

Mr K Gelder  
South West Yorkshire Partnership  
Finance Department  
Block 9  
Fieldhead Hospital  
Ouchthorpe Lane  
Wakefield WF1 3SP

**BY E-MAIL**

Our Ref: SWY/02/OG

7<sup>th</sup> December 2018

Dear Kevin

Mount Vernon Road, Worsborough, Barnsley  
Rotary Coal Investigation

In accordance with our commission, we visited the above site on 14<sup>th</sup> and 16<sup>th</sup> November 2018, to undertake rotary drilling to investigate potential underground coal workings within the Meltonfield Coal seam, which was indicated by the Coal Authority and BGS geology map to outcrop just inside the southwestern boundary of the site, and be potentially within influencing depth of the surface northeast of the outcrop.

### **Site Works and Borehole Results**

Nine boreholes were drilled on the site by Ground Support Services Ltd. (GSS), using rotary open hole with air flush techniques. The boreholes were numbered R1 to R9 and were drilled to depths of between 19m (R5) and 30m (R1). The borehole locations are shown on the attached rotary investigation location plan and a geological cross section, derived from the drilling results, is also enclosed. The following ground conditions were identified:-

- Made ground to between 0.8m and 1.6m depth across the majority of the site.
- Made ground to between 5.7m (R1) and 5.8m (R9) depth at the lower level of the site in the southern corner, with solid ground encountered beneath.
- The thickness of made ground encountered in this southern area is not consistent with the initial phase of investigation in November 2017 (see enclosed site investigation plan). Borehole WS12, located previously between R1 and R9, identified made ground to 1.5m depth, overlying granular residual soils to 1.9m depth, and terminated on intact bedrock at 2.1m depth.
- Below the made ground and residual soils, a sequence of mudstone and sandstone bedrock was encountered.
- An upper coal seam, interpreted to be the Meltonfield Coal, with a thickness of between 1.0m and 1.2m was encountered in all boreholes, at depths of between 12.2m (R1) and 21.3m (R8).



- A lower coal seam was encountered in R1 only, at 26.1m depth, with a thickness of 0.7m. This seam is interpreted to be the Two Foot Coal, and was found to be underlain by mudstone to at least 30m depth.

Based on the depth of the upper seam and the site elevation profile, the Meltonfield coal seam is likely to outcrop beyond the boundary of the site, to the southwest, rather than just inside the southwestern boundary. All strata were intact, and there was no evidence of workings (soft ground or voids). Full flush returns were recorded within the majority of the positions. Poor flush returns were locally observed within the made ground (casing was required in R1 from the surface to 6m depth) and from 8m depth in R7 (fractured bedrock with no evidence of workings). No groundwater entries were observed during the drilling, and no gases were detected.

### **Ground Stability and Gas Risk Assessment**

Voids from underground coal workings can migrate upwards towards the surface, leading to loss of support for structures, potentially forming a “crown hole” at the surface. However, if there is sufficient cover of overlying solid strata, voids will be arrested well before they reach the surface, by progressive bulking of the material as it collapses into the void. In Coal Measures strata, it is generally accepted by the industry that voids will not migrate vertically through the overlying strata any more than 10 times the extracted seam thickness.

The Meltonfield Coal seam is between 1.0m and 1.2m thick, which according to industry practice, would require 12m of rock cover above the measured seam. Across the majority of the site, sufficient solid cover of between 15.9m and 20m was encountered above the Meltonfield Coal. It was not possible to drill boreholes in the northwest and western end of the site, due to dense tree cover and restricted access. Nevertheless, based on an extrapolation of contours for the base of the coal seam, the ground conditions identified during the initial phase of investigation and the topographical levels, sufficient rock cover is considered to be present in the northwest (see Cross Section 1 and 2). The extrapolated and actual cover thicknesses are shown on the attached rotary investigation plan. It was not possible to investigate the steeply sloping wooded area along the western boundary. In the unlikely event that development would take place on this area, further rotary investigation would be required.

Rotary positions R1 and R9 were located within a car park in the southern corner of the site, at least 3m lower than the rest of the proposed development. Variable thick made ground underlies the site here and, as a result, rock cover (6.5m and 7.9m, respectively) is locally insufficient above the Meltonfield Coal (See Cross Section 3). There was no evidence of workings within these two boreholes, or within any of the nine boreholes penetrating the seam. The estimated area of the site with insufficient cover above the seam is shown on the enclosed rotary investigation plan, based on assessment of superficial deposit thickness and site elevation.

The lower coal seam (Two Foot Coal) has a recorded thickness of 0.7m (at 26.1m depth). Mudstone bedrock separating it from the upper seam is 12.7m thick (R1), which is sufficient rock cover to discount this seam for stability concerns. The next seam beneath the Two Foot Coal is recorded to occur at least 15m deeper in the sequence (Winter Coal, up to 0.86m thick), and is likewise discounted for stability consideration.

There is a theoretical risk of unrecorded mine entries, and any suspect features identified on site during development works, should be referred to a Geotechnical Engineer. No significant ground gas



was detected on site prior to drilling during monitoring undertaken by ARP Geotechnical as part of the main site investigation (letter report SWY0215, March 2018), or during the drilling works. At least 6.5m of intact mudstone occurs above the shallowest coal seam. Coal seams beneath the site are therefore, considered to present negligible risk of harmful gas ingress to the proposed development.

## **Conclusion**

Based on the rotary drilling investigation, the vast majority of the site is considered to be stable with respect to coal mining.

However, insufficient cover was locally identified in the southern corner of the site (R1 and R9). It is understood that development proposals for the site are currently being finalised. If the future proposals do not include buildings, roads or drives within this area, then no further investigation of coal seams is considered necessary. However, if any development is proposed at this location, then it is recommended that further rotary investigation is undertaken on a closely spaced grid to prove the absence of any mine workings in this area and that grout treatment works are not locally required. Due to the depth of made ground encountered at this location, piled foundations may be required for any planned structure. If the base of any proposed piles was to be within influencing depth of any workings, then the piles would need to penetrate the workings to the underlying material. A preferable option in this situation would be to use pseudo raft foundations, following earthworks ground improvement.

Further rotary investigation would also be required in the unlikely event that any development was proposed on the steeply sloping area along the southwestern boundary. The locations of these areas are shown on the attached rotary investigation plan.

Our findings are subject to regulatory agreement.

We trust the above details are acceptable. However, if you have any comments or queries, please do not hesitate to contact us at your convenience.







Yours sincerely  
for ARP GEOTECHNICAL LTD

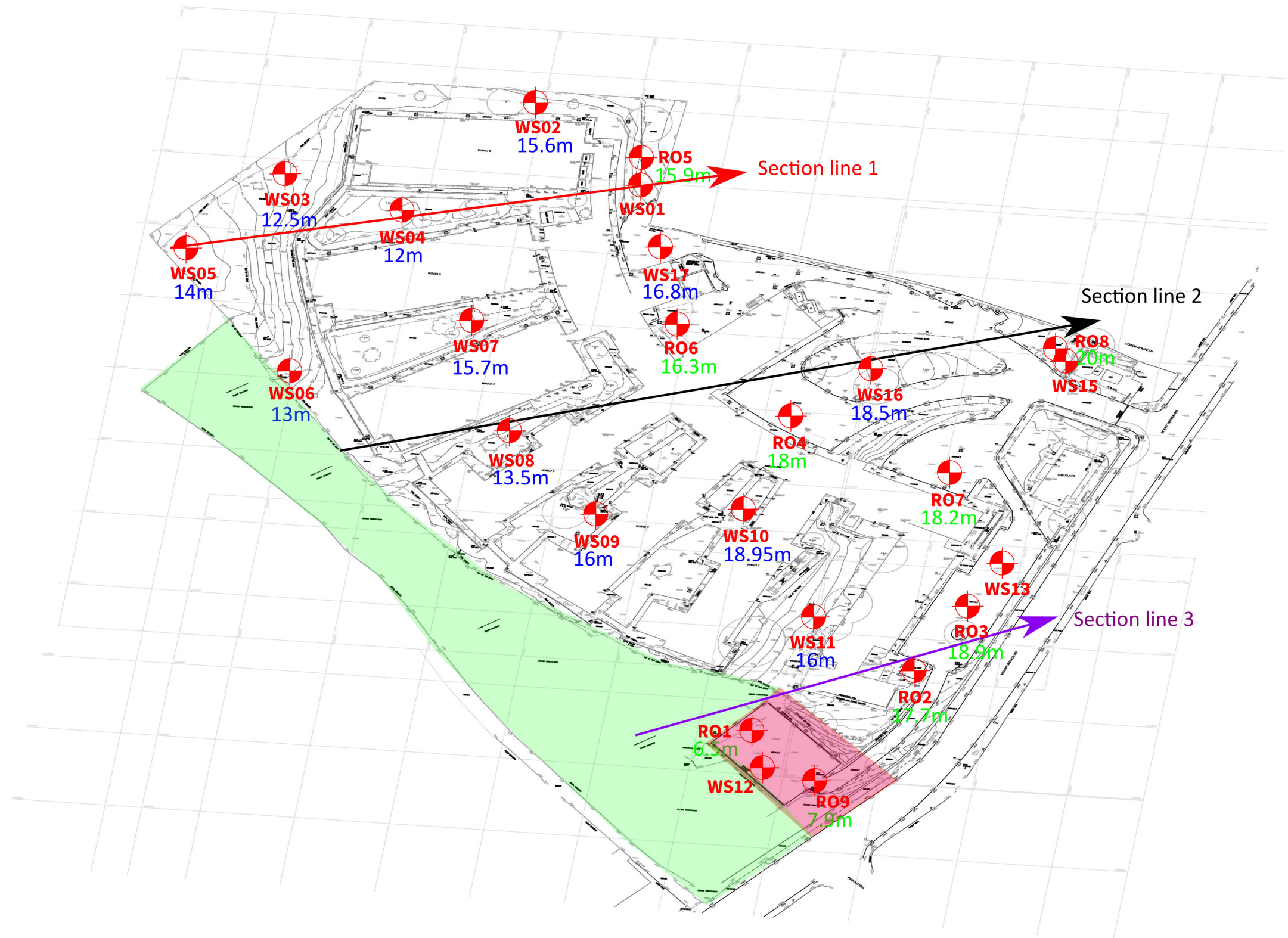
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**KEY**

-  Rotary borehole (November 2018)
- RO1**  Window Sample Boreholes (November 2017)
- WS01**  Confirmed rock cover thickness.
- 20m**  Estimated rock cover thickness based on extrapolated seam depth.
- 14m**  Insufficient rock cover - Further investigation required if area to be developed
-  Investigation required if area to be developed.



Project <b>MOUNT VERNON HOSPITAL, BARNSELY</b>	Title <b>ROTARY INVESTIGATION LOCATION PLAN</b>	 <small>ARP GEOTECHNICAL LTD CHARTERED CONSULTING ENGINEERS</small>	Date <b>DECEMBER 18</b>	Scale <b>AS SHOWN</b>
			Drawn <b>@ A3</b>	Job No. <b>SWY/02</b>
Client <b>SOUTH WEST YORKSHIRE PARTNERSHIP</b>		<small>Northwest House - 5/6 Northwest Business Park - Service Hill - Leeds LS6 2QH Telephone : 0113 245 8499 - Fax : 0113 244 3864 - E-Mail : leeds@arpassociates.co.uk</small>	Rev.	

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 434984.17 - 404674.48	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 150.30	Date 14/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air Flush	Rig Crew: GSS
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	150.20		TARMAC (Drillers Description)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
								MADE GROUND (Drillers Description)	
					5.70	144.60		Brown SANDSTONE (Drillers Description)	
					7.10	143.20		Brown MUDSTONE (Drillers Description)	
					9.30	141.00		Grey MUDSTONE (Drillers Description)	
					12.20	138.10		COAL (Drillers Description)	
				13.40	136.90		Grey MUDSTONE (Drillers Description)		

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: PW casing to 6m  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 434984.17 - 404674.48	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 150.30	Date 14/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air Flush	Rig Crew: GSS
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)		
								16	
								17	
								18	
								19	
								20	
								21	
								22	
								23	
								24	
								25	
				26.10	124.20		COAL (Drillers Description)	26	
				26.80	123.50		Grey MUDSTONE (Drillers Description)	27	
								28	
								29	
				30.00	120.30		End of Borehole at 30.000m	30	

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: PW casing to 6m  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 435017.99 - 404692.64	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 153.90	Date 16/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air Mist	Rig Crew: GSS Ltd
			Logged Drillers

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
[Pattern]					0.10	153.80	[Pattern]	TARMAC (Drillers Description)	1
					0.80	153.10		MADE GROUND (Drillers Description)	
								[Pattern]	
									4
									5
									6
									7
									8
									9
									10
									11
									12
					13.10	140.80	[Pattern]	Grey MUDSTONE (Drillers Description)	13
									14
									15

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used.  
 Remarks: Full Flush returns

RrRO\_v1.03

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 435017.99 - 404692.64	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 153.90	Date 16/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air Mist	Rig Crew: GSS Ltd
			Logged Drillers

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)	16	
					18.50	135.40	COAL (Drillers Description)	17	
					19.50	134.40	Grey MUDSTONE (Drillers Description)	18	
					21.00	132.90	End of Borehole at 21.000m	19	
								20	
								21	
								22	
								23	
								24	
								25	
								26	
								27	
								28	
								29	
								30	

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used.  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 435027.26 - 404712.93

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 153.80

Date 14/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

Flush: Air Flush





Rig Crew: GSS Ltd

Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	153.70		TARMAC (Drillers Description)	1
					0.80	153.00		MADE GROUND (Drillers Description)	
									3
									4
									5
									6
									7
									8
									9
									10
									11
									12
									13
					13.70	140.10		Grey MUDSTONE (Drillers Description)	14
									15

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 435027.26 - 404712.93	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 153.80	Date 14/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air Flush	Rig Crew: GSS Ltd
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)	16	
				19.70	134.10		COAL (Drillers Description)	20	
				20.80	133.00		Grey MUDSTONE (Drillers Description)	21	
				22.00	131.80		End of Borehole at 22.000m	22	
								23	
								24	
								25	
								26	
								27	
								28	
								29	
								30	

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full flush returns

RrRO\_v1.03

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 434977.46 - 404764.70

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 156.80

Date 16/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

Flush: Air flush

Rig Crew: GSS Ltd

Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
Well	Water Strikes				0.10	156.70	TARMAC (Drillers Description) MADE GROUND (Drillers Description)		1
					1.60	155.20			Brown SANDSTONE (Drillers Description)
					13.20	143.60	Grey MUDSTONE (Drillers Description)	3	
						4			
						5			
							6		
							7		
							8		
							9		
							10		
							11		
							12		
							13		
							14		
							15		

Groundwater: No groundwater ingress observed.

Backfill: Backfilled with drilling arisings and bentonite.

Casing: No casing used.

Remarks: Full Flush returns

# Rotary Drilling Log

Borehole No.

**RO4**

Sheet 2 of 2

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 434977.46 - 404764.70

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 156.80

Date 16/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

Flush: Air flush

Rig Crew: GSS Ltd

Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)		
								16	
								17	
								18	
								19	
				19.60	137.20		Coal (Drillers Description)	20	
				20.60	136.20		Grey MUDSTONE (Drillers Description)	21	
								22	
				22.00	134.80		End of Borehole at 22.000m	23	
								24	
								25	
								26	
								27	
								28	
								29	
								30	

Groundwater: No groundwater ingress observed.

Backfill: Backfilled with drilling arisings and bentonite.

Casing: No casing used.

Remarks: Full Flush returns

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 434941.76 - 404833.07

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 156.80

Date 14/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

Flush: Air flush

Rig Crew: GSS Ltd

Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	156.60		TOPSOIL (Drillers Description)	156.80 156.00 146.70
					0.80	156.00		MADE GROUND (Drillers Description)	
					10.10	146.70		Grey (Drillers Description)	

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns

# Rotary Drilling Log

Borehole No.

**RO5**

Sheet 2 of 2

Project Name: Mount Vernon Hospital

 Project No.  
SWY/02

Co-ords: 434941.76 - 404833.07

 Hole Type  
RO

Location: Mount Vernon Road, Barnsley

Level: 156.80

 Date  
14/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

 Scale  
1:75

Hole Dia.:

Bit Used:

Flush: Air flush

Rig Crew: GSS Ltd

 Logged  
Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey (Drillers Description)		16
					16.70	140.10	COAL (Drillers Description)		17
					17.70	139.10	Grey MUDSTONE (Drillers Description)		18
					19.00	137.80	End of Borehole at 19.000m		19
									20
									21
									22
									23
									24
									25
									26
									27
									28
									29
									30

Groundwater: No groundwater ingress observed.

Backfill: Backfilled with drilling arisings and bentonite.

Casing: No casing used

Remarks: Full Flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 434956.34 - 404783.88	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 156.90	Date 14/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air flush	Rig Crew: GSS Ltd
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
[Pattern]					0.10	156.80	[Pattern]	TARMAC (Drillers Description) MADE GROUND (Drillers Description)	
					1.10	155.80		[Pattern]	Brown SANDSTONE (Drillers Description)
					9.60	147.30	[Pattern]		Grey MUDSTONE (Drillers Description)

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 434956.34 - 404783.88	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 156.90	Date 14/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air flush	Rig Crew: GSS Ltd
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grey MUDSTONE (Drillers Description)	16
				17.40	139.50		COAL (Drillers Description)		17
				18.50	138.40		Grey MUDSTONE (Drillers Description)		18
									19
									20
									21
									22
									23
									24
									25
									26
									27
									28
									29
				30.00	126.90			End of Borehole at 30.000m	30

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 435018.10 - 404749.93

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 154.40

Date 16/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

Flush: Air flush

Rig Crew: GSS Ltd

Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
Well	Water Strikes				0.10	154.30	TARMAC (Drillers Description) MADE GROUND (Drillers Description)		1
					1.40	153.00		Brown SANDSTONE (Drillers Description)	2
									Grey MUDSTONE (Drillers Description)
								4	
									5
									6
									7
									8
									9
									10
									11
									12
					13.40	141.00			13
									14
									15

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Poor flush recovery from 8m.

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 435018.10 - 404749.93	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 154.40	Date 16/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air flush	Rig Crew: GSS Ltd
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)		16 17 18 19
					19.60	134.80	COAL (Drillers Description)		20
					20.60	133.80	Grey MUDSTONE (Drillers Description)		21
					22.00	132.40	End of Borehole at 22.000m		22 23 24 25 26 27 28 29 30

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Poor flush recovery from 8m.

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 435034.53 - 404788.36

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 153.60

Date 16/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

Flush: Air flush

Rig Crew: GSS Ltd

Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
Well	Water Strikes				0.20	153.40	TOPSOIL (Drillers Description) MADE GROUND (Drillers Description)		1
					1.30	152.30			Brown SANDSTONE (Drillers Description)
								Grey MUDSTONE (Drillers Description)	
									4
									5
									6
									7
									8
									9
									10
									11
									12
									13
									14
					14.70	138.90			15


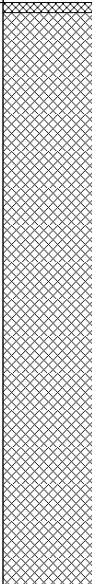
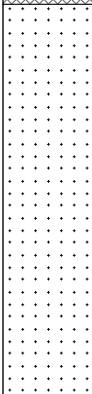



Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 435034.53 - 404788.36	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 153.60	Date 16/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air flush	Rig Crew: GSS Ltd
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)		16 17 18 19 20 21
					21.30	132.30	COAL (Drillers Description)		22
					22.30	131.30	Grey MUDSTONE (Drillers Description)		23
					24.00	129.60	End of Borehole at 24.000m		24 25 26 27 28 29 30

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns

Project Name: Mount Vernon Hospital	Project No. SWY/02	Co-ords: 435010.82 - 404665.28	Hole Type RO
Location: Mount Vernon Road, Barnsley		Level: 149.80	Date 16/11/2018
Client: South West Yorkshire Partnership		Plant Used: Soilmec 400	Scale 1:75
Hole Dia.:	Bit Used:	Flush: Air flush	Rig Crew: GSS Ltd
			Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results									
					0.10	149.70		TARMAC (Drillers Description)	1				
								MADE GROUND (Drillers Description)		2			
													3
													4
													5
					5.80	144.00		Brown SANDSTONE (Drillers Description)	6				
									7				
									8				
									9				
					9.70	140.10		Grey MUDSTONE (Drillers Description)	10				
									11				
									12				
					13.70	136.10		COAL	14				
									15				
					14.70	135.10		Grey MUDSTONE (Drillers Description)					

Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns

RrRO\_v1.03

Project Name: Mount Vernon Hospital

Project No. SWY/02

Co-ords: 435010.82 - 404665.28

Hole Type RO

Location: Mount Vernon Road, Barnsley

Level: 149.80

Date 16/11/2018

Client: South West Yorkshire Partnership

Plant Used: Soilmec 400

Scale 1:75

Hole Dia.:

Bit Used:

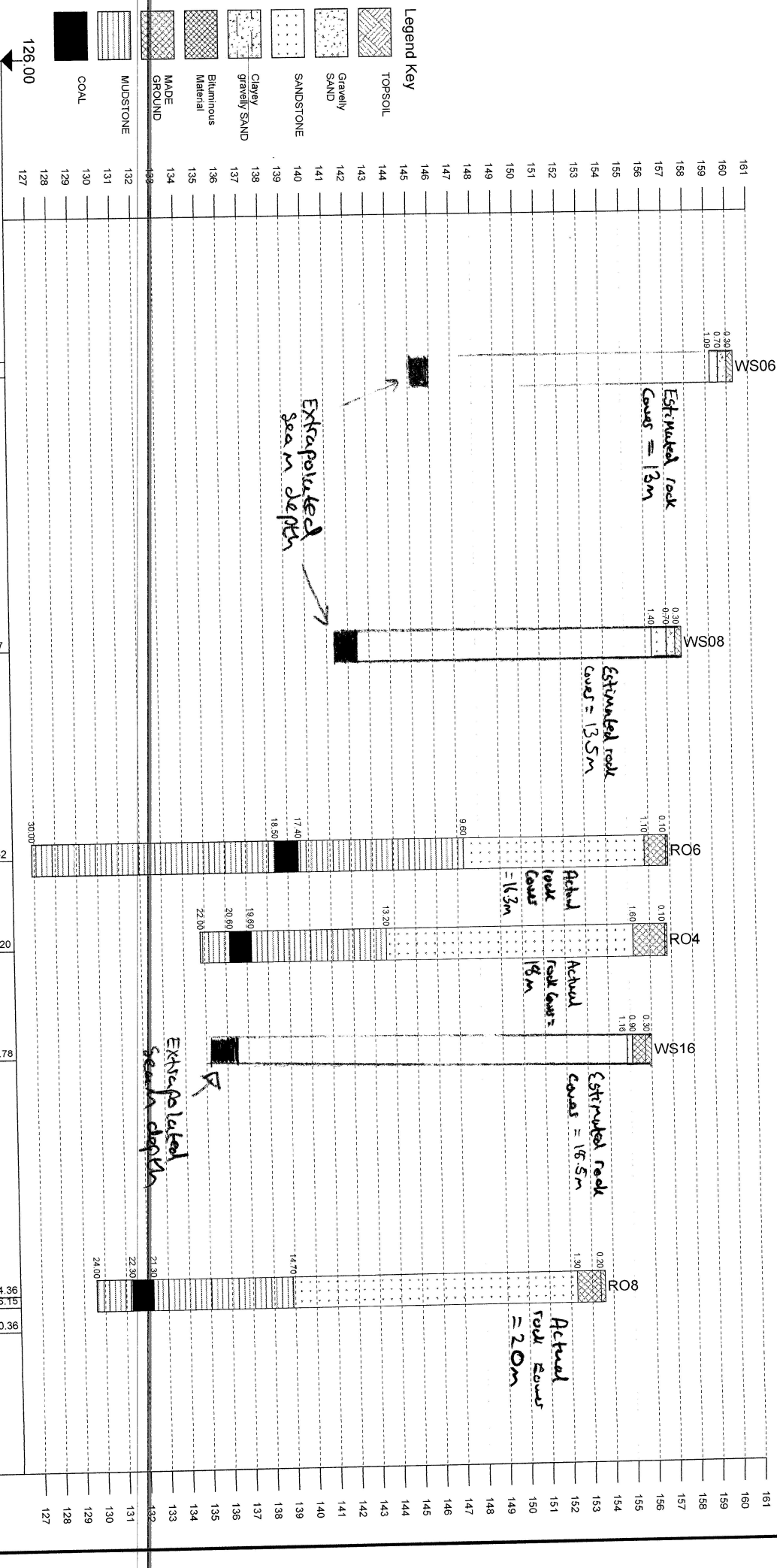
Flush: Air flush

Rig Crew: GSS Ltd

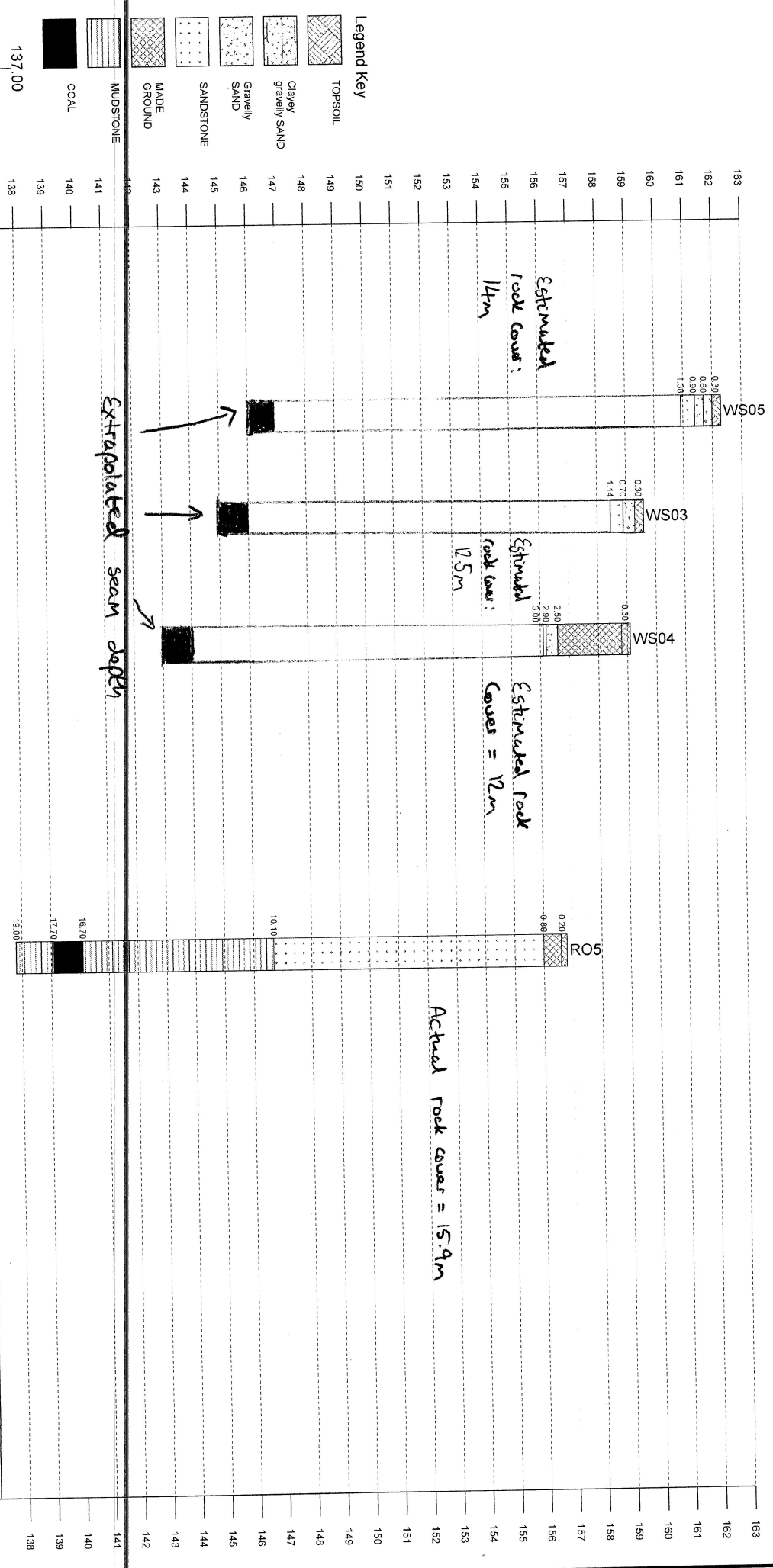
Logged Driller

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grey MUDSTONE (Drillers Description)		
					20.00	129.80			
							End of Borehole at 20.000m		

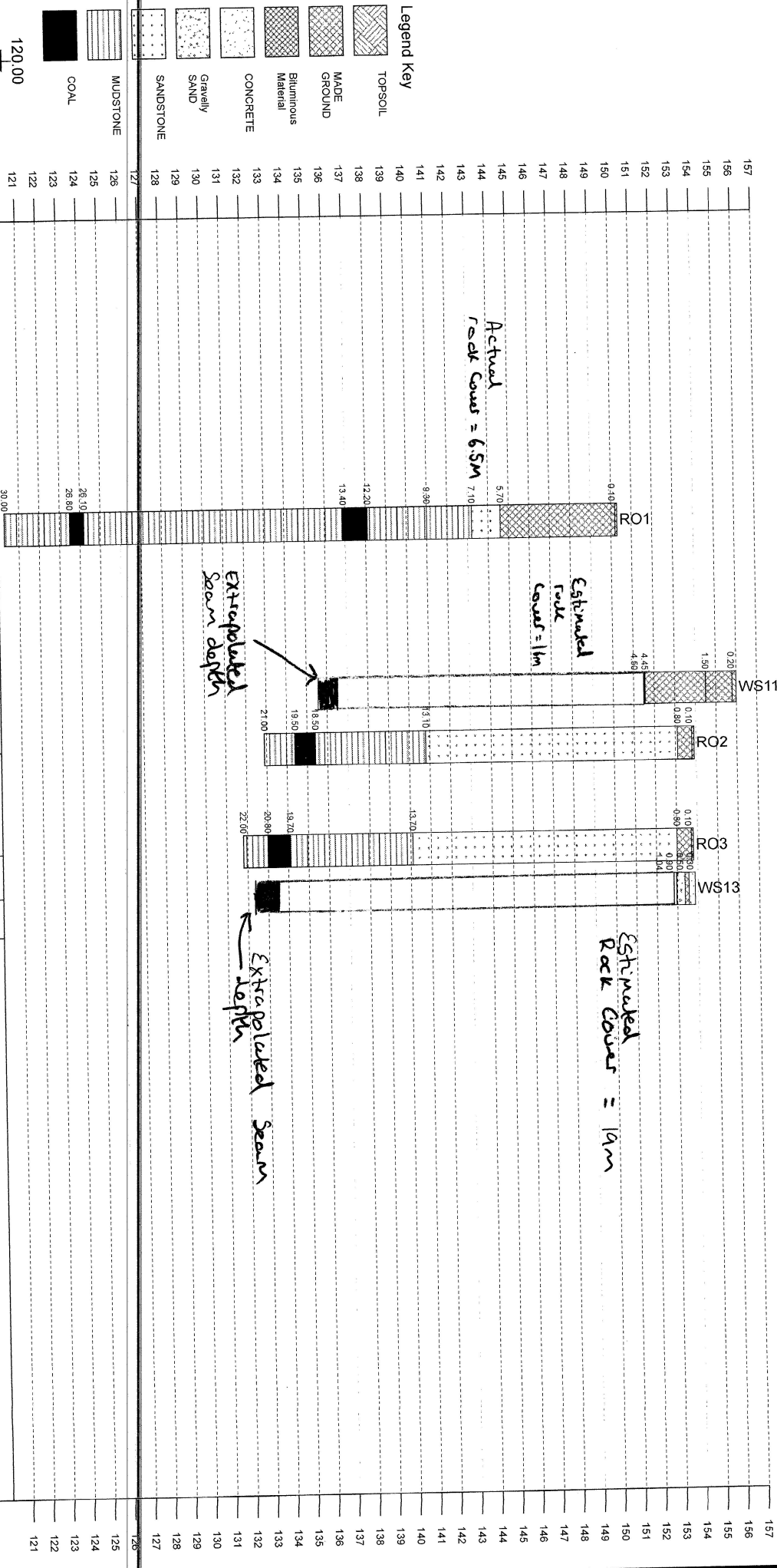
Groundwater: No groundwater ingress observed.  
 Backfill: Backfilled with drilling arisings and bentonite.  
 Casing: No casing used  
 Remarks: Full Flush returns



Chainage (m)	Offset (m)	Elevation (mAOD)
0.00	2.66	160.30
50.97	12.32	157.70
87.52	10.11	156.90
103.20	13.71	156.80
122.76	3.51	156.00
164.36	4.99	153.60
166.15	8.82	153.60
170.36		



Chainage (m)	Offset (m)	Elevation (mAO)
137.00	0.00	162.30
141	8.34	159.60
140	5.23	159.10
139	8.65	159.10
138	5.36	159.10
141	47.74	159.10
140	26.15	159.10
139	8.34	159.10
138	5.23	159.10
137.00	0.00	162.30



Chainage (m)	Offset (m)	Elevation (mAOD)
120.00	0.00	150.30
121	7.47	153.90
122	4.93	153.80
123		153.86
124		
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