	D					SPT(S) 3.20m, N=27 (5,6/7,7,6,7)				
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Extremely weak to very weak, low-density white CHALK recovered as non-intact gravel.							3.65	28.00			3.20 4.20		NR	5	0	0					
Significant drilling disturbance. Minimal recovery (5%) of extremely weak to very weak, low-density white CHALK recovered as non intact gravel.							4.20	27.45			4.20 - 4.65	SPTLS					SPT(S) 4.20m, N=20 (4,4/5,6,5,4)				
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Extremely weak to very weak, low-density white CHALK recovered as non-intact gravel.							4.65	27.00			4.20 5.10 - 5.20 5.20 - 5.65		NR	20	0	0					
Significant drilling disturbance. Minimal recovery (20%) of extremely weak to very weak, low-density white CHALK recovered as (nodular) non-intact gravel. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?)							5.20	26.45				D SPTLS					SPT(S) 5.20m, N=18 (3,3/4,5,4,5)				
Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Extremely weak to very weak, low-density white CHALK recovered as non-intact gravel.							5.65	26.00			5.80 5.80	D DPLT		NR							
Significant drilling induced disturbance: Extremely weak to very weak, low-density white CHALK. Discernible structure: Discontinuity 1). Joints are 80 to 90 °, subvertical, closed, open, clean with little black speckling, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10 °, close, closed and open, clean with little black speckling, slightly undulating, slightly rough [60/70/130]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, low density, Grade B4)											5.20 5.20 6.70 6.70		60 45 0 11								
											7.20 - 7.30 7.20 - 7.30	D DPLT									
...at 7.60m bgl; with shell fragments.											6.70 8.20		18 80 40								
No recovery (SPT only)							8.20	23.45			8.20 - 8.65	SPTLS					SPT(S) 8.20m, N=17 (5,4/3,5,5,4)				
EOH at 8.65m - Target depth achieved.							8.65	23.00													
Observations / Remarks 1. Groundwater not encountered. 2. Upon completion exploratory hole installed with 63mm groundwater monitoring pipe to 8.00m bgl. * Denotes drillers description ** Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible						Drilling Fluid								Hammer Information							
						From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %									
						1.20	8.20			Air / Mist	BB3	63									
						Groundwater								Project Number							
						Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks										
						784-B025563															

Project: Cambridge South East Transport – Phase 2							Location Details					Status		Borehole Number						
Location: Cambridge							Easting: 551966.00 Northing: 250147.00					FINAL		BH-TH-07						
Client: Greater Cambridge Partnership							Level: 33.54mAOD Depth: 8.20m													
							Logger: DC Type: RC													
							Inclinor: 90°													
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: RT						
0.00	0.50	Inspection Pit	Hand Excavated	J. Riseborough	0.50	300	7.00	150	01/04	17:00	8.20	-		Approved By: CP						
0.50	1.20	Dynamic Windowless Sampling	M13	J. Riseborough	1.20	-								Start Date: 01/04/2021						
1.20	8.20	Rotary Core	M13	J. Riseborough	8.20	-								Finish Date: 21/04/2021						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Firm brown gravelly clayey SAND. Gravel is subangular to subrounded, fine to medium flint and rare chalk. (TOPSOIL) MGR(TS)								0.40	33.14			0.10 ES1								
MADE GROUND: Medium dense yellowish brown clayey gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded, fine to coarse chalk and rare flint. MGR(G)								0.50	33.04			0.20 ES2								
Medium dense brown slightly gravelly SAND. Gravel is angular to sub-angular fine to medium flint. (RIVER TERRACE DEPOSITS) RTD								0.87	32.67			0.30 D1								
Firm light brown gravelly very sandy CLAY. Gravel is angular to sub-rounded, fine to medium flint and weak chalk clasts. (RIVER TERRACE DEPOSITS) RTD								1.20	32.34			0.40 ES3								
No recovery attributable to SPT disturbance.								1.65	31.89			0.50 - 0.60 D2								
SPT Liner description: Recovered as yellowish white sandy gravelly SILT (comminuted chalk). Gravel is very weak, low-density, fine to coarse, subangular. (HOLLYWELL NODULAR CHALK FORMATION ?, Possibly Grade Dm ?)								2.20	31.34			1.00 - 1.10 D2							SPT(S) 1.20m, N=17 (1,5/4,4,4,5)	
No recovery.								2.65	30.89			1.20 - 1.65 SPTLS4								
No recovery attributable to SPT disturbance and blow out.								2.80	30.74			1.20 2.20 NR								
No recovery, possible dislocation of sample below due to split liner.								3.20	30.34			2.20 3.20 NI								
Structureless yellowish white CHALK composed of silty GRAVEL. Gravel is very weak to weak, low to medium-density, yellowish white with orange staining chalk with occasional black speckling on faces. Matrix is yellowish white and orange stained. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dc)								3.40	30.14			3.00 - 3.10 D6								
Zone of core loss attributable to SPT disturbance and blow out.								4.60	28.94			3.20 - 3.65 SPTLS7							SPT(S) 3.20m, N=22 (4,6/5,5,6,6)	
Structureless yellowish white with orange staining CHALK composed of very weak to weak, low to medium-density GRAVEL with occasional black specks on faces. Matrix is yellowish white and orange sand. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dc)								5.20	28.34			3.40 - 3.50 D8								
...at 3.58m bgl: moderate to heavy orange staining.												4.10 - 4.20 D9								
...at 3.66m bgl: with small thin white nodular cortex flint.												4.20 - 4.65 SPTLS1 0							SPT(S) 4.20m, N=23 (6,5/6,6,6,5)	
...at 3.85m bgl moderate to heavy orange staining.												4.50 - 4.60 D11								
...at 4.05m bgl: with small thin white nodular cortex flint and moderate to heavy orange staining.												4.20 5.20 NI								
...at 4.19m bgl: with small thin white nodular cortex flint.												5.10 - 5.20 D12							SPT(S) 5.20m, N=11 (3,3/2,3,3)	
...at 4.45m bgl with small thin white nodular cortex flint.												5.20 6.70 NR/NI								
Significant drilling disturbance, recovery mainly non-intact: Extremely weak, low-density, white CHALK with black speckles. Discernible structure: Discontinuity 1). Joints are 60 to 80', open, clean with black speckling and orange staining, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10' , inclined, open, clean with black speckling and orange staining, slightly undulating, slightly rough. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade C ?)								6.70	26.84			6.60 - 6.70 D14								
...from 4.80 to 4.97m bgl: with liesegang banding and orange staining, ending abruptly at 4.97m bgl, possibly at a thin marl seam.								7.10	26.44			7.00 - 7.10 D15								
Minimal recovery (20%) attributable to SPT disturbance and blow out: Extremely weak, low-density white CHALK gravel in a comminuted chalk matrix.								8.20	25.34			6.70 8.20 NI								
Significant drilling disturbance, recovery non-intact, with possible gain from above: Extremely weak, low-density white CHALK gravel with black speckles. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, ?)												8.00 - 8.10 D16								
Extremely weak, low-density white CHALK with black speckles. Mainly non-intact, possibly with localised drill disturbed intraclastic zones**. Discernible structure: Discontinuity 1). Joints are 60 to 80' , inclined, open, clean with black speckling and orange staining, slightly undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10' , inclined, open, clean with black speckling and orange staining, slightly undulating, slightly rough [10 ? / 30 ? / 70 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ? 5 ?)																				
...at 7.69m bgl: with slight orange staining.																				
...at 7.98 m bgl: with some light brown clay. Possible dissolution widened fractures infilled with white clay up to 2mm thick.																				
EOH at 8.20m - Target depth achieved.																				
																		</		

[illegible]

Project: Cambridge South East Transport – Phase 2							Location Details					Status		Borehole Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Location: Cambridge							Easting: 552084.00 Northing: 250182.00					FINAL		BH-TH-09																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Client: Greater Cambridge Partnership							Level: 34.22mAOD Depth: 8.65m																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Method, Plant and Crew							Diameter		Casing		Drilling Progress by Time					Scale: 1:50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	RT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
0.00	1.20	Inspection Pit Dynamic Windowless Sampling Rotary Core	Hand Excavated M13 M13	J. Riseborough J. Riseborough J. Riseborough	1.20	300	7.00	150	06/04	17:30	8.65	-		Approved By:	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
1.20	2.20				2.20	-									Start Date:	06/04/2021																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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MADE GROUND: Vegetation over soft to firm light brown sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint (TOPSOIL). MGR(TS) MADE GROUND: Soft to firm orangish brown sandy slightly gravelly CLAY with frequent rootlets and occasional weak fragments of chalk. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint. (TOPSOIL) MGR(TS) Medium dense brown slightly gravelly clayey SAND with occasional partly decomposed plant roots and abundant chalk fragments. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD Stiff to very stiff (friable) orange mottled brown and light grey slightly sandy CLAY with rare angular to rounded fine flint and chalk clasts. (LOWESTOFT FORMATION ?)								0.30	33.92																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

<div><div><div><div></div><div>Tt</div></div><div>TETRA TECH</div></div></div>				Project: Cambridge South East Transport – Phase 2				Location: Cambridge				Client: Greater Cambridge Partnership				Location Details				Status		Borehole Number						
																Easting: 552084.00 Northing: 250180.50				FINAL		BH-TH-09A						
																Level: 34.22mAOD Depth: 9.45m												
																Logger: DC Type: RC												
																Inclination: 90°						Sheet 1 of 1						
Method, Plant and Crew								Diameter		Casing		Drilling Progress by Time								Scale: 1:50								
From (m)		To (m)		Type		Plant Used		Crew		Depth (m)		Diam (mm)		Date		Time		Depth (m)		Casing (m)		Water (m)		Checked By: RT				
0.00		1.20		Inspection Pit		Hand Excavated		M. Bainbridge		1.20		300		20/04		20:00		9.45		-				Approved By: CP				
1.20		2.00		Dynamic Windowless Sampling		Beretta T41		M. Bainbridge		2.00		-												Start Date: 20/04/2021				
2.00		9.45		Rotary Core		Beretta T41		M. Bainbridge		9.45		-												Finish Date: 27/04/2021				
Strata Description										Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring													
MADE GROUND: Vegetation over soft to firm light brown sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse flint. (TOPSOIL) MGR(TS) MADE GROUND: Soft to firm orangish brown very sandy gravelly CLAY with frequent rootlets and occasional weak fragments of chalk. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint. (TOPSOIL) MGR(TS) Firm * brown slightly gravelly very sandy CLAY with occasional partly decomposed plant roots and abundant chalk fragments. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint. (RIVER TERRACE DEPOSITS) RTD Medium dense (friable) white mottled brown very clayey angular to subangular, fine to medium, very weak to weak, low-density chalk GRAVEL. (LOWESTOFT FORMATION ?)											0.30	33.92					0.20	ES1										
											0.60	33.62						0.50	D1									
Structureless white mottled brown CHALK composed of gravelly SILT. Gravel is subangular to subrounded, fine to medium, extremely weak to weak, low-density chalk. Matrix is white mottled brown with occasional brown clay inclusions. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dm) ...at 2.14m bgl: with slight orange staining. Structureless white CHALK composed of silty GRAVEL. Gravel is subangular to subrounded fine to coarse, extremely weak to weak, low-density white chalk. Matrix is white and light brown. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dc) Very weak to weak low-density white CHALK with rare orange staining and blue specks. Mainly non-intact, possibly with localised drill disturbed intraclastic zones **. Discernible structure: Discontinuity 1). Joints are 70 to 90 ', closed to partly open, clean, undulating, slightly rough, some with comminuted chalk infill. Discontinuity 2). Bedding is 0 to 10', close, open, clean, undulating, slightly rough, some with comminuted chalk infill. [10 ? / 20 ? / 30 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ? 5 ?) ...at 2.48m bgl: with slight orange staining. ...at 2.83m bgl: with slight orange staining. ...at 3.30m bgl: with slight orange staining. ...at 4.10m bgl: with slight orange staining. Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Recovered as white silty sandy fine CHALK gravel.											1.20	33.02					1.00	B2										
											2.00	32.22					1.20 - 1.65	D3										
Very weak to weak low-density white CHALK with rare orange staining and blue specks. Mainly non-intact, possibly with localised drill disturbed intraclastic zones **. Discernible structure: Discontinuity 1). Joints are 70 to 90 ', closed to partly open, clean, undulating, slightly rough, some with comminuted chalk infill. Discontinuity 2). Bedding is 0 to 10', close, open, clean, undulating, slightly rough, some with comminuted chalk infill. [10 ? / 20 ? / 30 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ? 5 ?) ...at 2.48m bgl: with slight orange staining. ...at 2.83m bgl: with slight orange staining. ...at 3.30m bgl: with slight orange staining. ...at 4.10m bgl: with slight orange staining. Zone of core loss attributable to SPT disturbance. SPT Liner sample description: Recovered as white silty sandy fine CHALK gravel.											2.00	32.22					2.00 - 2.10	D6										
											2.20	32.02					2.00 - 2.45	SPTLS5	2.00									
Very weak to weak, low-density white CHALK with rare orange staining and blue speckling. Mainly non-intact, possibly with localised drill disturbed intraclastic zones **. Discernible structure: Discontinuity 1). Joints are 70 to 90', inclined, closed to partly open, clean, undulating, slightly rough. Discontinuity 2). Bedding is 0 to 10', very close, closed to partly open, clean, undulating, slightly rough [10 ? / 20 ? / 30 ?]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B ? 5 ?) ...from 5.13m to 5.80m bgl: becoming slightly yellowish white. No recovery attributable to SPT disturbance and blow out.											2.30	31.92					2.50 - 2.60	D7	2.00									
																	2.90 - 3.00	D8	3.00 - 3.45	SPTLS9								
Possible drilling disturbance, recovered as: Structureless CHALK composed of very gravelly SILT. Clasts are very weak to weak, low-density white chalk in a white chalk matrix. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated ?, Grade Dm ?)											3.20 - 3.30						3.00 - 3.45	D10										
																	4.00 - 4.10	D11	3.00									
Significant drilling disturbance, recovery generally non-intact (possibly intraclastic **): Very weak to weak low-density white CHALK gravel (fine to medium in a comminuted chalk matrix). No discernible structure. (HOLLYWELL NODULAR CHALK FORMATION, ?) Very weak, low to medium-density white CHALK. Discontinuity 1). Joints are 70 to 90', inclined, open, clean with slight orange staining, undulating, smooth. Discontinuity 2). Bedding is 0 to 10' very close, open, clean with slight orange staining, undulating, smooth [20/35/70]. (HOLLYWELL NODULAR CHALK FORMATION / NEWPIT CHALK FORMATION Undifferentiated, Grade B4) ...from 8.52m to 8.67m bgl: zone of conjugate jointing.											4.50	29.72					4.50 - 4.95	SPTLS1 2										
																	5.20 - 5.30	D13	4.50									
No recovery (SPT only).											5.13	29.09					5.90 - 6.00	D14	6.00 - 6.45	SPTLS1 5								
EOH at 9.45m - Target depth achieved.											6.50	27.72																
											7.30	26.92					7.40 - 7.50	D16	7.50 - 7.60	PLT17								
											7.50	26.72																
																	8.10 - 8.20	PLT18	7.50									
											9.00	25.22					8.90 - 9.00	DPLT	9.00 - 9.45	SPTLS2 0								
											9.45	24.77																
Observations / Remarks																												
1. Groundwater not encountered. 2. Upon completion exploratory hole backfilled with bentonite. Borehole redrilled due to poor recovery at BH-TH-09 *Denotes drillers observation **Denotes observation from core photograph NR - No Recovery NI - Non-intact ND - Not Discernible																												