

Appendix C Exploratory Hole Logs: Boreholes

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Peat
					Concrete
					Chalk

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		From (m) To (m)	Records depth of sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)		D	Disturbed sample
			B	Bulk disturbed sample
			ES	Environmental sample
			SPTLS	SPT liner sample
		Type	W	Water sample
			U	Undisturbed thick-walled sample 100mm diameter sampler
			UT	Undisturbed thin walled sample 100mm diameter sampler
			UTF	Failed undisturbed sample
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached. SPT – Standard Penetration Test result (N value uncorrected)^{1,2,3} SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected)^{1,2,3} * Signifies that the test was terminated before full penetration was achieved. UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample			
Sampling				

Note 1: Total seating blows recorded in brackets.

Note 2: Casing depth records depth of casing when SPT or SPT(c) was carried out.

Note 3: Water depth records depth of water when SPT or SPT(c) was carried out.

Water observations

Described at foot of log and shown in the 'water strike' column.

 Water level observed after specified delay in drilling

 Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

Installation details

	Gravel filter		Bentonite
	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

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Strike (m)	5mins	10mins
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Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)
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Borehole record

24/07/2024 - 25/07/2024

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Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		24/07/2024 - 25/07/2024
											Method	Plant used	Sheet number
											Cable Percussive	Dando 2000	Sheet 2 of 2
							Water added details		Casing details		Level (m OD)	Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	170.50	JT	01
	No groundwater strike recorded								150 mm	13.00	Co-ordinates 389101E, 410437N	Status FINAL	BH01

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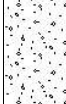
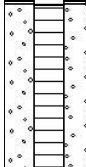
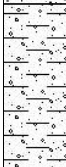
Cowm Top
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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	11.00	166.53			S 11.00	(7) 24			PP 13.10	PP 0	11.00 11.00	11.50 11.45	B D
												12.00	12.95	UT(26)
	Medium dense very silty slightly gravelly SAND. Gravel is fine subangular coal and sandstone. (HUMMOCKY GLACIAL DEPOSITS)	13.00	164.53									13.00	13.50	B
	Medium dense brown slightly silty slightly gravelly fine SAND. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	14.00	163.53			S 14.00	(4) 12					14.00 14.00	14.50 14.50	D B
						S 15.00	(7) 18					15.00	15.45	D
	BOREHOLE TERMINATED AT 15.45m	15.45	162.08											

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		30/07/2024 - 06/12/2024
	15.00				12.4						Method	Plant used	Sheet number
							Water added details		Casing details		Cable percussive	Dando 2000	Sheet 2 of 2
							Depth (m)	Water added (l)	Diameter	Base depth (m)	Level (m OD)	Logged by	Revision
									150 mm	15.00	177.53	JT	01
											Co-ordinates	Status	BH02
										389319E, 410459N	FINAL		

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown slightly gravelly silty fine SAND with frequent rootlets. (TOPSOIL)	0.40	176.20			S 1.20	(6) 13					0.10	1.00	B
	Medium dense orangish brown slightly gravelly slightly silty fine to medium SAND. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)			0.10								ES		
	Firm brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone, coal and mudstone. (HUMMOCKY GLACIAL DEPOSITS)	1.70	174.90			0.50	B							
				1.20		1.65	B							
				1.70		2.00	B							
Loose becoming medium dense brown very silty slightly gravelly fine SAND. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	4.00	172.60		2.00	2.45	UT(17								
			3.00	3.45	D									
			3.00	3.45	B									
			4.00	5.00	B									
				S 4.00	(2) 4			4.00	5.00	B				
				S 5.00	(4) 6			5.00	5.50	B				
				S 6.50	(5) 12			6.00	6.50	B				
				6.50	7.00	B								
	Stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	8.00	168.60								8.00	8.50	B	
				S 9.50	(5) 17			9.50	10.00	B				

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Notes Terminated at scheduled depth. Groundwater resting at 7.4m at the start of the second day.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)	
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		30/07/2024 - 31/07/2024	
											Method Cable Percussive	Plant used Dando 2000	Sheet number Sheet 1 of 2	
							Water added details		Casing details		Level (m OD) 176.60		Logged by JT	Revision 01
							Depth (m)	Water added (l)	Diameter 150 mm	Base depth (m) 15.00	Co-ordinates 389231E, 410378N		Status FINAL	BH03
	No groundwater strike recorded													

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Notes Terminated at scheduled depth. Groundwater resting at 7.4m at the start of the second day.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)			
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		30/07/2024 - 31/07/2024			
											Method Cable Percussive	Plant used Dando 2000	Sheet number Sheet 2 of 2			
							Water added details		Casing details		Level (m OD)		Logged by		Revision	
							Depth (m)	Water added (l)	Diameter	Base depth (m)	176.60	JT	01			
	No groundwater strike recorded								150 mm	15.00	Co-ordinates 389231E, 410378N		Status FINAL	BH03		

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded sandstone. (TOPSOIL)	0.50	152.49			S 1.20	(6) 14					0.10 0.10	0.50	B ES
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded sandstone. (HUMMOCKY GLACIAL DEPOSITS)											1.20 1.20	1.65 1.65	B SPTLS
		2.00	150.99			S 2.00	(7) 21					2.00 2.00	2.45 2.45	B SPTLS
						S 3.00	(9) 34					3.00 3.00	3.45 3.45	B SPTLS
						S 4.50	(7) 16					4.50 4.50	4.95 4.95	B SPTLS
						S 6.00	(8) 21					6.00 6.00	6.45 6.45	B SPTLS
						S 7.50	(8) 23					7.50 7.50	7.95 7.95	B SPTLS
						S 9.00	(14) 33					9.00 9.00	9.45 9.45	B SPTLS

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Notes	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)	
	Terminated at scheduled depth.	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024
												Method	Plant used	Sheet number
								Water added details		Casing details		Level (m OD)	Logged by	Revision
								Depth (m)	Water added (l)	Diameter	Base depth (m)	152.99	TT	01
	No groundwater strike recorded									150 mm	15.00	Co-ordinates	Status	BH04
												388995E, 410277N	FINAL	

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Very dense brown silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)	10.50	142.49			S 10.50	(15) 50*					10.50 10.50	10.95 10.95	B SPTLS
						S 12.00	(15) 51					12.00 12.00	12.45 12.45	B SPTLS
	Stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is medium to coarse angular to subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	13.00	139.99			S 13.50	(9) 19					13.50 13.50	13.95 13.95	B SPTLS
	BOREHOLE TERMINATED AT 15.45m	15.45	137.54									15.00	15.45	UT(38)

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024
											Method	Plant used	Sheet number
											Cable Percussive	Dando 2000	Sheet 2 of 2
							Water added details		Casing details		Level (m OD)	Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	152.99	TT	01
	No groundwater strike recorded								150 mm	15.00	Co-ordinates	Status	BH04
										388995E, 410277N	FINAL		

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Medium dense brown very silty fine SAND. (HUMMOCKY GLACIAL DEPOSITS)	10.50	165.81			S 11.00	(3) 12	11.80	10.50			11.00	11.45	B
	Medium dense brown slightly gravelly very silty fine SAND. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)					S 12.50	(3) 14	12.50	12.00			12.50 12.50	12.95 12.95	B D
	Firm brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	14.00	162.31			S 14.00	(3) 15	14.00	12.00			14.00 14.00	14.45 14.45	B D
												14.50		D
		15.00	160.81									15.00	15.45	UT(55)
												15.50		D
BOREHOLE TERMINATED AT 15.50m														

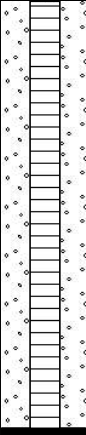
Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		15/07/2024 - 16/07/2024
	13.50				12.0						Method Cable percussive	Plant used Dando 2000	Sheet number Sheet 2 of 2
							Water added details		Casing details		Level (m OD) 176.31	Logged by JT	Revision 01
							Depth (m)	Water added (l)	Diameter	Base depth (m)			
									150 mm	14.50	Co-ordinates 389179E, 410343N	Status FINAL	BH05

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING			
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE	
	TOPSOIL (TOPSOIL)	0.40	170.88			S 1.50	(4) 14	1.15	DRY	PP 7.60	PP 167	0.10	0.40	ES	
	Brown very silty slightly gravelly fine SAND. Gravel is fine subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)											0.10	0.40	B	
	Stiff brown sandy slightly gravelly CLAY. Gravel is fine subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	1.20	170.08									0.40	1.20	B	
												1.50	1.95	D	
	Stiff to very stiff slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	3.00	168.28			S 4.50	(3) 12	4.50	DRY			1.50	1.95	D	
												1.50	1.95	D	
												1.50	1.95	D	
												3.00	3.45	UT(47)	
												3.50		D	
												4.00		D	
Medium dense brown slightly silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)	8.00	163.28		4.50		4.95	D								
				4.50		4.95	B								
				6.00		6.45	UT(40)								
				6.50			D								
					S 7.50	(3) 18	7.50	DRY	7.50			7.95	D		
					7.50	7.95	B								
					S 9.00	(3) 15	9.00	DRY	8.40				D		
						9.00	9.45	B							

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Notes	Groundwater observations						Chiselling details		Drilling details		Title	Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)		
	8.60				7.5						Borehole record	30/07/2024 - 31/07/2024
							Water added details		Casing details		Method	Plant used
							Depth (m)	Water added (l)	Diameter	Base depth (m)	Cable percussive	Dando 2000
									150 mm	15.00	Level (m OD)	Logged by
											171.28	JT
											Co-ordinates	Status
											389349E, 410387N	FINAL
											BH06	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						S 10.50	(3) 14	10.50	5.50			10.50 10.50	10.95 10.95	B D
						S 12.00	(3) 13	12.00	7.00			12.00 12.00	12.45 12.45	D B
						S 13.50	(3) 14	13.50	7.80			13.50 13.50	13.95 13.95	D B
						S 15.00	(3) 15	15.00	8.00			15.00	15.45	D
	BOREHOLE TERMINATED AT 15.45m	15.45	155.83											

Notes Terminated at scheduled depth. Groundwater recorded at 5.0m at the start of the second day.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)	
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		30/07/2024 - 31/07/2024	
	8.60				7.5						Method	Plant used	Sheet number	
							Water added details		Casing details		Level (m OD)	Logged by	Revision	
							Depth (m)	Water added (l)	Diameter	Base depth (m)	171.28	JT	01	
									150 mm	15.00	Co-ordinates	Status	BH06	
											389349E, 410387N	FINAL		

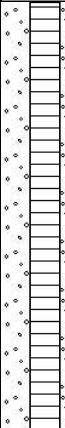
Cowm Top
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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown slightly gravelly slightly clayey fine to medium SAND with frequent rootlets. Gravel is fine subangular sandstone. (TOPSOIL)	0.40	166.53			S 1.50	(3) 16	1.50	DRY			0.10	0.40	B
												0.40	1.20	B
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is medium to coarse subrounded to rounded sandstone. (HUMMOCKY GLACIAL DEPOSITS)	1.20	165.73									1.50	1.95	B
	Medium dense brown slightly silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)											1.50	1.95	SPTLS
												3.00	3.45	B
												3.00	3.45	SPTLS
												4.50	4.95	B
												4.50	4.95	SPTLS
												6.00	6.45	B
												6.00	6.45	SPTLS
												7.50	7.95	B
												7.50	7.95	SPTLS
	Stiff greyish brown slightly sandy CLAY. (HUMMOCKY GLACIAL DEPOSITS)	8.50	158.43									8.50	8.50	D
												9.00	9.45	UT(85)
		9.50	157.43									9.50		D

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Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		30/07/2024
											Method	Plant used	Sheet number
											Cable percussive	Dando 2000	Sheet 1 of 2
							Water added details		Casing details		Level (m OD)	Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	166.93	TT	01
	No groundwater strike recorded								150 mm	15.00	Co-ordinates	Status	BH07
										389134E, 410256N	FINAL		

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dense becoming medium dense brown slightly silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)		151.48			S 10.50	(6) 32	10.50	9.50			10.00		D
												10.50	10.95	B SPTLS
						S 12.00	(4) 16	12.00	11.00			12.00	12.45	B SPTLS
						S 13.50	(3) 16	13.50	11.50			13.50	13.95	B SPTLS
						S 15.00	(3) 15	15.00	12.00			15.00	15.45	SPTLS
	BOREHOLE TERMINATED AT 15.45m	15.45	151.48											

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		30/07/2024
											Method	Plant used	Sheet number
											Cable percussive	Dando 2000	Sheet 2 of 2
							Water added details		Casing details		Level (m OD)	Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	166.93	TT	01
	No groundwater strike recorded								150 mm	15.00	Co-ordinates	Status	BH07
										389134E, 410256N	FINAL		

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine subrounded sandstone. (TOPSOIL)	0.40	167.04									0.10	0.40	B
	Medium dense brown very silty slightly gravelly fine SAND. Gravel is fine subangular to subrounded sandstone. (HUMMOCKY GLACIAL DEPOSITS)					S 1.50	(6) 17	1.50	DRY			1.50	1.95	SPTLS
		2.00	165.44									2.00	3.00	B
						S 3.00	(5) 15	3.00	2.00			3.00	3.45	SPTLS
												3.50	4.50	B
						S 4.50	(10) 39	4.50	2.80			4.50	6.00	B
												4.50	4.95	SPTLS
						S 6.00	(8) 35	6.00	3.20			6.00	7.50	B
												6.00	6.45	SPTLS
						S 7.50	(12) 39	7.50	3.80			7.50	7.95	SPTLS
	Dense becoming medium dense brown slightly silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)	8.00	159.44									8.00	8.45	B
						S 9.00	(13) 40	9.00	8.20			9.00	9.45	SPTLS

CONTINUED ON NEXT SHEET.

Notes	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)	
	Terminated at scheduled depth.	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024
												Method	Plant used	Sheet number
												Cable Percussive	Dando 2000	Sheet 1 of 2
												Level (m OD)	Logged by	Revision
	No groundwater strike recorded											167.44	TT	01
												Co-ordinates	Status	BH08
												389254E, 410250N	FINAL	

Cowm Top
STV5936

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						S 10.50	(8) 19					10.50 10.50	10.95 10.95	B SPTLS
						S 12.00	(5) 15					12.00 12.00	12.45 12.45	B SPTLS
						S 13.50	(6) 15					13.50 13.50	13.95 13.95	B SPTLS
						S 15.00	(7) 21					15.00	15.45	SPTLS
	BOREHOLE TERMINATED AT 15.45m	15.45	151.99											

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)	
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024	
											Method	Plant used	Sheet number	
											Cable Percussive	Dando 2000	Sheet 2 of 2	
							Water added details		Casing details		Level (m OD)		Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	167.44	TT	01	
No groundwater strike recorded								150 mm	15.00	Co-ordinates	Status	BH08		
										389254E, 410250N	FINAL			

Cowm Top
STV5936

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine to coarse subangular to subrounded sandstone. (TOPSOIL)	0.20	164.10									0.20	0.20	B D
	Soft brown slightly sandy gravelly CLAY with low cobble content of subrounded sandstone. Gravel is fine to coarse subrounded to rounded sandstone. (HUMMOCKY GLACIAL DEPOSITS)	0.70	163.60			S 1.20	(5) 14					1.20	1.65	B SPTLS
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded sandstone. (HUMMOCKY GLACIAL DEPOSITS)											2.00	2.45	UT(10)
						S 3.00	(4) 6					3.00	3.45	B D
												4.00	4.45	B
						S 5.00	(5) 12					5.00	5.45	B SPTLS
												6.50	6.95	B SPTLS
	Stiff brown sandy SILT. (HUMMOCKY GLACIAL DEPOSITS)	6.50	157.80			S 6.50	(6) 16					8.00	8.45	B SPTLS
						S 8.00	(6) 17					9.50	9.95	B SPTLS
						S 9.50	(4) 12							

CONTINUED ON NEXT SHEET.

Notes	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Terminated at scheduled depth.	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record	26/07/2024
												Method Cable percussive	Plant used Dando 2000
								Water added details		Casing details		Level (m OD) 164.30	Logged by TT
								Depth (m)	Water added (l)	Diameter	Base depth (m)	Co-ordinates 389048E, 410224N	Status FINAL
	No groundwater strike recorded									150 mm	15.00		BH09

STV5936

environmental ■ geotechnical ■ building fabric

[illegible]

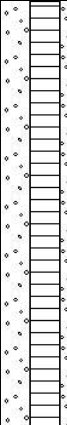
Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		26/07/2024
											Method	Plant used	Sheet number
											Cable percussive	Dando 2000	Sheet 2 of 2
							Water added details		Casing details		Level (m OD)	Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	164.30	TT	01
No groundwater strike recorded								150 mm	15.00	Co-ordinates 389048E, 410224N	Status FINAL	BH09	

Cowm Top
STV5936

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is medium to coarse subangular to angular sandstone. (TOPSOIL)	0.40	164.16			S 1.50	(2) 7	1.50	DRY			0.10	0.40	B
												0.40	1.20	B
	Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular to angular sandstone. Rare brick fragments. (MADE GROUND)	1.20	163.36									1.50	1.95	B
	Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular to angular sandstone. (HUMMOCKY GLACIAL DEPOSITS)											1.50	1.95	SPTLS
												3.00	3.45	UT(25)
												4.50	4.95	B
												4.50	4.95	SPTLS
												6.00	6.45	D
	Dense light brown gravelly slightly clayey fine to coarse SAND. Gravel is fine to coarse subangular to angular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	6.00	158.56									6.00	6.45	B
												6.00	6.45	SPTLS
						S 7.50	(6) 29	7.50	DRY			7.50	7.95	B
	Medium dense light brown slightly silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)	7.50	157.06									7.50	7.95	SPTLS
												9.00	9.45	B
						S 9.00	(8) 28	9.00	8.50			9.00	9.45	SPTLS
												9.00	9.45	B

CONTINUED ON NEXT SHEET.

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024
	12.50				12.5						Method	Plant used	Sheet number
							Water added details		Casing details		Cable percussive	Dando 2000	Sheet 1 of 2
							Depth (m)	Water added (l)	Diameter	Base depth (m)	Level (m OD)	Logged by	Revision
									150 mm	15.00	164.56	TT	01
											Co-ordinates 389465E, 410182N	Status FINAL	BH10

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						S 10.50	(6) 27	10.50	10.00			10.50 10.50	10.95 10.95	B SPTLS
						S 12.00	(6) 26	12.00	11.50			12.00 12.00	12.45 12.45	B SPTLS
						S 13.50	(4) 23	13.50	12.00			13.50 13.50	13.95 13.95	B SPTLS
						S 15.00	(5) 25	15.00	14.00			15.00	15.45	SPTLS
		15.45	149.11											
	BOREHOLE TERMINATED AT 15.45m													

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024
	12.50				12.5						Method	Plant used	Sheet number
											Cable percussive	Dando 2000	Sheet 2 of 2
							Water added details		Casing details		Level (m OD)	Logged by	Revision
							Depth (m)	Water added (l)	Diameter	Base depth (m)	164.56	TT	01
									150 mm	15.00	Co-ordinates 389465E, 410182N	Status FINAL	BH10

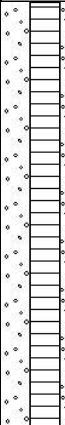
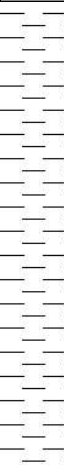
Cowm Top
STV5936

INSTALL		STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
		DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
		Grass onto soft dark brown slightly sandy slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded sandstone. (TOPSOIL)	0.40	156.04			S 1.50	(3) 12	1.50	DRY			0.10	0.40	B
		Brown slightly clayey gravelly medium to coarse SAND. Gravel is fine to coarse subangular to angular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	1.20	155.24									0.40	1.20	B
Firm brown slightly sandy CLAY. (HUMMOCKY GLACIAL DEPOSITS)				1.20									D		
				1.50	1.95								SPTLS B		
Loose to medium dense brown silty fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)					S 3.00		(3) 10	3.00	DAMP	1.50			1.95		
										2.50				D	
										3.00			3.45	B SPTLS	
										3.00			3.45		
					S 4.50		(3) 10	4.50	4.00	4.50			4.95	SPTLS B	
										4.50			4.95		
					S 6.00		(3) 9	6.00	5.50	6.00			6.45	B SPTLS	
										6.50				D	
													6.50	6.70	D
					Firm to stiff dark grey slightly sandy CLAY. (HUMMOCKY GLACIAL DEPOSITS)								S 9.00	(3) 11	9.00
8.00	8.00	D													
8.60	8.60	D													
9.00	9.45	SPTLS													

CONTINUED ON NEXT SHEET.

Notes	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Terminated at scheduled depth.	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record	25/07/2024
		13.00				13.0	Slow					Method	
												Cable percussive	Plant used
												Dando 2000	Sheet number
													Sheet 1 of 2
	Water added details						Casing details		Level (m OD)		Logged by		Revision
		Depth (m)	Water added (l)				Diameter	Base depth (m)	156.44		TT		01
							150 mm	13.50	Co-ordinates		Status		
									389293E, 410105N		FINAL		BH11

Cowm Top
STV5936

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
			15.45			S 12.00	(3) 16	12.00	DRY			10.50	10.95	UT(45)
												11.00		D
												12.00	12.45	SPTLS
												13.50	13.95	UT(65)
												14.00		D
	BOREHOLE TERMINATED AT 15.45m					S 15.00	(5) 18	13.50	DRY			15.00	15.45	SPTLS

Notes Terminated at scheduled depth.	Groundwater observations						Chiselling details		Drilling details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Depth (m)	Duration (hh:mm)	Diameter	Base depth (m)	Borehole record		25/07/2024
	13.00				13.0	Slow					Method	Plant used	Sheet number
							Water added details		Casing details		Cable percussive	Dando 2000	Sheet 2 of 2
							Depth (m)	Water added (l)	Diameter	Base depth (m)	Level (m OD)	Logged by	Revision
									150 mm	13.50	156.44	TT	01
											Co-ordinates	Status	BH11
										389293E, 410105N	FINAL		

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Peat
					Concrete
					Chalk

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		From (m) To (m)	Records depth of sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)		D	Disturbed sample
			B	Bulk disturbed sample
			ES	Environmental sample
			SPTLS	SPT liner sample
		Type	W	Water sample
			U	Undisturbed thick-walled sample 100mm diameter sampler
			UT	Undisturbed thin walled sample 100mm diameter sampler
			UTF	Failed undisturbed sample
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached. SPT – Standard Penetration Test result (N value uncorrected)^{1,2,3} SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected)^{1,2,3} * Signifies that the test was terminated before full penetration was achieved. UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample			
Sampling				

Note 1: Total seating blows recorded in brackets.

Note 2: Casing depth records depth of casing when SPT or SPT(c) was carried out.

Note 3: Water depth records depth of water when SPT or SPT(c) was carried out.

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

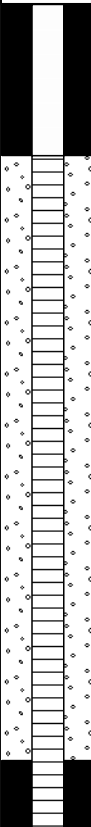
▽ Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

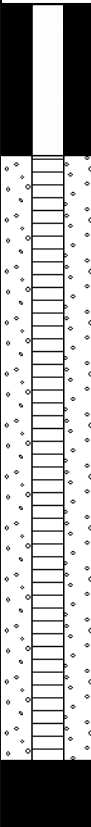
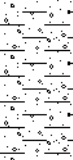
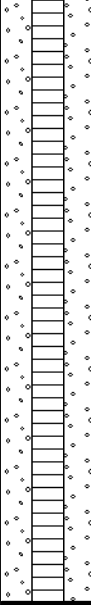
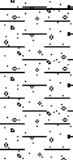
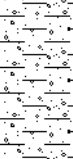
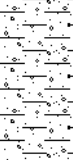
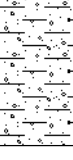
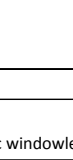
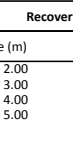
Installation details

	Gravel filter		Bentonite
	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

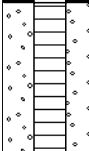
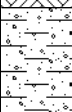
INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown sandy CLAY with frequent rootlets. (TOPSOIL)	0.20	171.10									0.15		D
	Medium dense orangish brown slightly gravelly silty fine SAND. Gravel is medium rounded quartzite. (HUMMOCKY GLACIAL DEPOSITS)					S 1.00	(8) 16					1.30		D
	Medium dense orangish brown fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)	1.52	169.78			S 2.00	(8) 22			PP 1.60	PP 192	1.80		D
												2.20		D
	Medium dense orangish brown slightly clayey fine to medium SAND. (HUMMOCKY GLACIAL DEPOSITS)	3.00	168.30			S 3.00	(6) 16			PP 3.20	PP 192	3.30		D
						S 4.00	(7) 22					4.50		D
						S 5.00	(8) 26							
	BOREHOLE TERMINATED AT 5.45m	5.45	165.85											

Notes Terminated at scheduled depth	Groundwater observations						Title Dynamic windowless sampling record				Date(s) 23/07/2024	
	Strike (m)	5	10	15	20	Comments						
							Recovery details		Method	Plant used	Sheet number	
							Range (m)	Recovery (%)	Dynamic (windowless) samp	Windowless sampling rig	Sheet 1 of 1	
							1.20 - 2.00	95	Level (m OD) 171.30	Logged by	Revision 01	
							2.00 - 3.00	95				
							3.00 - 4.00	85				
4.00 - 5.00	75											
No groundwater encountered								Co-ordinates 389042E, 410448N	Status FINAL	WS01		

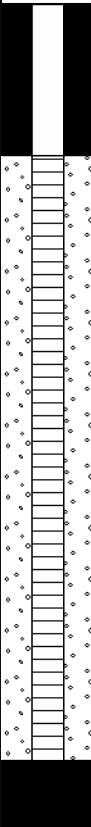
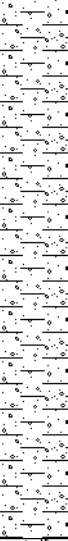
Cowm Top
STV5936

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown sandy CLAY with frequent rootlets. (TOPSOIL)	0.20	167.31										4.50	D
	Firm light brown mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to rounded sandstone and quartzite. (HUMMOCKY GLACIAL DEPOSITS)					S 1.00	(8) 17							
	Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	1.40	166.11							PP 1.30	PP 50	1.20		D
						S 2.00	(3) 12					1.60		D
										PP 2.60	PP 104	2.40		D
						S 3.00	(10) 28			PP 2.90	PP 163	2.70		D
						S 4.00	(12) 30			PP 3.50	PP 167	3.40		D
										PP 3.70	PP 208			
						S 5.00	(12) 37			PP 4.30	PP 196			
										PP 4.60	PP 213			
										PP 4.90	PP 200			
	BOREHOLE TERMINATED AT 5.45m	5.45	162.06											

Notes Terminated at scheduled depth.	Groundwater observations						Title			Date(s)	
	Strike (m)	5	10	15	20	Comments	Dynamic windowless sampling record			23/07/2024	
							Recovery details		Method	Plant used	Sheet number
							Range (m)	Recovery (%)	Dynamic (windowless) sample	Windowless sampling rig	Sheet 1 of 1
							1.20 - 2.00	100	Level (m OD) 167.51	Logged by	Revision 01
							2.00 - 3.00	85			
							3.00 - 4.00	100			
	4.00 - 5.00	100									
No groundwater encountered								Co-ordinates 389010E, 410433N	Status FINAL	WS02	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING			
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE	
	Grass onto soft dark brown sandy CLAY with frequent rootlets. (TOPSOIL)	0.30	166.90			S 1.00	(4) 16					0.10		D	
	Soft brown mottled orange sandy slightly gravelly CLAY. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)											0.60		D	
	Firm brown mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	1.50	165.70			S 2.00	(6) 16			PP 1.40 PP 1.50 PP 1.70 PP 1.85	PP 125 PP 167 PP 108 PP 188	1.50		D	
										2.30	D				
										PP 2.90	PP 158			D	
	Medium dense brown slightly gravelly clayey fine SAND. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	4.30	162.90			S 3.00	(9) 27								
		4.80	162.40												
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)	5.45	161.75			S 4.00	(8) 18			PP 3.50 PP 3.80	PP 208 PP 217	3.50		D	
	Medium dense brown slightly gravelly clayey fine SAND. Gravel is fine subangular sandstone and coal. (HUMMOCKY GLACIAL DEPOSITS)									PP 4.90	PP 192	4.50		D	
	BOREHOLE TERMINATED AT 5.45m														

Notes Terminated at scheduled depth.	Groundwater observations						Title			Date(s)	
	Strike (m)	5	10	15	20	Comments	Dynamic windowless sampling record			23/07/2024	
							Recovery details		Method	Plant used	Sheet number
							Range (m)	Recovery (%)	Dynamic (windowless) samp	Windowless sampling rig	Sheet 1 of 1
							1.20 - 2.00	95	Level (m OD) 167.20	Logged by	Revision 01
							2.00 - 3.00	85			
							3.00 - 4.00	90			
	4.00 - 5.00	95									
No groundwater encountered								Co-ordinates 389025E, 410427N	Status	WS03	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown sandy CLAY with frequent rootlets. (TOPSOIL)	0.20	162.36									0.15		D
	Very soft light grey slightly gravelly sandy CLAY. Gravel is fine to medium subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)					S 1.00	(0) 0					0.70		D
						S 2.00	(2) 7					1.40		D
						S 3.00	(4) 14					2.70		D
												3.20		D
	Medium dense brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine subangular sandstone. (HUMMOCKY GLACIAL DEPOSITS)	3.85	158.71			S 4.00	(2) 12					4.00	5.00	B
						S 5.00	(12) 27							
	BOREHOLE TERMINATED AT 5.45m	5.45	157.11											

Notes Terminated at scheduled depth.	Groundwater observations						Title			Date(s)	
	Strike (m)	5	10	15	20	Comments	Dynamic windowless sampling record			23/07/2024	
							Recovery details		Method	Plant used	Sheet number
							Range (m)	Recovery (%)	Dynamic (windowless) samp	Windowless sampling rig	Sheet 1 of 1
							1.20 - 2.00	75	Level (m OD) 162.56	Logged by	Revision 01
							2.00 - 3.00	95			
							3.00 - 4.00	100			
	4.00 - 5.00	80									
No groundwater encountered								Co-ordinates 389026E, 410404N	Status FINAL	WS04	