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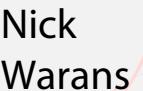
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Grain to Tilbury

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Rev No	Date	Summary of Changes	Section or Page Number
P01	26/06/2025	First Issue	n/a
P01.1	02/07/2025	Update following National Grid comments	Various
P01.2	03/07/2021	Update following National Grid comments	Various
P01.3	18/09/2025	Update following Environment Agency comments	Various

MEMO

TO:

Gravesham Borough Council

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DATE	PHONE	CC
18 September 2025	n/a	Ruth Garcia - FBJV

SUBJECT

Planning submission of BakerHicks 2023 Interpretive Report and SOCOTEC 2023 and Soil Engineering 2025 factual ground investigation reports

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft release	MC	FPW	CP	DC	May 2025
1.1	Update following comments	MC	CP	MC	CP	July 2025
1.2	Update following comments	MC	CP	MC	CP	July 2025
1.3	Update following EA comments	SK	AA	MC	CP	September 2025

Introduction

AtkinsRéalis UK Limited (AtkinsRéalis) is providing Ferrovial Construction (UK) Limited and BEMO Tunnelling UK Limited (the client) consultancy services and support for the National Grid Electricity Transmission (NGET) Grain to Tilbury Tunnel project. AtkinsRéalis have prepared this memo to accompany the issue of the BakerHicks 2023 interpretive report¹, SOCOTEC UK Limited (SOCOTEC) ground investigation (GI) factual report² and Soil Engineering Factual Report³ associated with the construction of the Gravesend Shaft to Gravesham Borough Council.

The reports are being issued to support with the discharge of Gravesham Borough Council planning condition 4 associated with ground contamination, as per the Gravesham Borough Council Decision Notice, Reference 20231313, 04/03/25.

¹ BakerHicks, “Geotechnical Interpretive Report, TKRE, Grain-Tilbury and Kingsnorth-Tilbury 400kV Upgrading FEED, 30003364-MSE-XX-XX-RP-Y-10118_GEOTECHNICAL INTERPRETIVE REPORT,” 2023.

² SOCOTEC UK Limited, “TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kv Upgrading Feed, Ground Investigation Report (Factual Account of Fieldwork, Monitoring and Laboratory Testing), D2064-22/B,” 2023.

³ Soil Engineering, “Report on a Ground Investigation at Grain to Tilbury Tunnel”, TB8754/DRpt01, 2025.

Condition 4, Contaminated Land Strategy, includes the following parts:

- Part A) a preliminary risk assessment.
- Part B) a site investigation scheme based on A);
- Part C) a detailed risk assessment based on B) and associated remediation strategy; and
- Part D) a verification plan based on C).

The interpretative report and GI factual reports are being submitted to support parts A to C of the planning condition. Condition 4 is presented in full in Appendix A.

Background to reports being submitted

In 2022 BakerHicks (as Morgan Sindall Engineering Solutions) produced a geotechnical and geo-environmental desk study report⁴ for the site. This desk study was referenced within the Environmental Impact Assessment that was issued to the council as part of the application process⁵.

Using collected data from the 2022 SOCOTEC UK Limited (SOCOTEC) GI, the BakerHicks 2023 report presents interpretative assessment, including a conceptual site model (CSM) and human health, controlled waters and ground gas risk assessments and provides geo-environmental conclusions for the site based on available site data. Please note that the BakerHicks 2023 report covers the entire proposed development and so not all of the interpretation presented is pertinent to the Gravesend site.

The completed risk assessment generally reports moderate/low risk, other than for asbestos inhalation which reports a medium risk. The CSM presents mitigation measures for all relevant pathways which AtkinsRéalis understand are being implemented as appropriate by Ferrovial and Bemo JV. This includes additional testing if unexpected contamination identified and monitoring of groundwater during the construction works.

As part of the pre-construction phase for works at the site, Ferrovial and Bemo JV contracted Soil Engineering to undertake a GI, specified by Mott MacDonald, with additional environmental requirements provided by AtkinsRéalis. The 2025 Soil Engineering GI was undertaken from April to July 2025 at the Gravesend Shaft site.

Summary of 2025 GI

Soil and soil leachate results

Four boreholes were drilled using conventional light cable percussion technique to the depth of between 19.6 metres (m) to 21.4 m, while one borehole (BH105) was advanced to depth of 28.5 m using cable percussive open hole technique. All boreholes terminated at the top of the chalk and were then followed by rotary drilling techniques to depth of 60.5 m below ground. Soil samples were collected from three borehole locations, BH106, BH107 and BH108. Four soil samples were analysed for soil and soil-leachate analytes.

Screening of the results reported no exceedances against human health generic assessment criteria (GAC) for commercial 1% soil organic matter, while minimal exceedance of lead, zinc and iron were observed when screened against estuarine environmental quality standards (EQS). For drinking water standards (DWS), minimal exceedances were reported against ammoniacal nitrogen, sulphate, arsenic, selenium and iron. These results are commensurate with the results of the 2022 SOCOTEC GI at the site which also reported low numbers of minor, primarily metal, exceedances.

⁴ Morgan Sindall Engineering Solutions, "Geotechnical and Geoenvironmental Deks Study, PDD-100116-REP-001/30003364-MSE-XX-XX-RP-Y-10000, P04", 2022

⁵ AECOM, "National Grid Cable Tunnel Replacement Tunnel, Land Contamination Preliminary Risk Assessment, Gravesend", 2023

The soil and leachate screening results are appended in Appendix B.

Ground gas monitoring

The BakerHicks 2023 report identifies a data gap associated with shallow ground gas risk at the site, and as such reports this as a high risk. This risk is theoretical only as it is associated with the data gap, rather than based on site-specific data. As part of the Soil Engineering GI, undertaken at the site in 2025, installation of two shallow ground gas monitoring locations has been completed. Monitoring of these locations will provide data to remove the uncertainty regarding the data gap, allowing for sufficient assessment of risk. This risk assessment will be completed when data is available following the post-GI monitoring and is anticipated to result in an overall low risk for ground gas being identified at the site.

Summary

Based on a review of the SOCOTEC GI and BakerHicks 2023 interpretative report and Soil Engineering 2025 GI results, AtkinsRéalis consider the scope and findings of the investigations and reports valid for the site and the reports sufficient to meet the requirements of Gravesham Borough Council planning condition 4, parts A to C.

- Part A – a preliminary risk assessment and CSM is presented in the BakerHicks interpretative report.
- Part B – The SOCOTEC site investigation scheme was completed, based on the BakerHicks desk study and CSM, reported within the 2023 factual GI report. This GI advanced boreholes into the underlying superficial deposits and Chalk bedrock and collected geoenvironmental samples. Groundwater installations were completed and monitored. Following the conclusions of the BakerHicks report an additional GI was undertaken in 2025 by Soil Engineering. Results from the 2025 GI are commensurate to the results from the 2023 GI and therefore, the interpretation with the BakerHicks report remains valid.
- Part C – The BakerHicks interpretative report presents detailed risk assessment of the risk to all receptors that may be affected, and highlighted recommended mitigation measures, including additional testing if unexpected contamination identified and monitoring of groundwater during the construction works. A remediation strategy was not recommended but the remaining recommendations and data gaps, i.e. ground gas risk assessment and monitoring of groundwater during the works, are being covered in the client's 2025 GI and ongoing monitoring (currently underway at the site).

Further analysis of the data collected following the 2025 client GI will be presented within relevant reports: ground gas risk assessment and/or the Groundwater Monitoring and Maintenance Plan (associated with planning condition 5). These reports will be submitted to the council when available as appropriate. A verification plan will be produced and issued to the council separately to address part D of the planning condition.

Appendix A - Condition 4, Contaminated Land Strategy

4. Prior to shaft excavation works commencing a scheme that includes the following components to deal with the risks associated with contamination of the site shall each be submitted to and approved, in writing, by the Local Planning Authority:

A) A preliminary risk assessment which has identified:

(i) all previous uses

(ii) potential contaminants associated with those uses

(iii) a conceptual model of the site indicating sources, pathways and receptors potentially unacceptable risks arising from contamination at the site.

B) A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.

C) The results of the site investigation and detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.

D) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

The scheme shall be implemented as approved.

Reason: To protect and prevent the pollution of the water environment (particularly the Secondary (undifferentiated) and Principal aquifers) from potential pollutants associated with current and previous land uses in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (2014) and paragraphs 187, 196 and 197 of the National Planning Policy Framework (2024), the EU Water Framework Directive, Anglian River Basin Management Plan and Environment Agency Groundwater Protection Position Statements (2017) A4 - A6, J1 - J7 and N7.

Appendix B – 2025 GI GAC Screening sheets

Soil Screening Results against Human Health (Commercial 1% soil organic matter)

Constituent	Unit	Limit of Detection	GAC	Number of Samples	Minimum Value	Maximum Value	Number Of Exceedances	BH106	BH108	BH107	BH107
								Depth: 0.5 m	Depth: 0.6 m	Depth: 0.6 m	Depth: 2.0 m
ACM Type		N/A	No SSV	0	-	-	0	-	-	-	-
Asbestos Identification		N/A	No SSV	4	-	-	0	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	%	0.02	No SSV	4	22	35	0	25	22	26	35
Soil Colour		N/A	No SSV	4	-	-	0	Brown	Brown	Brown	Brown
Other Material		N/A	No SSV	4	-	-	0	Stones and Roots	Stones	Stones	Roots
Soil Texture		N/A	No SSV	4	-	-	0	Clay	Clay	Clay	Clay
pH at 20C		4	No SSV	4	8.1	8.8	0	8.8	8.1	8.5	8.4
pH (2.5:1) at 20C		4	No SSV	3	8.2	8.4	0		8.3	8.4	8.2
Boron (Hot Water Soluble)	mg/kg	0.4	No SSV	4	1.8	5.4	0	3.5	4.2	5.4	1.8
Sulphate (2:1 Water Soluble) as SO4	g/l	0.01	No SSV	4	<0.01	0.47	0	<0.01	0.031	0.47	0.097
Total Sulphur	%	0.01	No SSV	4	0.02	1	0	0.02	0.05	0.07	1
Cyanide (Free)	mg/kg	0.5	373	4	<0.5	<0.5	0	<0.5	<0.5	<0.5	<0.5
Iron (Total)	mg/kg	100	No SSV	4	870	59000	0	59000	870	17000	16000
Sulphate (Acid Soluble)	%	0.01	No SSV	3	0.037	0.21	0		0.037	0.21	0.14
Arsenic	mg/kg	0.5	640	4	3.8	38	0	38	18	6.1	3.8
Barium	mg/kg	0.5	22000	4	7.9	63	0	63	37	45	7.9
Beryllium	mg/kg	0.5	12	4	<0.5	2.2	0	2.2	0.9	<0.5	<0.5
Cadmium	mg/kg	0.1	410	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Chromium	mg/kg	0.5	8600	4	5.3	62	0	62	37	5.3	7.6
Manganese	mg/kg	1	No SSV	4	41	540	0	540	500	250	41
Molybdenum	mg/kg	0.5	17600	4	<0.5	2	0	2	0.8	<0.5	<0.5
Copper	mg/kg	0.5	68000	4	4.6	22	0	22	13	14	4.6
Mercury	mg/kg	0.05	No SSV	4	<0.05	0.08	0	<0.05	<0.05	0.08	<0.05
Nickel	mg/kg	0.5	980	4	7.6	46	0	46	28	7.6	8.5

Lead	mg/kg	0.5	2300	4	6.2	38	0	38	22	33	6.2
Selenium	mg/kg	0.25	12000	4	<0.25	1.4	0	1.4	0.63	<0.25	<0.25
Vanadium	mg/kg	0.5	9000	4	6.8	120	0	120	64	6.8	15
Zinc	mg/kg	0.5	730000	4	17	120	0	120	66	30	17
Chromium (Trivalent)	mg/kg	1	No SSV	4	5.3	61	0	61	37	5.3	7.6
Chromium (Hexavalent)	mg/kg	0.5	49	4	<0.5	1	0	1	<0.5	<0.5	<0.5
Aliphatic VPH >C5-C6	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C7	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C7-C8	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	mg/kg	0.1	No SSV	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Total Aliphatic VPH >C5- C10	mg/kg	0.25	No SSV	4	<0.25	<0.25	0	<0.25	<0.25	<0.25	<0.25
Aliphatic EPH >C10-C12 MC	mg/kg	2	No SSV	4	<2	3.4	0	3.4	<2	<2	<2
Aliphatic EPH >C12-C16 MC	mg/kg	1	No SSV	4	<1	5.8	0	5.8	<1	<1	2
Aliphatic EPH >C16-C21 MC	mg/kg	2	No SSV	4	<2	8.3	0	8.3	3.2	<2	5.9
Aliphatic EPH >C21-C35 MC	mg/kg	3	No SSV	4	8.1	65	0	24	16	8.1	65
Aliphatic EPH >C35-C40 MC	mg/kg	10	No SSV	4	<10	18	0	14	11	<10	18
Total Aliphatic EPH >C10-C35 MC	mg/kg	5	No SSV	4	8.1	75	0	42	20	8.1	75
Total Aliphatic EPH >C10-C40 MC	mg/kg	10	No SSV	4	<10	93	0	56	31	<10	93
Aromatic VPH >C5-C7	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
Total Aromatic VPH >C5- C10	mg/kg	0.25	No SSV	4	<0.25	<0.25	0	<0.25	<0.25	<0.25	<0.25

Aromatic EPH >C10-C12 MC	mg/kg	1	No SSV	4	<1	<1	0	<1	<1	<1	<1
Aromatic EPH >C12-C16 MC	mg/kg	1	No SSV	4	<1	<1	0	<1	<1	<1	<1
Aromatic EPH >C16-C21 MC	mg/kg	2	No SSV	4	4.7	11	0	11	11	4.7	6.3
Aromatic EPH >C21-C35 MC	mg/kg	2	No SSV	4	3.9	43	0	43	20	3.9	35
Aromatic EPH >C35-C40 MC	mg/kg	1	No SSV	4	4.3	15	0	13	15	4.3	14
Total Aromatic EPH >C10-C35 MC	mg/kg	5	No SSV	4	8.6	54	0	54	31	8.6	41
Total Aromatic EPH >C10-C40 MC	mg/kg	10	No SSV	4	13	68	0	68	47	13	55
Total VPH >C5-C10	mg/kg	0.5	No SSV	4	<0.5	<0.5	0	<0.5	<0.5	<0.5	<0.5
Total EPH >C10-C35 MC	mg/kg	10	No SSV	4	17	120	0	96	52	17	120
Total EPH >C10-C40 MC	mg/kg	10	No SSV	4	21	150	0	120	78	21	150
Fraction of Organic Carbon		0.001	No SSV	4	0.0087	0.01	0	0.0097	0.01	0.009	0.0087
Dichlorodifluoromethane	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/kg	0.001	0.452	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	mg/kg	0.001	1.1	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Bromomethane	mg/kg	0.02	No SSV	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
Chloroethane	mg/kg	0.002	436	4	<0.002	<0.002	0	<0.002	<0.002	<0.002	<0.002
Trichlorofluoromethane	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/kg	0.001	11.9	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/kg	0.001	115	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/kg	0.005	No SSV	4	<0.005	<0.005	0	<0.005	<0.005	<0.005	<0.005
Trichloromethane	mg/kg	0.001	99	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001

1,1,1-Trichloroethane	mg/kg	0.001	660	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Benzene	mg/kg	0.001	27	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/kg	0.002	12	4	<0.002	<0.002	0	<0.002	<0.002	<0.002	<0.002
Trichloroethene	mg/kg	0.001	0.73	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane	mg/kg	0.001	1.34	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Dibromomethane	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane	mg/kg	0.005	0.854	4	<0.005	<0.005	0	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene	mg/kg	0.01	No SSV	4	<0.01	<0.01	0	<0.01	<0.01	<0.01	<0.01
Toluene	mg/kg	0.001	56000	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Trans-1,3-Dichloropropene	mg/kg	0.01	No SSV	4	<0.01	<0.01	0	<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane	mg/kg	0.01	40.1	4	<0.01	<0.01	0	<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	mg/kg	0.001	24	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/kg	0.002	No SSV	4	<0.002	<0.002	0	<0.002	<0.002	<0.002	<0.002
Dibromochloromethane	mg/kg	0.01	9.27	4	<0.01	<0.01	0	<0.01	<0.01	<0.01	<0.01
1,2-Dibromoethane	mg/kg	0.005	No SSV	4	<0.005	<0.005	0	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	mg/kg	0.001	56	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/kg	0.002	110	4	<0.002	<0.002	0	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	mg/kg	0.001	5700	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
m & p-Xylene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
o-Xylene	mg/kg	0.001	6600	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Styrene	mg/kg	0.001	9670	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Tribromomethane	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001

Isopropylbenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Bromobenzene	mg/kg	0.001	42.1	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
N-Propylbenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	mg/kg	0.001	165	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Sec-Butylbenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	mg/kg	0.05	No SSV	4	<0.05	<0.05	0	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	mg/kg	0.001	No SSV	4	<0.001	0.0016	0	<0.001	0.0016	<0.001	<0.001
Hexachlorobutadiene	mg/kg	0.001	No SSV	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	mg/kg	0.002	No SSV	4	<0.002	0.0026	0	<0.002	0.0026	<0.002	<0.002
Methyl Tert-Butyl Ether	mg/kg	0.001	3140	4	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001
Naphthalene	mg/kg	0.1	1600	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	83000	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	84000	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	63000	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1

Phenanthrene	mg/kg	0.1	No SSV	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	520000	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	23000	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	54000	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Benzo[a]anthracene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Benzo[b]fluoranthene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Benzo[a]pyrene	mg/kg	0.1	77	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)Anthracene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Benzo[g,h,i]perylene	mg/kg	0.1	BaP Surrogate	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1
Total Of 16 PAH's	mg/kg	2	No SSV	4	<2	<2	0	<2	<2	<2	<2
Resorcinol	mg/kg	0.02	No SSV	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
Phenol	mg/kg	0.02	750	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
Cresols	mg/kg	0.02	155000	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
Xylenols	mg/kg	0.02	No SSV	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
1-Naphthol	mg/kg	0.02	No SSV	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
Trimethylphenols	mg/kg	0.02	No SSV	4	<0.02	<0.02	0	<0.02	<0.02	<0.02	<0.02
Total Phenols	mg/kg	0.1	No SSV	4	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1

Controlled Water (Leachate) Screening Results against Coastal and Estuaries EQS

Constituents	Unit	Limit of Detection	Generic Assessment Criteria	Number of Samples	Minimum Value	Maximum Value	Number of Exceedances	Locations of Exceedances	BH108	BH107	BH107	BH106
									Depth: 0.6 m	Depth: 0.6 m	Depth: 2.0 m	Depth: 0.6 m
pH at 20C		4	No WSV	4	7.3	8.8	0		7.9	7.6	7.3	8.8
Fluoride	mg/l	0.05	5	4	0.15	0.4	0		0.25	0.33	0.15	0.4
Ammoniacal Nitrogen	mg/l	0.05	Not appropriate, see Unionised Ammonia	4	0.054	0.093	0		0.054	0.093	0.086	0.057
Sulphur	mg/l	1	No WSV	4	1.3	8.7	0		1.3	8.7	5	1.4
Sulphate	mg/l	1	N/A	4	4	26	0		4	26	15	4.2
Cyanide (Total)	mg/l	0.05	N/A	4	<0.05	<0.05	0		<0.05	<0.05	<0.05	<0.05
Cyanide (Free)	mg/l	0.05	0.001	4	<0.05	<0.05	0		<0.05	<0.05	<0.05	<0.05
Cyanide (Complex)	mg/l	0.05	N/A	4	<0.05	<0.05	0		<0.05	<0.05	<0.05	<0.05
Magnesium	mg/l	0.2	N/A	4	0.42	1.5	0		1.5	0.56	0.42	0.72
Arsenic (Dissolved)	mg/l	0.0002	0.025	4	0.001	0.0041	0		0.0024	0.001	0.0013	0.0041
Boron (Dissolved)	mg/l	0.01	No WSV	4	0.042	0.11	0		0.042	0.094	0.062	0.11
Barium (Dissolved)	mg/l	0.005	No WSV	4	<0.005	<0.005	0		<0.005	<0.005	<0.005	<0.005
Beryllium (Dissolved)	mg/l	0.001	No WSV	4	<0.001	<0.001	0		<0.001	<0.001	<0.001	<0.001
Cadmium (Dissolved)	mg/l	0.00011	0.0002	4	<0.00011	<0.00011	0		<0.00011	<0.00011	<0.00011	<0.00011
Chromium (Dissolved)	mg/l	0.0005	See Cr VI as first pass	4	0.00064	0.0022	0		0.0017	0.00064	0.0018	0.0022
Copper (Dissolved)	mg/l	0.0005	0.00376	4	0.00099	0.0019	0		0.0019	0.00099	0.0011	0.0018
Mercury (Dissolved)	mg/l	0.00005	0.00007	4	<0.00005	<0.00005	0		<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum (Dissolved)	mg/l	0.0002	No WSV	4	0.00078	0.0038	0		0.0016	0.0038	0.00078	0.0011
Nickel (Dissolved)	mg/l	0.0005	0.0086	4	<0.0005	0.0015	0		0.00079	<0.0005	0.0015	0.0014
Lead (Dissolved)	mg/l	0.0005	0.0013	4	0.00067	0.0022	3	BH108, 0.6m; BH107, 2m; BH106, 0.5m	0.0022	0.00067	0.0016	0.0021
Selenium (Dissolved)	mg/l	0.0005	N/A	4	<0.0005	0.00096	0		0.00079	<0.0005	<0.0005	0.00096
Vanadium (Dissolved)	mg/l	0.0005	No WSV	4	0.0016	0.0084	0		0.0053	0.0016	0.0058	0.0084
Zinc (Dissolved)	mg/l	0.0025	0.0079	4	0.004	0.012	2	BH108, 0.6m; BH106, 0.5m	0.0097	0.004	0.0077	0.012
Iron (Dissolved)	mg/l	0.005	1	4	0.39	1.3	2	BH108, 0.6m; BH106, 0.5m	1.3	0.39	1	1.2
Low-Level Chromium (Hexavalent)	mg/l	0.0001	No WSV	4	<0.0001	0.0025	0		<0.0001	<0.0001	<0.0001	0.0025
Chromium Trivalent	mg/l	0.001	No WSV	4	<0.001	0.0018	0		0.0017	<0.001	0.0018	<0.001
Total TPH >C6-C40	mg/l	0.01	No WSV	4	<0.01	<0.01	0		<0.01	<0.01	<0.01	<0.01
Naphthalene	mg/l	0.0001	0.002	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene	mg/l	0.0001	N/A	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001

Acenaphthene	mg/l	0.0001	N/A	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	mg/l	0.0001	N/A	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Phenanthrene	mg/l	0.0001	Screen BaP only	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	mg/l	0.0001	0.0001	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	mg/l	0.0001	0.0000063	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Pyrene	mg/l	0.0001	N/A	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[a]anthracene	mg/l	0.0001	N/A	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	mg/l	0.0001	Screen BaP only	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[b]fluoranthene	mg/l	0.0001	Screen BaP only	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[k]fluoranthene	mg/l	0.0001	Screen BaP only	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[a]pyrene	mg/l	0.0001	0.00000017	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)Pyrene	mg/l	0.0001	Screen BaP only	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Dibenz(a,h)Anthracene	mg/l	0.0001	N/A	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[g,h,i]perylene	mg/l	0.0001	Screen BaP only	4	<0.0001	<0.0001	0	<0.0001	<0.0001	<0.0001	<0.0001
Total Of 16 PAH's	mg/l	0.002	No WSV	4	<0.002	<0.002	0	<0.002	<0.002	<0.002	<0.002
Total Phenols	mg/l	0.03	No WSV	4	<0.03	<0.03	0	<0.03	<0.03	<0.03	<0.03

Note:
 Exceedance

Controlled Water (Leachate) Screening Results against Drinking Water Standards

Constituents	Unit	Limit of Detection	Generic Assessment Criteria	Number of Samples	Minimum Value	Maximum Value	Number of Exceedances	Locations of Exceedances	BH108	BH107	BH107	BH106
									Depth: 0.6 m	Depth: 0.6 m	Depth: 2.0 m	Depth: 0.5 m
pH at 20C		4	No WSV	4	7.3	8.8	0		7.9	7.6	7.3	8.8
Fluoride	mg/l	0.05	1.5	4	0.15	0.4	0		0.25	0.33	0.15	0.4
Ammoniacal Nitrogen	mg/l	0.05	0.39	4	0.054	0.093	0		0.054	0.093	0.086	0.057
Sulphur	mg/l	1	No WSV	4	1.3	8.7	0		1.3	8.7	5	1.4
Sulphate	mg/l	1	250	4	4	26	0		4	26	15	4.2
Cyanide (Total)	mg/l	0.05	0.05	4	<0.05	<0.05	0		<0.05	<0.05	<0.05	<0.05
Cyanide (Free)	mg/l	0.05	See Cyanide (total)	4	<0.05	<0.05	0		<0.05	<0.05	<0.05	<0.05
Cyanide (Complex)	mg/l	0.05		4	<0.05	<0.05	0		<0.05	<0.05	<0.05	<0.05
Magnesium	mg/l	0.2	N/A	4	0.42	1.5	0		1.5	0.56	0.42	0.72
Arsenic (Dissolved)	mg/l	0.0002	0.01	4	0.001	0.0041	0		0.0024	0.001	0.0013	0.0041
Boron (Dissolved)	mg/l	0.01	No WSV	4	0.042	0.11	0		0.042	0.094	0.062	0.11
Barium (Dissolved)	mg/l	0.005	No WSV	4	<0.005	<0.005	0		<0.005	<0.005	<0.005	<0.005
Beryllium (Dissolved)	mg/l	0.001	No WSV	4	<0.001	<0.001	0		<0.001	<0.001	<0.001	<0.001
Cadmium (Dissolved)	mg/l	0.00011	0.005	4	<0.00011	<0.00011	0		<0.00011	<0.00011	<0.00011	<0.00011
Chromium (Dissolved)	mg/l	0.0005	0.05	4	0.00064	0.0022	0		0.0017	0.00064	0.0018	0.0022
Copper (Dissolved)	mg/l	0.0005	2	4	0.00099	0.0019	0		0.0019	0.00099	0.0011	0.0018
Mercury (Dissolved)	mg/l	0.00005	0.001	4	<0.00005	<0.00005	0		<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum (Dissolved)	mg/l	0.0002	No WSV	4	0.00078	0.0038	0		0.0016	0.0038	0.00078	0.0011
Nickel (Dissolved)	mg/l	0.0005	0.02	4	<0.0005	0.0015	0		0.00079	<0.0005	0.0015	0.0014
Lead (Dissolved)	mg/l	0.0005	0.01	4	0.00067	0.0022	0		0.0022	0.00067	0.0016	0.0021
Selenium (Dissolved)	mg/l	0.0005	0.01	4	<0.0005	0.00096	0		0.00079	<0.0005	<0.0005	0.00096
Vanadium (Dissolved)	mg/l	0.0005	No WSV	4	0.0016	0.0084	0		0.0053	0.0016	0.0058	0.0084
Zinc (Dissolved)	mg/l	0.0025	3	4	0.004	0.012	0		0.0097	0.004	0.0077	0.012
Iron (Dissolved)	mg/l	0.005	0.2	4	0.39	1.3	4	BH108, 0.6m; BH107, 0.6m; BH107, 2m; BH106, 0.5m	1.3	0.39	1	1.2

Constituents	Unit	Limit of Detection	Generic Assessment Criteria	Number of Samples	Minimum Value	Maximum Value	Number of Exceedances	Locations of Exceedances	BH108	BH107	BH107	BH106
									Depth: 0.6 m	Depth: 0.6 m	Depth: 2.0 m	Depth: 0.5 m
Low-Level Chromium (Hexavalent)	mg/l	0.0001	No WSV	4	<0.0001	0.0025	0		<0.0001	<0.0001	<0.0001	0.0025
Chromium Trivalent	mg/l	0.001	No WSV	4	<0.001	0.0018	0		0.0017	<0.001	0.0018	<0.001
Total TPH >C6-C40	mg/l	0.01	No WSV	4	<0.01	<0.01	0		<0.01	<0.01	<0.01	<0.01
Naphthalene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Phenanthrene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Pyrene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Benzo[a]anthracene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Benzo[b]fluoranthene	mg/l	0.0001	See PAH Sum of 4	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Benzo[k]fluoranthene	mg/l	0.0001	See PAH Sum of 4	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Benzo[a]pyrene	mg/l	0.0001	0.00001	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)Pyrene	mg/l	0.0001	See PAH Sum of 4	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Dibenz(a,h)Anthracene	mg/l	0.0001	See BaP	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Benzo[g,h,i]perylene	mg/l	0.0001	See PAH Sum of 4	4	<0.0001	<0.0001	0		<0.0001	<0.0001	<0.0001	<0.0001
Total Of 16 PAH's	mg/l	0.002	No WSV	4	<0.002	<0.002	0		<0.002	<0.002	<0.002	<0.002
Total Phenols	mg/l	0.03	No WSV	4	<0.03	<0.03	0		<0.03	<0.03	<0.03	<0.03

Note:

Exceedance