

Technical Note – Contamination Test Results – Monitoring of BH514B

Project:	Clarendon Road, Phase 3B	Project Number:	RE6089
Subject:	Groundwater contamination in BH514B		
Authors:	Paul Adams, Jack Holliday	Technical Note:	TN6089.002 Issue 2
Date:	10/06/2022		
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1. Introduction

Keltbray is contracted to monitor and sample groundwater across the Clarendon Road Phase 3 area as part of the current phase of construction. This work is specified in the *Foundation Work Risk Assessment (5192204_P3_P3b_FWRA)* and *Remediation Method Statement (5192204_P3_Rem Method State_Rev4)* both produced by Atkins. The work is required to monitor groundwater quality within the Made Ground and the deep aquifer residing within the Lambeth Group below the London Clay aquitard.

As part of these works, periodic samples (the weekly or fortnightly intervals between sampling being dependent on the nature of the works being undertaken) have been collected from 3 deep groundwater wells screened towards the base of the Lambeth Group at approximately 35-45m below ground level (bgl). These wells are designated BH510, BH513 and BH514. A location plan is included within the appendices. Monitoring has been undertaken by Keltbray since April 2020 with results compared against the baseline conditions derived from 6 No. groundwater monitoring visits undertaken between September and December 2019 by Atkins. Trigger levels were set as the maximum recorded concentration during baseline plus 10%. Exceedances of the trigger levels were to be reported to St William and Atkins. The trigger levels are shown in blue on the appended data spreadsheet.

NOTE: For the avoidance of doubt, BH514 has been interchangeably referred to as BH514A. Both refer to the same standpipe installed in September 2019.

2. BH 514

During monitoring on 19th November 2021, BH514 was found to be blocked at approximately 1.8m below the well head preventing the sampling (bladder) pump from descending. The cause of the blockage is unknown. The following week, to attempt to remove this blockage and allow monitoring and sampling to continue, the standpipe was partially excavated from ground level using a combination of machine and hand digging with the intention of removing the blockage and replacing the section of the standpipe if necessary. After excavating to 2m and whilst inspecting the standpipe, the blockage cleared and a dip tape was able to descend down the standpipe again. The cause of the blockage was lost down the standpipe.

Following this occurrence, the next sampling of BH514 on 26th November 2021 detected spikes of ammonia and total cyanide concentrations higher than previously detected to date. This sample recorded 34,000 ug/L ammonia (vs a trigger level of 2,420 ug/l) and 2,800 ug/L total cyanide (trigger level 38.5 ug/l) as well as low-level TPH (150 ug/L – trigger level 10 ug/l). Subsequent sampling up to 2nd February 2022 showed a general declining trend with no further TPH detected (see Figure 2). BH514 was (re)purged on 3rd February 2022 in an attempt to remove any contamination which may have entered the standpipe. Only a minimal volume of silty water could be recovered before the well purged dry. The subsequent sample on 9th February showed a second, larger spike of total cyanide and ammonia (19,000 and 91,000 ug/L respectively) along with 3.12 ug/L (trigger level 0.16 ug/l) of total PAH (this was only the second time PAH had been detected in the well to date). Results were significantly lower the following week (120, 17,000 and <0.16 ug/L for total cyanide, ammonia and total PAH respectively). However, given the poor recovery, silty nature of the sample and the concern of a potential contamination source within the standpipe, the decision was taken to decommission and replace the well.

BH514 was decommissioned by TOR Drilling in accordance with published Environment Agency guidance by pumping 270-300l of Bentonite grout into the standpipe on 22nd February 2022. A replacement, BH514B was drilled 3m from the previous boring and installed on 24th February 2022. A schematic showing the installation details of the replacement standpipe is appended to this Technical Note. BH514(A) was drilled to 44.2 m bgl and screened from 34.5-44.2m. BH514B was drilled to 42 m bgl and screened from 32-42m.

3. BH 514B

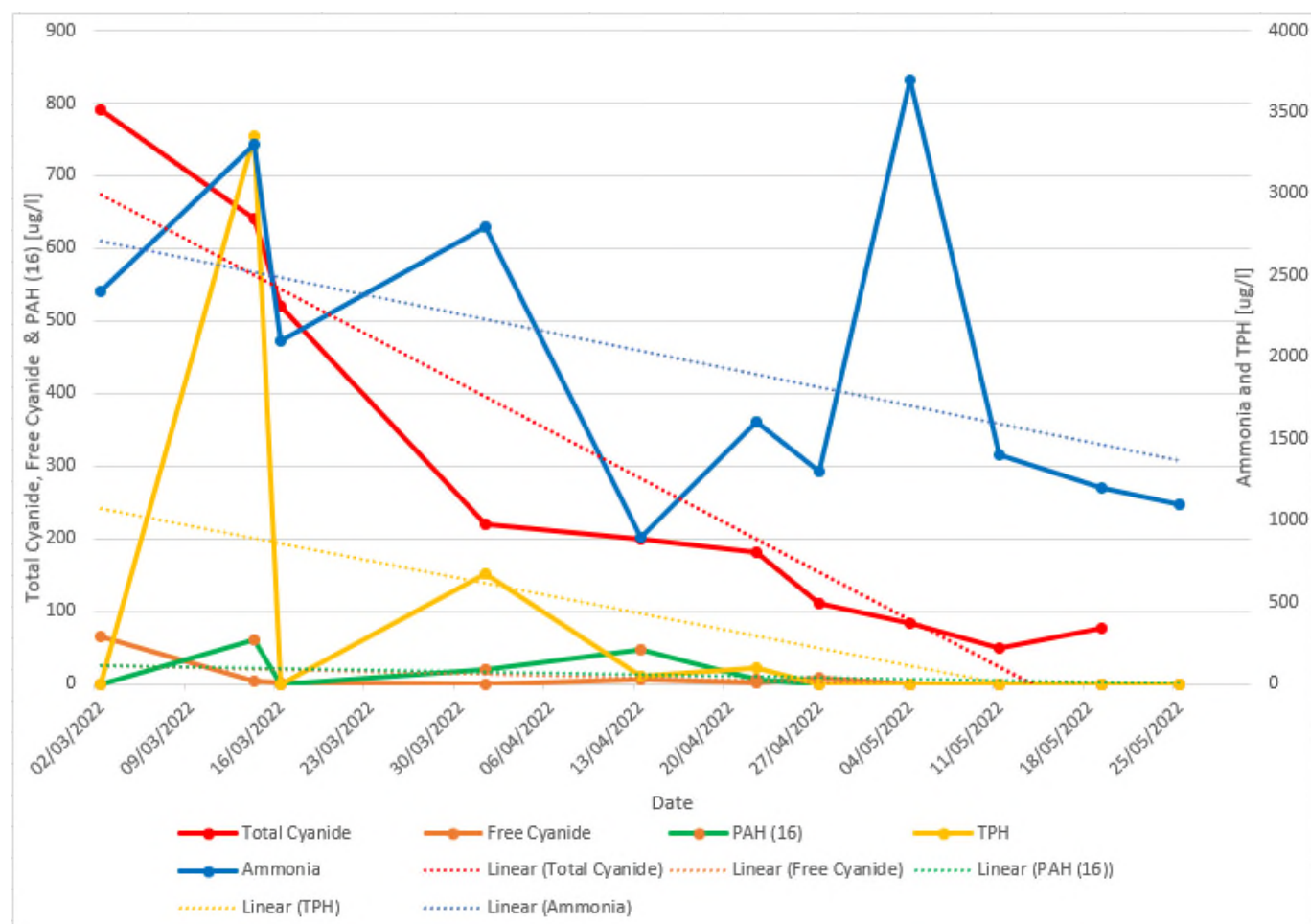
Following purging utilising a Waterra pump, BH514B was first sampled on 2nd March 2022. Total cyanide and ammonia were not elevated above the range typically seen in BH514A to date. Both PAH and TPH were below the laboratory limit of detection (LOD).

The sampling (bladder) pump became lodged in the new well on 9th March and was freed on 14th March. Thus, subsequent samples had to be bailed limiting the potential for any further well purging to be undertaken. Field (physiochemical) parameters were subsequently analysed by the laboratory for samples collected from this well. These samples were recorded as being silty. The sample collected on 14th March

had total cyanide and ammonia concentrations within the historical range. However, both total PAH (60.1 ug/L – trigger level 0.16 ug/l) and TPH (3,357 ug/L – trigger level 10 ug/l) were elevated above historical levels. Concentrations of PAH and TPH fell below the laboratory LOD at the next sampling (16th March) but returned (albeit at lower levels than those recorded on 14th March) on 1st and 13th April (see Figure 1). Subsequently, concentrations of total cyanide have fallen consistently but remain marginally above the trigger level (76 vs. 38.5 µg/l) based on the most recent result of 19th May.

Figure 1 presents the results of 5 key determinants (i.e. those which have seen the most significant exceedances and/or fluctuations) in the samples recovered from BH514B since the standpipe became blocked with the sampling pump and PAH and TPH was detected.

Figure 1: Summary of recent trends – key determinants – BH514B



NOTE: The cyanide results of 25th May for the unfiltered sample are currently pending. The data is available for the filtered sample and is shown in Table 1. The pending results will be forwarded as soon as they are received. The filtered sample result indicates that cyanide results remain low (albeit marginally above the trigger level for total cyanide).

The trendlines added to the data show a distinct, falling trend is evident for four of the five determinants. TPH and PAH have now been below the laboratory LOD since 27th April (5 sampling rounds).

Ammonia concentrations remain variable with an exceedance of the trigger level recorded on 4th May (3,700 vs. µg/l vs 2,420). This was the first exceedance in 5 sampling rounds (since 1st April 2022). Since the last change in ground level (mid-April 2022), the depth to groundwater has been fairly consistent at c. 33m bgl. No visual or olfactory evidence of contamination has been evident apart from a slight sulphurous odour. The full dataset is appended to this Technical Note for information.

4. Historical Exceedances

Following a thorough review of the available data Keltbray note that low-level heavy range aliphatic hydrocarbons were detected historically within the following monitoring wells:

- 440 ug/L BH514 23rd September 2020; and
- 530 ug/L BH513 29th January 2021.

These detections are in addition to elevated TPH (410 ug/L 31/10/19) and PAH (5.87 ug/L 24/10/19) concentrations which were recorded in BH513 during the baseline monitoring period. We note that these data were excluded when calculating the trigger level (FWRA Table 7-2 footnote). The reason for the omission of these data is not stated.

BH510 and BH513 located either side of the basement construction (located southeast and southwest respectively – broadly downstream based on our understanding of a southerly groundwater flow direction within the deeper aquifers) have not been affected by this issue and continue to provide groundwater monitoring data as required for the FWRA. No detections of PAH or TPH have been recorded and no notable increases of other determinants have been recorded in these two wells.

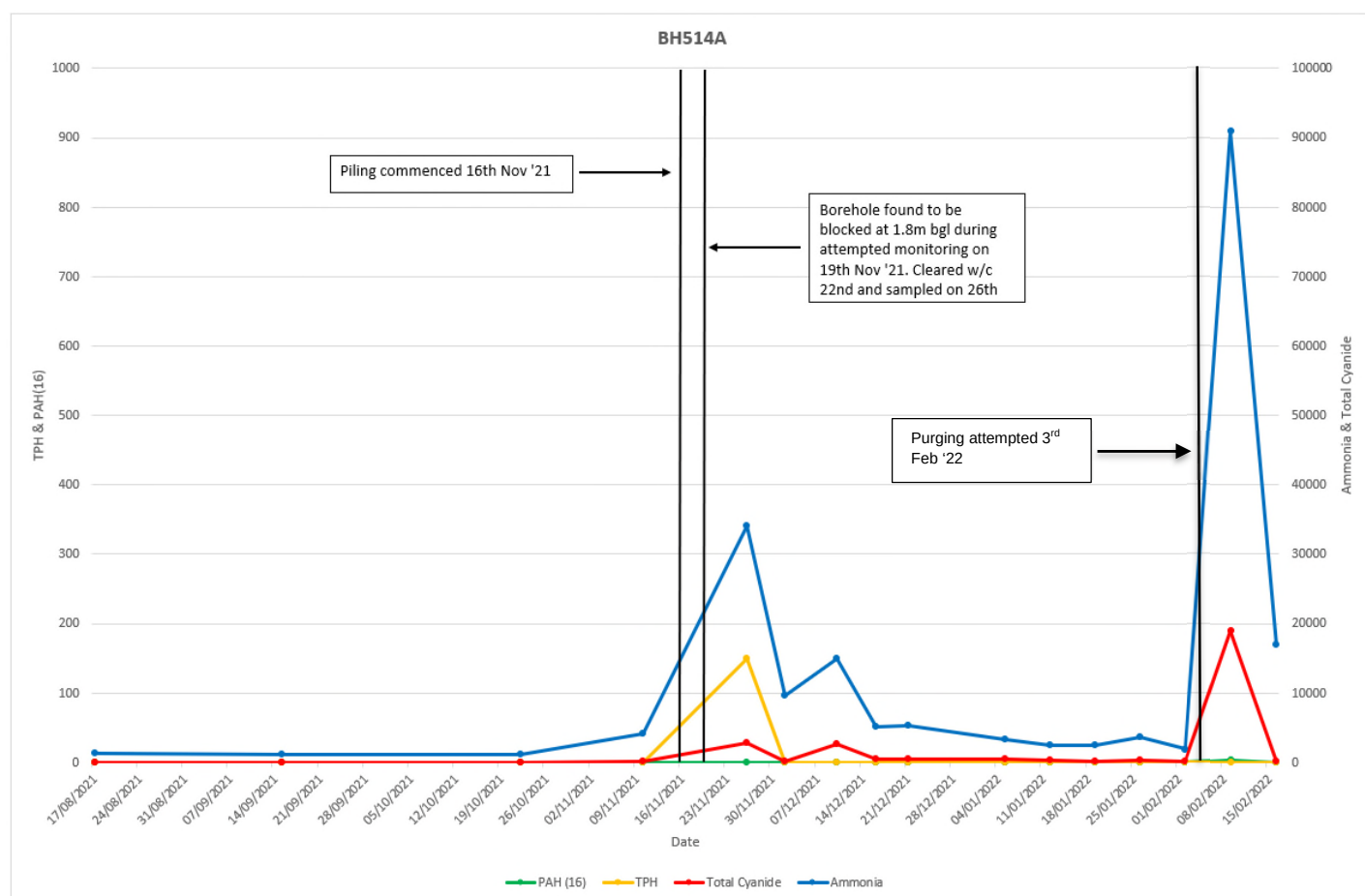
As per our previous note, Keltbray's opinion remains that the low-level, transient, total PAH and heavy range petroleum hydrocarbon levels were not a cause for concern when one considers the solubility and hence low mobility of these compounds in groundwater coupled with the general quality of the groundwater which has been shown to be consistently contaminated with both cyanide and ammonia (possibly as a result of the purifiers once employed within this region of the wider former gasworks). These compounds are considered likely to pose more of a concern to the wider groundwater regime than low-level PAHs and heavy range TPH.

5. Construction Programme

Piling commenced on 16th November 2021 and was paused on 11th March 2022, before restarting on the 25th April 2022.

A review of the data for BH514A (Figure 2 below and the appended datasheet) would appear to indicate a spike in determinants concentrations (including ammonia, total cyanide and TPH) soon after the commencement of piling. However, the spike receded quickly whilst the piling continued and, in the case of ammonia and total cyanide, an upward trend was evident prior to piling commencing. Furthermore, concrete piling which was occurring for Blocks D3 and D4 is downstream of BH514B. Sheet piling around the perimeter of Block E was also occurring during this period. Only the northern extent (comprising a small proportion of the perimeter) could be considered upstream of BH514B. A Figure (annotated plan, no reference) showing the extent of the piling works is provided within the appendix. The FWRA indicates that all piles terminate at least 5m above the Lambeth Group within the London Clay which acts as an aquitard to the underlying aquifer. Pile logs available to date confirm no evidence of a change in strata towards the base of the borings formed for the piles. Hence, all piles have terminated within the London Clay. Hence, Keltbray concluded that there was no evidence that piling was responsible for the observed spike in determinant concentrations and that it was acceptable for the works to continue.

Figure 2: Summary of key determinant concentrations during piling – BH514A



Note to Figure 2: Piling operations ceased from 23rd December 2021 to 4th January 2022 for the Christmas period

6. Sample Turbidity

There appears to be a link between the amount of silt within the sample and the contamination results. This was evident in BH514(A) when a spike of total cyanide and ammonia coupled with a low-level detection of PAHs was recorded on 9th February 2022 following a purge which had resulted in the standpipe being purged dry on 3rd February 2022. This trend was also evident when a sample was first collected from BH514B via bailing on 14th March 2022 following the pump becoming stuck in the standpipe on 9th March (bailing has been necessary ever since). As bailing is a more aggressive sampling technique, it is inevitable that fines will be disturbed into suspension and into the sample. Keltbray had no option but to use this sampling technique as we could not risk the bladder (low flow) pump becoming lodged within the standpipe on a second occasion (the depth to groundwater prevented the use of other, less intrusive, sampling techniques such as a peristaltic pump).

Keltbray has undertaken some further assessment by subjecting duplicates of all the samples taken since 13th April 2022 to filtration to remove the fines prior to analysis. The results, tabulated below, demonstrate that PAHs and TPH were below the laboratory LOD in all the filtered samples. Other determinant concentrations have been consistent with the unfiltered sample results. This would appear to indicate that the PAH and TPH contamination is associated with the fines and not dissolved within the groundwater itself. This is a logical conclusion if one considers the low solubility of the PAHs and (to a lesser extent) the mid to heavy carbon range TPH in water. This result, coupled with the results of the downstream monitoring wells, which have shown no elevations since the start of the piling works, appears to indicate that this is an isolated issue within the vicinity of BH514(A) /514B.

Table 1: Filtered Sample Geo-chemical Results – BH514B [µg/l]

Determinant	Trigger level	13/04/22	22/04/22	27/04/22	04/05/22	11/05/22	19/05/22	25/05/22
Total Cyanide	38.5	200	190	110	86	63	67	49
Free Cyanide	2.2	1.6	5.9	5.2	<1.0	<1.0	<1.0	<1.0
PAH (16)	0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
TPH	10	<10	<10	<10	<10	<10	<10	<10
Ammonia	2420	890	1300	1200	1200	1400	810	1200

7. Closing Statement

Keltbray will continue to monitor BH514B and the other two surrounding monitoring wells, BH510 and BH513 in accordance with the agreed programme. In BH514B we will continue to test both an unfiltered and a filtered sample up to the date the well needs to be decommissioned.

With a significant amount of data now available indicating that TPH and PAH is not persisting within the groundwater in BH514B, we strongly advocate that the well be decommissioned in accordance with published Environment Agency guidance no later than the week commencing 20th June 2022. Piling operations will recommence in Block E3 adjacent to the borehole location and Keltbray (as previously stated) do not want to be piling in close proximity to the well as it presents a potential contaminant migration pathway to the deeper aquifer. Monitoring and reporting will continue from BH510 and BH513 until the completion of the piling works and the associated post-piling monitoring period as required by the FWRA.

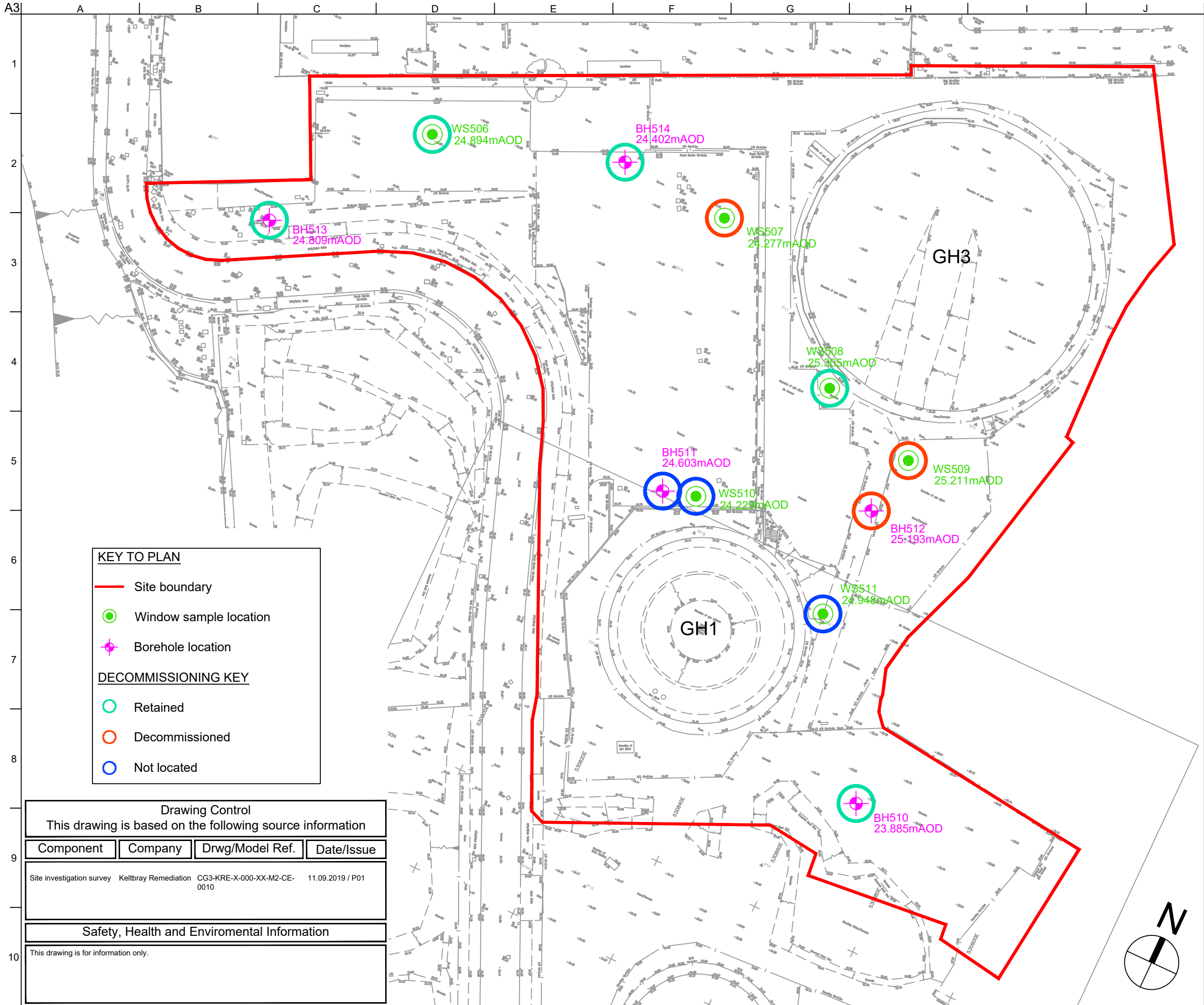
We would welcome any thoughts and comment on the above to be received by Keltbray during the week commencing 13th June 2022. We would be pleased to discuss any of the above in a meeting. Arrangements are currently being made to action the well decommissioning.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Adams', with a stylized flourish at the end.

Dr Paul Adams

For, and on behalf of, Keltbray Ltd.



KEY TO PLAN

Site boundary

Window sample location

Borehole location

DECOMMISSIONING KEY

Retained

Decommissioned

Not located

Drawing Control

This drawing is based on the following source information

Component	Company	Drwg/Model Ref.	Date/Issue
Site investigation survey	Keltbray Remediation	CG3-KRE-X-000-XX-M2-CE-0010	11.09.2019 / P01

Safety, Health and Enviromental Information

This drawing is for information only.

- NOTES:
- This drawing is to be read in conjunction with all relevant engineer's drawings, architect's drawings and specifications.
 - For setting out information, refer to the relevant architect's drawing.
 - All elevations and levels are in metres and are related to Ordnance Datum (O.D.).
 - All dimensions are in metres unless noted otherwise.
 - Drawings should not be scaled either by hand or from the computer digital data, only figured dimensions are to be used.
 - The contractor shall be responsible for the design, build and temporary works. They shall provide all temporary works during construction.
 - Specific temporary works constraints arising from the permanent works design, if and where applicable, are noted on the Keltbray Remediation drawings to which they relate.
 - Any discrepancies in the information provided should be immediately reported to the Engineer prior to the commencement of work.

P01	13.11.2020	MP	13.11.2020	JH
FIRST FOR REVIEW				
Rev	Date	By	Chkd	Appd

keltbray Remediation

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Portsmouth Road
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www.keltbray.com

Client

St William
Designed for life

Project Title

**CLARENDON ROAD GAS WORKS
PHASE 3**

Key Plan

Drawing Title

BOREHOLE DECOMMISSIONING PLAN

Scale at A3

NTS

Role

X - SUBCONTRACTOR

Suitability

S2 - FOR INFORMATION

Keltbray Remediation Job No	Rev
6075	P01
Name	
CR3-KRE-X-000-XX-M2-CE-1027	
Phase - Originator - Role - Zone - Level - Type - Element - Number	



- NOTES:
1. DIMENSIONS NOT TO BE SCALED FROM THIS DRAWING.
 2. DIMENSIONS GIVEN IN MILLIMETRES UNLESS NOTED OTHERWISE.
 3. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
 4. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS, REPORTS AND SPECIFICATIONS.
 5. THIS DRAWING IS BASED UPON THE FOLLOWING PTA DRAWINGS:
W257 PTA D4 PL SC S-17-4141_C12
W257 PTA D3 PL SC S-17-3141_C3
 6. PILE SETTING OUT POINTS ARE BASED UPON THE INFORMATION REFERENCED ABOVE AND MUST BE CHECKED AND APPROVED BY ALL RELEVANT PARTIES.

LEGEND

- TEST PILE
- ANCHOR PILES

Revision History				
Rev.	Date	Description / Purpose of Issue	On	Off
P01	06.12.21	FOR INFORMATION	TL	KP DR
Rev.	Date	Description / Purpose of Issue	On	Off

Client: ST WILLIAM

Engineer: PTA

Originator: KELTRAY PILING

Logo:

Address: KELTRAY LTD, ST ANDREWS HOUSE, PORTSMOUTH ROAD, KT11 2TA
Contact Details: t: +44 (0) 207 643 1000, f: +44 (0) 207 643 1001, w: www.keltbray.com

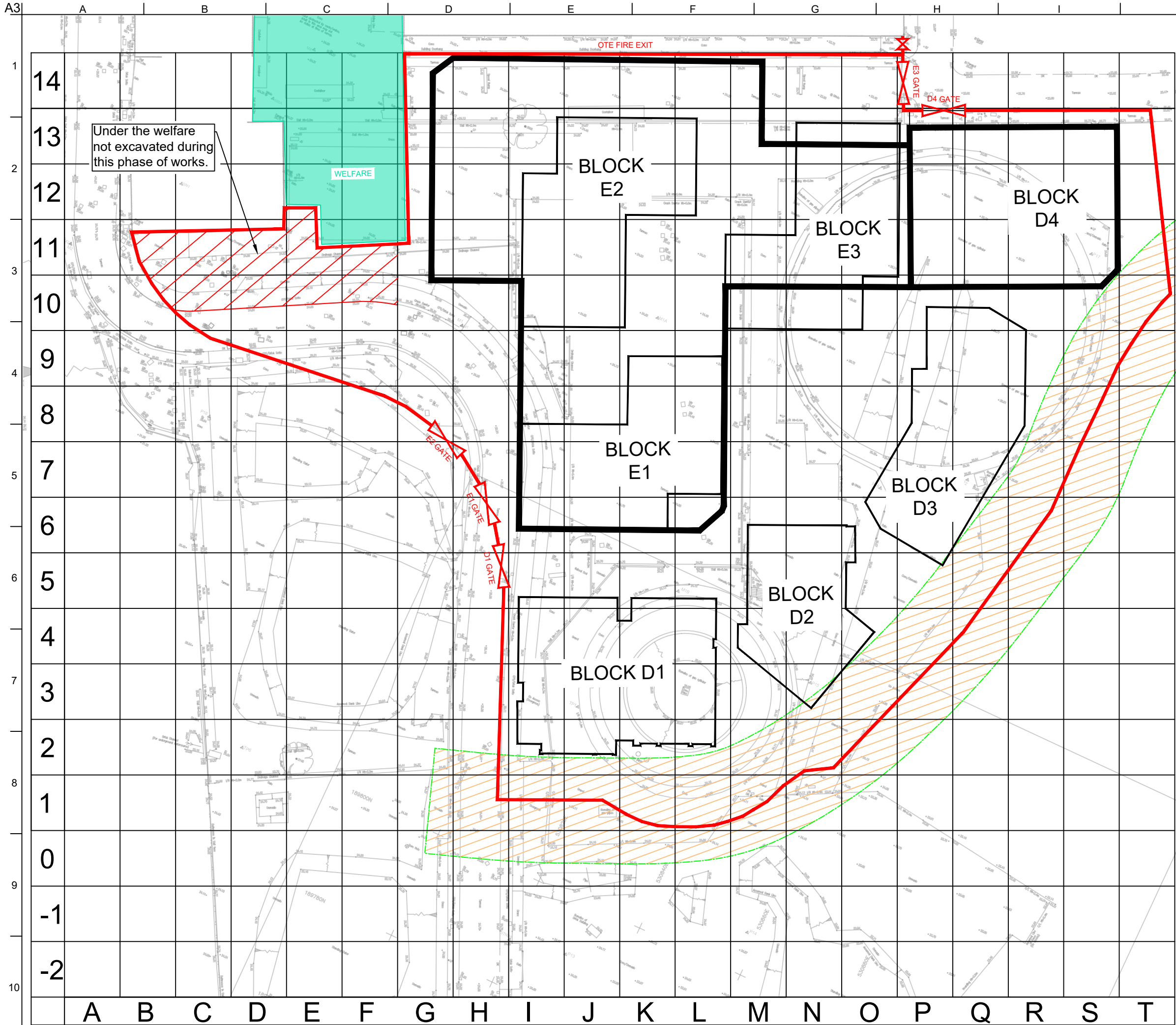
Project: CLARENDON PHASE 3B

Drawing Title: BLOCK D3, D4 & E GENERAL ARRANGEMENT

Date of First Issue: 08.12.2021, Scale @ A3: NTS, Job No: P347

Drawing Status: FOR INFORMATION

Project	Originator	Zone	Level	Type	Role	Number
W257	KLB	D4	FN	DR	PI	1000
Drawing No						Revision
W257-KLB-D4-FN-DR-PI-1000						S4 P01



- NOTES:
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 2. For setting out information, refer to the relevant architect's drawing.
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 6. The contractor shall be responsible for the design, build and temporary works. They shall provide all temporary works during construction.
 7. Specific temporary works constraints arising from the permanent works design, if and where applicable, are noted on the Keltbray Remediation drawings to which they relate.
 8. Any discrepancies in the information provided should be immediately reported to the Engineer prior to the commencement of work.

Plan included to show the location of the locations of the building blocks

P01	20.09.2021	WH	20.09.2021	JH
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FIRST FOR ISSUE

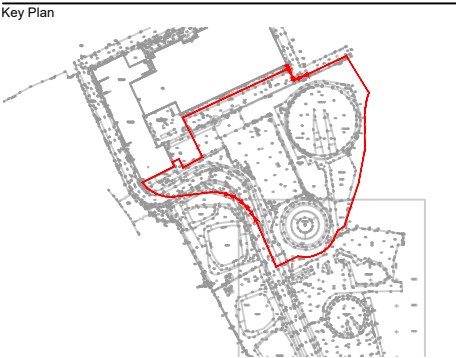
Rev	Date	By	Chkd	Appd
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Client
St William
Designed for life

Project Title
CLARENDON ROAD PHASE 3B



Drawing Title
AMMONIUM VALIDATION PLAN

Scale at A3
NTS

Role
X - SUBCONTRACTOR

Suitability
S2 - FOR INFORMATION

Keltbray Remediation Job No	Rev
6089	P01

Keltbray Name
CR3B-KRE-X-000-XX-DR-CE-2000
Phase - Originator - Role - Zone - Level - Type - Element - Number

St. William Name
N/A

BHID	Criteria	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514
Date sampled	-	23/04/2020	23/04/2020	14/05/2020	28/05/2020	27/05/2020	27/05/2020	11/06/2020	11/06/2020	11/06/2020	25/06/2020	25/06/2020	25/06/2020	10/07/2020	10/07/2020	10/07/2020	23/07/2020	23/07/2020	23/07/2020	10/08/2020	10/08/2020	10/08/2021	20/08/2020	20/08/2020	21/08/2020	04/09/2020	04/09/2020	04/09/2020	16/09/2020	16/09/2020	16/09/2020	23/09/2020	23/09/2020	23/09/2020
mAOD	-																																	
DTW	-	35.85	36.39	39.05	36.92	35.4	39.12	37.44	35.1	38.87	37.48	35.08	39	37.09	35.24	38.92	36.9	34.87	37.27	36.86	34.89	36.53	36.71	34.73	36.7	36.6	36.02	36.36	36.54	34.78	36.36	35.39	34.35	36.1
DTB	-	47.15	38.59	44.13	47.115	38.6	44.13	47.14	46.59	44.02	47.35	46.75	44.02	47.13	46.75	44.02	47.13	46.75	44.02	47.025	46.72	43.13	47.1	46.64	43.13	46.1	46.7	44	46.1	46.7	46.97	46.55	42.62	
NAPL present?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
NAPL thickness	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DO	139	3.9	4.8	-	5.4	4	-	16.1	7.3	-	31.4	37.85	-	14.2	10.4	-	12.1	29	-	8.6	9.7	-	11.8	9	-	42.8	10.3	-	21	34.6	-	12.5	13.1	-
pH	8.6	7.76	8.09	-	7.7	9.08	-	7.77	8.13	-	7.45	8.02	-	7.7	6.34	-	7.75	8.14	-	7.68	8.07	-	8.08	8.04	-	7.75	7.79	-	7.71	7	-	7.76	7.72	-
Temp	20.6	14.1	15.2	-	13.5	14	-	13	13.6	-	19.9	23.4	-	14	16.8	-	13.7	16.1	-	16.1	17.3	-	18	16.4	-	14.1	14.2	-	15.8	15.8	-	12.7	25	-
EC	N/A	9725	6116	-	9709	4318	-	9685	3792	-	9365	3789	-	9207	6813	-	9528	4513	-	9583	4360	-	464.9	4621	-	9579	9319	-	9477	5729	-	9505	9525	-
Redox(orp)	580	-125.9	-49.5	-	-133.6	-146.7	-	120.6	106.3	-	60.9	153.5	-	-136.5	-160.9	-	93.4	101.5	-	-116.8	-77.5	-	12.6	107.3	-	-156.7	-131.1	-	-118.8	37.4	-	-59.3	104.5	-
Turbidity (TDS) (Lab data in NTU)	88	-	-	-	3331	2808	-	6292	2456.3	-	6084	2453	-	5986	4426.5	-	6181.5	2931	-	6168	3009	-	3022	3016	-	6220	5993.5	-	6155	3724	-	6175	3724	-
Comments																																		
Lab Report Ref No.		20-97369	20-97370	20-99702	20-11443	20-11443	20-11443	20-13920	20-13920	20-13920				20-18408	20-18408	20-18408	20-21026	20-21026		20-23758	20-23758	20-24097	20-25766	20-25766	20-25766	20-28341	20-28341	20-28027	20-30209	20-30209	20-30209	20-32131	20-32131	20-31429
Total Cyanide (Low Level 1 µg/l)	38.5	10	1.1	220	9.2	<1.0	120	9.7	<1.0	83	<1.0	47	11	18	5	87	9.7	<1.0		23	2.9	55	6.1	<1	46	12	4.3	35	11	3.9	31	7.1	2.5	36
Free Cyanide (Low Level 1 µg/l)	2.2	<1	<1	17	8	<1	10	<1	<1	6	<1	<1	<1	<1	<1	5	<1	<1		<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Sulphate as SO4	4477	5170	2580	896	5980	2060	565	5000*	1660	291	1920	137	3600	6590	2240	244	5000*	1660		4200	2060	222	4950*	2420	205	4810	3200	217	2450	1880	203	4750	5300	213
Sulphide	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Ammonia as NH3	2420	1100	1000	5200	1800	980	3200	1100	1000	2600	990	8800	960	860	990	1700	1100	1000		1100	980	1300	810	810	1300	960	1100	1500	990	1300	1400	1100	1100	1500
Total Suspended Solids																																		
Total Phenols (monohydric)	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		13	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Napthalene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Acenaphthylene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Acenaphthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Fluorene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Phenanthrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Pyrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Benzo(a)anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Chrysene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Benzo(b)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Benzo(k)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Benzo(a)pyrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Indeno(1,2,3-cd)pyrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Dibenz(a,h)anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Benzo(ghi)perylene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Total EPA-16 PAHs	0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16		<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	
Arsenic (d																																		

BHID	Criteria	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	
Date sampled	-	01/10/2020	01/10/2020	01/10/2020	08/10/2020	08/10/2020	08/10/2020	15/10/2020	15/10/2020	15/10/2020	25/11/2020	25/11/2020	25/11/2020	14/12/2020	14/12/2020	14/12/2020	29/01/2021	29/01/2021	29/01/2021	19/02/2021	19/02/2021	19/02/2021	25/03/2021	25/03/2021	25/03/2021	30/04/2021	30/04/2021	30/04/2021	20/05/2021	20/05/2021	20/05/2021	22/06/2021	
mAOB	-																																
DTW	-	36.21	34.46	36.04	34.95	34.31	35.7	35.31	34.6	35.7	34.14	33.76	34.35	33.51	33.535	33.83	32.88	32.87	33.16	34.025	32.58	33.43	34.33	33.15	34.15	34.4	32.72	34.31	34.5	33.395	34.545	34.46	
DTB	-	46.94	46.56	41.86	46.985	46.39	41.83	46.94	41.65	41.83	46.94	46.26	41.88	46.98	46.7	41.88	47.32	47.88	42.87	46.88	46.65	42.42	47.3	46.8	42.6	47.13	46.7	42.3	47.16	46.55	42.56	47.23	
NAPL present?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
NAPL thickness	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DO	139	20	13.8	-	18.8	23.3	-	14.3	7.1	-	38.7	12.8	5.8	9.8	12.5	10	8.5	12.2	9.6	7.9	25.3	9.3	12.3	13.6	9.7	5.5	17.6	6.4	12.3	14.1	2.7	17.8	
pH	8.6	7.55	7	-	7.5	7.03	-	7.7	6.98	-	7.76	7.01	8.4	7.73	6.96	8.2	7.83	7.13	8	7.79	7.02	8.1	7.67	6.99	8.2	7.67	7.05	8.2	7.6	7.02	8.5	7.46	
Temp	20.6	12.8	13.7	-	13	13.9	-	12.6	13	-	12.2	12.8	6.1	12.2	12.5	5.9	11.8	12.3	7.4	11.5	12.2	5.4	12.3	11.8	7.1	12	11.9	6.3	12.2	13.4	6.3	12.61	
EC	N/A	3407	3260	-	4669	4656	-	9260	4638	-	8300	4713	1000	8634	4635	830	7517	4437	6800	7609	4757	920	6630	4034	870	7350	4293	920	6180	4535	930	6840	
Redox(orp)	580	-26.9	21.4	-	150.9	111	-	-48.7	212.5	-	-39.8	73.1	114.2	-101.8	161.2	150.8	-69	82.9	172.5	-92.2	132	201.5	-62.3	86.1	101	180.5	-51	101	180.5	-55.1	191.4	59.1	13.7
Turbidity (TDS) (Lab data in NTU)	88	2216.5	2119	-	3035	3022.5	-	6019	3016	-	5388	3061	690	5616	3009	820	4888	2886	58	4946	3094	280	4309	2613	600	4778	2789	110	4004	4986	2700	4446	
Comments																						Sulphurous odour		Pump briefly stuck when descending well							Brown, very cloudy		
Lab Report Ref No.		20-33157	20-33157	20-33157	20-34421	20-34421	20-34421	20-35658	20-35658	20-35658	20-43722	20-43722	20-43722	20-47666	20-47666	20-47666	Combined Report	Combined Report	Combined Report	21-57876	21-57876	21-57876	21-64914	21-64914	21-64914	21-72188	21-72188	21-72188	21-75942	21-75942	21-75942	21-82537	
Total Cyanide (Low Level 1 µg/l)	38.5	1.8	3.9	30	<1.0	<1.0	110	6.2	<1.0	47	6.9	<1.0	84	7.7	<1.0	61	97	<1.0	7.6	6.4	<1.0	29	7.3	<1.0	26	6.2	<1.0	29	6.1	<1.0	29	1.7	
Free Cyanide (Low Level 1 µg/l)	2.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Sulphate as SO4	4477	1230000	1310000	192000	1730	1960	200	4530*	2060	214	3350	2420	247	4100	1820	186	174	1570	3420	3660	2030	163	3920	1910	240	2760	2290	135	2250	1320	164	2730	
Sulphide	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Ammonia as NH3	2420	1100	1100	1400	980	800	1400	1000	880	1600	970	940	1700	1700	1000	1900	1900	55	960	1400	770	1400	1100	760	1500	930	570	1300	920	690	1600	1200	
Total Suspended Solids																																	
Total Phenols (monohydric)	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	31	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
Naphthalene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Acenaphthylene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Acenaphthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Fluorene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Phenanthrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Pyrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo(a)anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Chrysene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo(b)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo(k)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo(a)pyrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.																				

BHID	Criteria	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510	BH513	BH514	BH510
Date sampled	-	22/06/2021	22/06/2021	27/07/2021	27/07/2021	27/07/2021	17/08/2021	17/08/2021	17/08/2021	15/09/2021	15/09/2021	15/09/2021	22/10/2021	22/10/2022	22/10/2022	10/11/2021	10/11/2021	10/11/2021	19/11/2021	19/11/2021	19/11/2021	26/11/2021	26/11/2021	26/11/2021	02/12/2021	02/12/2021	02/12/2021	10/12/2021	10/12/2021	10/12/2021	16/12/2021
mAOd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTW	-	33.05	34.78	34.56	32.86	35.13	34.88	33.39	35.11	34.63	32.38	34.98	34.73	-	35.01	34.58	32.44	35.18	34.19	32.17	-	34.62	31.51	34.78	34.68	31.58	35.03	34.11	31.42	35.09	34.45
DTB	-	46.79	42.45	47.35	46.83	42.46	47.19	46.8	42.51	47.33	43.65	42.71	46.98	-	42.05	46.84	46.6	39.86	47.34	46.92	-	46.6	46.8	39.32	47.62	46.9	39.56	47.23	46.84	39.39	46.98
NAPL present?	N	N	N	N	N	N	N	N	N	N	N	N	N	-	N	N	N	N	N	N	-	N	N	N	N	N	N	N	N	N	N
NAPL thickness	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DO	139	24.9	6.1	13.8	13.6	5.4	11.4	33.7	6.3	4.4	10.6	6.7	9.3	-	8.7	4.8	8.1	2.1	7.9	-	-	9.5	11	<1.0	23.2	10.1	6.3	1.8	36.6	2.8	5.1
pH	8.6	6.95	8.3	7.22	7	8.6	7.44	7.03	8.2	7.49	7.05	8.2	7	-	8.3	7.34	6.98	8.1	7.11	-	-	7.74	6.98	7.8	7.67	7.03	7.7	7.6	7.33	8.3	7.17
Temp	20.6	12.7	6.3	13.7	10.7	6.4	13.3	13.4	6.4	13.3	13.8	6	12.4	-	6.1	12.6	13.1	6.4	12.3	-	-	10.9	11.7	6.4	11.1	7.9	6.2	5.6	8	5.6	12
EC	N/A	4226	910	5573	4260	950	7177	4266	910	2314	4233	940	4448	-	860	4343	4448	1000	5550	-	-	5974	4676	1800	5546	4544	1100	2500	4180	1200	5840
Redox(orp)	580	138	60.5	112	125.3	184	-59.6	170	163.8	-107.8	130.3	130.4	174.2	-	195.4	2.6	136	-31.6	86.5	-	-	204.1	318.5	26.2	-5.9	1723	144.9	225.3	110.5	96.4	97.6
Turbidity (TDS) (Lab data in NTU)	88	2749	2100	2774	2896	750	4667	2776	510	1501	2749	370	2892	-	140	2821	2892	200	3607.5	-	-	3880.5	3042	2800	3604	2962	38000	400	2717	1000	3796
Comments			Muddy water		Very cloudy, sulphurous odour			Stabilised at 33.7% DO after 1.15 hrs of pumping	Sample clear					Borehole inaccessible due to surfacing works	Sulphurous odour from well			Sulphurous odour, very cloudy water		New ground level, pump could not descend extended tubing - new headworks to be installed	Borehole blocked at ~1.8m dip tape could not descend - to be excavated / fixed			New ground level following excavation to clear blockage. Sulphurous odour, slightly cloudy water			Pumped sample, very cloudy with sulphurous odour. Turbidity reading likely low due to quantity of sand	Pump fault during stabilisation. Bailed sample collected		Sulphurous odour, slightly cloudy water. Bailed sample	Very slightly milky
Lab Report Ref No.		21-82537	21-82537	21-89207	21-89207	21-89207	21-93347	21-93347	21-93347	21-10039	21-10039	21-10039	21-18170	-	21-18170	21-22219	21-22219	21-22219	21-24316	-	-	21-25971	21-25971	21-25971	21-18144	21-18144	21-18144	21-28597	21-28597	21-28597	21-29816
Total Cyanide (Low Level 1 µg/l)	38.5	< 1.0	21	14	< 1.0	28	9.5	< 1.0	17	< 1.0	< 1.0	22	110	-	13	5.8	< 1.0	230	5.8	-	-	7.1	7.5	2800	< 1.0	< 1.0	230	61	< 1.0	2700	33
Free Cyanide (Low Level 1 µg/l)	2.2	< 1.0	1.5	2	< 1.0	2.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	11	< 1.0	-	-	< 1.0	2.1	16	< 1.0	< 1.0	5.4	< 1.0	< 1.0	13	< 1.0
Sulphate as SO4	4477	2020	174	2350	2050	184	2600	2100	191	874	2070	175	2540	-	179	1970	2080	210	2670	-	-	2580	1610	796	1960	2280	282	1240	1890	371	2180
Sulphide	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0	U/S*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ammonia as NH3	2420	650	1800	1200	870	1500	1300	720	1300	960	550	1200	260	-	1200	700	1000	4100	900	-	-	650	430	34000	850	550	9600	900	450	15000	400
Total Suspended Solids																															
Total Phenols (monohydric)	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	-	< 10	< 10	< 10	< 10	< 10	-	-	< 10	< 10	83	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	-	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	-	-	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Arsenic (dissolved)	3.92	1.24	1.25	2.63	1.53	2.69	4.13	1.9	3.37	2.12	1.66	2.77	3.51																		

BHID		Criteria	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	BHS14	BHS10	BHS13	B
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BHID	Criteria	BH513	BH514B	BH510	BH513	BH514B	BH510	BH513	BH514B	BH510	BH513	BH514B	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510
Date sampled	-	02/03/2022	02/03/2022	09/03/2022	09/03/2022	14/03/2022	16/03/2022	16/03/2022	16/03/2022	01/04/2022	01/04/2022	01/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	11/05/2022		
mAOQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DTW	-	31.1	33.06	35.1	31.28	36.28	35.15	31.24	35.8	34.85	31.1	36.86	34.63	31.29	33.9	33.9	34.55	31.12	33.38	33.03	34.63	31.33	33.03	33.03	34.63	31.08	33.11	33.11	34.37				
DTB	-	46.59	41.45	46.85	46.65	41.2	46.9	46.7	40.78	46.87	46.68	40.42	46.74	46.85	37.3	37.3	46.79	46.49	36.11	36.33	46.74	46.6	36.33	36.33	46.75	46.55	36.3	36.3	46.82				
NAPL present?	N	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
NAPL thickness	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
DO	139	10.1	8.4	4.5	7.5	U/S	5.5	7.8	<1.0	6.7	8.2	<1.0	4.4	9.6	2.5	8.4	12.7	5.5	<1	8.1	5.8	9.8	<1.0	10	4.4	5.5	7.3	3.8	5.2				
pH	8.6	7.36	8.57	7.8	7.26	8.2	7.95	7.25	8.3	7.37	7.35	8.4	7.57	7.29	8.6	8.3	7.45	7.35	8.3	8.7	7.41	7.38	8.4	8.6	7.27	7.27	8.4	8.2	7.25				
Temp	20.6	10	9.7	12	12.9	7.3	11.5	12.2	7.2	9.7	11.7	6.3	12.6	13.1	6.8	6.8	12.3	13.3	6.5	6.4	12.1	12.5	6.7	6.3	13	12.7	5.8	5.8	12.3				
EC	N/A	3692	2295	5195	4021	1800	8018	3972	1500	4028	3944	1400	6824	3948	1000	820	7336	3845	1000	1000	7013	3645	1000	960	7105	7137	940	970	6941				
Redox(orp)	580	108.7	119.9	216.6	112.2	-162.8	191.3	160.9	-161.8	195.8	140.8	47.5	-112.3	154.8	-216.4	168.7	4770	-40.2	100.7	156.5	218	232.8	142.7	121.7	166.2	130.2	-86.4	-48.8	217.3				
Turbidity (TDS) (Lab data in NTU)	88	2400	1492	5195	2614	U/S	5211	2582	U/S	2618	2564	32	4436	2566	350	2	240.8	2499	-	5.9	4561	2368	31	<1.0	4618	4635	2700	930	4511				
Comments		Sample taken from new BH514B. Water slightly cloudy. No odour.		Pump stuck in well on 09/03. Pulled free on 14/03. Very cloudy water. Bailed sample.No odour.			Very cloudy water. Bailed sample.Slight sulphurus odour.			Very cloudy water. Bailed sample.Slight sulphurus odour.			Very cloudy water. Bailed sample.Slight sulphurus odour. New AOD +21.28 , it was +24.39				Very silty sample. Bailed sample.Slight sulphurus odour. Well further reduced with groundlevel. New level to be recorded.			Bailed sample. Less sulphurous odour than from previous samples. Water slightly cloudy.			Bailed sample. Less sulphurous odour then from previous samples. Water cloudy from sediment.										
Lab Report Ref No.		22-43094	22-43094	22-44648	22-44648	22-45296	22-46278	22-46278	22-46278	22-49337	22-49337	22-49337	22-52149	22-52149	22-52149	22-52149	22-53798	22-53798	22-53798	22-55654	22-54946	22-54946	22-54946	22-54946	22-56383	22-56383	22-56383	22-56383	22-58010				
Total Cyanide (Low Level 1 µg/l)	38.5	<1.0	790	31	<1.0	640	16	<1.0	520	<1.0	11	220	16	<1.0	200	200	8	<1.0	180	190	7.7	<1.0	110	110	6.2	<1.0	83	86	2.4				
Free Cyanide (Low Level 1 µg/l)	2.2	<1.0	64	<1.0	<1.0	3.8	<1.0	<1.0	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	5.1	1.6	<1.0	<1.0	1.2	5.9	<1.0	<1.0	8.1	5.2	<1.0	<1.0	<1.0	<1.0	<1.0				
Sulphate as SO4	4477	1420	789	3880	1700	746000	3740**	1830	537	1850	1700	341	2840	1690	233	207	3610	1650	217	233	2660	1390	187	197	2700	1850	232	241	2900				
Sulphide	5	<5.0	<5.0	<5.0	<5.0	5.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0				
Ammonia as NH3	2420	24	2400	570	65	3300	920	270	2100	580	650	2800	560	<15	900	890	400	59	1600	1300	480	390	1300	1200	660	640	3700	1200	<15				
Total Suspended Solids		17	3100	110	67	U/S	130	97	19000	320	160	16000	110	96	15	-	150	59	27000	-	47	14	5400	-	35	12	6200	-	74				
Total Phenols (monohydric)	10	<10	<10	<10	<10		<10	<10	11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10				
Naphthalene	0.01	<0.01	<0.01	<0.01	<0.01	2.17	<0.01	<0.01	<0.01	<0.01	<0.01	1.07	<0.01	<0.01	1.55	<0.01	<0.01	<0.01	0.76	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
Acenaphthylene	0.01	<0.01	<0.01	<0.01	<0.01	0.86	<0.01	<0.01	<0.01	<0.01	<0.01	0.36	<0.01	<0.01	0.59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Acenaphthene	0.01	<0.01	<0.01	<0.01	<0.01	0.48	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.38	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Fluorene	0.01	<0.01	<0.01	<0.01	<0.01	0.82	<0.01	<0.01	<0.01	<0.01	<0.01	0.28	<0.01	<0.01	0.53	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Phenanthrene	0.01	<0.01	<0.01	<0.01	<0.01	4.85	<0.01	<0.01	<0.01	<0.01	<0.01	1.64	<0.01	<0.01	4.1	<0.01	<0.01	<0.01	0.64	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Anthracene	0.01	<0.01	<0.01	<0.01	<0.01	2.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.51	<0.01	<0.01	1.39	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	9.76	<0.01	<0.01	<0.01	<0.01	<0.01	3	<0.01	<0.01	7.95	<0.01	<0.01	<0.01	0.83	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Pyrene	0.01	<0.01	<0.01	<0.01	<0.01	9.09	<0.01	<0.01	<0.01	<0.01	<0.01	2.7	<0.01	<0.01	6.95	<0.01	<0.01	<0.01	0.77	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Benzo(a)anthracene	0.01	<0.01	<0.01	<0.01	<0.01	5.6	<0.01	<0.01	<0.01	<0.01	<0.01	1.66	<0.01	<0.01	3.96	<0.01	<0.01	<0.01	0.49	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Chrysene	0.01	<0.01	<0.01	<0.01	<0.01	5.07	<0.01	<0.01	<0.01	<0.01	<0.01	1.37	<0.01	<0.01	3.45	<0.01	<0.01	<0.01	0.43	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Benzo(b)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	5.5	<0.01	<0.01	<0.01	<0.01	<0.01	1.73	<0.01	<0.01	4.38	<0.01	<0.01	<0.01	0.53	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Benzo(k)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	3.22	<0.01	<0.01	<0.01	<0.01	<0.01	0.87	<0.01	<0.01	1.85	<0.01	<0.01	<0.01	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Benzo(a)pyrene	0.01	<0.01	<0.01	<0.01	<0.01	4.66	<0.01	<0.01	<0.01	<0.01	<0.01	1.59	<0.01	<0.01	3.97	<0.01	<0.01	<0.01	0.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Indeno(1,2,3-cd)pyrene	0.01	<0.01	<0.01	<0.01	<0.01	2.42	<0.01	<0.01	<0.01	<0.01	<0.01	1.01	<0.01	<0.01	2.05	<0.01	<0.01	<0.01	0.26	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Dibenz(a,h)anthracene	0.01	<0.01	<0.01	<0.01	<0.01	1.32	<0.01	<0.01	<0.01	<0.01	<0.01	0.33	<0.01	<0.01	0.65	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Benzo(ghi)perylene	0.01	<0.01	<0.01	<0.01	<0.01	2.31	<0.01	<0.01	<0.01	<0.01	<0.01	1.18	<0.01	<0.01	2.33	<0.01	<0.01	<0.01	0.29	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					
Total EPA-16 PAHs	0.16	<0.16	<0.16	<0.16	<0.16	60.1	<0.16	<0.16	<0.16	<0.16	<0.16	19.3	<0.16	<0.16	46.1	<0.16	<0.16	<0.16	5.6	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16					
Arsenic (dissolved)	3.92	3.23	3.35	3.47	1.21	2.11	3.49	1.03	1.15	0.48	0.38	1.01	0.66	0.21	1.04	1.32	0.58	0.27	1.09	0.63	0.51	0.24	1.1	1.33	0.59	0.27	1.33	1.63	0.49				
Cadmium (dissolved)	0.08	0.15	0.13	0.22	0.03	0.04	0.16	0.02	0.03	0.09	0.03	<0.02	0.16	<0.02	<0.02	<0.02	0.19	0.07	0.03	0.04	0.12	0.04	<0.02	<0.02	0.12	0.03	<0.02	<0.02	0.12				
Chromium (hexavalent)	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	U/S*	<5.0	<5.0	<5.0	U/S*	<5.0	<5.0	<5.0	<5.0	<5.0					
Chromium (III)	2.75	<5.0	<5.0	6.9	<5.0																												

BHID	Criteria	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED	BH510	BH513	BH514B	BH514B FILTERED
Date sampled	-	11/05/2022	11/05/2022	11/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022	25/05/2022	25/05/2022	25/05/2022	25/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022
mAOB	-																			
DTW	-	30.9		32.96	34.22	31.4		33.08	34.3	31.32		32.93	34.42	31.34		32.92	34.51	31.39		33.02
DTB	-	46.7		36.38	46.78	46.6		36.3	46.73	46.88		35.97	46.7	46.9		35.65	46.45	46.8		35.63
NAPL present?	N	N		N	N	N		N	N	N		N	N	N		N	N	N		N
NAPL thickness	-	-		-	-	-		-	-	-		-	-	-		-	-	-		-
DO	139	9.4	8.7	8.5	4.6	6.7	7.2	8.2	7.1	9.6	4.8	7.6	8.4	9.3			4.7	10.8		
pH	8.6	7.36	8.5	8.2	7.05	7.41	8.2	8.2	7.1	7.39	8.1	7.9	7.42	7.4			7.21	7.41		
Temp	20.6	12.8	5.2	5.2	13.2	13.8	5.8	5.7	12.7	13.8	6.9	6.9	14.3	14			14.1	14.6		
EC	N/A	3729	940	980	9660	3661	850	840	9549	3735	970	1000	3605	3630			7987	3727		
Redox(orp)	580	246.8	191	192.9	185.6	201.4	163	147.6	88.7	113.7	63.3	83.4	123	140.6			146	139.7		
Turbidity (TDS) (Lab data in NTU)	88	2424	81	390	6279	2380	49	160	6207	2423	17	-	2343	2330			6192	2423		
		Bailed sample. Sulphurous odour. However Water less cloudy from sediment than previous samples .			Bailed sample. Sulphurous odour coming from BH. However water samples itself without odour. Water samples itself are slightly cloudy.			Bailed sample. Sulphurous odour coming from BH. Sampled water slightly cloudy, no odour .			Bailed sample. Sulphurous odour coming from BH. Sampled water slightly cloudy, no odour .			Bailed sample. Sulphurous odour coming from BH. Sampled water slightly cloudy, no odour .						
Comments																				
Lab Report Ref No.		22-58010	22-58010	22-58010	22-59928	22-59928	22-59928	22-59928	22-61552	22-61552	22-61552	22-61552								
Total Cyanide (Low Level 1 µg/l)		38.5	< 1.0	49	63	7.6	1.1	76	67	3	< 1.0	Pending	49							
Free Cyanide (Low Level 1 µg/l)		2.2	< 1.0	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
Sulphate as SO4		4477	1800	154	157	5090	2030	174	160	5240	1720	170	203							
Sulphide		5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0							
Ammonia as NH3		2420	< 15	1400	1400	650	< 15	1200	810	590	< 15	1100	1200							
Total Suspended Solids			68	5800	-	33	< 2.0	4300	-	68	46	590	-							
Total Phenols (monohydric)		10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	Pending	< 10							
Naphthalene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Acenaphthylene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Acenaphthene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Fluorene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Phenanthrene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Anthracene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Fluoranthene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Pyrene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Benzo(a)anthracene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Chrysene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Benzo(b)fluoranthene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Benzo(k)fluoranthene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Benzo(a)pyrene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Indeno(1,2,3-cd)pyrene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Dibenz(a,h)anthracene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Benzo(ghi)perylene		0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01							
Total EPA-16 PAHs		0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16							
Arsenic (dissolved)		3.92	0.21	1.31	1.42	0.46	0.3	1.27	1.32	0.41	0.24	1.98	1.84							
Cadmium (dissolved)		0.08	0.02	< 0.02	< 0.02	0.17	< 0.02	0.04	0.05	0.06	< 0.02	< 0.02	< 0.02							
Chromium (hexavalent)		5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	< 5.0							
Chromium (III)		2.75	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	< 5.0							
Chromium (dissolved)			< 0.2	< 0.2	< 0.2	0.4	0.7	0.3	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2							
Copper (dissolved)		7	1.7	1.1	1	3.7	4.7	2.7	3.1	5.6	1.6	1.3	1.4							
Lead (dissolved)		6	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2							
Mercury (dissolved)		0.66	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05							
Nickel		21	2.8	0.7	0.9	6.7	5.6	4.7	< 0.5	6.7	4.3	2.7	2.7							
Selenium (dissolved)		26.4	0.8	0.8	< 0.6	5.8	1.8	0.7	0.9	3.7	1.1	1.2	1.8							
Zinc (dissolved)		47.3	5.6	1.1	1.2	13	5.9	1.4	1.3	14	5.9	0.9	1.9							
Monoaromatics & Oxygenates																				
Benzene		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
Toluene		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
Ethylbenzene		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
p & m-xylene		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
o-xylene		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
MTBE (Methyl Tertiary Butyl Ether)		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
Petroleum Hydrocarbons																				
TPH-CWG - Aliphatic >C5 - C6		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic >C6 - C8		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic >C8 - C10		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic >C10 - C12		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic >C12 - C16		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic >C16 - C21		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic >C21 - C35		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aliphatic (C5 - C35)		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C5 - C7		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C7 - C8		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C8 - C10		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C10 - C12		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C12 - C16		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C16 - C21		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic >C21 - C35		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							
TPH-CWG - Aromatic (C5 - C35)		10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0							

Decommissioning of Boreholes Report

[illegible]

Client Signature :

Crew Signature:

Borehole Installation Details	Borehole Number	Client & Site Location
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keltbray - wood Green

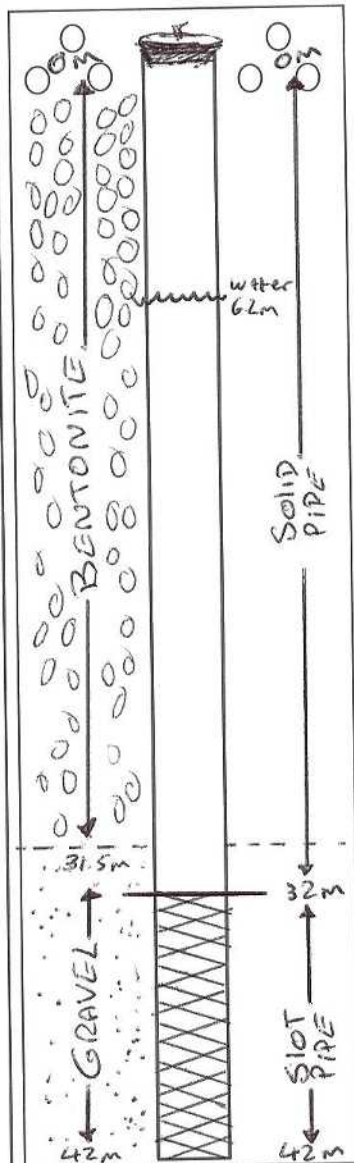
Well Pipe Material & Type (please circle as appropriate)

Hdpe - Upvc - Direct Push Well - Pre-Packed Wells - Black Mild Steel - Stainless Steel - CMT Multi level

Other Material Please Note:

Single Installation Pipe Diameter : 63 mm OD 50 mm ID

Duel Installation 2nd Pipe Diameter : _____ mm OD _____ mm ID



Cover installed: Chamber / Raised / Flush (Diameter / Size

1m PIPE RAISED / fenced off

Concrete From : _____ To _____

Top of Pipe Fitting : Cap Only / Cap & Valve

Bung Only / Valve & Bung

None

Bentonite Seal From : 31.5 m To 0 m

Solid Pipe From : 32 m To 0 m

Geo-wrap Yes / No / N/A

Meters Used : 10 m

Filter Pack From : 42 m To 31.5 m

Filter Pack Details: Gravel / Glass / Sand

Filter Material Size : 3-6 mm

Screen Pipe From : 42 m To 32 m

Base of Monitor Well : 40.5 m

Backfill Material Below Installation :

Arisings / Gravel / Bentonite / Sand / Glass

Base of Borehole : 42 m

(this may be the same as the monitor well depth above)

Materials Supplied By

Tick as appropriate

Client ☐

Tor Drilling ☒

General Additional Information

12x Gravel

20x Bento

water @ 6.2m

Duel Wells Installation Additional Information

CMT Multi Level Well Installation Details of Screen Levels:

Upon dipping finished well, Tape measured 40.5m. Possible sands settled within pipe.

Please ensure you use a ruler when drawing any lines to show the installation details

Date of Installation: 24-2-22

Driller: D. Hewlett

Signature: [Signature]

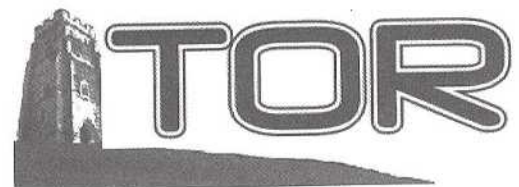




Plate 1: View of silt recovered during attempted purge of BH514A on 3rd February 2022



Plate 2: Site attendance by TOR drilling on 22nd February 2022 to decommission BH514A. 270-300l of bentonite grout (50kg of grout per 70l of water) was pumped into the standpipe via tremie pipe.



Plate 3: Views of groundwater within a VOC vial and Waterra tubing collected during the sampling round of 19th May 2022. The level of silt has become much reduced in recent sampling rounds