

# Red John Pumped Storage Hydro Scheme

Volume 5, Appendix 5.1: Site  
Investigation

ILI (Highlands PSH) Ltd.

November 2018



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH01**

Machine : M13 Flush : Air Mist Core Dia: mm Method : Rotary Open Hole	Casing Diameter 150mm cased to 15.00m	Ground Level (mOD)	Client	Job Number L839
	Location 258781 E 833235 N	Dates 20/08/2018- 21/08/2018	Engineer AECOM	Sheet 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(1.20)	#Grass over SAND and GRAVEL		
					Water strike(1) at 1.20m. 20/08/2018:1.20m		1.20 (0.30)	#SAND and GRAVEL		∇1
					21/08/2018:1.20m		1.50 (0.90)	#GRAVEL		
							2.40 (2.50)	#Silty SAND		
							4.90	#Reddish brown sandy gravelly CLAY		

<b>Remarks</b> # Denotes driller's description Driller records full flush returns throughout Excavating from 0.00m to 1.00m for 1 hour.	Scale (approx) 1:50	Logged By
	Figure No. L839.BH01	



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH01**

Machine : M13 Flush : Air Mist Core Dia: mm Method : Rotary Open Hole	Casing Diameter 150mm cased to 15.00m	Ground Level (mOD)	Client	Job Number L839
	Location 258781 E 833235 N	Dates 20/08/2018- 21/08/2018	Engineer AECOM	Sheet 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(15.10)			
						21/08/2018:3.00m	20.00			

<b>Remarks</b> # Denotes driller's description Driller records full flush returns throughout	Scale (approx)	Logged By
	1:50	
Figure No.		
L839.BH01		



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH02**

Machine : M13 Flush : Air Mist Core Dia: mm Method : Rotary Open Hole and Core	Casing Diameter 150mm cased to 3.00m	Ground Level (mOD)	Client	Job Number L839
	Location 260814 E 833102 N	Dates 21/08/2018- 22/08/2018	Engineer AECOM	Sheet 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
1.20							(1.20)	#Grass onto weathered broken SANDSTONE		
1.20	55	11	0	36			1.20	Strong and very strong very thin bedded pink to pinkish grey medium SANDSTONE, faintly weathered and ironstained, very closely spaced rough planar to undular tight bedding at 17 degrees to 26 degrees, closely spaced rough undular tight to slightly open stained, black stained in top 0-60m at 58 degrees, 72 degrees and 84 degrees, medium spaced rough undular tight fractures at 5 degrees to 16 degrees and 42 degrees and opposite to bedding		
2.00	56	21	0	15						
3.00	93	39	9	12	Water strike(1) at 3.00m. 21/08/2018:3.00m 22/08/2018:3.00m					
4.50	87	24	0	26						
6.00	47	0	0	90			(10.80)			
7.50	56	0	0	34						
9.00	55	0	0	32						

<b>Remarks</b> Driller records full flush returns throughout # Denotes driller's description Excavating from 0.00m to 0.40m for 0.50 hours.	Scale (approx)	Logged By
	1:50	RB
Figure No. L839.BH02		



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH02**

Machine : M13 Flush : Air Mist Core Dia: mm Method : Rotary Open Hole and Core	Casing Diameter 150mm cased to 3.00m	Ground Level (mOD)	Client	Job Number L839
	Location 260814 E 833102 N	Dates 21/08/2018- 22/08/2018	Engineer AECOM	Sheet 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50										
	46	0	0	30						
12.00					22/08/2018:		12.00	Complete at 12.00m		

<b>Remarks</b> Driller records full flush returns throughout # Denotes driller's description	Scale (approx)	Logged By
	1:50	RB
	<b>Figure No.</b> L839.BH02	



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH03**

Machine : M13 Flush : Air Mist Core Dia: mm Method : Rotary Open Hole and Core	Casing Diameter 125mm cased to 1.00m	Ground Level (mOD)	Client	Job Number L839
	Location 261690 E 833835 N	Dates 23/08/2018- 24/08/2018	Engineer AECOM	Sheet 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
1.00	77	20	0	27			(0.30)	Moss and peat		
							0.30	#Hard fractured SANDSTONE		
2.50	77	20	0	27			(0.70)	Strong and very strong very thin bedded pink to purplish grey laminated semi-crystalline medium SANDSTONE, faintly ironstained, very closely spaced rough, undular to planar tight bedding at 8 degrees to 26 degrees, closely spaced rough undular tight to slightly open, occasionally stained fractures at 58 degrees, 62 degrees, 74 degrees and 86 degrees		
							1.00			
4.00	80	59	12	18			2.80	Strong and very strong thin to medium bedded pink to purplish grey laminated semi-crystalline medium SANDSTONE, very occasional very thin silty bands, faintly ironstained, closely spaced rough undular to planar tight bedding at 8 degrees to 27 degrees, medium spaced rough planar to undular tight stained fractures at 82 degrees, medium spaced rough planar tight fractures at 8 degrees, medium spaced rough undular tight stained fractures at 26 degrees and nearly opposite to bedding		
5.50	90	63	41	8						
7.00	93	67	50	8						
8.50	77	45	13	10						
10.00	93	35	24	9						

<b>Remarks</b> Driller records full flush returns throughout # Denotes driller's description Excavating from 0.00m to 0.30m for 0.50 hours.	Scale (approx)	Logged By
	1:50	RB
	Figure No. L839.BH03	



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH03**

Machine : M13 Flush : Air Mist Core Dia: mm Method : Rotary Open Hole and Core	Casing Diameter 125mm cased to 1.00m	Ground Level (mOD)	Client	Job Number L839
	Location 261690 E 833835 N	Dates 23/08/2018- 24/08/2018	Engineer AECOM	Sheet 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
11.00	75	55	36	6	24/08/2018:		11.00	Complete at 11.00m		

<b>Remarks</b> Driller records full flush returns throughout # Denotes driller's description	Scale (approx)	Logged By
	1:50	RB
	Figure No. L839.BH03	



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH04**

Machine : M13 Flush : Air Mist Core Dia: 76 mm Method : Rotary Open Hole and Core	Casing Diameter 150mm cased to 7.50m	Ground Level (mOD)	Client	Job Number L839
	Location 261814 E 833524 N	Dates 22/08/2018-23/08/2018	Engineer AECOM	Sheet 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
1.00							(1.00)	#Grass onto PEAT		
1.00	25	0	0	N/A			1.00	Strong and very strong (fragments, very badly broken core) very thin bedded pink fine grained SANDSTONE, very closely spaced rough undular tight slightly open stained bedding at 19 degrees, very closely spaced rough undular open stained fractures at 64 degrees, 72 degrees and 88 degrees		
2.00	5	0	0	N/A			(3.06)			
3.00	27	3	0	N/A						
4.00	27	0	0	N/A	Water strike(1) at 4.00m. 22/08/2018: 23/08/2018:4.00m		4.06	Strong and very strong badly broken very thin bedded dark purplish grey SILTSTONE, occasional thin sandstone bands, ironstained, very closely spaced rough planar tight stained bedding at 12 degrees to 16 degrees, closely spaced rough planar tight to slightly open stained fractures at 64 degrees, 72 degrees and 88 degrees, widely spaced smooth slightly polished undular tight fractures at 27 degrees to 34 degrees		∇1
5.50	34	0	0	N/A			(3.82)			
6.50	87	28	8	39						
8.00							7.88	Strong and very strong very thin bedded pinkish grey banded silty fine SANDSTONE, slightly ironstained, very closely spaced smooth planar tight bedding at 6 degrees, very closely spaced smooth to rough planar tight fractures at 82 degrees to 88 degrees		
	95	35	0	23			8.67	Very strong thin bedded pink to pinkish grey banded medium SANDSTONE, slightly ironstained, closely spaced rough planar tight bedding at 14 degrees, closely spaced smooth undular tight stained fractures at 84 degrees, medium spaced rough undular tight fractures at 4 degrees and 64 degrees		
9.50							(2.33)			

<b>Remarks</b> Driller records loss of flush between 3.50m and 4.00m, 4.50m and 5.00m and 6.00m and 7.00m # Denotes driller's description Excavating from 0.00m to 1.00m for 1 hour.	Scale (approx)	Logged By
	1:50	RB
Figure No. L839.BH04		





# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Borehole Number  
**BH04**

Machine : M13 Flush : Air Mist Core Dia: 76 mm Method : Rotary Open Hole and Core	Casing Diameter 150mm cased to 7.50m	Ground Level (mOD)	Client	Job Number L839
	Location 261814 E 833524 N	Dates 22/08/2018- 23/08/2018	Engineer AECOM	Sheet 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
11.00	97	65	17	11	23/08/2018:		11.00	Complete at 11.00m		

<b>Remarks</b> Driller records loss of flush between 3.50m and 4.00m, 4.50m and 5.00m and 6.00m and 7.00m # Denotes driller's description	Scale (approx)	Logged By
	1:50	RB
Figure No. L839.BH04		



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP1**

Excavation Method JCB 3CX	Dimensions 3.50x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 261701 E 833981 N		Dates 22/08/2018	Engineer AECOM

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	B1				(0.40)	Dark brown unconverted PEAT with cobbles		
0.20	E1				0.40	Brown very silty sandy fine to coarse GRAVEL with cobbles and boulders of weathered rock		
0.50	B2				(1.10)			
0.50	E2							
1.00	B3				1.50	Complete at 1.50m		
1.00	E3							

Plan ..... ..... ..... ..... .....	Remarks Trial pit terminated at a depth of 1.50m due to lack of progress Trial pit walls remained dry and stable throughout		
	Scale (approx) 1:50	Logged By PB	Figure No. L839.TP1



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP2**

Excavation Method JCB 3CX	Dimensions 3.00x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 261763 E 833907 N	Dates 22/08/2018	Engineer AECOM	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	B1				(0.25)	Dark brown unconverted PEAT with cobbles		
0.10	E1				0.25	Mottled brown SANDSTONE (Probable bedrock)		
0.30	B2				0.35	Complete at 0.35m		

**Plan**

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**Remarks**

Trial pit walls remained dry and stable throughout  
Trial pit terminated at a depth of 0.35m due to lack of progress

Scale (approx) 1:50	Logged By PB	Figure No. L839.TP2
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# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP3**

Excavation Method JCB 3CX	Dimensions 4.00x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 261995 E 833927 N	Dates 22/08/2018	Engineer AECOM	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	B1				(0.30)	Dark brown unconverted PEAT		
0.20	E1				0.30	Brown very silty fine to coarse SAND and fine to coarse GRAVEL cobbles and boulders of weathered rock		
0.50	B2				(1.00)			
0.50	E2							
1.00	B3				1.30	Complete at 1.30m		
1.00	E3							

<b>Plan</b> 	<b>Remarks</b> Trial pit terminated at a depth of 1.30m due to lack of progress Trial pit walls remained dry and stable throughout	
	<b>Scale (approx)</b> 1:50	<b>Logged By</b> PB



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP4**

Excavation Method JCB 3CX	Dimensions 3.20x0.80m	Ground Level (mOD)	Client	Job Number L839
	Location 261760 E 833534 N	Dates 21/08/2018	Engineer AECOM	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	B1				(0.40)	Dark brown fibrous PEAT with plant structure still evident. Strong hydrocarbon odour noted		
0.20	E1				0.40	Brown clayey gravelly fine to coarse SAND of weathered rock. Gravel content is fine to coarse		
0.50	B2				(0.20)			
0.50	E2				0.60	Greyish brown very silty very sandy fine to coarse GRAVEL of weathered rock		
1.00	B3				(2.40)			
1.00	E3							
2.00	B4							
3.00	B5				3.00	Complete at 3.00m		

Plan	Remarks	
		<p>Trial pit walls remained dry throughout</p> <p>Trial pit walls unstable between 1.80m and 3.00m</p> <p>Trial pit terminated at a depth of 3.00m due to lack of progress</p>
Scale (approx)	Logged By	Figure No.
1:50	PB	L839.TP4

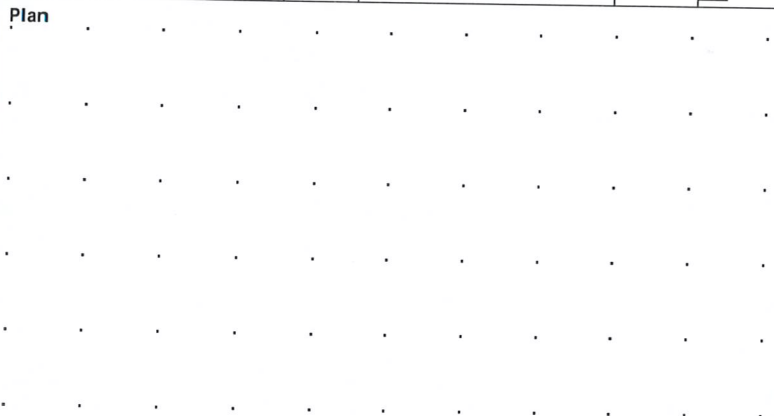


# AITKEN LABORATORIES LTD

Site RED JOHN PUMPED STORAGE HYDRO	Trial Pit Number <b>TP5</b>
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Excavation Method JCB 3CX	Dimensions 1.00m X 0.50m	Ground Level (mOD)	Client	Job Number L839
	Location 261687 E 833322 N	Dates 22/08/2018	Engineer AECOM	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	Mottled brown SANDSTONE (Bedrock) Complete at 0.05m		



Remarks

Scale (approx) 1:50	Logged By	Figure No. L839.TP5
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# AITKEN LABORATORIES LTD

Site	RED JOHN PUMPED STORAGE HYDRO	Trial Pit Number	TP6
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Excavation Method JCB 3CX	Dimensions 3.50x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 261110 E 832842 N	Dates 21/08/2018		Engineer AECOM

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	E1				(0.40)	TOPSOIL with sandstone cobbles and boulders		
0.50	B1				0.40	Brown fibrous PEAT with plant structure still evident. Strong hydrocarbon odour noted		
0.50	E2				(0.50)			
1.00	B2				0.90	Light brown very clayey fine to coarse SAND and fine to coarse GRAVEL of weathered sandstone		
1.00	E3				(0.50)			
					1.40	Mottled brown SANDSTONE (Probable bedrock)		
					1.50			
						Complete at 1.50m		

Plan

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Remarks

Trial pit walls remained dry and stable throughout

Scale (approx)	Logged By	Figure No.
1:50	PB	L839.TP6



# AITKEN LABORATORIES LTD

**Site**  
RED JOHN PUMPED STORAGE HYDRO

**Trial Pit Number**  
**TP7**

<b>Excavation Method</b> JCB 3CX	<b>Dimensions</b> 4.00x0.70m	<b>Ground Level (mOD)</b>	<b>Client</b>	<b>Job Number</b> L839
	<b>Location</b> 261050 E 833037 N	<b>Dates</b> 22/08/2018	<b>Engineer</b> AECOM	<b>Sheet</b> 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	E1				(0.25)	TOPSOIL with cobbles and occasional boulders		
0.60	B1				0.25	Brown clayey fine to coarse SAND and fine to coarse GRAVEL with cobbles and occasional boulders of weathered rock		
0.60	E2				(0.75)			
					1.00	OBSTRUCTION (Probable bedrock)		
						Complete at 1.00m		

**Plan**

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**Remarks**

Trial pit walls remained dry and stable throughout  
 Trial pit terminated on an obstruction at a depth of 1.00m

<b>Scale (approx)</b> 1:50	<b>Logged By</b> PB	<b>Figure No.</b> L839.TP7
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# AITKEN LABORATORIES LTD

**Site**  
RED JOHN PUMPED STORAGE HYDRO

**Trial Pit Number**  
TP8

<b>Excavation Method</b> JCB 3CX	<b>Dimensions</b> 3.50x0.70m	<b>Ground Level (mOD)</b>	<b>Client</b>	<b>Job Number</b> L839
	<b>Location</b> 261086 E 833189 N	<b>Dates</b> 22/08/2018	<b>Engineer</b> AECOM	<b>Sheet</b> 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.15	B1				(0.30)	Dark brown unconverted PEAT		
0.15	E1				0.30	Brown clayey fine to coarse SAND and fine to coarse GRAVEL with cobbles and occasional boulders of weathered rock OBSTRUCTION (Probable bedrock)		
0.50	B2				(0.40)			
0.50	E2				0.70			
						Complete at 0.70m		

<b>Plan</b>	<b>Remarks</b> Trial pit walls remained dry and stable throughout Trial pit terminated on an obstruction at a depth of 0.70m		
		<table border="1"> <tr> <td><b>Scale (approx)</b> 1:50</td> <td><b>Logged By</b> PB</td> <td><b>Figure No.</b> L839.TP8</td> </tr> </table>	<b>Scale (approx)</b> 1:50
<b>Scale (approx)</b> 1:50	<b>Logged By</b> PB	<b>Figure No.</b> L839.TP8	



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP9**

Excavation Method JCB 3CX	Dimensions 4.00x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 261166 E 833171 N		Dates 22/08/2018	Engineer AECOM

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.15	B1				(0.30)	Dark brown unconverted PEAT		
0.15	E1				0.30	Brown clayey fine to coarse SAND and fine to coarse GRAVEL with cobbles and occasional boulders of weathered rock		
0.50	B2				(0.40)			
0.50	E2				0.70			OBSTRUCTION (Probable bedrock)
						Complete at 0.70m		

**Plan**

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**Remarks**

Trial pit walls remained dry and stable throughout  
Trial pit terminated on an obstruction at a depth of 0.70m

Scale (approx)	Logged By	Figure No.
1:50	PB	L839.TP9



# AITKEN LABORATORIES LTD

**Site**  
RED JOHN PUMPED STORAGE HYDRO

**Trial Pit Number**  
**TP10**

<b>Excavation Method</b> JCB 3CX	<b>Dimensions</b> 3.50x0.70m	<b>Ground Level (mOD)</b>	<b>Client</b>	<b>Job Number</b> L839
	<b>Location</b> 260806 E 834008 N	<b>Dates</b> 22/08/2018	<b>Engineer</b> AECOM	<b>Sheet</b> 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20 0.20 0.50 0.50	B1 E1 B2 E2				0.15 0.13	Peaty TOPSOIL		
1.00 1.00	B3 E3				(1.85)	Brown very clayey sandy fine to coarse GRAVEL with much cobbles and boulders of weathered rock		
2.00	B4				2.00	Complete at 2.00m		

<b>Plan</b> .	<b>Remarks</b>  Trial pit terminated at a depth of 2.00m due to lack of progress Trial pit walls remained dry but unstable throughout		
	<table border="1"> <tr> <td><b>Scale (approx)</b> 1:50</td> <td><b>Logged By</b> PB</td> <td><b>Figure No.</b> L839.TP10</td> </tr> </table>	<b>Scale (approx)</b> 1:50	<b>Logged By</b> PB
<b>Scale (approx)</b> 1:50	<b>Logged By</b> PB	<b>Figure No.</b> L839.TP10	



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP11**

Excavation Method JCB 3CX	Dimensions 3.00x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 261425 E 833524 N	Dates 22/08/2018	Engineer AECOM	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	B1				(0.50)	Dark brown unconverted PEAT with cobbles and boulders		
0.20	E1				0.50			
0.70	B2				(0.40)	Greyish brown very clayey fine to coarse SAND and fine to coarse GRAVEL of weathered rock with pockets of clay		
0.70	E2				0.90			
			Water strike(1) at 1.00m.		1.00	Mottled brown SANDSTONE (Probable bedrock)		∇1
						Complete at 1.00m		

<b>Plan</b> 	<b>Remarks</b> Trial pit terminated at a depth of 1.00m due to lack of progress Trial pit walls remained stable throughout	
		<b>Scale (approx)</b> 1:50



# AITKEN LABORATORIES LTD

**Site**  
RED JOHN PUMPED STORAGE HYDRO

**Trial Pit Number**  
TP12

**Excavation Method**  
JCB 3CX

**Dimensions**  
4.00x0.70m

**Location**  
261453 E 833477 N

**Ground Level (mOD)**

**Dates**  
22/08/2018

**Client**

**Engineer**  
AECOM

**Job Number**  
L839

**Sheet**  
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	B1				(0.40)	Dark brown unconverted PEAT		
0.20	E1				0.40	Mottled brown SANDSTONE (Probable bedrock)		
0.50	B2				(0.20) 0.60	Complete at 0.60m		

**Plan**

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**Remarks**

Trial pit terminated at a depth of 1.50m due to lack of progress  
Trial pit walls remained dry and stable throughout

<b>Scale (approx)</b> 1:50	<b>Logged By</b> PB	<b>Figure No.</b> L839.TP12
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# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP13**

Excavation Method JCB 3CX	Dimensions 4.00x0.80m	Ground Level (mOD)	Client	Job Number L839
	Location 258759 E 833209 N		Dates 21/08/2018	Engineer AECOM

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	E1				(0.20) 0.20	TOPSOIL		
0.50	B1				(0.50)	Brown silty fine to coarse SAND and fine to coarse GRAVEL with roots		
0.50	E2				0.70	Orange brown slightly silty slightly sandy fine to coarse GRAVEL		
1.00	B2				(0.60)			
1.00	E3				1.30	Brown slightly silty very sandy fine to coarse GRAVEL		
1.50	B3				(0.50)			
					1.80	Brown slightly silty gravelly fine to coarse SAND. Gravel content is fine to coarse		
2.20	B4				(0.70)			
					2.50	Stiff consistency mottled laminated brown sandy CLAY with occasional bands of sand		
3.00	B5				(1.00)	...at 3.00m, becoming firm		
					3.50	Brown clayey slightly gravelly fine to coarse SAND with occasional pockets of clay. Gravel content is fine to coarse		
4.00	B6				(0.80)			
			Water strike(1) at 4.30m.		4.30	Complete at 4.30m		▽1

Plan	Remarks Trial pit walls remained stable throughout	
		Scale (approx) 1:50



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP14**

Excavation Method JCB 3CX	Dimensions 3.50x1.80m	Ground Level (mOD)	Client	Job Number L839
	Location 258786 E 833264 N	Dates 21/08/2018	Engineer AECOM	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	E1				(0.25)	TOPSOIL		
0.60	B1				0.25	Brown silty fine to coarse SAND and fine to coarse GRAVEL with roots		
0.60	E2				0.50			
1.20	B2				(1.60)	Orange brown silty slightly sandy fine to coarse GRAVEL		
1.20	E3							
2.00	B3				2.10	Complete at 2.10m		

<b>Plan</b> .	<b>Remarks</b>  Trial pit walls remained dry but unstable throughout Trial pit terminated at a depth of 2.10m due to collapse					
	<table border="1"> <tr> <td>Scale (approx)</td> <td>Logged By</td> <td>Figure No.</td> </tr> <tr> <td>1:50</td> <td>PB</td> <td>L839.TP14</td> </tr> </table>	Scale (approx)	Logged By	Figure No.	1:50	PB
Scale (approx)	Logged By	Figure No.				
1:50	PB	L839.TP14				



# AITKEN LABORATORIES LTD

Site  
RED JOHN PUMPED STORAGE HYDRO

Trial Pit Number  
**TP15**

Excavation Method JCB 3CX	Dimensions 3.50x0.70m	Ground Level (mOD)	Client	Job Number L839
	Location 260700 E 834055 N		Dates 22/08/2018	Engineer AECOM

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.05	E1				0.10	Peaty TOPSOIL		
0.50 0.50	B1 E2				(1.70)	Brown very clayey sandy fine to coarse GRAVEL with much cobbles and boulders of weathered rock		
1.00 1.00	B2 E3							
1.80	B3				1.80	OBSTRUCTION (Possible bedrock) Complete at 1.80m		

Plan

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Remarks

Trial pit terminated on an obstruction at a depth of 1.80m  
Trial pit walls remained dry and stable throughout

Scale (approx) 1:50	Logged By PB	Figure No. L839.TP15
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Site : RED JOHN PUMPED STORAGE HYDRO  
Client : -  
Engineer : AECOM

Sheet

Figure

**TP1**  
(Pit)



**TP1**  
(Spoil Heap)



**TP2**  
(Pit)



**TP2**  
(Spoil Heap)



Remarks :



**Site** : RED JOHN PUMPED STORAGE HYDRO  
**Client** : -  
**Engineer** : AECOM

**Sheet**

**Figure**

**TP3**

(Pit)



**TP3**

(Spoil Heap)



**TP4**

(Pit)



**TP4**

(Spoil Heap)



**Remarks** :



Site : RED JOHN PUMPED STORAGE HYDRO  
Client : -  
Engineer : AECOM

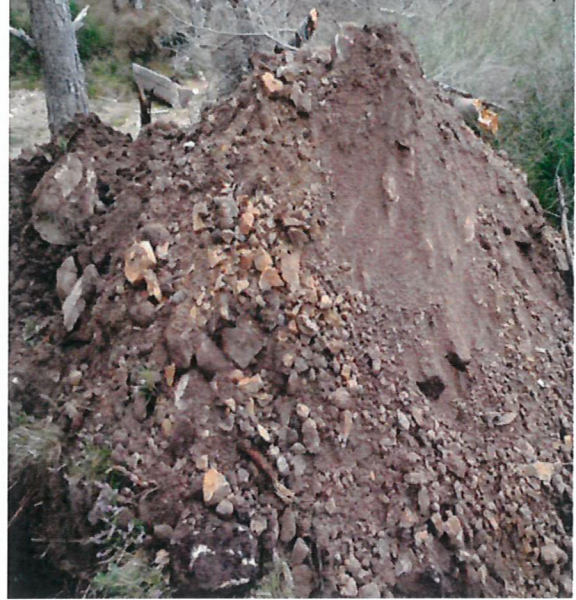
Sheet

Figure

**TP6**  
(Pit)



**TP6**  
(Spoil Heap)



**TP7**  
(Pit)



**TP7**  
(Spoil Heap)



Remarks :



**Site** : RED JOHN PUMPED STORAGE HYDRO  
**Client** : -  
**Engineer** : AECOM

Sheet

Figure

**TP8**  
(Pit)



**TP8**  
(Spoil Heap)



**TP9**  
(Pit)



**TP9**  
(Spoil Heap)



**Remarks** :



Site : RED JOHN PUMPED STORAGE HYDRO  
Client : -  
Engineer : AECOM

Sheet

Figure

**TP10**  
(Pit)



**TP10**  
(Spoil Heap)



**TP11**  
(Pit)



**TP11**  
(Spoil Heap)



Remarks :



**Site** : RED JOHN PUMPED STORAGE HYDRO  
**Client** : -  
**Engineer** : AECOM

**Sheet**

**Figure**

**TP12**  
(Pit)



**TP12**  
(Spoil Heap)



**TP13**  
(Pit)



**TP13**  
(Spoil Heap)



**Remarks** :



Site : RED JOHN PUMPED STORAGE HYDRO

Client : -

Engineer : AECOM

Sheet

Figure

**TP14**  
(Pit)



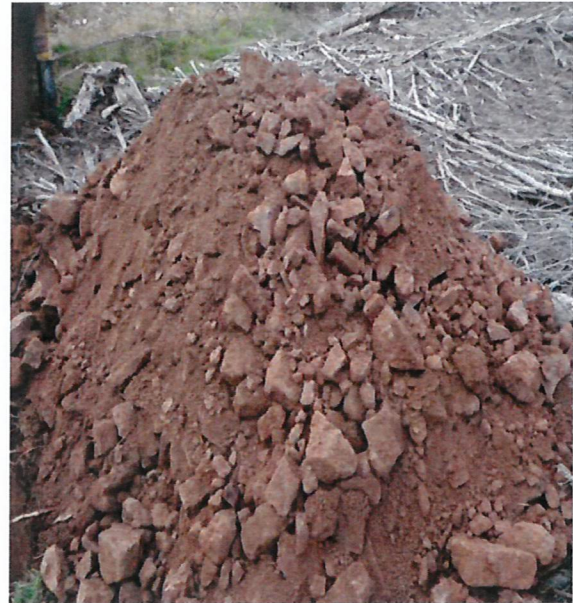
**TP14**  
(Spoil Heap)



**TP15**  
(Pit)



**TP15**  
(Spoil Heap)



Remarks :

