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BAM Nuttall Limited

Victoria North Infrastructure Works

Ground Investigation Interpretative Report

Reference: VNIF-ARP-ZZ-YYY-RP-CG-0012

P03 | 23rd November 2022



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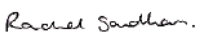
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Executive Summary – HIF Infrastructure Works

General

Ove Arup and Partners Ltd (Arup) has prepared this report for BAM for the HIF Infrastructure Works (HIF IW) at the Victoria North site. The report builds on a previous desk study assessment and a preliminary ground investigation interpretative report to present an interpretation of several phases of ground investigation.

The planning application site

The main area of the site is the Red Bank Plateau which was constructed by filling during the late 1800s to create railway sidings. From the plateau, wooded slopes (St Catherine's Wood) extend down to the banks of the River Irk. Along the northern boundary, slopes extend down towards the adjacent P&P site. The plateau is separated from the Red Bank Terrace area to the south by a slope (circa 9m high). Red Bank Terrace area is generally flat and currently occupied by a variety of commercial operations.

Ground conditions

Variable made ground between 9.3m and 16.5m thick is present beneath the majority of the planning application site. Underlying the made ground, alluvium is present at depths up to 7mbgl, close to the River Irk with glacial till in areas away from the river. Underlying bedrock includes Chester Pebble Beds, Manchester Marls and Collyhurst Sandstone. The depth to bedrock ranges from 16m beneath Red Bank Plateau to 1.8m bgl in St Catherine's Wood.

Groundwater was encountered beneath the site at varying depths. It is likely that groundwater in the made ground is perched on relict structures or on underlying cohesive deposits. Groundwater in alluvial deposits and bedrock is likely to be in continuity with the river.

Geotechnical considerations

There is a potential for buried obstructions including former basements, foundations, walls and utilities within the made ground [37]. There is also potential for localised voids within the made ground, (Section 3.6.8). Made ground may contain soft spots. Localised near surface soft spots may also be associated with alluvium or other natural superficial deposits.

The made ground, glacial till and alluvium are unlikely to provide sufficient strength for shallow building foundations. Use of bored piles is recommended, socketed into the underlying bedrock. The use of suspended floor slabs should be assumed.

The existing plateau slope is oversteep with gradients from approximately 1 in 1.6 to 1 in 2. Regrading to a suitable stable gradient is required to achieve Eurocode 7 compliant standards [38].

Monitoring data available from borehole inclinometers in the P&P slope area indicates possible, but inconclusive, evidence for movement of the slope[10]. This existing data requires validation and further monitoring is needed before firm conclusions can be reached.

New retaining walls will be required in some locations, potentially founded on variable made ground or weak/compressible superficial soils. This will need to be taken into account when assessing stability and settlement of the walls.

A number of existing retaining walls exist within, or form the boundaries of, the planning application site. Once development proposals have been confirmed, the stability of existing walls affected by the development should be assessed.

Cut and fill earthworks will be required to remove existing obstructions and create development platforms. Most of the material excavated will be made ground. A proportion of this material is likely to be suitable for use as general fill within the site works; some processing will be required. It may be necessary to send unsuitable or surplus material off-site for disposal, and depending on cut/fill balance, imported engineering

fill may be required to meet any shortfall in site-won material (Drg VNIF-BNL-ZZ-YYY-DR-CE-0001). Imported fill may be required for specific applications.

Once subsequent development proposals are agreed, assessments of the likely settlement/heave magnitude and timescales will be required for any areas where ground will be changed. Movement monitoring may be required depending on the outcome of assessment and the implications on design.

Excavations in made ground and glacial till are likely to encounter perched groundwater which will require appropriate management. Note that groundwater in alluvium may be in continuity with surface water and/or groundwater in the underlying solid strata.

An assessment of the potential for aggressive ground conditions to result in the degradation of buried concrete has been undertaken. The available data indicates that for the design of buried concrete in made ground, a design class for concrete of DC-3 should be specified based on AC-3s conditions, with an assumed design sulphate value of DS-4. For the design of buried concrete in other strata, DC-1 and AC-1s conditions should be assumed.

Geoenvironmental considerations

Soils

Potential risks to human health and the environment have been assessed on a source-pathway-receptor basis. Potential risks to construction workers, site users and neighbours have been identified associated with contaminants in the made ground, contaminants in parts of a former gasworks and the presence of asbestos fibres. Volatile contaminants are generally absent.

Potential contaminant linkages in the construction phase can be addressed by adopting appropriate mitigation measures, working methods, and where necessary, provision of appropriate PPE.

There is not considered to be a risk to future site users where re-used made ground is located beneath hardstanding.

In areas of soft landscaping on Red Bank Plateau, a risk to future site users could arise from exposure to made ground soils (either in-situ or re-used as fill). Appropriate mitigation measures will need to be applied to protect against this risk. The majority of the potential contaminant linkages will be addressed by the adoption of appropriate measures as part of the HIF Infrastructure works or during the development of the site.

The human health risk associated with identified soil contaminants (including asbestos) in the Red Bank Terrace and St. Catherine's Wood areas of the site, is considered to be low. The provision of clean cover soils (topsoil and subsoil) set out in the Landscape Specification [3] is considered to address the identified risks.

Controlled waters

Screening has identified a range of potential contaminants in groundwater samples, and potential pollutant linkages between specific contaminated areas and groundwater. A detailed quantitative controlled waters risk assessment have been undertaken which is reported separately.

Hazardous ground gas

On the basis of the available data, CS2 conditions should be assumed for the development of the site. In an infilled former reservoir, localised CS3 conditions have been identified, however, this is outside the proposed development plots. If development layouts change, localised CS3 conditions may need to be adopted and appropriate gas protection measures provided.

Future developers should conduct their own assessment of ground gas risk and, if appropriate, undertake additional gas monitoring.

Excavation arisings

For disposal, preliminary WAC analysis and hazardous waste assessments indicate that a significant proportion of the material may be classified as non-hazardous waste and meets the requirements for disposal at inert waste landfills.

Remediation measures

The following recommendations are made:

- Removal of the remains of former rail infrastructure. Once excavations are complete, these areas will need to be validated and will require reinstatement.
- At grade areas and areas of proposed fill within the Red Bank Plateau and Red Bank Terrace areas are to be turned over to an average depth of 500mm to identify and remove relic structures and other potential obstructions to development. Remove obstructions to a depth of 2.0m below existing ground level. Survey and record any residual obstructions extending to depth greater than 2.0m.
- Geotechnical and geoenvironmental testing and assessment will be required during earthworks, in accordance with the requirements of a verification plan, to confirm that site won materials are suitable for re-use.
- As detailed in the Landscaping Specification and excluding areas in which existing trees and vegetation are to be preserved, place suitable thickness of clean cover soils (topsoil and sub-soil) to break pathways between made ground soils and users of the site in areas of landscaping.
- Temporarily cover areas of exposed made ground remaining on completion of the HIF Infrastructure Works, with 100mm of suitable clean material.

Recommended further works

It is recommended that a number of remaining data gaps are addressed as follows:

- Settlement monitoring instrumentation should be installed beneath the proposed access road embankment and monitored to validate settlement calculations for the soils underlying the proposed earthworks.
- Continue monitoring existing inclinometer installations and undertake further assessment of the data to verify whether ground movement is occurring.
- Further gas monitoring is recommended in some areas of the site, to further assess ground gas risks.
- Sampling of fly-tipped material and river sediment, to determine waste disposal options.
- Further investigation and appropriate treatment of a shallow shaft encountered in BH308.

1. Introduction

1.1 Context

Manchester City Council (MCC) has appointed BAM Nuttall Ltd (BAM) to design and construct the Victoria North Infrastructure Works which will be funded by the Homes England Housing Infrastructure Fund (HIF). Ove Arup and Partners Ltd (Arup) has prepared this report on behalf of BAM. The proposed development is part of the wider Victoria North Strategic Regeneration Framework (SRF) redevelopment to the north of Manchester city centre. The Infrastructure Works are being carried out to support a subsequent residential led development being planned by a Joint Venture of Manchester City Council (MCC) and the Far East Consortium (FEC).

The HIF Infrastructure Works comprise enabling works to create several plots for development, accessed via both existing highways and new highway connections, together with new utility and services connections, remediation and earthworks, demolition of existing structure and the provision of green infrastructure including the creation of green links and the first phase of the new City River Park. Although not part of the HIF Infrastructure Works delivery, the proposed future development of the site will be a combination of residential, public open space and some retail and commercial development.

1.2 Objectives

Drawing on the findings of a 2019 Arup Desk Study [1] and a preliminary ground investigation interpretative report [2], this ground investigation interpretative report (GIR) presents an interpretation of several intrusive investigations that have been undertaken within and adjacent to the planning application site, with particular focus on investigations specified by Arup and undertaken in 2019, 2021 and 2022.

This GIR provides an understanding of the implications of ground conditions for development, including issues associated with ground stability, constraints associated with previous development, together with an assessment of risks associated with soil and groundwater contamination and ground gas. This understanding is required to inform the design of future remediation and development of the site.

This GIR is also intended to support a planning application for the HIF Infrastructure Works (IW).

1.3 Scope of report

The scope and structure of this report is outlined below:

- A synopsis of the desk-based information concerning the site and the environmental setting (Section 2).
- Review of the previous ground investigations including the 2022 GI (Section 3).
- A description of the ground conditions encountered, and the ground model that has been developed by Arup (Section 4).
- An evaluation of geotechnical parameters, material properties and groundwater conditions (Section 5).
- An evaluation of the soil and groundwater contamination (Section 6).
- An evaluation of the ground gas data and risk assessment (Section 7).
- Identification and discussion of geotechnical constraints to development (Section 8).
- Discussion of contamination-related and geoenvironmental constraints to development and presentation of an outline strategy for remediation to address the constraints (Section 9).
- Conclusions of the geotechnical and geoenvironmental assessments and recommendations for additional works (Section 10).

1.4 Use of report and limitations

This report was prepared by Arup on behalf of BAM. It takes into account our client's particular instructions and requirements. This report is not intended for and should not be relied on by any third party, and no responsibility is undertaken to any third party in relation to it.

All reasonable skill, care and diligence have been exercised within the timescales available and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in preparing the report, it is possible that other ground contamination or ground conditions as yet undetected, may exist and consequently reliance on this report must be limited accordingly.

Version P01 of this report was developed using preliminary and/or partially complete ground investigation data. Version P02, addressed comments received from third parties and incorporated additional factual data obtained during the 2022 ground investigation and received ahead of the final factual report. This version, P03, addresses a number of further comments received from third parties and has been issued following validation of the factual report for the 2022 ground investigation [10].

2. Proposed development and site setting

2.1 Site extent and site areas

The planning application boundary of the site is shown outlined in red on Figure 1, together with the current HIF Infrastructure Works masterplan. As shown on Figure 1, the site is bounded to the east and south-east by the River Irk. In the west, it is bounded by Red Bank (a public road) and the rear of existing commercial property off Honey Street and Collingham Street. In the north-east, it is bounded by an historical pedestrian railway bridge.



Figure 1: The Victoria North site.

As shown on Figure 2, the site has been divided into the three areas listed below:

- Red Bank Plateau.
- Red Bank Terrace.
- St Catherine's Wood.



Figure 2: The site areas.

2.2 Proposed HIF Infrastructure Works development

The HIF IW proposals will be submitted as a full planning application to MCC and will comprise:

- Earthworks and remediation to create suitable development platforms;
- The construction of new internal access roads;
- New utility and services connections;
- Provision of green infrastructure including green links and the first phase of a new city river park.

Ultimately, the site is to be developed for a predominantly residential use with landscaped areas of public open space. The proposed follow-on development in each of the three site areas is as follows (Figure 2):

- **Red Bank Plateau**. The current masterplan indicates that this will be the focus of proposed residential development within the site. Some local public open space (POS) development will be included within the generally residential development of this area.
- **Red Bank Terrace**. This area is to be predominantly formal public open space with planted areas, connecting footpaths and cycleways and areas of public realm.
- **St Catherine's Wood**. The current masterplan indicates that this area will be generally non-residential, with a school proposed in the north of the area (Plot RB05b) and areas of public open space elsewhere. Outside Plot RB05b, existing vegetation is to be preserved as fully as possible with limited areas of enhancement to facilitate the proposed POS use, including planted areas, connecting footpaths and cycleways and areas of public realm.

The follow-on developments on the plots prepared by the HIF IW, including residential and school developments, will be subject to separate planning applications.

Table 1 identifies the correspondence between the proposed development plots (Figure 1) and the development zones (Figure 2).

Table 1: Plots in each development area

Area	Planned Development	Development Plots
Red Bank Plateau	To be developed principally for residential purposes.	RB01, RB02, RB03, RB04, RB05a, RB05c and RB12b.
Red Bank Terrace	To be developed as formal public open space.	
St Catherine's Wood	To be developed for non-residential purposes – a school and public open space.	Plot RB05b (school) and public open space.

2.3 Topography

The topography of the site and adjacent areas has been interpreted from both publicly available LiDAR data [4] and topographic survey drawings produced in September 2021 by Paragon Surveys Limited. Topographically, the area is centred on the valley of the River Irk, with the topographical low represented by the river channel. The River Irk flows from north-east to south-west through the area, with water levels between c. 29.5mOD to 26.6mOD.

The most elevated area of the site is the former Creamline Dairies site (Plot RB12b - Figure 1), with ground levels at c. 45.5m AOD. The Creamline Dairies site is separated from the Red Bank Plateau by a c. 5m high retaining wall (Retaining Wall 1 - Figure 3), with ground levels across the approximately 500m long Red Bank Plateau, ranging from 40.3m AOD in the south west to c. 43.4m in the north east.

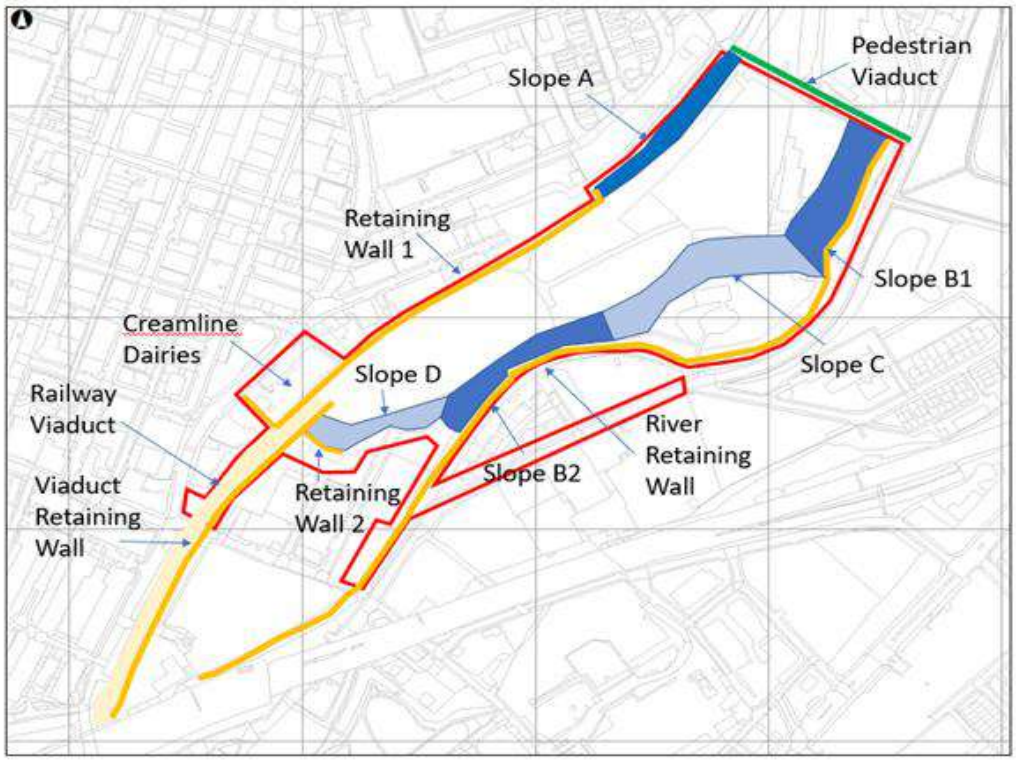


Figure 3: Key site features including retaining walls and slopes

The majority of the boundary between Red Bank Plateau and St Catherine's Wood (Figure 2) is marked by the crest of a series of steep slopes (Slopes B1, B2 and C, Figure 3), which are generally between 9m and 13m high and locally approach gradients of 1v to 1.6h (Slope B2). The exception to this is in the north of St Catherine's Wood adjacent to Slope B1, where Plot RB05b is proposed. Ground levels across plot RB05b vary between c. 43m AOD in the south to c. 41.5m AOD in the north (over a distance of approximately 100m).

The steep slopes in St Catherine's Wood generally descend to the banks of the River Irk, at levels of c. 31m AOD in the north-east and c. 29m AOD in the south-west. In the areas adjacent to Plots RB04 and RB05c however, Slope C (Figure 3) descends initially to a wide, flat area at a level of c. 33m, descending to c. 30m AOD at the retaining walls that line the river channel.

The boundary between Red Bank Plateau and Red Bank Terrace (Figure 2) is also marked by the crest of a slope (Slope D, Figure 3), which descends from c. 40.5m to 31m AOD. The gradient of this slope is generally in the order of 1 in 2.5. In areas along the toe of this slope, sections of masonry wall can be seen (Retaining Wall 2, Figure 3). Ground levels across Red Bank Terrace are in the order of 32m AOD in the north-east, falling to c. 29m AOD in the extreme south-west. The western boundary of the site that runs adjacent to existing public highway however, is marked by a disused section of railway viaduct, some 7m high, which formerly connected Victoria Station to Red Bank Plateau (Viaduct Retaining Wall, Figure 3). The top of the viaduct is at c. 39m AOD.

2.4 Description of site areas

2.4.1 Red Bank Plateau

The Red Bank Plateau area is situated in the north and north-west of the site (Figure 2). Historically, the following features were located within this area (Figure 4):

- The northern of two former reservoirs.
- Part of a southern former reservoir.
- The north-western section of a former meander bend of the River Irk.
- The north-western most section of a former mill race.

These features are now buried beneath the fill used to construct Red Bank Plateau, which was placed in the late 1800s.

Until c. 1989 the area was occupied by extensive railway sidings and associated infrastructure, including a carriage shed, turntables and small gasworks (Figure 4). Following the suspension of rail operations at the site and the removal of most elements of rail infrastructure, large areas of Red Bank Plateau have become extensively vegetated, particularly in the south-west.

Approximately 175m of the north-western boundary is marked by a cut slope up to approximately 7m high, which on the basis of the current ground model is likely to have been excavated in glacial till (Slope A, Figure 3). The gradient of this slope is approximately 1v to 3h with the off-site areas standing above Red Bank Plateau. From the south-eastern end of Slope A, a c. 4m high brick retaining wall supports the elevated off-site areas, including Plot RB12b, which until recent demolition works, was occupied by Creamline Dairies.

Currently, the only vehicle access onto the Red Bank Plateau is from Collyhurst Road via a bridge over the River Irk (the P&P bridge). Development proposals include the provision of new site access off the existing public highway at Red Bank. This proposed access will descend in shallow cutting through the former Creamline Dairies site, passing through Retaining Wall 1 (Figure 3) at approximately mid-height before descending on a low embankment to the Red Bank Plateau.

The north-eastern Site boundary is marked by a masonry pedestrian viaduct constructed in the late 1800s (Figure 3). This viaduct stands some 9m above ground levels across Red Bank Plateau and from its south-east end, descends first via a series of steps and then via a sloping footpath to the River Irk.

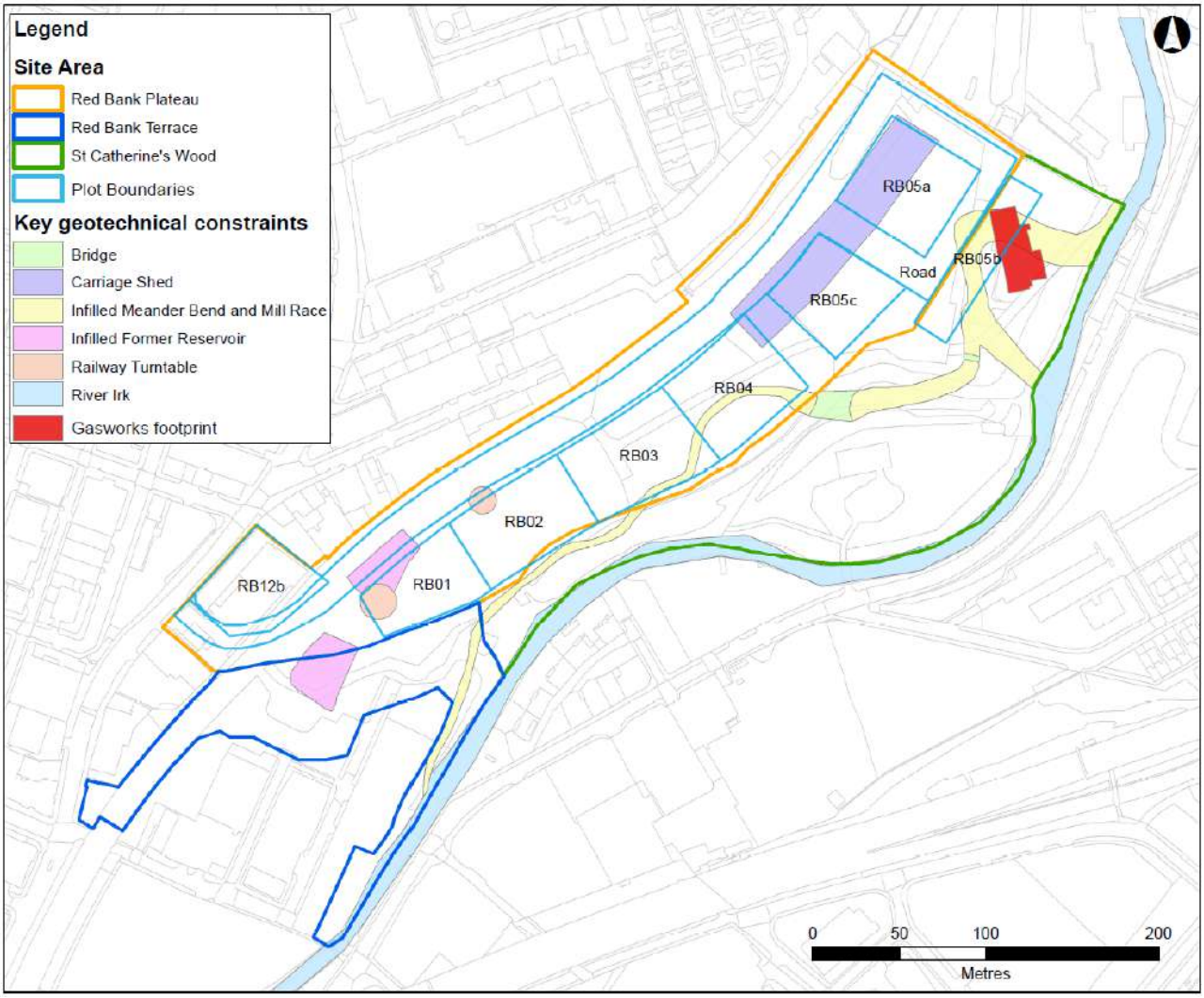


Figure 4: Key historical features

2.4.2 Red Bank Terrace

Red Bank Terrace is relatively flat-lying (c. 30m AOD - Figure 2). Historically, the most southerly of two former reservoirs was located partly within this area, as well as the downstream stretch of the former mill race (Figure 4). The area has historically been occupied by various buildings and industries, including residential areas, chemical works, dye works, and a fireproof plate works. It is currently occupied by multiple independently owned car parking businesses, a taxi service, a joinery warehouse, dry cleaners, and food warehouse. Roger Street passes under the disused railway viaduct (Figure 3) which marks the north-western boundary of the Red Bank Terrace area.

The boundary between Red Bank Plateau and Red Bank Terrace consists of heavily vegetated slopes (Slope D, Figure 3) formed from fill materials placed as part of the former rail infrastructure development on the plateau. The lower sections of these slopes appear to have been supported by a masonry retaining wall or the remains of partly demolished buildings (Retaining Wall 2, Figure 3) however the alignment and condition of this masonry are largely obscured by vegetation and more recently placed fill materials.

2.4.3 St Catherine's Wood

Historically this area was occupied by a meander bend of the River Irk and sections of the former mill race (Figure 4). In addition, a corn mill (later starch and size mill), dye works, church, terraced housing and a school were all present in this area of the site until the early 1970s. Any remains of these historic features will lie at the base of the made ground that was used to construct Red Bank Plateau. During rail operations at the site, a small gasworks was built on the top of the plateau.

Today, the site is largely woodland with evidence of occasional fly tipping and limited areas of public footpath.

Steep slopes, generally with extensive tree cover, descend through the St Catherine's Wood area. There are however, two generally flat parts within this area:

- A lower-lying area extending from the foot of Slope C (Figure 3) to the channel of the River Irk.
- At higher level, a flat plateau which is proposed for school development (Plot RB05b).

2.5 Historical land use

The site history is discussed in the Ground Conditions Desk Study Report [1] issued in August 2019. The site history is not discussed in detail in this report, but summaries of the historical use and development have been provided in Section 2.4.

2.6 Published geology and hydrogeology

2.6.1 Superficial deposits

The 1:50,000 scale geological map indicates that glacial till underlies the area south-east of the River Irk and along the north-western site boundary (Figure 5). Although not indicated on published geological maps, ground investigation has established the presence of alluvial deposits in association with the River Irk.

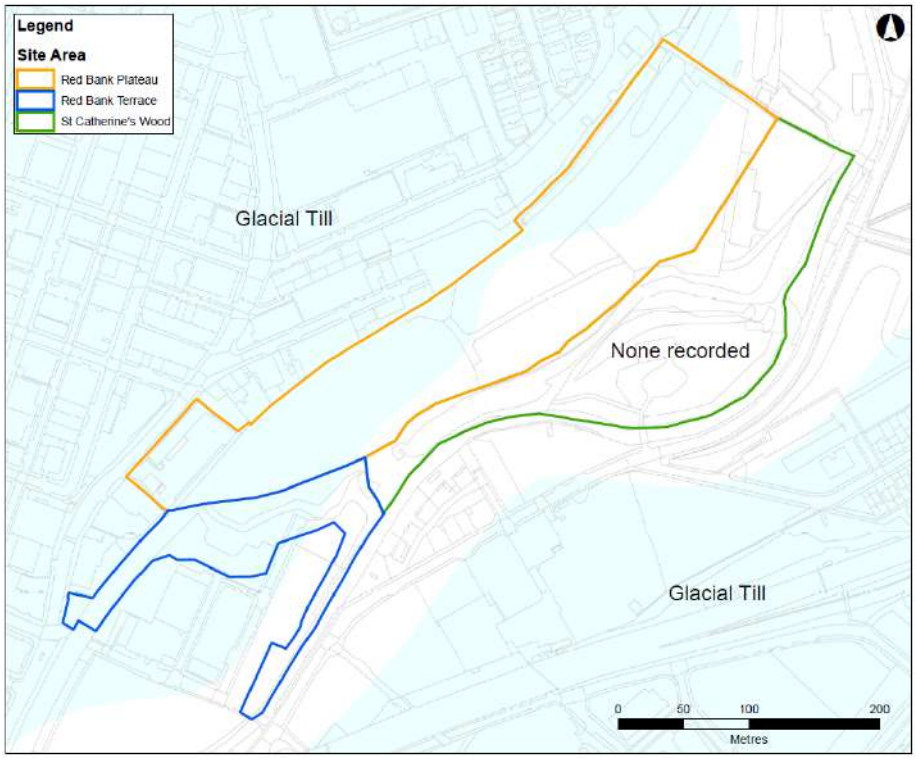


Figure 5: Superficial geology from 1:50,000 scale BGS map

2.6.2 Solid geology

Published sources of information indicate that the solid geology varies from east to west across the site, with the Chester Pebble Beds Formation in the west, Manchester Marls Formation in the centre of the site and the Collyhurst Sandstone Formation in the north-east (Figure 6). All three units are reported to be gently dipping (5 degrees) SSW.

A fault, trending NNW-SSE, cuts across the centre of the site, within the Manchester Marl Formation. The BGS map indicates that this is a normal fault, downthrown to the west, with limited displacement.

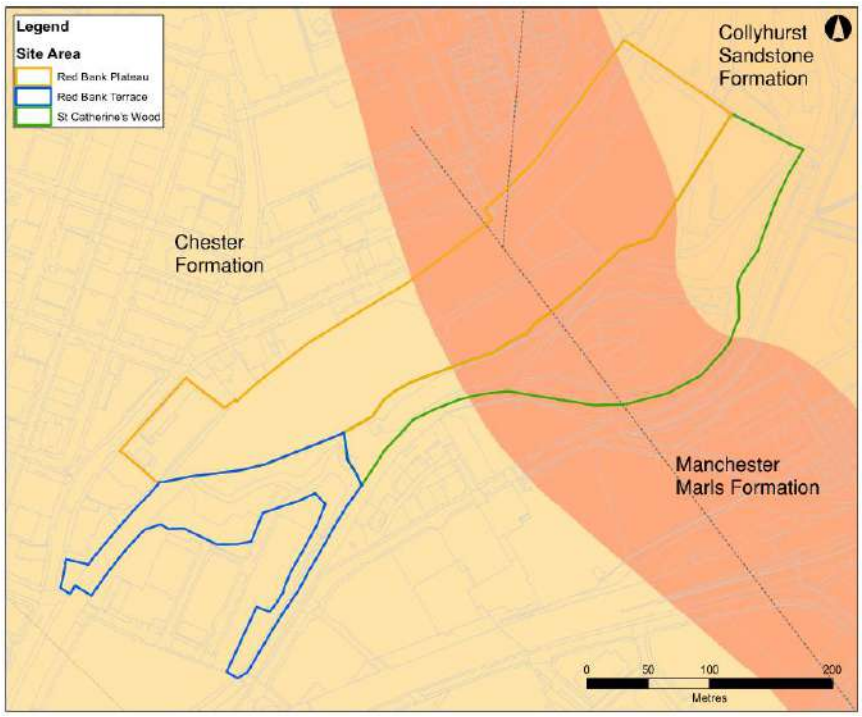


Figure 6: Bedrock geology and linear features taken from 1:50,000 scale BGS map

2.6.3 Hydrogeology & hydrology

The aquifer designations underlying the site and adjacent areas are discussed in the desk study report [1]. Alluvium is mostly classified as a secondary (A) aquifer and glacial till deposits as a secondary (undifferentiated) aquifer. Secondary aquifers are defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The Manchester Marl is classified as a secondary (B) aquifer (lower permeability layers), whereas the Chester Pebble Beds Formation and Collyhurst Sandstone Formation are classified as principal aquifers. Principal aquifers are defined as strata of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.

The BGS Hydrogeology map [5] describes the Manchester Marl as confining groundwater in the Collyhurst Sandstone. The Manchester Marl may act as a barrier to groundwater flow and the Collyhurst Sandstone and Chester Pebble Beds are likely to be separate aquifer units.

No Source Protection Zones are located within 500m of the site. No licensed groundwater or surface water abstractions are located within the site boundary, but there are three active abstraction licences located within 500m of the site boundary:

Abstraction reference	Distance from boundary	Purpose
Packaging Products Ltd, Collyhurst	270m north-east	General cooling
Derby Brewery, Cheetham	400m north-west	General cooling
Derby Brewery, Cheetham	400m north-west	Process water

The River Irk is classed as a heavily modified water body (HMWB) in recognition of physical modifications by human activity. The river is canalised through the majority of the site. The Irk currently has an overall status of ‘moderate’ with an ecological potential of ‘moderate’ and a chemical status of ‘fail’. The reasons for not achieving ‘good’ status within the Irk catchment include ammonia due to continuous sewage discharges and diffuse sources including land contamination and landfill leachate, and phosphate due to sewage discharges and urban development [6].

3. Ground investigations

3.1 Overview

A number of intrusive ground investigations (GI) have been undertaken within the site and adjacent areas. A summary of these investigations is presented in the desk study report [1]. Although the historical ground investigations are not discussed further in this report, relevant data from these investigations has been used as appropriate, when assessing ground conditions at the site.

Three recent phases of ground investigation were specified by Arup on behalf of FEC:

- Phase One undertaken in 2019 by Allied Exploration and Geotechnics Limited (AEG)
- Phase Two undertaken in 2021 by Allied Exploration and Geotechnics Limited (AEG)
- Phase Three undertaken in 2022 GI by BAM Ritchies.

The exploratory holes locations are illustrated in Drawing 01. Phase 1 holes are 100 series, phase 2 holes are 200 series, phase 3 holes are 300 series (e.g. BH101, BH201, BH301). The positions of the gas and groundwater monitoring installations are presented in Drawing 02.

3.2 2019 ground investigation

Phase one, undertaken during January 2019, to provide high-level information on ground conditions both within and adjacent to the site. This would inform an initial cost plan for the proposed development. The findings of the investigations were presented in a factual report produced by AEG [7].

The investigation included:

- Ten cable percussion boreholes;
- Twenty-one machine excavated trial pits;
- Seven windowless sample holes;
- In-situ standard penetration and hand shear vane testing;
- Geotechnical and specialist chemical sampling;
- Installation of gas and groundwater monitoring instrumentation; and
- Groundwater monitoring, sampling and associated water quality parameter testing.

No rotary drilling was conducted as part of this work therefore penetration into rockhead was limited and no ground gas monitoring was carried out. Groundwater monitoring was undertaken in seven installations between 7th and 24th January 2019 on up to four occasions.

An interpretation of the 2019 data was provided in the Desk Study Report [1].

3.3 2021 ground investigation

The phase 2 GI was undertaken in 2021 to provide greater understanding of a number of abnormal ground conditions that had been identified and to support a future planning application for development. The rationale for the 2021 GI is in included in Appendix A.

The ground investigation was carried out by AEG between 22nd March and 20th April 2021. The works were supervised by AEG with part-time site attendance by Arup. The findings of the investigations are presented in a factual report produced by AEG [8].

The fieldwork consisted of:

- Seventeen boreholes advanced using cable percussion methods;
- Six cable percussion boreholes were advanced into bedrock using rotary coring methods;
- Eighteen window sample boreholes;
- Twenty-three mechanically excavated trial pits;
- Six horizontal concrete cores into the Red Bank Plateau retaining wall;
- In-situ standard penetration, hand shear vane, photo-ionisation detector, TRL cone penetrometer, hand penetrometer, water quality parameter and mexeprobe testing;
- Geotechnical and specialist chemical sampling;
- Installation of gas and groundwater monitoring instrumentation;
- Post site groundwater and surface water monitoring, sampling and associated water quality parameter testing.

A groundwater and soil-gas monitoring programme was also undertaken from twenty locations between 11th May and 10th August 2021, with groundwater samples recovered for laboratory analysis on two separate occasions.

3.4 2022 ground investigation

The phase 3 GI was undertaken to address the recommendations presented in the preliminary ground investigation interpretive report [2]. These recommendations included:

- Trial trenches around the gasworks to delineate contamination identified during the 2021 GI, with monitoring of groundwater quality downgradient of the gasworks.
- Boreholes along existing slopes to refine the ground model for slope stability assessments. Inclinometers installed to monitoring ground movements.
- Boreholes to confirm ground conditions along the river for both stability and controlled waters risk assessment
- Boreholes at proposed bridge locations to inform the design.
- A number of boreholes located to provide further data on the depth to engineering rockhead to validate current interpretation and to fill data gaps.
- Additional GI to fill more general gaps in spatial coverage across the site (i.e. where exploratory holes from previous GIs are widely separated).
- Borehole infiltration tests in selected installations in areas where made ground is thin and absent to investigate the feasibility of incorporating soakaways into the site drainage system.
- Additional geotechnical sampling and testing in areas of proposed excavation to confirm suitability of arisings for re-use.
- Additional geoenvironmental soil sampling and analysis across the site to validate conclusions reached in the previous GIR and in detailed quantitative controlled waters risk assessment that was recommended.
- Selected boreholes were to be provided with groundwater monitoring installations (to complement existing serviceable installations), with monitoring to confirm hydraulic gradient across site.
- Selected boreholes were to be provided with ground gas monitoring installations (to complement existing serviceable installations), with monitoring to confirm ground gas conditions particularly during periods of low atmospheric pressure.

- Sampling of groundwater from installations for analysis plus additional leachability testing of soil samples.
- Sampling of shallow made ground along main potable water corridors with relevant analysis, to allow requirements for potable supply pipe to be determined.
- Surface water sampling and analysis from the river to assist with further controlled waters risk assessment.
- Sampling and analysis from stockpiles of fly-tipped material within the site and from sediment and other accumulations in the river, to determine waste disposal options.

All selected analysis suites were to reflect the previous relevant recorded uses of the site, making reference to relevant DoE Industry Profiles [9]. The rationale used to design the 2022 GI is included in Appendix A.

The phase 3 GI was carried out by BAM Ritchies between 14th February and 1st April 2022. The works were supervised by BAM Ritchies with part-time site attendance by Arup. The findings of the investigations are presented in a factual report produced by BAM Ritchies [10].

The fieldwork consisted of:

- Seventeen cable percussion boreholes;
- Two cable percussion boreholes extended from rockhead using rotary coring methods;
- Nine window sample holes;
- Seven trial pits;
- Four trial trenches;
- Four observation pits along the viaduct retaining wall;
- Standard penetration tests, hand shear vane, hand penetrometer, TRL cone penetrometer, mexeprobe testing, photo-ionisation detector, and in-situ water quality determinations for a number of parameters;
- Infiltration tests in selected boreholes,
- Geotechnical and chemical sampling and testing,
- Gas, groundwater and inclinometer instrumentation;
- groundwater and surface water monitoring, sampling and quality testing; and
- A groundwater and soil-gas monitoring programme from 42 locations, including installations from previous phases of ground investigation.

The 2022 monitoring programme commenced on 26th May and at the time of writing, five of the six proposed monitoring visits have been completed. During this monitoring programme, groundwater samples were recovered for laboratory analysis on two separate occasions.

3.5 Summary of the 2019, 2021 and 2022 Ground Investigations

3.5.1 Exploratory holes

A summary of the fieldwork undertaken in 2019, 2021 and 2022 within each of the site areas is presented in Table 2.

Table 2: Ground investigation summary

Ground investigation	Site area	Exploratory hole type*	No.	Min depth (mbgl)	Max depth (mbgl)
2019	Red Bank Plateau	CP	5	7.8	15.0
		TP	11	1.8	4.5
	Red Bank Terrace	CP	3	4.3	11.3
		TP	4	3	3.7
	St Catherine's Wood	TP	2	3.8	4.5
		WS	3	3.9	5.5
2021	Red Bank Plateau	CP	5	6.8	16.1
		CP+RC	4	9.3	19.6
		TP	17	0.6	4.5
		WS	11	0.8	8.2
	Red Bank Terrace	CP	4	1.2	5.0
		CP+RC	1	11.5	11.5
		TP	1	4.6	4.6
	St Catherine's Wood	CP	1	16.5	16.5
		CP+RC	1	24.0	24.0
		TP	5	0.9	4.5
		WS	5	0.4	5.2
2022	Red Bank Plateau	CP	8	8.5	17.3
		TP	6	3.0	3.0
		WS	3	6.0	8.0
		OP	4	0.2	0.4
	Red Bank Terrace	CP	5	4.5	12.5
		TP	1	2.8	2.8
	St Catherine's Wood	CP	5	6.0	15.1
		RC	2	11.5	16.0
		TP	4	0.6	2.5
		WS	5	3.0	6.7

* CP = cable percussion borehole, TP = trial pit, WS = window sampler, RC = rotary coring, OP = observation pit.

3.5.2 Supplementary boreholes

Supplementary boreholes were instructed during the field works in response to conditions encountered:

- BH326, BH327 and BH328 were drilled around BH304 to further delineate cohesive made ground deposits.
- BH301B, BH301C and BH301D were drilled around BH301A to further delineate hydrocarbons discovered in the original borehole.
- BH311B and BH312A were drilled in the former Creamline Dairies site to replace original monitoring installations that were damaged during demolition works.

3.5.3 Monitoring installations

A total of 45 monitoring installations were installed as part of the 2019, 2021 and 2022 ground investigations. A summary of the monitoring installations is presented in Table 3 and their locations are shown in Drawing 02.

Table 3: Borehole installations provided during the 2019, 2021 and 2022 ground investigations

Borehole ID		Site area	Ground Level (mOD)	Response Zone depth (mbgl)		Response Zone Stratum
				Top	Base	
2019	BH101	Red Bank Plateau	43.4	1.0	5.0	Made ground
	BH102	Red Bank Plateau	42.9	1.9	6.7	Made ground/glacial till
	BH103	Red Bank Plateau	42.6	1.0	3.5	Made ground
	BH104	Red Bank Plateau	41.6	1.8	9.2	Made ground
	BH105	Red Bank Plateau	40.7	3.0	9.5	Glacial till
	BH106	Red Bank Terrace	40.7	2.0	10.0	Made ground/glacial till
	BH112	Red Bank Terrace	32.3	0.5	4.0	Made ground/weathered Chester Pebble Beds
2021	BH201	Red Bank Plateau	43.4	3.0	5.0	Bedrock (mudstone)
	BH202	Red Bank Plateau	42.7	4.0	9.0	Glacial till
	BH203	St Catherine's Wood	41.9	18.0	24.0	Collyhurst Sandstone
	BH204	St Catherine's Wood	43.3	1.5	10.0	Made ground/possible made ground
	BH205	Red Bank Plateau	42.6	4.8	10.8	Manchester Marl
	BH206	Red Bank Plateau	42.7	2.0	6.0	Made ground
	BH207	Red Bank Plateau	41.6	1.5	15.5	Made ground
	BH208	Red Bank Plateau	40.7	3.0	13.0	Made ground
	BH209	Red Bank Plateau	41.2	11.0	17.0	Manchester Marl
	BH210	Red Bank Plateau	40.5	14.0	19.6	Chester Pebble Beds
	BH211A	Red Bank Plateau	40.4	5.0	10.5	Made ground
	BH212	Red Bank Terrace	30.4	5.5	9.0	Chester Pebble Beds
	BH213	Red Bank Terrace	31.9	1.5	3.0	Made ground
	BH214A	Red Bank Terrace	30.0	3.0	4.0	Glacial till/alluvium
	WS201B	Red Bank Plateau	43.6	0.5	1.3	Made ground
	WS207	Red Bank Plateau	41.9	0.9	4.9	Made ground
	WS210	Red Bank Plateau	40.9	1.5	2.5	Made ground
	WS212	St Catherine's Wood	39.9	0.5	2.5	Made ground
2022	BH301	St Catherine's Wood	41.9	0.0	10.0	Inclinometer
	BH302	St Catherine's Wood	42.8	0.0	10.0	Inclinometer
	BH303	Red Bank Plateau	42.3	8.5	11.0	Alluvium
	BH304	Red Bank Plateau	41.2	5.0	10.0	Made ground
	BH305	Red Bank Plateau	39.8	1.0	10.0	Made ground
	BH306	Red Bank Terrace	31.5	3.9	5.6	Made ground
	BH307	Red Bank Terrace	30.6	0.5	2.5	Made ground

Borehole ID		Site area	Ground Level (mOD)	Response Zone depth (mbgl)		Response Zone Stratum
				Top	Base	
	BH309	St Catherine's Wood	30.5	7.0	11.5	Chester Pebble Beds
	BH310	St Catherine's Wood	32.6	8.0	16.0	Collyhurst Sandstone
	BH311*	Red Bank Plateau	46.2	9.0	16.0	Glacial till
	BH312*	Red Bank Plateau	45.6	0.5	4.0	Made ground
	BH313	Red Bank Plateau	39.8	3.0	8.0	Glacial till
	BH314	Red Bank Terrace	40.5	9.5	12.0	Alluvium (possible infill to reservoir) and Solid Strata
	BH315	St Catherine's Wood	39.3	9.0	12.5	Alluvium
	BH320	St Catherine's Wood	34.3	3.5	4.2	Made ground/alluvium
	BH321	St Catherine's Wood	34.2	0.5	4.5	Made ground
	BH322	St Catherine's Wood	32.5	5.4	5.8	Alluvium
	BH323	St Catherine's Wood	30.2	0.5	1.7	Made ground
	BH324	Red Bank Plateau	30.0	13.1	14.8	Alluvium
	BH325	Red Bank Terrace	41.0	0.5	3.5	Made ground

* - after installation, these boreholes were lost during demolition works to the former Creamline Dairies site. They were redrilled as BH311A and BH312B.

3.5.4 Groundwater and ground gas monitoring

Following completion of ground investigation, gas and groundwater monitoring was undertaken to establish groundwater levels and ground gas conditions. Monitoring records are presented in the relevant factual reports and the results of monitoring are described below.

3.5.5 Inclinometers

Two inclinometers were installed in BH301 and BH302 in the north-east part of St Catherine's Wood, to allow for long term monitoring of the existing P&P slope.

3.6 Field observations

3.6.1 The former gasworks area

As noted in the desk study report [1] historical maps published between 1906 and 1964 indicate the presence of a 'gasworks' on the top of the Red Bank Plateau (Figure 7a). By 1985 the gasworks appears to have been demolished and a new structure has been constructed. This later structure has subsequently been demolished (Figure 7b).

The footprint of the former gasworks area (the main building and ancillary features, including tanks) is shown on Figure 8 (blue outline) together with the relevant exploratory hole locations. This feature had been targeted during earlier phases of ground investigation, particularly the 2021 GI and a number of exploratory holes in this area identified visual and olfactory evidence for contamination consisting of:

- hydrocarbon odours (BH203, TP204 to TP206A - oily sheens were noted on perched groundwater in this area).
- Deposits of metallic blue sand (TP204 to TP206A - Table 4).

It was considered that this contamination could indicate the presence of gasworks waste. An obstruction was also identified in this area (TP206 - Table 6).

In addition to boreholes, three trial trenches were advanced during the 2022 GI in the area of the former gasworks, to further investigate ground conditions in this area of the site. These investigations were constrained by the presence of a mature tree and other dense areas of vegetation, particularly in the area of former tanks (Figure 8). Detailed trial trench records and a series of photographs are presented in the contractor's factual report [10].

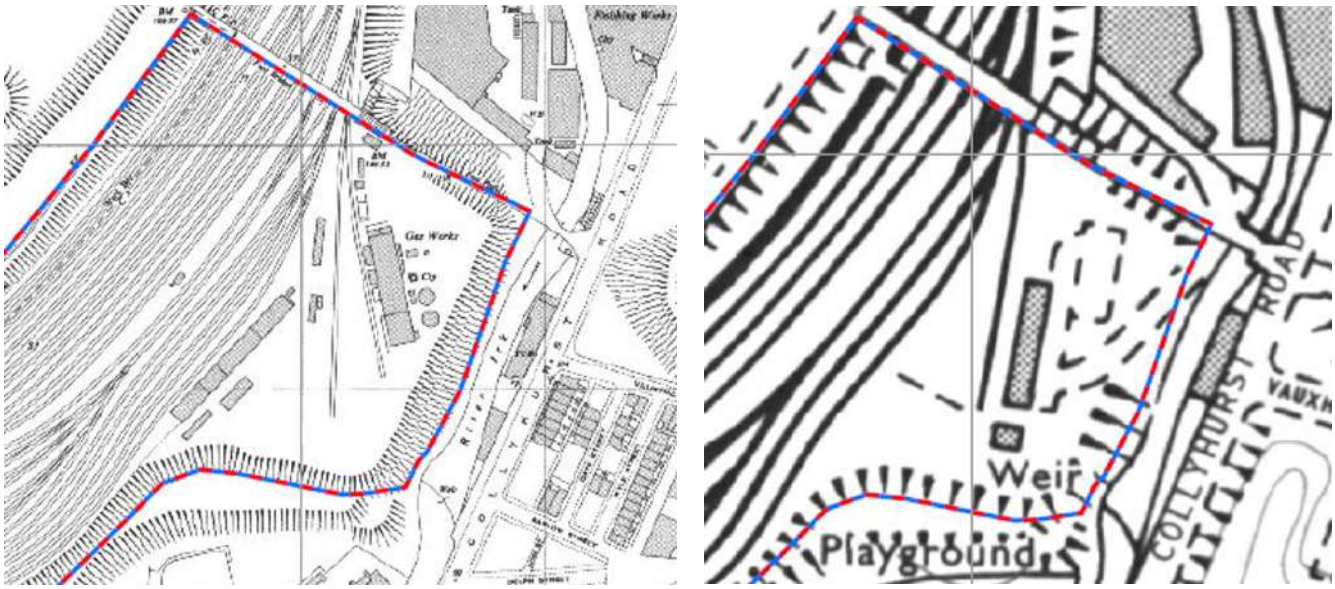


Figure 7: a (left) Extract from the 1952 OS map showing the Gasworks. b (right) showing the same site area on the 1985 map.

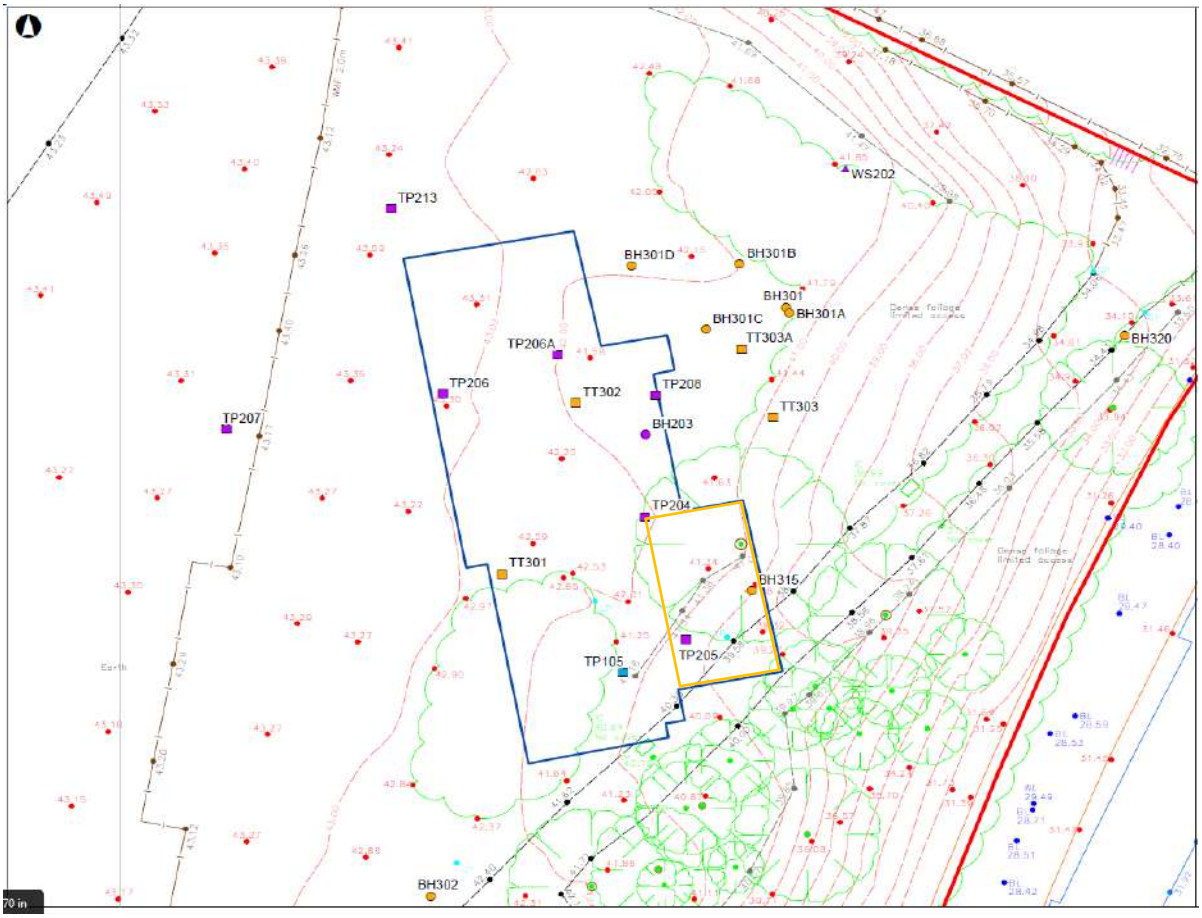


Figure 8: GI locations in the area of the former gasworks. The area of former tanks is outlined in orange

The remains of masonry footings, and concrete slabs were encountered in the trial trenches (Figure 9 and Table 6). These are interpreted as the remains of the former gasworks buildings and extend to a maximum recorded depth of 2.65m bgl. Further excavation (to the base of the masonry) was not possible due to rapid influx of perched water into the trail trench excavations.



Figure 9: The remains of masonry footings in the gasworks area.

At shallow depths, many of the excavations encountered a layer or layers of limestone sub-base material. It is considered likely that this sub-base was placed following the demolition of the gasworks to act as a hardstanding layer (Figure 10).

During the excavation in TT302 a metal vessel, partly filled with oil, was identified (Figure 10). Oil had escaped from this vessel and was evident in adjacent soils and groundwater.



Figure 10: TT302 excavations after the removal of the oil-filled metal vessel.

3.6.2 Infilled Meander bend on the River Irk

Historical maps [1] suggest that a former meander on the River Irk was infilled during an early stage of the construction of the Red Bank Plateau (i.e. prior to 1891). It is likely that the fill materials will have been placed over alluvial soils within the river channel.

A number of exploratory holes from the 2021 and 2022 GI, targeted the recorded position of the infilled meander (Drawing 09). Given that this feature pre-dated the construction of the Red Bank Plateau, it was anticipated to be at depth and could only, therefore be investigated via boreholes. No clear evidence for the meander was encountered in BH203, BH204, BH301 or BH302, however both BH315 and BH320 encountered soils that have been interpreted as alluvium.

In BH315, over 4m of alluvial material was encountered underlying the made ground. No visual or olfactory evidence for contamination was encountered in these soils. In BH320, a 2.45m thick deposit of soil at the base of the exploratory hole has been interpreted as possible alluvium. This material has been described on the borehole record as "Yellowish light brown frequently stained black silty slightly gravelly fine to coarse SAND. Strong hydrocarbon odour noted." The evidence for dark staining and hydrocarbon odours suggests that these alluvial soils have been impacted by contaminants.

3.6.3 Infilled former mill race

A former mill race is shown on historical maps (Figure 4), which suggest that the northern and eastern stretches of this artificial watercourse were infilled at an early stage of the construction of the Red Bank Plateau (i.e. infilled by 1891). However, the south-western stretches of the mill race appear to not to have been infilled until c. 1906. When the mill race was infilled, it is likely that the fill materials will have been placed over relatively minor deposits of alluvium or other sediments that had accumulated during the operational life of the mill race.

BH207, BH303, BH304 and BH306 all targeted the mill race (Drawing 09). In each of these boreholes, made ground was found to extend to greater depth than in adjacent boreholes (Drawing 05C and 07A). These locally deeper areas of made ground are considered to largely confirm the infilled mill race alignment as shown on historical maps.

3.6.4 Infilled former reservoirs

Two former industrial reservoirs are shown on historic maps dating from 1848 to 1906 (Figure 4). The map dated 1922 appears to indicate that by that time both these reservoirs were buried beneath the made ground of the Red Bank Plateau. When the reservoirs were infilled, it is likely that the fill materials will have been placed over material that had accumulated during the operational life of the reservoirs. Depending on the nature of the industries that had been in operation during that time, these accumulations may contain contamination. Given that these infilled historical features pre-dated the construction of the Red Bank Plateau, they were anticipated to be at depth and could only, therefore be investigated via boreholes (Drawing 09).

BH210 in the northern reservoir found no evidence for accumulations of sediment towards the base of the made ground that could be interpreted as infill to the reservoir. BH211A and BH314 in the southern reservoir both encountered layers of dark coloured silts and clays with a significant granular component and strong hydrocarbon odours at the base of the made ground. This material was 0.4m thick in BH211A and 1.1m thick in BH314 and is interpreted as an accumulation of sediment in the base of this southern reservoir.

3.6.5 Visual and olfactory evidence of contamination

A summary of visual and olfactory evidence for contamination identified during the formation of exploratory holes is presented in Table 4.

Table 4: Summary of visual and olfactory evidence of contamination encountered during the ground investigations

Location ID*	Site area	Evidence of contamination	Sample taken for laboratory analysis (Y/N)
Site wide			
TP101	Red Bank Plateau	Slight hydrocarbon odour at 0.8 – 0.9mbgl	N
TP120	Red Bank Terrace	Strong hydrocarbon odour at 0.7 – 1.8mbgl	Y
BH203	St Catherine's Wood	Moderate hydrocarbon odour at 5.5 – 7.5mbgl	Y
BH207	Red Bank Plateau	Moderate hydrocarbon odour at 13 – 15.7mbgl	Y
TP216	Red Bank Plateau	Mild hydrocarbon odour at 1.1 – 1.2mbgl	N
BH306	Red Bank Terrace	Strong hydrocarbon odour at 1.8 – 3.9mbgl	Y
BH310	St Catherine's Wood	Weak hydrocarbon odour at 3.9 – 5.55mbgl	Y
BH321	St Catherine's Wood	Strong hydrocarbon odour at 4.4 – 5.6mbgl. Weak putrid odour at 4.85 – 5.6mbgl	Y
BH322	St Catherine's Wood	Weak hydrocarbon odour at 0.9 – 3.25mbgl	Y
BH327	Red Bank Plateau	Weak hydrocarbon odour at 7.4 – 8.0mbgl	Y
Former gasworks area			
BH103	Red Bank Plateau	Hydrocarbon odour at 0.1 – 1.3mbgl	Y
BH203	St Catherine's Wood	Moderate hydrocarbon odour at 5.5 – 7.5mbgl	Y
TP204	St Catherine's Wood	Metallic dark blue sand with strong hydrocarbon odour at 2.4 - 4.5mbgl, sheen on groundwater	Y
TP205	St Catherine's Wood	Metallic dark blue sand and gravel with strong hydrocarbon odour at 1.9 – 4.2mbgl, sheen on groundwater	Y
TP206A	St Catherine's Wood	Metallic dark blue sand with strong hydrocarbon odour at 1.7 – 4.5mbgl, sheen on groundwater	Tested for asbestos presence only
TP213	Red Bank Plateau	Strong hydrocarbon odour at 1.2 – 4.5mbgl	Y
TT302	St Catherine's Wood	Oils and hydrocarbons at 0.7 – 1.1mbgl	N
Former meander bend			
BH320	St Catherine's Wood	Weak hydrocarbon odour at 0.3 – 3.0mbgl. Strong hydrocarbon odour at 3 – 6.7mbgl	Y
Former reservoirs			
BH211A	Red Bank Plateau	Strong hydrocarbon odour at 10.1 – 10.5mbgl	Y
BH314	Red Bank Terrace	Strong hydrocarbon odour at 8.2 – 9.3mbgl	N
Former carriage shed			
TP202B	Red Bank Plateau	Oily groundwater within foundations at 0.1 – 0.6mbgl	Y
TP202C	Red Bank Plateau	Oily groundwater within foundations at 0.5 – 1.2mbgl	Y

*- 100 series exploratory holes were advanced during the 2019 GI , 200 series exploratory holes were advanced during the 2021 GI, with 300 series exploratory holes advanced during the 2022 GI.

3.6.6 Evidence for volatile contaminants

Throughout the 2021 and 2022 ground investigations, photoionisation detectors (PIDs) were used during the formation of exploratory holes to screen soils for evidence of potentially volatile contaminants (principally hydrocarbons). The occurrences of elevated PID readings are summarised in Table 5.

Table 5: Summary of elevated PID readings taken during the formation of exploratory holes*

Location ID*	Date	Depth (m bgl)	PID reading (ppm)
Generally across the site			
BH310	04/04/2022	5.2	137.9
BH310	04/04/2022	4.2	132.4
BH322	10/04/2022	3.0	27.9
Former gasworks area			
TT301	21/02/2022	2.45	35.7
TT302	17/02/2022	0.3	938.6
TT302	17/02/2022	0.8	246.0
BH301C	10/04/2022	3.8	10.6
Former meander bend			
No elevated PID readings			
Former mill race			
BH303	15/02/2022	2.0	11.7
BH306	25/03/2022	0.5	17.2
BH306	25/03/2022	1.0	16.9
Former reservoirs			
No elevated PID readings			

*- all PID readings < 10ppm excluded

The highest PID readings were recorded in TT302 and TT303 in the former gasworks area.

3.6.7 Evidence for obstructions

A summary of obstructions encountered in exploratory holes is presented in Table 6.

A number of surface obstructions were observed during the fieldworks which were not recorded in exploratory holes. These included two rail turntables shown on Drawing 04 but other features are present across the site which include a number of drainage chambers and shallow concrete slabs located in the North Western side of Red Bank Plateau. Please refer to the site clearance drawing (VNIF-ARP-00-YYY-DR-G-0013) which shows obstructions needed to be removed during pre-construction works.

Table 6: Summary of evidence of below ground obstructions encountered during the ground investigations

Location ID*	Site area	Evidence of below ground obstructions
Generally across the site		
BH308	Red Bank Terrace	Terminated due to void (brick lined chamber) from 1.6 –7.4mbgl
WS103	St Catherine's Wood	Terminated due to concrete obstruction at 3.9mbgl
Former gasworks area		
TP206	St Catherine's Wood	Terminated due to concrete foundations at 0.9mbgl
TT301	St Catherine's Wood	Exposed brick wall at 1.4 – 2.7mbgl
TT302	St Catherine's Wood	Steel vessel and concrete slab at 0.7 – 1.1mbgl

Location ID*	Site area	Evidence of below ground obstructions
TT303	St Catherine's Wood	Steel pipe at 0.3mbgl
TT303A	St Catherine's Wood	Terminated due to concrete slab at 1.1mbgl
Former carriage shed		
TP102	Red Bank Plateau	Terminated due to cobble obstruction at 4.1mbgl
TP202	Red Bank Plateau	Terminated due to brick foundations at 1.4mbgl
TP202A	Red Bank Plateau	Terminated due to brick foundations at 1.2mbgl
TP202B	Red Bank Plateau	Terminated due to brick foundations at 0.6mbgl
TP202C	Red Bank Plateau	Terminated due to brick foundations at 1.2mbgl

*- 100 series exploratory holes were advanced during the 2019 GI , 200 series exploratory holes were advanced during the 2021 GI, with 300 series exploratory holes advanced during the 2022 GI.

3.6.8 Voids

A void was discovered in BH308 at the base of the Red Bank Terrace area **(**Drawing 01). This was determined to be a shallow, relatively small diameter brick lined shaft, which is approximately 7.4m deep penetrating into the Chester Pebble Bed formation. For information on drainage shafts and pipe networks discovered during the 2022 GI, please refer to the site clearance drawing (VNIF-ARP-00-YYY-DR-G-0013) which shows drainage chambers needed to be removed.



Figure 11: the void encountered in BH308

3.6.9 Viaduct Retaining wall

Four observation pits were initially planned to locate the north-eastern extent of the parapet of the Viaduct Retaining Wall (Figure 3) along the Red Bank Plateau. The pits uncovered the top of the wall at approximately 0.5m to 1mbgl. The end of the parapet wall was located approximately 100m to the north-east of the southern boundary of the Creamline Dairies site (Plot RB12). At this point a perpendicular structure was identified which extended towards the river for approximately 20m and is considered to be part of Retaining Wall 2 (Figure 3). The site clearance drawing (VNIF-ARP-00-YYY-DR-G-0013) shows the extent of the buried retaining wall.



Figure 12: Masonry structure identified in observation pits

3.6.10 Stockpiles

Aerial photographs of the site dated April 2020, indicate a number of stockpiles were present (indicated by the blue markers on Figure 13, top). By 2021 however, these former stockpiles had been largely removed or had been graded flat across the surface of the site (Figure 13, bottom).

To establish whether the residual material from these former stockpiles presented a potential contamination risk, eleven soil samples (SoilSamp 01-11) were taken from the sub-surface in each of these areas during the 2022 GI**.**



Figure 13: aerial photographs of the site from April 2020 (top) and from 2021 (bottom)

4. Ground conditions

The findings from the 2019, 2021 and 2022 ground investigations have been used to develop stratigraphic models, as summarised below. Selected geological cross sections are presented as Drawing 05, Drawing 06 and Drawing 07.

4.1 Ground conditions

The stratigraphy in the three site areas is summarised Table 7 and discussed in greater detail below. The bedrock stratigraphy varies across the site, refer to the relevant solid strata sections below and Drawing 10 for information on the different types of bedrock and levels seen across the site.

Table 7: Summary of the stratigraphy encountered at the site

Site area	Stratum	Top of stratum mbgl (mOD)	Thickness range (m)
Red Bank Plateau	Made ground	Ground level (39.3 to 46.2)	0.8 to 15.7
	Glacial till	0.8 to 13.2 (42.4 to 27.5)	1.1 to 12.4 (in Creamline Dairies)
	Bedrock	4.0 to 16.8 (29.4 to 37.6)	Unproven
Red Bank Terrace	Made ground	Ground level (30.0 to 44.0)	1.8 (at toe of slope area) to 9.3
	Glacial till	3.2 to 9.3 (27.5 to 31.2)	1.4 to 3.9
	Bedrock	1.8 to 10.8 (41.4 to 29.9)	Unproven
St Catherine's Wood	Made ground	Ground level (30.2 to 43.4)	3.0 (at toe of slope area) to 16.5
	Alluvium	3.0 to 10.5 (29.2 to 28.8)	Unproven
	Bedrock	1.9 to 16.4 (28.3 to 25.5)	Unproven

4.2 Red Bank Plateau stratigraphy

An interpretation of the ground conditions encountered in Red Bank Plateau is discussed below and illustrated on geological cross sections in Drawings 05A to 05E.

4.2.1 Made ground

To the north-western side of the site, along location of the proposed plateau road, the made ground is typically between 1m and 4m thick. Generally comprising sandy gravel (of concrete, brick, tarmac, plastic, glass, clinker, sandstone, ceramic, rubber) with low cobble content. A 2m thick cohesive zone (approximately 1 to 3mbgl) was encountered locally and generally described as a sandy slightly gravelly clay, soft to firm becoming stiff at depth. The approximate extent of the cohesive made ground in this area of the site is illustrated on Drawing 05A and Drawing 08.

The thickness of made ground across the Red Bank Plateau increases to approximately 16m at the crest of the plateau, overlooking the River Irk. The generally granular made ground is typically described as a loose granular ash fill, which can be seen through the full strata of the made ground overlying the bedrock as seen in Drawing 05B. However, there is the presence of some localised pockets of cohesive material at shallower depths (2 to 3mbgl) along the Plateau (BH104), with more extensive generally cohesive made ground in the vicinity of Plot RB03. As indicated on Drawing 05C and Drawing 08, a cohesive made ground layer has been interpreted between 4m and 7mbgl (BH304 and BH304A). In addition, there is a thin cohesive layer at the bedrock boundary which is likely to be associated with the historical mill race (BH304).

In a number of exploratory holes that targeted in-filled features such as the former course of the River Irk, the former mill race and the most northerly of the former reservoirs, the base of made ground was found to be deeper than adjacent boreholes.

4.2.2 Glacial till

Generally, glacial till deposits are limited to the north and north-western part of the Red Bank Plateau area (generally in the areas of the proposed plateau road). These glacial till deposits were encountered at relatively shallow depths, underlying the made ground.

The glacial till is generally cohesive, being described on the exploratory hole records as soft to firm, becoming stiff at depth slightly sandy gravelly clay.

A number of granular lenses have been recorded within the glacial till, generally in the plateau road part of the site. These are described as medium dense to very dense brown slightly clayey sandy gravel and gravelly sand, with a low to moderate cobble content and gravel of sandstone, limestone and mudstone.

4.2.3 Solid strata

Solid strata were encountered in the Red Bank Plateau area as follows, and presented on Drawing 10:

- Chester Pebble Beds - Generally described as extremely weak to weak dark orange brown slightly clayey coarse grained weathered sandstone.
- Manchester Marls - Generally described as a reddish brown extremely weak thinly laminated clayey mudstone (weathered).
- Collyhurst Sandstone - Limited in extent, encountered in one location (BH101). Described as extremely weak to very weak fine to coarse grained sandstone with lenses of red marl.

4.3 Red Bank Terrace stratigraphy

The stratigraphy of the Red Bank Terrace area is summarised below and in Drawing 06.

4.3.1 Made ground

Made ground in this part of the site reaches up to 10m thick, with the thickness of the material largely influenced by the sloping surface topography.

Generally, the made ground can be described as a red brown and grey sandy gravel and gravelly sand with gravels of brick, concrete sandstone and clinker. A low to moderate cobble content is also noted. In some areas of the Red Bank Terrace area, predominantly cohesive made ground was encountered, described as to soft firm sandy gravelly clay containing gravels of brick, coal clinker and sandstone. These cohesive made ground deposits were generally not laterally extensive.

At the base of the made ground, BH211A and BH314 encountered up to 1.1m of dark coloured material with strong hydrocarbon odours, which has been interpreted as sediment/infill to the southern of two former reservoirs (Figure 4). Sections of the former mill race are also present adjacent to the current channel of the River Irk. Made ground may be locally thicker within these features.

4.3.2 Glacial till

The glacial till deposits in the Red Bank Terrace areas are thickest in the north and west and become thin/absent towards the river in the south and east. Glacial till can be described as medium dense brown, slightly clayey gravelly sand with gravels of mudstone, limestone and sandstone.

4.3.3 Solid strata

The solid stratum encountered has been interpreted as Chester Pebble Beds Formation and was typically described as extremely weak to weak weathered red brown fine grained sandstone. Generally recovered as sand and gravel due to weathering.

4.4 St Catherine's Wood stratigraphy

The stratigraphy of the St Catherine's Wood area is summarised below and on Drawing 07A and 07B.

4.4.1 Made ground

The made ground encountered across much of this area was predominantly granular (Drawing 07A) and is generally described as sandy clay, gravelly sand and sandy gravel. Gravel recorded include roadstone, slag, ash, brick, concrete, clinker, coal, mudstone, sandstone, limestone and cinder. The maximum depth of made ground recorded in this area was 16.5m (BH204) within the infilled former meander bend. Although the lower 1m of soils encountered in this borehole have been interpreted as made ground because of the presence of brick fragments, these soils may be alluvium into which some of the overlying made ground deposits have penetrated.

Within the northeast part of the St Catherine's Wood area (the P&P slope area), a greater proportion of cohesive made ground was identified (Drawing 07B and Drawing 08), with up to 12m of generally cohesive made ground encountered in BH302. This predominantly cohesive made ground is variable but generally described as loose medium dense clayey sandy gravel and soft to stiff sandy gravelly clay. With gravels of concrete, brick, mudstone, cinder, macadam, slag, sandstone and coal.

Sections of the former meander bend of the River Irk and the former mill race are lie beneath the made ground in the St Catherine's Wood area (Figure 4). BH320, encountered a layer of dark coloured made ground with strong hydrocarbon odours, at depths of between 3.0m and 4.25m, which has been interpreted as infill to the meander bend.

4.4.2 Alluvium

Only limited deposits of alluvium have been encountered within the site, generally associated with the River Irk and its former meander bend. Generally, this material can be described as soft brown very sandy clay and loose brown slightly clayey sand.

In BH315, over 4m of alluvial material was encountered underlying the made ground. Alluvium may have been encountered between 4.25m and 6.7m in BH320. The soils at this depth were light brown frequently stained black silty slightly gravelly fine to coarse SAND and a strong hydrocarbon odour was noted. The source of the dark discolouration and hydrocarbon odours within these alluvial soils may be the overlying made ground.

4.4.3 Solid strata

Solid strata were encountered as follows:

- Collyhurst Sandstone - The Collyhurst Sandstone was encountered in the north-eastern part of St Catherine's Wood at the P&P slope location (BH301, BH309 and BH310). It is generally described as extremely weak red brown coarse grained distinctly weathered sandstone.
- Manchester Marls - The Manchester Marl was encountered in the central part of St Catherine's Wood (BH303) and eastern part of Red Bank Plateau (BH304, BH324). It is generally described as a reddish brown extremely weak thinly laminated clayey mudstone (weathered).
- Chester Pebble Beds - The Chester Pebble Bed formation was encountered at three locations in the Red Bank Plateau and Red Bank Terrace area (BH213, BH314, BH305 and BH306) and was typically described as extremely weak fine to coarse grained red brown sandstone. Highly weathered occasionally recovered as loose to medium dense sand.

Rockhead level varies between approximately 25mOD and 38mOD. Generally, the rock head level is at higher elevation at the north-western side of the site near to the Honey Street retaining wall, and then gradually decreases in elevation towards the river. Within the Red Bank Plateau area, the depth to bedrock is between 10m to 16m, and towards the river edge, the depth to bedrock is between 2m and 4mbgl.

The distribution of bedrock type encountered during fieldwork differs to that shown on the BGS 1:50,000 bedrock map (Drawing 10).

4.5 Distribution and classification of made ground

The Red Bank Plateau was created in the late 1800s to form a level area for railway sidings and is likely to have been constructed using locally-sourced materials available at that time. To facilitate the construction of the Red Bank Plateau, a number of pre-existing features including a meander bend on the River Irk, a former mill race and two former reservoirs were infilled (Figure 4). It is evident from Table 7 that significant deposits of made ground have been encountered across all areas of the site. Made ground was generally thickest towards the crest of the slopes that mark the south-eastern limit of Red Bank Plateau. The thickest made ground encountered during ground investigation was 15.6m in BH304 which is located within the area of the historically infilled mill race (Drawing 05C).

The relevant exploratory hole records indicate that the made ground is predominantly granular in nature however, in three areas of the site, zones of predominantly cohesive made ground have been identified:

- The north-western side of the site, along plateau road.
- The north-eastern section of the Plateau Slope (within Plot RB03).
- The P&P Slope area (adjacent to Plot RB05b)

The interpreted extent of these areas of predominantly cohesive made ground are shown in plan on Drawing 08.

In order to further assess the nature of the made ground, secondary soils categories have been applied to the made ground deposits that have been encountered. The secondary soil categories adopted for this assessment are as follows:

- MG-G – soils described on the exploratory hole records as predominantly granular.
- MG-CO – soils described on the exploratory hole records as predominantly cohesive.

For all the made ground present across the site, the BS5930 soil description data presented in the contractors' factual reports has been used to make a global assessment of the proportions of made ground falling into these two broad categories. The results of this assessment indicate that:

- In the Red Bank Plateau, the made ground appears to be predominantly granular with approximately 75% of the made ground soils encountered during GI categorised as MG-G.
- For the Red Bank Terrace area, the available data suggests approximately 84% of the made ground soils encountered during the GI are predominantly granular and can therefore, be categorised as MG-G.
- For St Catherine's Wood, the available GI data suggests that 69% of the made ground soils encountered during GI are predominantly granular and can therefore, be categorised as MG-G.

The predominantly granular made ground however, still contains fines which may impact material behaviour. The assessment of relative proportions of the various made ground materials identified above is approximate and is based on the ground conditions encountered in the relevant exploratory holes. The data presented here therefore, is for general guidance purposes only.

Soil classification in accordance with the Specification for Highway Works (SHW) is covered in Section 8.3.2.

4.6 Distribution and classification of natural material

Natural materials including glacial till and alluvium have been encountered within the site. Generally, the alluvial deposits are encountered in boreholes adjacent to the river channel (i.e. largely within the St Catherine's Wood area - Drawing 07A and 07B). Historical records suggests that a former meander bend of the River Irk extended beneath parts of the Red Bank Plateau (Figure 4). Alluvial soils have been encountered with this former meander bend.

It has been inferred that prior to placement of made ground, the glacial till deposits were eroded from the area surrounding the river channel. Glacial till deposits however, remain in the more elevated areas of the valley, away from the current River Irk channel**.** The distribution of glacial till deposits tends to be along the

north and north-western areas of the site, largely in agreement with the distribution shown on the BGS map (Drawing 08). Drawing 05A presents a long section which shows the shallow glacial till deposits running along the general alignment of the plateau road. Drawing 05D and 05E present cross-sections through Creamline Dairies, Red Bank Plateau and the Red Bank Terrace area and illustrates the manner in which the glacial deposits become thinner and then absent towards the south and south-east, towards the river.

In order to assess the distribution of natural soils further, secondary soils categories have been applied to the natural deposits encountered during the various phases of GI. These secondary soil categories have been determined on the basis of the relevant BS5930 [11] soil descriptions. The secondary soil categories adopted for this assessment are as follows:

- GTD-G – glacial till soils described on the exploratory hole records as predominantly granular;
- GTD-CO – glacial till soils described on the exploratory hole records as predominantly cohesive;
- ALV-G – alluvial soils described on the exploratory hole records as predominantly granular;
- ALV-CO – alluvial soils described on the exploratory hole records as predominantly cohesive.

A global assessment of the proportions of granular and cohesive natural soils has been undertaken based on the BS5930 soil descriptions taken from the exploratory hole records for each area of the site. The results of this global assessment are as follows:

– Approximately half the glacial till soils encountered in the Red Bank Plateau area, are predominantly granular (GTD-G). No alluvium was encountered in this area.

– Limited glacial till was encountered in the Red Bank Terrace area. These deposits appear to be predominantly granular with approximately 70% of the glacial till encountered during GI categorised as GTD-G.

– Due to erosion by the River Irk, glacial till deposits were not encountered in the St Catherine's Wood area. A fairly consistent band of alluvium was encountered however, associated with the river (including the historical meander channel). The alluvium deposits appear to be predominantly granular with approximately 78% encountered during GI categorised as ALV-G.

4.7 Groundwater encountered during ground investigation

During the ground investigation, groundwater was encountered at varying depths. The groundwater strike details recorded during the 2019, 2021 and 2022 ground investigation are listed below in Table 8 and groundwater strikes from selected exploratory holes are shown on the geological sections shown on Drawing 05 to Drawing 07.

Table 8: Summary of groundwater encountered during the 2019, 2021 and 2022 GIs

GI Phase	Intrusive location ID	Site area	Groundwater strike depth (mbgl)	Groundwater strike elevation (mAOD)	Strata
2019	BH103	Red Bank Plateau	0.6	42.0	Made ground
	TP104	Red Bank Plateau	3.5	39.6	Alluvium
	TP105	St Catherine's Wood	2.0	39.1	Made ground
	TP107	Red Bank Plateau	0.6	42.2	Made ground
	TP110	Red Bank Plateau	1.8	39.6	Made ground
	TP112	Red Bank Plateau	2.8	38.0	Made ground
	WS101	St Catherine's Wood	4.2	28.0	Alluvium
	WS105A	Red Bank Terrace	4.2	25.2	Alluvium

GI Phase	Intrusive location ID	Site area	Groundwater strike depth (mbgl)	Groundwater strike elevation (mAOD)	Strata
2021	BH206	Red Bank Plateau	1.3	41.4	Made ground
	BH207	Red Bank Plateau	13.0	28.6	Made ground
	BH212	Red Bank Terrace	5.6	24.8	Made ground
	TP201	Red Bank Plateau	2.4	40.6	Glacial till
	TP202	Red Bank Plateau	0.6	42.3	Made ground
	TP202A	Red Bank Plateau	0.6	42.4	Made ground
	TP202B	Red Bank Plateau	0.5	42.2	Made ground
	TP202C	Red Bank Plateau	0.4	42.2	Made ground
	TP203	Red Bank Plateau	2.9	40.4	Made ground
	TP204	St Catherine's Wood	2.9	39.2	Made ground
	TP205	St Catherine's Wood	2.7	38.3	Made ground
	TP206A	St Catherine's Wood	3.5	38.5	Made ground
	TP207	Red Bank Plateau	2.7	40.6	Made ground
	TP208	St Catherine's Wood	3.0	39.0	Made ground
	TP210	Red Bank Plateau	3.7	39.4	Glacial till
	TP211	Red Bank Plateau	0.6	41.1	Made ground
	TP212	St Catherine's Wood	3.4	38.6	Made ground
	TP213	Red Bank Plateau	2.7	40.6	Made ground
	TP216	Red Bank Plateau	0.8	40.0	Made ground
	TP217	Red Bank Plateau	1.2	40.1	Made ground
	TP219	Red Bank Terrace	3.0	27.7	Made ground
	WS201	Red Bank Plateau	1.1	42.4	Made ground
	WS204	St Catherine's Wood	4.3	28.5	Made ground/ Alluvium
	WS205	Red Bank Plateau	5.0	37.1	Made ground
	WS206	St Catherine's Wood	4.1	28.5	Made ground/ Alluvium
	WS207	Red Bank Plateau	0.6	41.3	Made ground
	WS210	Red Bank Plateau	2.8	38.1	Made ground
2022	BH301	St Catherine's Wood	11.0	30.9	Made ground
	BH301A	St Catherine's Wood	5.0	36.6	Made ground
	BH301B	St Catherine's Wood	12.5	29.5	Made ground
	BH302	St Catherine's Wood	11.0	31.8	Made ground

GI Phase	Intrusive location ID	Site area	Groundwater strike depth (mbgl)	Groundwater strike elevation (mAOD)	Strata
	BH308	Red Bank Terrace	3.1	27.1	Made ground
	BH310	St Catherine's Wood	4.7	27.9	Alluvium
	BH320	St Catherine's Wood	4.6	29.7	Made ground
	BH322	St Catherine's Wood	4.9	27.6	Alluvium
	TT301	St Catherine's Wood	2.0	40.6	Made ground
	TP308	Red Bank Plateau	2.9	38.2	Glacial till
	TP309	Red Bank Plateau	0.7	42.2	Made ground
	TP310	Red Bank Plateau	2.9	39.9	Glacial till

4.7.1 Groundwater monitoring

Groundwater monitoring installations are present in 43 exploratory holes advanced during the 2019, 2021 and 2022 ground investigations. These installations consist of a 50mm standpipe, with a perforated section placed within a gravel screen and sealed (top and bottom) with bentonite. The position of the perforated response zones was selected to target specific aspects of the ground conditions encountered in each installation. During the 2022 GI, the serviceability of all monitoring installations from earlier phases of GI, was established by the GI contractor. A summary of the groundwater monitoring infrastructure and the available monitoring results is presented in Table 9.

Table 9: Summary of groundwater monitoring

GI	Location	Complete rounds	Response Zone (mbgl)	Response zone stratum	Groundwater depth range (mbgl)	Groundwater Level (mOD)
2019	BH101	9	1.0 to 5.0	Made ground	2019: 4.81 to 4.95 2022: Dry	2019: 38.43 to 38.57 2022: Dry
	BH102	9	1.9 to 6.7	Made ground/ glacial till	2019: Dry 2022: 3.00 to 5.71	Dry 2022: 37.22 to 39.93
	BH103	8	1.0 to 3.5	Made ground	2019: 0.91 to 3.40 2022: 1.83 to 2.57	2019: 39.17 to 41.66 2022: 40.00 to 40.74
	BH104	2	1.8 to 9.2	Made ground	2019: 8.10 to 8.95 Unable to locate in 2022	2019: 33.49 to 32.64
	BH105	7	3.0 to 9.5	Glacial till	2019: 4.52 2022: 3.67 to 4.52	2019: 36.15 2022: 36.15 to 37.00
	BH106	4	2.0 to 10.0	Made ground/ glacial till	2019: Dry 2022: 3.64	2019: Dry 2022: 37.03
	BH112	7	0.5 to 4.0	Made ground/ Bedrock (Chester Pebble Beds)	2019: Dry 2022: Dry	2019: Dry 2022: Dry
2021	BH201	12	3.0 to 5.0	Bedrock (Manchester Marl)	2021: 4.95 to 5.46 2022: 4.70 to 5.94	2021: 37.94 to 38.45 2022: 37.46 to 38.70

GI	Location	Complete rounds	Response Zone (mbgl)	Response zone stratum	Groundwater depth range (mbgl)	Groundwater Level (mOD)
	BH202	12	4.0 to 9.0	Glacial till	2021: 4.19 to 4.94 2022: 3.36 to 5.56	2021: 37.72 to 38.47 2022: 37.10 to 39.30
	BH203	12	18.0 to 24.0	Bedrock (Collyhurst Sandstone)	2021: 12.00 to 12.17 2022: 12.07 to 12.32	2021: 29.89 to 29.72 2022: 29.57 to 29.82
	BH204	12	1.5 to 10.0	Made ground/ possible made ground	2021: 2.29 to 2.67 2022: 2.75 to 2.96	2021: 40.61 to 40.99 2022: 40.32 to 40.53
	BH205	12	4.8 to 10.8	Bedrock (Manchester Marl)	2021: 5.68 to 6.11 2022: 5.70 to 6.42	2021: 36.47 to 36.9 2022: 36.16 to 36.88
	BH206	11	2.0 to 6.0	Glacial till	2021: 2.71 to 3.10 2022: 3.15 to 3.28	2021: 39.59 to 39.98 2022: 39.41 to 39.54
	BH207	12	1.5 to 15.5	Made ground	2021: 12.25 to 12.8 2022: 12.70 to 12.78	2021: 28.84 to 29.39 2022: 28.86 to 28.94
	BH208	12	3.0 to 13.0	Made ground	2021: 11.8 to 12.01 2022: 11.90 to 11.99	2021: 28.65 to 28.86 2022: 28.67 to 28.76
	BH209	12	11.0 to 17.0	Bedrock (Chester Pebble Beds)	2021: 12.39 to 12.47 2022: 10.50 to 12.50	2021: 28.74 to 28.82 2022: 28.71 to 30.71
	BH210	13	14.0 to 19.6	Bedrock (Chester Pebble Beds)	2021: 7.63 to 11.21 2022: 8.33 to 11.00	2021: 29.25 to 32.82 2022: 29.45 to 32.12
	BH211A	9	5.0 to 10.5	Made ground	2021: 6.86 to 7.73 2022: 7.59 to 8.36	2021: 32.71 to 33.58 2022: 32.08 to 32.85
	BH212	11	5.5 to 9.0	Bedrock (Chester Pebble Beds)	2021: 3.00 to 3.35 2022: 3.05 to 3.52	2021: 27.03 2022: 26.86 to 27.33
	BH213	11	1.5 to 3.0	Made ground	2021: 2.99 to 3.10 2022: Dry	2021: 28.84 to 28.95 2022: Dry
	BH214A	9	3.0 to 4.0	Glacial till	2021: 3.24 to 3.38 2022: 3.40	2021: 26.65 to 26.79 2022: 26.63
	WS201B	11	0.5 to 1.3	Made ground	2021: 0.78 to 1.17 2022: Dry	2021: 42.38 to 42.77 2022: Dry
	WS207	10	0.9 to 4.9	Made ground	2021: 0.27 to 1.22 2022: 0.30 to 0.36	2021: 40.69 to 41.64 2022: 41.35 to 41.46
	WS210	9	1.5 to 2.5	Made ground	2021: 2.2 to 2.54 Unable to locate in 2022	2021: 38.34 to 38.68
	WS212	6	0.5 to 2.5	Made ground	2021: Dry Unable to locate in 2022	2021: Dry
2022	BH303	8	8.5 to 11.0	Alluvium	7.77 to 8.10	34.20 to 34.53

GI	Location	Complete rounds	Response Zone (mbgl)	Response zone stratum	Groundwater depth range (mbgl)	Groundwater Level (mOD)
	BH304	8	5.0 to 10.0	Made ground	8.06 *Dry for all but one visit	33.12
	BH305	8	1.0 to 10.0	Made ground	Dry	Dry
	BH306	7	3.9 to 5.6	Alluvium	3.90 to 4.80	26.65 to 27.55
	BH307	8	0.5 to 2.5	Made ground	3.40 *Dry for all but one visit	27.21
	BH309	5	7.0 to 11.5	Bedrock (Chester Pebble Beds)	2.69 to 2.85	27.65 to 27.81
	BH310	7	8.0 to 16.0	Bedrock (Collyhurst Sandstone)	4.15 to 4.26	28.34 to 28.45
	BH311	2	9.0 to 16.0	Glacial till	8.47 to 8.50	47.70 to 37.73
	BH312	5	0.5 to 4.0	Made ground	3.85 *Dry for all but one visit	41.75
	BH313	8	3.0 to 8.0	Glacial till	3.72 *Dry for all but one visit	36.09
	BH314	8	9.5 to 12.0	Glacial till/Bedrock (Chester Pebble Beds)	6.27 to 10.20	30.30 to 34.23
	BH315	8	9.0 to 12.5	Alluvium	6.80 to 9.98	29.28 to 32.46
	BH320	7	3.5 to 4.2	Alluvium	Dry	Dry
	BH321	7	0.5 to 4.5	Made ground	3.28 to 4.40	29.8 to 30.92
	BH322	7	5.4 to 5.8	Alluvium	3.50 to 3.99	28.5 to 28.99
	BH323	7	0.5 to 1.7	Made ground	Dry	Dry
	BH324	4	13.1 to 14.8	Alluvium	11.78 to 11.90	29.10 to 29.22
	BH325	8	0.5 to 3.5	Made ground	3.22 to 3.45	26.50 to 26.73

Observed groundwater levels in the made ground are shown on Drawing 11. Observed groundwater levels in the bedrock are shown in Drawing 12. Hydraulic gradients for the Chester Pebble Beds and Collyhurst Sandstone have been calculated as 0.034 and 0.032 respectively [36].

The main groundwater-bearing units within the site are the Collyhurst Sandstone in the east and the Chester Pebble Beds sandstone in the west (Figure 6). These two units are likely to be hydraulically separated from each other by the Manchester Marl which is present in the central part of the site. As summarised in Table 9, recorded groundwater levels were:

- Manchester Marls - in the order of 36mOD to 39mOD.
- Collyhurst Sandstone – in the order of 30mOD.
- Chester Pebble Beds – in the order of 27m to 32mOD.

River levels measured during the 2021 topographical survey were between 29.5mOD in the east (where the Collyhurst Sandstone is present) and 26.6mOD in the west (where the Chester Pebble Beds are present). The

similarity between groundwater and river levels suggests that the groundwater in the sandstone is discharging into the River Irk.

Groundwater was also observed in the made ground, glacial till and alluvium during drilling and in subsequent water monitoring. The made ground is considered likely to contain a perched but discontinuous body of groundwater in the Red Bank Plateau area, separated from the underlying bedrock aquifers by the glacial till, where present (Figure 5). The groundwater monitoring data in the glacial till suggests that there is not a continuous water body within these deposits, but that any groundwater is present within granular layers/lenses.

In the lower-lying Red Bank Terrace, and the lower part of St Catherine's Wood, where glacial till is absent, made ground has been observed to directly overlie alluvium or bedrock, and groundwater in these strata is likely to be in continuity with the river unless it is perched on relic features such as old floor slabs or cellars.

5. Material properties

A summary of the geotechnical in-situ and laboratory testing undertaken in each of the three development areas is presented below. The data is presented based on the strata type and site area. This section also includes an assessment of geotechnical material properties, interpreted from data plots provided in Appendix B. Derived geotechnical parameters are also presented in Appendix B.

5.1 Classification

5.1.1 Particle size distribution (PSD)

231 PSD tests have been undertaken in total across all three phases of GI. Charts 1A to 1F (Appendix B) show PSD results for made ground and natural materials.

The assessment of the PSD data is summarised in Table 10.

Table 10: Particle size distribution

Area	Stratum	No. of samples	PSD fraction	Typical description
Red Bank Plateau	Made ground granular	69	Sand and gravel content is between 74 & 94% (6 – 26% fines)	Well graded silty gravely medium to coarse SAND
	Made ground cohesive	29	Fines content is between 39 & 89% Clay is 11 to 31%	Well graded sandy gravelly CLAY
	Glacial till granular	21	Sand and gravel content is between 47 & 98%	Poorly graded gravelly SAND
	Glacial till cohesive	13	Fines content is between 50 & 91% Clay is 15 to 30%	Poorly graded sandy SILT
Red Bank Terrace	Made ground granular	27	Sand and gravel content is between 70 & 90%	Well graded Silty gravely medium to coarse SAND
	Made ground cohesive	6	Fines content is between 18 & 35% Clay is 2 to 6%	Well graded sandy gravelly CLAY
	Alluvium cohesive	1	Fines content is 35% Clay is 2%	Poorly graded silty gravelly CLAY
	Glacial till granular	8	Sand and gravel content between 76 & 97%	Poorly graded silty gravelly fine SAND
St Catherine's Wood	Made ground granular	24	Sand and gravel content is between 39-93%	Well graded silty gravely medium to coarse SAND
	Made ground cohesive	26	Fines content is between 30-96% Clay is 4 to 34%	Well graded sandy gravelly CLAY
	Alluvium granular	4	Sand and gravel content is between 77-91%	Poorly graded silty gravelly fine SAND

PSD data for specific areas of proposed excavation and implications for material re-use are assessed further in Section 8.3.2 below.

5.1.2 Atterberg limits and plasticity index

For made ground, plasticity was plotted against liquid limit on Casagrande A-line plots (Charts 2A and 2C) which suggest the made ground to be low to intermediate plasticity based on a total of 77 tests.

An assessment relating to natural moisture content with plasticity range was undertaken on cohesive samples.

Charts 2D, 2F and 2H show plots of natural moisture content and plasticity range (PL-LL) against depth for made ground at Red Bank Plateau, Red Bank Terrace and St Catherine's Wood. The charts show that the natural moisture content of the cohesive made ground for the upper 3 to 6m is typically closer to and in some instances greater than the plastic limit. Below this level, the natural moisture content is concentrated towards the centre of the plastic range.

For natural material (Charts 2E, 2G, and 2I), the natural moisture content is typically concentrated more towards the plastic limit for the upper 5m below ground level beneath the Red Bank Plateau. Below 5m, the natural moisture content is concentrated towards the centre of the plastic and liquid limit range.

Charts 2J to 2L show individual plots of plasticity index against depth for made ground across all 3 site areas. Within the Red Bank Plateau and Red Bank Terrace areas the data suggests some increased plasticity with depth, however data from St Catherine's Wood suggests more variation through the made ground.

A summary of the averaged Atterberg limit results and average natural moisture content data is presented in Table 11. Careful consideration of the data has been undertaken to remove outliers.

Table 11: Plastic limit (PL), Liquid limit (LL), Plasticity Index (PI) and moisture content (MC) for cohesive material.

Site area	Stratum	No. of samples	Plasticity index	Average PL (%)	Average LL (%)	Average MC (%)	Soil classification
Red Bank Plateau	Made ground	41	5 - 24	18	33	21	Low to intermediate plasticity clay soil
	Glacial till	24	6 - 26	18	33	21	Low to intermediate plasticity clay soil
Red Bank Terrace	Made ground	5	10 - 16	18	32	22	Low to intermediate plasticity clay soil
	Alluvium	2	8 - 9	18	27	44	Low plasticity clay soil
St Catherine's Wood	Made ground	31	6 - 22	18	33	21	Low to intermediate plasticity clay soil
	Alluvium	1	13	16	29	18	Low plasticity clay soil

5.1.3 Bulk unit weight

No specific laboratory tests were carried out to determine material unit weights. Values of unit weight have been obtained from other laboratory testing and estimated based on SPT N values and relationships provided by Look (2007) [14]. The estimated bulk unit weights are summarised in Table 12.

Table 12: Estimated unit weights based on correlation with SPT N results and estimations from Look (2007).

Stratum	Red Bank Plateau Bulk unit weight (kN/m^3)	Red Bank Terrace Bulk unit weight (kN/m^3)	St Catherine's Wood Bulk unit weight (kN/m^3)
Made ground	17-20	17-20	17-20
Glacial till	19-21	19-21	17-20
Alluvium	-	-	15-18

5.2 In-situ tests

In-situ testing information has been interpretated for trends and these values have been used to determine material properties. A summary of SPT N results is presented in Table 13. SPT N has been plotted against depth and elevation for each of the site areas in Appendix B, Charts 3A to 3L. A small number of test results exceeded N of 40 within the made ground material, these values were not considered to be representative of the material, such outliers were not used to correlate material parameters. The following observations describe typical ranges excluding outliers.

Made ground

For the made ground (Charts 3B, 3F and 3J), there is wide scatter (N = 0 to 36) near to the surface for all site areas, below 4mbgl values are lower, from N = 2 to 25.

At Red Bank Plateau, granular made ground has an average N value of 10. The cohesive made ground has an average N value of 7. Red Bank Terrace shows a similar pattern, but with less extensive cohesive material in this area (Charts 3B and 3F).

Within St Catherine's Wood, the granular made ground in the upper 6m has values from N = 2 to 30. The cohesive made ground around P&P slope area exhibits increasing N with depth, from an average of N = 5 at 2mbgl to approximately N = 20 at 12mbgl (Chart 3J).

While average N values are consistent (between N = 7 and N = 12) in the made ground across all three site areas, the material is highly variable. Placement will have been uncontrolled without compaction, therefore the average results should only be used for guidance.

Glacial till

Glacial till deposits have a typical range N = 10 to N = 15 for depths to approximately 6mbgl in the Red Bank Plateau area (Chart 3D). There is a general increase of N from 20 to 40 from 6mbgl to 14mbgl.

SPT data related to glacial till for Red Bank Terrace (Chart 3H), indicates an increase in SPT N values from N = 10 to 40 between 3mbgl and 10mbgl, with no scatter near the surface as seen in Red Bank Plateau.

The average N values in the glacial till vary between N = 14 and 23 suggesting more variance which is a likely result of weathering profiles.

Alluvium

In the St Catherine's Wood area (Chart 3L), low SPT N values were obtained in the alluvium, with an average of N = 7 between 3 and 5m bgl indicating loose soil.

Summary

The SPT data is summarised in Table 13.

Table 13: Summary of SPT N results

Area	Stratum	No. of tests	No. of outliers	Lower bound N	Upper bound N	Averaged N_{60}
Red Bank Plateau	Cohesive made ground	42	2	2	26	7
	Granular made ground	78	3	2	27	10
	Cohesive glacial till	19	7	12	53	21
	Granular glacial till	38	8	8	50	16

Area	Stratum	No. of tests	No. of outliers	Lower bound N	Upper bound N	Averaged N_{60}
Red Bank Terrace	Cohesive made ground	13	2	6	27	10
	Granular made ground	36	3	2	27	9
	Cohesive glacial till	2	0	12	15	14
	Granular glacial till	8	1	12	43	21
St Catherine's Wood	Cohesive made ground	39	3	2	25	12
	Granular made ground	37	1	2	28	10
	Granular glacial till	3	0	19	28	23
	Granular alluvium	18	2	2	11	7

5.3 Strength

The strength of the materials has been estimated and derived from in-situ and laboratory tests where appropriate in terms of total and effective stress.

5.3.1 Total stress - undrained shear strength

The following tests were done to establish undrained shear strength: laboratory triaxial tests, hand shear vanes on ex-situ samples, and correlations to SPT N values.

Seventeen quick undrained triaxial (UU) tests were undertaken on undisturbed samples of made ground and glacial till across the site in accordance with BS1377:7 as presented in Chart 4A.

Undrained shear strength was also determined on ex-situ samples using Hand Shear vane tests. A total of 109 hand shear vane (HSV) tests were recorded as having been undertaken across the site.

Undrained shear strength of the cohesive made ground and glacial till has been derived from SPT using an f_1 value of 5, where c_u = SPT N * f_1 (Stroud [15] and CIRIA 143 [16]). Charts 4B, 4D and 4F illustrate both laboratory triaxial test and correlated undrained shear strength from SPT N against depth for made ground. Charts 4C and 4E illustrate both laboratory triaxial test and correlated undrained shear strength from SPT N against the top of the glacial till stratum which will help to suggest any evidence of weathering profiles. The averaged SPT N values presented in Table 13 were used to derive undrained shear strength as summarised in Table 14.

Table 14: Undrained Shear Strength parameters

Site area	Stratum	No of tests	Outliers	C_U range (kPa)	C_U average (kPa)	Test type
Red Bank Plateau	Made ground	7	2	21 to 38	35	UU
		48	-	28 to 130	58	HSV
		42	2	10 to 130	35	SPT N
	Glacial till	3	1	175 to 200	190	UU
		15	-	36 to 130	72	HSV
		19	7	60 to 250	100	SPT N
Red Bank Terrace	Made ground	2	1	12	12	UU
		3	-	20 to 22	21	HSV
		13	2	30 to 135	50	SPT N
	Glacial till	1	1	24	24	UU
		2	0	60 to 75	70	SPT N
St Catherine's Wood	Made ground	5	1	13 to 91	51	UU
		43	-	17 to 111	48	HSV
		39	3	10 to 125	60	SPT N

Made ground

For made ground in the Red Bank Plateau area, the undrained shear strength values are fairly consistent across the different tests. There is a scatter in the results for the upper 4m which is related to the variable SPT N results as a result of local variable compaction rates across the area.

Cohesive made ground was not encountered as frequently in the Red Bank Terrace area and where it was identified, triaxial testing established that undrained shear strength was generally lower than in samples from the Red Bank Plateau area. The Red Bank Terrace has been subject to filling operations more recently, than other parts of the site. In addition, the made ground in the Terrace area is considered to be less confined which may explain the lower strengths identified by laboratory testing.

The cohesive made ground in the P&P slope area exhibits an increase in strength from approximately 20 to 90 kPa with depth. Here, the cohesive made ground is up to 12m thick. The triaxial results are consistent with the SPT N derived strength values.

Direct shear strength results from the triaxial tests and ex-situ hand shear vane tests have been plotted against depth for made ground (Figure 14**).** As expected for made ground, the data generally shows a wide scatter in the upper 2m, especially near the surface which is consistent with the varied SPT N values recorded at shallow depths.

The hand shear vane and SPT N derived values provide a much broader range of results in line with the variability of the made ground. However, the SPT N derived c_u values are very similar to the laboratory derived triaxial results, except for Red Bank Terrace which shows a much lower laboratory result. This is based on one lab result which should be taken with caution. Therefore, the SPT N derived c_u is deemed to be appropriate for the chosen parameter selection.

Glacial till

There are two quick undrained triaxial tests results from samples of glacial till recovered from the Red Bank Plateau area relating to the Creamline dairies car park. The triaxial data suggests undrained shear strength to be in the magnitude of 180 to 200 kPa which is supported by the extrapolated N values at the same depth along with similarly high hand shear vane results (BH311 and BH312).

In the Red Bank Plateau area, as shown on Chart 4C, The upper 1m shows large variance in strength which differentiates weathered and unweathered profiles. The high strength values greater than 200 kPa represent specific zones which have not been exposed to weathering therefore retaining its strength. The lower strength values (50-60 kPa) represent a weathered surface. This band of weaker strength relates to BH101 and BH201 located in the area of the historical carriage shed (Figure 4) which could suggest exposure of the surface during the construction. The unweathered profile below 1mbgl increases in strength from 100 to 200 kPa with depth.

In Red Bank Terrace, there is no weathered surface, but the overall strength of the glacial till is weaker in comparison to Red Bank Plateau averaging 50 kPa.

Direct shear strength results from the triaxial tests and ex-situ hand shear vane tests were also plotted against depth for the glacial till (Figure 15). There is a scatter in the results from 1 to 2mbgl (the top 1m of the glacial till), associated with the weathering profiles as identified by other testing.

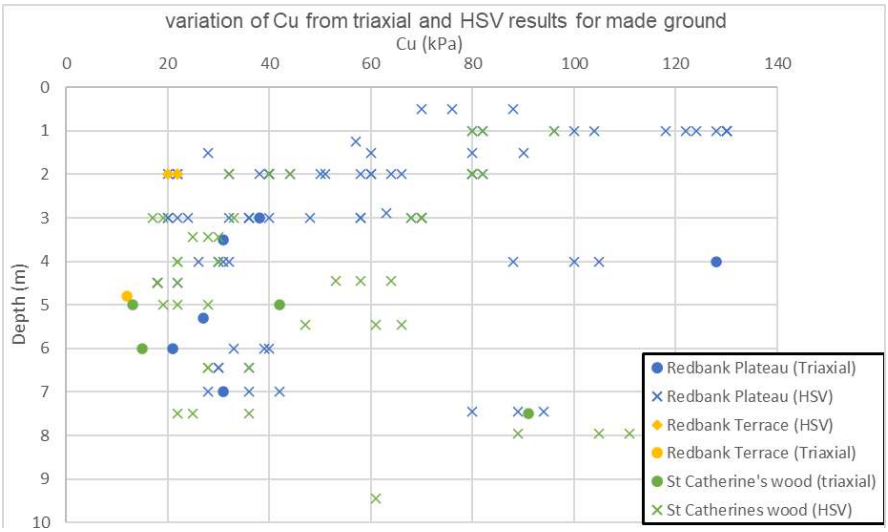


Figure 14: Variation of cu derived from hand shear vanes and undrained triaxial tests with depth (made ground)

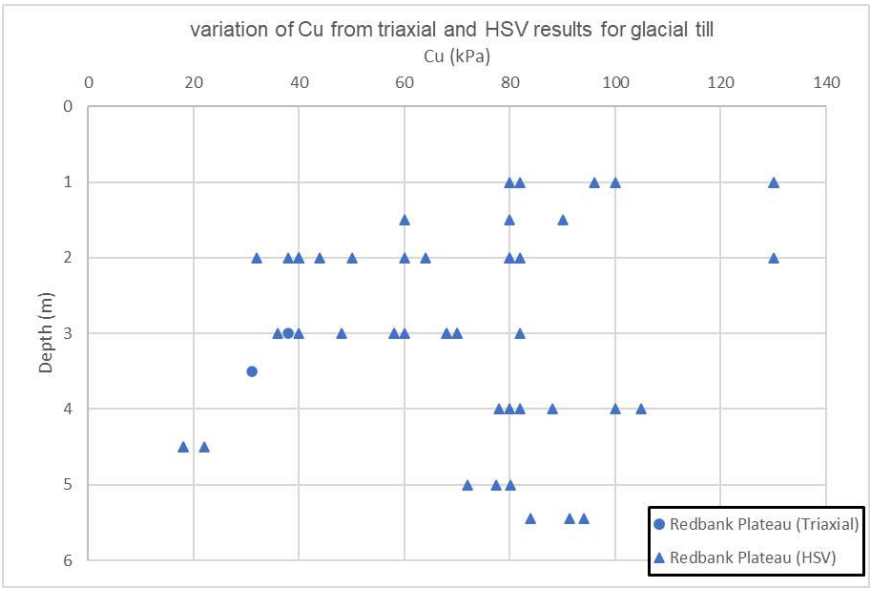


Figure 15: Variation of cu derived from hand shear vanes and undrained triaxial tests with depth (glacial till)

5.3.2 Effective strength parameters

Direct single stage and multi-stage consolidated undrained triaxial tests with measurement of porewater pressure were undertaken on samples of cohesive made ground in the St Catherine's Wood area (P&P slope). The single stage tests were undertaken on suites of samples of similar materials tested at different confining pressures. The data was presented on an s' t' plot to assess any trends. A representative trend line has been

overlaid on Chart 5 to illustrate the derived parameters for cohesive made ground, friction angle of 27° and effective cohesion of 3kpa.

For granular deposits angle of friction was derived from SPT N based on Wolff 1989 [17].

For fine grained soils, effective angle of shearing resistance has been estimated from plasticity index (PI) values presented in Table 11 using the Terzaghi and Peck relationship outlined in BS8002 [13]. There is wide range in PI and therefore internal angle of friction. An average PI of 15 produces an approximate internal angle of friction of 27° which is consistent with the laboratory derived parameter for the cohesive strata in St Catherine's Wood. Derived angle of internal friction values are presented in Table 15.

Table 15: Estimated angle of internal friction

Area	Stratum	Averaged SPT N_{60}	Plasticity Index	Angle of internal friction (degrees)
Red Bank Plateau	Cohesive made ground	-	5 to 24	25 to 33
	Granular made ground	10		30
	Cohesive glacial till	-	6 to 26	24 to 32
	Granular glacial till	16		31
Red Bank Terrace	Cohesive made ground	-	10 to 16	27 to 30
	Granular made ground	9		30
	Cohesive alluvium	-	8 to 9	30 to 31
	Granular glacial till	21		33
St Catherine's Wood	Cohesive made ground	-	6 to 22	25 to 32
	Granular made ground	10		30
	Granular glacial till	23		34
	Granular alluvium	7		29

5.3.3 Stiffness

The drained Young's Modulus E' for granular material has been estimated using 1500*SPT N, taken from CIRIA 143 [16].

Undrained Young Modulus (E_U) parameters for cohesive soils was derived from 600*Cu based on correlations between PI, OCR and Cu taken from Jamiolkowski et al.,1979 [18]. The correlation factor of 0.73 has been used based on recommendations from Ciria 143 to convert to drained parameters [16]. The undrained shear strength values (Cu) used are based on the averaged SPT N values as presented in Table 14, the OCR is assumed to be 1. These are approximate stiffness values intended for general use, as stiffness is strain dependent. The geotechnical engineer should use specific stiffness values relatable to the intended construction. The derived stiffness parameters are presented in Table 16.

Table 16: Estimated Stiffness parameters

Area	Stratum	Average SPT N60	Average Cu	E' (kPa)	E_U (kPa)
Red Bank Plateau	Cohesive made ground	-	35	15 000	21000
	Granular made ground	10	-	15 000	-
	Cohesive glacial till	-	100	44 000	60 000
	Granular glacial till.	16	-	24 000	-
Red Bank Terrace	Cohesive made ground	-	50	20 000	30 000
	Granular made ground	9	-	14 000	-

Area	Stratum	Average SPT N60	Average Cu	E' (kPa)	E_U (kPa)
	Cohesive glacial till	-	70	30 000	42 000
	Granular glacial till	21	-	30 000	-
St Catherine's Wood	Cohesive made ground	-	60	26 000	36 000
	Granular made ground	10	-	15 000	-
	Granular glacial till	23	-	34 000	-
	Granular alluvium	7	-	11 000	-

5.3.4 Rock strength

The uniaxial compressive strength of the bedrock has been measured directly by a limited number of laboratory tests and derived from point load index test results related to previous ground investigations. As shown in Appendix B, Charts 6A to 6B, point load test results on axial samples of bedrock were used to establish UCS values using published conversion factors of k(a) = 15 for sandstone and k(a) = 8 for mudstone [19] have been used to derive approximate strength values.

Twelve UCS and point load tests were specified on samples of Collyhurst Sandstone recovered from BH309 and BH310, advanced during the 2022 GI. Due to their high degree of weathering however, all samples were found to be unsuitable for testing.

Based on the limited testing data, the strata encountered can generally be classed as a moderately weak rock. Uniaxial compressive strength tests are typically carried out on higher quality samples which may act to exaggerate the rock strength when compared to data derived from point load tests.

Uniaxial compressive strengths measured directly and derived from point load tests are summarised in Table 17.

Table 17: Uniaxial compressive strength for the bedrock beneath the site

Derivation	Strata	No. of tests	UCS (MPa)
UCS from direct tests	Chester Pebble Beds	2	6.5 to 15.0
	Collyhurst Sandstone	1	1.4
UCS derived from point load index	Chester Pebble Beds	54	2.0 to 9.0
	Manchester Marls	61	2.0 to 3.5
	Collyhurst Sandstone	47	2.0 to 5.5

5.4 Compressibility

5.4.1 Laboratory consolidation test

The one-dimensional compressibility characteristics were derived from oedometer tests (BS 1377-5:1990 clause 3). Samples from BH101, BH110 and BH215 were loaded in increments from 50 to 400 kPa. Samples from BH102, BH104, BH202, BH203 and BH204 were loaded from 25 to 200 kPa. Test loads for the 2022 GI samples were based on the anticipated in-situ stress post construction.

The coefficient of compressibility (m_v) values at each test stage are provided in Table 18.

Table 18 Coefficient of compressibility (mv)

Material	Stress range	Min Mv	Max Mv	Average Mv
Made ground	50-100	0.14	0.66	0.36
	100-200	0.08	0.31	0.19
	200-400	0.06	0.11	0.09
Glacial Till deposits	50-100	0.03	0.32	0.14
	100-200	0.069	0.14	0.09
	200-300	0.04	0.12	0.07

As expected, for made ground, the results suggest high compressibility values. For glacial till, the variability in the Mv results is a response to the differences in weathering profiles. The presented values were not comparable to published data and other index correlations such as SPT. Oedometer test results are more reliable when pure clay samples are used. It is also expected that there would have been some degree of sample disturbance during the preparation which could exaggerate the consolidation.

5.5 California bearing ratio

Equivalent in-situ CBR values for the shallow made ground encountered across the site have been estimated from mexeprobe and dynamic cone penetrometer testing. CBR values for remoulded made ground material have been measured in laboratory CBR tests. The results are summarised below. When assessing this data, the following definitions have been used:

- **Sub-formation** - the surface exposed following site clearance and any excavation and prior to any filling operation.
- **Formation** - the surface of the ground after completion of any filling operation.

5.5.1 Mexeprobe testing

During the 2021 GI, the mexeprobe method was used to obtain an equivalent CBR in selected trial pits. The addition of two mexeprobe tests were undertaken in the trial trenches located in St Catherine's Wood during the 2022 GI. The tests were undertaken at a range of start depths from 0.2 to 0.8m bgl. The maximum depth the tests were completed to was 0.65m below the start depth. Table 19 presents a summary of test results obtained from the made ground, with the data plotted against depth on Figure 16**.**

Table 19: Determination of equivalent CBR % by mexeprobe testing

Site Area	Test locations (No.)	Tests (No.)	Failed tests (No.)	CBR Max (%)	CBR Min (%)	CBR Ave. (%)	Values <2.5% (No.)	Values 2.5-5% (No.)	Values 5-10% (No.)	Values 10-15% (No.)
St Red Bank Plateau	12	49	11	15.0	0.5	4.4	17	11	7	3
Red Bank Terrace	2	11	2	10.0	2.0	5.4	2	3	4	0
St Catherine's Wood	8	29	6	14.0	0.5	4.2	12	12	4	3

The results in Table 19 and Figure 16 indicate a range of equivalent CBR of 0.5 to 15% with an average CBR from all available tests of 4.7%. It is inferred that all failed tests were due to obstructions of large cobbles causing early termination.

5.5.2 Dynamic cone penetrometer testing

During the 2021 GI, the Dynamic Cone Penetrometer (DCP) was used to obtain equivalent CBR values at a number of selected trial pit locations. The results of DCP testing are summarised in Appendix B, Table 1 and Figure 16.

At depths of 500mm, 1000mm, 1500mm and 2000mm below ground level the average equivalent CBR values recorded are 10%, 14%, 11% and 12% respectively. Outlier results greater than 100% have been excluded from the data analysis. Values from the DCP tests show that the equivalent CBR of the made ground generally increases with depth, however it should be noted that at depth, several tests terminated early due to obstructions, so data from depth is relatively limited.

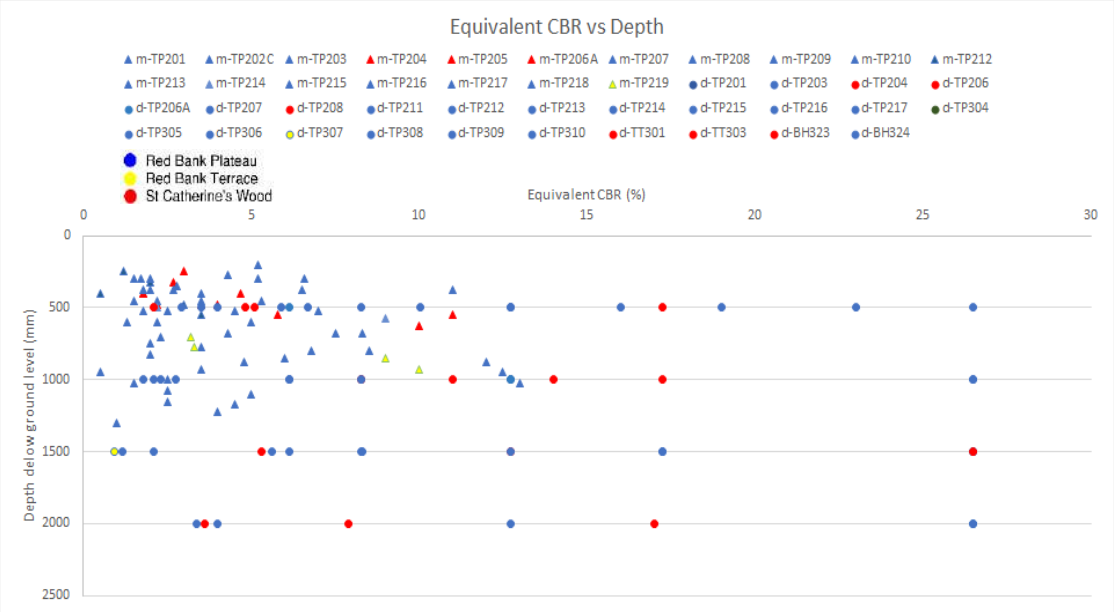


Figure 16: Equivalent CBR vs depth based on in-situ mexeprobe and DCP results

5.5.3 Laboratory CBR

During the 2019 and 2021 ground investigations, 32 laboratory CBR tests were completed on samples prepared by a variety of methods including 2.5kg compaction, 4.5kg compaction and vibrating hammer compaction. The tests were undertaken on samples obtained from depths ranging from 0.8 to 15m bgl. All samples were compacted at as-received moisture contents. A seating load of 10kPa was applied. During the 2022 GI, there were 12 remoulded CBR tests undertaken on samples obtained between ground level and 2m bgl. A surcharge of 4kPa was applied to each sample.

The full range of CBR values from all tests completed was 0.98% to 98.5%. As it is anticipated that only the top 2m of the site will be reworked, all results from tests on samples taken deeper than 2m have been discounted from this assessment.

Made ground

Twelve tests were undertaken on samples from less than 2mbgl with a seating load of less than 10kPa. All 12 were undertaken on samples recompacted using a 2.5kg compaction rammer resulting in a CBR range from 0.65% to 37%, with an average of 20%.

By inspection, on the basis of the laboratory testing that has been undertaken, it is anticipated that for suitable general granular fill recovered from made ground, placed and compacted in accordance with the SHW, a CBR value of 5% or greater at formation level can be assumed for pavement design.

Glacial till

Six tests on samples of shallow glacial till (<2mbgl) from Red Bank Plateau undertaken using a 2.5kg compaction rammer yielded results ranging from 1.5 to 56%, with an average of 29%.

5.5.4 Summary of CBR tests

Based on the in-situ DCP test results, it is considered that a CBR value of 5% can be assumed where formation is on in-situ made ground. However, CBR results less than 5% have been measured in some locations. These are likely to indicate soft spots which will need to be removed and recompacted before pavement construction.

In areas of engineered fill (using recovered, site-won general granular fill), a CBR value of 5% can be assumed at formation level for pavement design based on the 2.5kg compaction laboratory test results.

5.6 Moisture content/dry density relationship

Thirty-one laboratory compaction tests have been undertaken on samples taken up to a maximum of 4mbgl which accounts for any locally deeper excavation to remove certain obstructions for example. This includes test samples from the 2019, 2021 and 2022 GI results. Compaction curve data was assessed to determine the Moisture content (MC) range that would achieve 90% dry density (MDD) for general fill and 95% dry density (MDD) for structural fill. Table 20. presents this together with the optimum moisture content (OMC) and average natural moisture content. Outliers have been removed to present the typical trends.

Table 20: Summary of compaction test results

Site area	Stratum	No. of tests	2.5kg MDD (Mg/m^3)	2.5kg OMC (%)	4.5kg MDD (Mg/m^3)	4.5kg OMC (%)	Vibro MDD (Mg/m^3)	Vibro OMC (%)
Red Bank Plateau	Made ground (cohesive)	2	1.7	17	1.9	11		
	Made ground (granular)	12	1.2 to 1.8	13 to 18	1.3 to 1.6	13 to 18	1.7 to 1.8	10 to 13
	Glacial till	7	1.7 to 1.9	13 to 18	-	-	-	-
Red Bank Terrace	Made ground (cohesive)	No data						
	Made ground (granular)	5	1.7 to 2.0	10 to 16	1.1	7.8	-	-
	Glacial till	No data						
St Catherine's Wood	Made ground (cohesive)	2			1.8 to 1.9	12 to 14	-	-
	Made ground (granular)	3	1.8	15	2.0	10	-	-
	Glacial till	No data						

An analysis of the moisture content/dry density relationship for made ground has been carried out for the 2.5kg rammer tests (Appendix B, Charts 7A to 7T) and is summarised in Table 21. An interpretation of the test results has been undertaken to suggest allowable moisture content ranges that would satisfy requirements for structural and general fill material in accordance with SHW table 6/4 [12].

Only 2019 and 2021 GI compaction results had natural moisture content marked on the compaction curves. Of the 13 individual 2019/2021 test results presented in Appendix B, Charts 7A to 7T, 10 had natural moisture content within the range that is likely to be acceptable for material placed as class 1 general granular fill in accordance with the SHW. In three samples, natural moisture content was higher than the acceptable range. Typically, the natural moisture content of the material is very close to or at the upper limit of acceptability.

To assess the 2022 GI data related to the 2.5kg rammer tests in accordance with class 1 and 2 fill requirements (SHW) [12], the average natural moisture content from Table 21 is used to assess the current condition of the soil samples for reuse. Of the 7 individual test result, all 7 had natural moisture content within the range that is likely to be acceptable for material placed as class 1 general granular fill in accordance with the SHW.

The data indicates that in some instances the natural moisture content is above the likely upper limit of acceptability for general granular fill, indicating that some material is likely to require moisture control. For material to be placed as a structural backfill, where a higher standard of compaction is likely to be required, more conditioning by means of lime or drying is needed to reduce the moisture content is likely to be necessary.

Table 21: Summary of compaction test analysis

Area	MC for 90% mdd	MC for 95% mdd	OMC (%)	Average MC (%)
Red Bank Plateau	8 to 22	9 to 20	14 to 18	21
Red Bank Terrace	6 to 21	7 to 17	11 to 16	20
St Catherine's Wood	7 to 22	9 to 20	16	21

5.7 Permeability

A number of infiltration tests were undertaken in boreholes across the site to obtain data on the permeability of the granular and cohesive made ground. In addition, a number of infiltration tests were undertaken in areas of the site in which it may be possible to construct surface water soakaways in natural deposits. These infiltration tests were undertaken in the north-west of the site, where thin made ground overlies glacial till and towards the river edge around the base of St Catherine's Wood, where thin made ground overlies alluvium and solid strata. The results of permeability testing are summarised in Table 22.

Table 22: Permeability estimates from Infiltration test results

Area	Exploratory Hole ID	Stata	Response zone (m)	Permeability (m/s)	Permeability (m/day)
Red Bank Plateau	BH312	Cohesive Glacial till	4.0 – 5.0	4.69E-08	0.004
St Catherine's wood	BH310	Granular Alluvium	2.3 – 4.9	3.26E-05	3
	BH320	Granular made ground	3.5 – 4.2	2.10E-06	0.2
	BH321	Cohesive made ground	5.0 – 6.0	1.39E-07	0.01
	BH322	Cohesive Alluvium	5.4 – 5.8	7.53E-09	0.0007
	BH323	Granular made ground/marl	1.7 – 2.6	5.68E-08	0.005
	BH325	Cohesive made ground	1.5 – 3.5	3.35E-07	0.03

5.8 Concrete aggressivity

Contaminants such as sulphates and acidic conditions generally present a low risk to human health but can result in aggressive ground conditions that may result in the degradation of buried concrete. Current UK good practice requires the assessment of this potential risk and appropriate design of buried concrete in line with BRE Special Digest SD1 [20]. An assessment in line with this guidance is presented below, assuming a design life of greater than 100 years for any new below ground concrete structures.

The design sulphate (DS) and aggressive chemical environment for concrete (ACEC) classes were assessed assuming that the site was classified as a pyritic brownfield with static groundwater. Pyrite is commonly present in materials such as colliery spoil and is therefore expected to be present within the made ground. Given that most proposed concrete structures are to be in the shallow made ground above groundwater level, static groundwater conditions have been assumed. A summary of the assessment results is provided in Table 23 below.

The data presented in the table below indicates that for the design of buried concrete in made ground, a DC-3 (design chemical class) should be adopted based on DS-4 and corresponding AC-3s ground conditions. For the design of buried concrete in other strata, DC-1 and AC-1s conditions should be assumed. This assessment does not take account of the potential impact of hydrocarbon contamination on the setting and curing of concrete. The potential impacts of such contamination should be taken account of during the development of the remediation strategy for the site and in designing concrete mixes.

Table 23: Summary of aggressive ground testing related to design sulphate (DS) conditions

Strata	No. of samples	Characteristic pH	Characteristic sulphate (mg/l)	Design sulphate class	ACEC class*
Made ground	64	7.0	929.0	DS-4	AC-3s
Glacial till	4	8.2	210.0	DS-2	AC-1s
Alluvium	No data				
Chester Pebble Beds	2	8.1	31.7	DS-1	AC-1
Manchester Marl	5	8.2	36.9	DS-1	AC-1
Collyhurst Sandstone	1	8.5	14.5	DS-1	AC-1
*Assumes static groundwater					

6. Contamination assessment

6.1 Initial conceptual site model

6.1.1 Approach

A conceptual model describes the scenario in which the risks to human health and the environment posed by land contamination are assessed. It describes the ground and surface conditions, the proposed ground works and where appropriate, the final form of the development. In particular, the model identifies and describes the sources of the potential contamination, the behaviour of the contamination in environmental media such as soil and groundwater, surface water and air. It also identifies and characterises potential human health and environmental receptors, and plausible pathways.

The potential risks to human health and the environment have been considered in the context of a conceptual source-pathway-receptor model of the wider site area, identifying:

- The principal pollutant hazards associated with the site (the sources);
- The principal receptors at risk from the identified hazards; and
- The existence, or absence, of plausible pathways which may exist between the identified hazards and receptor.

For risks to be present, all three elements (source-pathway-receptor) of a potential contaminant pollutant linkage must be present.

6.1.2 Potential sources

The 2019 desk study [1] identified the primary potential contamination sources within the site as rail sidings (in Red Bank Plateau), historical works (across all site areas, including mills, dye works and chemical works) and gasworks and gasometers (in St Catherine's Wood). Potential sources external to the site include former gasometers in Travis Island, the Rochdale Road gasworks, the former Queens Road Tip (landfill) and Sand Street landfill.

The 2019 desk study included a review of potentially contaminating previous uses and a preliminary review of the findings of the 2019 GI across the wider site area. Table 24 has been adapted from the Arup desk study report and presents a summary of potential sources of contamination at the site based on the findings of both the desk-based review and the 2019 and 2021 GIs.

Elements of the 2022 GI were designed to provide more information on the former gasworks in St Catherine's Wood and further investigate the human health and controlled waters risks identified by the desk study. The rationale for the GI, which sets out the purpose of each exploratory hole, is presented in Appendix A.

Table 24: Potential sources of contamination (based on desk study information and the findings of the 2019 and 2021 GIs)

Potential Source	Potentially Contaminative Materials	Previous findings
Made ground from site historical site operations including: Rail sidings [1] Historical works [2,3,4,5,6,7] Gasworks and gasometers [8]	Organic compounds Metals and metalloids including lead, arsenic, mercury, nickel, copper, zinc, and iron Asbestos Polycyclic aromatic hydrocarbons (PAHs) Total petroleum hydrocarbons (TPH) including lubricating oils, heating oils, petrol and diesel range organics	The 2019 and 2021 ground investigations identified material such as clinker in the made ground. Asbestos was identified in 15 positions, and it may also be present in other areas of contaminated soil not yet identified. 6 of these samples were clustered at the former gasworks (**Drawing 15**) Hydrocarbon odours were noted in 20 exploratory holes, including 7 positions in former gasworks and 2 in the former reservoirs. Metallic blue sand was also

Potential Source	Potentially Contaminative Materials	Previous findings
	Solvents (VOCs and SVOCs) Cyanide (free and complex) Phenol Extremes of pH	noted in the gasworks in 3 trial pits. Oily groundwater was noted in TP202B and TP202C in the foundations of the former carriage shed. Works include: chemical works, dye works, oil works, engineering works, garage, glass works, metal works, printing works, tannery, and timber works
Historical demolition rubble in made ground	Asbestos	Previous buildings within the site boundary may have contained asbestos, which may have become incorporated into the made ground during demolition
Perched groundwater within made ground/relic structures Leachate from adjacent landfill sites (predominantly Queens Road Tip landfill)	Potential for leachable contaminants from made ground	Hydrocarbon contamination of perched groundwater was identified in the area of the former carriage shed and railway gasworks. Monitoring wells were installed in BH201 and BH205 to check for the migration of contaminated leachate from Queens Road Tip.
Made ground containing degradable materials Former landfill sites (offsite, including Queens Road tip, Sand Street landfill and Fitzgeorge Street landfill)	Hazardous ground gases (methane, carbon dioxide, hydrogen sulphide, carbon monoxide)	Gas monitoring data is available from the 2021 investigation, with all but one position CS1. BH205, close to the edge of Queens Road Tip, was determined as CS2.
DoE Industrial Profile document titles: [1] Railway Land [2] Chemical works – coatings, paints and printing inks manufacturing works [3] Timber treatment works [4] Timber manufacturing works [5] Road vehicle fuelling, service and repair – garages and filling stations [6] Metal manufacturing, refining and finishing works – iron and steel works [7] Textile and dye works [8] Gasworks, coke works and other coal carbonisation plants		

6.1.3 Potential receptors

Receptors both during the proposed HIF Infrastructure Works (HIF IW) and following completion of the HIF IW and future development include:

- Construction workers and site neighbours during the HIF IW;
- Interim users of the site following HIF IW before follow-on plot development;
- Construction workers and site neighbours during future development of the site;
- Residents and workers in the proposed future buildings constructed on the site;
- Occupants of the proposed school (Plot RB05b);
- Future users of onsite public open space areas in St Catherine's Wood and Red Bank Terrace;

- Groundwater within the alluvium deposits (secondary A aquifer), glacial till (secondary (undifferentiated) aquifer), Manchester Marls Formation (secondary B aquifer) and Chester Pebble Beds Formation and Collyhurst Sandstone Formation (principal aquifers);
- Surface water receptors – the River Irk;
- Buried structures and services;
- Plants in new soft landscaped areas.

6.1.4 Potential pathways

Potential pathways that may be present during construction of HIF IW and following completion of the HIF IW, during construction of follow-on development and following completion of follow-on development include:

- Human health - ingestion of soils or dust;
- Human health - inhalation of dust, vapour or ground gas;
- Human health - dermal contact with soils, surface water and groundwater;
- Controlled waters - migration of dissolved or free phase contamination within groundwater (preferential flow paths may exist such as former river channels);
- Vegetation - direct contact and uptake of contaminants in made ground;
- Ground gas - ingress of ground gas into the new development;
- Building and services - building materials such as concrete and plastic pipework may be subject to attack by aggressive ground conditions, where present.

6.1.5 Summary of initial conceptual site model

The 2019 desk study included a preliminary summary of potential contaminant linkages requiring assessment in relation to the site and adjacent areas, based on the findings of both the desk-based review and the 2019 GI. Table 25 and Table 26 have been adapted from Arup desk study report and present summaries of potential contaminant linkages both during the construction and operational phases of the planning application site.

Table 25: Conceptual site model for the HIF Infrastructure Works construction phase

Source		Pathway		Receptor	Linkage?
Made ground (containing solid contaminants, asbestos fibres and hydrocarbons)	→	Dermal contact	→	Construction worker	Yes
		Ingestion of soil/ soil dust	→		Yes
		Inhalation of soil vapour	→		Yes
		Inhalation of soil and soil dust	→	Construction worker	Yes
			→	Site neighbours	Yes
Temporary stockpiles of excavated arisings Accidental leaks and spills during construction	→	Leaching and runoff	→	Relic surface water drainage network	Yes
			→	River Irk	Yes
		Leaching and infiltration	→	Secondary A aquifers in superficial deposits Principal aquifers in bedrock River Irk	Yes

Source		Pathway		Receptor	Linkage?
Impacted shallow groundwater, including groundwater entering the site from landfill to the north	→	Dermal contact	→	Construction worker	Yes
		Ingestion	→	Construction worker	Yes
		Lateral migration	→	River Irk	Yes
Ground gases/landfill gases	→	Ingress and accumulation of toxic, asphyxiating or explosive concentrations within excavations	→	Construction worker in deep trenches and chambers	Yes

Table 26: Conceptual site model post-completion of HIF Infrastructure works

Source		Pathway		Receptor	Linkage?
Made ground (containing solid contaminants and possible hydrocarbons from historical spills)	→	Dermal contact	→	Future site user in public open space areas Interim users of plots where no hardstanding exists prior to follow-on development Pathways broken where hard surfacing and buildings present	Yes
		Ingestion of soil/ soil dust	→		Yes
		Inhalation of soil vapour	→		Yes
		Inhalation of soil and soil dust	→		Yes
		Leaching and infiltration	→	Secondary A aquifers in superficial deposits Principal aquifers in bedrock River Irk	Yes
		Direct contact	→	Buried structural concrete	Yes
			→	Potable water supply pipes	Yes
			→	New planting in public open space areas	Yes
Impacted shallow groundwater, (including groundwater if entering site from landfill to north)	→	Dermal contact	→	Future site resident	No
		Ingestion	→	Future site resident	No
		Lateral migration	→	Secondary A aquifers in superficial deposits Principal aquifers in bedrock River Irk	Yes
Ground gases/landfill gases	→	Ingress and accumulation of toxic, asphyxiating or explosive concentrations within buildings	→	Future site user Building structures	Yes

6.2 Environmental risk assessment

6.2.1 Introduction

Several potential contaminant linkages were identified within the site (Section 6.1.5). An environmental risk assessment has been undertaken for each of the receptors for which a potential contaminant linkage has been identified. The process outlined in the Land Contamination Risk Management (LCRM) guidance [21] follows a tiered approach to assessing risk which begins with an initial screening assessment known as a generic quantitative risk assessment (GQRA). The GQRA makes use of published assessment criteria and

when a soil/ groundwater concentration exceeds the screening value then further consideration is required. The GQRA is presented in the following sections.

The potential environmental risks have been considered in the context of a conceptual source-pathway-receptor (SPR) model of the site. A preliminary evaluation of the level of risk to each receptor from the identified plausible pathways and the level of mitigation that would be required for the proposed development is also provided.

For this assessment, the laboratory analysis results and field data collected during the 2019, 2021 and 2022 ground investigations have been screened against current published or internal guideline values in order to provide an initial assessment of the potential contamination status of the planning application site. The data for soil, groundwater and ground gas have been assessed separately, as presented below.

6.2.2 Human health soil screening assessment

6.2.2.1 Methodology

To simplify the assessment of ground contamination risks, statutory guidance suggests that generic soil quality guideline values may be used for the initial screening of soil contamination testing results. Generic assessment criteria (GAC) and site-specific assessment criteria (SSAC) can be calculated using the software version of the Contaminated Land Exposure Assessment (CLEA) model [22]. The model estimates human exposure (children and adults) to soil contaminants for those potentially living, working and/or playing on contaminated sites over long time periods (chronic exposure). The CLEA model does not consider short-term (acute) risks to humans, such as those which may arise during construction activities, or the risks posed by contaminated groundwater.

Soil guideline values (SGVs) generated using the CLEA software and accompanying toxicological reports have been issued by the Environment Agency (EA) for eleven contaminants. Arup has produced GACs using risk assessment software in accordance with the CLEA assessment framework for the six standard CLEA end uses (residential with plant uptake, residential without plant uptake, public open space (parks), public open space (residential), allotments, and commercial) and for soil organic matter (SOM) values of 1%, 2.5% and 6%. Land Quality Management Ltd (LQM) [23] and the AGS/EIC/CL:AIRE [24] have also produced and published GACs for the standard CLEA end uses, using the CLEA v1.07 software. Arup GACs have been benchmarked against the LQM and AGS/EIC/CL:AIRE GACs and both are similar with respect to the research carried out and the criteria developed.

Full details on the input parameters and background research used to undertake this human health screening assessment can be provided upon request. The GACs used have been developed using a Soil Organic Matter (SOM) value of 6%, which has been selected based on the average SOM content of the soils sampled across the site.

The assessment of risks from asbestos in soils is presented in Section 6.2.2.4**.**

6.2.2.2 Soil screening results – residential screening criteria

For the Red Bank Plateau, the results of soil analysis have been compared to human health generic assessment criteria (GAC) derived by Arup (Appendix C**)** for a residential end use without plant uptake. It is understood that within Red Bank Plateau, limited areas of private residential gardens together with some areas of public open space may be provided as part of the follow-on development. Given that the current masterplan does not fully detail the areas of proposed private gardens or areas of public open space, it has not been possible to undertake screening assessments which address these detailed aspect of future development proposals.

A school is proposed in Plot RB05b. Although it is possible to derive site- and end-use specific screening criteria for school use, this requires an understanding of the type of school (infant, primary, secondary), the extent of any soft landscaping within the school development and other factors. Currently, these details are not available and therefore, soil data for the Plot RB05b area has also been screened against residential without plant uptake use.

The results of this human health screening assessment are presented in Appendix C and summarised on Drawing 13. A total of 154 soil samples were screened against residential without plant uptake across the

three investigations. The screening identified several samples where contaminants exceeded the relevant human health GAC as summarised in Table 27.

Table 27: Soil samples exceeding human health GACs for residential development without plant uptake

Contaminant	GAC (mg/kg)	No. of samples	Conc range (mg/kg)	Exceedances				
				No.	Location ID	Depth (mbgl)	Conc (mg/kg)	Area
Arsenic	39.9	132	<1 to 89	17	TP109	1.3m	71	RB Plateau
					TP112	2.3m	44	RB Plateau
					TP115	0.3m	40	RB Plateau
					TP115	3.3m	40	RB Plateau
					BH207	1.2m	53	RB Plateau
					BH211A	9.0m	50	RB Plateau
					BH211A	10.5m	40	RB Plateau
					TP212	1.0m	89	RB Plateau
					TP212	3.0m	40	RB Plateau
					WS201	1.0m	44	RB Plateau
					WS205	2.0m	65	RB Plateau
					BH303	7.5m	45	RB Plateau
					BH327	7.4m	42	RB Plateau
					BH328	2.4m	59	RB Plateau
					TP306	0.5m	40	RB Plateau
					OP01	0.1m	58	RB Plateau
					SoilSamp10	0.0m	45	RB Plateau
Beryllium	1.7	129	<0.2 to 3.9	25	BH104	0.7m	2.8	RB Plateau
					BH104	9.7m	2.1	RB Plateau
					TP109	0.3m	2.6	RB Plateau
					TP109	1.3m	2.1	RB Plateau
					TP109	3.3m	2.0	RB Plateau
					TP110	1.3m	1.9	RB Plateau
					TP112	0.3m	2.2	RB Plateau
					TP115	0.3m	2.2	RB Plateau
					TP115	1.3m	3.9	RB Plateau
					TP115	3.3m	2.3	RB Plateau
					TP120	1.0m	1.9	RB Plateau
					BH207	1.2m	2.6	RB Plateau
					BH207	10.2m	3.9	RB Plateau
					BH208	0.3m	1.8	RB Plateau
					BH208	8.2m	2.0	RB Plateau
					BH209	1.2m	2.1	RB Plateau
					BH211A	2.2m	1.8	RB Plateau
					BH211A	5.2m	2.0	RB Plateau
					TP202	0.3m	1.9	RB Plateau
					WS205	2.0m	2.3	RB Plateau
					WS212	0.2m	2.3	RB Plateau

Contaminant	GAC (mg/kg)	No. of samples	Conc range (mg/kg)	Exceedances				
				No.	Location ID	Depth (mbgl)	Conc (mg/kg)	Area
					BH326	1.4m	3.6	RB Plateau
					BH327	7.4m	2.4	RB Plateau
					TP305	3.0m	3.0	RB Plateau
					TP306	0.5m	1.9	RB Plateau
Lead	310	132	6.4 to 1400	19	BH102	0.3m	530	RB Plateau
					TP109	0.3m	1300	RB Plateau
					TP109	3.3m	330	RB Plateau
					TP110	1.3m	520	RB Plateau
					TP115	0.3m	460	RB Plateau
					TP115	3.3m	520	RB Plateau
					BH211A	2.2m	490	RB Plateau
					BH211A	5.2m	600	RB Plateau
					BH211A	9.0m	460	RB Plateau
					TP202	0.3m	460	RB Plateau
					TP210	1.0m	420	RB Plateau
					WS205	2.0m	1400	RB Plateau
					BH304	0.5m	547	RB Plateau
					BH324	1.0m	320	RB Plateau
					BH327	7.4m	1020	RB Plateau
					TP306	0.5m	687	RB Plateau
					OP01	0.1m	477	RB Plateau
					SoilSamp05	0.0m	683	RB Plateau
					SoilSamp10	0.0m	356	RB Plateau
Cyanide	24	132	<0.1 to 68	2	TP115	3.3m	68	RB Plateau
					BH211A	9.0m	47	RB Plateau
Aromatics C21-35	1930	90	<1 to 3710	1	TT302	0.3m	3710	RB05b School
Dibenz-a-h-anthracene	0.32	97	<0.03 to 5.51	7	TP206	0.3m	0.35	RB05b School
					TP210	0.3m	0.76	RB Plateau
					TP213	0.3m	0.75	RB Plateau
					TP213	2.0m	0.46	RB Plateau
					BH301D	2.9m	0.47	RB05b School
					BH305	1.0m	0.53	RB Plateau
					TT302	0.3m	5.51	RB05b School
Benzo(a) anthracene	15	97	<0.03 to 39.6	1	TT302	0.3m	39.6	RB05b School
Benzo(a) pyrene	3.23	97	<0.03 to 39.6	7	TP206	0.3m	5.6	RB05b School
					TP210	0.3m	5.6	RB Plateau
					TP213	0.3m	6.2	RB Plateau
					TP213	2.0m	5.0	RB Plateau

Contaminant	GAC (mg/kg)	No. of samples	Conc range (mg/kg)	Exceedances				
				No.	Location ID	Depth (mbgl)	Conc (mg/kg)	Area
					BH301D	2.9m	4.7	RB05b School
					BH305	1.0m	4.3	RB Plateau
					TT302	0.3m	39.6	RB05b School
Benzo(b) fluoranthene	4.06	97	<0.03 to 35.8	5	TP206	0.3m	4.2	RB05b School
					TP210	0.3m	7.1	RB Plateau
					TP213	0.3m	5.9	RB Plateau
					TP305	1.0m	5.1	RB Plateau
					TT302	0.3m	35.8	RB05b School
Chrysene	31.9	97	<0.03 to 60	1	TT302	0.3m	60	RB05b School

6.2.2.3 Soil screening results – public open space (parks) screening criteria

The main focus of non-residential development in the current proposed masterplan is St Catherine's Wood (excluding Plot RB05b). Although the Red Bank Terrace is to include areas of residential development, these areas fall outside the current planning application boundary. The areas of Red Bank Terrace shaded blue on Figure 2 are therefore proposed as predominantly public open space.

For both the area of Red Bank Terrace within the site and St Catherine's Wood, the results of soil analysis data from the 2019, 2021 and 2022 GIs have been compared to the human health generic assessment criteria (GAC) derived by Arup for a public open space end use (parks).

The results of the human health screening assessment for the St Catherine's Wood and Red Bank Terrace areas are presented in Appendix C and summarised in Drawing 14. A total of 81 soil samples were screened across the three investigations. The screening identified several samples where contaminants exceeded the relevant human health GAC as summarised in Table 28.

Table 28: Soil samples exceeding human health GACs for public open space (parks)

Contaminant	GAC (mg/kg)	No. of samples	Conc range (mg/kg)	Exceedances				
				No.	Location ID	Depth (mbgl)	Conc (mg/kg)	Area
Arsenic	168	57	<1 to 180	1	TP219	1.0m	180	RB Terrace
Lead	1300	57	4 to 2250	4	BH110	3.0m	1900	RB Terrace
					TP120	0.3m	2100	RB Terrace
					BH306	0.5m	1800	RB Terrace
					BH314	7.5m	2250	RB Terrace
Aromatics C16-21	7770	47	<0.6 to 10900	1	TT303	0.4m	10900	St Catherine's Wood
Aromatics C21-35	7850	47	<1 to 27800	1	TT303	0.4m	27800	St Catherine's Wood
Dibenz-a-h-anthracene	1.36	49	<0.03 to 19.2	4	BH213	1.2m	5.0	RB Terrace
					BH301	1.0m	2.7	St Catherine's Wood
					BH323	0.5m	3.6	St Catherine's Wood
					TT303	0.4m	19.2	St Catherine's Wood

Contaminant	GAC (mg/kg)	No. of samples	Conc range (mg/kg)	Exceedances				
				No.	Location ID	Depth (mbgl)	Conc (mg/kg)	Area
Benzo(a) anthracene	62.5	49	<0.03 to 205	1	TT303	0.4m	205	St Catherine's Wood
Benzo(a) pyrene	13.2	49	<0.03 to 123	4	BH213 BH301 BH323 TT303	1.2m 1.0m 0.5m 0.4m	26.0 24.7 22.8 123.0	RB Terrace St Catherine's Wood St Catherine's Wood St Catherine's Wood
Benzo(b) fluoranthene	16.3	49	<0.03 to 111	3	BH213 BH323 TT303	1.2m 0.5m 0.4m	37.0 24.2 111.0	RB Terrace St Catherine's Wood St Catherine's Wood
Chrysene	121	49	<0.03 to 409	1	TT303	0.4m	409	St Catherine's Wood
PCB BZ 114	0.000004	10	<0.005 to 0.023	1	BH307	1.0m	0.023	RB Terrace
PCB BZ 157	0.000008	10	<0.005 to 0.039	2	BH307 BH308	1.0m 1.0m	0.039 0.007	RB Terrace RB Terrace
PCB BZ 77	0.000016	10	<0.005 to 0.031	1	BH307	1.0m	0.031	RB Terrace

6.2.2.4 Soil screening results – asbestos

The methods used to assess the results of asbestos content of soil samples differ to those used for other contaminants. As a first step, soil samples undergo laboratory assessment for the presence of asbestos. Samples which proved positive for the presence of asbestos underwent a further quantification stage. The findings of this assessment are presented in Table 29 and Drawing 15.

Table 29: Soil samples in which the presence of asbestos was identified.

No. of samples	% range	Exceedances				
		No.	Location ID	Depth (mbgl)	Type and %	Area
113	<0.001 to 0.012	15	BH110	0.3m	Amosite fibres – <0.001	RB Terrace
			BH112	0.3m	Amosite fibres – <0.001	RB Terrace
			TP105	0.3m	Chrysotile – microscopic board fragments – 0.006	St Catherine's Wood
			TP120	1.0m	Chrysotile – microscopic ACM fragments – 0.002	RB Terrace
			WS103	1.0m	Amosite fibres – <0.001	St Catherine's Wood
			BH212A	0.6m	Chrysotile fibres – 0.005	RB Terrace
			TP206	0.3m	Chrysotile fibres – 0.007	St Catherine's Wood (RB05b school)
			TP210	1.0m	Chrysotile fibres – 0.011	RB Plateau

No. of samples	% range	Exceedances				
		No.	Location ID	Depth (mbgl)	Type and %	Area
			WS207	1.0m	Chrysotile fibres – 0.012	RB Plateau
			BH301	1.0m	Loose fibres – 0.006	St Catherine's Wood
			BH315	0.5m	Loose fibres – <0.001	St Catherine's Wood
			BH323	0.5m	Loose insulation – 0.004	St Catherine's Wood
			TT302	0.3m	Cement – 1.539	St Catherine's Wood (RB05b school)
			OP01	0.1m	Loose insulation – <0.001	RB Plateau
			SoilSamp07	0.0m	Loose fibres – 0.011	RB Plateau

Asbestos has been identified in all areas of the site including the Red Bank Plateau, Red Bank Terrace and St Catherine's Wood areas. The asbestos identified was generally present as fibres, with both chrysotile and amosite identified. The possibility exists that asbestos may be present in soils between exploratory locations.

6.2.2.5 Summary of soil screening – general

In Red Bank Plateau and Plot RB05b, when the results of analysis have been screened against the selected residential with plant uptake GACs, exceedances were identified at a range of depths in made ground. The following contaminants have been found to be present at concentrations above their respective screening criteria:

- Arsenic, beryllium, lead, cyanide, asbestos, PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and dibenz(ah)anthracene) and TPH (aromatic C21-35).

In the St Catherine's Wood area (excluding the RB05b plot) and Red Bank Terrace, when the results of analysis have been screened against the selected public open space (parks) GACs, most exceedances were identified with the upper 1m of made ground. The following contaminants have been found to be present at concentrations above their respective screening criteria:

- Arsenic, lead, asbestos, TPHs (aromatic C16-21 and aromatic C21-35), PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and dibenz(ah)anthracene) and PCBs (PCB BZ 114, PCB BZ 157, and PCB BZ 77).

Widespread exceedances of the GACs for beryllium and lead were noted across the entire area covered by the ground investigation. For beryllium, exceedances are generally only marginally in excess of the GAC. Elevated concentrations of arsenic were generally only observed on the Red Bank Plateau area. Arsenic can be associated with former railway sites as a result of the deposition of boiler ash and clinker, which can also contain PAH compounds. In areas of soft landscaping and gardens a risk to future site users could arise from exposure to these contaminants in soils. However, these risks could be addressed by a suitably designed clean cover system (see Section 9.2).

Despite only one exceedance of TPH against residential screening criteria, and two exceedances of TPHs against public open space, 14 samples exceeded the saturation limit for TPHs (Drawing 20). A number of these samples were in the areas of the former gasworks, carriage shed and at depth, in the southern infilled former reservoir. A number of other instances were generally noted in near-surface soils across the site (Drawing 20).

No exceedances of BTEX (benzene, toluene, ethylbenzene, xylene) or VOCs were identified during the various phases of analysis.

Visible evidence of asbestos fibres or asbestos containing materials (ACM) was recorded in 15 of 113 samples across the site, with a maximum recorded concentration of 1.539%. Appropriate measures will be required to mitigate the risks posed by asbestos both during construction and in the long term to protect future residents, neighbours of the site and maintenance workers.

The screening assessments indicate there is a potential risk to construction workers who may come into direct contact with contaminated soils, particularly during earthworks. In addition, there is a risk to construction workers and site neighbours associated with the potential release of asbestos fibres during construction. Appropriate mitigation measures will need to be applied to protect construction workers and site neighbours during construction works including good site practices such as dust suppression, designed and implemented by a competent contractor. Measures will also be required to mitigate asbestos risk in the post-construction phase, such as clean cover system in soft landscaped areas.

In the period between the completion of the HIF IW and development of individual plots, risks to site users and neighbours must be considered. There remains a potential risk from contaminants in the exposed made ground soils. The plausible pollution pathways associated with these risks include direct contact with contaminated soils by unauthorised users of the site and the risk to neighbours of the site associated with dust arising from the surface of the site (potentially including asbestos fibres) during periods of dry weather. Measures to address these risks, are considered in Section 9.2.

6.2.2.6 Summary of soil screening – specific site features

6.2.3 Former gasworks area

GI has been undertaken in the area of the former gasworks in the north east of the site (Section 3.6.1 and Drawing 09). In addition to hydrocarbons and a metallic blue sand material reported in this area during earlier phases of GI (TP204, TP205 and TP206A), oil was identified in TT302 associated with a steel vessel encountered during the 2022 investigation. Blue-coloured material in a gasworks context, is commonly associated with cyanide contamination. However, there were no exceedances of cyanide or any metals encountered within the former gasworks area, with cyanide levels only marginally exceeding the laboratory limit of detection.

The former gasworks straddles the boundary between the proposed school site (Plot RB05b) and the public open space areas in St Catherine's Wood (Figure 4). For this reason, the results of chemical analysis of samples from the former gasworks area have been screened against two sets of generic screening criteria. 15 samples have been screened against public open space (parks), and six samples were screened against residential with no plant uptake criteria. Of these, two samples exceeded the public open space criteria:

- TT303 at 0.35m showed significant TPH contamination, with total TPH exceeding 53,000 mg/kg.
- BH301 at 1m exceeded the public open space screening criteria for two PAHs.

In addition, three samples exceeded the residential criteria:

- BH301D at 2.9m exceeded the residential criteria for two PAHs.
- TT302 at 0.35m identified exceedances in TPH and several PAHs.
- TP206 at 0.3m also exceeded the residential screening criteria for three PAHs.

Asbestos was encountered in five exploratory holes within the area, at a depth of 1m or less (TP105, TP206, BH310, BH315 and TT302 - Table 29).

The existing ground investigation data, coupled with the historical presence of a large gasworks at Gould Street, approximately 500m to the south-west, and gasholders at Travis Island, suggests that it was unlikely that the former gasworks was a site of town-gas manufacture and that it operated as a storage facility for the rail operations. Contamination associated with the gasworks is not widespread but is indicative of localised areas of impact that will require remediation.

6.2.4 Infilled meander bend

A meander bend of the River Irk was infilled during the construction of the Red Bank Plateau (Section 3.6.2**)**. BH204, BH315 and BH320 encountered potential alluvial soils, with strong hydrocarbon odours noted in BH320. BH203, BH301 and BH302 also targeted this meander bend but did not encounter clear evidence for this infilled feature.

No exceedances of the public open space screening criteria were recorded in the exploratory holes that targeted the meander bend, except from evidence of asbestos at 0.5m in BH315. Exceedances of PAHs were recorded in BH301 at 1m bgl, however given the depth to the former meander bend, these exceedances are more likely to be associated with the overlying former gasworks.

6.2.5 Infilled former mill race

Evidence for the infilled former mill race has been identified in a number of boreholes (Section 3.6.3 and Drawing 09).

BH207, BH303 and BH304 are within the Red Bank Plateau and were compared against residential screening criteria and the following was noted:

- BH303 identified a slight exceedance of arsenic at 3.5m bgl.
- BH304 exceeded lead criteria at 0.5m bgl.
- BH207 exceeded beryllium criteria at 10.2m bgl.

The exceedances for arsenic and beryllium are not within the zone where human contact would be expected with the infill materials, therefore they are not considered likely to pose a risk to human health if they remain at that depth.

BH306 falls within the Red Bank Terrace area and was compared against public open space criteria. An exceedance of lead was noted at 0.5m bgl.

6.2.6 Infilled former reservoirs

Two former reservoirs can be seen on historic maps in the southwest of the site (Section 3.6.4).

BH210 in the northern reservoir is within the Red Bank Plateau area and was therefore compared against residential screening criteria. No exceedances of contaminants we identified in the northern reservoir.

The Red Bank Plateau and Red Bank Terrace boundaries intersect the southern reservoir and therefore BH211A was compared against residential criteria and BH314 against public open space criteria. Both BH211A and BH314 in the southern reservoir identified strong hydrocarbon odours at the base of the made ground. BH211 exceeded several residential criteria at 2.2m, 5.2m, 9m and 10.5m depths, including arsenic, beryllium, lead, and cyanide. BH314 exceeded public open space criteria for lead at 7.5m bgl. At these depths, the risk to future site users from this exceedance is considered to be low. The southern reservoir is outside the area of proposed regrading for Plots RB02 and RB03 and therefore, the risks associated with the contamination identified at depth will not change following the HIF Infrastructure Works.

6.2.7 Stockpiles

A number of former stockpiles around the site were identified during the site work and through inspection of aerial photographs (Section 3.6.10). Soils at the location of these former stockpiles were sampled for analysis.

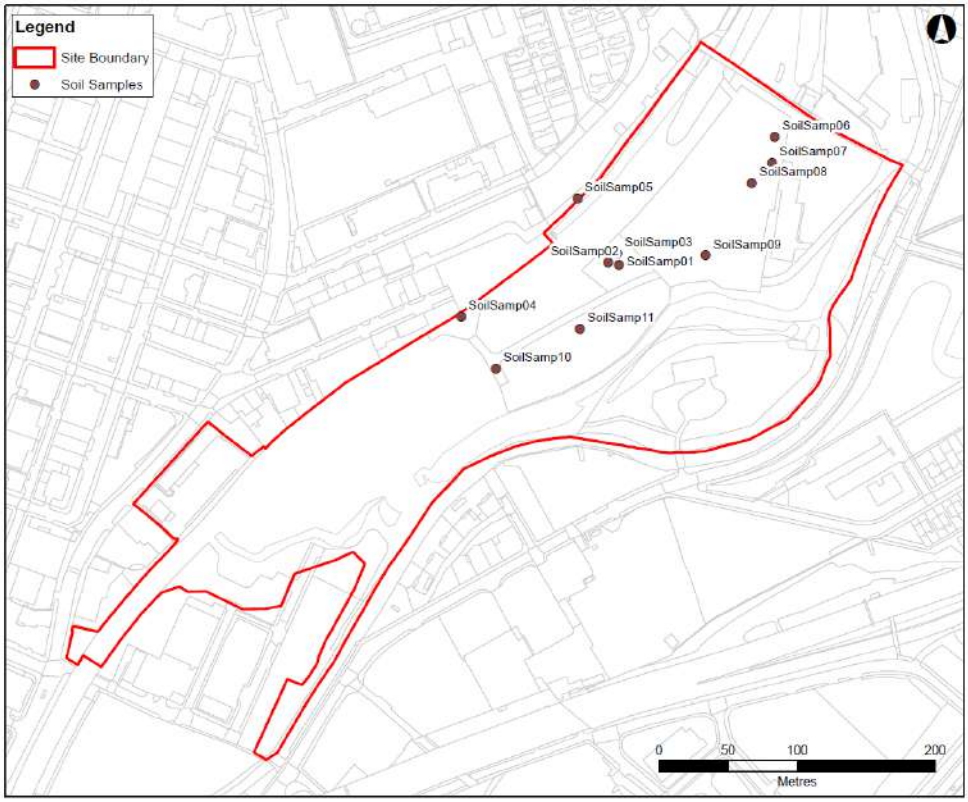


Figure 17: Locations of soil stockpile samples

SoilSamp05 and SoilSamp10 showed marginally elevated levels of lead when compared against residential screening criteria, and SoilSamp10 also exceeded the arsenic threshold. However, both samples would not exceed public open space criteria were they to be re-used elsewhere on the site.

Soilsamp07 was found to contain asbestos (loose fibres).

6.2.8 Controlled waters screening assessment

6.2.8.1 Controlled waters assessment criteria

The initial conceptual site model identified the following controlled waters receptors:

- Groundwater within the bedrock aquifers:
  - principal aquifers (Chester Pebble Beds and Collyhurst Sandstone)
  - Manchester Marls Formation (secondary B aquifer)
- Groundwater within the superficial deposits: alluvium (secondary (A) aquifer) and glacial till (secondary (undifferentiated) aquifer), and
- The River Irk, which forms the south-eastern boundary of the planning application site.

Groundwater and soil leachate test results have been screened against criteria based on published freshwater Environmental Quality Standards (EQS) and UK drinking water standards (DWS) to identify potential contaminants of concern. Where no EQS values are available the results have been compared against EU or UK drinking water standards (DWS) or World Health Organisation standards (WHO). The water quality standards applicable to the above receptors are discussed, with the screening assessment, in Appendix C.

Where the screening criteria are hardness dependent, the hardness of the receiving watercourse (the River Irk) has been used, which was determined by testing during the 2021, 2022 and river works ground investigations to be 166mg/l. The bioavailable concentrations of certain contaminants were estimated using the M-BAT tool, as noted in Appendix C.

6.2.8.2 Controlled waters screening

Groundwater samples were obtained from five monitoring wells installed within the sandstone bedrock principal aquifers, two installed within the mudstone secondary B aquifer and 18 installed within the superficial deposits (made ground, glacial till and alluvium).

Two groundwater samples were taken from trial pits where oily groundwater was observed (TP202B and TP202C), considered to be perched groundwater within a remnant structure (carriage shed). Another sample of oily groundwater was collected from TT301 during the 2022 ground investigation. The results of the groundwater screening assessment are presented below, summarised on Drawing 16 and provided in full (together with details of the screening criteria that have been applied) in Appendix C.

A total of 54 groundwater samples were screened.

Surface water samples from the River Irk were collected from two locations in 2021 and three locations during the 2022 ground investigation. These locations are shown in Figure 18.

The contaminants which exceed the screening criteria are discussed below.

Bedrock groundwater quality

Bedrock groundwater quality was measured in samples from seven locations within the planning application site, in monitoring wells with response zones in both the mudstone secondary B aquifer and the sandstone principal aquifers. The results of the bedrock groundwater screening are summarised in Table 30, with sample locations shown on Drawing 02.

Groundwater level monitoring indicates that the general groundwater flow direction in sandstone units beneath the site is towards the river (i.e. roughly north-south) and comparison with river levels (Section 4.7) suggests that the sandstone groundwater is discharging into the River Irk. A large number of exceedances are identified for manganese, zinc, cadmium, lead, nickel and ammoniacal nitrogen. Isolated exceedances of other screening criteria are noted for chromium, copper, cyanides, TPH and PAHs.

The monitoring wells along the northern site boundary (BH201, BH205, BH209) within the Manchester Marl typically identify exceedances of the screening criteria for manganese, cadmium and zinc.

A number of exceedances of the screening criteria were noted in BH203 in Collyhurst Sandstone, which was located close to the area of the former gasworks in the St Catherine's Wood area. The made ground is particularly thick in this location and directly overlies bedrock. Contaminants observed in BH203 include copper, lead, thiocyanate, fluoranthene, and benzo(a)pyrene, which are consistent with contaminants that are associated with former gasworks. No petroleum hydrocarbons (TPH) were noted in the groundwater sample tested from this location.

Exceedances of the screening criteria were also noted in BH212 (Chester Pebble Beds), which is located in the Red Bank Terrace area, close to the River Irk. Exceedances of the screening criteria for cadmium, chromium, copper, lead, manganese, nickel, vanadium, zinc, cyanides and PAHs. Exceedances are generally marginal and not indicative of gross contamination, with the exception of complex cyanide. The borehole log indicates that made ground directly overlies sandstone at this location, and the Red Bank Terrace area has a history of contaminative land uses including dye works and a chemical works.

Table 30: Exceedances of groundwater screening criteria in bedrock

Contaminant	GAC (mg/l)	No. of samples	Exceedances				
			No.	Location	Conc (mg/l)	Formation	Area
Antimony	0.005	20	1	BH212	0.0059	Chester Pebble Beds	RB Terrace
Cadmium	0.00015	20	13	BH201	0.0044, 0.0205, 0.0004	Manchester Marl	RB Plateau
				BH203	0.0002, 0.0003	Collyhurst Sandstone	St C Wood
				BH205	0.0003, 0.010, 0.0200, 0.0006	Manchester Marl	RB Plateau

Contaminant	GAC (mg/l)	No. of samples	Exceedances				
			No.	Location	Conc (mg/l)	Formation	Area
				BH209	0.0010, 0.0003	Manchester Marl	RB Plateau
				BH212	0.0038, 0.0002	Chester Pebble Beds	RB Terrace
Chromium	0.0047	20	3	BH201	0.006	Manchester Marl	RB Plateau
				BH205	0.007	Manchester Marl	RB Plateau
				BH212	0.045	Chester Pebble Beds	RB Terrace
Copper	0.0122	20	5	BH201	0.020	Manchester Marl	RB Plateau
				BH203	0.043	Collyhurst Sandstone	St C Wood
				BH205	0.059	Manchester Marl	RB Plateau
				BH212	0.078	Chester Pebble Beds	RB Terrace
				BH310	0.013	Collyhurst Sandstone	St C Wood
Lead	0.00958	20	6	BH201	0.039	Manchester Marl	RB Plateau
				BH203	0.088	Collyhurst Sandstone	St C Wood
				BH205	0.072, 0.010	Manchester Marl	RB Plateau
				BH212	0.866	Chester Pebble Beds	RB Terrace
				BH310	0.025	Collyhurst Sandstone	St C Wood
Manganese	0.2659	20	17	BH201	5.55, 8.38, 0.39	Manchester Marl	RB Plateau
				BH203	0.72, 0.81, 0.66	Collyhurst Sandstone	St C Wood
				BH205	0.28, 15.20, 11.60, 0.46	Manchester Marl	RB Plateau
				BH209	0.75, 1.60	Manchester Marl	RB Plateau
				BH210	0.75, 0.85	Chester Pebble Beds	RB Plateau
				BH212	0.79	Chester Pebble Beds	RB Terrace
				BH310	1.92, 1.31	Collyhurst Sandstone	St C Wood
Nickel	0.01162	20	8	BH201	0.072, 0.043	Manchester Marl	RB Plateau
				BH203	0.020	Collyhurst Sandstone	St C Wood
				BH205	0.121, 0.062	Manchester Marl	RB Plateau
				BH209	0.014, 0.012	Manchester Marl	RB Plateau
				BH212	0.024	Chester Pebble Beds	RB Terrace
Vanadium	0.02	20	1	BH212	0.03	Chester Pebble Beds	RB Terrace
Zinc	0.02113	20	12	BH201	0.439, 1.443	Manchester Marl	RB Plateau
				BH203	0.137, 0.055	Collyhurst Sandstone	St C Wood
				BH205	3.077, 2.590, 0.024	Manchester Marl	RB Plateau
				BH209	0.100	Manchester Marl	RB Plateau
				BH212	0.923, 0.022	Chester Pebble Beds	RB Terrace
				BH310	0.038, 0.024	Collyhurst Sandstone	St C Wood
Total Cyanide	0.001	20	6	BH205	0.098, 0.024	Manchester Marl	RB Plateau
				BH212	5.246, 0.290	Chester Pebble Beds	RB Terrace
				BH310	0.010, 0.009	Collyhurst Sandstone	St C Wood

Contaminant	GAC (mg/l)	No. of samples	Exceedances				
			No.	Location	Conc (mg/l)	Formation	Area
Complex Cyanide	0.001	7	5	BH203 BH205 BH212 BH310	0.001 0.024 5.112, 0.360 0.009	Collyhurst Sandstone Manchester Marl Chester Pebble Beds Collyhurst Sandstone	St C Wood RB Plateau RB Terrace St C Wood
Free Cyanide	0.001	7	2	BH212	0.134, 0.260	Chester Pebble Beds	RB Terrace
Thiocyanate	0.001	7	5	BH203 BH205 BH212 BH310	1.5, 0.1 0.2 0.7 0.1	Collyhurst Sandstone Manchester Marl Chester Pebble Beds Collyhurst Sandstone	St C Wood RB Plateau RB Terrace St C Wood
Ammoniacal Nitrogen as N	0.6	20	7	BH203 BH210 BH310	3.81, 4.04, 1.80 2.50, 7.40 2.27, 1.22	Collyhurst Sandstone Chester Pebble Beds Chester Pebble Beds	St C Wood RB Plateau St C Wood
Aliphatics C12-16	0.3	15	2	BH310	3.319, 1.173	Chester Pebble Beds	St C Wood
Aromatics C10-12	0.09	15	1	BH310	0.11	Chester Pebble Beds	St C Wood
Aromatics C12-16	0.09	15	2	BH310	1.349, 0.436	Chester Pebble Beds	St C Wood
Fluoranthene	0.000006	15	9	BH203 BH205 BH210 BH212 BH310	0.00031, 0.00002, 0.00006 0.00150, 0.00007 0.00002 0.00013, 0.00001 0.00004	Collyhurst Sandstone Manchester Marl Chester Pebble Beds Chester Pebble Beds Collyhurst Sandstone	St C Wood RB Plateau RB Plateau RB Terrace St C Wood
Naphthalene	0.002	15	1	BH203	0.0085	Collyhurst Sandstone	St C Wood
Anthracene	0.0001	15	2	BH203 BH205	0.00012 0.00029	Collyhurst Sandstone Manchester Marl	St C Wood RB Plateau
Benzo(a)pyrene	1.7E-7	15	5	BH203 BH205 BH212 BH310	0.00030 0.00101, 0.00005 0.00006 0.00002	Collyhurst Sandstone Manchester Marl Chester Pebble Beds Collyhurst Sandstone	St C Wood RB Plateau RB Terrace St C Wood

Made ground groundwater quality

Groundwater was sampled from the made ground in 11 discrete locations, some of which were sampled up to three times, providing a total of 23 samples of groundwater from made ground which have been analysed. The results of the screening are summarised in Table 31 below.

As noted in the bedrock aquifers, concentrations of manganese were noted in excess of the screening value in all but one of the samples analysed. The upper 95th percentile concentrations of lead, nickel and zinc exceed the screening criteria, suggesting more widespread contamination of the groundwater in the made ground. Ammoniacal nitrogen is also noted to be present at elevated concentrations in all but one sample.

Oily groundwater was noted around the former carriage shed on Red Bank Plateau associated with the old carriage shed structure. Samples of groundwater taken from trial pits where free product was encountered (TP202B, TP202C and TT301) are noted to contain elevated concentrations of PAHs (TP202B, TP202C, TT301) and TPH (TT301), although it is acknowledged that sampling from trial pits is not best practice. Monitoring well WS201B was installed close to the former carriage shed area and also identified elevated PAH in the made ground groundwater. It is thought that the remnant structure is hydraulically isolated, and the groundwater contamination is localised.

An iridescent sheen on groundwater in the made ground was noted around the former gasworks in the St Catherine's Wood area in TP204, TP205 and TP206A and oil was present in TT302, associated with a remnant steel vessel which was found to contain oil. Monitoring well BH204 installed in this part of the site detected metals and PAH in the groundwater at concentrations in excess of the screening criteria however TPH did not exceed the criteria. Ammoniacal nitrogen was present in groundwater marginally in excess of the screening criteria at this location.

A hydrocarbon odour was noted in the base of the made ground at BH207. This borehole is believed to be located within a former mill race. Glacial till is absent in this location and the made ground directly overlies the Manchester Marl bedrock. A groundwater monitoring well with a response zone in the made ground did not identify any detectable concentrations of TPH, PAH, volatile or semi-volatile organics in groundwater at this location.

A number of contaminants were identified in excess of the screening criteria in BH211A, which targeted a former reservoir beneath Red Bank Plateau. Material with a strong hydrocarbon odour was encountered at the base of the made ground in this borehole at a depth of over 10m below ground level. The made ground was found to rest directly on sandstone in this location, glacial till was absent. Groundwater was tested for a range of contaminants and identified elevated concentrations of ammonia, PAH, complex cyanide and metals including lead. It is possible that this contamination results from sediment that accumulated at the base of this reservoir during periods of industrial use, or materials that were used to infill the reservoir when it became disused.

Table 31: Exceedances of water screening criteria in made ground

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Concentration (mg/l)	Area
Antimony	0.005	21	1	BH103	0.0105	RB Plateau
Cadmium	0.00015	21	10	BH103 BH204 BH207 BH208 WS201B WS207	0.0006 0.0115 0.0002, 0.0009 0.0002, 0.0009 0.0009, 0.0007 0.0006, 0.0010	RB Plateau St C Wood RB Plateau RB Plateau RB Plateau RB Plateau
Chromium	0.0047	21	1	BH103	0.0078	RB Plateau
Lead	0.00958	21	1	BH102	0.149	RB Plateau
Manganese	0.2659	21	16	BH102 BH103 BH204 BH207 BH208 BH211A WS201B WS207	3.61, 2.29 2.75, 13.20, 15.00 1.95, 3.36, 1.80 1.70 0.39, 0.67 0.42, 3.60 0.63 0.34	RB Plateau RB Plateau St C Wood RB Plateau RB Plateau RB Plateau RB Plateau RB Plateau

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Concentration (mg/l)	Area
				TT301	8.62	St C Wood
Nickel	0.01607	21	4	BH102 BH103 BH211A	0.017 0.025, 0.040 0.020	RB Plateau RB Plateau RB Plateau
Selenium	0.01	21	1	WS201B	0.032	RB Plateau
Zinc	0.03728	21	9	BH102 BH204 BH207 BH211A WS201B WS207	0.055 1.606 0.077, 0.150 0.046 0.057, 0.092 0.100, 0.093	RB Plateau St C Wood RB Plateau RB Plateau RB Plateau RB Plateau
Total Cyanide	0.001	21	5	BH102 BH103 BH211A TT301	0.005 0.056, 0.017 3.861 0.005	RB Plateau RB Plateau RB Plateau St C Wood
Complex Cyanide	0.001	9	5	BH103 BH211A TT301	0.017 0.009, 3.854, 0.003 0.005	RB Plateau RB Plateau St C Wood
Free Cyanide	0.001	9	2	BH211A TT301	0.007 0.005	RB Plateau St C Wood
Thiocyanate	0.001	9	3	BH102 BH211A TT301	0.3 0.2 0.1	RB Plateau RB Plateau St C Wood
Ammoniacal Nitrogen as N	0.3	21	14	BH102 BH103 BH204 BH208 BH211A WS201B WS207 TT301	1.9, 2.2 3.8, 3.1, 1.9 0.4, 0.5 1.3, 1.0 5.6, 3.7, 2.7 22.0 16.0, 18.0 1.35	RB Plateau RB Plateau St C Wood RB Plateau RB Plateau RB Plateau RB Plateau St C Wood
Aliphatics C10-12	0.3	17	2	BH102	38.00, 0.76	RB Plateau
Aliphatics C12-16	0.3	17	3	BH102 TT301	81.8, 1.9 2.99	RB Plateau St C Wood
Aliphatics C8-10	0.3	17	2	BH102	21.400, 0.406	RB Plateau
Aromatics C10-12	0.09	17	3	BH102 TT301	21.300, 0.979 0.125	RB Plateau St C Wood

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Concentration (mg/l)	Area
Aromatics C12-16	0.09	17	3	BH102 TT301	48.100, 1.677 3.26	RB Plateau St C Wood
Aromatics C16-21	0.09	17	3	BH102 TT301	29.000, 0.841 3.28	RB Plateau St C Wood
Aromatics C21-35	0.09	17	3	BH102 TT301	12.40, 0.27 1.12	RB Plateau St C Wood
Aromatics C8-10	0.3	17	1	BH102	9.0	RB Plateau
Fluoranthene	0.000006	17	14	BH102 BH103 BH204 BH208 BH211A TP202B TP202C WS201B WS207 TT301	0.00126, 0.00352, 0.00006 0.00006, 0.00004, 0.00002 0.00005 0.00003 0.00004, 0.00001 0.01948 0.00734 0.00002 0.00038 0.00453	RB Plateau RB Plateau St C Wood RB Plateau RB Plateau RB Plateau RB Plateau RB Plateau RB Plateau St C Wood
Napththalene	0.002	17	1	BH204	0.013	St C Wood
Anthracene	0.0001	17	6	BH102 BH103 TP202B TP202C TT301	0.00141, 0.00389 0.00011 0.00281 0.00103 0.00353	RB Plateau RB Plateau RB Plateau RB Plateau St C Wood
Benzo(a)pyrene	1.7E-7	17	9	BH102 BH103 BH204 BH208 BH211A TP202B TP202C TT301	0.00038, 0.00086 0.00001 0.00003 0.00005 0.00002 0.04924 0.00633 0.00217	RB Plateau RB Plateau St C Wood RB Plateau RB Plateau RB Plateau RB Plateau St C Wood

Glacial till groundwater quality

Groundwater was sampled in the glacial till in six locations, with some sampled up to four times, providing a total of 10 samples of groundwater which have been analysed. The results of the screening are summarised in

Table 32 below. Glacial till was generally only encountered beneath the Red Bank Plateau area and was absent close to the river (Figure 5).

As noted in the groundwater samples from the bedrock and made ground, manganese concentrations exceed the screening criteria in nearly all samples taken from the glacial till. As for made ground, concentrations of

copper, lead and zinc in the glacial till groundwater exceed the screening criteria within the Red Bank Plateau.

Generally lower concentrations of contaminants are noted in the groundwater within the glacial till compared to the made ground, which indicates that the glacial till may be preventing significant vertical migration of perched groundwater contamination from the made ground, where the till is present.

A number of contaminants were identified in excess of the screening criteria in BH314, which targeted a former reservoir beneath Red Bank Terrace. A strong hydrocarbon odour was noted at 8.2 to 9.3 mbgl. It is possible that this contamination accumulated within the reservoir during periods of industrial use.

Table 32: Exceedances of water screening criteria in glacial till

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Concentration (mg/l)	Area
Antimony	0.005	10	1	BH105	0.008	St C Wood
Arsenic	0.05	10	1	BH202	0.066	RB Plateau
Cadmium	0.00015	10	7	BH105 BH202 BH206 BH314	0.0035, 0.0012 0.0003, 0.0127 0.000631, 0.0007 0.0013	St C Wood RB Plateau RB Plateau RB Terrace
Chromium	0.0047	10	4	BH105 BH202 BH314	0.022, 0.013 0.005 0.035	St C Wood RB Plateau RB Terrace
Copper	0.01222	10	4	BH105 BH202 BH314	0.104, 0.050 0.025 0.065	St C Wood RB Plateau RB Terrace
Iron (dissolved)	1	1	1	BH202	5.9	RB Plateau
Lead	0.00958	10	4	BH105 BH202 BH314	0.063, 0.041 0.069 0.143	St C Wood RB Plateau RB Terrace
Manganese	0.2659	10	9	BH105 BH202 BH206 BH314	0.82, 6.91, 2.45, 1.25, 16.10, 9.64 0.85, 1.50 11.70	St C Wood RB Plateau RB Plateau RB Terrace
Nickel	0.01162	10	5	BH105 BH202 BH314	0.053, 0.028 0.088, 0.056 0.077	St C Wood RB Plateau RB Terrace
Selenium	0.01	10	1	BH105	0.018	St C Wood
Vanadium	0.02	10	2	BH105 BH202	0.03 0.03	St C Wood RB Plateau
Zinc	0.02113	10	8	BH105 BH202	0.446, 0.183 0.335, 1.584, 0.160	St C Wood RB Plateau

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Concentration (mg/l)	Area
				BH206 BH314	0.032, 0.033 0.265	RB Plateau RB Terrace
Cyanide	0.001	10	1	BH314	0.328	RB Terrace
Complex Cyanide	0.001	1	1	BH314	0.328	RB Terrace
Thiocyanate	0.0001	1	1	BH314	0.2	RB Terrace
Chloride	250	10	1	BH202	320	RB Plateau
Ammoniacal nitrogen as N	0.6	10	2	BH105 BH314	1.3 49.0	St C Wood RB Terrace
Fluoranthene	0.000006	8	3	BH202 BH314	0.00500, 0.00003 0.00065	RB Plateau RB Terrace
Anthracene	0.0001	8	1	BH202	0.00051	RB Plateau
Benzo(a)pyrene	1.7E-7	8	3	BH202 BH314	0.00242, 0.00001 0.00031	RB Plateau RB Terrace

Alluvium groundwater quality

Groundwater quality was sampled in the alluvium in four locations across the three site zones. The results of the screening are summarised in Table 33 below.

Alluvium is only present as a narrow zone associated with the current course of the River Irk and the now infilled former meander bend. Marginally elevated concentrations of contaminants were identified in the alluvium, similar to those observed in the made ground.

Table 33: Exceedances of water screening criteria in alluvium

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Conc (mg/l)	Area
Arsenic	0.05	6	2	BH303 BH306	0.116 0.192	RB Plateau RB Terrace
Beryllium	0.004	6	1	BH306	0.006	RB Terrace
Cadmium	0.00015	6	2	BH306 BH322	0.0072 0.0008	RB Terrace St C Wood
Chromium	0.0047	6	3	BH303 BH306	0.005 0.005, 0.744	RB Plateau RB Terrace
Copper	0.01222	6	2	BH303 BH306	0.061 0.844	RB Plateau RB Terrace
Iron (dissolved)	1	2	1	BH306	19.7	RB Terrace
Lead	0.00958	6	2	BH306	0.013, 3.610	RB Terrace
Manganese	0.2659	6	5	BH306	6.09, 2.23	RB Terrace

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Conc (mg/l)	Area
				BH315 BH322	13.40, 9.76 6.44	St C Wood St C Wood
Nickel	0.01162	6	5	BH306 BH315 BH322	0.076, 0.098 0.025, 0.024 0.028	RB Terrace St C Wood St C Wood
Selenium	0.01	6	2	BH303 BH306	0.037 0.014	RB Plateau RB Terrace
Vanadium	0.02	6	2	BH303 BH306	0.217 0.092	RB Plateau RB Terrace
Zinc	0.02113	6	5	BH306 BH315 BH322	0.390, 0.947 0.065, 0.083 0.154	RB Terrace St C Wood St C Wood
Cyanide	0.001	6	6	BH303 BH306 BH315 BH322	0.027 3.509, 0.265 0.879, 0.223 0.017	RB Plateau RB Terrace St C Wood St C Wood
Complex Cyanide	0.001	4	3	BH306 BH315	0.26 0.88, 0.23	RB Terrace St C Wood
Free Cyanide	0.001	4	1	BH306	0.005	RB Terrace
Thiocyanate	0.001	4	1	BH315	0.8	St C Wood
Ammoniacal nitrogen as N	0.6	6	4	BH306 BH315	21.88, 0.72 5.04, 6.88	RB Terrace St C Wood
Aromatics C12-16	0.09	6	3	BH315 BH322	0.114, 0.100 0.185	St C Wood St C Wood
Fluoranthene	0.000006	6	6	BH303 BH306 BH315 BH322	0.02689 0.00015, 0.00066 0.00407, 0.00057 0.00009	RB Plateau RB Terrace St C Wood St C Wood
Anthracene	0.0001	6	2	BH303 BH315	0.00443 0.00063	RB Terrace St C Wood
Benzo(a)pyrene	1.7E-7	6	5	BH303 BH306 BH315	0.01395 0.00006, 0.00032 0.00290, 0.00003	RB Plateau RB Terrace St C Wood

Surface water quality

Samples to assess surface water quality were taken from the River Irk at two locations during the 2021 ground investigation (Surface water 1 and Surface water 2). During the 2022 GI, samples of surface water

were collected from three locations along the river (SWS01, SWS02 and SWS03) on three separate occasions (Figure 18).

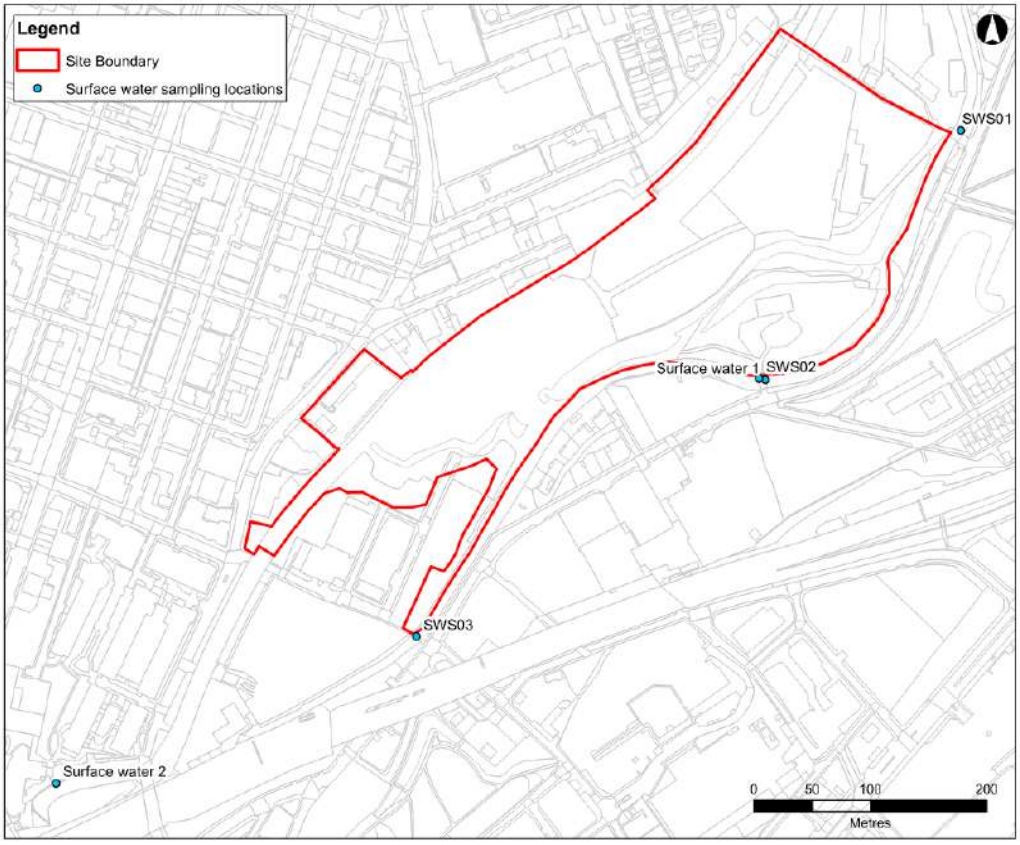


Figure 18: Surface water sampling locations

The river samples identified exceedances of the screening criteria for iron, lead and zinc (Table 34). Contamination is not observed to worsen significantly as the river passes through the site, indicating that groundwater quality in made ground, the alluvium and bedrock is not having a significant impact on surface water quality.

Table 34: Exceedances of water screening criteria in River Irk

Contaminant	GAC (mg/l)	No. of samples	Exceedances		
			No.	Location	Conc (mg/l)
Iron (soluble)	0.2	2	2	Surface water 1 Surface water 2	0.270 0.300
Lead	0.00958	11	1	SWS03	0.010
Zinc	0.02113	11	11	Surface water 1 Surface water 2 SWS01 SWS02 SWS03	0.026 0.029 0.034, 0.052, 0.036 0.029, 0.047, 0.055 0.023, 0.082, 0.062

6.2.8.3 Soil leachate quality screen

Soil leachate was prepared in line with BS EN12457 and the results of eluate at a 2:1 liquid to solid ratio and 10:1 liquid to solid ratio has been screened against the same water quality standards that have been used to assess groundwater and surface waters in this section. A total of 52 samples of soil leachate were analysed.

The screening identifies exceedances of the criteria for cadmium, chromium, lead, mercury, nickel, zinc and sulphate. The results indicate that some of the contaminants within the made ground are potentially mobile, but this is not consistent across the site, and exceedances are typically marginal. The screening is summarised in Table 35 below.

Table 35: Exceedances of water screening criteria in soil leachate

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Conc (mg/l)	Area
Cadmium	0.00015	52	4	TP215	0.070	RB Plateau
				BH303	0.002	RB Plateau
				BH305	0.002	RB Plateau
				TP306	0.001	RB Plateau
Chromium	0.0047	52	16	BH203	0.71	RB Plateau
				BH207	0.62	RB Plateau
				BH210	0.55	RB Plateau
				TP205	0.29	St C Wood
				TP207	0.70	RB Plateau
				TP211	2.00	RB Plateau
				TP215	0.89	RB Plateau
				WS202	2.50	St C Wood
				WS204	0.86	St C Wood
				WS205	1.40	RB Plateau
				WS206	1.40	St C Wood
				WS212	1.40	RB Plateau
				BH306	0.01	RB Terrace
				BH310	0.01	St C Wood
				BH320	0.01	St C Wood
				TP306	0.01	RB Plateau
Lead	0.00958	52	31	BH103	0.01	RB Plateau
				BH106	0.02	RB Terrace
				TP115	0.01	RB Plateau
				WS102	0.01	St C Wood
				BH203	0.80	RB Plateau
				BH207	0.16	RB Plateau
				BH210	0.67	RB Plateau
				TP205	0.19	St C Wood
				TP207	0.11	RB Plateau
				TP212	0.13	St C Wood
				TP215	0.28	RB Plateau
				WS202	1.30	St C Wood
				WS204	1.30	St C Wood
				WS205	0.17	RB Plateau
				WS206	0.31	St C Wood
				WS207	0.17	RB Plateau

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Conc (mg/l)	Area
				WS212	2.80	RB Plateau
				BH302	0.03	St C Wood
				BH308	0.20	RB Terrace
				BH320	0.02	St C Wood
				BH322	0.02	St C Wood
				BH323	0.08	St C Wood
				BH326	0.17	RB Plateau
				BH327	0.02	RB Plateau
				BH328	0.49	RB Plateau
				TP305	0.54, 0.31	RB Plateau
				TP306	0.30	RB Plateau
				TT301	0.05	St C Wood
				TT302	0.10	St C Wood
				TT303A	0.20	St C Wood
Mercury	0.001	52	3	BH203	0.02	RB Plateau
				WS204	0.02	St C Wood
				WS212	0.07	RB Plateau
Nickel	0.01607	52	1	BH103	0.031	RB Plateau
Zinc	0.03728	52	24	BH103	0.64	RB Plateau
				BH203	9.00	RB Plateau
				BH210	4.70	RB Plateau
				TP205	1.90	St C Wood
				TP207	2.50	RB Plateau
				TP212	58.00	St C Wood
				TP215	6.60	RB Plateau
				WS202	5.50	St C Wood
				WS204	8.00	St C Wood
				WS206	3.20	St C Wood
				WS207	12.00	RB Plateau
				WS210	9.90	RB Plateau
				WS212	6.70	RB Plateau
				BH303	0.82	RB Plateau
				BH305	0.20, 0.33	RB Plateau
				BH308	0.08	RB Terrace
				BH323	0.04	St C Wood
				BH327	0.62	RB Plateau
				BH328	0.35	RB Plateau
				TP305	0.22, 0.15	RB Plateau
				TP306	0.30	RB Plateau
				TT303A	0.08	St C Wood

Contaminant	GAC (mg/l)	No. of samples	Exceedances			
			No.	Location	Conc (mg/l)	Area
Sulphate	400	26	3	WS205 WS210	13000, 13000 9800	RB Plateau RB Plateau

6.2.8.4 Summary of controlled water screening assessment

No gross groundwater contamination was observed during ground investigation, except:

- An iridescent oil sheen on groundwater in the former gasworks area (TP204, TP205 and TP206A in the northern part of St Catherine's Wood)
- Oil associated with a buried vessel in the former gasworks area (TT302 in the northern part of St Catherine's Wood).
- Localised oil-impacted water within the carriage shed former structure (TP202B and TP202C in the northern part of Red Bank Plateau).
- An iridescent oil sheen on groundwater in BH102 (during post-GI sampling).

Elevated concentrations of manganese, nickel, zinc and lead are present in all groundwater bodies sampled within the planning application site. This does not appear to be having a significant impact on the quality of the River Irk through the site, which contains similar concentrations of these metals upstream and downstream of the site.

Currently, the Red Bank Plateau area of the site is not entirely covered with hardstanding. The final development of this area comprises mostly hardstanding and buildings, which will reduce the potential for infiltration through the made ground in the longer term.

The impact to controlled waters has been further assessed in a Detailed Quantitative Risk Assessment (DQRA) which is reported separately [36]. The outcome of this assessment determined that remediation is needed within the area of the former gasworks in order to protect the quality of controlled waters and remedial actions should be taken during the works to alter the river bank at St Catherine's Wood. Fill materials used near the river also should be tested to ensure they are suitable for re-use and do not pose an additional risk to the river Irk. This is discussed further in the Outline Remediation Strategy – see Section 9.2.

6.3 Buried pipelines

A variety of contaminants have the potential to permeate water supply pipes, potentially degrading the integrity of the pipes or tainting water supplies. Aggressive conditions could also potentially impact on the integrity of metal pipes.

Any new water supply connections should be designed in consultation with United Utilities (UU), to ensure the pipe materials used are appropriate for the ground conditions. UU generally request that data on ground conditions is collected specifically from the areas of the site in which key potable supply mains are proposed. At the time of writing, the full details of the water supply distribution network are not known, however the alignment of a water main has been established, largely running along the plateau road alignment. Samples of existing ground materials have been taken along this water main alignment (TP308, TP309 and TP310 - Figure 19) at a depth of 1m.

A summary of the testing results is shown in Table 36. Concentrations of contaminants along the proposed pipe route did not exceed the PE thresholds, and therefore this targeted data suggests PE pipes may be appropriate for the site. However, there were exceedances of the PE thresholds across the wider site in samples taken outside of the potable water supply pipe corridor. It is important to recognise these more elevated concentrations represent the site in its pre-remediation condition and may not therefore be appropriate for assessment following completion of the HIF infrastructure works.

Notwithstanding the results of assessment of the three samples from along the corridor, the potential for variability within the made ground at the site and the associated potential for localised hotspots of contamination suggest that it would be appropriate for barrier pipe to be used to safeguard potable supplies.

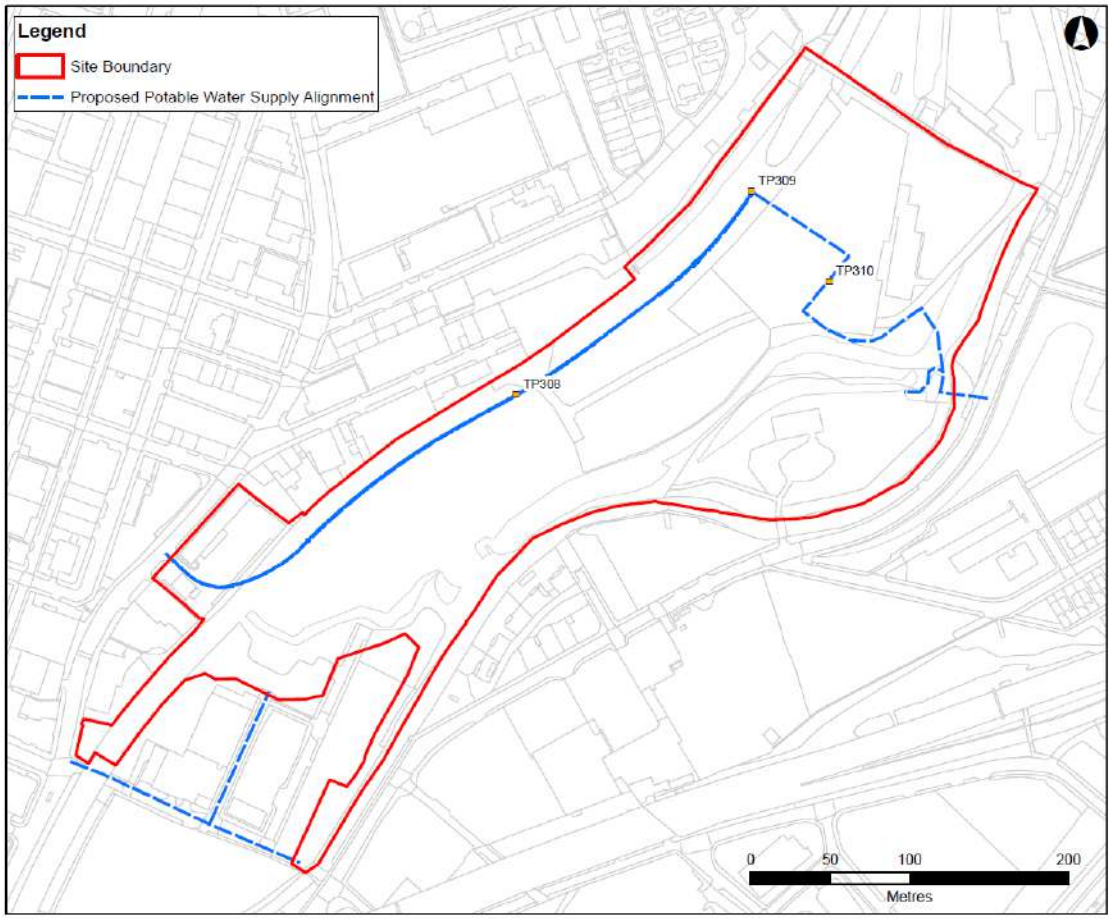


Figure 19: Proposed buried pipeline route

Table 36: Pipe selection risk assessment summary

Test Group	PE threshold (mg/kg)	Metal pipes/barrier pipe	Max conc at proposed pipeline depth (mg/kg)	Max site conc (mg/kg)	Sitewide exceedances
Total VOCs	0.5	Pass	<0.01	38.2	14 of 37
Total BTEX & MTBE	0.1	Pass	<0.01	5.9	2 of 113
Total SVOCs (excluding PAHs, ethers, nitrobenzene, ketones, aldehydes)	2	Pass	0.277	27.2	9 of 47
EC5-EC10 aliphatic and aromatic hydrocarbons	2	Pass	<0.01	395.0	22 of 148
EC10-EC16 aliphatic and aromatic hydrocarbons	10	Pass	<1	8040.0	43 of 248

Test Group	PE threshold (mg/kg)	Metal pipes/barrier pipe	Max conc at proposed pipeline depth (mg/kg)	Max site conc (mg/kg)	Sitewide exceedances
EC16-EC40 aliphatic and aromatic hydrocarbons	500	Pass	<1	44675.0	13 of 249
Phenols* (from SVOC analysis)	2	Pass	<0.1	<0.5	0 of 37
Cresols and chlorinated phenols* (from SVOC analysis)	2	Pass	<0.1	<0.5	0 of 5
Corrosive: conductivity, redox and pH	Pass	For wrapped steel, corrosive if pH<7 and conductivity > 400µS/cm. For wrapped ductile iron, corrosive if pH<5, Eh not neutral and conductivity > 400µS/cm. For copper, corrosive if pH<5 or >8 and Eh positive	pH ranges from 7.32 to 8.74 Cond ranges from 115 to 442 µS/cm	-	-

6.4 Waste assessment

6.4.1 Approach

Reuse of suitable material onsite, where needed to achieve the site levels, will be implemented in preference to offsite disposal for sustainability reasons. The CL:AIRE Definition of Waste Code of Practice (DoWCoP) [25] and other appropriate waste management mechanisms will be applied. However, a proportion of excavated soils produced by the HIF IW will be unsuitable for reuse or surplus to requirements and will require off-site disposal. A preliminary assessment of possible waste classifications and disposal options is presented below.

Under the current UK waste regulations, if excavated soils (including made ground) require offsite disposal as waste, they are to be classified as non-hazardous or hazardous for disposal depending on their chemical properties. Hazardous waste would need to be disposed of at a hazardous waste facility. Non-hazardous waste may be suitable for disposal at a landfill licensed to accept inert waste however, this is subject to the material meeting stringent waste acceptance criteria (WAC) defined in The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020" (SI 2020 No. 1540). To assess this a number of samples have undergone WAC testing to provide an indication of the possible waste disposal options.

To support the WAC testing that has been undertaken, an indicative screen of a selection of made ground, glacial till, alluvium and bedrock samples has been undertaken to determine waste classification. This screen was undertaken using the online waste classification service HazWasteOnline [26] which classifies material in line with current waste guidance, WM3, Waste Classification – Guidance on the classification and assessment of waste [27].

Please note that the results of the indicative waste assessment reported below reflect global conditions at the site and may not represent the actual soil materials that are subsequently identified for disposal. Once soils for disposal have been identified, further WAC testing will be required to assist in the determination of the requirements for off-site disposal.

The objectives of the 2022 GI included for the recovery and analysis of a number of sediment samples from within the channel of the River Irk (Section 3.4). Due to the health and safety implications of entering the watercourse to recover samples, this work was not undertaken during the ground investigation programme.

6.4.2 Hazardous waste classification

As part of the 2019, 2021 and 2022 ground investigations, 240 samples were tested for a range of inorganic and organic contaminants of potential concern. The HazWasteOnline screening tool has been used to estimate the hazardous properties of these materials. The results of the screening are presented in Appendix D and summarised on Drawing 17. This assessment established that 19 of the 215 samples were classified as hazardous (approximately 9%) and the remainder as non-hazardous. A summary of the results of this assessment is presented in Table 37.

Table 37: Summary of hazardous waste screening

Stratum	No. of samples	Non hazardous	Hazardous	Principal contaminant type
Made ground	194	175	19	Total petroleum hydrocarbons Lead Copper Benzene
Glacial till	17	17	0	-
Alluvium	1	1	0	-
Bedrock	3	3	0	-

The hazardous and potentially hazardous wastes that have been identified, have been assigned due to the following hazardous properties:

- HP3(i) – Flammable
- HP7 – Carcinogenic
- HP10 – Toxic for reproduction
- HP11 – Mutagenic
- HP14 – Ecotoxic

As stated in WM3 guidance document, if the waste contains asbestos fibres that are free and dispersed then the waste will be classified as hazardous if the waste as a whole, contains 0.1% or more asbestos. Where the waste contains identifiable pieces of asbestos containing material (ACM) (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then these pieces must be assessed separately. The waste is hazardous if the concentration of asbestos in the piece of asbestos containing material is 0.1% or more and the waste is regarded as a mixed waste and classified accordingly. The following codes should be assigned to asbestos waste as appropriate:

- 17 06 05* Construction material containing asbestos
- 17 06 01* Insulation material containing asbestos

17 06 05* would normally be used in preference to 17 06 01* for the asbestos in asbestos contaminated soil and stones.

ACM has been detected in 15 samples (out of 113 tested across the site (approximately 13% - Table 29). One of the samples that underwent quantification contained asbestos fibres at concentrations above the hazardous waste threshold of 0.1% (TT302 – 1.539 %).

6.4.3 Waste acceptance testing

For landfills that accept inert or hazardous waste, material for disposal must be tested and meet the WAC for the type of landfill.

Waste acceptance criteria (WAC) testing has been undertaken on 64 samples of made ground (Table 38 and on Drawing 18). Three of the samples tested (5%) were classified as hazardous for disposal. 28% of the samples were determined as inert and 67% as non-hazardous.

A samples from BH306 was determined as Hazardous by HazWasteOnline and the sampled material would be accepted into a hazardous waste landfill. Samples from BH103 and TT302 were also determined as hazardous, however with a TOC of over 6% (6.8% and 36.2% respectively) the material would have to be separated and treated before going to landfill.

Table 38: Summary of WAC testing results

Exploratory hole ID	Sample top depth (mbgl)	Elevation (mOD)	Stratum	Results of assessment
BH103	1.0	41.57	Made ground	Hazardous* – requires TOC treatment
BH106	0.3	40.37	Made ground	Non-Hazardous
BH203	1.2	40.69	Made ground	Non-Hazardous
BH207	2.2	39.44	Made ground	Non-Hazardous
BH210	2.2	38.25	Made ground	Non-Hazardous
BH211A	2.2	38.24	Made ground	Non-Hazardous
BH211A	5.2	35.24	Made ground	Non-Hazardous
BH212	1.2	29.18	Made ground	Non-Hazardous
TP102	0.3	42.32	Made ground	Non-Hazardous
TP105	1.0	40.11	Made ground	Inert
TP106	2.8	39.85	Made ground	Inert
TP109	1.3	40.66	Made ground	Non-Hazardous
TP112	2.3	38.53	Made ground	Non-Hazardous
TP115	1.3	39.21	Made ground	Non-Hazardous
TP207	1.0	42.34	Made ground	Inert
TP210	1.0	42.08	Made ground	Inert
TP211	1.0	40.64	Made ground	Inert
TP212	0.3	41.72	Made ground	Non-Hazardous
TP215	2.0	39.28	Made ground	Non-Hazardous
WS102	1.0	31.20	Made ground	Inert
WS202	0.3	41.27	Made ground	Non-Hazardous
WS203	1.0	31.64	Made ground	Inert
WS204	1.0	31.84	Made ground	Inert
WS205	3.0	39.12	Made ground	Non-Hazardous
WS205	0.2	41.92	Made ground	Non-Hazardous

Exploratory hole ID	Sample top depth (mbgl)	Elevation (mOD)	Stratum	Results of assessment
WS206	2.0	30.61	Made ground	Inert
WS207	1.0	40.91	Made ground	Non-Hazardous
WS210	0.3	40.58	Made ground	Non-Hazardous
WS211	0.3	39.61	Made ground	Non-Hazardous
WS212	0.6	39.29	Made ground	Non-Hazardous
BH301	9.2	41.87	Made ground	Inert
BH301D	2.0	41.94	Made ground	Non-Hazardous
BH302	2.0	42.76	Made ground	Inert
BH303	7.5	42.30	Made ground	Non-Hazardous
BH304	1.0	41.18	Made ground	Non-Hazardous
BH304	14.0	41.18	Made ground	Inert
BH305	0.5	39.77	Made ground	Non-Hazardous
BH305	1.0	39.77	Made ground	Non-Hazardous
BH306	1.0	31.45	Made ground	Hazardous*
BH308	0.5	30.20	Made ground	Non-Hazardous
BH310	2.5	32.60	Made ground	Non-Hazardous
BH313	1.0	39.81	Made ground	Inert
BH315	1.2	39.26	Made ground	Inert
BH320	3.5	34.26	Made ground	Inert
BH322	1.0	32.49	Made ground	Non-Hazardous
BH323	0.3	30.21	Made ground	Non-Hazardous
BH324	5.0	41.00	Made ground	Non-Hazardous
BH326	3.4	41.50	Made ground	Non-Hazardous
BH327	2.4	41.30	Made ground	Non-Hazardous
BH328	1.4	41.40	Made ground	Non-Hazardous
TT301	1.2	42.60	Made ground	Non-Hazardous
TT302 (former gasworks area)	0.3	42.10	Made ground	Hazardous* – requires TOC treatment
TT303A	0.6	41.48	Made ground	Non-Hazardous
TP304	2.9	41.34	Made ground	Non-Hazardous
TP305	1.0	41.05	Made ground	Non-Hazardous

Exploratory hole ID	Sample top depth (mbgl)	Elevation (mOD)	Stratum	Results of assessment
TP305	2.0	41.05	Made ground	Non-Hazardous
TP306	0.5	39.29	Made ground	Non-Hazardous
SoilSamp02	0.0	42.60	Made ground	Inert
SoilSamp04	0.0	42.12	Made ground	Non-Hazardous
SoilSamp05	0.0	44.52	Made ground	Non-Hazardous
SoilSamp07	0.0	43.63	Made ground	Inert
SoilSamp09	0.0	42.84	Made ground	Non-Hazardous
SoilSamp10	0.0	41.24	Made ground	Non-Hazardous
SoilSamp11	0.0	42.01	Made ground	Inert
* As determined by HazWasteOnline assessment (see Section 6.4.2)				

A number of the samples that were identified as inert by the WAC testing were found to contain asbestos fibre concentrations below the hazardous waste threshold. It may be possible to dispose of this material at inert waste sites however, it will be necessary to discuss this with the proposed receiving sites to understand their specific permitting requirements.

6.4.4 Summary of waste assessment

There is potential for surplus soil to be generated either as a result of earthworks balance or presence of materials which are geotechnically or geochemically unsuitable for re-use within the development platform. These materials may require offsite disposal. Hazardous waste classification has been undertaken on made ground, glacial till, alluvium and bedrock samples and WAC analysis has been undertaken on samples of made ground. The analysis indicates that most of the material will be classified as non-hazardous waste.

As shown on Drawing 17 and 18, in one area (BH203, TT301, TT302 and TT303 in the former gasworks area) a potential zone of hazardous material has been identified. Generally however, rather than indicating a series of extensive contaminant ‘hotspots’, the samples that have been shown to be hazardous appear to represent a series of discrete areas of soil contamination

Zones of material that are classified as hazardous waste for disposal will need to be delineated and any surplus/unsuitable arisings from these areas from these areas will need to be segregated from non-hazardous waste and handled and disposed of accordingly.

7. Ground gas risk

7.1 Methodology

Current UK guidance on the monitoring of ground gas emissions, the associated assessment of risk and the implications for the design of new development is contained in the following principal documents:

- CIRIA C665, 2007 [28];
- NHBC Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present, 2007 [29];
- Ground Gas Handbook, 2009;[30]
- British Standard BS8485:2019 [31]; and
- NHBC Technical Extra, Issue 20, 2016.

7.2 Potential Sources of ground gas

Generation of ground gases such as methane and carbon dioxide from soils is generally associated with the presence of significant proportions of organic material that is available for decomposition. A number of potential sources of ground gas have been identified for the site. These are discussed below.

7.2.1 Made ground

Ground investigation has established that a body of made ground is present across the site, reaching thicknesses in the order of 16m in the south-eastern areas of Red Bank Plateau. As discussed in Section 4, the made ground across the site is generally granular in nature, however some localised more cohesive deposits have been identified.

7.2.2 Natural soils with high organic matter content

The potential sources of ground gas that may impact the site, include deposits of alluvium associated with the River Irk. The distribution of alluvial soils within the site is discussed in Section 4.

7.2.3 Infilled historical features

The infilled historical features that lie beneath the main body of made ground at the site, may also represent potential sources of ground gas (Figure 4).

Infilled meander bend on the River Irk.

Any alluvium deposits in the former meander bend, together with the made ground used to infill the meander bend are all considered to be potential sources of ground gas.

As discussed above, although the made ground present across the site is generally granular, localised areas of cohesive made ground have been identified. Most significant, is a cohesive made ground layer up to 12m thick (BH204) within the lower P&P slope area (Drawing 08). Conceptually, the presence of a generally cohesive made ground layer overlying the majority of the infilled former meander bend, may act as a low-permeability cap, below which ground gas could accumulate.

Infilled former mill race.

Any silt or sediment that accumulated in the mill race during its operational life, together with made ground used to infill the mill race may represent a source of ground gas.

Infilled former reservoirs.

A number of exploratory holes were targeted at the former reservoirs within the site. Both BH211A and BH314 in the southern reservoir, encountered up to 1.1m of dark coloured/black material with strong hydrocarbon odours which may be a source of ground gas.

7.2.4 Off-site potential sources

A number of former landfills are present adjacent to the north of the site (Figure 20- note that the extent of these historic landfills (shaded blue) has been determined from a number of information sources and is approximate). There is the potential that ground gas associated with these former landfills could migrate towards the site.

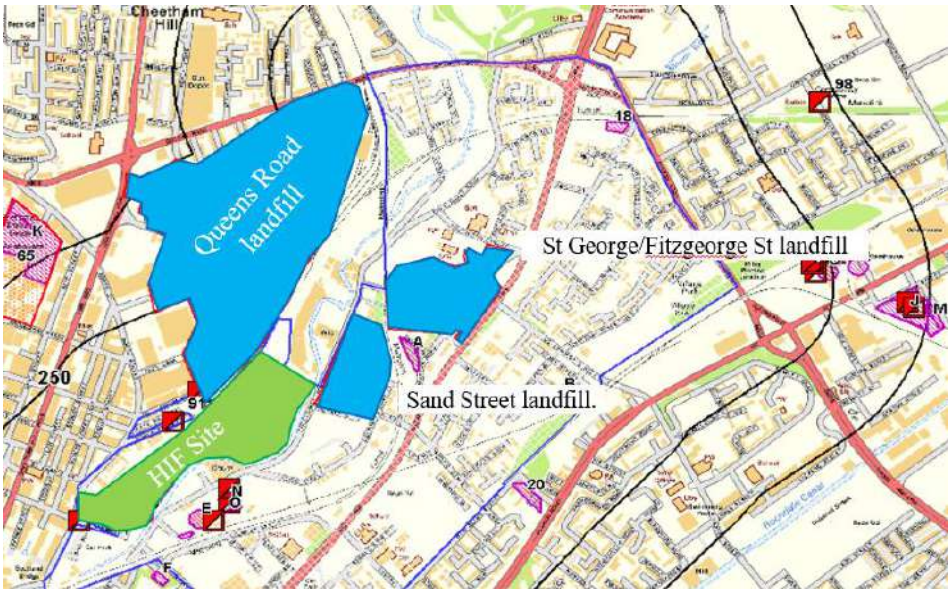


Figure 20: Historic landfills adjacent to the HIF Infrastructure site

Queens Road landfill

Located to the north of the site, the Queens Road landfill site was originally excavated for brick clay [1]. Part of the former landfill runs along a section of the northern boundary of Red Bank Plateau. Tipping at the site took place between 1954 and 1972, with the site understood to have received inert, industrial, commercial, household, special and liquid sludge waste.

Site investigations of the former landfill identified made ground up to a maximum of 12.2m and associated programmes of gas monitoring identified elevated methane and carbon dioxide concentrations. Current, on-line aerial photographs of the site indicate that it is now largely developed, suggesting that the ground gas risk is not sufficient to preclude appropriate development providing (it is assumed) that appropriate gas protection has been included in the buildings.

Sand Street and St George/Fitzgeorge St landfills

The Sand Street landfill is located approximately 50m east of the north-eastern corner of the site, to the east of the River Irk. This site was a former quarry which was infilled before 1974. The nature of the fill placed within the landfill is not known, but reportedly the made ground has a maximum depth of 22m. The site was later used for industrial purposes and remediation carried out for use of the site as public open space included the installation of a cut-off trench and topsoil capping. Currently the Sand Street landfill is undeveloped, however, it is not known whether this is due to ground gas risk.

The St George/Fitzgeorge St landfill is located approximately 150m north-east of the site. This landfill was completed prior to 1974 and no details of the waste type are known. The site is now used as public open space.

Saturated ground conditions between these former landfills and the site (associated with the River Irk) are likely to inhibit the risk of ground gas migration from this source.

7.3 Nature of the hazard

Ground gas monitoring has been undertaken at the site to allow an assessment of the risk from methane (CH_4), carbon dioxide (CO_2), oxygen depletion (O_2), hydrogen sulphide (H_2S), carbon monoxide (CO) and

volatile organic compounds (VOCs). In order to identify whether the gas concentrations observed represent a ground gas risk, it is necessary to understand the nature of the hazard.

Methane

Methane (CH_4) is non-toxic flammable and explosive gas which can cause asphyxiation by displacing oxygen. The explosive range for methane is between 5 and 15%v/v, however this depends on the concentrations of oxygen and other gases such as carbon dioxide that are also present. Concentrations greater than 15%v/v within the ground may become explosive upon dilution at the surface.

Carbon dioxide

Carbon dioxide (CO_2) is a toxic gas which can cause headaches at concentrations between 2%v/v and 10%v/v and loss of consciousness at concentrations greater than 10% v/v. Carbon dioxide is fatal at concentrations of greater than 22% v/v. Carbon dioxide is present at low concentrations in ambient air but can be present at higher concentrations in the ground as it is generated by aerobic and anaerobic degradation of organic material and respiration of soil bacteria. Carbon dioxide is denser than air and consequently can accumulate in low-lying confined spaces such as poorly ventilated basements.

Oxygen

Atmospheres depleted in oxygen (O_2) can develop as a result of the processes that lead to the generation of methane and carbon dioxide. Atmospheres with oxygen concentrations less than 19%v/v can be become strenuous to work in and below 17%v/v, judgement can become impaired. Atmospheres with concentrations less than 10%v/v will not support human life.

Hydrogen sulphide

Hydrogen sulphide (H_2S) is a toxic, flammable and explosive gas which is generated during the oxidation of sulphide minerals, for example resulting from contact with oxidising groundwater. At low concentrations (>20ppm) symptoms may include watering eyes, blurred vision, shortness of breath and a sore throat, while greater concentrations (>400ppm) may result in severe health effects including asphyxiation. The workplace exposure limit for H_2S is 8 hours at 5ppm and 15 minutes at 10ppm. At low concentrations, hydrogen sulphide can be highly malodourous.

Carbon monoxide

Carbon monoxide (CO) is a toxic and flammable and explosive gas which can cause headaches and flu-like symptoms at low concentrations. At greater concentrations can lead to unconsciousness and death. The workplace exposure limit is 8 hours at a concentration of 30 ppm and 15 minutes at a concentration of 200 ppm.

Volatile Organic Compounds (VOC)

Volatile organic compounds can be toxic and explosive depending on the concentrations and types of contaminants present. These compounds may be carcinogenic and can cause side effects such as drowsiness, headaches, nausea and confusion. The type of VOC depends on the source, e.g. a hydrocarbon spillage in made ground or disposal of chlorinated solvents or petroleum products within landfilling.

7.4 Previous ground gas assessments

A programme of gas monitoring was undertaken as part of the 2021 GI, from twenty borehole installations [2]. Six monitoring visits were undertaken, with the highest concentrations of methane and carbon dioxide recorded being 0.4%v/v and 11%v/v respectively. The highest borehole gas flow rate recorded was 1.5 l/hr. A preliminary assessment of the gas risk associated with this monitoring data was established by calculating the Characteristic Situation for each of the twenty installations, based on the highest values of methane, carbon dioxide and flow rate that were recorded during the monitoring programme. In 19 of the 20 installations, CS1 conditions were calculated [28], representing the lowest category of ground gas risk for which no protective measures are required. In one installation (BH205), CS2 conditions were established. CS2 conditions carry a low-risk classification and generally apply to sites where elevated methane or carbon dioxide is present but borehole flow rates are less than 70l/hr. CS2 conditions are generally considered to be indicative of made ground with low organic matter content and natural soils with a high peat/organic matter content.

It was noted that all the available monitoring data had been collected under conditions in which atmospheric pressure was greater than 1000 mb and as such, worst-case conditions may not have been reflected in the available monitoring data [28]. It was therefore, recommended that additional gas monitoring should be undertaken as part of the proposed 2022 GI works.

7.5 2022 ground gas monitoring rationale

In order to further assess the ground gas risk, an additional programme of spot monitoring was undertaken from borehole installations provided as part of the 2019, 2021 and 2022 investigations.

The installations that were to be used during the 2022 gas monitoring programme, were selected based on the following rationale:

1. Good coverage across the site was required in order to assess the gas risk from the general body of made ground that is present across the Red Bank Plateau and in other areas of the site.
2. Gas monitoring was to be undertaken from boreholes that targeted natural alluvial soils.
3. Gas monitoring was to be undertaken from boreholes that targeted historical features such as the infilled River Irk meander bend, the infilled mill race and the infilled reservoirs.
4. Gas monitoring was to be undertaken from the areas of the site perimeter that are closest to off-site former landfills.

Once a range of boreholes had been identified for potential monitoring a check was undertaken to identify any in which the response zones were saturated (i.e. where standing groundwater is higher than the top of the response zone). In accordance with the recommendations of BS8485, no monitoring was undertaken from installations with saturated response zones.

Table 39 summarises the installations from which monitoring has been undertaken and provides further information to justify their inclusion in the monitoring programme.

Table 39: Ground gas monitoring rationale

Explo. -hole	Ground level (mAOD)	Depth (m bgl)	Response zone			Comments/Rationale	Additional comments
			Stratum	Top (m bgl)	Base (m bgl)		
BH101	43.38	7.8	Made ground	1.0	5.0	• General coverage - within made ground. • In NW of the site close to Queens Road Landfill	
BH102	42.93	8.5	Made ground/glacial till	1.9	6.5	• General coverage - within made ground.	
BH112	32.25	4.3	Made ground/ weathered Chester Pebble Beds	0.5	4.0	• General coverage - within made ground.	
BH201	43.40	9.3	Bedrock (mudstone)	3.0	5.0	• In NW of the site close to Queens Road Landfill	
BH202	42.66	9.0	Glacial till	4.0	9.0	• General coverage	
BH204	43.28	16.5	Made ground	1.5	10.0	• General coverage - within made ground. • Within former R Irk meander bend.	
BH205	42.58	10.8	Manchester Marl	4.8	10.8	• In NW of the site close to Queens Road Landfill.	
BH206	42.69	6.8	Made ground	2.0	6.0	• General coverage within made ground.	
BH207	41.64	16.1	Made ground	1.5	15.5	• General coverage - within made ground. • Within former mill race.	
BH208	40.66	14.6	Made ground	3.0	13.0	• General coverage - within made ground.	
BH209	41.21	17.0	Solid strata	11.0	17.0	• General coverage	
BH210	40.45	19.6	Solid strata	14.0	19.6	• Within former reservoir	Although the response zone is in the solid strata, underlying the made ground, monitoring was requested towards end of the 2022 monitoring programme to further investigate ground gas conditions in the northern infilled reservoir – following the findings of monitoring from BH314 in the southern reservoir.
BH211A	40.44	11.6	Made ground	5.0	10.5	• General coverage - within made ground. • Within former reservoir.	Monitoring requested towards end of the 2022 monitoring programme to further investigate gas data obtained from BH314 – both installations are within the southern infilled reservoir. BH211A encountered a 0.4m layer at base of made ground described as “Soft black sandy gravelly silt” with a “Strong hydrocarbon odour.” This material is considered to be infill to the former reservoir.
BH213	31.94	3.5	Made ground	1.5	3.0	• General coverage - within made ground.	

Explo. -hole	Ground level (mAOD)	Depth (m bgl)	Response zone			Comments/Rationale	Additional comments
			Stratum	Top (m bgl)	Base (m bgl)		
WS201B	43.55	1.7	Made ground	0.5	1.3	• General coverage - within made ground. • In NW of the site close to Queens Road Landfill	
BH304	41.18	16.7	Made ground	5.0	10.0	• General coverage - within made ground. • Within former mill race.	
BH305	39.77	12.0	Made ground	1.0	10.0	• General coverage - within made ground.	
BH306	31.45	6.3	Made ground	3.9	5.6	• General coverage - within made ground. Within former mill race.	
BH307	30.61	5.0	Made ground	0.5	2.5	• General coverage - within made ground.	
BH311B	45.31	16.0	Glacial till	9.0	16.0	• General coverage - within made ground on Creamline Dairies	Original BH311 lost – replaced late in monitoring programme.
BH312A	45.60	16.8	Made ground	0.5	4.0	• General coverage - within made ground on Creamline Dairies	Original BH312 lost – replaced late in monitoring programme
BH313	39.81	12.4	Glacial till	3.0	8.0	• General coverage	
BH314	43.11	12.5	Alluvium (possible infill to reservoir) and Solid Strata	9.5	12.0	• General coverage • Within former reservoir	Borehole located within the southern infilled reservoir – see also BH211A. The borehole record for BH314 records a 1.1m layer at base of made ground described as “Dark grey locally mottled black slightly gravelly CLAY” with “Strong hydrocarbon odour noted.” This material is considered to be infill to the former reservoir.
BH315	39.26	13.5	Alluvium	9.0	12.5	• Within former R Irk meander bend. • Within alluvium • In NE of the site close to off-site former landfills.	
BH320	34.26	6.7	Made ground/ Alluvium	3.5	4.2	• Within former R Irk meander bend. • In NE of the site close to off-site former landfills.	The borehole record for BH320 records a 1.25m layer at base of made ground described as “Dark greyish brown slightly clayey gravelly SAND (partially of ash)” with “Strong hydrocarbon odour noted.” This material is considered to be infill to the former meander bend.
BH321	34.20	6.0	Made ground	0.5	4.5	• General coverage - within made ground.	
BH323	30.21	2.6	Made ground	0.5	1.7	• General coverage - within made ground.	
BH325	29.95	4.5	Made ground	0.5	3.5	• General coverage - within made ground.	

7.6 Ground gas data – 2022 spot monitoring programme

Full details of the ground gas spot monitoring that was undertaken as part of the 2022 GI are presented in the Contractor's factual report [10]. The parameters recorded are as follows:

- Atmospheric pressure.
- Borehole flow rate.
- Methane concentration.
- Carbon dioxide concentration.
- Oxygen concentration.
- Hydrogen sulphide concentration.
- Carbon monoxide concentration.
- Volatile organic compounds.

Six, gas monitoring visits were undertaken at approximately two week intervals, subject to atmospheric pressure conditions. In addition, a seventh monitoring visit was undertaken which obtained additional data from BH211A, BH311B and BH312A. The available data is summarised in Appendix E and Table 40.

Table 40: Summary of 2022 gas monitoring data

Installation	Monitoring rounds completed	Flow (l/hr)		CH4 (%v/v)		CO2 (%v/v)		O2 (%v/v)		H2S (ppm)		CO (ppm)		PID (ppm)	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max
BH101	6	0.0	0.2	0.1	1.0	0.1	9.7	3.5	21.6	0.0	0.0	0.0	17.0	0.0	0.0
BH102	6	-2.1	2.5	0.0	1.0	0.2	7.1	10.4	21.7	0.0	0.0	0.0	15.0	0.0	0.0
BH112	6	0.1	0.3	0.0	0.9	0.1	5.2	14.0	20.4	0.0	1.0	0.0	3.0	0.0	0.0
BH201	6	-0.5	2.6	0.0	1.0	0.3	2.1	7.2	20.8	0.0	0.0	0.0	1.0	0.0	0.0
BH202	6	-0.3	0.2	0.0	1.2	0.1	4.5	14.9	22.0	0.0	0.0	0.0	9.0	0.0	0.0
BH204	6	0.1	0.2	0.1	1.0	0.1	10.7	10.2	21.5	0.0	0.0	0.0	2.0	0.0	0.0
BH205	6	-8.9	0.3	0.0	1.0	0.2	2.1	7.8	21.3	0.0	0.0	0.0	5.0	0.0	0.0
BH206	4	0.0	0.2	0.1	0.9	0.1	9.1	8.6	21.6	0.0	0.0	0.0	31.0	0.0	0.0
BH207	6	0.0	0.2	0.0	0.9	0.1	2.1	16.4	21.8	0.0	0.0	0.0	1.0	0.0	0.0
BH208	6	0.0	0.2	0.0	1.1	0.3	7.8	13.8	21.5	0.0	0.0	0.0	2.0	0.0	0.0
BH209	6	-8.9	2.5	0.0	1.0	0.1	7.6	8.6	21.4	0.0	0.0	0.0	3.0	0.0	0.0
BH210	1	0.1	0.2	0.9	0.9	0.9	1.5	12.8	16.8	0.0	0.0	0.0	4.0	0.0	0.0
BH211A	1	0.0	0.0	0.3	0.3	0.8	1.0	20.1	20.9	0.0	0.0	0.0	0.0	0.0	0.0
BH213	6	0.1	0.3	0.0	0.9	0.2	1.2	17.8	20.3	0.0	1.0	0.0	2.0	0.0	0.0
WS201B	6	0.0	0.2	0.0	1.0	0.2	2.6	17.5	21.8	0.0	0.0	0.0	1.0	0.0	0.0
BH304	6	0.1	0.2	0.0	1.0	0.2	7.3	9.7	21.7	0.0	0.0	0.0	1.0	0.0	0.0
BH305	6	0.0	0.2	0.0	1.0	0.2	4.4	17.5	21.6	0.0	0.0	0.0	17.0	0.0	0.0
BH306	6	0.1	0.3	0.0	0.9	0.5	9.2	9.6	20.3	0.0	2.0	0.0	6.0	0.0	0.0
BH307	6	0.0	0.3	0.1	1.0	0.1	7.9	9.6	21.7	0.0	2.0	1.0	5.0	0.0	0.0
BH311B	3	-1.0	-0.1	0.3	0.9	0.3	1.0	17.5	21.1	0.0	2.0	2.0	356.0	0.0	0.0
BH312A	3	0.1	0.2	0.3	0.9	0.3	3.4	17.3	20.5	0.0	1.0	0.0	1.0	0.0	0.0
BH313	6	0.0	0.2	0.0	1.0	2.0	3.8	14.7	20.3	0.0	0.0	0.0	2.0	0.0	0.0
BH314	5	-7.5	1.5	2.1	58.9	0.7	41.9	0.1	20.3	0.0	6.0	0.0	6.0	0.0	0.0
BH315	6	-1.0	1.4	0.0	0.9	0.1	4.0	8.5	21.4	0.0	0.0	0.0	3.0	0.0	0.0
BH320	6	0.0	0.2	0.0	0.9	0.1	7.4	7.2	21.4	0.0	20.7	0.0	227.0	0.0	0.0
BH321	6	0.0	0.2	0.0	1.0	8.4	12.8	6.0	20.9	0.0	0.0	0.0	13.0	0.0	0.0
BH323	6	0.1	0.3	0.1	1.0	6.7	13.6	8.6	21.0	0.0	0.0	0.0	1.0	0.0	0.0
BH325	6	0.1	0.2	0.0	1.0	0.4	1.1	17.0	20.6	0.0	1.0	0.0	3.0	0.0	0.0

7.7 Atmospheric pressure conditions

According to CIRIA C665 [28], to reflect worst case conditions during ground gas spot monitoring, at least two sets of readings should be taken at low and/or falling atmospheric pressure. Based on data obtained on-line [32] for Manchester Airport (the nearest source of weather data to the site) the atmospheric pressure conditions encountered during the ground gas monitoring programme are summarised on Table 41.

Table 41: Summary of atmospheric pressure conditions

Monitoring date	Recorded atmospheric pressure (mb)	Comments
26 & 27 May 22	1012-1019	Atmospheric pressure > 1000mb Prevailing pressure trend was **rising** at this time.
6 & 7 Jun 22	1010-1011	Atmospheric pressure > 1000mb Prevailing pressure trend was **falling** at this time, with a low of 1001mb reached on 8 Jun 22.
20 & 21 Jun 22	1017-1013	Atmospheric pressure > 1000mb Prevailing pressure trend was **falling** at this time, with a low of 999mb reached on 24 Jun 22.
4 & 5 Jul 22	1016-1020	Atmospheric pressure > 1000mb Prevailing pressure trend was **rising** at this time.
18 & 19 Jul 22	1017-1007	Atmospheric pressure > 1000mb Prevailing pressure trend was **falling** at this time, with a low of 1013mb reached on 19 Jul 22.
01 Aug 2022	1016	Atmospheric pressure > 1000mb Prevailing pressure trend was **rising** at this time.
15 Aug 2022	1006	Atmospheric pressure > 1000mb Prevailing pressure trend was rising from a low of 1001mb reached at 03:00 on 15 Aug 2022.

Low pressure is generally regarded as less than 1000mb and as demonstrated in Table 41, none of the gas monitoring undertaken during the summer months of 2022 was undertaken when atmospheric pressure was below this value. On three occasions however, monitoring was undertaken during periods of falling atmospheric pressure.

Given that the site is not generating large volumes of ground gas, the available data is generally considered sufficient to assess the risk from ground gases. As discussed in Section 7.10 however, additional monitoring is recommended from some installations.

7.8 Assessment of ground gas risk

7.8.1 Methane and carbon dioxide risk

The risks associated with methane and carbon dioxide have been assessed by calculating Gas Screening Values (GSV) for these gases, in accordance with CIRIA C665 [28]. Given that the data has been obtained during a programme of spot-monitoring, the assessment of GSVs has been undertaken by identifying the maximum value recorded for each parameter at any stage during the monitoring programme. Given that the highest values of methane, carbon dioxide and flow may not have been recorded during the same monitoring visit, this approach is considered to be conservative. If required, this conservatism can be addressed subsequently by other methods of gas monitoring, for example high frequency monitoring using data-logging equipment.

The results of this assessment of GSV and the corresponding characteristic situation (CS) is given in Table 42. In this table, the calculated GSVs have been screened and the following colours used:

- Grey – CS1
- Pink – CS2
- Red – CS3

In accordance with current guidance however, in the case where the GSV indicates CS1 conditions, if methane concentrations are greater than 1% v/v or carbon dioxide concentrations are greater than 5% v/v, the CS for each gas should be increased to CS2. Finally, the worst-case CS for methane or carbon dioxide is used to determine a CS for the relevant borehole.

Table 42: Calculation of SGV and determination of Characteristic Situation

Installation	Number of rounds	CH_4 max %vol	CO_2 max %vol	O_2 min %vol	Flow* max l/hr	GSV for CH_4 l/hr	GSV for CO_2 l/hr	Characteristic Situation - CH_4#	Characteristic Situation - CO_2#	Design Characteristic Situation
BH101	6	1.0	9.7	3.5	0.2	0.002	0.019	CS1	CS2	CS2
BH102	6	1.0	7.1	10.4	2.5	0.025	0.178	CS1	CS2	CS2
BH112	6	0.9	5.2	14.0	0.3	0.003	0.016	CS1	CS2	CS2
BH201	6	1.0	2.1	7.2	2.6	0.026	0.055	CS1	CS1	CS1
BH202	6	1.2	4.5	14.9	0.2	0.002	0.009	CS2	CS1	CS2
BH204	6	1.0	10.7	10.2	0.2	0.002	0.021	CS1	CS2	CS2
BH205	6	1.0	2.1	7.8	0.3	0.003	0.006	CS1	CS1	CS1
BH206	4	0.9	9.1	8.6	0.2	0.002	0.018	CS1	CS2	CS2
BH207	6	0.9	2.1	16.4	0.2	0.002	0.004	CS1	CS1	CS1
BH208	6	1.1	7.8	13.8	0.2	0.002	0.016	CS2	CS2	CS2
BH209	6	1.0	7.6	8.6	2.5	0.025	0.190	CS1	CS2	CS2
BH210	1	0.9	1.5	12.8	0.2	0.002	0.003	CS1	CS1	CS1
BH211A	1	0.3	1.0	20.1	0.1	0.000	0.001	CS1	CS1	CS1
BH213	6	0.9	1.2	17.8	0.3	0.003	0.004	CS1	CS1	CS1
WS201B	6	1.0	2.6	17.5	0.2	0.002	0.005	CS1	CS1	CS1
BH304	6	1.0	7.3	9.7	0.2	0.002	0.015	CS1	CS2	CS2
BH305	6	1.0	4.4	17.5	0.2	0.002	0.009	CS1	CS1	CS1
BH306	6	0.9	9.2	9.6	0.3	0.003	0.028	CS1	CS2	CS2
BH307	6	1.0	7.9	9.6	0.3	0.003	0.024	CS1	CS2	CS2
BH311B	3	0.9	1.0	17.5	0.1	0.001	0.001	CS1	CS1	CS1
BH312A	3	0.9	3.4	17.3	0.2	0.002	0.007	CS1	CS1	CS1
BH313	6	1.0	3.8	14.7	0.2	0.002	0.008	CS1	CS1	CS1
BH314	5	58.9	41.9	0.1	1.5	0.884	0.629	CS3	CS2	CS3
BH315	6	0.9	4.0	8.5	1.4	0.013	0.056	CS1	CS1	CS1
BH320	6	0.9	7.4	7.2	0.2	0.002	0.015	CS1	CS2	CS2
BH321	6	1.0	12.8	6.0	0.2	0.002	0.026	CS1	CS2	CS2
BH323	6	1.0	13.6	8.6	0.3	0.003	0.041	CS1	CS2	CS2
BH325	6	1.0	1.1	17.0	0.2	0.002	0.002	CS1	CS1	CS1

* - where zero or negative flow has been recorded, the limit of detection of the equipment used is adopted for GSV calculations. LoD is generally taken as 0.1l/hr.
- where GSV calculations indicate CS1 conditions but CH_4 concentrations >1% v/v and/or CO_2 concentrations exceed 5%v/v, CS2 conditions are adopted.

It is evident from the shaded cells in Table 42 that generally CS1 conditions are indicated by the calculated GSVs however, given that some of the recorded methane and carbon dioxide concentrations marginally exceed 1% and 5% respectively, CS2 conditions have been determined in 14 out of the 26 installations, with a single installation (BH314) indicating CS3 conditions (further discussion of the conditions identified in BH314 is presented in Section 7.8.4). CS2 and CS3 conditions are low- and moderate risk classifications, for which protective measures need to be incorporated into proposed buildings (Section 7.9).

7.8.2 Spatial assessment of methane and carbon dioxide risk

When assessed spatially, there is no evident distribution for the CS2 conditions that have been reported (Drawing 19 and Table 43). Except for BH314, the available data indicates that both CS1 and CS2 conditions have been recorded within the infilled historical features. Furthermore, both CS1 and CS2 conditions have been recorded within the made ground present across the site. Additionally, there is no evidence from the available data to indicate that CS2 conditions are associated with areas of the site adjacent to off-site former landfills.

Table 43: Assessment of gas risk from potential sources

Potential source of gas	Relevant monitoring installation	Relevant CS conditions
General made ground	BH102	CS2
	BH112	CS2
	BH204	CS2
	BH206	CS2
	BH208	CS2
	BH213	CS1
	BH305	CS1
	BH307	CS2
	BH312A	CS1
	BH321	CS2
	BH323	CS2
	BH325	CS1
Alluvium	BH315	CS1
R Irk meander bend	BH204	CS2
	BH315	CS1
	BH320	CS2
Mill race	BH207	CS1
	BH304	CS2
	BH306	CS2
Northern reservoir	BH210	CS1 – 2021 & limited 2022 data
Southern reservoir	BH211A	CS1 – 2021 data & limited 2022 data
	BH314	CS3
Queens Rd landfill	BH101	CS2
	BH201	CS1
	BH205	CS1
	WS201B	CS1
Sand St and St George St landfills	BH315	CS1
	BH320	CS2

7.8.3 Risk from other gases.

Although in a small number of cases, elevated PID readings were recorded during the formation of exploratory holes (Table 5), no elevated (i.e. non-zero) readings for VOCs have been recorded at any stage during the ground gas spot monitoring programme to date. On this basis, the monitoring data suggests no demonstrable risk from vapours or volatile hydrocarbons in the soil.

In order to assess the potential risk from other gases that have been addressed during the 2022 spot monitoring programme, reference has been made to the discussions presented in Section 7.3 from which the following screening criteria have been selected:

- Hydrogen sulphide (H_2S) – the 15 minute workplace exposure limit of 10ppm has been adopted for initial screening.
- Carbon monoxide (CO) - the 15 minute workplace exposure limit of 200ppm has been adopted.

When these screening criteria have been applied to the available data, elevated carbon monoxide has been identified in BH311B and elevated hydrogen sulphide and carbon monoxide in BH320 (Table 44**).** BH311 was drilled in the Creamline Dairies part of the site and was lost during demolition works. BH311B was a replacement installation, provided late in the 2022 monitoring programme and only a single set of monitoring data is currently available for this installation. It is recommended that monitoring continues to establish whether elevated CO concentrations are sustained.

Table 44: Assessment of hydrogen sulphide and carbon monoxide risk

Installation	Number of rounds	H2S max ppm	CO max ppm
BH101	6	0.0	17.0
BH102	6	0.0	15.0
BH112	6	1.0	3.0
BH201	6	0.0	1.0
BH202	6	0.0	9.0
BH204	6	0.0	2.0
BH205	6	0.0	5.0
BH206	4	0.0	31.0
BH207	6	0.0	1.0
BH208	6	0.0	2.0
BH209	6	0.0	3.0
BH210*	1	0.0	4.0
BH211A	1	0.0	0.0
BH213	6	1.0	2.0
WS201B	6	0.0	1.0
BH304	6	0.0	1.0
BH305	6	0.0	17.0
BH306	6	2.0	6.0
BH307	6	2.0	5.0
BH311B	3	2.0	356.0
BH312A	3	1.0	1.0
BH313	6	0.0	2.0
BH314	6	6.0	6.0
BH315	6	0.0	3.0
BH320	6	20.7	227.0
BH321	6	0.0	13.0
BH323	6	0.0	1.0
BH325	6	1.0	3.0

BH320 is installed in the River Irk meander bend (Drawing 09). The response zone to BH320 targeted a thin layer of dark slightly clayey gravelly sand (partially of ash), with a strong hydrocarbon odour (Table 39**)**. Although elevated hydrogen sulphide and carbon monoxide concentrations have been recorded in this installation, these elevated concentrations do not appear to have been sustained throughout the monitoring undertaken to date, with elevated concentrations of each of these gases recorded on only a single occasion. Although the available data suggests a potential for periodic hydrogen sulphide and carbon monoxide emissions associated with BH320, given that no development is proposed in this area, the identified risk from these ground gases may not represent a development constraint. The risks identified however, will need to be considered as a potential risk to the construction workforce. Further monitoring from BH320 may allow this risk to be considered further.

7.8.4 BH314 – the infilled former reservoirs

BH314 targeted the southern infilled former reservoir and CS3 conditions have been recorded for methane and CS2 conditions for carbon dioxide (Table 42). The draft borehole record for BH314 records a 1.1m layer at base of made ground described as:

> "Dark grey locally mottled black slightly gravelly CLAY with high carbon [*sic*] content. Gravel is subangular fine and medium of coal and sandstone. Strong hydrocarbon odour noted."

Although this odorous made ground layer sits just above the top of the response zone of the installation in BH314, the gas conditions recorded in this borehole are considered to be associated with this layer of

contaminated fill, which sits at the base of the made ground and is likely to be associated with the former reservoir (see Table 39).

In some cases, the presence of hydrocarbon vapours can lead to falsely elevated readings when portable infra-red monitoring equipment is used for ground gas monitoring. To determine whether the reported hydrocarbon odour in BH314 was affecting the spot-monitoring data, a gas sample was recovered from the installation for laboratory analysis. The results of this analysis (Appendix E) indicate 37.85% methane and 24.67% carbon dioxide, confirming the presence of these gases at elevated concentrations in this installation.

BH211A was installed in the southern infilled reservoir during the 2021 GI. The borehole record for BH211A records a 0.4m layer at the base of made ground described as:

> "Soft black sandy gravelly silt. Sand is fine to coarse and includes ash. Gravel is fine to coarse angular and includes brick and clinker. Strong hydrocarbon odour."

This material sits within the lower section of the response zone in BH211A and has also been interpreted as infill to the former reservoir. The highest concentrations of methane and carbon dioxide recorded in BH211A during the 2021 monitoring programme were 0.2% and 3.0% respectively, far lower than those recorded from BH314. The highest concentrations of methane and carbon dioxide recorded in BH211A during a single monitoring visit added to the 2022 monitoring programme were 0.3% and 1.0% respectively.

BH210 was drilled into the northern infilled reservoir (Drawing 09) however, no evidence for contaminated sediment at the base of the former reservoir was noted on the borehole record. The available data obtained during both the 2021 and 2022 monitoring programmes recorded CS1 conditions in BH310 (however in this case, the response zone is within the solid strata underlying the made ground).

The southern infilled reservoir lies to the south-east of Plot RB01 in an area that according to the current masterplan is to be developed as public open space (Figure 1). The northern infilled reservoir lies partly under the plateau road and partly under Plot RB01. Of the three boreholes within these infilled reservoirs only one (BH314) has been found to present an elevated gas risk. When the data summarised for BH314 is assessed further (Table 44), it is evident that CS3 conditions have only been recorded on one occasion (the second monitoring visit on 6th June 2022). The borehole characteristic situation established during the other monitoring visits has been determined as CS2.

Table 45: BH314 - ground gas conditions at each stage in the 2022 monitoring programme

Installation	Date	CH_4 max %vol	CO_2 max %vol	Flow* max l/hr	GSV for CH_4 l/hr	GSV for CO_2 l/hr	Characteristic Situation – CH_4#	Characteristic Situation – CO_2#	Borehole Characteristic Situation
BH314	27/05/2022	34.3	18.7	-2.4	0.034	0.019	CS2	CS2	CS2
	06/06/2022	58.9	22.6	1.5	0.884	0.339	CS3	CS2	CS3
	20/06/2022	56.7	20.6	0.1	0.057	0.021	CS2	CS2	CS2
	05/07/2022	No data							
	19/07/2022	49.1	36.2	-0.2	0.049	0.036	CS2	CS2	CS2
	01/08/2022	50.1	41.9	0.2	0.100	0.084	CS2	CS2	CS2

* - where zero or negative flow has been recorded, the limit of detection of the equipment used is adopted for GSV calculations. LoD is generally taken as 0.1l/hr.
- where GSV calculations indicate CS1 conditions but CH_4 concentrations >1% v/v and/or CO_2 concentrations exceed 5%v/v, CS2 conditions are adopted.

The ground gas conditions encountered to date in BH314 are considered to be associated with a relatively thin layer of hydrocarbon-impacted made ground, that has been interpreted as contaminated sediment that accumulated within the southern reservoir, before it was buried beneath the made ground of the Red Bank Plateau sometime prior to 1906. The organic content of this made ground is likely to have degraded slowly since the burial of the reservoir and it can be anticipated that much of the organic material that was initially available for decomposition has now degraded (this concept is referred to as a diminishing source-term).

Given that no elevated gas concentrations have been recorded to date in the nearby BH211A (also installed in the same infilled reservoir), it may be concluded that the conditions encountered in BH314 are relatively localised.

Given the possibility that the source of the ground gas recorded in BH314 is limited in extent and is over 100 years old, it is possible that BH314 has penetrated and released a pocket of ground gas that has generated slowly over prolonged timescales. Continued monitoring from BH314 is recommended to establish whether gas concentrations reduce over time, if this pocket of gas disperses. Furthermore, as discussed in Section 7.8.1, spot monitoring such as that undertaken to date from BH314 only records gas concentrations at specific points in time. A more robust assessment of ground gas risk may be obtained following a programme of high-frequency monitoring using data-logging equipment, particularly if development proposals change under a new masterplan and buildings are to be considered overlying the former reservoir.

7.9 Summary of ground gas conditions.

With the exception of BH314, the available data indicates both CS1 and CS2 conditions within the site (with respect to methane and carbon dioxide). When addressed spatially, there is no evidence to indicate a link between the higher-risk CS2 conditions and specific historical features within or adjacent to the site. On this basis, it is considered that in the absence of further monitoring data, CS2 conditions should be assumed for the development of the site. In accordance with BS8485, CS2 conditions attract a gas protection score in the range 1.5 to 3.5 depending on the nature of the development and the details of the individual buildings to be included.

The available data for BH314 suggests localised CS3 conditions. According to the current masterplan, BH314 does not lie within a proposed development plot and therefore, it is not considered necessary to adopt CS3 conditions for the relevant areas of the proposed development site. If development layouts change however, localised CS3 conditions may need to be adopted and appropriate gas protection measures allowed for during construction. In accordance with BS8485, CS3 conditions attract a gas protection score in the range 2.5 to 4.5.

7.10 Recommendations for further monitoring

Given that BH311B and BH312A have been installed late in the current spot monitoring programme (to replace installations lost during demolition works in the former Creamline Dairies site) it is recommended that additional site visits are undertaken to allow six monitoring visits to be completed from the replacement installations. During these additional visits, it is also recommended that further monitoring is undertaken from:

- BH210, BH211A and BH314, to further assess the ground gas risks within the infilled former reservoirs.
- BH320, to allow further assessment of the hydrogen sulphide and carbon monoxide risks to be undertaken. Alternatively, after consideration of the construction activities that may be required in the relevant areas of the site, it may be possible to address these risks by adopting appropriate safe systems of work or other health and safety provisions.

8. Engineering considerations

8.1 Introduction

An assessment of the ground conditions has been undertaken to identify risks and constraints to the proposed HIF Infrastructure works, within the proposed site boundary shown in red on Figure 1.

8.2 Ground condition considerations

8.2.1 Variability

The ground conditions across the wider site area are complex and highly variable both in plan and with depth. As a result, ground conditions will vary significantly between different plots and elements of the works. The site has been divided into zones for this report, yet there is still significant variation within each zone. It is recommended that for future stages of design, location specific ground conditions are reviewed for each individual element.

8.2.2 Made ground

Made ground covered the majority of the site. The nature and thickness of made ground is significantly variable. Red Bank Plateau, was formed for rail sidings by cutting into the valley side and filling towards the River Irk with offsite material. The fill will not have been controlled or compacted and cannot be relied upon to provide a consistent engineering performance.

Due to the variability within a large amount of data, this report has grouped together and averaged typical behaviour, it should be noted that localised soft spots and unsuitable material will be present.

Given the variability of material and limited nature of ground investigation, it is not possible to accurately classify the nature, extent and behaviour of this material. Risk allowances will need to be made to account for variability of material not meeting the assumed classification.

8.2.3 Soft ground

Soft deposits were encountered at depth in the vicinity of former reservoirs, course of the River Irk and mill race (Figure 4). The extent of soft material has not been delineated.

Relic topsoil, subsoil and weathered natural material can be expected beneath the made ground across the area filled during formation of the plateau.

Localised shallow soft spots may also be present in some areas of the site (e.g. St Catherine's Wood), associated with alluvium or other natural superficial deposits.

The made ground in general across the site may also contain soft spots.

These materials are unlikely to provide sufficient support for foundations and are potentially unsuitable for formation or reuse in earthworks.

8.2.4 Rockhead

The level of rock head beneath the site is highly variable as a result of the different rock types which have been exposed to erosion from glacial activity and the river. The rockhead level typically drops towards the River Irk.

In the Red Bank Plateau area, bedrock is found at depths of up to 16mbgl associated with the deepest made ground. In the lower-lying areas of St Catherine's Wood and Red Bank Terrace, bedrock was encountered at shallower depths, in the order of 1.8 to 3.3m bgl.

Except for the areas close the river, competent engineering rock head may be found at significant depths.

8.2.5 Groundwater

Groundwater was encountered in made ground, alluvium, glacial till and bedrock.

Perched water was encountered within the made ground at shallow levels in some of the boreholes. A number borehole installations in made ground were dry throughout the monitoring. Typically, a relatively thin saturated zone was identified at the base of the made ground, it is likely that groundwater in made ground is discontinuous. Locally groundwater within the made ground may be trapped within obstructions or perched on underlying cohesive material.

Groundwater encountered in glacial till appears to be concentrated in the granular lenses, however it is possible that water is present, but less evident within cohesive glacial till. Groundwater in alluvial deposits is likely to be in continuity with the river, as is groundwater in the underlying bedrock which is expected to have greater permeability than the superficial deposits, particularly in the sandstone formations.

Excavations in made ground and glacial till are likely to encounter perched groundwater which may require dewatering or other forms of groundwater management. Groundwater in alluvium may be in continuity with surface water and/or groundwater and given the relatively high permeability of the alluvial soils present, simple dewatering may not be practicable and other forms of groundwater management may be required if significant excavations are to be undertaken.

8.2.6 Buried features

There is potential for buried features including old foundations, slabs, walls, voids, and both live and abandoned services to be present. These are discussed in more detail in Section 8.7.

8.3 Earthworks

8.3.1 Cut-fill balance

Earthworks will be required to create level development plots; to construct the road embankment entering the site; and for a range of landscaping works. A preliminary assessment of plot levels has been undertaken for the site and is presented on the cut and fill drawing ref VNIF-ARP-00-YYY-DR-CE-0003 (reproduced as Figure 21, below).

The remediation of the site will also generate a large volume of cut material and will impact the earthworks strategy. To mitigate slope stability risk significant cut is required in the vicinity of Plots RB02 and RB03. Regrading is also required for landscaping down to Red Bank Terrace and for the works down to St Catherine's Wood. Additional cut is also required for the riverbank works.

Fill will be required for the plateau road embankment. Opportunities for additional fill have also be identified within on Red Bank Plateau and within landscaping in St Catherine's Wood and Red Bank Terrace. General fill may be won from the made ground that is excavated and sorted, however some processing and conditioning should be anticipated. This is discussed further in 8.3.2 below.

Fill at the crest of existing slopes should be avoided to as this would adversely impact stability. This affects plot levels of Red Bank Plateau.

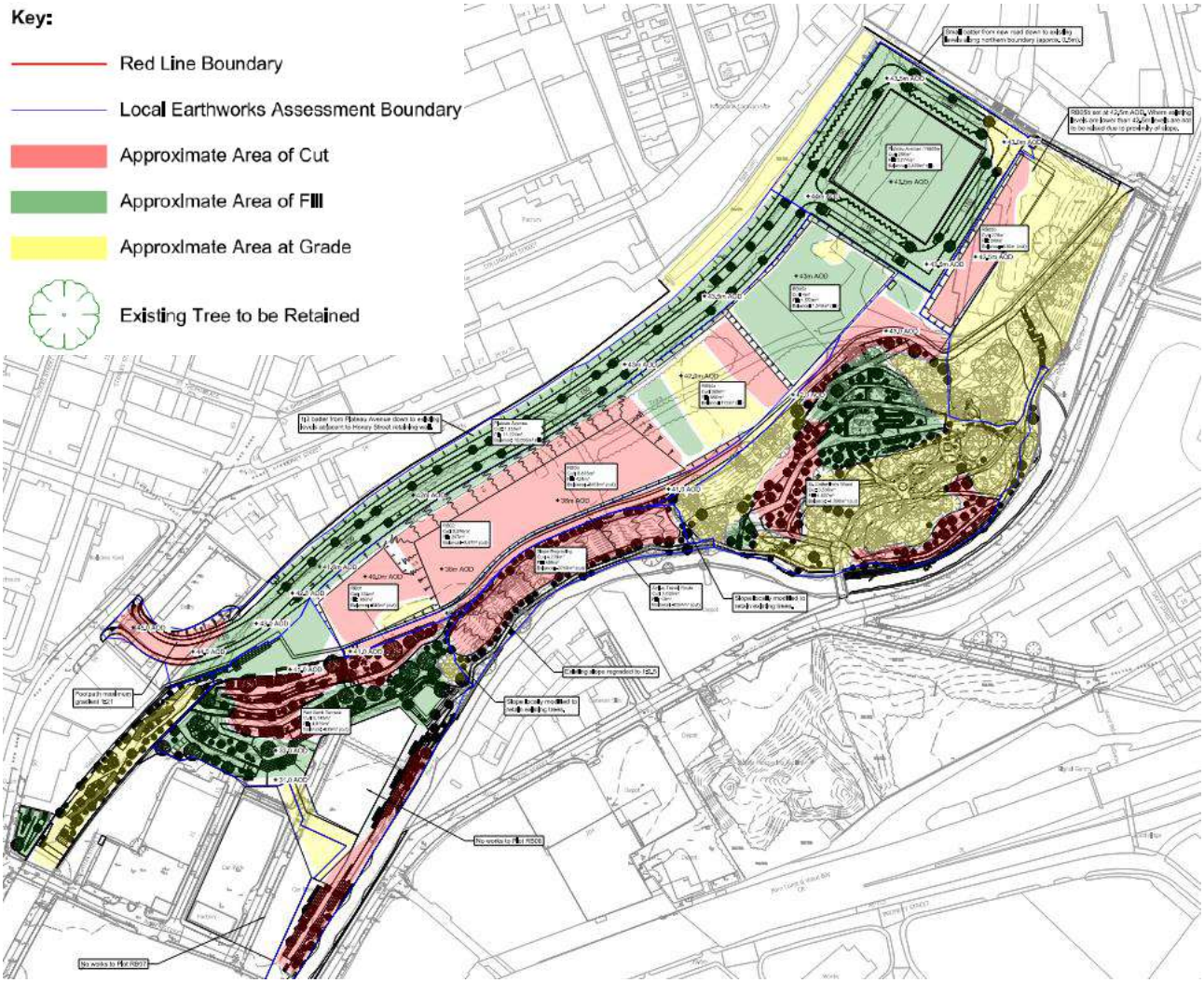


Figure 21: Indicative cut and fill proposals (VNIF-ARP-00-YYY-DR-CE-0003)

In addition to "general fill" selected engineering material (in accordance with Specification for Highway Works, SHW) will be required for some uses within the scheme (for example capping and fill to retaining walls). It is likely that this will need to be imported. There may be an opportunity to generate some of this material by processing suitable arisings from excavation (e.g. crushing and screening concrete and masonry).

On the basis of the current design of the HIF Infrastructure Works, it is anticipated that there will be a surplus of site won material that will need to be exported. It is recommended that the Contractor's material team are engaged to help identify opportunities for material re-use.

8.3.2 Re-use of site won material

It is considered that most of the material excavated from the site as part of a general cut and fill exercise will be made ground, which has been found to be highly variable, with the composition likely to vary both laterally and vertically. Soil descriptions (BS5930) from the GI, suggest that approximately 75% of the made ground on site could be classified as predominantly granular. Within the granular made ground however, there is evidence for zones of cohesive material, particularly along sections of the plateau road , Plot RB03 and in the P&P slope area (Drawing 08).

Particle Size Distribution (PSD) data suggests that 70 % of the material to be excavated around plateau slope fits the grading criteria for Class 1 general fill according to SHW [12]. It should be noted that there are additional acceptability criteria for SHW materials. Therefore, additional testing and assessment will be required during construction to determine acceptability. It should be anticipated that some sorting and double handling will be required to eliminate unacceptable materials.

Compaction testing indicated highly variable performance and moisture content for the made ground. The natural moisture content was found to be close to the upper limit for achieving compaction, therefore allowance should be made for conditioning some of the material prior to compaction.

Based on plasticity characteristics and PSD results from Section 5.1.1, the cohesive made ground material would generally fall in Class 2A (wet cohesive material) according to the SHW [12] if used as general fill.

Natural material is mostly encountered at Red Bank Plateau with very small amounts seen at Red Bank Terrace and St Catherine's Wood which is unlikely to be encountered during excavation works. At Red Bank Plateau where natural ground could be encountered, the cohesive material can be described as a Class 2A (wet cohesive material) according to the SHW [12] if used as general fill.

Note that criteria other than the relationship between moisture content and plasticity will need to be taken into consideration when assessing the acceptability of re-use, including strength and compaction characteristics.

Geoenvironmental factors impacting re-use of site won materials are covered separately in Section 9.

8.3.3 Earthworks phasing

To maximise the potential for material re use, including sorting and processing of materials, it would be advantageous to undertake remediation, excavation and processing of material in advance of filling in some areas of the site. However, this may lead to double handling of some materials.

If the development is progressed in phases, this may reduce the potential to recover some materials, and lead to inefficiencies and costs associated with undertaking earthworks in small areas. This may include:

- Reduced flexibility for reusing potentially suitable fills resulting in additional offsite disposal or import of suitable fill materials.
- The need for additional temporary earthworks batters or retaining structures at the edges of plots.

8.3.4 Settlement

There are a number of potential causes of settlement. Those of most significance at the HIF site include settlement due to increased loading on in-situ soils and self-weight settlement of the made ground.

Given that the made ground was placed at least 130 years ago, it is likely that much of this settlement will now be complete. However, it is important to understand the likely magnitude of settlement resulting from additional loading due to the proposed works. Additionally, it is important to consider the timescales over which residual settlement is likely to occur in different materials.

Settlement of in-situ materials will occur when new fill is placed or loads are applied as part of the development. Where significant thicknesses of made ground or compressible materials are present, settlement can be significant and have a pronounced effect on the performance of engineering solutions.

Proposed filling operations should be undertaken in accordance with an engineering specification to control and limit settlement within newly placed fill. It is anticipated that granular materials will be used for the proposed fill, in which case self-weight settlement should occur during the works.

There will be potential for differential settlement along the alignment of the proposed plateau road, as the road comes out of cut through Creamline Dairies site, across the existing retaining wall and then a large amount of fill forming the embankment, which reduces in height along the wall. At the maximum embankment height the data suggests the formation is made up of granular material, therefore the maximum settlement at this location may occur quickly. As the embankment reduces in height, the formation crosses layers of cohesive material, which may undergo consolidation settlement over a longer time scale. The design and construction sequence for this embankment will need to consider the rate and magnitude of potential settlement. If predicted total or differential settlement of the embankment is unacceptable, measures to reduce the magnitude of post construction settlement may be required.

A programme of monitoring should be undertaken to monitor settlement of soils underlying the proposed earthworks. This settlement monitoring programme should include provision of surface settlement monitoring stations together with a minimum of two borehole extensometers. Extensometers should be

installed and at least two rounds of baseline monitoring undertaken, before filling commences. To validate design assumptions, monitoring should continue after filling is complete. If this area can be surcharged in advance of the final road construction, then this would mitigate risk of differential settlement with time impacting road performance. There may be an opportunity to surcharge this area with the temporary haul road.

The construction programme should be reviewed following design to assess the construction sequence of temporary haul road, retaining wall construction and embankment construction to mitigate risk of differential settlement.

This report does not consider the development of the plots. It is assumed that the developments will be piled and the infrastructure works will be protected from settlement associated with the plot development. It should be noted that some long-term settlement may happen in the vicinity of the plots, there could be a risk of down drag loads due to settlement of the surrounding area. This risk should be assessed and mitigated if required during the design of each plot development.

There is a risk that changes in groundwater regime and saturation across the site can impact settlement/heave of in-situ materials. Future development of the site may restrict flow down to the river, resulting in mounding. Introduction of infiltration through SuDS has the potential to impact the groundwater regime in the plateau and slope. The development proposals should consider any potential impact, if there is a risk of groundwater conditions changing.

Volume changes can be caused by chemical reactions of components within the fill. Reactions are known to be associated with the presence of a number of materials in fill (for example sulphates, steel slag and pyritic shales). Despite some evidence for the presence of slag material within made ground at the site (e.g. BH301 and BH302), these materials have not been noted in any significant proportion in the ground investigation. If significant volumes are discovered, then the risk of expansivity should be mitigated.

8.3.5 Drainage

A sustainable urban drainage strategy is being developed for the site and subject to obtaining regulatory approval. The presence of contaminants in the made ground across the site is likely to prevent the use of soakaways in most areas of the site. However, depending on groundwater conditions, soakaways and other infiltration systems may be considered possible in areas close to the River Irk where sandstone strata is at relatively shallow depths. The current design proposals do not include for infiltration, care should be taken to understand the impact on other design elements if the drainage design is reviewed.

8.4 Slope stability

8.4.1 Slope A, plateau cut

175m length of the north-western boundary of the Red Bank Plateau area is formed from an existing cut slope approximately 7m high and 1v to 3h (Slope A, Figure 3). This slope was extensively vegetated and the area behind the crest is in third party ownership and used for storage, therefore access for an inspection was not possible. It has been assumed that this slope has been cut into glacial till. However, this could not be confirmed during the ground investigation and it has not been possible to assess the stability. While a 1v to 3h in glacial till would typically be expected to stable, there could be a risk of adverse impact from surcharging at the crest, weathering and deterioration of material and groundwater.

8.4.2 Slope B1, P&P

The existing slopes adjacent to Plot RB05b is known as the P&P slope (Figure 3**)**.

There are no immediately obvious signs of instability. However, the slopes are steep and may not meet current design standards. ~~T~~

It is apparent that on the lower, steeper section of the slope the mature vegetation plays a significant role on maintaining stability. Should the vegetation be removed, then stability may be impacted and regrading/ strengthening works may be required in order to mitigate risk of stability or meet current standards.

To minimise environmental impact of de-vegetation and regrade works to bring the existing slope to current standards, a managed risk approach may be considered, such that a risk zone be defined and any proposed development including recreational areas and utilities are located outside this risk zone.

An additional area of sloping ground has been identified extending beyond the northern site boundary and into areas currently under third party ownership. No ground investigation or inspection has been undertaken on third party land. It has been assumed that the ground conditions within the site continue beyond the boundary, and it is considered that there exists the same marginal risk of slope failure in this area as for slope B1. It is therefore important that the loading conditions of the external slope are not altered without first assessing the potential impact on the development and appropriate mitigation put in place by others.

Inclinometer results

Two inclinometers were installed as part of the ground investigation in order to help understand whether there was a potential ongoing deformation within the existing slope. The image below illustrates the location of the inclinometer installations.

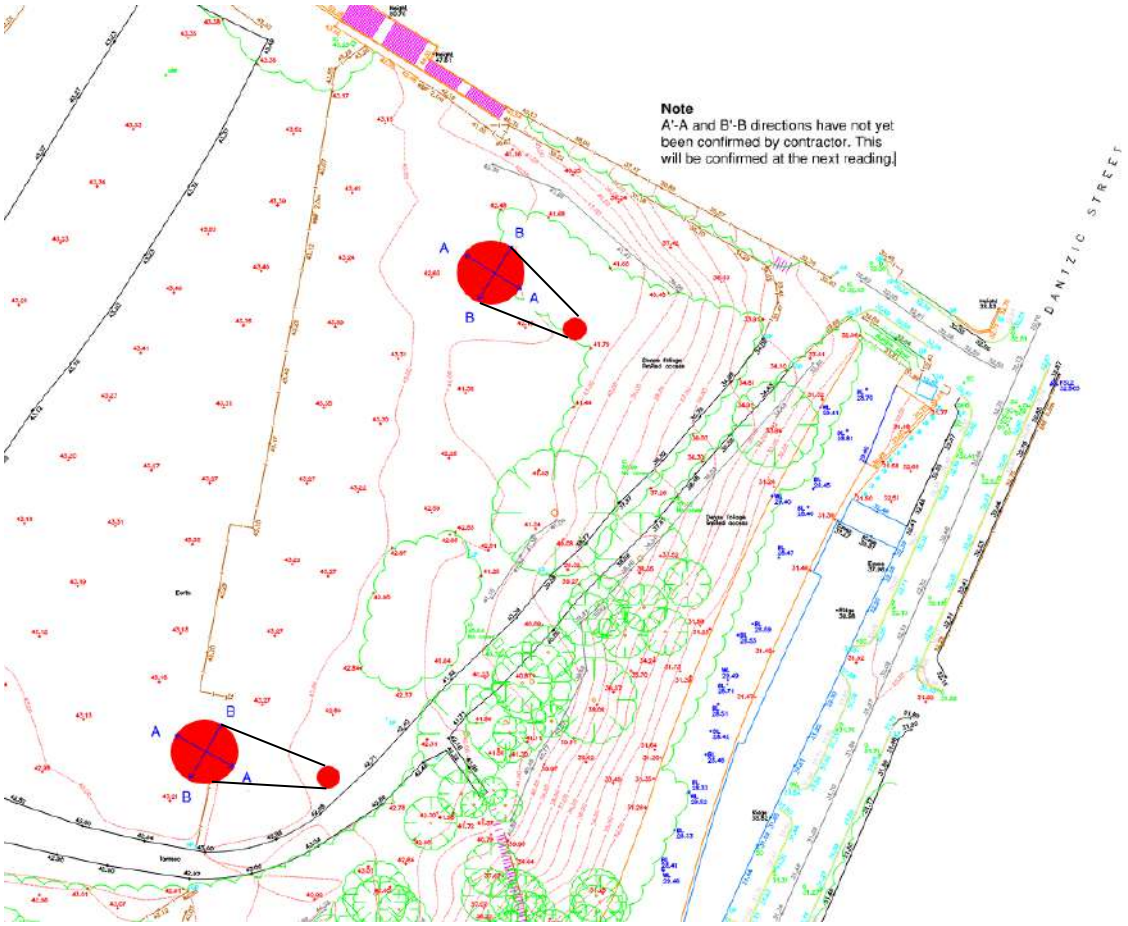


Figure 22: Inclinometer installation location plan

Limitations

Of the two inclinometer installations, site constraints required that BH302 was set back approximately 10m from the from the crest of the slope, behind the access track. At the as-installed location, the data obtained from the inclinometer in BH302 may not represent the full profile of the slope.

For both installations, the A-A' axis is perpendicular to the existing slope and the B-B' axis is parallel to the slope. The factual data provided does not however indicate where A' and B' lie on the respective axes. Clarification has been requested from the ground investigation contractor.

At the time of writing this GIR, four sets of monitoring data have been provided for Inclinometers installed in BH301 and BH302: March 21st, June 11th, July 19th and August 8th 2022.

Observations

The monitoring results suggests that some movement has occurred. However, there are some discrepancies which make it difficult to make definitive conclusions at this stage. It is assumed that some of the discrepancies may be down to operational error in taking the readings and/or plant movement on the plateau above the slope.

The cumulative displacement charts for BH301 suggest that there may be 20 to 30mm movement, along the A-A' axis, in the upper 6m of the material. There may also be progressive movement (10 to 20mm) along the B-B' axis approximately 10m below crest level. As BH301 is on the corner with two adjacent slopes as such it could be reasonable to see different behaviour in both axes.

The cumulative displacement charts for BH302 suggests up to 70mm movement in the upper 4 to 6m, across both axes. Given the location of BH302 on flat ground and the erratic nature of one reading, it has been assumed that this data is unreliable and the movement may be due to surface activity or other disturbance, given that it is adjacent to the access track.

Given the issues with the available data it is recommended that further monitoring is undertaken from both these installations. Monitoring should be undertaken in by trained staff operating in full accordance with the manufacturer's instructions. During this additional monitoring, plant movements should be prohibited in the vicinity of the installations.

Better quality monitoring will continue for the next year with a program to be discussed with BAM Nuttall.

8.4.3 Slope B2, plateau

There is a steep exiting slope approximately 10m high from the plateau down to the river slope adjacent to Plots RB02 and RB03 (Figure 3). The slope was formed by placement of made ground to form the railway sidings. The slope has exhibited signs of instability and is currently considered to be marginally stable in places, standing at the angle of repose. The river wall at the toe is clearly critical to the integrity of the slope. Without the wall, there would be erosion and instability pushing the slope crest back into the plateau.

The slope has a variety of gradients and geometry, similarly the made ground in the vicinity of the slope is variable. Typically, granular made ground, medium dense near surface but loose at depth and near the crest, as would be expected for end tipped granular material including ash. Locally layers of cohesive material are present and these roughly correlate with steeper sections of slope.

It is considered that in its current condition there is a risk of instability impacting the development, it's infrastructure and the river wall. The slope would not meet current design standards. This is considered unacceptable in the context of the future development. It is recommended that the slope be regraded to improve stability. In order to mitigate impact on the available developable land there is an opportunity to reduce the platform level of Plot RB02 and RB03.

8.4.4 Slope C, St Catherine's Wood

As the crest Red Bank Plateau drops down to St Catherine's Wood the slopes are from 9m to 13m high with gradients typically 1v in 2h to 1v in 2.5h, locally 1v to 1.6h around vegetation. slopes are generally densely vegetated, thinning out to the SW towards slope B2. Unlike slope B2, there is a broad area of gently sloping ground of St Catherine's Wood at the toe; the river is not in close proximity to the steepest section of the slope.

There is an opportunity to fill this area, further reducing any risk of instability. Care will be required during the design of the paths and landscaping to avoid loading or cutting into the slope.

8.5 Retaining structures

8.5.1 Existing retaining walls

A number of existing retaining walls have been identified within (Figure 3**)**:

- A c. 5m high Victorian-era brick retaining wall along the north-western boundary between the Creamline Dairies site and Red Bank Plateau known as Honey Street retaining wall (Retaining Wall 1).

- The c. 8m high viaduct retaining wall running parallel to the Honey Street retaining wall.
- Sections of a masonry retaining wall (possibly constructed in the early 1900s) at the foot of the slopes between the Red Bank Plateau and the Red Bank Terrace areas (Retaining Wall 2).
- Masonry retaining walls (date of construction not determined) that line the banks of the River Irk.

The geometry and founding levels of these structures is unknown. If development proposals are considered to potentially impact the stability of these structure, further consideration will be given on a case-by-case basis.

Care will need to be taken during excavation and other construction activity in the vicinity of existing retaining walls, so as not to have an adverse impact on their integrity or performance.

8.5.2 Proposed retaining structures

There is insufficient space available for the construction of the proposed plateau road embankment as it approached Red Bank Terrace, therefore a retaining wall is required. The wall will retain from 2-4m height of the embankment on the approach to existing Retaining Wall 1.

The construction sequence of the wall needs to be confirmed, as discussed in 8.3.4 to mitigate differential settlement along the embankment. The global stability of the proposed retaining wall will need to consider both the embankment and existing retaining wall geometry, together with the slope and landscaping for Redbank terrace.

A series of small retaining gabion walls are anticipated to support terraced footpaths in the Red Bank Terrace and St Catherine's Wood area as part of the public open space improvements. Loose granular made ground on existing slopes may introduce risks to the formation of these walls and their stability, therefore there is a risk that localised excavation and recompaction may be required to provide suitable formation.

8.6 Foundations

Plot development is beyond the scope of this report for the infrastructure work. Separate interpretation should be undertaken & additional investigation may be required to design and construct foundations for any other structures.

Given the ground conditions it is unlikely that shallow foundations will be suitable for anything other than lightweight ancillary structures, which are insensitive to ground movements.

In order to avoid settlement issues impacting infrastructure works and adverse loading on the slopes, the use of piles is anticipated to be required to both carry load and limit settlement for any buildings on the site. The type of piling will be dependent upon the structural form and loads, however variable ground conditions and risk of buried obstructions may influence the most appropriate pile type.

The design of the proposed buildings must be undertaken in such a way to avoid adversely impacting the stability of slopes or surrounding infrastructure. This includes consideration of settlement on surrounding assets. Further investigation will be required to inform the foundation design at each plot location.

8.7 Constraints to development

8.7.1 Buried obstructions

Details of the obstructions encountered during GI can be found in Section 3.6. An outline remediation strategy is presented in Section 9.2 and includes measures to address known and potential obstructions. Following the implementation of the remediation strategy however, there will remain a potential for encountering additional buried obstructions from past site use within the site. Obstructions may include former basements, foundations, walls, utilities and made ground containing large concrete obstructions.

These types of obstructions may affect activities such as piling, excavations and earthworks as well as the design and construction of new retaining structures.

8.7.2 UXO

As reported in the 2019 desk study [1], a number of studies have been undertaken by specialists to determine the risk from UXO across the site. In addition to what is documented in these studies, there is the potential for further unrecorded strikes having taken place. The most recent UXO assessment by Zetica [35] concluded that the risk from UXO within the area of interest was low.

It is recommended that the mitigation measures in the Zetica report are reviewed by BAM and further specialist advice obtained, in advance of proposed infrastructure works.

8.7.3 Voids

The desk study identified several potential sources of voids resulting from uncontrolled backfill of historical features, such as foundations, basements, former bridge structures or reservoirs. There also remains the risk of voids due to current or former utilities. Without treatment (such as excavation/replacement or grouting), voids may pose a hazard to both temporary works and the proposed development.

The ground investigations undertaken had targeted and uncovered voids which is discussed in Section 3.6.8. All known voids are shown on the site clearance drawing (VNIF-ARP-00-YYY-DR-G-0013).

8.7.4 Utilities

Existing utilities may present a constraint to the development in some areas. There is also a risk of unrecorded services being present. Diversion and protection works may be needed, in advance of site clearance, earthworks and remediation.

A potential combined sewer was identified, crossing Red Bank Plateau and descending the steep slopes before crossing beneath the River Irk. The alignment of this sewer represented a potential constraint to proposed earthworks. An assessment of the actual alignment of this sewer has been undertaken by BAM and of copy of their work is included in Appendix F for information.

The known drainage shown on the site clearance drawing along Red Bank Plateau, may also hinder the regrade works at plots RB02 and RB03.

9. Geoenvironmental considerations

9.1 Introduction

Based on the assessments presented in Section 6, the conceptual site models presented in Table 25 and Table 26 have been reassessed in order to consider the proposed redevelopment of the Red Bank Plateau, Red Bank Terrace and St Catherine's Wood.

The results of this reassessment are presented as Table 46 and Table 47.

Table 46: Revised conceptual site model for the HIF IW construction phase

Source		Pathway		Receptor	Linkage?
Made Ground (containing solid contaminants, asbestos fibres and hydrocarbons)	→	Dermal contact	→	Construction worker Assuming appropriate health and safety procedures are adopted (including the use of appropriate PPE)	No
		Ingestion of soil/ soil dust	→		No
		Inhalation of soil vapour	→		No
		Inhalation of soil and soil dust	→	Construction worker Assuming appropriate health and safety procedures are adopted (including the use of appropriate PPE)	No
			→	Site users and neighbours Assuming appropriate health and safety measures are adopted i.e. dust suppression	No
Temporary stockpiles of excavated arisings Accidental leaks and spills during construction	→	Leaching and runoff	→	Surface water drainage Assuming appropriate site management procedures are adopted	No
			→	River Irk Assuming appropriate health and safety procedures are adopted	No
		Leaching and infiltration	→	Secondary A aquifers in superficial deposits Principal aquifers in bedrock River Irk Assuming appropriate site management procedures are adopted	No
Impacted shallow groundwater, including groundwater entering the site from landfill to the north	→	Dermal contact	→	Construction worker Assuming appropriate health and safety procedures are adopted	No
		Ingestion	→	Construction worker Assuming appropriate health and safety	No

Source		Pathway		Receptor	Linkage?
				procedures are adopted	
		Lateral migration	→	River Irk	Yes
Ground gases/landfill gases	→	Ingress and accumulation of toxic, asphyxiating or explosive concentrations within excavations	→	Construction worker in deep trenches and chambers	No

Table 47: Revised conceptual site model post-completion of HIF IW

Source		Pathway		Receptor	Linkage?
Made Ground (containing solid contaminants, asbestos fibres and hydrocarbons)	→	Dermal contact	→	Future site user in soft landscaping areas only Interim users of plots where no hardstanding exists prior to follow-on development Pathways broken where hard surfacing and buildings present but exposure possible in landscaped areas/gardens	Yes
		Ingestion of soil/ soil dust	→		Yes
		Inhalation of soil vapour	→		No
		Inhalation of soil and soil dust	→		Yes
		Leaching and infiltration	→	Secondary A aquifers in superficial deposits Principal aquifers in bedrock River Irk	Yes
		Direct contact	→	Buried structural concrete	No – assuming the recommendations of Section 5.8 are observed.
			→	Potable water supply pipes	No – assuming the recommendations of Section 6.3 and subsequent assessments are observed.
			→	New planting in public open space areas	Yes
Impacted shallow groundwater (including groundwater if entering site from landfill to north)	→	Dermal contact	→	Future site resident	No
		Ingestion	→	Future site resident	No
		Lateral migration	→	Secondary A aquifers in superficial deposits Principal aquifers in bedrock River Irk	Yes
Ground gases/landfill gases	→	Ingress and accumulation to toxic, asphyxiating or explosive concentrations within buildings	→	Future site user Building structures	Yes - plot-specific assessment recommended

Little evidence for VOCs has been identified during ground investigation at the site. Potential contaminant linkages which include a soil vapour pathway can therefore, be discounted. Given the general absence of volatile contaminants, risks to future site users are not deemed to be present where soils are located beneath hardstanding.

The potential contaminant linkages (PCL) identified for the HIF IW construction phase can be addressed by the adoption of appropriate mitigation measures typical of brownfield development (Section 9.2), except for the PCL relating to possible impact on the River Irk due to legacy groundwater contamination. This PCL is continuous into the post-construction phase and to avoid duplication, is considered with post-HIF IW PCLs below. The risks to construction workers during the HIF IW can be addressed with mitigation measures standard for brownfield site construction works, with negligible residual risk.

The scope of remediation that will be carried out as part of the HIF IW will be limited to ensuring that the land is suitable for the current masterplan uses, and that any unacceptable risks to groundwater or the River Irk are addressed. Potential contaminant linkages will remain post-HIF IW construction, identified in red in Table 47. These relate to:

- Human health risks, where there is no barrier to prevent direct contact with existing site soils (e.g. in landscaped areas or gardens).
- Controlled waters, where existing contamination in groundwater is able to migrate into the bedrock aquifers and/or River Irk. These PCLs have been addressed further by a programme of detailed quantitative risk assessment (Section 9.2.2).
- Ground gas risks. Ground gas risks have been identified within the site (Section 7) and subject to the outcome of any further monitoring that may be undertaken, will require measures to be incorporated into proposed buildings as part of the individual plot development works.

It is understood that the development of each individual plot within the site will be subject to a separate assessment by others and as such is not included in the scope of this report.

9.2 Outline remediation strategy

9.2.1 Scope

Remediation in its broadest sense implies a form of intervention to reduce and control risks where linkages exist between contaminant sources and sensitive receptors. This can include source removal or reduction through treatment; pathway interruption (for example by barriers and cover layers or gas membranes); enhanced health and safety and site control measures (protecting construction workers and neighbours); and long-term monitoring. Remediation objectives relate to the requirement to address contaminant linkages by one or more means. In some cases, more detailed investigation and further risk assessment may indicate that no further intervention is required.

The key objectives for the remediation works specific to the site are:

- To address the contaminant linkages identified in the conceptual model that can be addressed prior to final development;
- To mitigate significant environmental risks or liabilities;
- To achieve regulatory approval, and
- To provide a sustainable solution, within budget and programme constraints, avoiding unacceptable nuisance and H&S impacts.

This is an outline remediation strategy that does not present the complete information that would be required, for example to discharge a land contamination planning condition. The detailed remediation strategy is to be produced by BAM.

The outline remediation strategy relates to the HIF IW only, i.e. the ‘master developer’ works to create development platforms for follow-on development and associated Infrastructure Works. At plot development

stage (under separate planning application) 'plot developer remediation' activities will be necessary that can only be completed at that stage, such as:

- In-building gas protection measures;
- Clean cover in soft landscaping and residential development private gardens within the development plots;
- Installation of services;
- Foundation works risk assessment for plot developments.

9.2.2 Principal constraints identified by ground investigation

Visual and olfactory evidence for contamination of soils, together with a number of exceedances of the selected GACs have been identified in the area of a former gasworks (Plot RB05b and areas of the adjacent St Catherine's Wood). In addition, GI has confirmed the presence of relic structures associated with the former gasworks, to a maximum proven depth of 2.65m bgl (TT301). Given the constraints that have been identified, remediation of this area of the site will be required.

Evidence for gross groundwater contamination was observed during ground investigation in the former gasworks area. Hydrocarbon contamination of groundwater was also noted within the relic carriage shed sub-structure in the northern part of Red Bank Plateau. Remediation of the carriage shed area will also be required.

In the majority of the cases soils with visual and/or olfactory evidence for contamination will be dealt with during the proposed site turn-over operations (which are to extend to 0.5m bgl) and the plot regrading works to the plateau slope area. If additional areas of free oils are encountered during the HIF IW, localised remediation and validation may be required as part of the Contractor's Discovery Strategy (Section 9.2.3). Stockpiled soils should also be inspected for visual and/or olfactory evidence for contamination, as part of the assessment of suitability for re-use.

In order to determine whether the instances of hydrocarbon impacted groundwater identified within the site represent a risk to controlled waters, a controlled waters detailed quantitative risk assessment (DQRA) has been undertaken [36]. In addition, the DQRA has informed validation and material reuse criteria for use during the HIF Infrastructure Works.

9.2.3 Remediation strategy tasks

On the basis of current assessments, the following key tasks have been identified as forming part of the site preparation and remediation works:

Site clearance and demolition

The Red Bank Plateau area is heavily overgrown and will require vegetation clearance prior to earthworks and remediation. Any invasive species such as Japanese Knotweed and Himalayan Balsam will require removal and/or treatment. Vegetation clearance and the management of invasive species is outside the scope of this document.

The St Catherine's Wood area is heavily wooded and there is a need to retain as many trees as possible in this area to meet the sustainability goals of the Victoria North project. The constraints associated with existing vegetation may impact the extent of remediation works in the former gasworks area (Figure 8).

The existing buildings on the Creamline Dairies site (Plot RB12b) have been demolished, with the demolition works including measures to address risks from asbestos within the building fabric. As a precautionary measure and materials proposed for reuse in the HIF IW should be tested for the presence of asbestos, in accordance with the requirements of the Earthworks Specification [33].

Parts of the site are currently unsecured and have been fly-tipped in the past. Any fly-tipped material will require removal from site prior to the works, once the site perimeter is secured so further fly-tipping is prevented. In addition, the channel of the River Irk may need to be cleared of accumulated material (to improve river flow). It is recommended that once the site is secured, samples of fly-tipped material and accumulated material in the river are recovered and tested to determine appropriate disposal routes for the

material. Proposed works to the river are subject to on-going design assessments and regulatory discussions. Once proposals are developed further, further assessments in the river channel may be required.

Removal of hardstanding and surface turnover

Areas of surface hardstanding across the site will be removed.

The remains of former rail infrastructure (Figure 4 and [37]**)** will be removed including:

- The remains of two former rail turntables present at the surface of the site.
- The below-ground remains of a former carriage shed that have been encountered in a number of trial pits, with brick sub-structure extending to depths of at least 1.4m bgl. In preparation for this breaking out work, dewatering of the sub-structure will be required, with careful management and treatment/disposal of the abstracted oil/water. Depending on the distribution of this perched water within the substructure, this groundwater management may need to be extended throughout the breaking out works. Once the remains of the carriage shed have been removed, this area will require validation before being reinstated using suitable engineered fill, placed and compacted. The requirements for validation and earthworks reinstatement are presented in the Earthworks Specification [33].
- The below-ground remains of the former gasworks that have been encountered, with brick sub-structure extending to depths of at least 2.65m bgl. In preparation for this breaking out work, localised excavation to remove gross contamination will be required. In addition, dewatering of the sub-structure will be required, with careful management and treatment/disposal of the abstracted oil/water. Depending on the distribution of this perched water within the substructure, this groundwater management may need to be extended throughout the breaking out works. Once the remains of the gasworks have been removed, this area will require validation against selected criteria before being reinstated using suitable engineered fill, placed and compacted in accordance with the Earthworks Specification [33].

Areas to remain at grade and areas of proposed filling within the Red Bank Plateau and Red Bank Terrace areas are to be turned over to an average depth of 500mm to identify and remove relic structures and other potential obstructions to development. All obstructions will be removed to a depth of 2.0m below existing ground level. Any obstructions extending to depth greater than 2.0m below existing ground level will be recorded. Material disturbed by these operations will need to be recompacted in accordance with the Earthworks Specification.

Utilities and drainage diversion and protection works may be needed, in advance of earthworks and remediation (Section 8.7.4).

Proof-rolling of sub-formation

Once slope regrading and excavation to sub-formation are complete, the resulting sub-formation should be proof-rolled. Any soft spots identified during proof-rolling should be treated by removal and infilling with suitable fill, placed and compacted in accordance with the Earthworks Specification. In accordance with Section 5.5.4, soft spots will be defined as areas of the sub-formation with CBR < 2%.

Material processing and management

Following the regrading and reduced level excavations and other earthworks operations, excavated materials will need to be processed to recover soils for re-use on site as fill. Processing of site won soils is likely to lead to three categories of material:

a). Material that is acceptable for re-use as an engineering fill and meets the requirements of an earthworks specification. This category of material can be used as general earthworks fill across the site (for example to infill the area of the former carriage shed or to raise plot or carriageway levels) or, if suitable, as selected fill for more specific applications.

b). Material that is unsuitable for use as engineering fill but may be suitable for use in areas of landscaping.

c). Material that is unsuitable for use as either general engineering fill or landscaping fill or is surplus to requirements.

In addition to determining material as suitable for re-use based on its engineering properties, the controlled waters detailed quantitative risk assessment (DQRA) [36] has established chemical acceptability criteria for soils that are to be considered for potential re-use.

A detailed verification plan will need to be produced for all site-won materials that are intended for re-use on site. The re-use of suitable materials using the CL:AIRE Definition of Waste Code of Practice (DoWCoP) [25] has been proposed during discussions with the Environment Agency.

Works to the river channel

Proposed works to the river are subject to on-going design assessments and regulatory discussions as part of a separate river works contract. Once proposals are developed further, additional assessments in the river channel may be required.

The DQRA has identified risks to the river channel in areas where the existing river wall is to be removed. During works to re-naturalise the river banks through St Catherine's Wood, inspections should be undertaken to identify the following:

- Visual or olfactory evidence for the potential discharge of contaminants into the river through high permeability material associated with the former river meander bend, or;
- Visual or olfactory evidence of contamination discharging from the face of the regraded river banks.

If either of these are encountered, the risk to controlled waters should be reassessed and measures to address these potential contaminant linkages (for example, the provision of low permeability material at appropriate locations along the river banks) should be implemented if required.

Discovery strategy

A geoenvironmental watching brief should be implemented by the Contractor during excavations. The watching brief should include a defined discovery strategy that describes the response to visible contamination encountered during the works.

Oils may be encountered during excavation within the site which may pose a risk to groundwater and may also reduce the possibility for the re-use of the impacted soils. Additional localised remediation and validation may be necessary to address this issue.

Clean cover system in HIF IW soft landscaped areas

After the proposed HIF earthworks have been completed, the formation across the site will comprise:

1. A newly prepared formation consisting of site-won soils, or
2. Existing made ground that has not undergone any cut and fill operations but has been subject to site clearance (including vegetation clearance), or
3. Existing areas of the site in which at the client's request, existing trees and vegetation have been left in their pre-HIF works condition.

Once earthworks are complete the HIF Infrastructure Works include for the provision of topsoil and subsoil layers (refer to Landscaping Specification [3] and associated drawings) to soft landscaped areas. These topsoil and subsoil layers are provided to satisfy two requirements:

1. To provide a suitable growing medium for the planting that is to be undertaken as part of the HIF Infrastructure works.
2. To provide a suitable clean cover layer to break the pathway between elevated contaminants in the underlying soils and users of the site. Appropriate validation criteria for these clean cover soils are provided in the Earthworks Specification [33].

The proposed thickness of the topsoil and subsoil layers vary across the site (Drawings 21 and 22). In addition to indicating the proposed clean-cover provision, Drawing 21 presents a summary of the human

health exceedances that have been identified by ground investigation. Drawing 22 also summarises the results of asbestos assessment that has been undertaken.

The areas of Red Bank Terrace and St Catherine's Wood that are shaded green on Drawings 21 and 22 will undergo a cut and fill exercise which will redistribute existing soils and may require the provision of soils from other parts of the site. Following these earthworks, this area is to be provided either with paving/hardstanding or with a 300mm layer of validated subsoil overlain by 300m of validated topsoil. Both proposed surface treatments are considered sufficient to break the pathway between contaminants that are likely to be exposed across the proposed earthworks formation and subsequent users of these areas of public open space.

The yellow shaded area of Red Bank Terrace is to be provided with hardstanding which will break the pathway between the identified contaminant exceedances and subsequent users of the site.

Given the existing gradients, it has not been possible to undertake ground investigation in the area shaded orange on Drawings 21 and 22 and therefore, any assessment of risk from contaminants in the made ground needs to consider the generally low-risk nature of contamination that has been identified across the wider site (Drawing 14). Once the proposed regrading is complete, this area is to be provided with 300mm of validated topsoil and then planted with a woodland mixture of trees and low shrubs. On the basis of the following considerations, the proposed HIF Infrastructure Works are considered to adequately address the risks to future users of the site from contaminants that are likely to be exposed across the regraded slopes in this area:

- The gradient of the regraded slopes will continue to discourage use of this area of the site.
- In accordance with the contractor's discovery strategy, the post-regrade slopes will be inspected and any visual and olfactory evidence for potential contamination exposed will be addressed.
- 300mm of validated topsoil is to be provided. This will break the pathway between residual contaminants in the made ground and site users.
- The proposed woodland planting will further discourage use of this area of the site and therefore reduce the potential for disturbance of the surface and sub-surface soils.

During ground investigation, only the following contamination has been identified in the area of the site shaded blue on Drawings 21 and 22:

- BH323 (0.5m bgl) – three PAH species that exceed the relevant public open space GACs and asbestos fibres (0.004%).
- WS103 (1m bgl) - asbestos fibres (<0.001%)

Although existing trees are largely to be retained in this area, ground cover and other vegetation is to be removed before minor earthworks are undertaken (e.g. to remodel the existing river banks). Following these earthworks, this area is to be inspected in accordance with the contractor's discovery strategy, and any visual and olfactory evidence for potential contamination will be addressed. The area will then be provided either with areas of paving/hardstanding or with a 100mm layer of validated topsoil and then replanted.

At the depths encountered and after the addition of the proposed 100mm of validated topsoil and subsequent planting, it is considered unlikely that existing made ground will be disturbed by users of the site. It is therefore considered that the risks from contaminants in the made ground in this area of the site, will be adequately mitigated by the proposed HIF Infrastructure Works.

The client has requested that disturbance of the existing trees and vegetation in the areas shaded red on Drawings 21 and 22 is minimised as much as possible to preserve the established ecology. The only exceedances that have been identified by previous GI that will remain post-HIF Infrastructure works are:

- TP105 (0.3m bgl) – asbestos (0.006%).
- BH315 (0.5m bgl) – asbestos (<0.001%).

In these areas of the site, there is no provision for additional subsoil or topsoil as part of the HIF Infrastructure Works. The risks from the identified contaminants however, are considered to be low and will

be mitigated further by the steep existing gradients and existing trees and vegetation, which will both discourage activity and disturbance of the soils by members of the public. A further consideration is that no new footpaths are being provided in these areas which will further discourage access to these areas. Given the low risk from identified contaminants in the made ground it is considered that remedial measures such as the provision of clean cover soils are not appropriate as they would be incompatible with the client's stated ecological objectives.

Interim condition on development plots

The HIF IW must be completed to a standard that addresses risks to users of the site and risks to neighbours (e.g. associated with dust arising from the surface of the site) in the interim condition between completion of the HIF IW and follow-on development. A "site finish layer" is proposed, comprising a temporary 100mm thick layer of suitable hydroseeded material, placed across all areas of the site in which made ground soils remain exposed at completion of the HIF IW.

Site management and environmental monitoring during construction

Some of the contaminant linkages identified in the updated conceptual model are to be addressed by the adoption of appropriate health and safety measures during the construction (including demolition, earthworks and building works) to ensure that the works do not pose a risk to construction workers, adjacent site users and the wider environment. Similarly, environmental monitoring will be necessary during the works.

Verification plan

The detailed remediation strategy will need to include a verification plan identifying the data that must be collected during the HIF IW to demonstrate the requirements of the remediation strategy have been implemented.

10. Conclusions: key engineering and geoenvironmental issues

10.1 Key engineering issues

Significant quantities of highly variable made ground, very thick and poor quality in places, which introduce ground risks to the project.

The made ground is predominantly described as granular but cohesive pockets and zones are present across the site.

Localised soft spots may be encountered both within the made ground and also at depth in natural deposits.

There is a potential for buried obstructions and voids associated with former structures and utilities.

Existing utilities may present a constraint to the development in some areas.

Specialist advice is required to understand potential risk from UXO for some areas of the site.

There are a number of existing slopes which need to be assessed for stability and the potential impact on the development mitigated. Ongoing monitoring or inspections may be required for the slopes.

- The existing plateau slope B2 is over-steep and requires regrading to mitigate risk to the development and surrounding assets.
- P&P slope B1 has marginal stability but could be assessed for a managed risk approach, with development outside of the potential risk zone. There is no immediately obvious visual evidence of instability, however initial data from two inclinometer installations indicates possible movement of the P&P slope. The data is, however, inconclusive and the possibility of operator or instrument error needs to be investigated. Further validation of the existing data, together with the collection of additional monitoring data is required.
- The stability of the slopes is reliant on the integrity of the river walls.
- The NE boundary to the site sits on a slope which extends into 3rd party land. Efforts should be made not to alter the loading conditions of 3rd Party slopes.

Existing retaining walls may be affected by the development. Their stability should be considered.

Cut and fill earthworks will be required to remove existing obstructions and create development platforms.

- Most of the material excavated will be made ground, some will be suitable for use as general fill, however some processing will be required. Sorting of excavated made ground will be required to eliminate unacceptable materials.
- Most of the material should be classified as non-hazardous waste. Localised areas of hazardous waste are expected.
- The GI data may not be representative for all material excavated and there is a risk that quantities will vary.
- Additional engineering and chemical testing will be required during construction to confirm suitability for re-use.
- It may be necessary to send unsuitable or surplus material off-site for disposal.
- It is likely that some engineering fill will need to be imported, particularly for specific applications.

It is likely that made ground exposed at sub-formation level will exhibit poor in-situ CBR values, however compaction of these materials will improve performance. A design CBR of 5% is considered appropriate for formations on in-situ and reengineered granular made ground, however soft spots should be anticipated which will require removal and replacement with acceptable material. Validation of the CBR by plate load

testing will be required during construction. There may be an opportunity with additional site testing to demonstrate higher CBR values.

A programme of monitoring should be undertaken to monitor settlement of soils underlying the proposed earthworks. Extensometers installed as part of this monitoring programme should be provided and at least two rounds of baseline monitoring undertaken before filling commences. To validate design assumptions, monitoring should continue after filling is complete.

It has been assumed that any developments within the plots will be found on piles to limit the risk of settlement to the development and infrastructure works. The existing made ground is not recommended for supporting anything but lightly loaded ancillary structures.

The future design of works on individual plots will need to consider settlement, to demonstrate that it will not have an adverse impact on the infrastructure works. Movement monitoring may be required to manage the risk.

10.2 Key geoenvironmental issues

Contaminated ground and groundwater have been identified during the ground investigations:

- Around the former gasworks in St Catherine's Wood which may pose a risk to human health and controlled waters.
- Around the former carriage shed on Red Bank Plateau which may pose a risk to human health and controlled waters.
- Oils may be encountered during excavation, which may present a risk to groundwater and may impact the potential for reuse of site-won soil. If identified during the works, additional localised remediation and validation may be required.
- Hazards associated with the presence of asbestos fibres and asbestos containing materials in made ground, which will require mitigation during construction and operation of the site.
- Contaminants including metals, hydrocarbons and PAH within the made ground, which will require mitigation during construction and operation, including during any interim periods between the completion of remediation and the beginning of plot development;
- Potential contaminant linkages relating to impact on the River Irk and bedrock aquifers have been identified in the DQRA. Remediation works are required to the former gasworks and former carriage shed areas to address these issues.

Ground gas risk assessment has indicated a limited area of potential CS3 conditions associated with a former reservoir, at the base of the made ground. Elsewhere, CS2 conditions should be assumed. The requirements for gas protection will vary depending on the nature of the development and should be defined by others for each plot.

The identified risks to construction workers during the HIF Infrastructure Works can be addressed with mitigation measures standard for brownfield site construction works.

Within the Red Bank Terrace and St. Catherine's Wood areas of the site, the provision of clean cover soils (topsoil and subsoil) as set out in the Landscape Specification [3] is considered to address the identified risks. Some minor residual risk associated with potential asbestos fibres in shallow soils may exist in the north of St. Catherine's Wood however, the provision of clean cover soils to address these risks will not be possible without vegetation and tree clearance, which will be incompatible with the client's stated ecological objectives for this area.

Potential contaminant linkages have been identified post-infrastructure works relating to human health, where there is no barrier to prevent direct contact with existing site soils (e.g. in landscaped areas or gardens).

The outline remediation strategy aims to mitigate the identified risks associated with the infrastructure works and to ensure that any unacceptable risks to groundwater or the River Irk are addressed. Future plot

developers will be required to mitigate the residual risks: e.g. clean cover in residential gardens or landscaping, protection for pipe materials and ground gas protection for buildings.

10.3 Recommendation of further investigation

- Further inclinometer data should be obtained and assessed to develop a better understanding of the current stability of the P&P slope.
- Further ground gas monitoring is recommended from borehole installations in the former Creamline Dairy site (BH311B and BH312A) and from installations in the infilled former reservoirs (BH210, BH211A and BH314).
- Further ground gas monitoring is recommended from BH320, to assess hydrogen sulphide and carbon monoxide risks.
- Fly-tipped material and debris in the river should be tested to determine waste disposal routes.
- Further investigation of the void encountered in BH308.

11. References

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Appendix A - Ground investigation rationales

Planned scope of 2021 Ground Investigation

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
GEO_BH201	CP+RC	15	384766	399826	SPT every 1m for first 5m, then every 1.5m. GW, response zone in rock/deep MG	Rough ground	CP terminates at rockhead. RC 5m into rock. Flush cover.	Investigate rock quality. Installation to detect gas/leachate migration onto site from adjacent Queens Road landfill. Response zone detail provisional, pending review of groundwater flow.
GEO_BH202	CP	10	384724	399722	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate area beneath former carriage shed, potential contamination. Response zone detail provisional, pending review of groundwater flow.
GEO_BH203	CP	8	384856	399747	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate former river Irk channel beneath Red Bank. Response zone detail provisional, pending review of groundwater flow.
GEO_BH204	CP+RC	15	384816	399708	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	CP terminates at rockhead. RC 5m into rock. Flush cover.	Investigate former river channel beneath Red Bank. Response zone detail provisional, pending review of groundwater flow.
GEO_BH205	CP+RC	15	384686	399733	SPT every 1m for first 5m, then every 1.5m. GW, response zone in rock/deep MG	Rough ground	CP terminates at rockhead. RC 5m into rock. Flush cover.	Investigate rock quality. Installation to detect gas/leachate migration onto site from adjacent Queens Road landfill. Response zone detail provisional, pending review of groundwater flow.

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
GEO_BH206	CP	8	384731	399693	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate potential contamination associated with former railway sidings. Response zone detail provisional, pending review of groundwater flow.
GEO_BH207	CP	10	384656	399622	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate former river/stream channel beneath Red Bank. Response zone detail provisional, pending review of groundwater flow.
GEO_BH208	CP	10	384565	399593	SPT every 1m for first 5m, then every 1.5m. GW, response zone in rock/deep MG	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate potential contamination associated with former railway sidings. Response zone detail provisional, pending review of groundwater flow.
GEO_BH209	CP+RC	15	384554	399632	SPT every 1m for first 5m, then every 1.5m. GW, response zone in rock/deep MG	Rough ground	CP terminates at rockhead. RC 5m into rock. Flush cover.	Investigate former river/stream channel beneath Red Bank. Response zone detail provisional, pending review of groundwater flow.
GEO_BH210	CP+RC	15	384478	399555	SPT every 1m for first 5m, then every 1.5m. GW, response zone in rock/deep MG	Rough ground	CP terminates at rockhead. RC 5m into rock. Flush cover.	Investigate old reservoir buried beneath red bank, potential for ground gas. Response zone detail provisional, pending review of groundwater flow.
GEO_BH211	CP	10	384448	399513	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate old reservoir buried beneath red bank, potential for ground gas. Response zone detail provisional, pending review of groundwater flow.

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
GEO_BH212	CP+RC	15	384490	399427	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Tarmac/concrete car park.	CP terminates at rockhead. RC 5m into rock. Flush cover. Reinstatement of surfacing will be required.	Investigate contamination associated with former dye works. Response zone detail provisional, pending review of groundwater flow.
GEO_BH213	CP	10	384467	399489	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Rough ground	Terminate at rockhead/refusal. Flush cover	Investigate ground conditions at toe of slope, former scrapyard and dye works contamination potential. Response zone detail provisional, pending review of groundwater flow.
GEO_BH214	CP	8	384397	399371	SPT every 1m for first 5m, then every 1.5m. GW, response zone in MG/alluvium	Tarmac	Terminate at rockhead/refusal. Flush cover. Reinstatement of surfacing will be required.	Investigate potential contamination associated with former dye works, iron works, potential obstructions from terraced housing. Response zone detail provisional, pending review of groundwater flow.
GEO_BH215	CP	10	384371	399541	SPT every 1m for first 5m, then every 1.5m. No installation required.	Tarmac/concrete	Terminate at rockhead/refusal. Reinstatement of surfacing will be required.	Confirm ground conditions in area of proposed access route into red bank.
GEO_CORE_01	Core	N/A	384660	399720	None	Brick retaining wall	Horizontal core to recover samples from existing retaining wall. Reinstatement to be advised.	Investigate wall construction, condition.
GEO_CORE_02	Core	N/A	384568	399655	None	Brick retaining wall	Horizontal core to recover samples from existing retaining wall.	Investigate wall construction, condition.

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
							Reinstatement to be advised.	
GEO_CORE_03	Core	N/A	384486	399603	None	Brick retaining wall	Horizontal core to recover samples from existing retaining wall. Reinstatement to be advised.	Investigate wall construction, condition.
GEO_TP201	TP	4.5	384772	399796	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Former carriage shed, potential contamination and obstructions
GEO_TP202	TP	4.5	384735	399751	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Former carriage shed, potential contamination and obstructions
GEO_TP203	TP	4.5	384784	399725	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		In footprint of former railway building, possible gasworks, potential for contamination and obstructions
GEO_TP204	TP	4.5	384850	399737	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground	Position exactly, TP to locate former gasholder base. Contamination likely.	Northern railway gasholder – position exactly
GEO_TP205	TP	4.5	384852	399728	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground	Position exactly, TP to locate former gasholder base. Contamination likely.	Southern railway gasholder – position exactly
GEO_TP206	TP	4.5	384835	399756	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Within footprint of former gasworks building, contamination potential and obstructions

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
GEO_TP207	TP	4.5	384807	399751	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Former chimney associated with gasworks, potential for contamination and obstructions
GEO_TP208	TP	4.5	384847	399746	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Within footprint of former buildings, contamination potential and obstructions
GEO_TP209	TP	4.5	384818	399804	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Railway sidings area, potential for contamination and obstructions
GEO_TP210	TP	4.5	384824	399776	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Former buildings, potential for contamination and obstructions
GEO_TP211	TP	4.5	384751	399691	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Former buildings, potential for contamination and obstructions
GEO_TP212	TP	4.5	384617	399654	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Railway sidings area, potential for contamination and obstructions
GEO_TP213	TP	4.5	384700	399654	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Railway sidings area, potential for contamination and obstructions
GEO_TP214	TP	3	384666	399726	3 x Mexe Cone and 1 x DCP at	Rough ground	In tandem with horizontal core through retaining wall.	To investigate footings of existing retaining wall. Logging of footings required.

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
					depth less than 1.2m			
GEO_TP215	TP	4.5	384585	399619	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		Railway sidings area, potential for contamination and obstructions
GEO_TP216	TP	3	384576	399656	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground	In tandem with horizontal core through retaining wall.	To investigate footings of existing retaining wall. Logging of footings required.
GEO_TP217	TP	3	384492	399608	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground	In tandem with horizontal core through retaining wall.	To investigate footings of existing retaining wall. Logging of footings required.
GEO_TP218	TP	3	384525	399593	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Rough ground		To investigate old railway turntable, trial pit to be excavated down outside of structure to check construction.
GEO_TP219	TP	5	384427	399443	3 x Mexe Cone and 1 x DCP at depth less than 1.2m	Tarmac/concrete		Former area of terraced housing, potential for infilled cellars and contamination in cellar infill.
GEO_WS201	WS	5	384732	399777	GW, response zone in MG/alluvium	Rough ground	Flush cover.	Located on boundary with Queens Road landfill, to investigate gas/leachate migration from landfill site. Response zone detail provisional, pending review of groundwater flow.

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
GEO_WS202	WS	5	384861	399781	GW, response zone in MG/alluvium	Rough ground	Flush cover	To investigate made ground in former railway sidings, may be deeper in this area than trial pitting can prove. Response zone detail provisional, pending review of groundwater flow.
GEO_WS203	WS	5	384750	399568	None	Rough ground		To obtain information for river edge reprofiling, include WAC testing.
GEO_WS204	WS	5	384790	399578	None	Rough ground		To obtain information for river edge reprofiling, include WAC testing.
GEO_WS205	WS	8	384679	399675	None	Rough ground		Railway sidings, made ground expected to be deeper than could be proven with a trial pit in this area. Prove depth of made ground and check contamination of ground.
GEO_WS206	WS	5	384841	399635	None	Rough ground		To obtain information for river edge reprofiling, include WAC testing.
GEO_WS207	WS	5	384628	399678	GW, response zone in MG/alluvium	Rough ground	Flush cover	Made ground expected to be deeper than could be proven in trial pit in this area. Prove depth of made ground and check contamination of ground. Response zone detail provisional, pending review of groundwater flow.
GEO_WS208	WS	8	384567	399467	None	Rough ground	In travellers site. Special access arrangements apply. To investigate	To locate and check condition of southern gasholder – position to locate this feature.

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
							former gasholder base. Contamination expected.	Nature of infill and contamination to be proven.
GEO_WS209	WS	5	384529	399443	GW, response zone in MG/alluvium	Concrete/tarmac	In travellers site. Special access arrangements apply. Flush cover on installation. Reinstatement of surfacing will be required.	To check groundwater quality at assumed downstream position of gasholders. Response zone detail provisional, pending review of groundwater flow.
GEO_WS210	WS	5	384522	399611	GW, response zone in MG/alluvium	Concrete/tarmac	Flush cover. Reinstatement of surfacing will be required.	In former stream channel. Response zone detail provisional, pending review of groundwater flow.
GEO_WS211	WS	5	384555	399571	None	Rough ground		Made ground expected to be deeper than could be proven in trial pit in this area. Prove depth of made ground and check contamination of ground. Response zone detail provisional, pending review of groundwater flow.
GEO_WS212	WS	5	384498	399534	None	Rough ground		Made ground expected to be deeper than could be proven in trial pit in this area. Prove depth of made ground and check contamination of ground. Response zone detail provisional, pending review of groundwater flow.
GEO_WS213	WS	5	384437	399534	None	Rough ground		Made ground expected to be deeper than could be proven in trial pit in this area. Prove depth of made ground and check

Hole	Type	Scheduled depth (m)	National Grid (provisional)		In-situ tests* and installations (response zones and depths)	Existing ground surface type	Remarks	Rationale
			Easting (m)	Northing (m)				
								contamination of ground. Response zone detail provisional, pending review of groundwater flow.
GEO_WS214	WS	5	384418	399540	None	Rough ground		To prove ground conditions along proposed access road.
GEO_WS215	WS	8	384247	399228	GW, response zone in MG/alluvium	Rough ground	Flush cover	To investigate historical subway located in this area. Position according to historical map location. Was formerly tannery, contamination possible in this location.

Planned Scope of 2022 Ground Investigation

Holes to be completed																								
Hole ID	**Type**	**Ground Level (mOD)**	**Anticipated Rockhead Level (mOD)**	**Anticipated Depth to Rockhead (mbgl)**	**Rotary Follow-on (m)**	**Scheduled Depth (m)**	**TP 0 to 3m**	**TP 3 to 4.5m**	**CP 0 to 10m**	**CP 10 to 20m**	**Total Rotary Drillng**	**SPT**	**Bulk Sample**	**Disturbed samples**				**Scheduled Depth (mOD)**	**Location Reference**	**Easting**	**Northing**	**Ground surface**	**Installation**	**Comments**
BH301	Cable Percussion	41.00	25	16	N	20	0	0	10	10	0	14	20	20						384858	399761	Made ground	Inclinometer	Crest of slope (1) In former gas works area (8) Confirmation of rockhead (15) Inclinometer installation (17) - base level installed in rockhead
BH302	Cable Percussion	43.00	28	15	N	20	0	0	10	10	0	14	20	20						384827	399705	Paved - possible relic floor slab	Inclinometer	Crest of slope (1) Adjacent former gas works area (8) Confirmation of rockhead (15) Inclinometer installation (17) - base level installed in rockhead
BH303	Cable Percussion	42.00	34	8	N	10	0	0	10	0	0	7	10	10						384720	399660	Made ground	Gas/GW	Crest of Slope (1) Confirmation of rockhead (15) GW Monitoring installation (4)
BH304	Cable Percussion	41.00	28	13	N	20	0	0	10	10	0	14	20	20						384618	399592	Made ground	Gas/GW	Crest of slope (1) Addressing gaps in previous GI coverage (12) Confirmation of rockhead (15) GW Monitoring installation (4)
BH305	Cable Percussion	39.80	28	12	N	20	0	0	10	10	0	14	20	20						384532	399543	Made ground	Gas/GW	Crest of slope (1) Addressing gaps in previous GI coverage (12) Confirmation of rockhead (15) GW Monitoring installation (4)
BH306	Cable Percussion	31.50	27	5	N	8	0	0	8	0	0	6	8	8						384531	399493	Hardstanding	Gas/GW	Base of slope (2) Conditions adj to river and behind retaining walls (2) Addressing gaps in previous GI coverage (12) Confirmation of rockhead (15) GW Monitoring installation (4)
BH307	Cable Percussion	31.00	25	6	N	10	0	0	10	0	0	7	10	10						384448	399444	Hardstanding	Gas/GW	Addressing gaps in previous GI coverage (12) GW Monitoring installation (4) Confirmation of rockhead (15)
BH308	Cable Percussion	30.00	25	5	N	8	0	0	8	0	0	6	8	8						384473	399399	Hardstanding	Gas/GW	Conditions adj to river and behind retaining walls (2) Addressing gaps in previous GI coverage (12) Confirmation of rockhead (15) GW Monitoring installation (4)
BH309	Cable Percussion/Rotary follow on	30.00	28	6	Yes	12	0	0	10	2	6	8	12	12						384863	399641	Hardstanding	Gas/GW	Conditions adj to river and behind retaining walls (2) GI at proposed bridge abutments (16) Confirmation of rockhead (15) Coring of solid strata to assist in pile design GW Monitoring installation (4)
BH310	Cable Percussion/Rotary follow on	31.40	30	6	Yes	12	0	0	10	2	6	8	12	12						384845	399642	Made ground	Gas/GW	Conditions adj to river and behind retaining walls (2) GI at proposed bridge abutments (16) Confirmation of rockhead (15) GW Monitoring installation (4) Coring of solid strata to assist in pile design Infiltration tests in BH/installation
BH311	Cable Percussion	45.50	31	15	N	18	0	0	10	8	0	18	18	18						384415	399557	Hardstanding	Gas/GW	Addressing gaps in previous GI coverage (12) Confirmation of rockhead (15) GW Monitoring installation (4)
BH312	Cable Percussion	45.00	29	16	N	20	0	0	10	10	0	20	20	20						384383	399518	Made ground/paving	Gas/GW	Addressing gaps in previous GI coverage (12) GW Monitoring (4) Confirmation of rockhead (15) Infiltration tests in BH/installation Required for design of entrance cutting/embankment and with retaining wall.
BH313	Cable Percussion	43.00	29	14	N	18	0	0	10	8	0	18	18	18						TBC	TBC	Made ground	Gas/GW	Borehole adjacent to the top of the railway viaduct to confirm infill materials Required for design of entrance cutting/embankment and with retaining wall.
BH314	Cable Percussion	43.00	29	14	N	16	0	0	10	6	0	16	16	16						TBC	TBC	Made ground	Gas/GW	Addressing gaps in previous GI coverage (12) GW Monitoring (4) Confirmation of rockhead (15) Borehole adjacent to proposed area of regrading - to confirm infill materials
BH315	Cable Percussion	43.00	26	17	N	20	0	0	10	10	0	20	20	20						TBC	TBC	Made ground	Gas/GW	Crest of slope (1) In former gas works area (8) Confirmation of rockhead (15) GW Monitoring installation (4)

BH320	Drilling method to be determined by contractor to suit site and anticipted ground conditions	34.00	26	8	-	10	0	0	10	0	0	10	10	10						384895	399757	Made ground	Gas/GW	Toe of slope (1) Along river bank (2) Conditions adj to river and behind retaining walls (2) Confirmation of rockhead (15)
BH321	Drilling method to be determined by contractor to suit site and anticipted ground conditions	35.00	32	3	-	6	0	0	6	0	0	6	6	6						384774	399640	Made ground	Gas/GW	Toe of slope (1) Additional geotechnical sampling in area of proposed excavation/regrading (11) GW Monitoring installation (4) Infiltration tests in BH/installation
BH322	Drilling method to be determined by contractor to suit site and anticipted ground conditions	32.50	31	2	-	6	0	0	6	0	0	6	6	6						384716	399588	Made ground	Gas/GW	Toe of slope (1) Along river bank (2) GW Monitoring installation (4) Infiltration tests in BH/installation Conditions adj to river and behind retaining walls (2)
BH323	Drilling method to be determined by contractor to suit site and anticipted ground conditions	31.50	28	4	-	8	0	0	8	0	0	8	8	8						384658	399579	Made ground	Gas/GW	Toe of slope (1) Along river bank (2) Conditions adj to river and behind retaining walls (2) Confirmation of rockhead (15) GW Monitoring installation (4)
BH324	Drilling method to be determined by contractor to suit site and anticipted ground conditions	29.50	28	2	-	8	0	0	8	0	0	8	8	8						384588	399557	Made ground	Gas/GW	Toe of slope (1) Along river bank (2) Conditions adj to river and behind retaining walls (2) GW Monitoring installation (4) Infiltration tests in BH/installation
BH325	Drilling method to be determined by contractor to suit site and anticipted ground conditions	30.00	26	4	-	8	0	0	8	0	0	8	8	8						384445	399360	Hard Standing	Gas/GW	Conditions adj to river and behind retaining walls (2) Addressing gaps in previous GI coverage (12) Confirmation of rockhead (15) Infiltration tests in BH/installation
TT301	Trial trench - 360 degree excavator	43.00	28	15	-	4.5	3	1.5	0	0	0	0	5	5						384836	399723	Paved - possible relic floor slab		In former gas works area (8) Assume 10m long trench required
TT302	Trial trench - 360 degree excavator	43.00	25	18	-	4.5	3	1.5	0	0	0	0	5	5						384840	399744	Paved - possible relic floor slab		In former gas works area (8) Assume 10m long trench required
TT303	Trial trench - 360 degree excavator	43.00	28	15	-	4.5	3	1.5	0	0	0	0	5	5						384862	399747	Paved - possible relic floor slab		In former gas works area (8) Assume 10m long trench required
TP304	Trial pit - 360 degree excavator	40.50	28	13	-	4.5	3	1.5	0	0	0	0	5	5						384624	399631	Made ground		Additional geotechnical sampling in area of proposed excavation/regrading (11) Addressing gaps in previous GI coverage (12)
TP305	Trial pit - 360 degree excavator	40.50	28	13	-	4.5	3	1.5	0	0	0	0	5	5						384580	399584	Made ground		Additional geotechnical sampling in area of proposed excavation/regrading (11)
TP306	Trial pit - 360 degree excavator	41.00	28	13	-	4.5	3	1.5	0	0	0	0	5	5						384500	399572	Made ground		Additional geotechnical sampling in area of proposed excavation/regrading (11)
TP307	Trial pit - 360 degree excavator	40.00	29	11	-	4.5	3	1.5	0	0	0	0	5	5						384465	399509	Made ground		To investigate poor recovery in BH106
TP308	Trial pit	41.00	30	11	-	3	3	0	0	0	0	0	3	3						384575	399640	Made ground		Potable water supply assessment (7)
TP309	Trial pit	43.00	37	6	-	3	3	0	0	0	0	0	3	3						384723	399768	Made ground		Potable water supply assessment (7)
TP310	Trial pit	43.00	34	9	-	3	3	0	0	0	0	0	3	3						384772	399711	Made ground		Potable water supply assessment (7)
OP01	Observation pit	40.00				1.2	1.2						2	2										Investigate extent of buried former railway viaduct (18)
OP02	Observation pit	40.00				1.2	1.2						2	2										Investigate extent of buried former railway viaduct (18)
OP03	Observation pit	40.00				1.2	1.2						2	2										Investigate extent of buried former railway viaduct (18)
OP04	Observation pit	40.00				1.2	1.2						2	2										Investigate extent of buried former railway viaduct (18)
SWS Upstream	Surface water sample	-																				-		Sample on three occasions (9)
SWS Midstream	Surface water sample	-																				-		Sample on three occasions (9)
SWS Downstream	Surface water sample	-																				-		Sample on three occasions (9)
Sediment sample Upstream	Sediment sample from river bed	-																				-		Sample on three occasions (10) Analysis to include WAC testing and haz waste on line assessment - disposal options
Sediment sample Mid stream	Sediment sample from river bed	-																				-		Sample on three occasions (10) Analysis to include WAC testing and haz waste on line assessment - disposal options
Sediment sample downstream	Sediment sample from river bed	-																				-		Sample on three occasions (10) Analysis to include WAC testing and haz waste on line assessment - disposal options

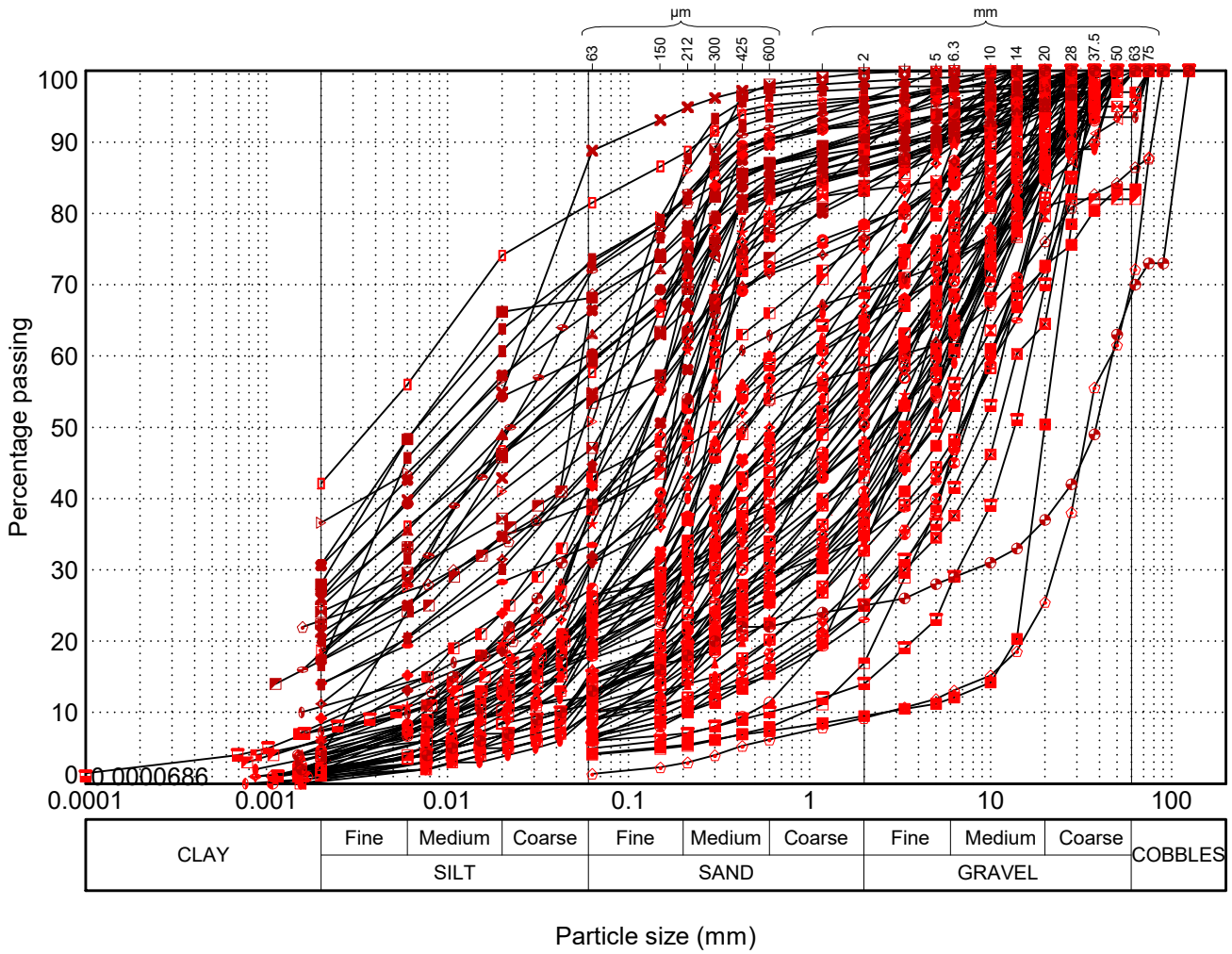
Other issues:

1 Needs leachability testing on selecetd soil samples

2 GI contractor to inspect all Phase 1 and Phase 2 borehole installation for serviceability for on-going gas and groundwater monitoring and report to Arup. Arup will then confirm GW and gas monitoring and sampling requirements.

1. BHs along crest and toe of slopes to validate slope stability assessments.
2. BHs or WS holes along river to confirm conditions adjacent to existing retaining walls and to provide further data on alluvial deposits.
    a) to assist with risk assessment (river) and regrading river banks.
3. BHs to provide further data on depth to engineering rockhead to fill data gaps. – not sure we can do anything – main gap is in ST Cath's Wood – only hand held(?) WS access plus – not building anything – except bridge abutments (see 15).
4. Selected BHs will be provided with gw monitoring installations (to complement existing serviceable installations).
    a) with monitoring to confirm hydraulic gradient across site.
    b) for use in controlled waters risk assessment and validation of slope stability assessments.
5. Selected BHs provided with gas monitoring installations - particularly in NW and NE of the site adjacent to existing former landfill sites (to complement existing serviceable installations).
    a) with monitoring to confirm ground gas conditions.
6. Sampling of groundwater from installations for analysis plus leachability testing of soil samples.
    a) for use in controlled waters risk assessment.
7. Sampling of shallow made ground along main potable water corridors with relevant analysis (trial pits)
    a) to allow requirements for potable supply pipe to be determined.
8. Confirmatory GI in area of gas works (trial pits)
    a) to satisfy likely EA requirements - following vegetation clearance in this area.
9. Surface water sampling from river (to complement existing sampling under River Works contract).
    a) for use in controlled waters risk assessment.
10. Sediment sampling and analysis from river (to complement existing sampling under River Works contract).
    a) for use to determine waste disposal options.
11. Additional geotechnical sampling and testing in areas of proposed excavation to confirm suitability of arisings for re-use (Proctor tests, moisture content, PSD, Atterburg, WAC and Haz Waste on line).
12. Additional GI to fill spatial gaps in coverage (e.g. Creamline Dairies – post demolition/Enabling Works).
13. Not used
14. Not used
15. Confirmation of rockhead across site
16. BHs at proposed bridge abutment locations.
17. Assess current stability of slopes using inclinometers
18. Investigate extent of railway viaduct, that in parts of the site may be buried

Appendix B - Geotechnical material properties



Library: arup_uklib_4-a-002, Report: G10A.00
Database: c:\gint\victoria northlinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- 01_BH101
- 01_BH102
- 01_BH103
- 01_BH104
- BH303
- BH304
- BH305
- BH311
- BH312
- BH313
- BH324
- GEO_BH202
- GEO_BH207
- GEO_BH208
- GEO_BH211A
- GEO_BH201
- GEO_BH205
- GEO_BH209
- GEO_BH210
- BH326
- BH327
- BH328
- GEO_WS201
- GEO_WS205
- GEO_WS207
- GEO_WS210
- GEO_WS211
- GEO_WS212
- GEO_WS213
- GEO_WS214
- 01_TP101
- 01_TP104
- 01_TP109
- 01_TP112
- 01_TP115
- GEO_TP201
- GEO_TP202
- GEO_TP203
- GEO_TP207
- GEO_TP209
- GEO_TP210
- GEO_TP211
- GEO_TP212
- GEO_TP213
- GEO_TP214
- GEO_TP215
- GEO_TP216
- GEO_TP217
- GEO_TP218
- TP304
- TP305
- TP306
- TP308
- TP309
- TP310

ARUP

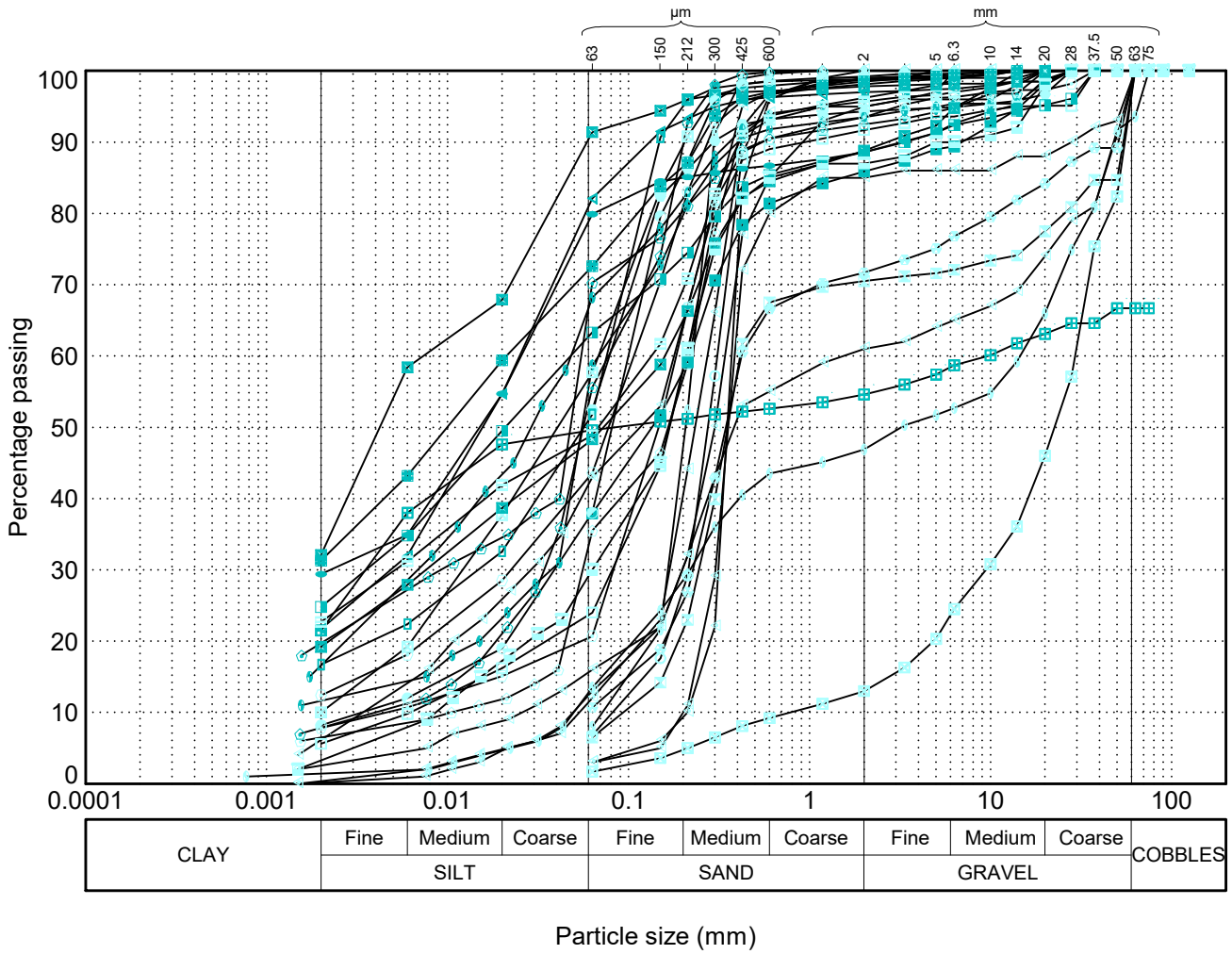
Job Title
Victoria North

Figure Title
Particle size distribution
Redbank Plateau

Job No
282022

Chart 1A

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



Library: arup_uklib_4-a-002, Report: G10A.00
Database: c:\gint\victoria north\infra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Glacial Till Deposits - Cohesive (GTD - CO)
- Glacial Till Deposits - Granular (GTD - G)
- 01_BH105
- BH311
- BH312
- BH313
- GEO_BH202
- GEO_BH206
- GEO_BH208
- GEO_BH211A
- GEO_BH201
- GEO_BH205
- GEO_BH209
- GEO_BH210
- 01_TP101
- 01_TP104
- 01_TP108
- GEO_TP201
- GEO_TP209
- GEO_TP210
- GEO_TP211
- GEO_TP215
- TP309

ARUP

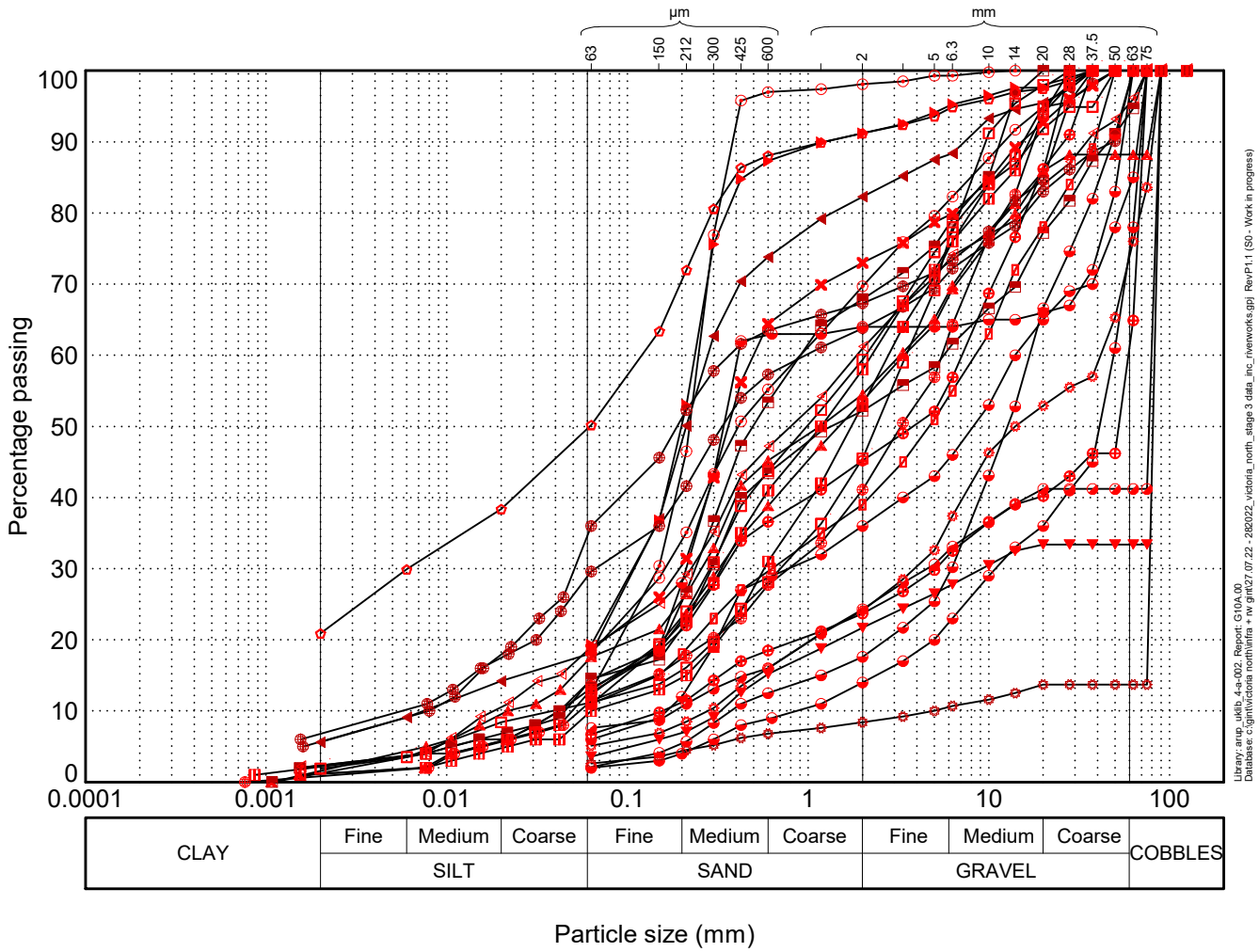
Job Title
Victoria North

Figure Title
Particle size distribution
Redbank Plateau

Job No
282022

Chart 1B

ARUP_gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



Library: arup_uklib_4-a-002, Report: G10A.00
Database: c:\gint\victoria northlinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- 01_BH106
- 01_BH110
- 01_BH112
- BH306
- BH307
- BH308
- BH313
- BH314
- BH325
- GEO_BH211A
- GEO_BH214A
- GEO_BH212
- RE15
- RE13A
- 01_TP119
- 01_TP121
- GEO_TP219
- TP307

ARUP

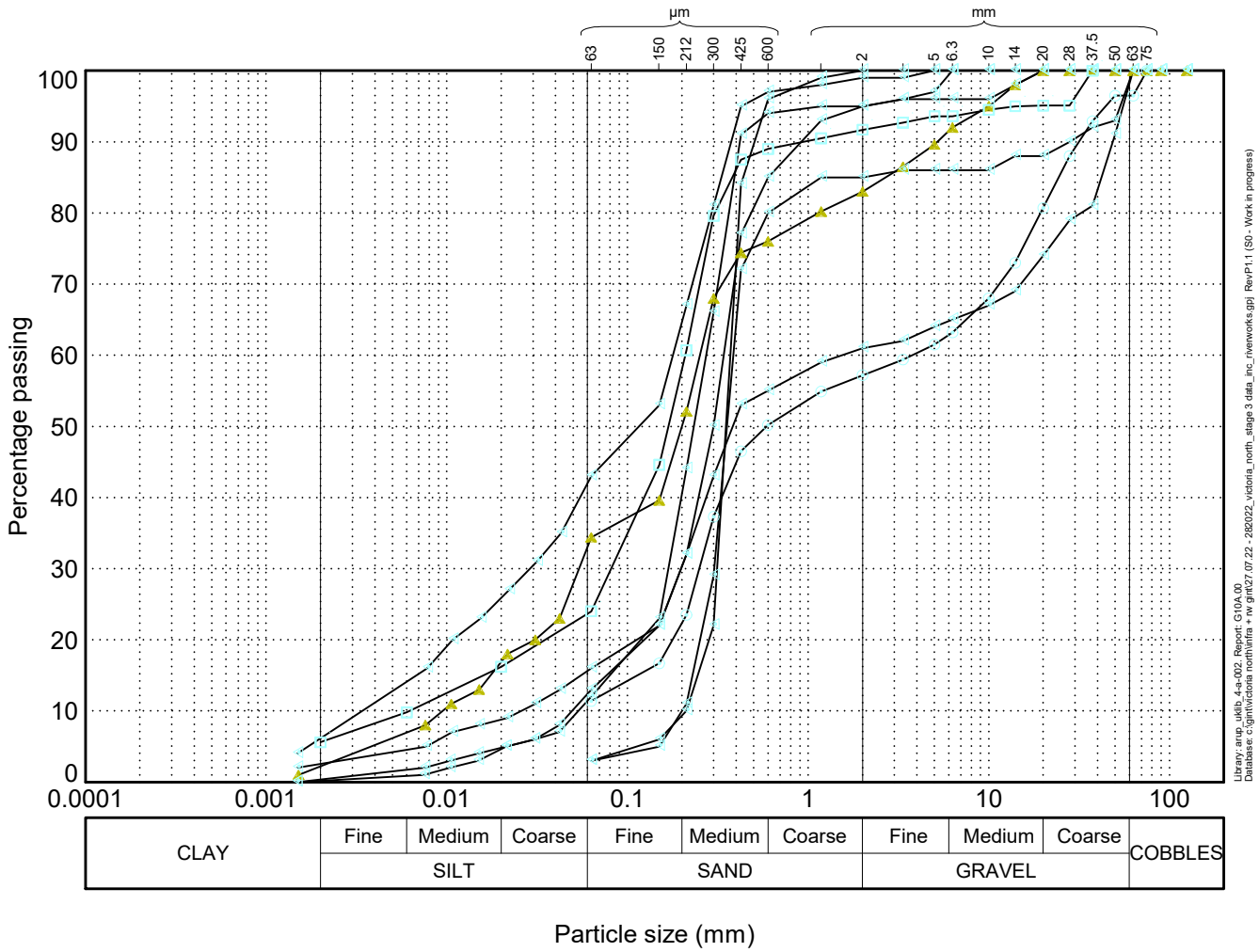
Job Title
Victoria North

Figure Title
Particle size distribution
St Catherine's Wood

Job No
282022

Chart 1C

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



- Alluvium Cohesive (ALV-CO)
- Glacial Till Deposits - Granular (GTD - G)
- BH306
- BH313
- GEO_BH211A
- GEO_TP219

ARUP

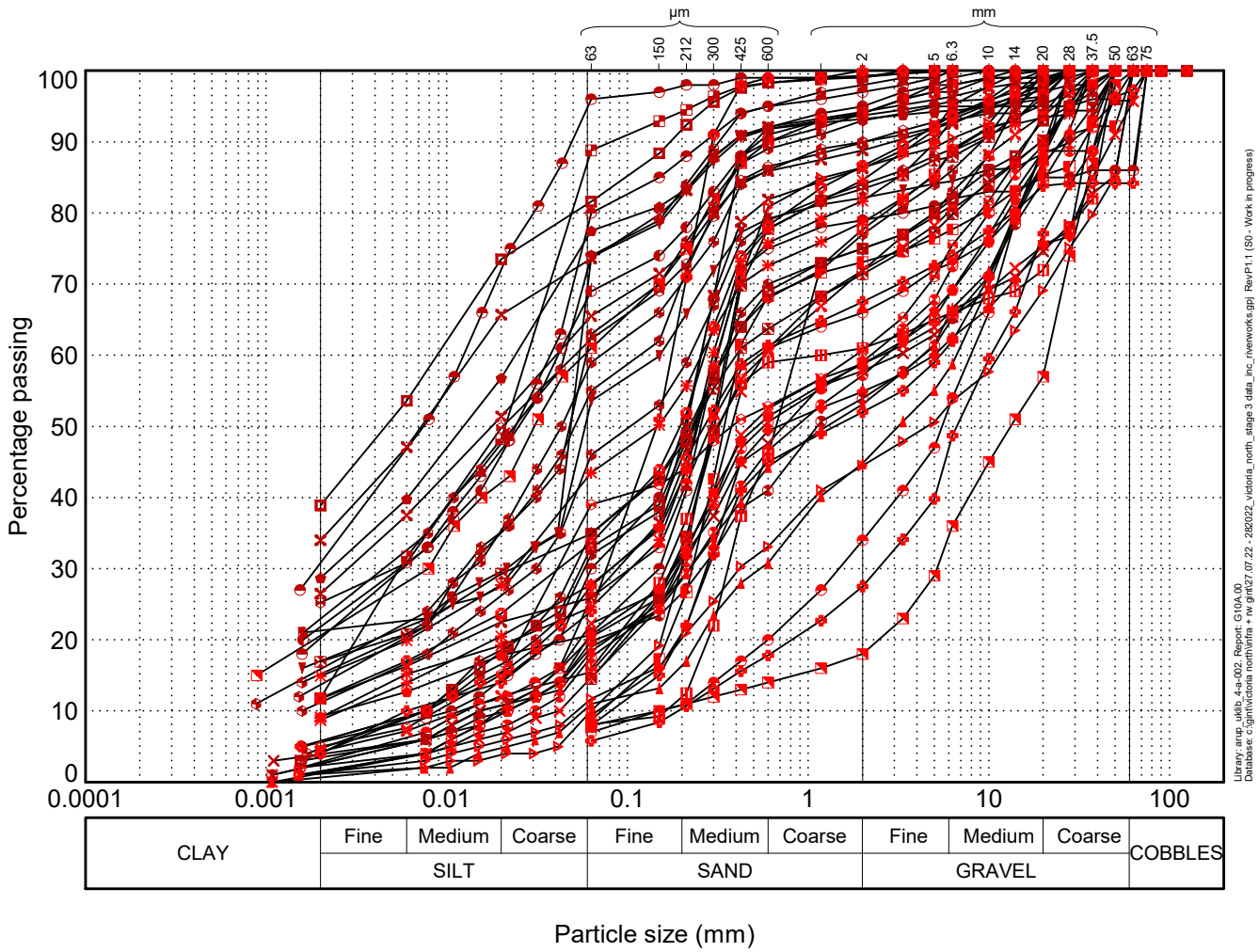
Job Title
Victoria North

Figure Title
Particle size distribution
Redbank Terrace

Job No
282022

Chart 1D

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



Library: arup_uklib_4-a-002, Report: G10A.00
Database: c:\gint\victoria northlinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- BH301
- BH302
- BH315
- GEO_BH204
- GEO_BH203
- BH309
- BH310
- 01_WS102
- BH321
- BH322
- BH323
- GEO_WS202
- GEO_WS203A
- GEO_WS206
- GEO_TP204
- GEO_TP205
- GEO_TP206A
- GEO_TP208
- TT301
- TT303
- TT303A
- BH320

ARUP

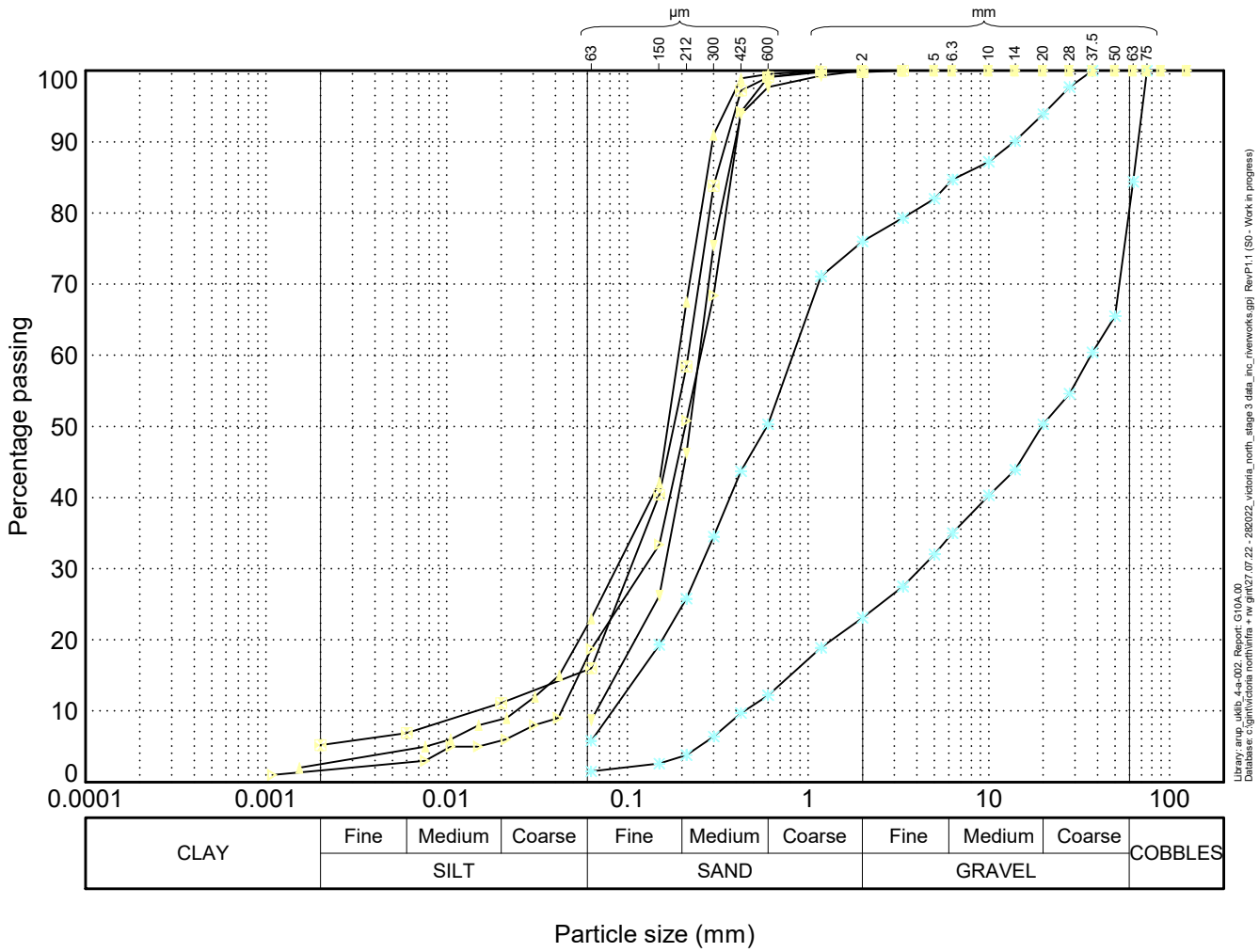
Job Title
Victoria North

Figure Title
Particle size distribution
St Catherine's Wood

Job No
282022

Chart 1E

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



Alluvium granular (ALV-G)
Glacial Till Deposits - Granular (GTD - G)
BH315
GEO_BH203
BH310
BH322
GEO_WS203A

ARUP

Job Title
Victoria North

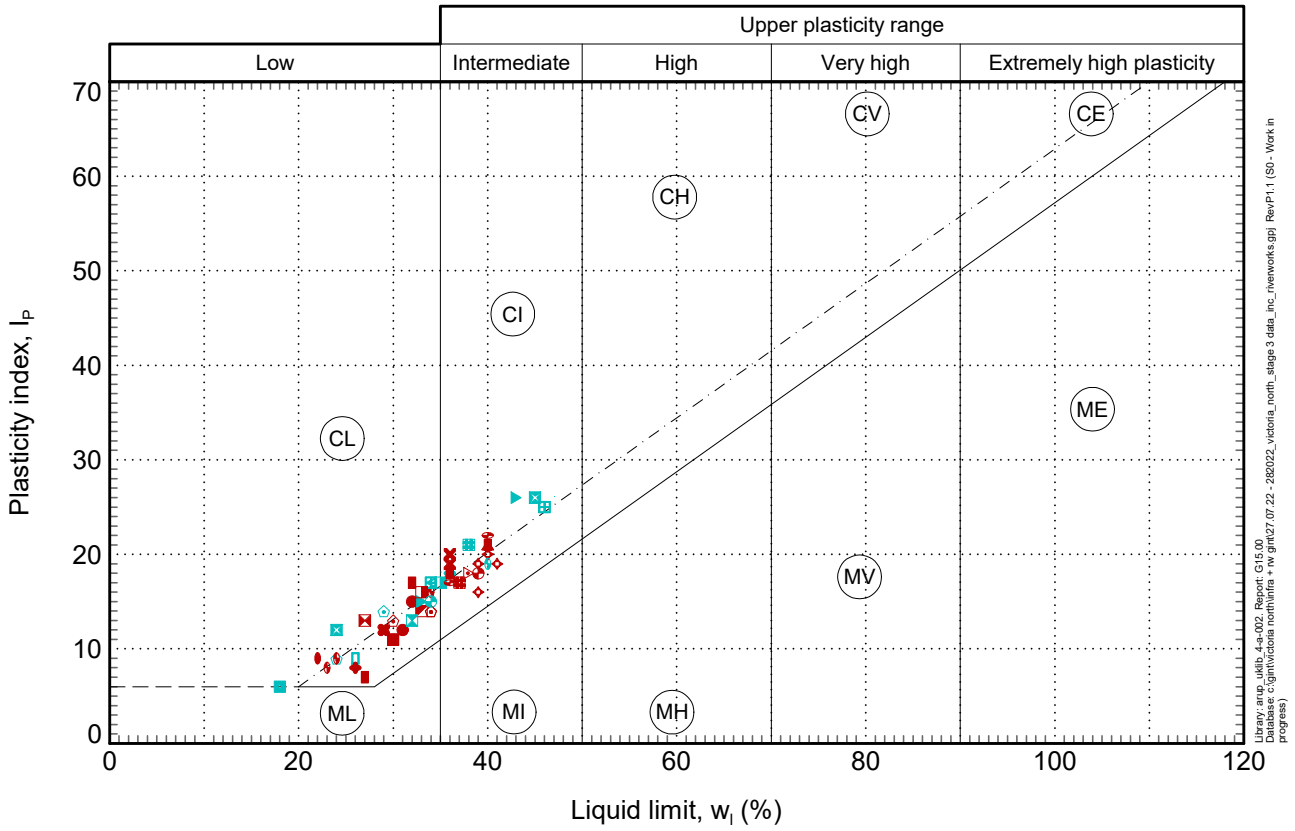
Figure Title
Particle size distribution
St Catherine's Wood

Job No
282022

Chart 1F

Library: arup_uklib_4-a-002, Report: G10A.00
Database: c:\gint\victoria north\infra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



- Made Ground - Cohesive (MG-CO)
- Glacial Till Deposits - Cohesive (GTD - CO)
- 01_BH101
- 01_BH102
- 01_BH103
- 01_BH104
- BH304
- BH305
- BH311
- BH312
- BH324
- GEO_BH202
- GEO_BH201
- GEO_BH205
- GEO_BH209
- GEO_WS207
- GEO_WS210
- GEO_WS214
- 01_TP101
- 01_TP103
- 01_TP104
- GEO_TP201
- GEO_TP203
- GEO_TP207
- GEO_TP210
- GEO_TP211
- GEO_TP213
- GEO_TP214
- GEO_TP216
- GEO_TP217
- TP308
- TP310

ARUP

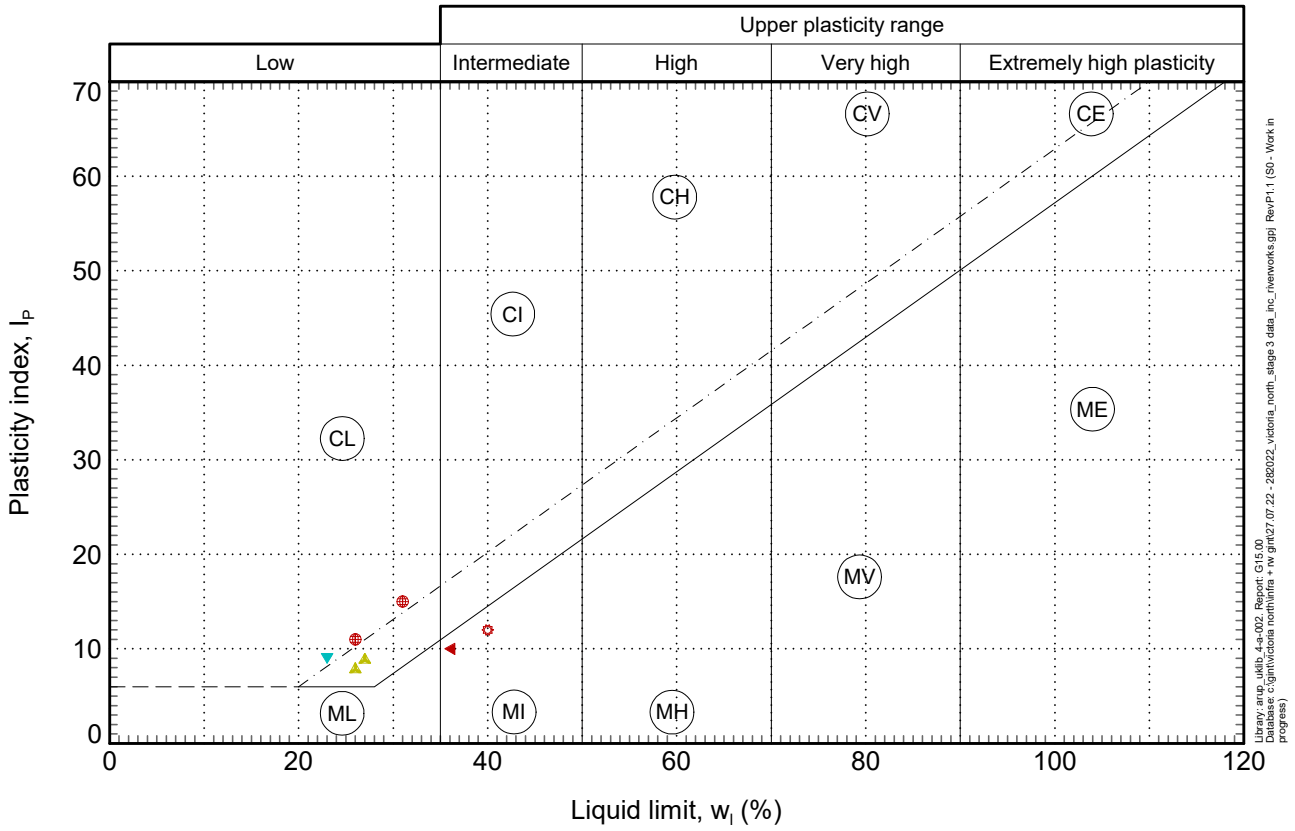
Job Title
Victoria North

Figure Title
Plasticity chart
Redbank Plateau

Job No
282022

Chart 2A

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



- Made Ground - Cohesive (MG-CO)
- Alluvium Cohesive (ALV-CO)
- Glacial Till Deposits - Cohesive (GTD - CO)
- 01_BH106
- 01_BH110
- BH306
- BH314
- BH325

ARUP

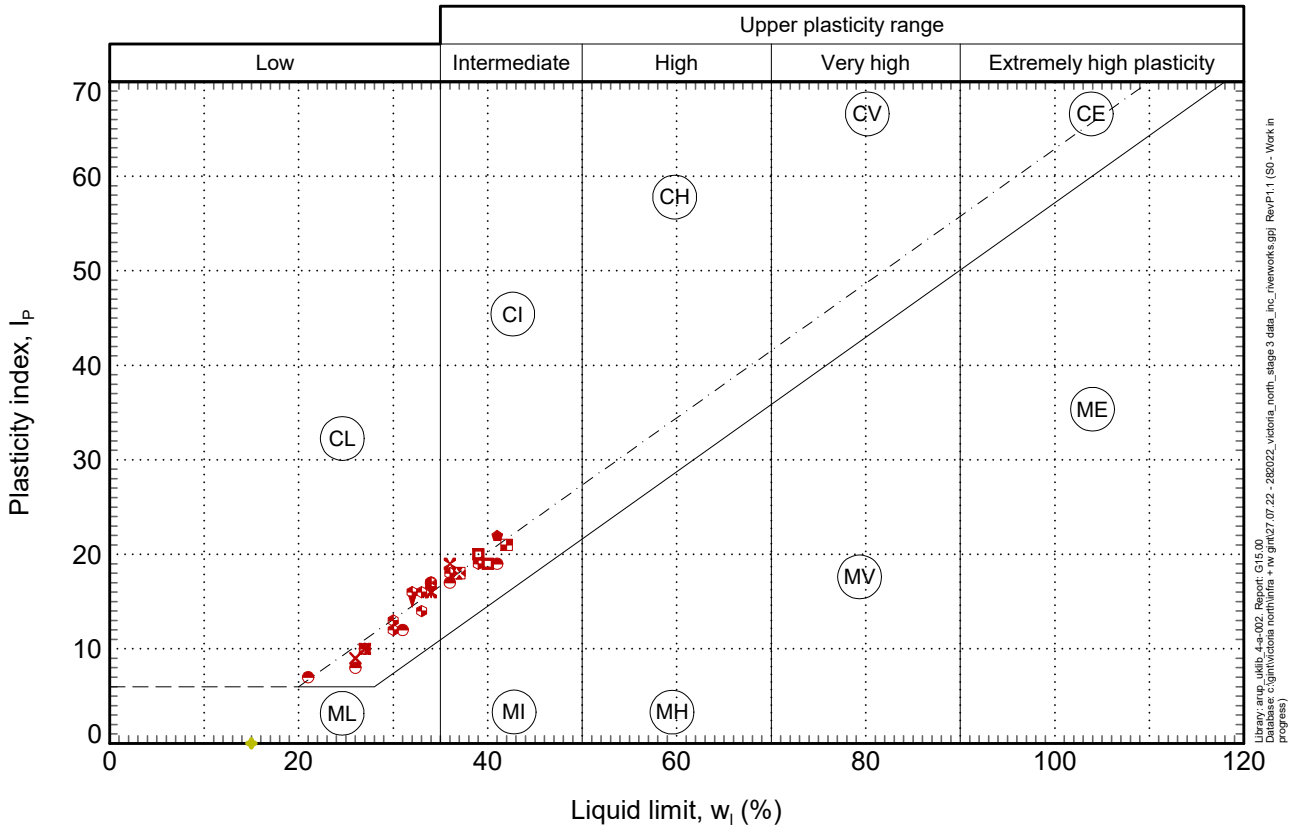
Job Title
Victoria North

Figure Title
Plasticity chart
Redbank Terrace

Job No
282022

Chart 2B

ARUP. gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



- Made Ground - Cohesive (MG-CO)
- Alluvium Cohesive (ALV-CO)
- BH301
- BH302
- BH315
- GEO_BH204
- BH309
- 01_WS102
- GEO_WS202
- GEO_WS203A
- GEO_TP204
- GEO_TP205
- GEO_TP206A
- TT303
- TT303A

ARUP

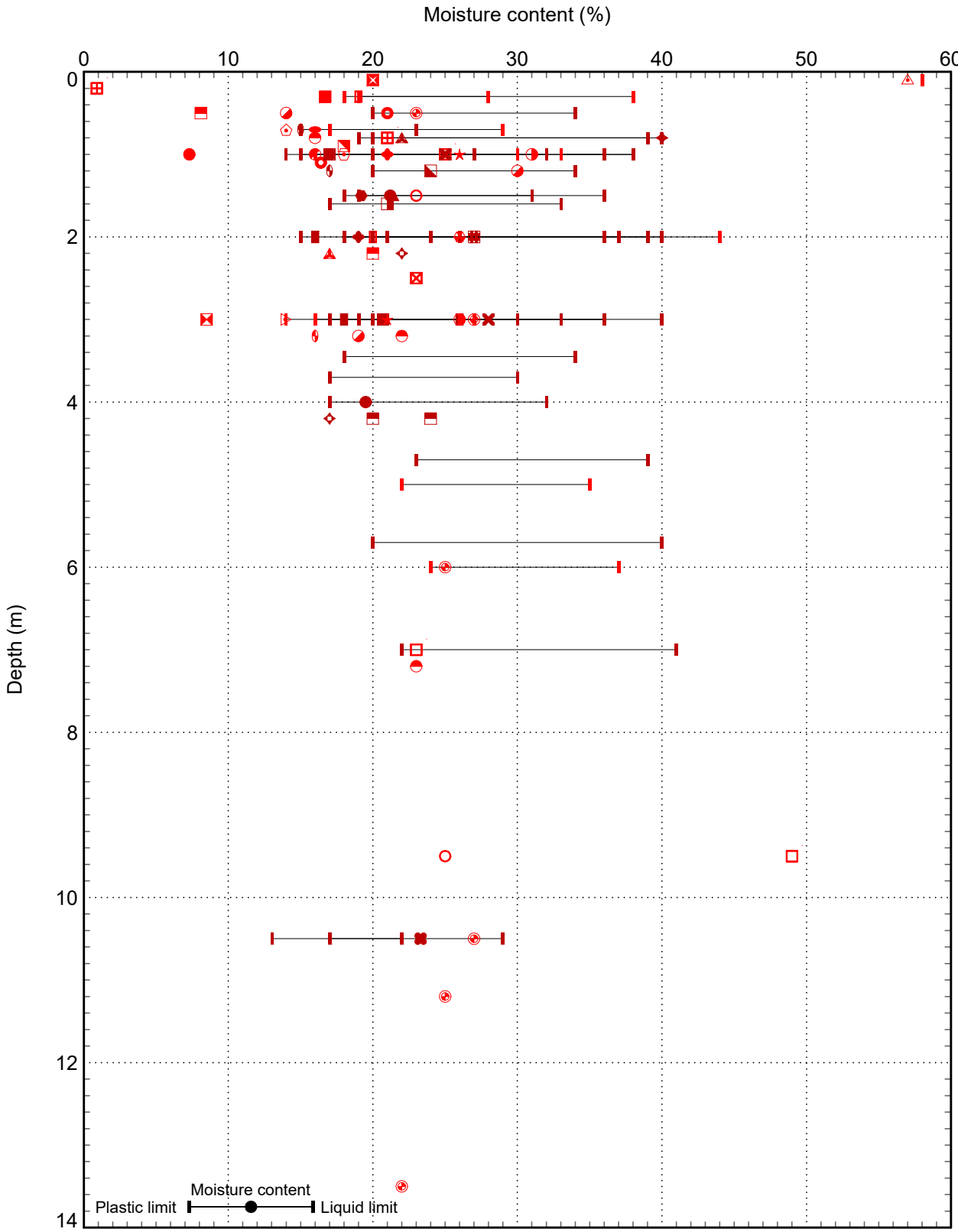
Job Title
Victoria North

Figure Title
Plasticity chart
St Catherine's wood

Job No
282022

Chart 2C

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 8-Aug-22



Library: arup_uklib_4-a-002, Report: G16.51.D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- 01_BH101
- 01_BH102
- 01_BH103
- 01_BH104
- 01_BH105
- BH303
- BH304
- BH305
- BH311
- BH312
- BH324
- GEO_BH202
- GEO_BH206
- GEO_BH207
- GEO_BH208
- GEO_BH211A
- GEO_BH201
- GEO_BH209
- GEO_BH210
- GEO_WS201
- GEO_WS205
- GEO_WS207
- GEO_WS210
- GEO_WS211
- GEO_WS212
- GEO_WS213
- GEO_WS213A
- GEO_WS214
- 01_TP112
- GEO_TP201
- GEO_TP202
- GEO_TP202C
- GEO_TP203
- GEO_TP207
- GEO_TP209
- GEO_TP210
- GEO_TP211
- GEO_TP212
- GEO_TP213
- GEO_TP214
- GEO_TP215
- GEO_TP216
- GEO_TP217
- GEO_TP218
- TP308
- TP310

ARUP

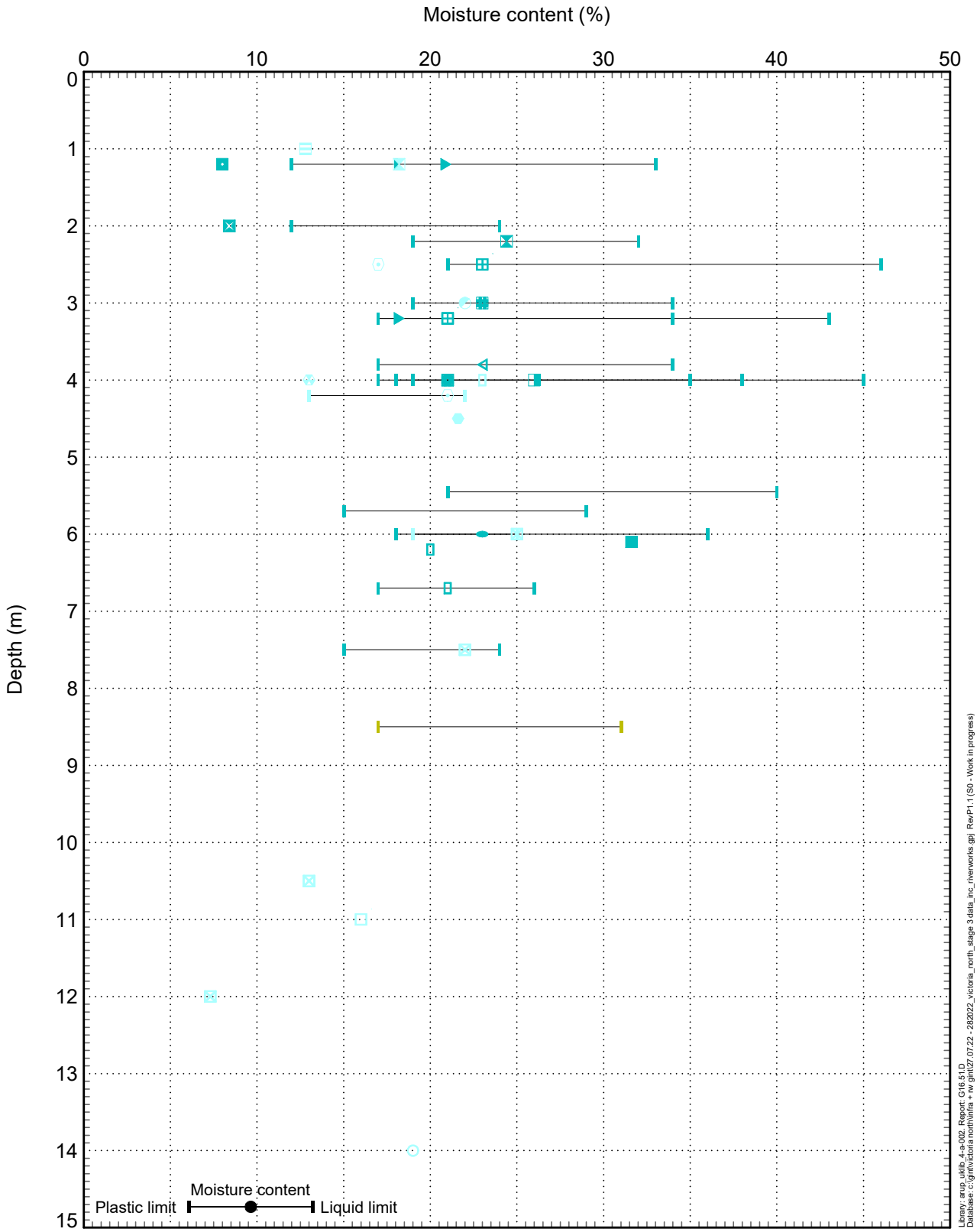
Job Title
Victoria North

Figure Title
Atterberg limits
Redbank Plateau

Job No
282022

Chart 2D

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Alluvium Cohesive (ALV-CO)
Glacial Till Deposits - Cohesive (GTD - CO)
Glacial Till Deposits - Granular (GTD - G)
01_BH102
01_BH105
BH303
BH311
BH312
GEO_BH202
GEO_BH206
GEO_BH208
GEO_BH211A
GEO_BH201
GEO_BH205
GEO_BH209
GEO_BH210
01_TP101
01_TP103
01_TP104
01_TP108
GEO_TP201
GEO_TP209
GEO_TP210
GEO_TP211
GEO_TP215
TP310

ARUP

Job Title
Victoria North

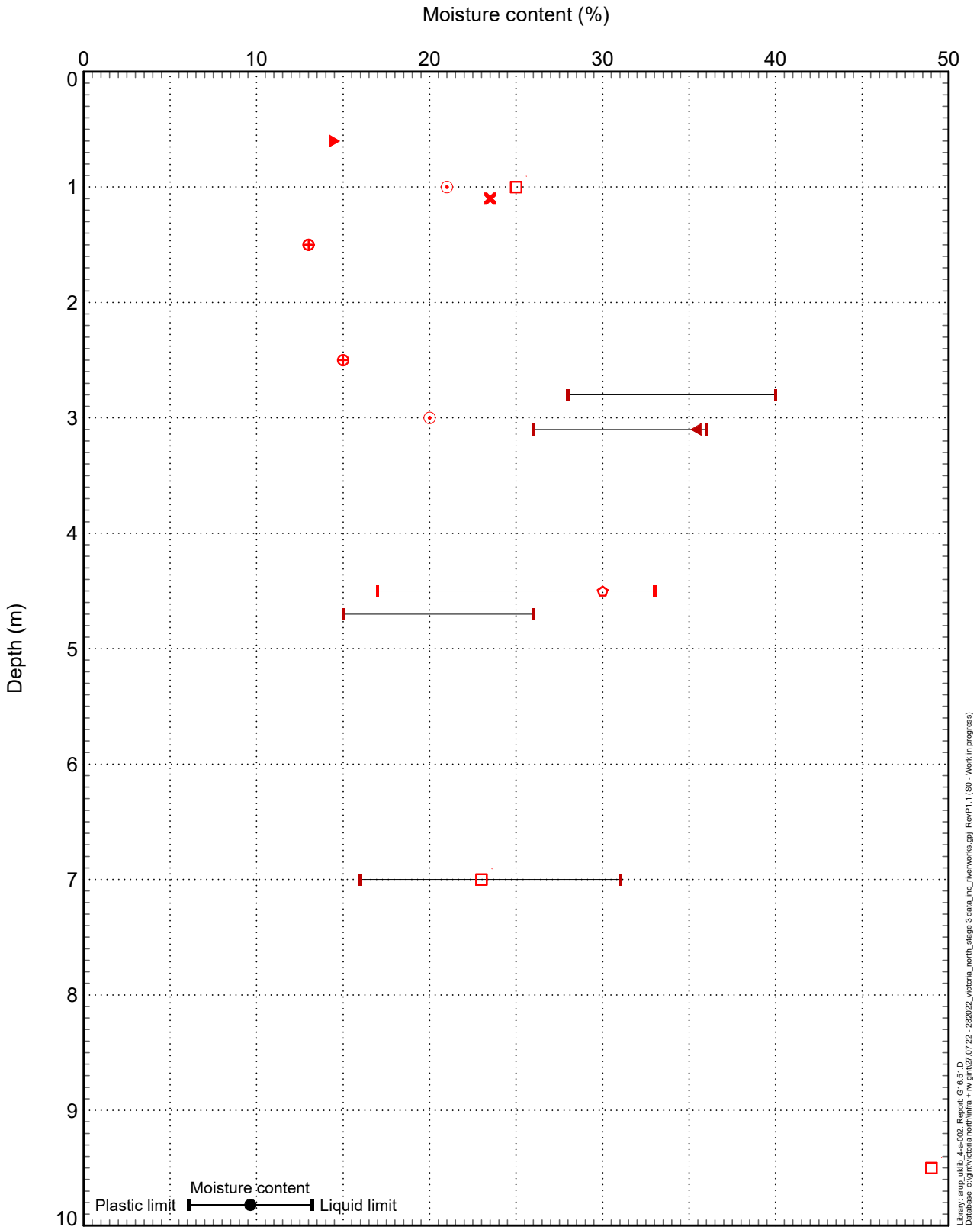
Figure Title
Atterberg limits
Redbank Plateau

Job No
282022

Chart 2E

Library: arup_uklib_4-a-002, Report: G16.51.D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
01_BH110
01_BH112
BH314
BH325
GEO_BH211A
GEO_BH214A
GEO_BH212
01_TP121
GEO_TP219

ARUP

Job Title
Victoria North

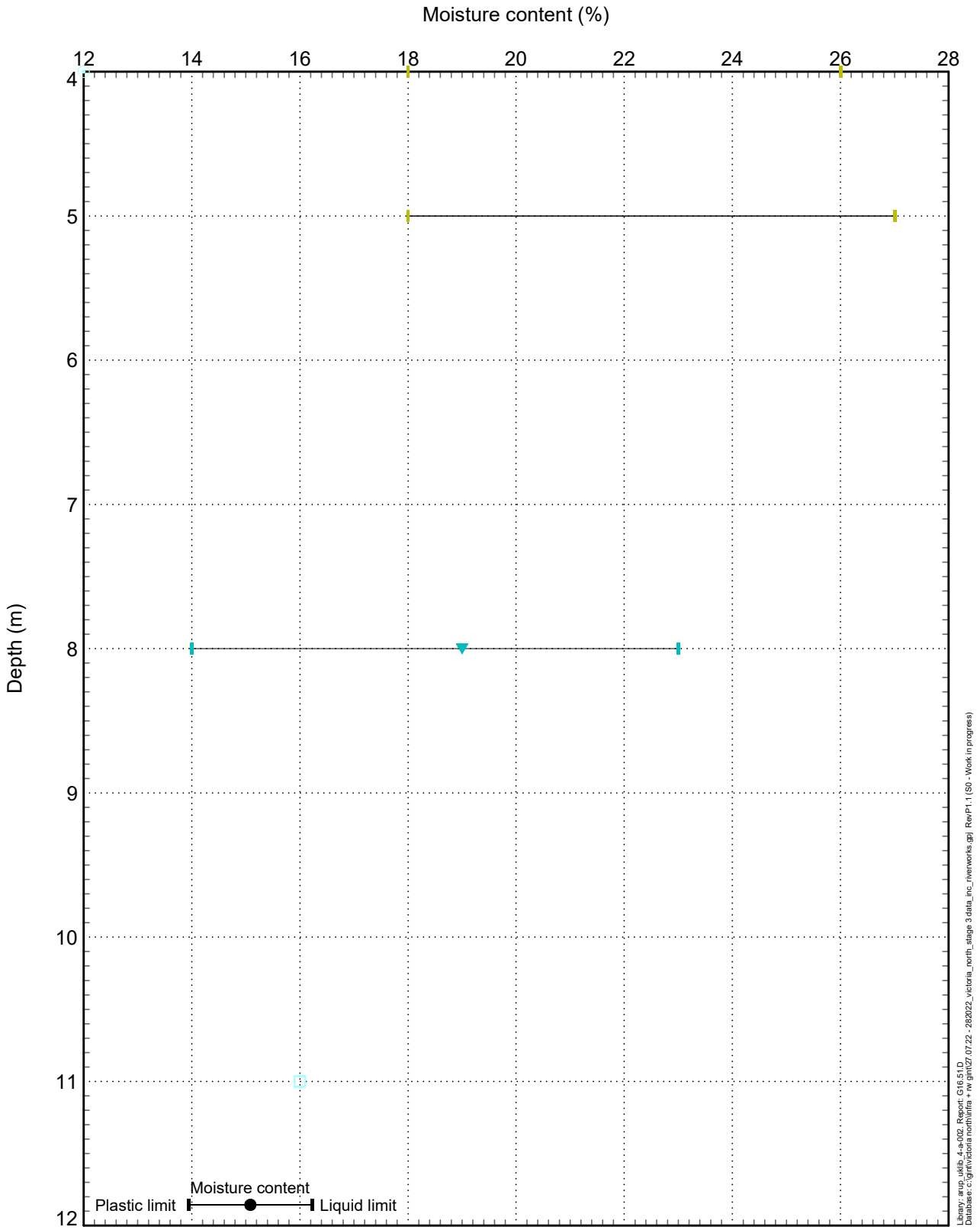
Figure Title
Atterberg limits
Redbank Terrace

Job No
282022

Chart 2F

Library: arup_uklib_4-a-002_Report: G16.51.D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



- Alluvium Cohesive (ALV-CO)
- Glacial Till Deposits - Cohesive (GTD - CO)
- Glacial Till Deposits - Granular (GTD - G)
- 01_BH106
- BH306
- GEO_BH211A
- GEO_TP219

ARUP

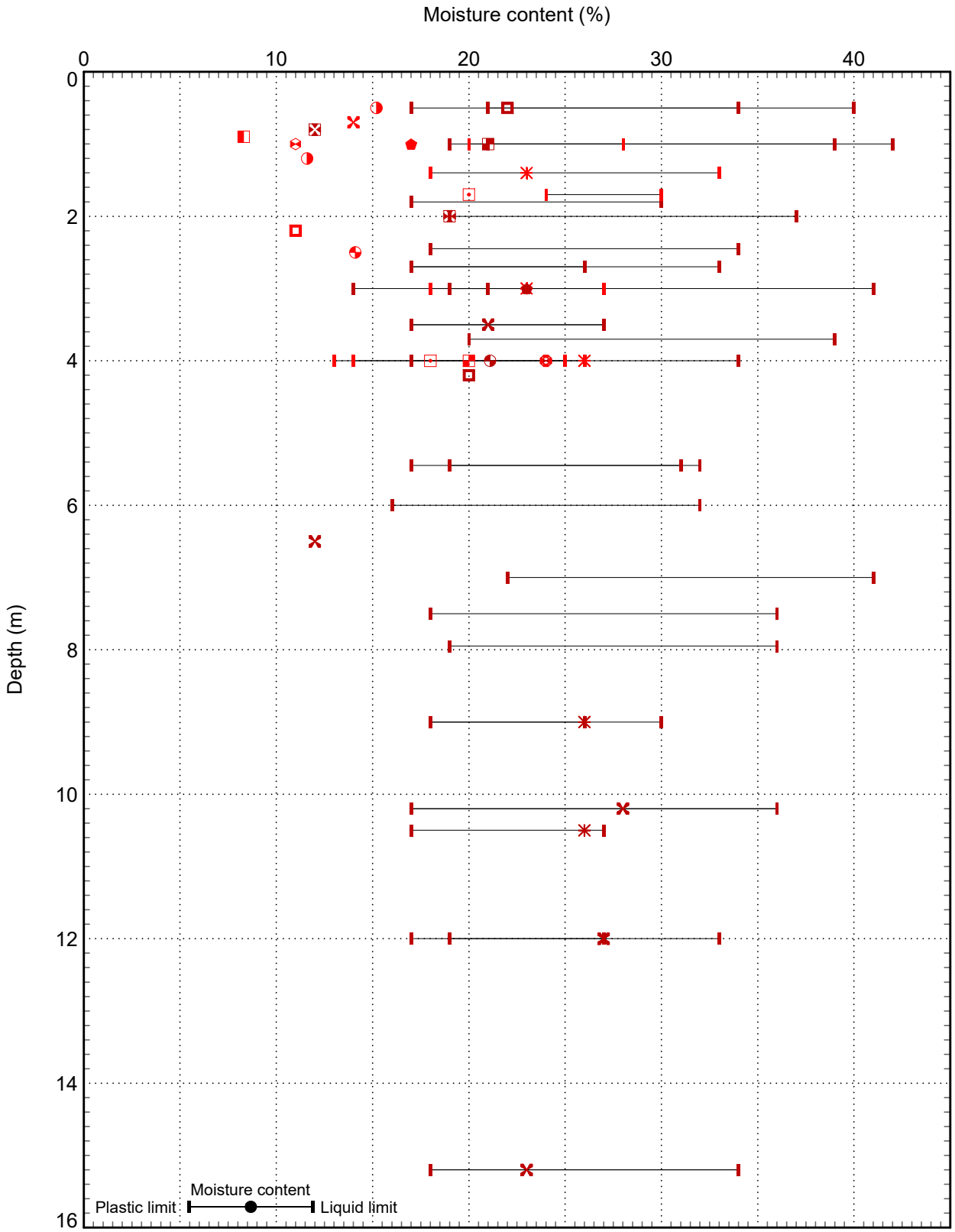
Job Title
Victoria North

Figure Title
Atterberg limits
Redbank terrace

Job No
282022

Chart 2G

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Library: arup_uklib_4-a-002, Report: G16.51.D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- BH301
- BH302
- BH315
- GEO_BH204
- GEO_BH203
- BH309
- 01_WS101
- GEO_WS202
- GEO_WS203A
- GEO_WS204
- GEO_WS206
- 01_TP106
- GEO_TP204
- GEO_TP205
- GEO_TP206A
- GEO_TP208
- TT303
- TT303A

ARUP

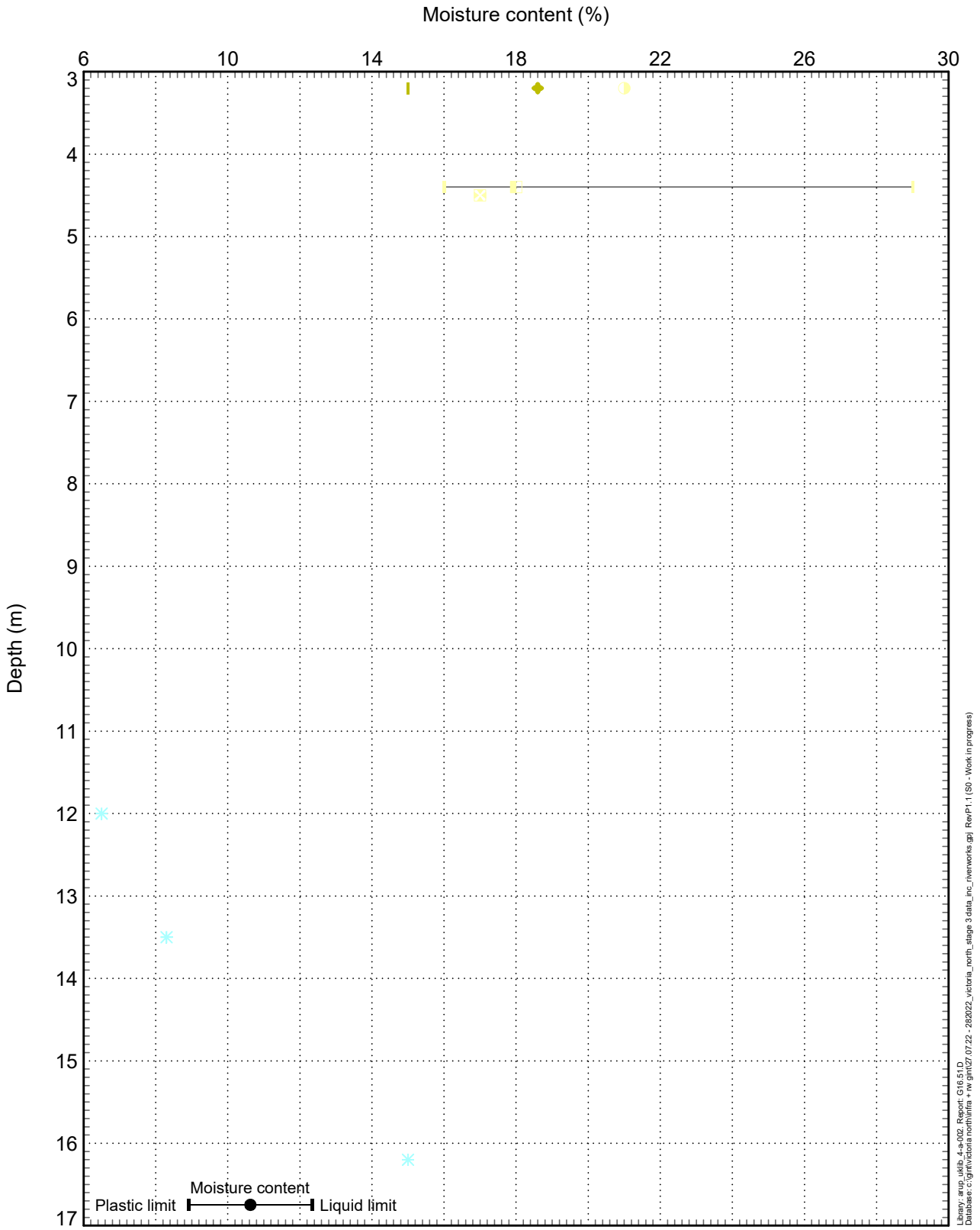
Job Title
Victoria North

Figure Title
Atterberg limits
St Catherine's wood

Job No
282022

Chart 2H

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



- Alluvium Cohesive (ALV-CO)
- Alluvium granular (ALV-G)
- Glacial Till Deposits - Granular (GTD - G)
- GEO_BH203
- 01_WS101
- 01_WS102
- GEO_WS203A
- GEO_WS206

ARUP

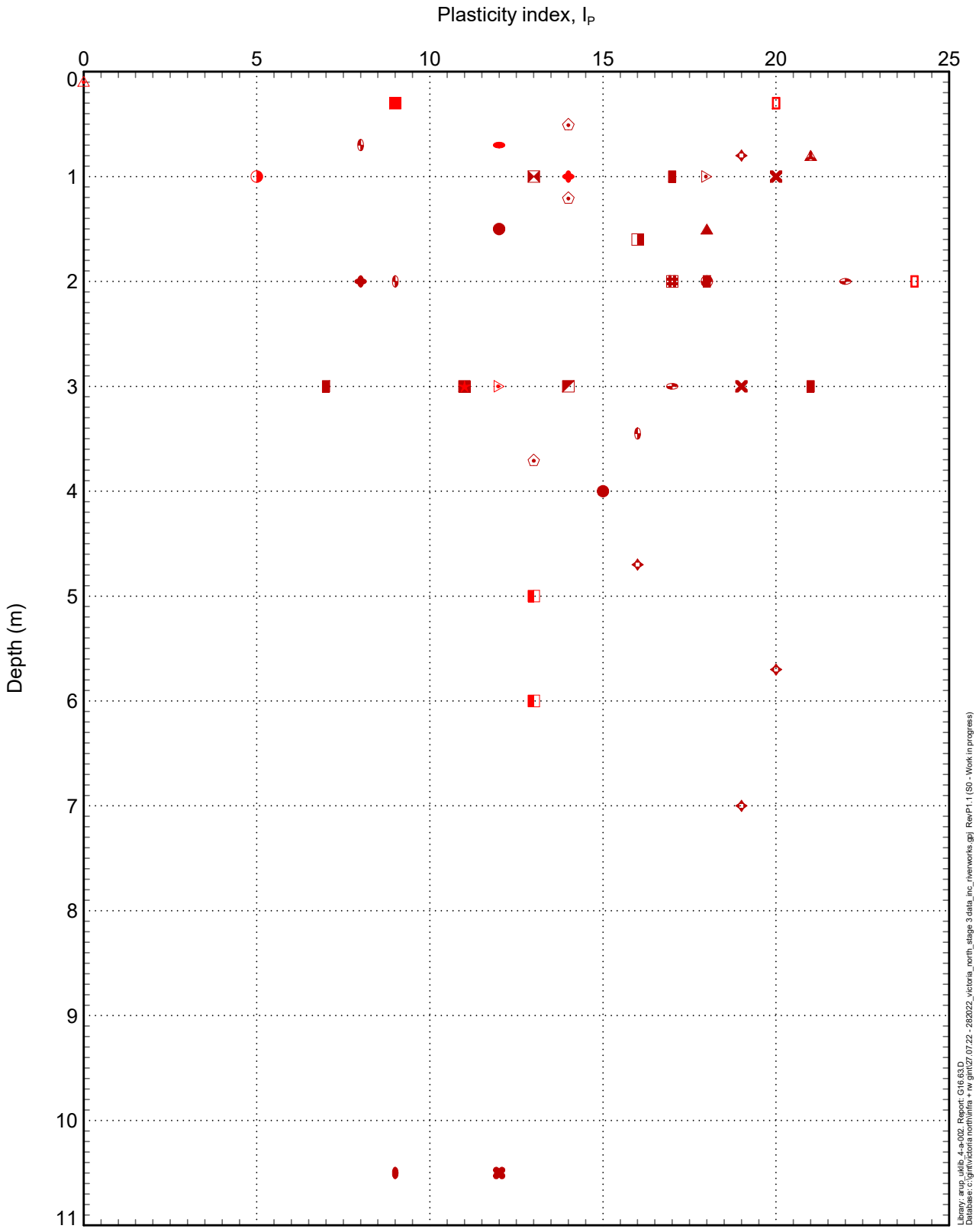
Job Title
Victoria North

Figure Title
Atterberg limits
St catherine' wood

Job No
282022

Chart 2I

ARUP. gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
01_BH101
01_BH102
01_BH103
01_BH104
BH303
BH304
BH305
BH311
BH312
BH324
GEO_BH202
GEO_BH209
GEO_WS207
GEO_WS210
GEO_WS214
GEO_TP202C
GEO_TP203
GEO_TP207
GEO_TP210
GEO_TP211
GEO_TP212
GEO_TP213
GEO_TP214
GEO_TP216
GEO_TP217
GEO_TP218
TP308
TP310

ARUP

Job Title
Victoria North

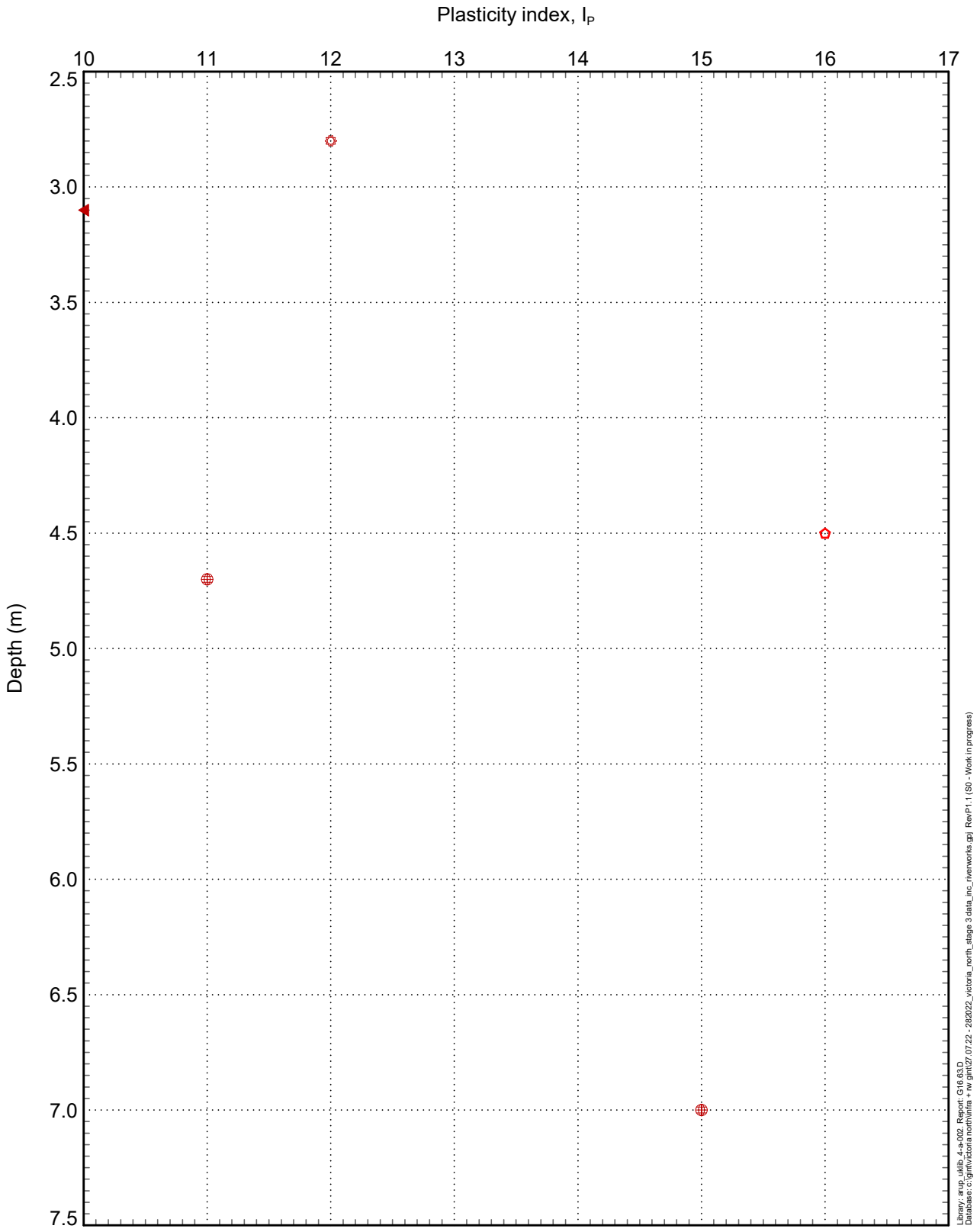
Figure Title
Plasticity index
Redbank Plateau

Job No
282022

Chart 2J

Library: arup_uklib_4-x-002. Report: G16.63.D
Database: c:\gint\victoria north\infra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Library: arup_uklib_4-x-002_Report: G16.63.D
Database: c:\gint\victoria north\infra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- 01_BH110
- BH314
- BH325
- GEO_BH212

ARUP

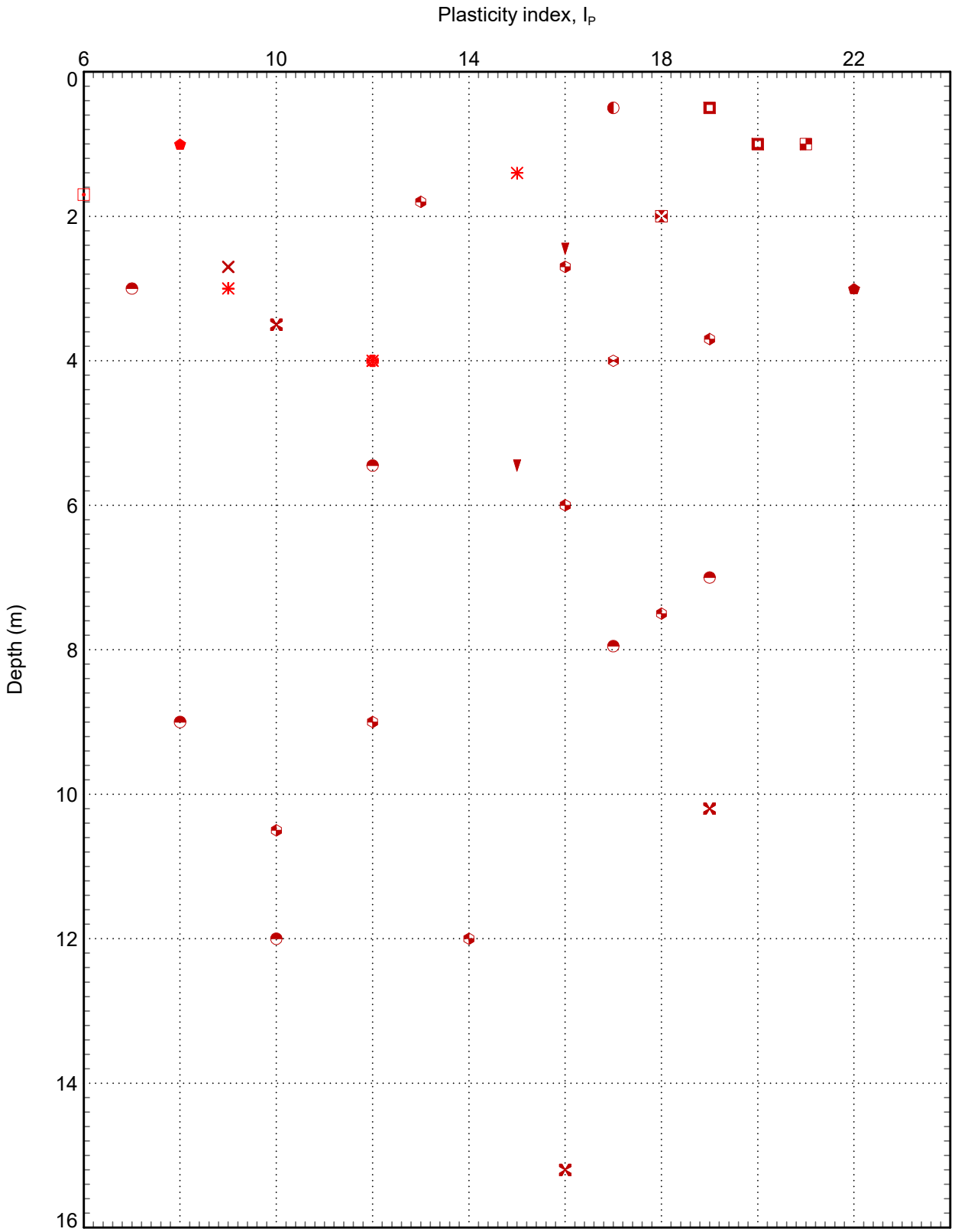
Job Title
Victoria North

Figure Title
Plasticity index
Redbank terrace

Job No
282022

Chart 2K

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
BH301
BH302
BH315
GEO_BH204
GEO_BH203
BH309
GEO_WS202
GEO_WS203A
GEO_WS204
GEO_TP204
GEO_TP205
GEO_TP206A
GEO_TP208
TT303
TT303A

ARUP

Job Title
Victoria North

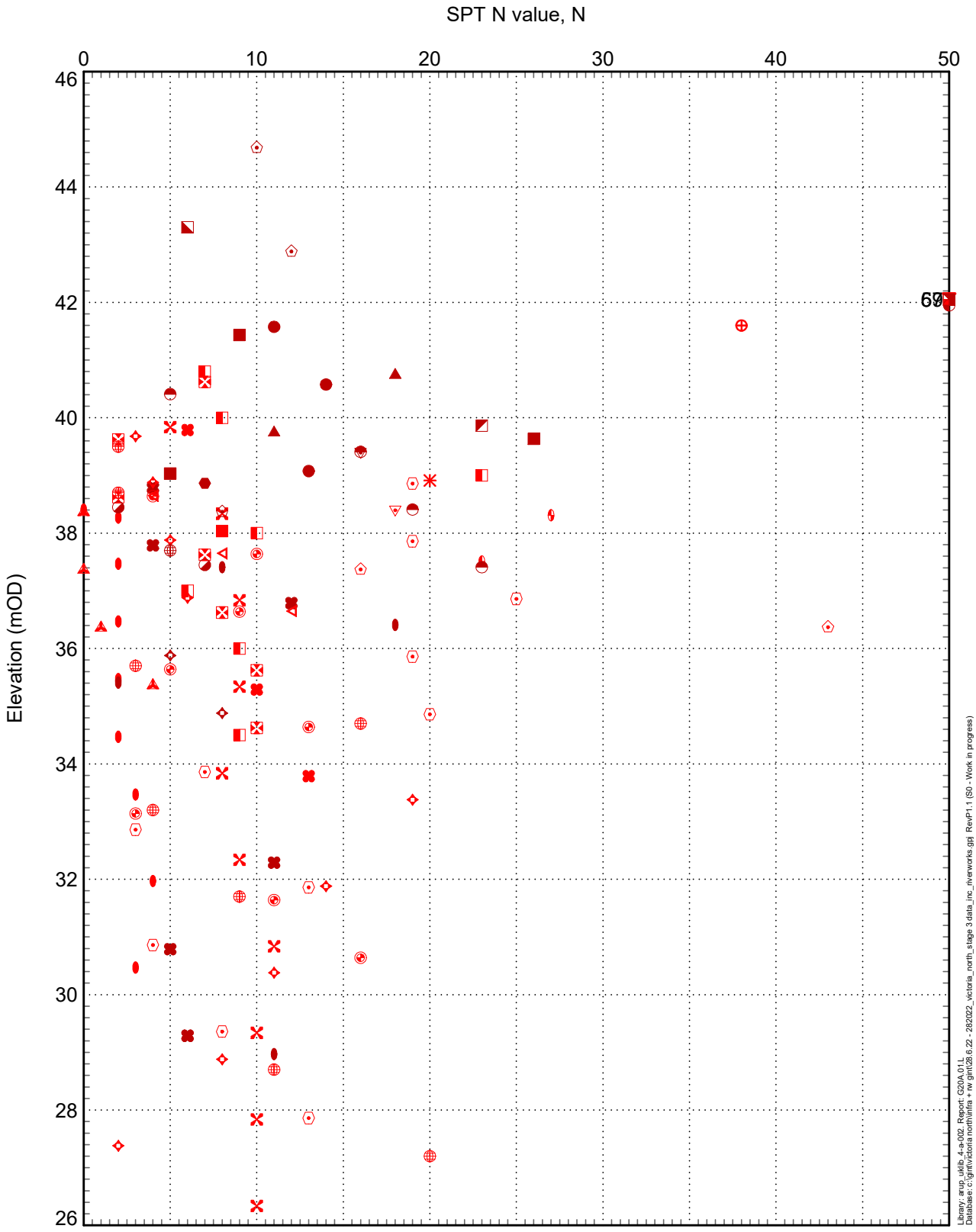
Figure Title
Plasticity index
St Catherine's wood

Job No
282022

Chart 2L

Library: arup_uklib_4-a-002. Report: G16.63.D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 28-Jul-22



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
01_BH101
01_BH102
01_BH103
01_BH104
01_BH105
BH303
BH304
BH305
BH311
BH312
BH313
BH324
GEO_BH202
GEO_BH207
GEO_BH208
GEO_BH211A
GEO_BH201
GEO_BH209
GEO_BH210
GEO_WS201
GEO_WS201A
GEO_WS201B
GEO_WS205
GEO_WS207
GEO_WS210
GEO_WS211
GEO_WS212
GEO_WS213A
GEO_WS214

ARUP

Job Title
Victoria North

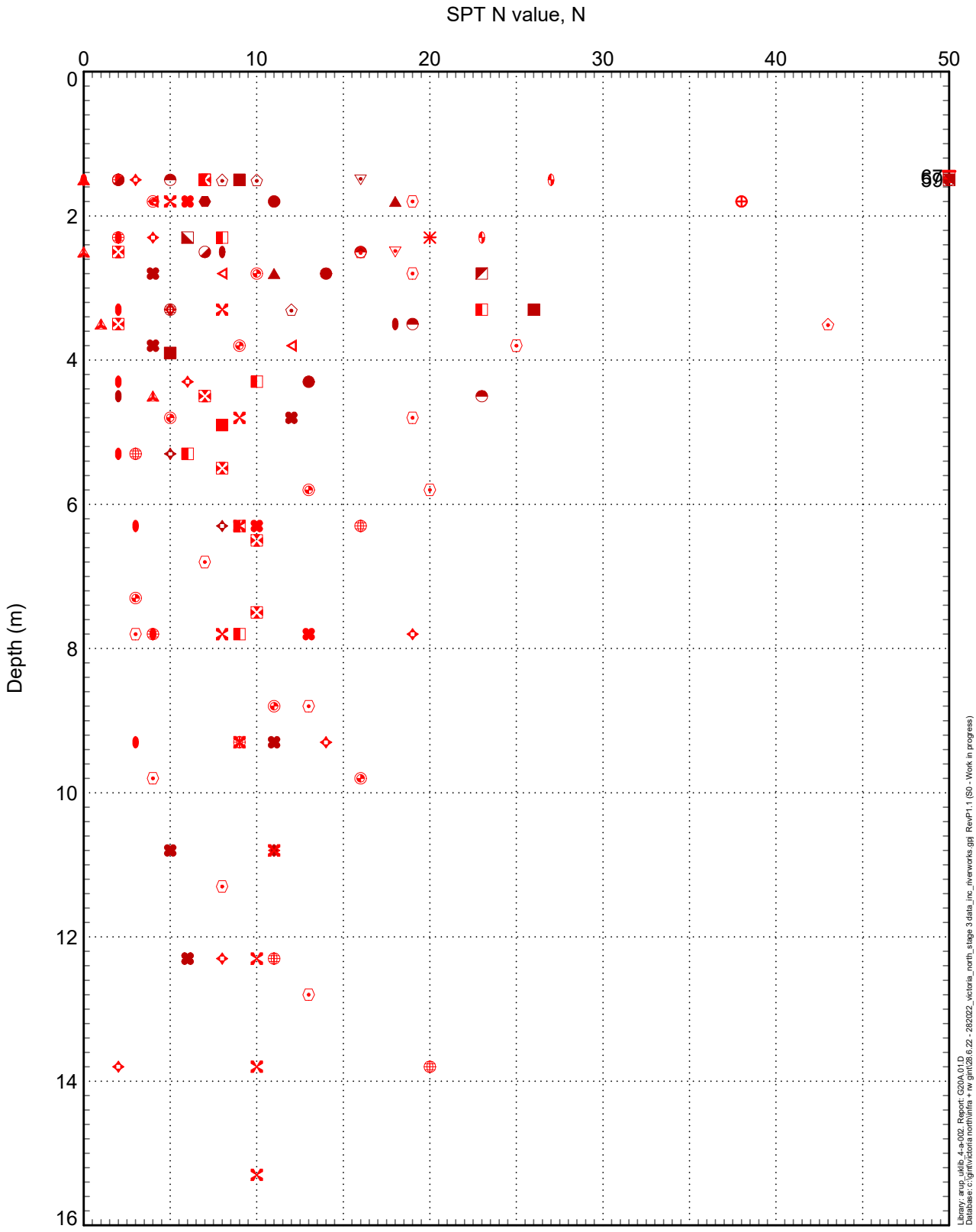
Figure Title
Standard penetration tests
Redbank Plateau

Job No
282022

Chart 3A

Library: arup_uklib_4-a-002_Report: C20A.01L
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 12-Jul-22



Library: arup_ukltr_4-a-002_Report: C20A.01.D
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- 01_BH101
- 01_BH102
- 01_BH103
- 01_BH104
- 01_BH105
- BH303
- BH304
- BH305
- BH311
- BH312
- BH313
- BH324
- GEO_BH202
- GEO_BH207
- GEO_BH208
- GEO_BH211A
- GEO_BH201
- GEO_BH209
- GEO_BH210
- GEO_WS201
- GEO_WS201A
- GEO_WS201B
- GEO_WS205
- GEO_WS207
- GEO_WS210
- GEO_WS211
- GEO_WS212
- GEO_WS213A
- GEO_WS214

ARUP

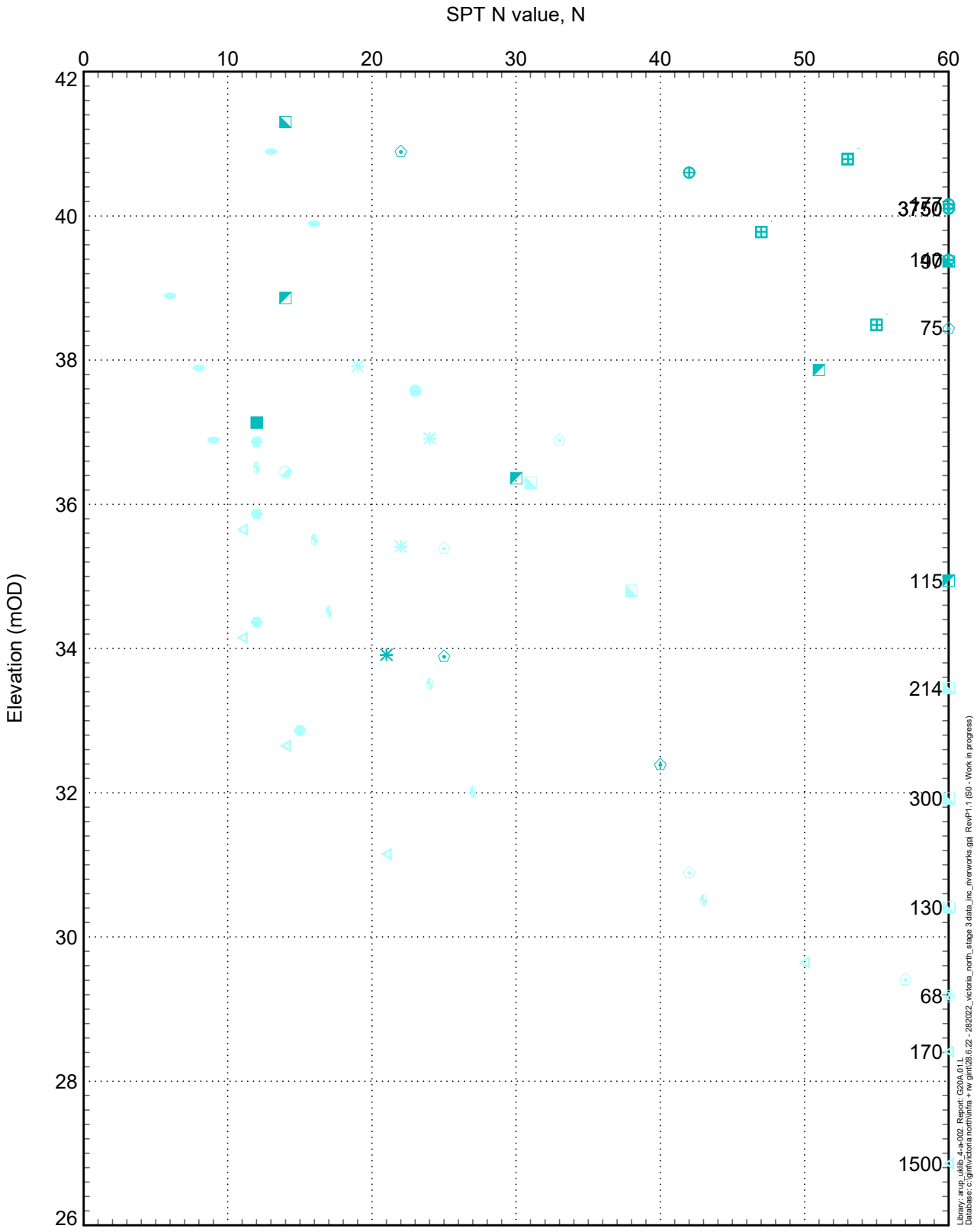
Job Title
Victoria North

Figure Title
Standard penetration tests
Redbank Plateau

Job No
282022

Chart 3B

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



- Glacial Till Deposits - Cohesive (GTD - CO)
- Glacial Till Deposits - Granular (GTD - G)
- 01_BH101
- 01_BH102
- 01_BH105
- BH311
- BH312
- BH313
- GEO_BH202
- GEO_BH206
- GEO_BH211A
- GEO_BH201
- GEO_BH205
- GEO_BH209
- GEO_BH210
- GEO_WS213A

ARUP

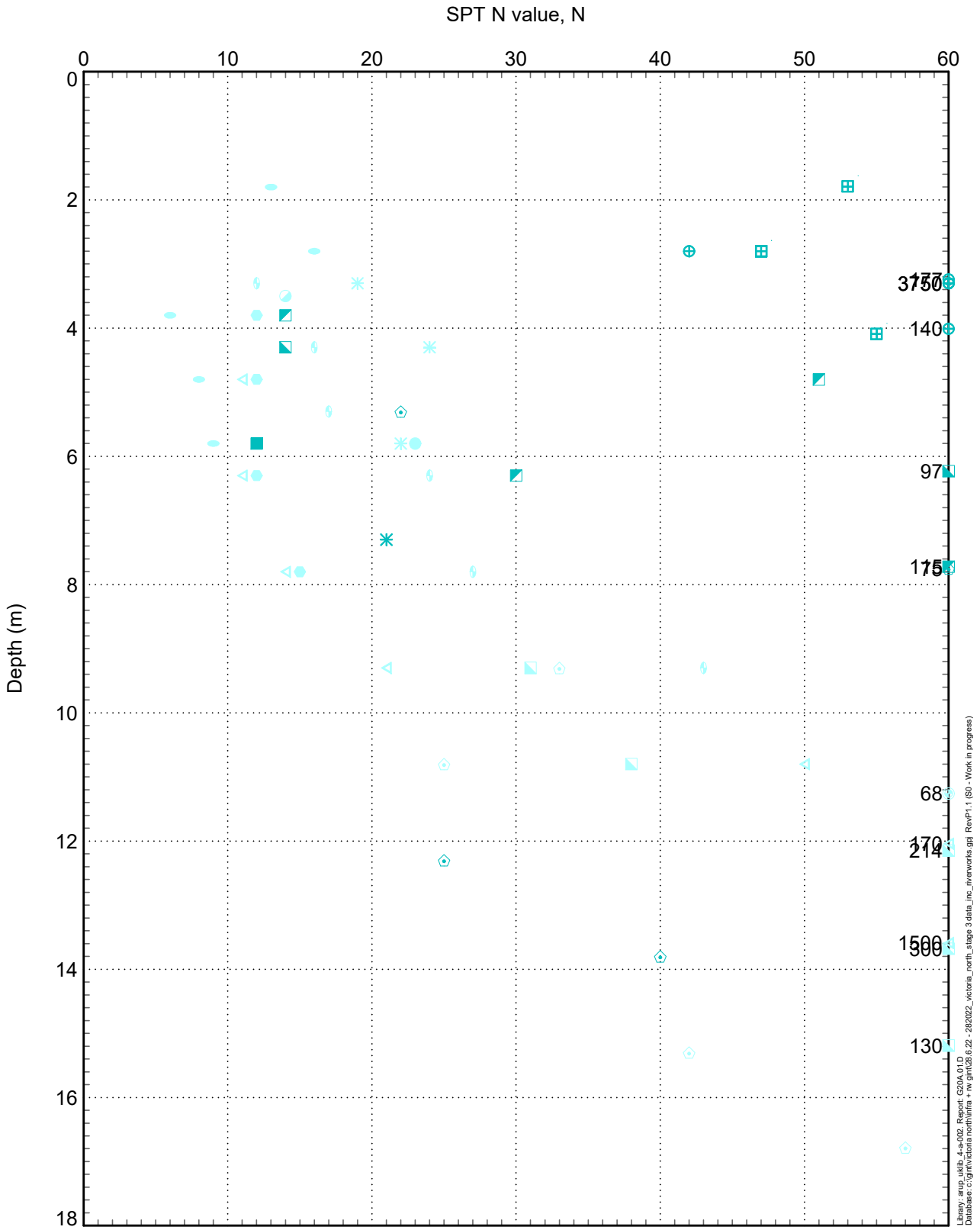
Job Title
Victoria North

Figure Title
Standard penetration tests
Redbank Plateau

Job No
282022

Chart 3C

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 12-Jul-22



- Glacial Till Deposits - Cohesive (GTD - CO)
- Glacial Till Deposits - Granular (GTD - G)
- 01_BH101
- 01_BH102
- 01_BH105
- BH311
- BH312
- BH313
- GEO_BH202
- GEO_BH206
- GEO_BH211A
- GEO_BH201
- GEO_BH205
- GEO_BH209
- GEO_BH210
- GEO_WS213A

ARUP

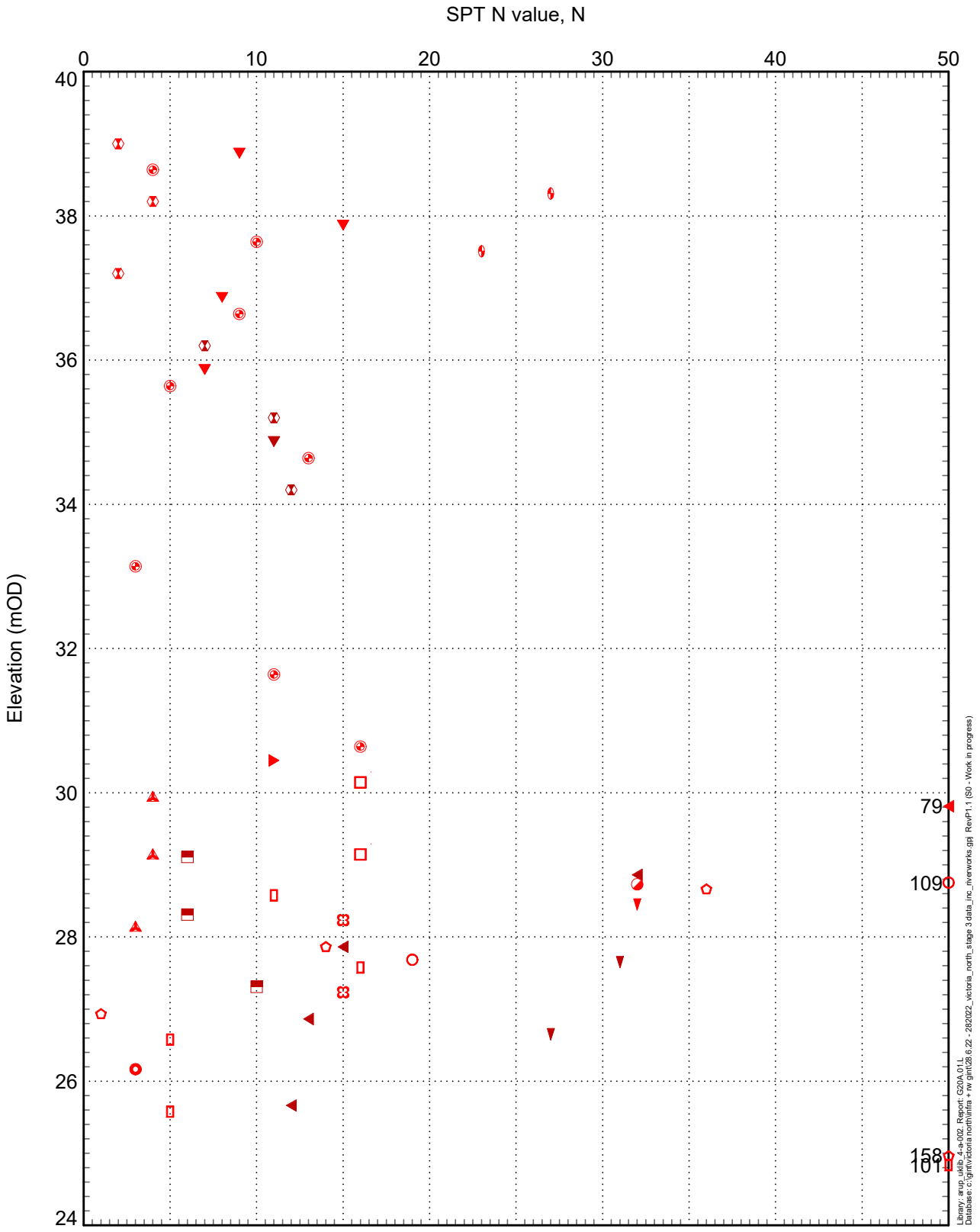
Job Title
Victoria North

Figure Title
Standard penetration tests
Redbank Plateau

Job No
282022

Chart 3D

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



- Made Ground - Granular (MG-G)
- Made Ground - Cohesive (MG-CO)
- 01_BH106
- 01_BH110
- 01_BH112
- BH306
- BH307
- BH308
- BH313
- BH314
- BH325
- GEO_BH211A
- GEO_BH212A
- GEO_BH213
- GEO_BH214A
- GEO_BH212
- RE15
- RE13A

ARUP

Job Title
Victoria North

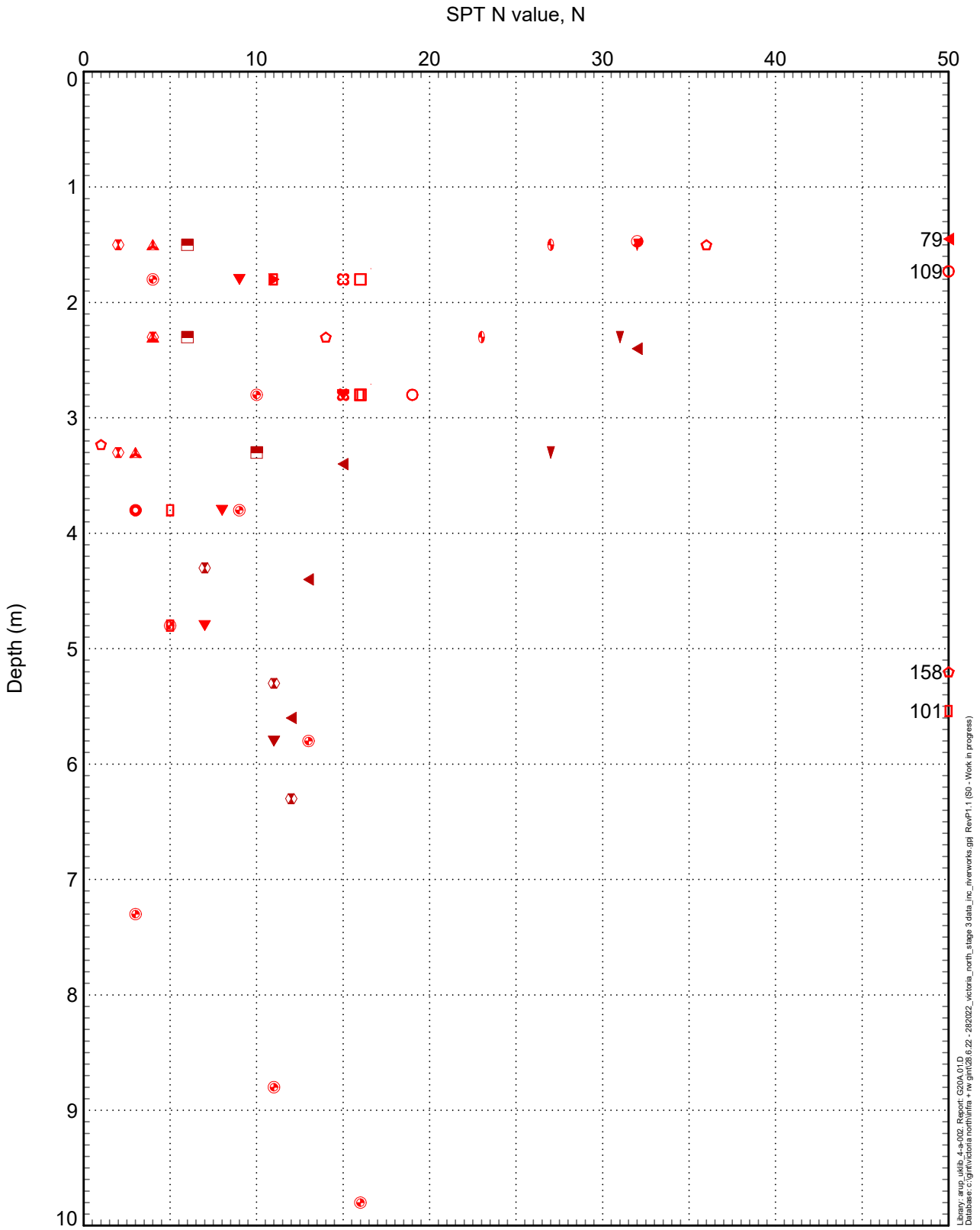
Figure Title
Standard penetration tests
Redbank Terrace

Job No
282022

Chart 3E

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 12-Jul-22

Library: arup_uk%3-4-002. Report: C20A.011.
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
01_BH106
01_BH110
01_BH112
BH306
BH307
BH308
BH313
BH314
BH325
GEO_BH211A
GEO_BH212A
GEO_BH213
GEO_BH214A
GEO_BH212
RE15
RE13A

ARUP

Job Title
Victoria North

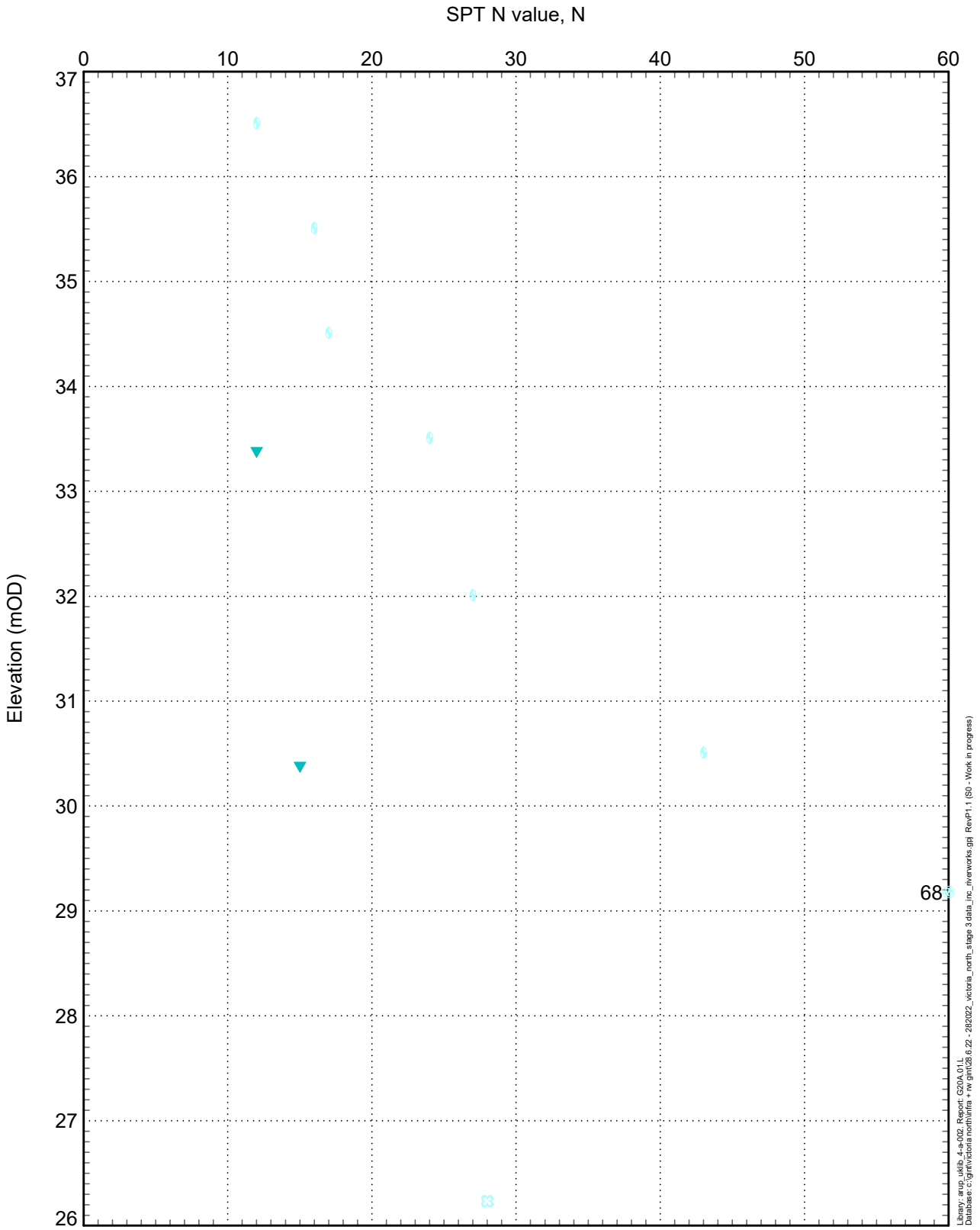
Figure Title
Standard penetration tests
Redbank Terrace

Job No
282022

Chart 3F

Library: arup_uklib_4-a-002. Report: C20A.01.D
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



Glacial Till Deposits - Cohesive (GTD - CO)
Glacial Till Deposits - Granular (GTD - G)
01_BH106
BH313
GEO_BH211A
GEO_BH214A

ARUP

Job Title
Victoria North

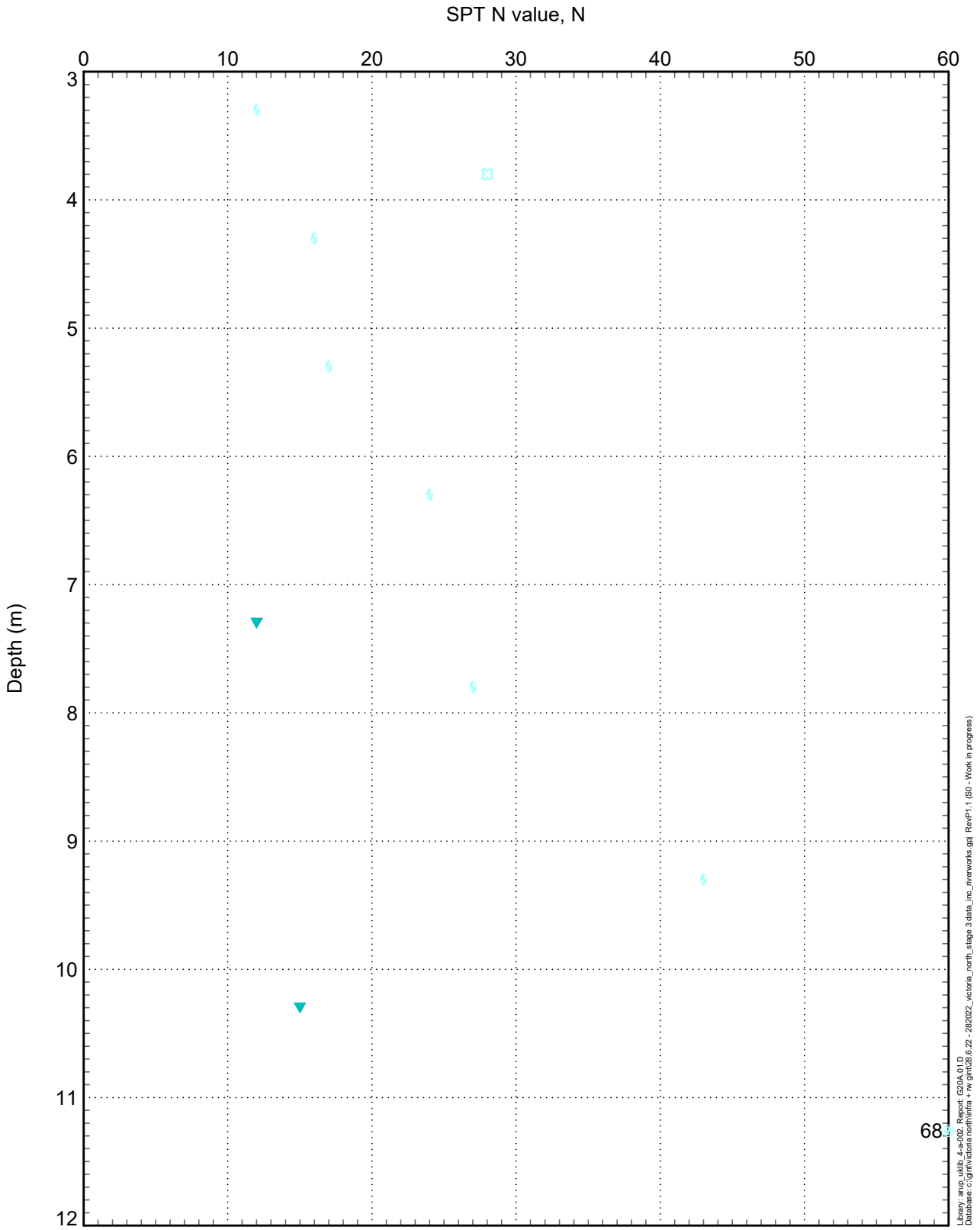
Figure Title
Standard penetration tests
Redbank Terrace

Job No
282022

Chart 3G

Library: arup_uklib_4-a-002. Report: C20A.01L
Database: c:\gint\victoria north\infra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 12-Jul-22



Library: arup_uklib_4-x-002_Report_C20A.01.D
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Glacial Till Deposits - Cohesive (GTD - CO)
- Glacial Till Deposits - Granular (GTD - G)
- 01_BH106
- BH313
- GEO_BH211A
- GEO_BH214A

ARUP

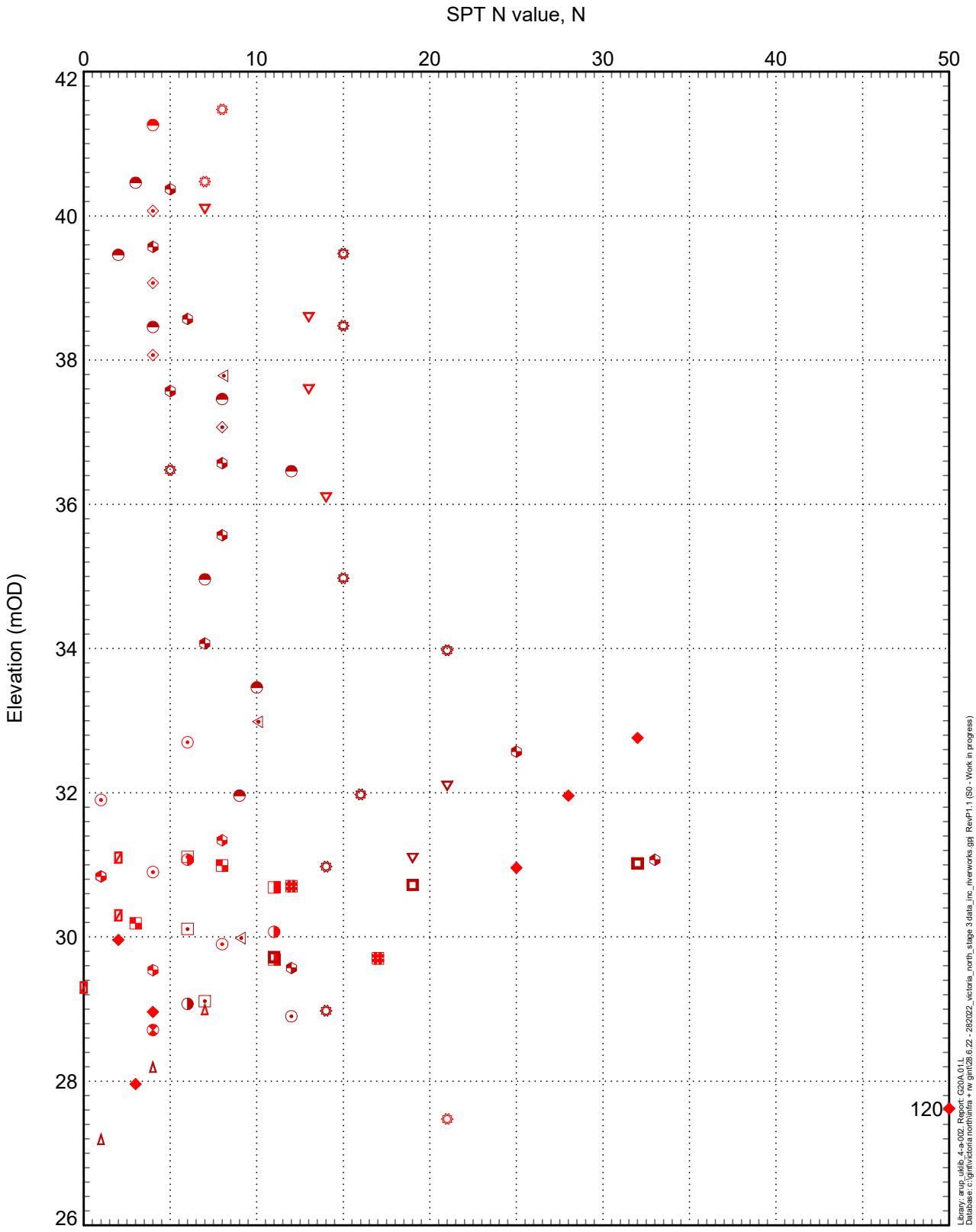
Job Title
Victoria North

Figure Title
Standard penetration tests
Redbank Terrace

Job No
282022

Chart 3H

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
BH301
BH302
BH315
GEO_BH204
GEO_BH203
BH309
BH310
01_WS101
01_WS102
01_WS103
BH321
BH322
BH323
GEO_WS202
GEO_WS203A
GEO_WS204
GEO_WS206
BH320

ARUP

Job Title
Victoria North

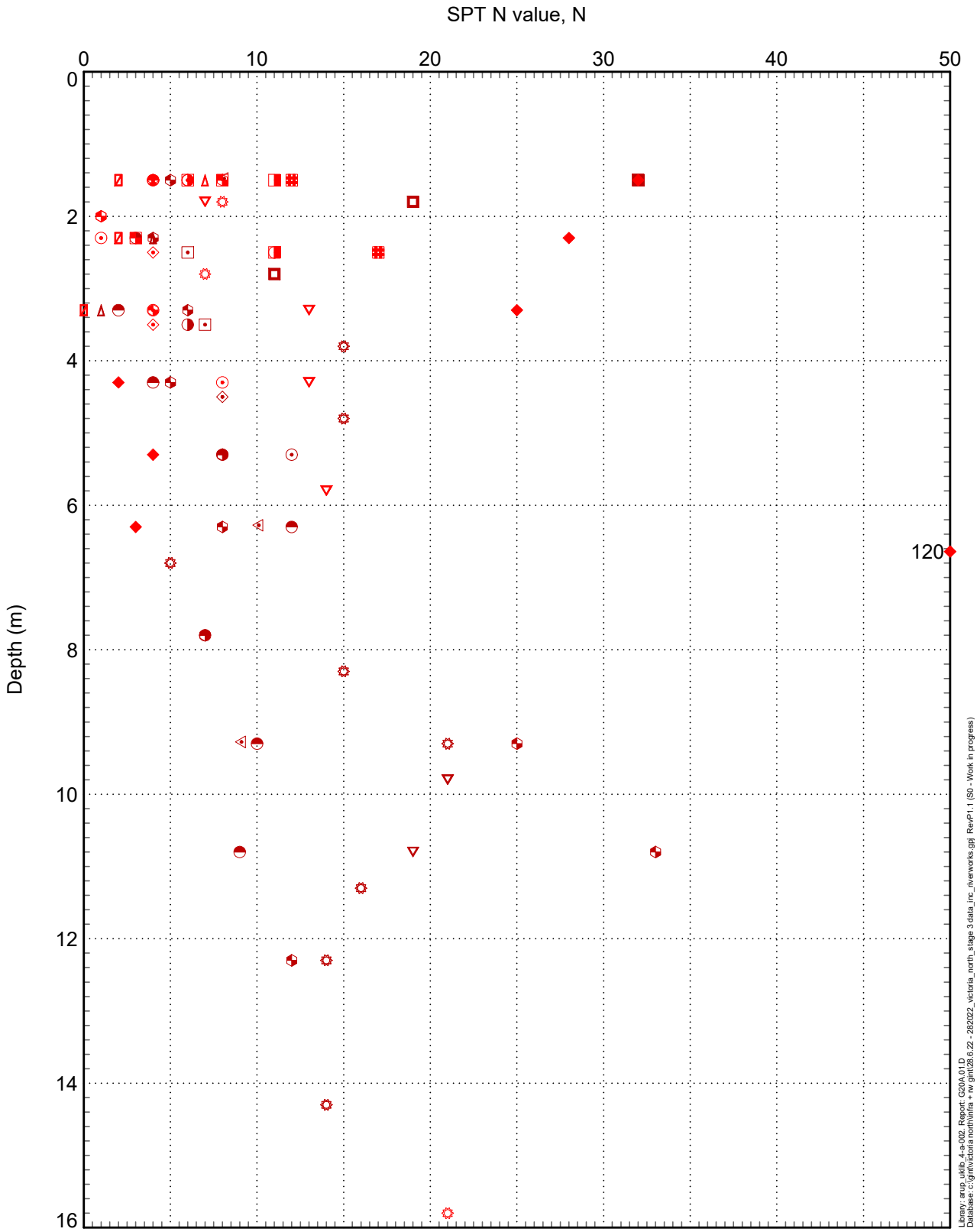
Figure Title
Standard penetration tests
St Catherines wood

Job No
282022

Chart 3I

Library: arup_ukllb_4-a-002_Report_C20A.011.
Database: c:\gint\victoria north\infra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 12-Jul-22



Made Ground - Granular (MG-G)
Made Ground - Cohesive (MG-CO)
BH301
BH302
BH315
GEO_BH204
GEO_BH203
BH309
BH310
01_WS101
01_WS102
01_WS103
BH321
BH322
BH323
GEO_WS202
GEO_WS203A
GEO_WS204
GEO_WS206
BH320

ARUP

Job Title
Victoria North

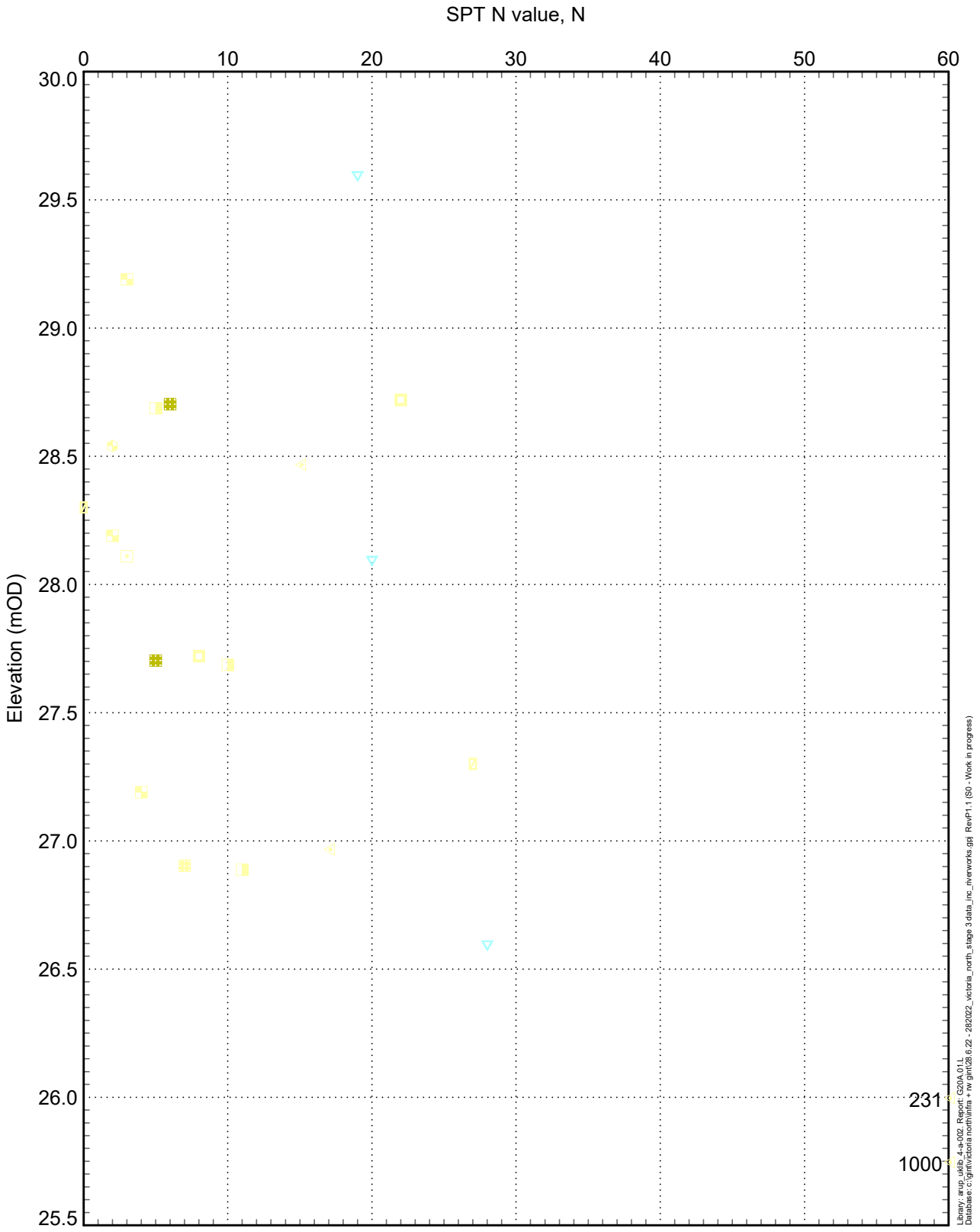
Figure Title
Standard penetration tests
St Catherine's wood

Job No
282022

Chart 3J

Library: arup_uklib_4-a-002. Report: C20A.01.D
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



Library: arup_uklib_4-a-002_Report_C20A.011
Database: c:\gint\victoria northinfra + rw gint\26.6.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- Alluvium Cohesive (ALV-CO)
- Alluvium granular (ALV-G)
- Glacial Till Deposits - Granular (GTD - G)
- BH315
- GEO_BH203
- BH310
- 01_WS101
- 01_WS102
- BH322
- GEO_WS203A
- GEO_WS204
- GEO_WS206

ARUP

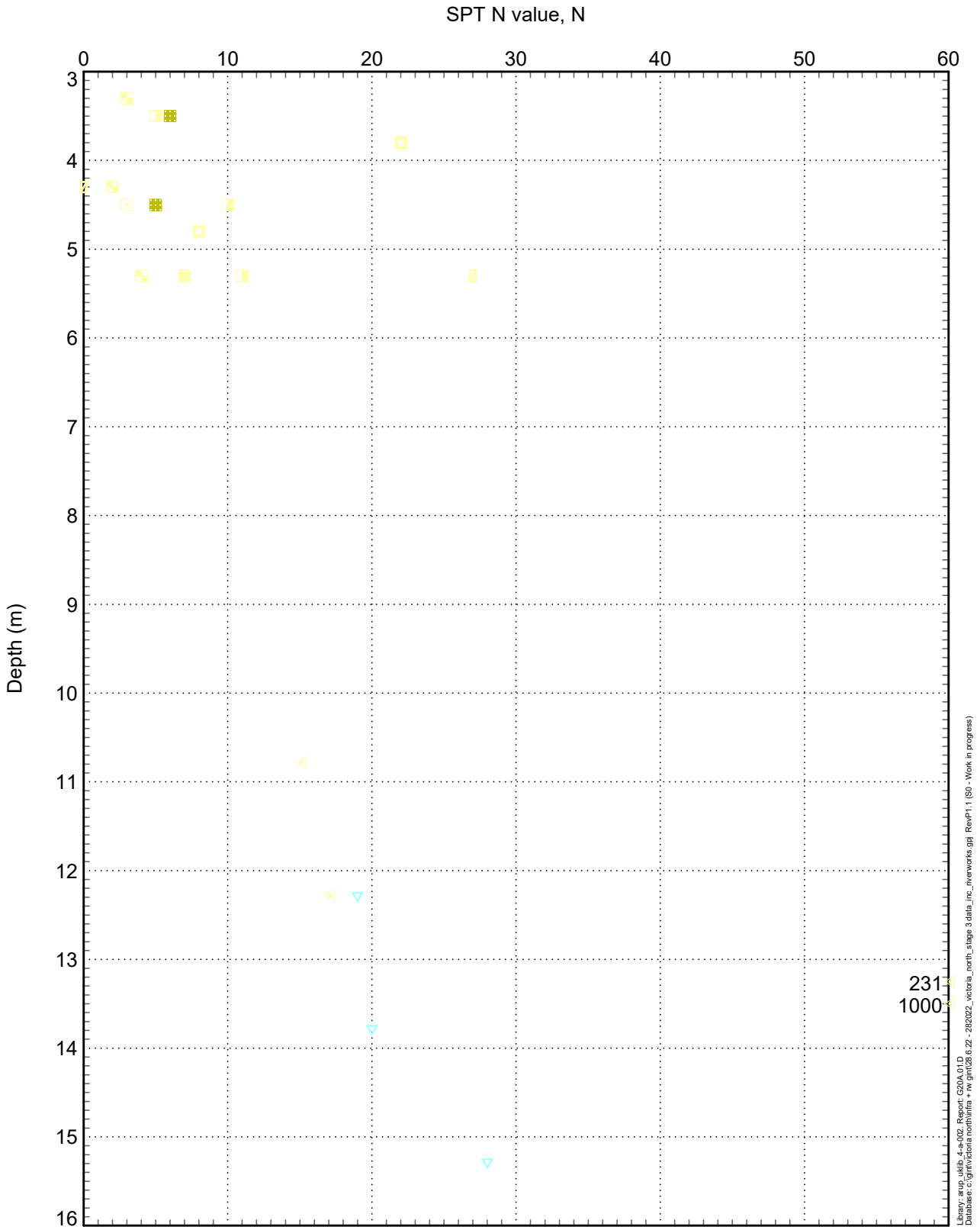
Job Title
Victoria North

Figure Title
Standard penetration tests
St Catherine's Wood

Job No
282022

Chart 3K

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



- Alluvium Cohesive (ALV-CO)
- Alluvium granular (ALV-G)
- Glacial Till Deposits - Granular (GTD - G)
- BH315
- GEO_BH203
- BH310
- 01_WS101
- 01_WS102
- BH322
- GEO_WS203A
- GEO_WS204
- GEO_WS206

ARUP

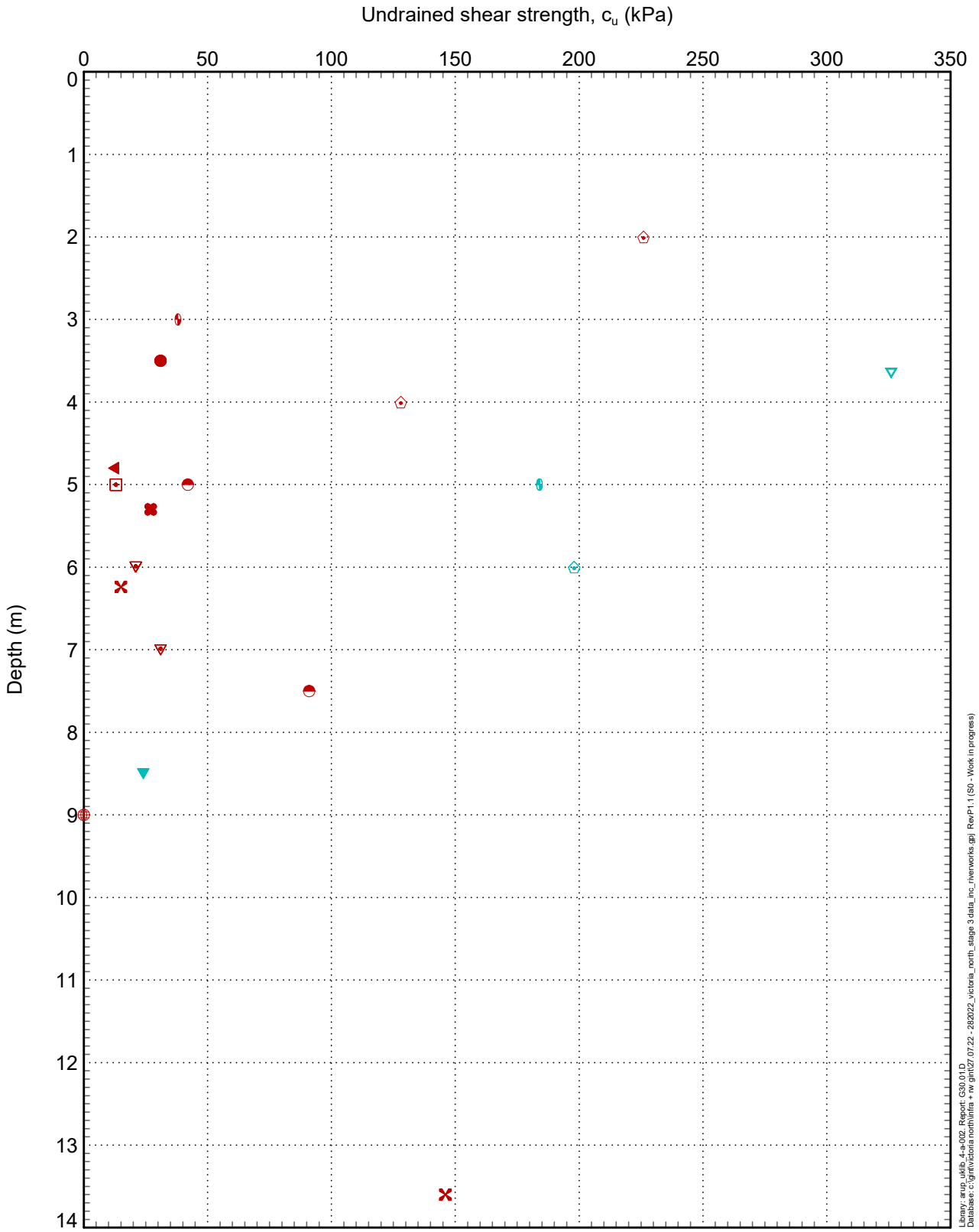
Job Title
Victoria North

Figure Title
Standard penetration tests
St Catherine's Wood

Job No
282022

Chart 3L

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 14-Jul-22



- Made Ground - Cohesive (MG-CO)
- Glacial Till Deposits - Cohesive (GTD - CO)
- 01_BH101
- 01_BH104
- 01_BH106
- 01_BH110
- BH301B
- BH302
- BH304A
- BH311
- BH312
- BH314
- GEO_BH204
- GEO_BH215

ARUP

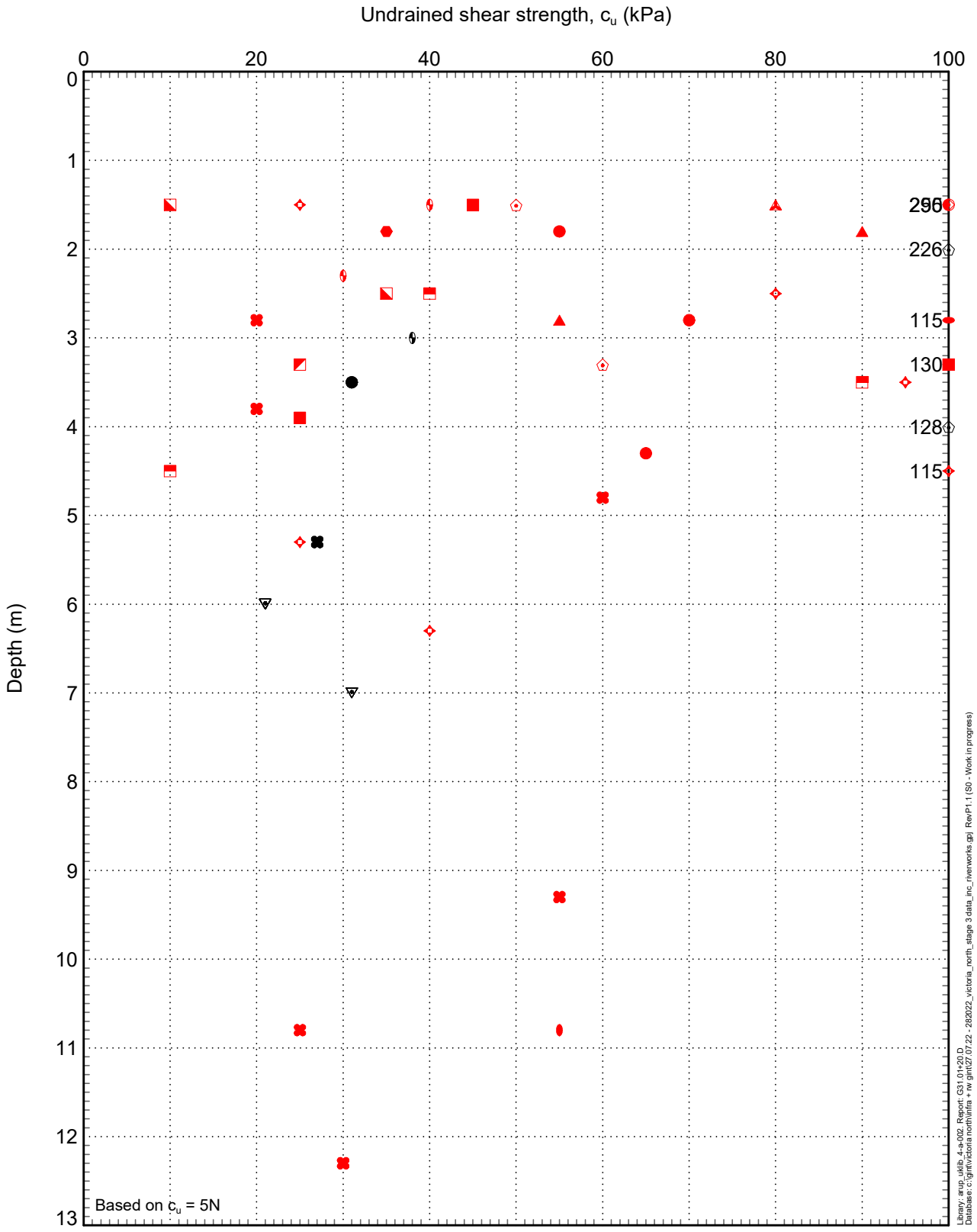
Job Title
Victoria North

Figure Title
Triaxial undrained shear strength
MADE GROUND - COHESIVE &
GLACIAL TILL DEPOSITS -
COHESIVE

Job No
282022

Chart 4A

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 9-Aug-22



Library: arup_uklib_4-x-002, Report: G31.01+20.D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- From triaxial test
- cu from SPT (x5)
- 01_BH101
- 01_BH102
- 01_BH103
- 01_BH104
- 01_BH105
- BH304
- BH304A
- BH305
- BH311
- BH312
- BH324
- GEO_BH202
- GEO_WS201A
- GEO_WS201B
- GEO_WS207
- GEO_WS210
- GEO_WS211
- GEO_WS213A
- GEO_WS214

ARUP

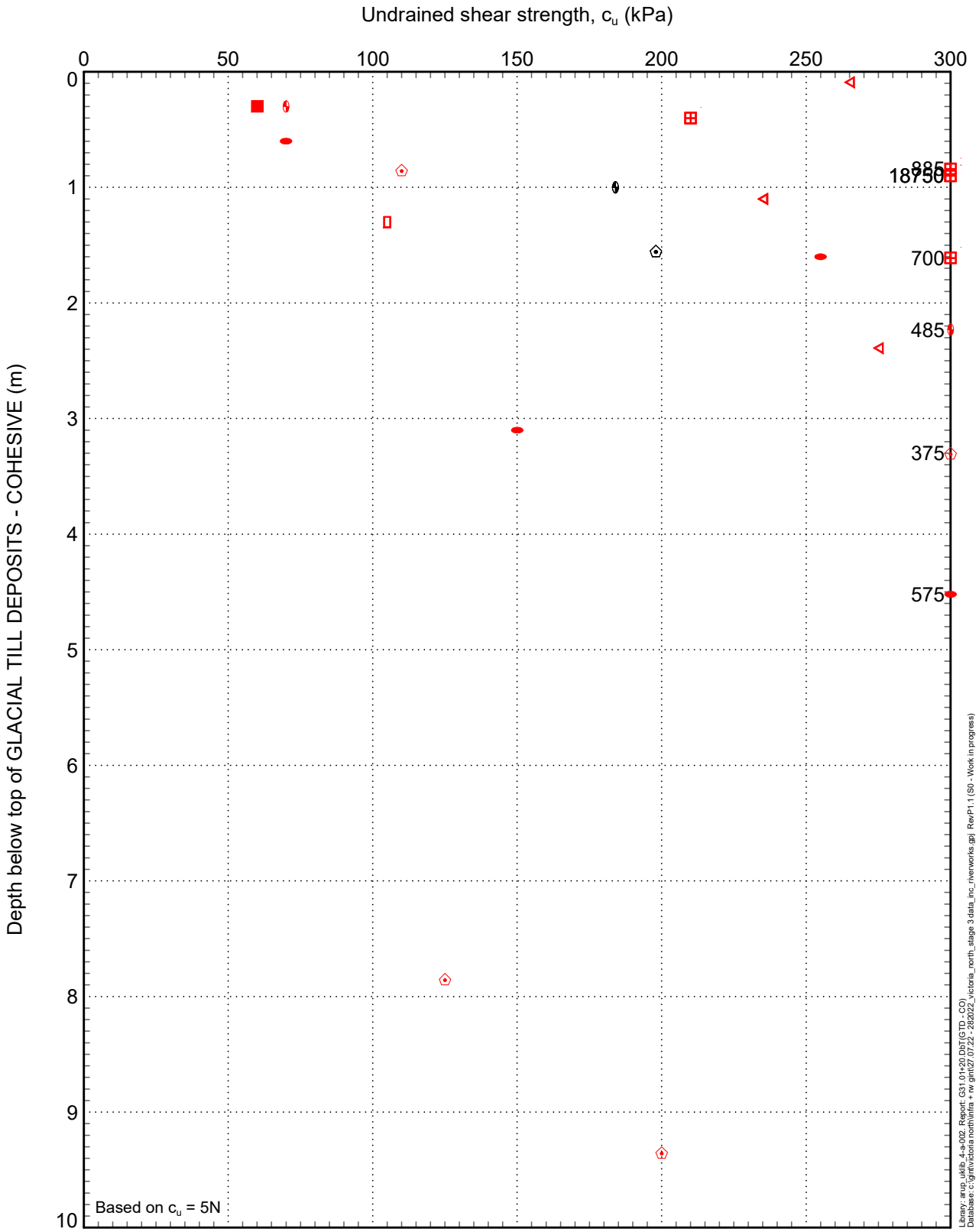
Job Title
Victoria North

Figure Title
Undrained shear strength
Red Bank plateau
Made ground

Job No
282022

Chart 4B

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 11-Aug-22



- From triaxial test
- cu from SPT (x5)
- 01_BH102
- BH311
- BH312
- GEO_BH202
- GEO_BH201
- GEO_BH205
- GEO_BH209

ARUP

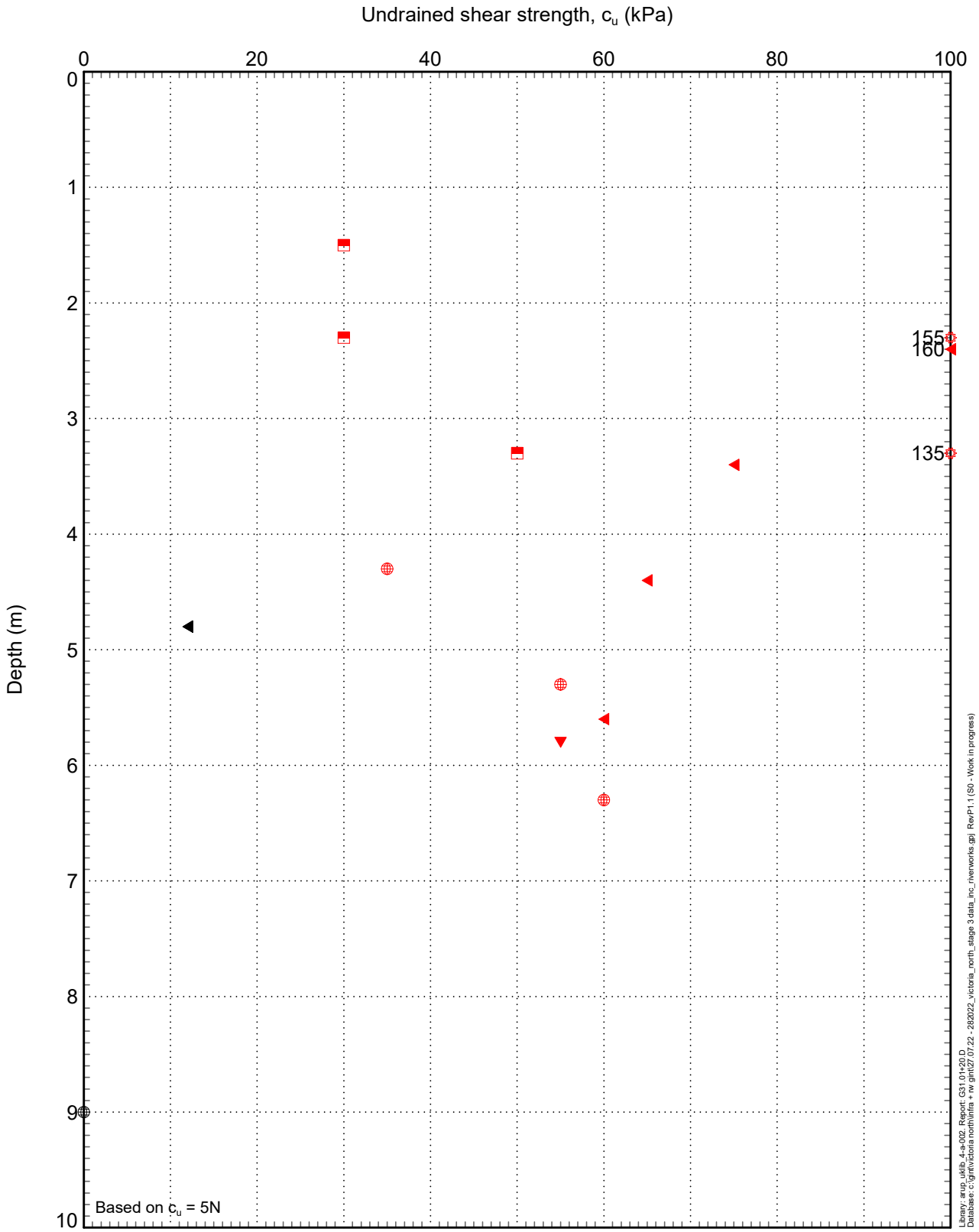
Job Title
Victoria North

Figure Title
Undrained shear strength
Red Bank Plateau
Glacial till deposits

Job No
282022

Chart 4C

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 11-Aug-22



Library: arup_uklib_4-x-002, Report: G31.01+20.D
Database: c:\gint\victoria north\infra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- From triaxial test
- cu from SPT (x5)
- 01_BH106
- 01_BH110
- BH307
- BH314
- BH325

ARUP

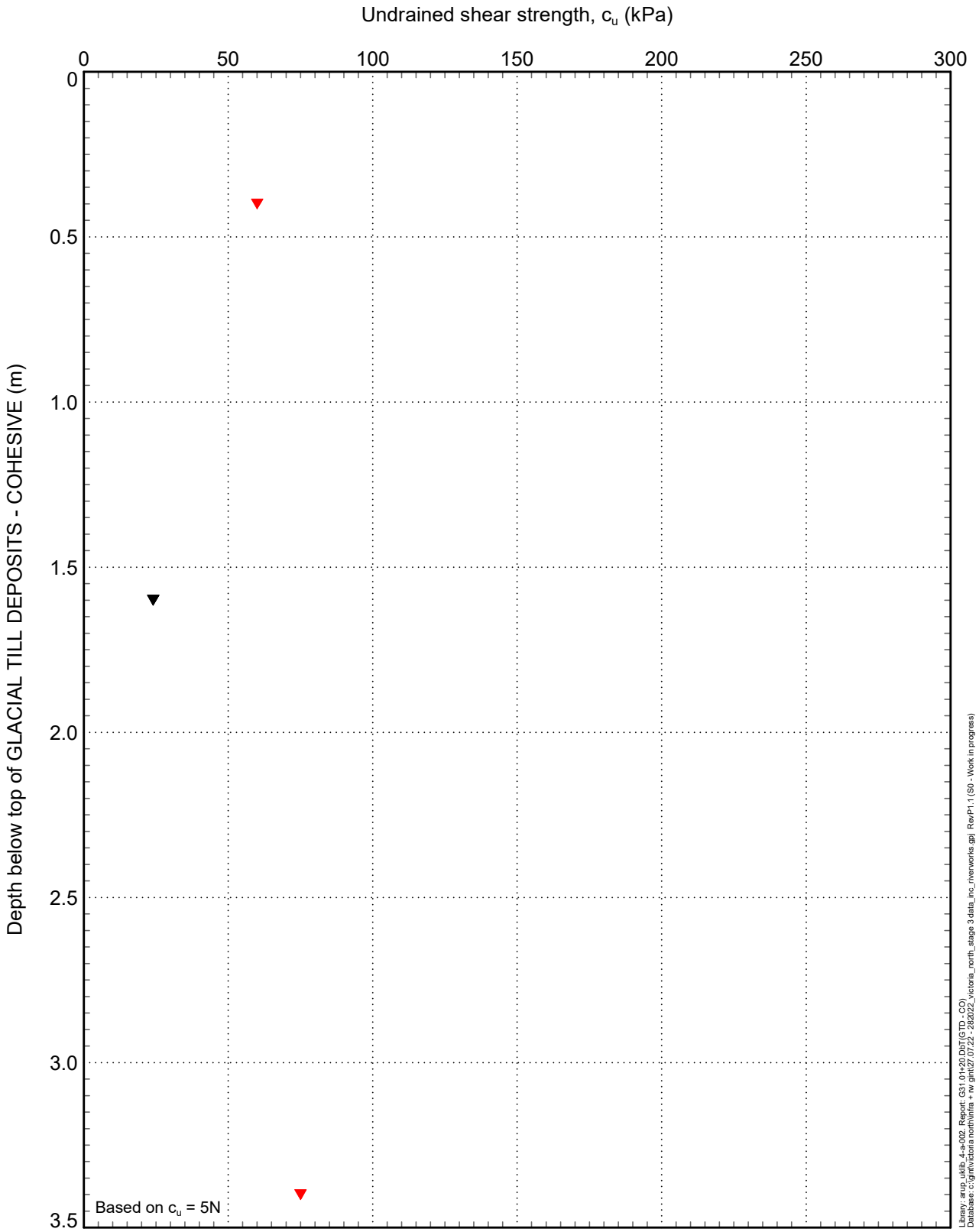
Job Title
Victoria North

Figure Title
Undrained shear strength
Red Bank Terrace
Made ground

Job No
282022

Chart 4D

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 11-Aug-22



Library: arup_uklib_4-x-002_Report: G31.01+20.DhT(GTD_CO)
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)

- From triaxial test
- cu from SPT (x5)
- 01_BH106

ARUP

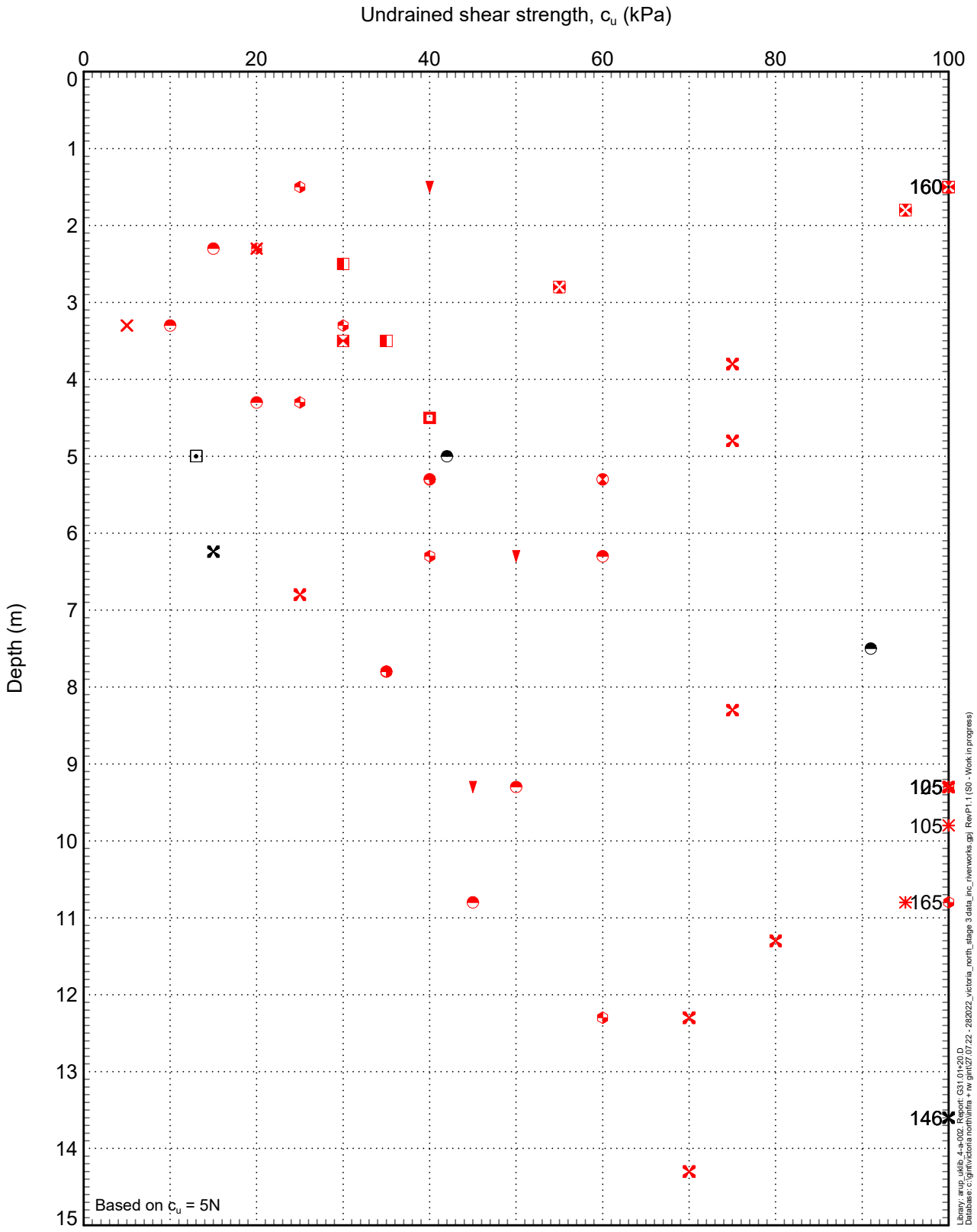
Job Title
Victoria North

Figure Title
Undrained shear strength
Red Bank Terrace
Glacial till deposits

Job No
282022

Chart 4E

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 11-Aug-22



- From triaxial test
- cu from SPT (x5)
- BH301
- BH301B
- BH302
- BH315
- GEO_BH204
- GEO_BH203
- BH309
- 01_WS103
- BH321
- GEO_WS202
- GEO_WS203A
- GEO_WS206

ARUP

Job Title
Victoria North

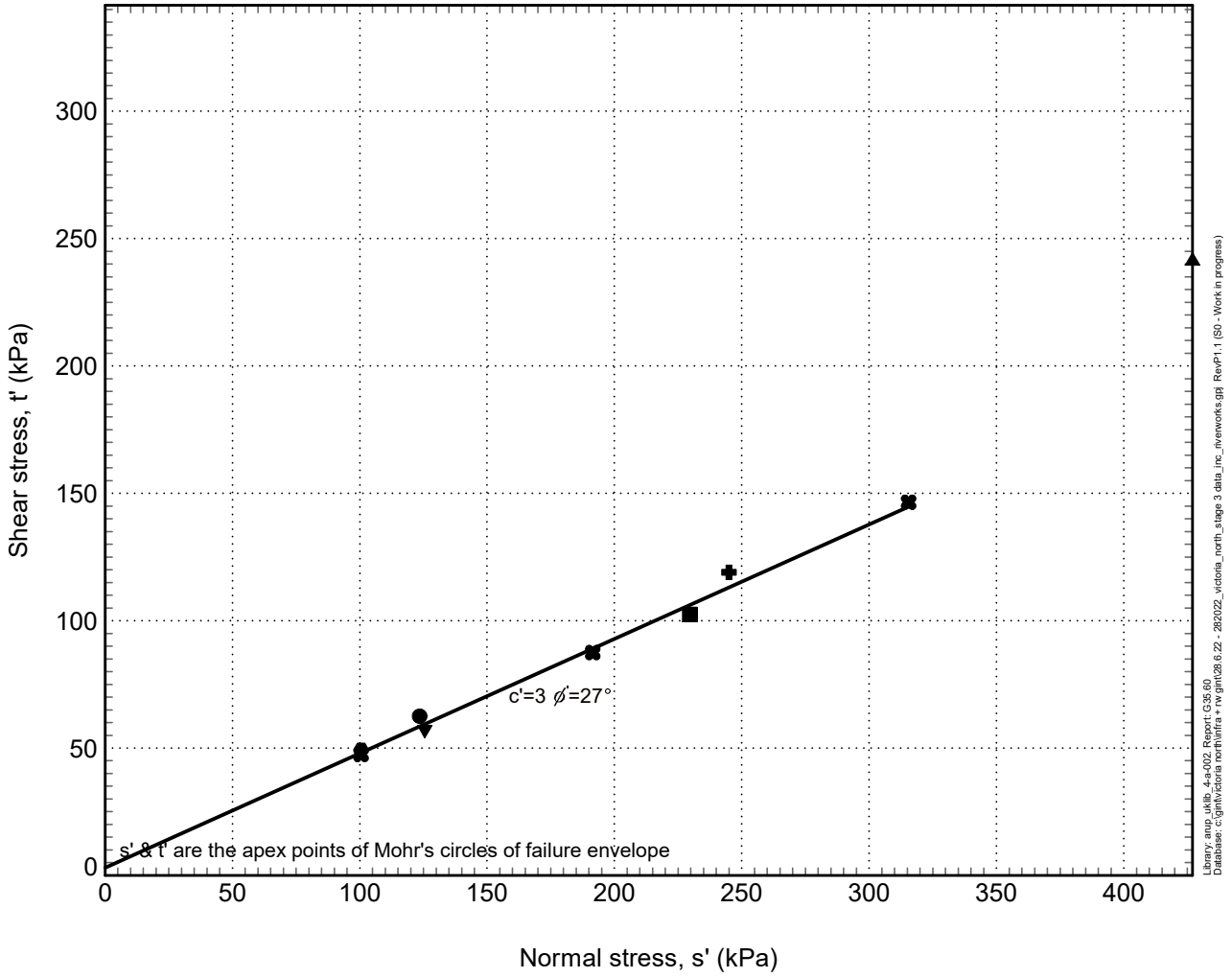
Figure Title
Undrained shear strength
St Catherine's Wood
Made ground

Job No
282022

Chart 4F

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 11-Aug-22

Library: arup_uklib_4-a-002_Report: G31 01+20 D
Database: c:\gint\victoria northinfra + rw gint\27.07.22 - 282022_victoria_north_stage 3 data_inc_riverworks.gpj RevP1.1 (S0 - Work in progress)



- BH301B, 38.0mOD
- BH301B, 34.5mOD
- BH301B, 30.0mOD
- BH302, 35.3mOD
- BH315, 37.3mOD
- BH315, 35.3mOD
- BH315, 31.8mOD

ARUP

Job Title
Victoria North

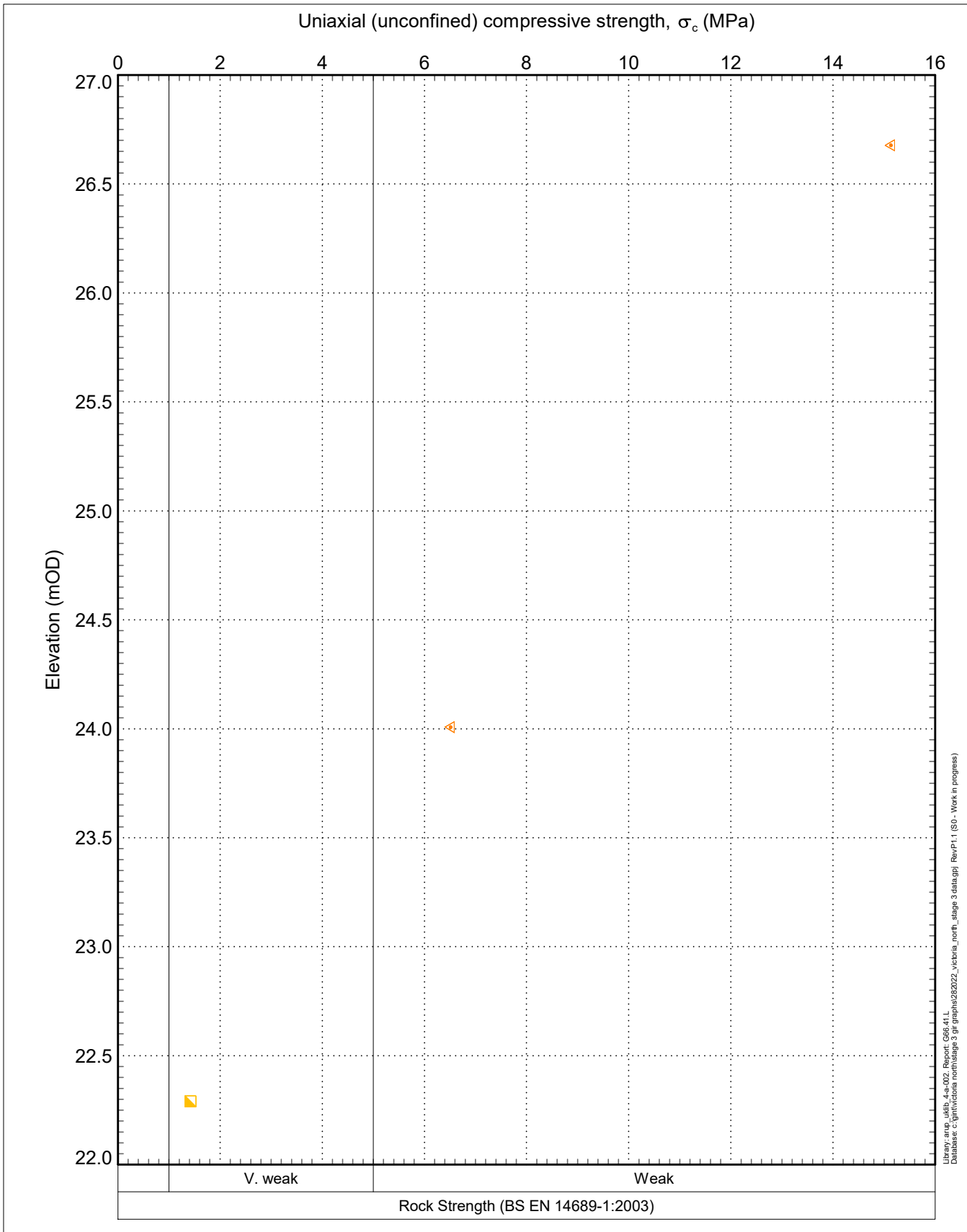
Figure Title
Triaxial t' v s'

P&P slope - MG Cohesive

Job No
282022

Chart 5

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 12-Jul-22



- Chester Formation (CHES)
- Collyhurst Sandstone Formation (CS)
- GEO_BH203
- GEO_BH210

ARUP

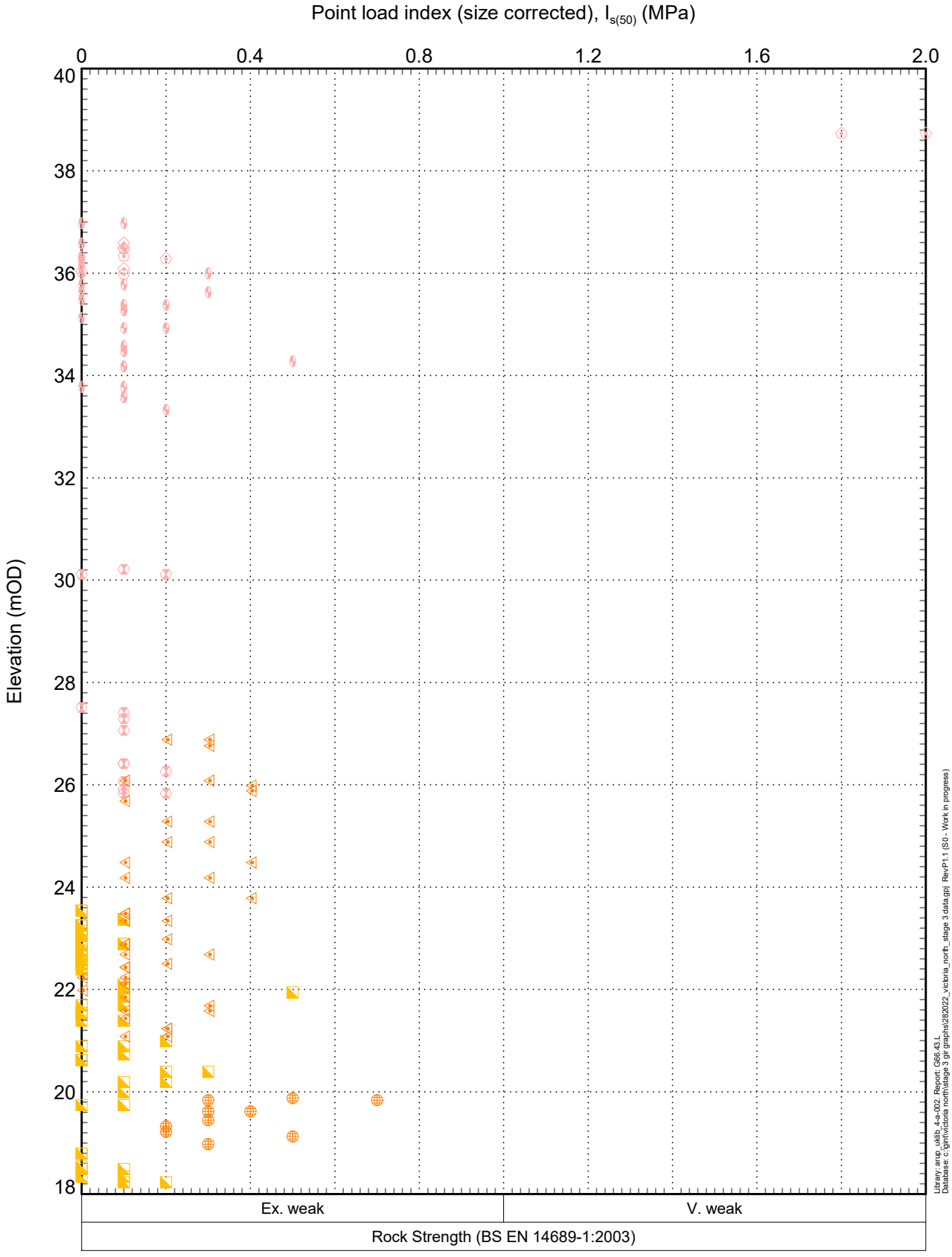
Job Title
Victoria North

Figure Title
Uniaxial compressive strength
BEDROCK

Job No
282022

Figure No
Chart 6A

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 21-Oct-21



- Chester Formation (CHES)
- Manchester Marls Formation (MM)
- Collyhurst Sandstone Formation (CS)
- GEO_BH201
- GEO_BH203
- GEO_BH205
- GEO_BH209
- GEO_BH210
- GEO_BH212

ARUP

Job Title
Victoria North

Figure Title
Point load index (size corrected)
BEDROCK

Job No
282022

Figure No
Chart 6B

ARUP, gINT v10.00.01.07. Made by Jonny Tyrer on 21-Oct-21

Table 1: Summary of equivalent CBR via DCP testing method.

Exploratory Hole ID	Stata	Start depth (mm)	Equivalent CBR reading (%) at ~500mm below start depth	Equivalent CBR reading (%) at ~1000mm below start depth	Equivalent CBR reading (%) at ~1500mm below start depth	Equivalent CBR reading (%) at ~2000mm below start depth
Red Bank Plateau						
TP201	Granular	800	-	12.5	26.5	-
TP203	Granular	300	8.5	8.5	8.5	-
TP207	Granular	300	10	6	12.5	-
TP209	Granular	300	-	-	-	-
TP210	Granular	800	-	55	-	-
TP211	Granular	250	26.5	-	-	-
TP213	Topsoil	400	3	6	6	12.5
TP214	Granular	500	4	26.5	17	26.5
TP215	Granular	700	-	2	1	4
TP216	Granular	300	12.5	8.5	17	-
TP217	Granular	450	12.5	26.5	-	-
TP304	Granular	0	-	5.2	-	10
TP305	Granular	0	3.5	2.1	-	-
TP306	Granular	0	6.7	1.8	8.3	-
TP308	Granular	0	19	-	-	-
TP309	Granular	0	5.9	-	-	-
TP310	Granular	0	16	-	-	-
BH324	Granular	0	23	-	5.6	-
Red Bank Terrace						
TP218	Cohesive	450	12.5	12.5	4	-
TP219	Granular	700	-	55	-	-
TP307	Granular	0	-	-	0.91	
St Catherine's Wood						
TP204	Granular	400	5	8.5	12.5	-
TP205	Topsoil	250	6	8.5	-	-
TP206	Topsoil	300	17	-	-	-

Exploratory Hole ID	Stata	Start depth (mm)	Equivalent CBR reading (%) at ~500mm below start depth	Equivalent CBR reading (%) at ~1000mm below start depth	Equivalent CBR reading (%) at ~1500mm below start depth	Equivalent CBR reading (%) at ~2000mm below start depth
TP206A	Granular	400	6	12.5	26.5	26.5
TP208	Topsoil	600	2	17	26.5	-
TP212	Granular	800	-	3	2	3.5
TT301	Cohesive	0		14		17
TT303	Cohesive	0		11		7.9
BH323	Cohesive	0	5.1		5.3	

Range of acceptable moisture content indicated for suitable structural and general fill (TP103 - 1.5m depth)

Chart 7A

Optimum Moisture Content (%) = **14.3**

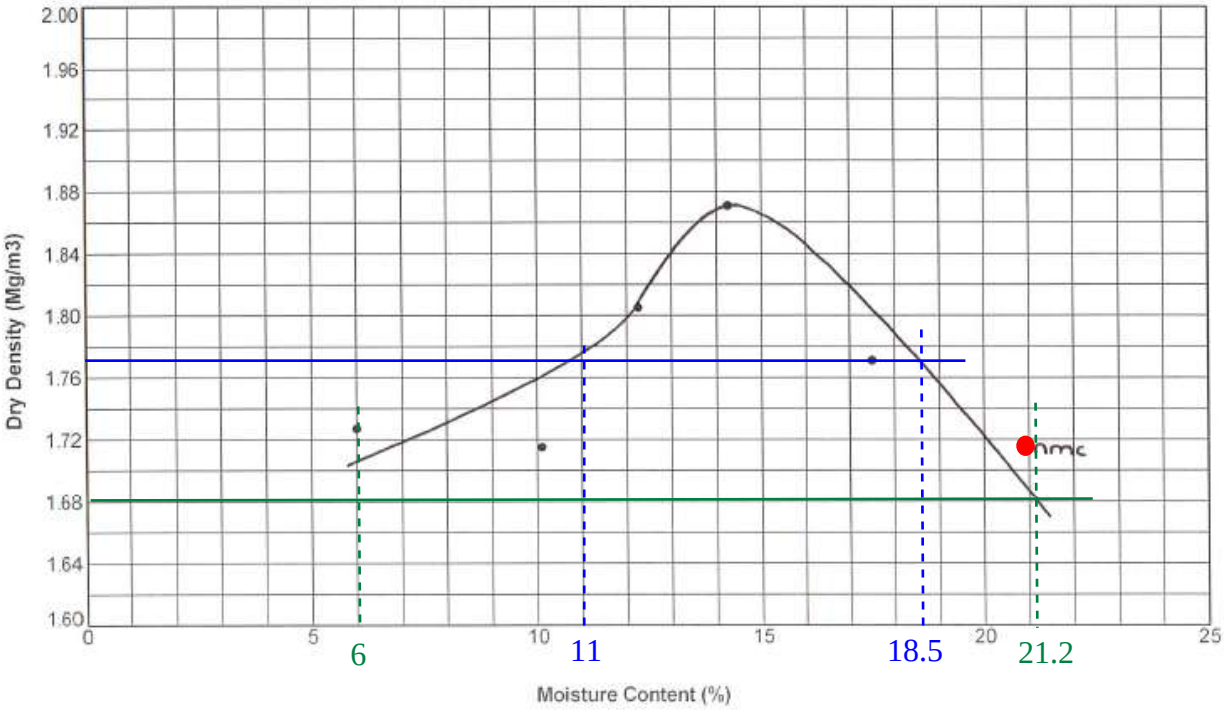
Particle Density (Assumed) = **2.70**

Maximum Dry Density (Mg/m3) = **1.87**

Retained on 20mm Sieve (%) = **0.8**

Date Tested = **25/02/2019**

Retained on 37.5mm Sieve (%) = **0.0**



Structural fill (95% of the maximum dry density)

General fill (90% of the maximum dry density)

Natural moisture content

Range of acceptable moisture content indicated for suitable structural and general fill (TP121 - 0.8m depth)

Chart 7B

Optimum Moisture Content (%) = **11.2**

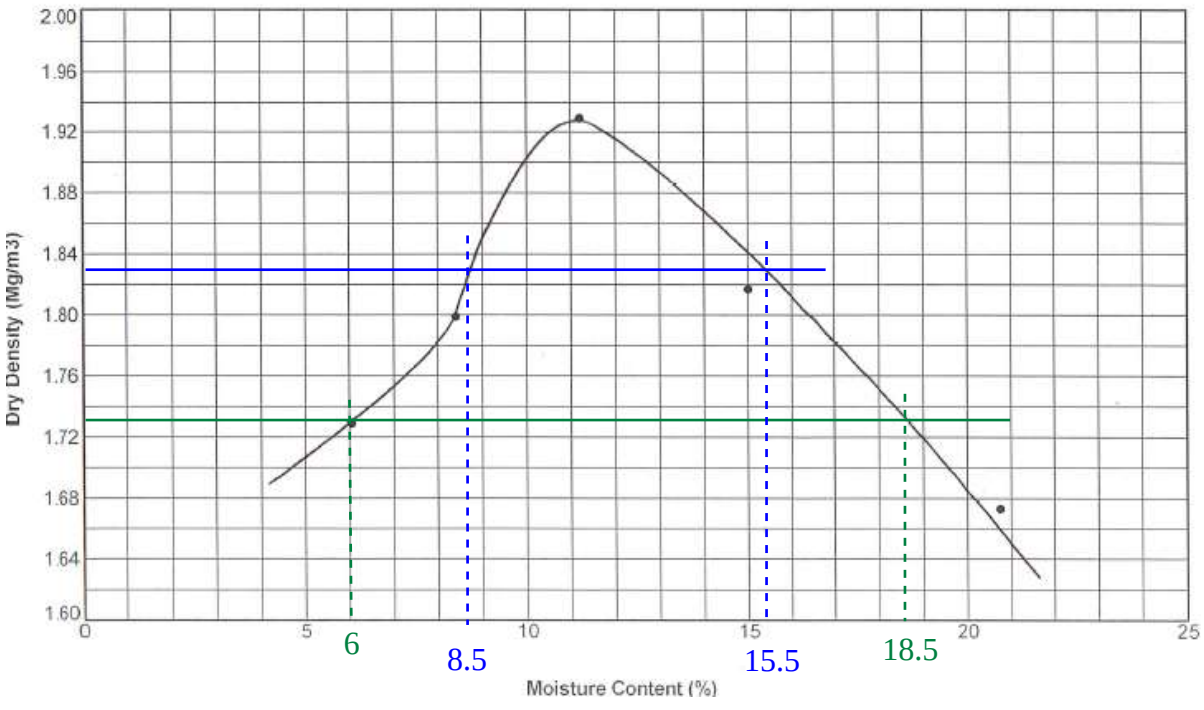
Particle Density (Assumed) = **2.65**

Maximum Dry Density (Mg/m3) = **1.93**

Retained on 20mm Sieve (%) = **7.0**

Date Tested = **25/02/2019**

Retained on 37.5mm Sieve (%) = **2.0**



Structural fill (95% of the maximum dry density)

General fill (90% of the maximum dry density)

Natural moisture content

Range of acceptable moisture content indicated for suitable structural and general fill (BH205 - 3.8m depth)

Chart 7C

Optimum Moisture Content (%) = **14**

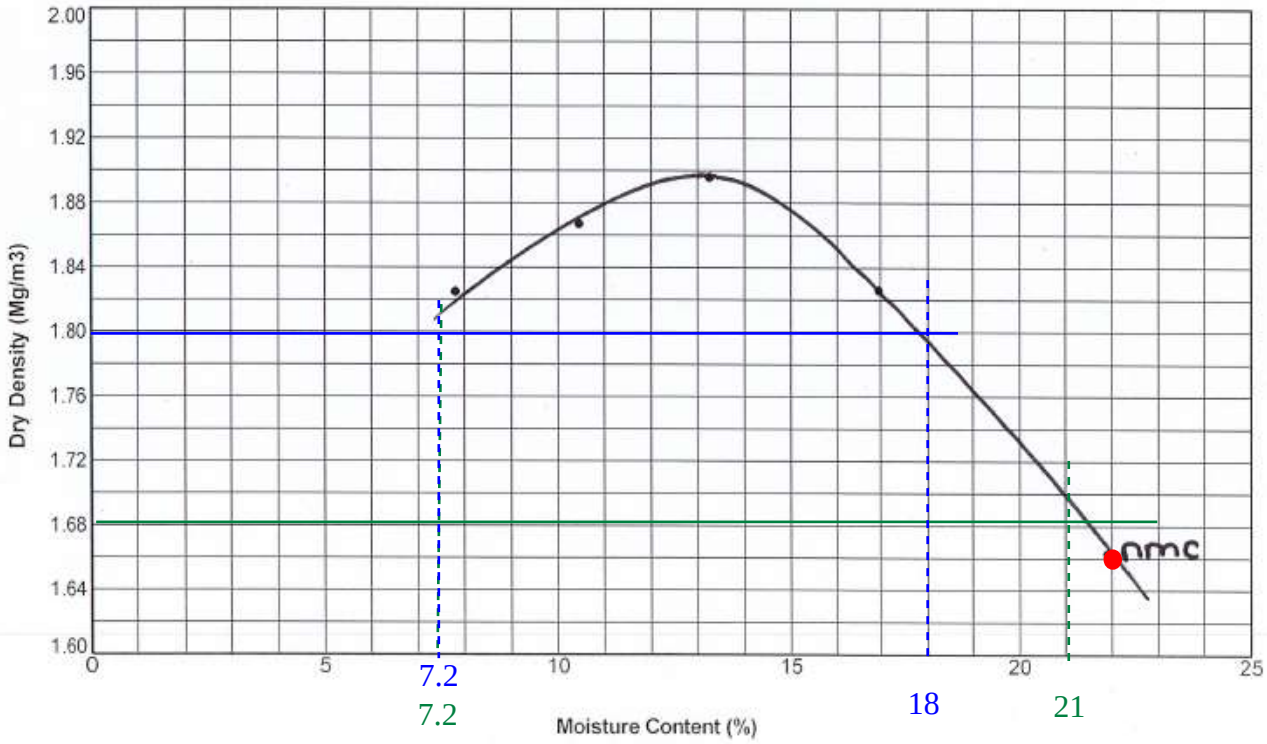
Particle Density (Assumed) = **2.65**

Maximum Dry Density (Mg/m3) = **1.90**

Retained on 20mm Sieve (%) = **1.0**

Date Tested = **20/09/2021**

Retained on 37.5mm Sieve (%) = **0.0**



Range of acceptable moisture content indicated for suitable structural and general fill (BH213 - 2.5m depth)

Chart 7D

Optimum Moisture Content (%) = **11**

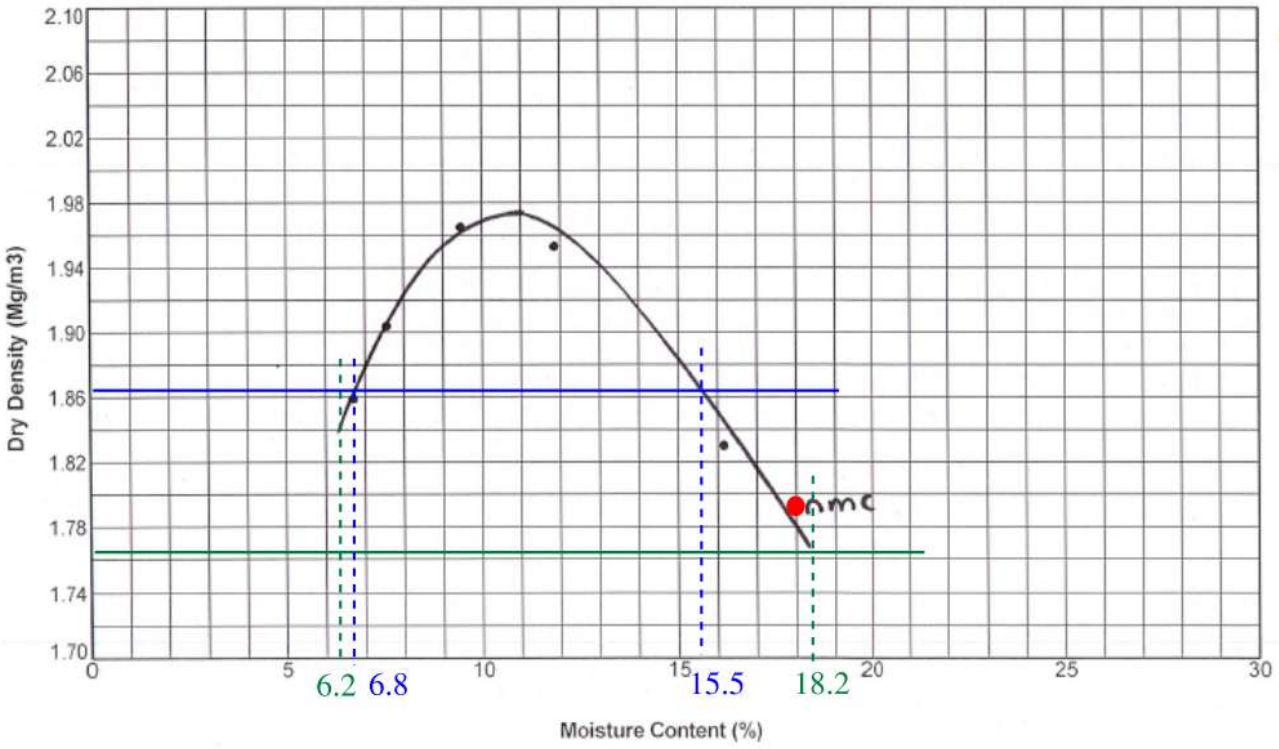
Particle Density (Assumed) = **2.65**

Maximum Dry Density (Mg/m3) = **1.97**

Retained on 20mm Sieve (%) = **8.8**

Date Tested = **27/05/2021**

Retained on 37.5mm Sieve (%) = **2.0**



Range of acceptable moisture content indicated for suitable structural and general fill (BH215 A- 1.5m depth) **Chart 7E**

Optimum Moisture Content (%) = **9.0**

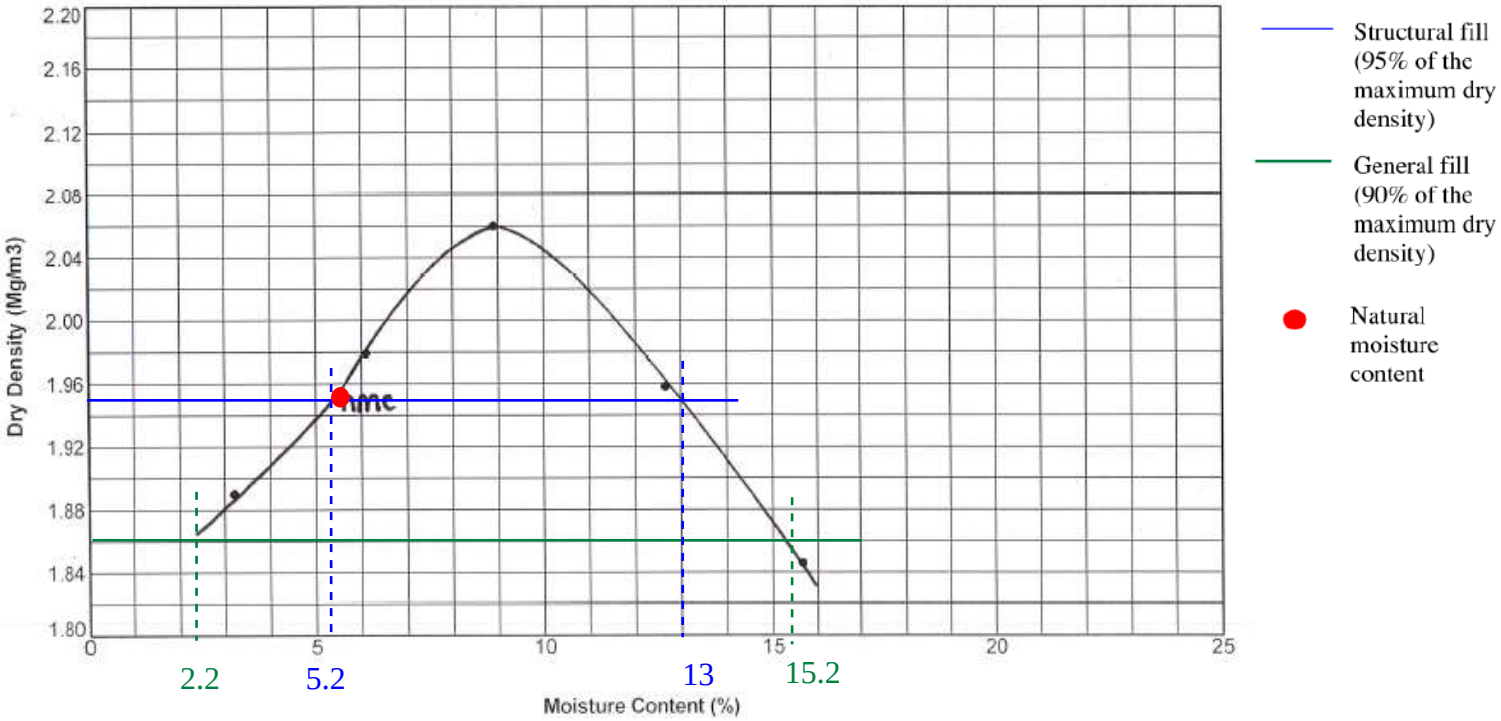
Particle Density (Assumed) = **2.65**

Maximum Dry Density (Mg/m3) = **2.06**

Retained on 20mm Sieve (%) = **7.4**

Date Tested = **27/05/2021**

Retained on 37.5mm Sieve (%) = **0.0**



Range of acceptable moisture content indicated for suitable structural and general fill (BH215 B- 2.5m depth) **Chart 7F**

Optimum Moisture Content (%) = **15**

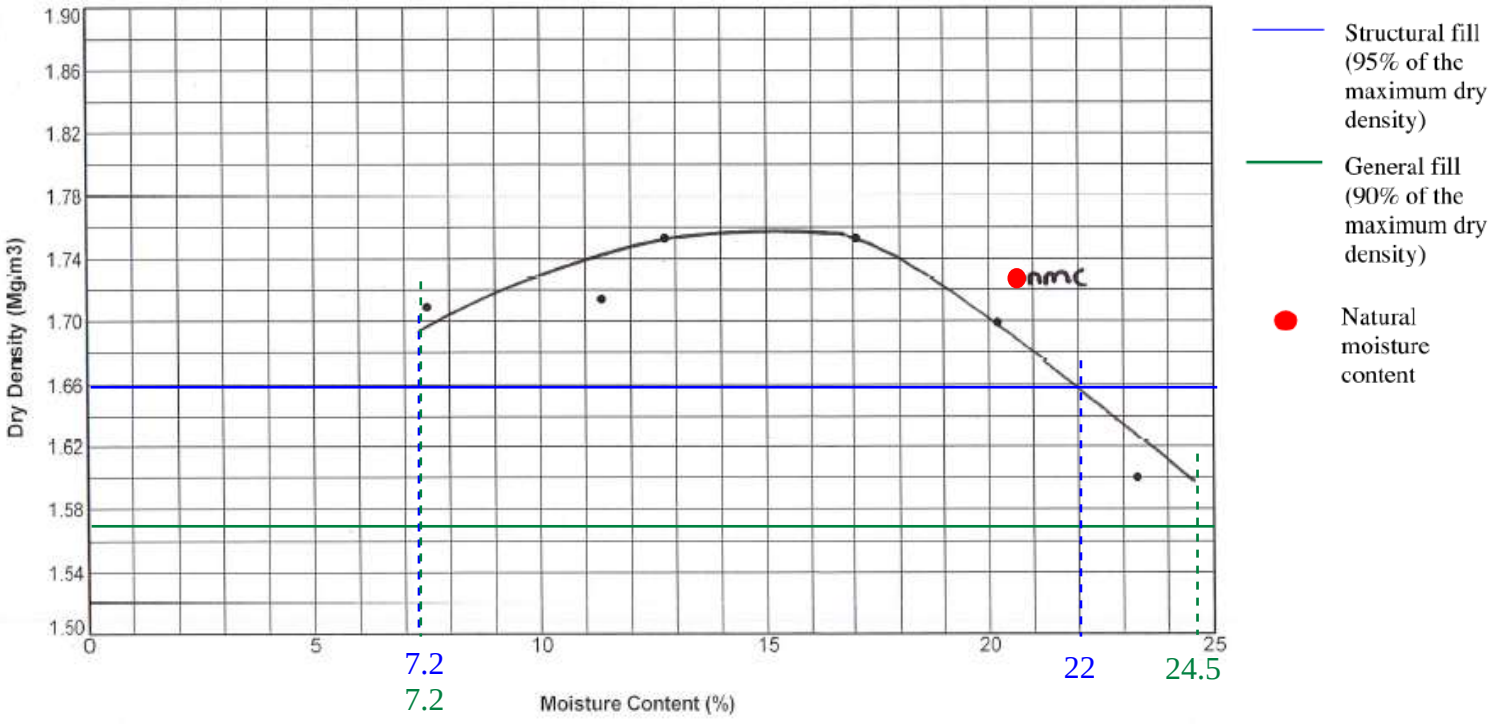
Particle Density (Assumed) = **2.65**

Maximum Dry Density (Mg/m3) = **1.75**

Retained on 20mm Sieve (%) = **0.0**

Date Tested = **25/05/2021**

Retained on 37.5mm Sieve (%) = **0.0**



Range of acceptable moisture content indicated for suitable structural and general fill (TP201 - 2.0m depth) **Chart 7G**

Optimum Moisture Content (%) = 12 Particle Density (Assumed) = 2.60

Maximum Dry Density (Mg/m3) = 2.00 Retained on 20mm Sieve (%) = 0.0

Date Tested = 03/06/2021 Retained on 37.5mm Sieve (%) = 0.0

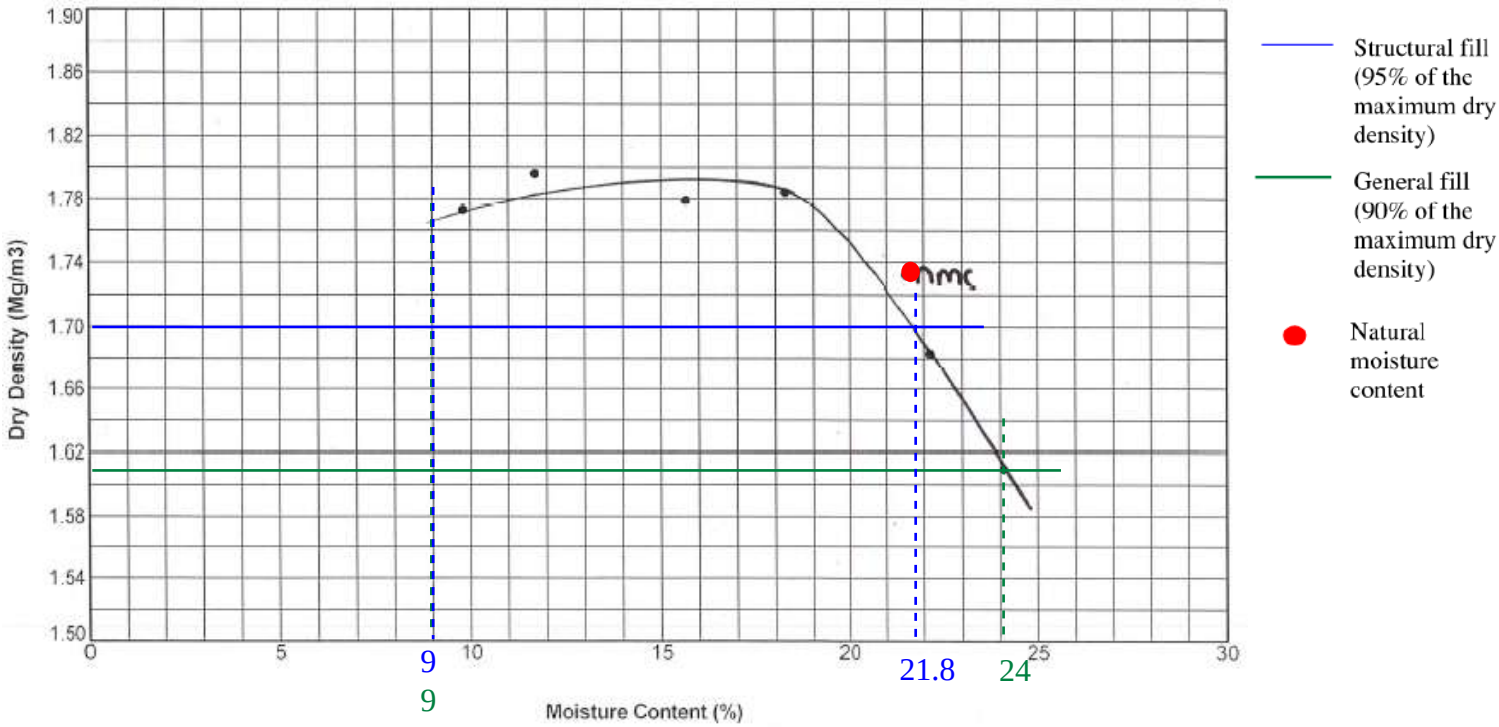


Range of acceptable moisture content indicated for suitable structural and general fill (TP201 - 4.0m depth) **Chart 7H**

Optimum Moisture Content (%) = 18 Particle Density (Assumed) = 2.80

Maximum Dry Density (Mg/m3) = 1.79 Retained on 20mm Sieve (%) = 1.0

Date Tested = 25/05/2021 Retained on 37.5mm Sieve (%) = 0.0



Range of acceptable moisture content indicated for suitable structural and general fill (TP207 - 3.0m depth) **Chart 7I**

Optimum Moisture Content (%) = **17**

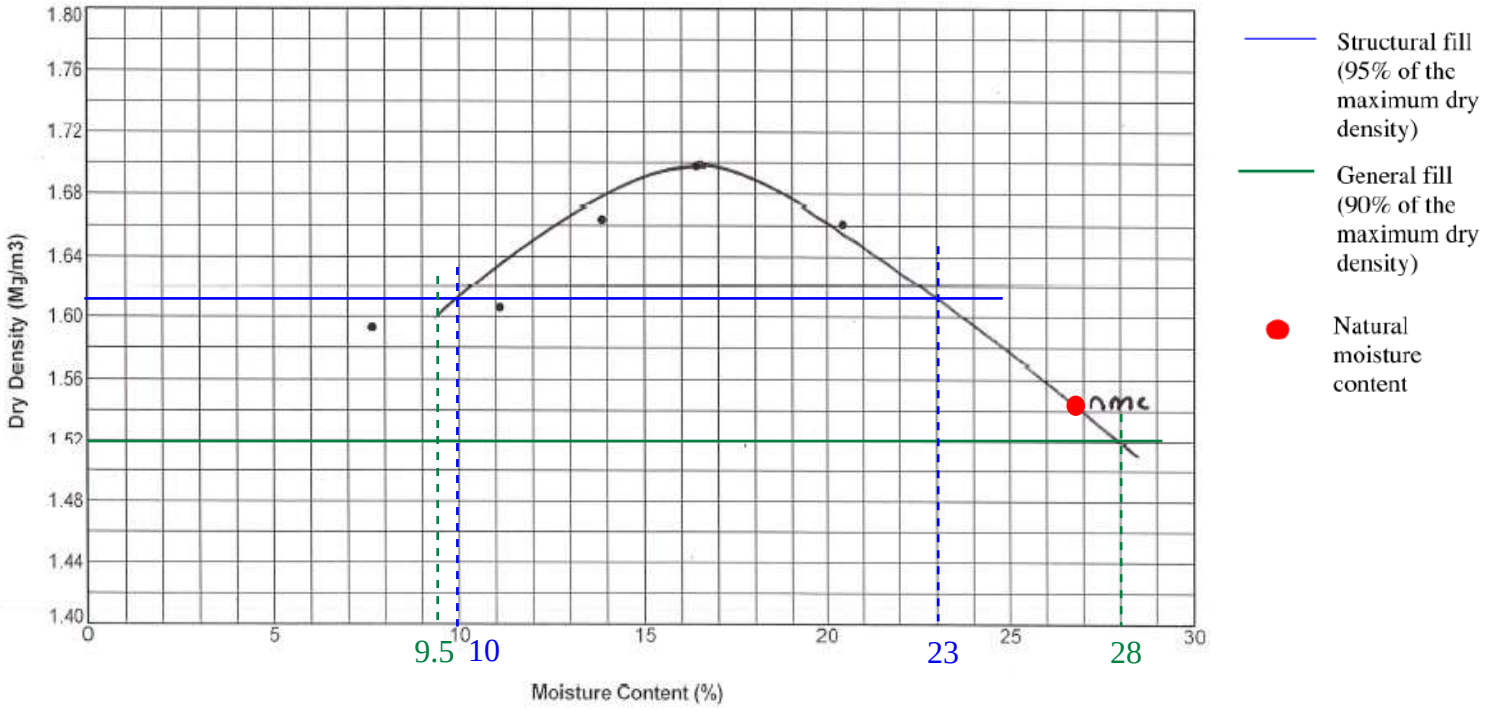
Particle Density (Assumed) = **2.65**

Maximum Dry Density (Mg/m3) = **1.70**

Retained on 20mm Sieve (%) = **0.0**

Date Tested = **26/05/2021**

Retained on 37.5mm Sieve (%) = **0.0**



Range of acceptable moisture content indicated for suitable structural and general fill (TP209 - 3.0m depth) **Chart 7J**

Optimum Moisture Content (%) = **15**

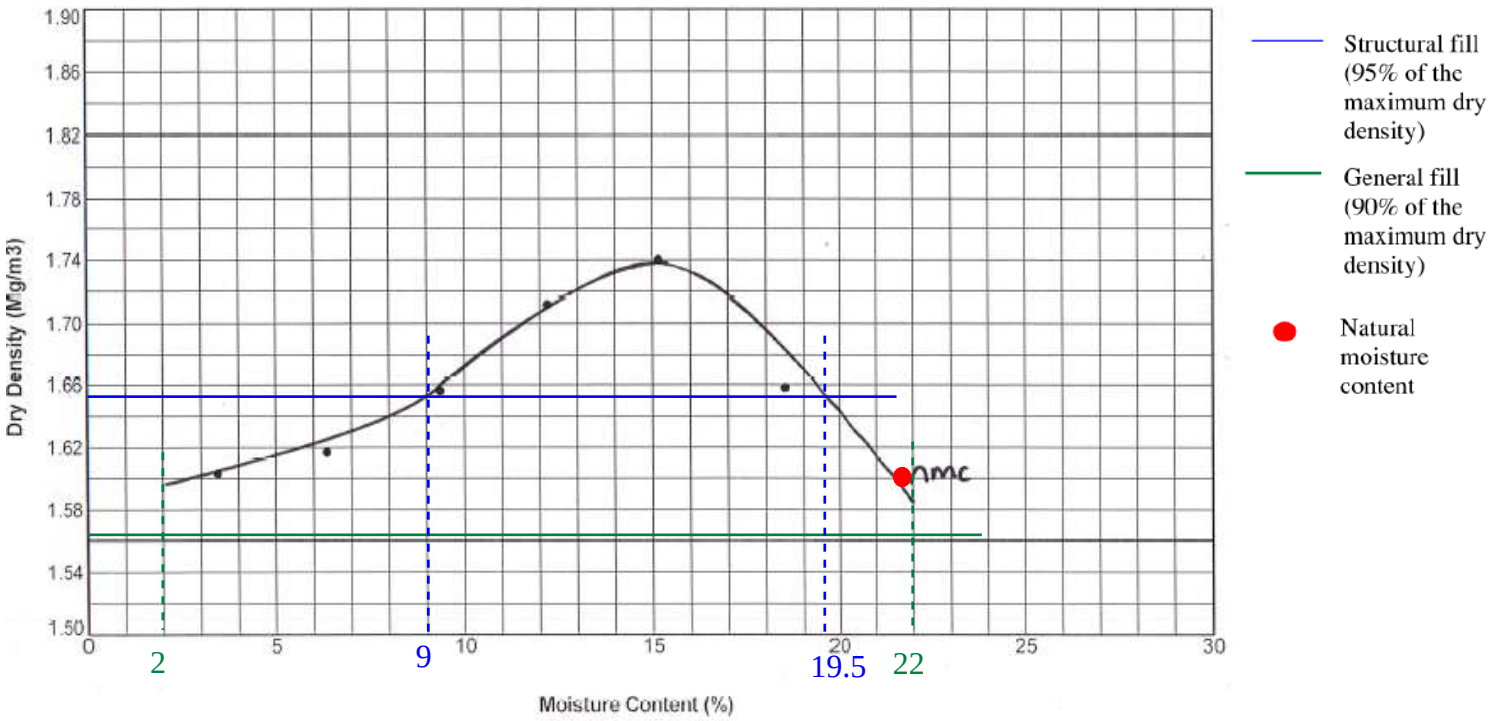
Particle Density (Assumed) = **2.50**

Maximum Dry Density (Mg/m3) = **1.74**

Retained on 20mm Sieve (%) = **0.0**

Date Tested = **26/05/2021**

Retained on 37.5mm Sieve (%) = **0.0**



Range of acceptable moisture content indicated for suitable structural and general fill (TP211 - 3.0m depth) **Chart 7K**

Optimum Moisture Content (%) = **17**

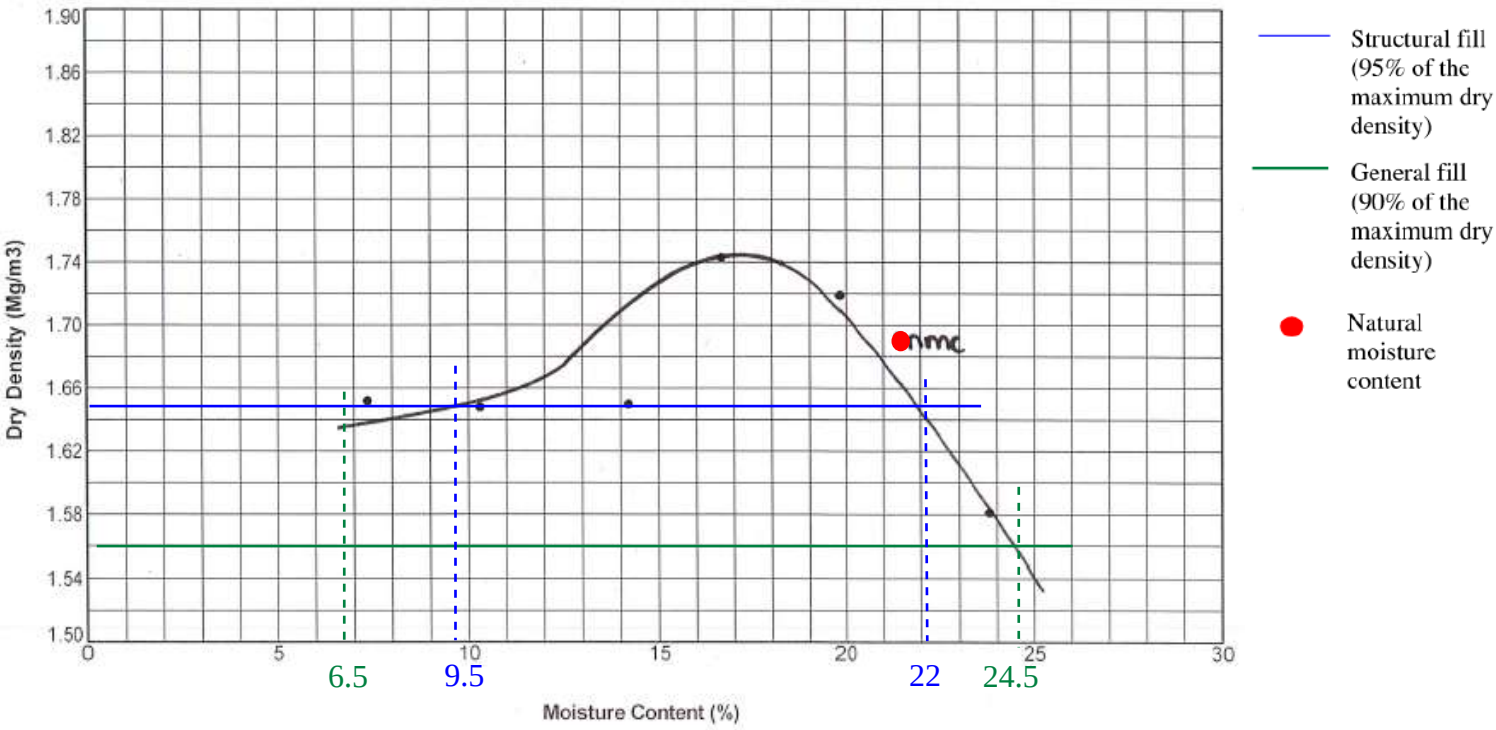
Maximum Dry Density (Mg/m3) = **1.75**

Date Tested = **26/05/2021**

Particle Density (Assumed) = **2.70**

Retained on 20mm Sieve (%) = **0.9**

Retained on 37.5mm Sieve (%) = **0.0**



Range of acceptable moisture content indicated for suitable structural and general fill (TP212 - 2.0m depth) **Chart 7L**

Optimum Moisture Content (%) = **23**

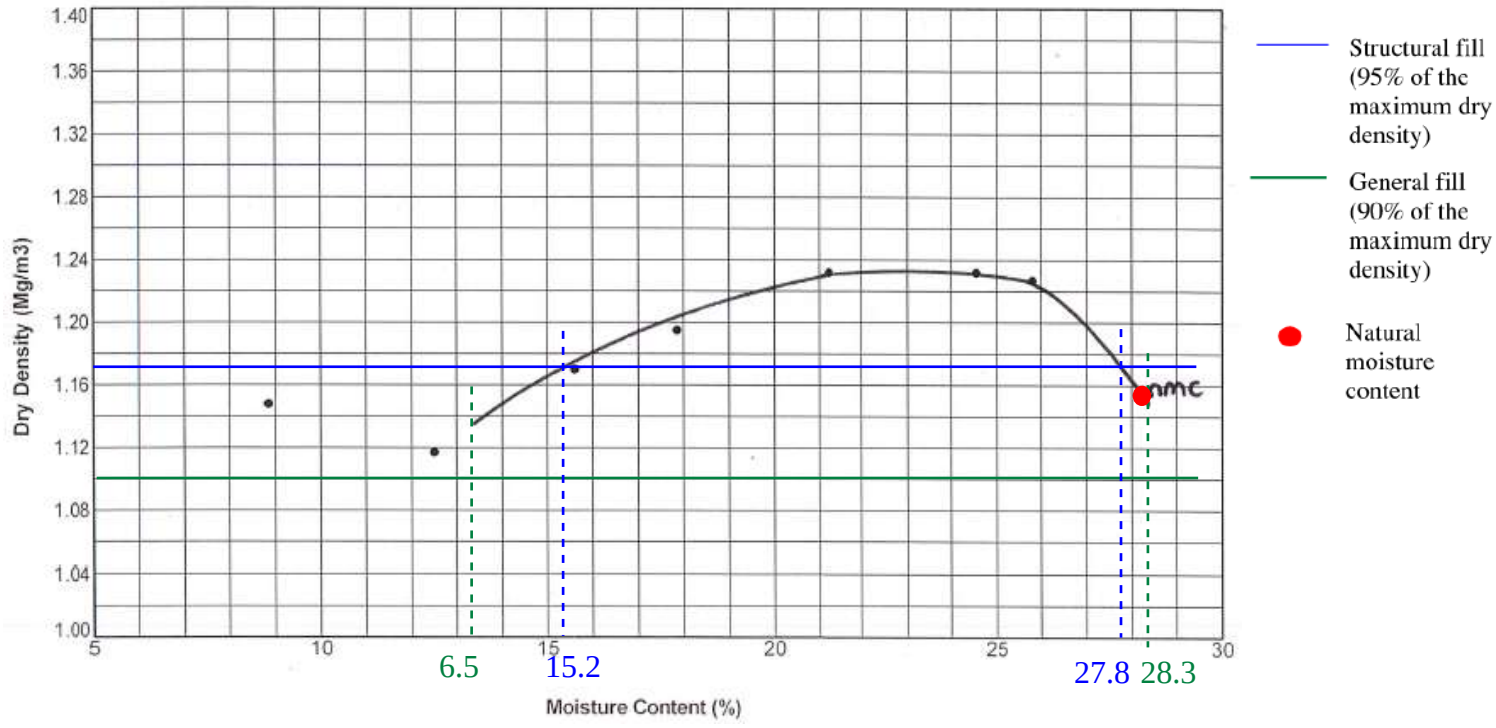
Maximum Dry Density (Mg/m3) = **1.23**

Date Tested = **26/05/2021**

Particle Density (Assumed) = **1.80**

Retained on 20mm Sieve (%) = **4.6**

Retained on 37.5mm Sieve (%) = **1.4**



Range of acceptable moisture content indicated for suitable structural and general fill (TP215 - 3.0m depth) **Chart 7M**

Optimum Moisture Content (%) = **11**

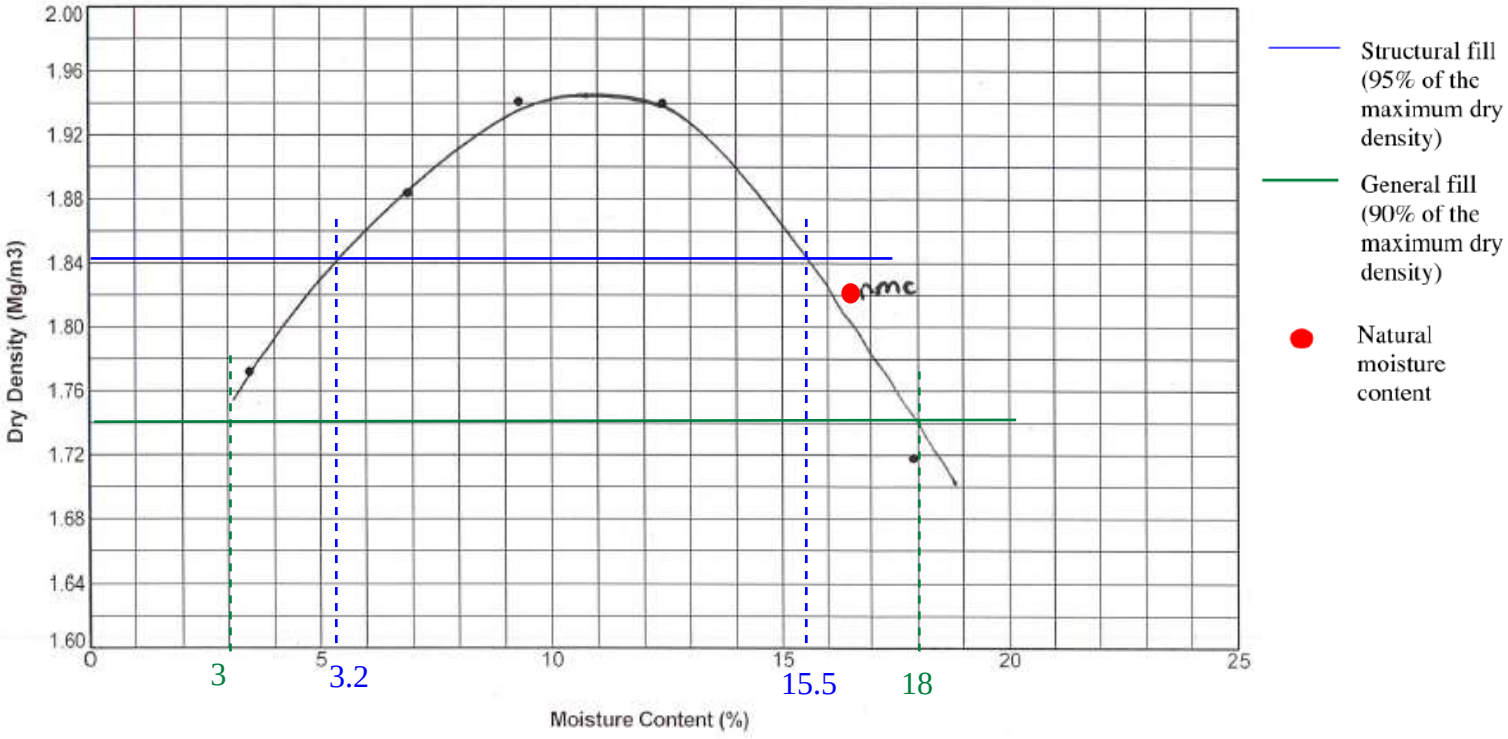
Maximum Dry Density (Mg/m3) = **1.94**

Date Tested = **27/05/2021**

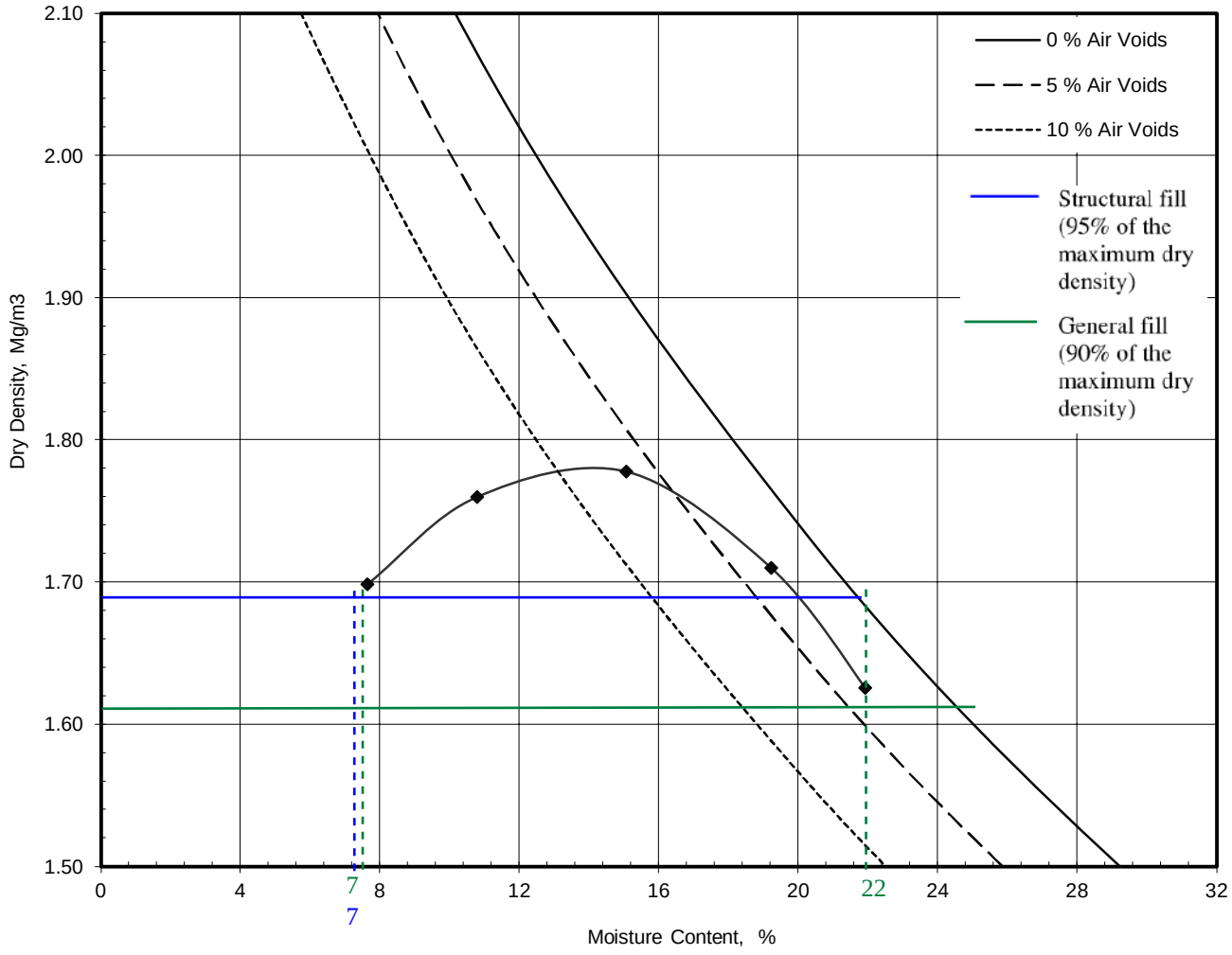
Particle Density (Assumed) = **2.65**

Retained on 20mm Sieve (%) = **9.1**

Retained on 37.5mm Sieve (%) = **6.7**



bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH301
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1030286
Soil Description	Brown sandy gravelly CLAY M/G			Depth	0.30 m
Specimen Ref.	2	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	WA1030286
				Compaction Test Reference/No.	

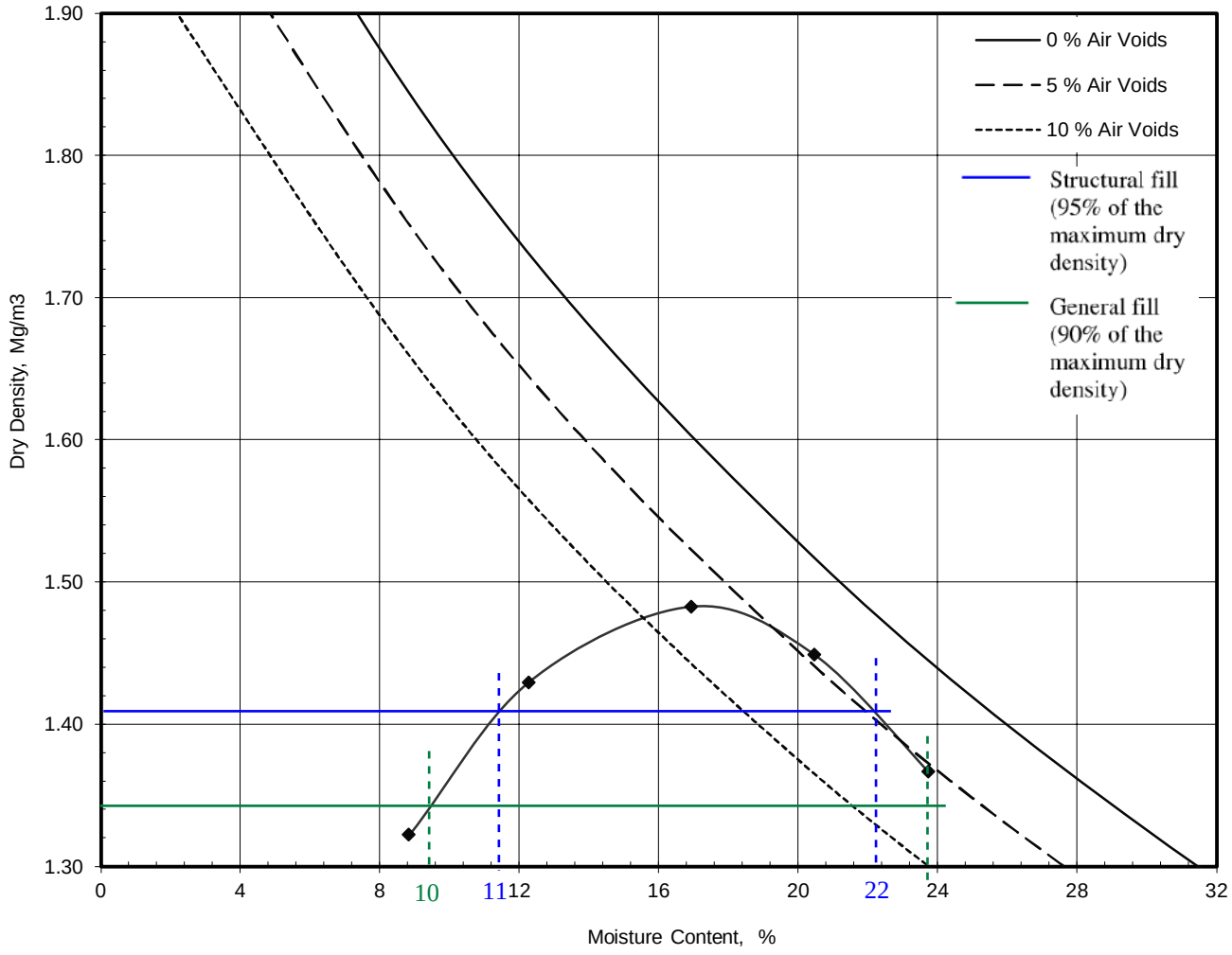


Preparation		Material used was air dried
Mould Type		1 LITRE
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	1
Particle Density - Assumed	Mg/m³	2.67

Maximum Dry Density	Mg/m³	**1.78**
Optimum Moisture Content	%	**14**

Remarks

bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH303
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1020646
Soil Description				Depth	0.30 m
Specimen Ref.	1	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	WA1020646
				Compaction Test Reference/No.	



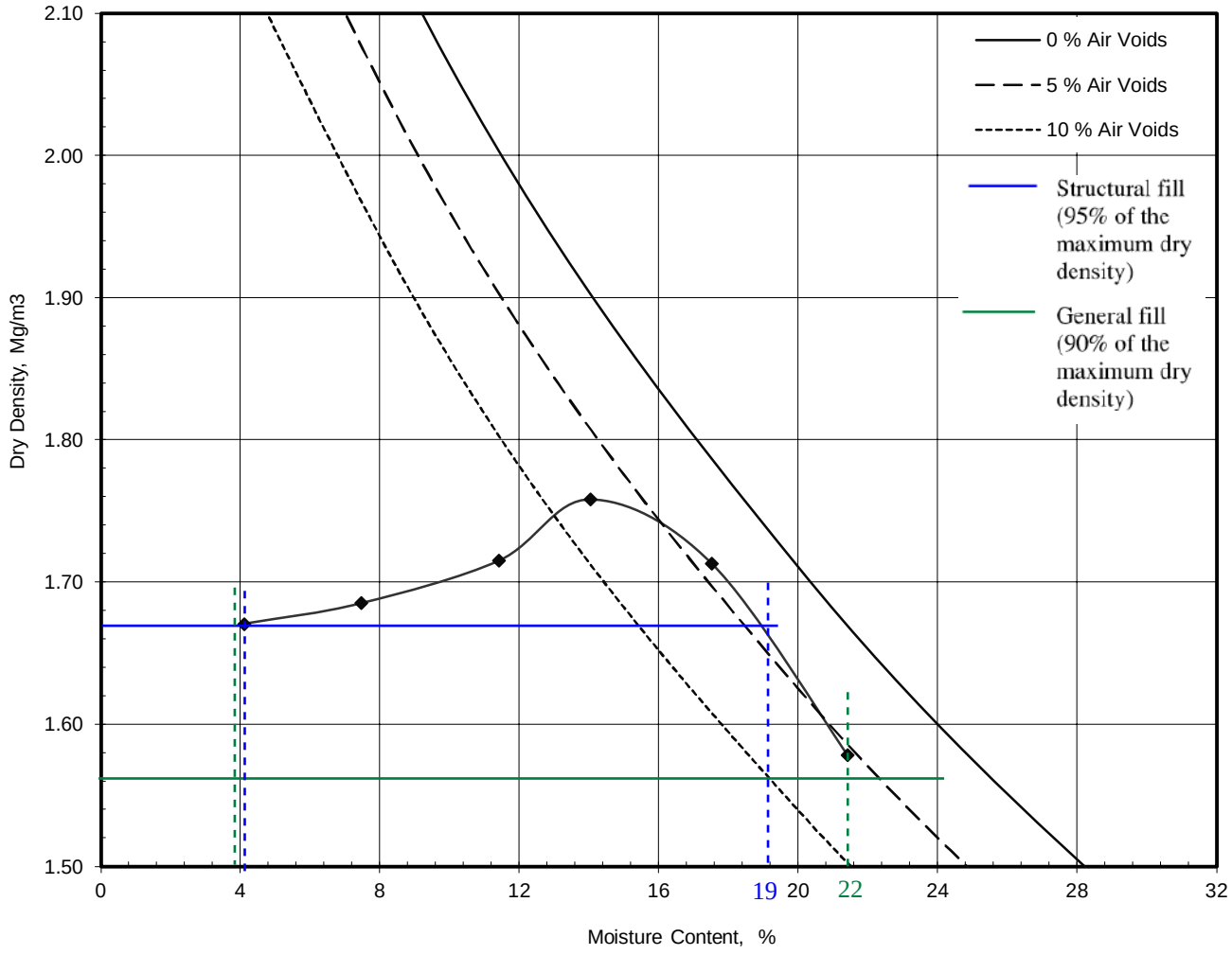
Preparation		Material used was air dried
Mould Type		CBR
Samples Used		Separate specimens tested
Material Retained on 37.5 mm Sieve	%	7
Material Retained on 20.0 mm Sieve	%	20
Particle Density - Assumed	Mg/m³	2.20

Maximum Dry Density	Mg/m³	**1.49**
Optimum Moisture Content	%	**17**

Remarks

BH303@0.30m+BH303@1.2m Combined

bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH308
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1031311
Soil Description	Brown SAND + GRAVEL with cobbles			Depth	0.50 m
Specimen Ref.	2	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	WA1031311
				Compaction Test Reference/No.	



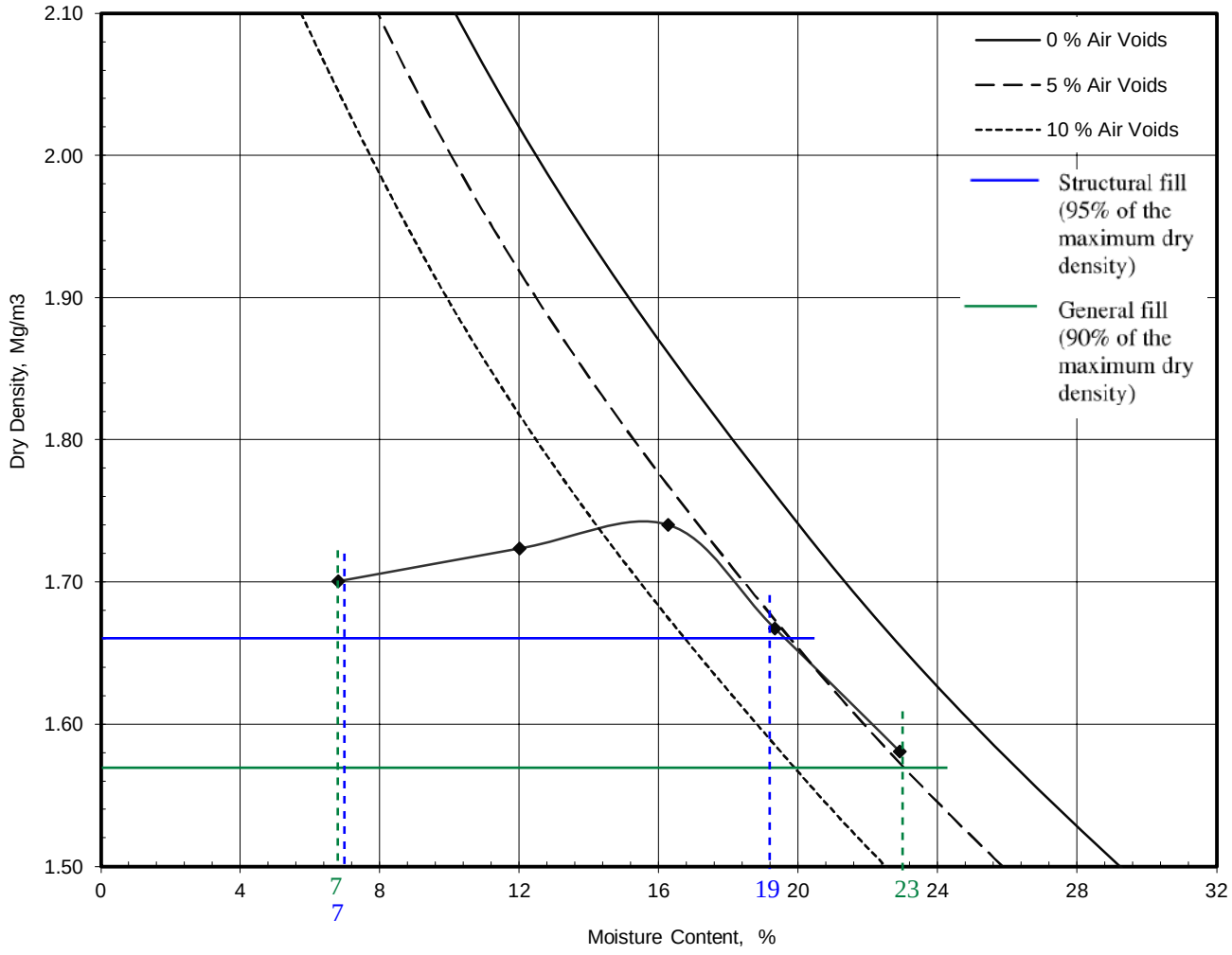
Preparation		Material used was air dried
Mould Type		1 LITRE
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	31
Material Retained on 20.0 mm Sieve	%	43
Particle Density - Assumed	Mg/m³	2.60

Maximum Dry Density	Mg/m³	**1.76**
Optimum Moisture Content	%	**14**

Remarks

Test carried out Non-Standard, grading in Zone X.

bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH313
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1020712
Soil Description	Brown sandy gravelly CLAY M/G			Depth	0.50 m
Specimen Ref.	2	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	WA1020712
				Compaction Test Reference/No.	

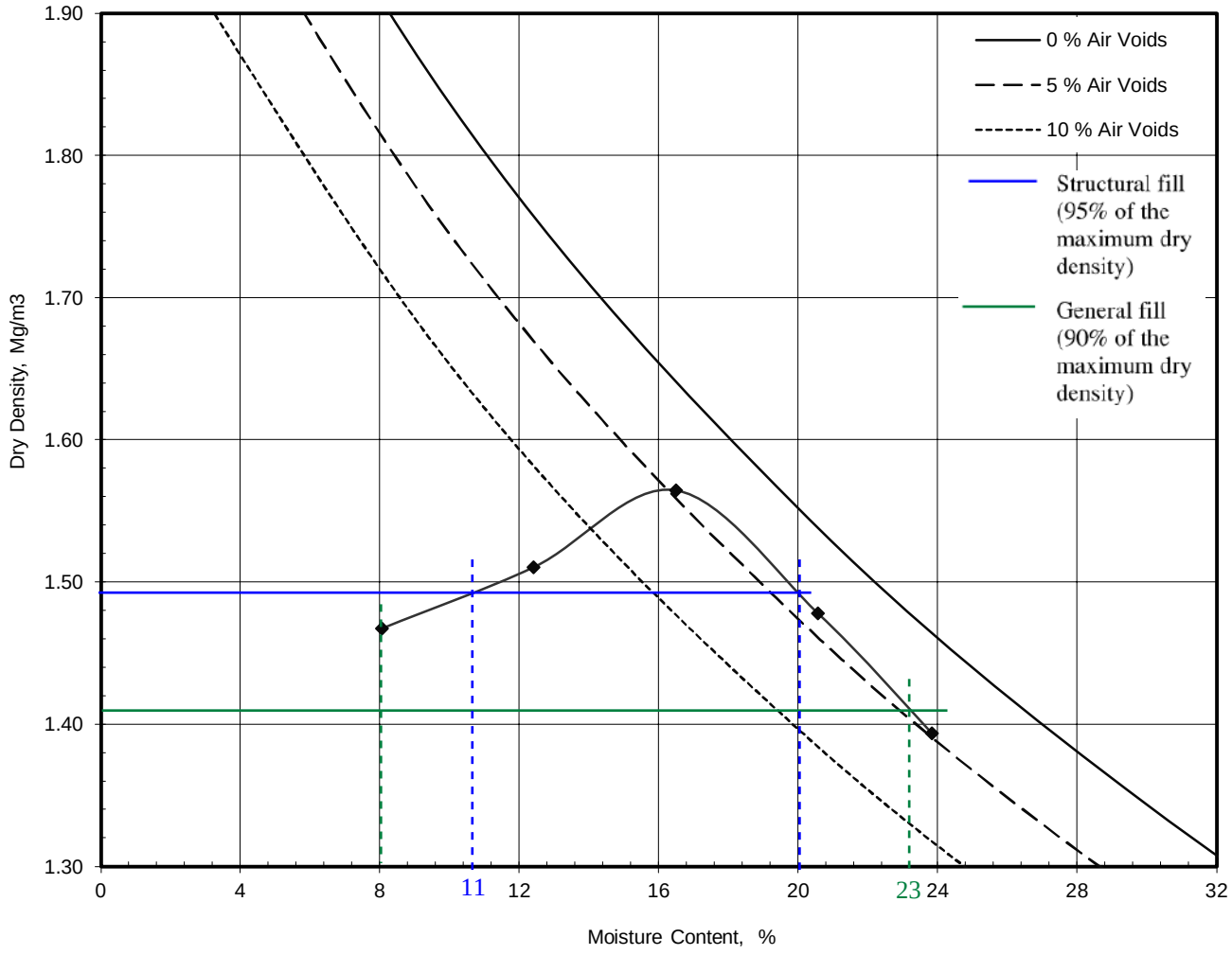


Preparation		Material used was air dried
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	13
Particle Density - Assumed	Mg/m³	2.67

Maximum Dry Density	Mg/m³	**1.75**
Optimum Moisture Content	%	**16**

Remarks

bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH324
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1030367
Soil Description	Brown gravelly sandy CLAY			Depth	1.00 m
Specimen Ref.	4	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	WA1030367
				Compaction Test Reference/No.	

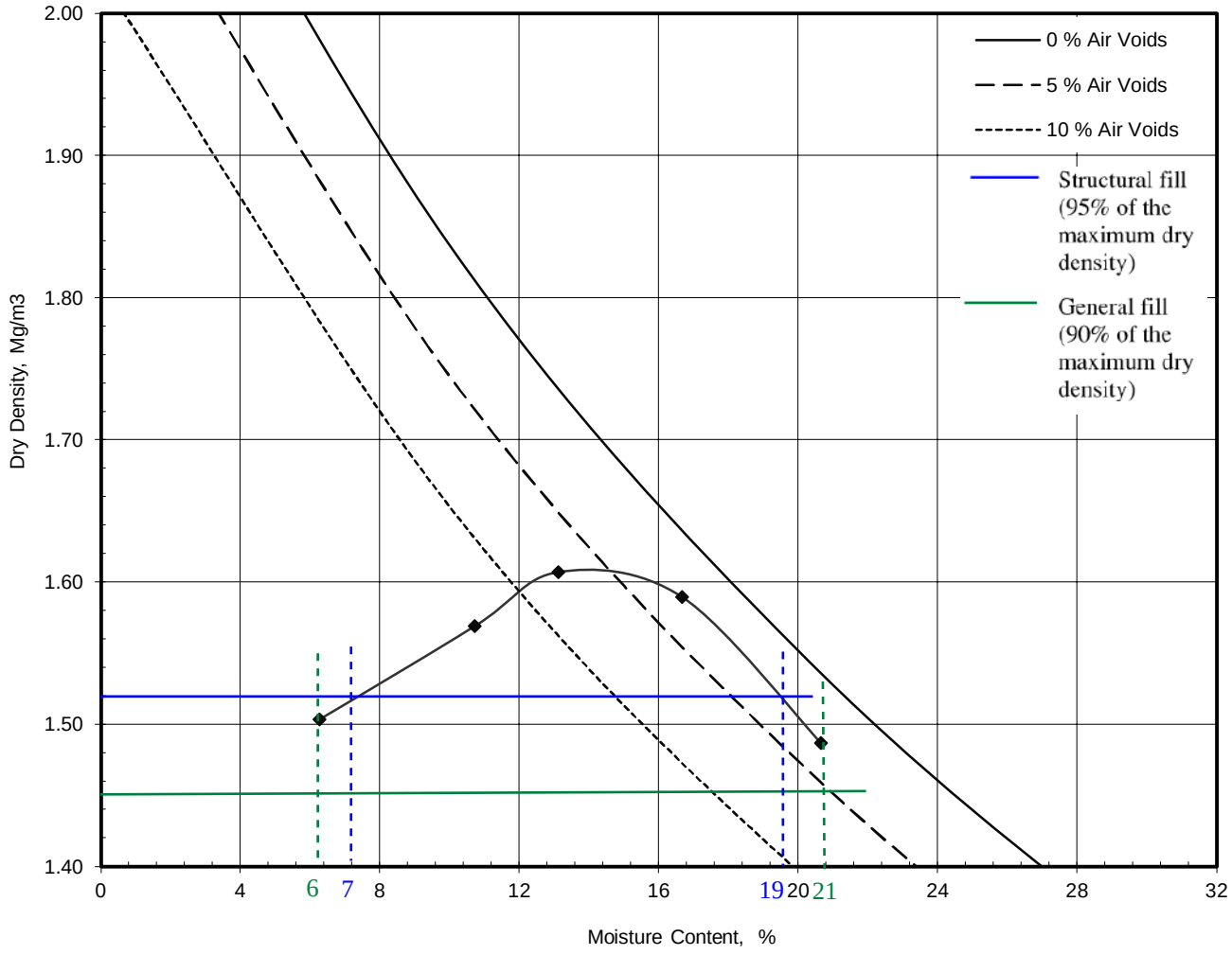


Preparation		Material used was air dried
Mould Type		1 LITRE
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	4
Particle Density - Assumed	Mg/m³	2.25

Maximum Dry Density	Mg/m³	**1.57**
Optimum Moisture Content	%	**16**

Remarks

bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH324
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1030377
Soil Description	Brown gravelly sandy CLAY			Depth	2.00 m
Specimen Ref.	3	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	WA1030377
				Compaction Test Reference/No.	

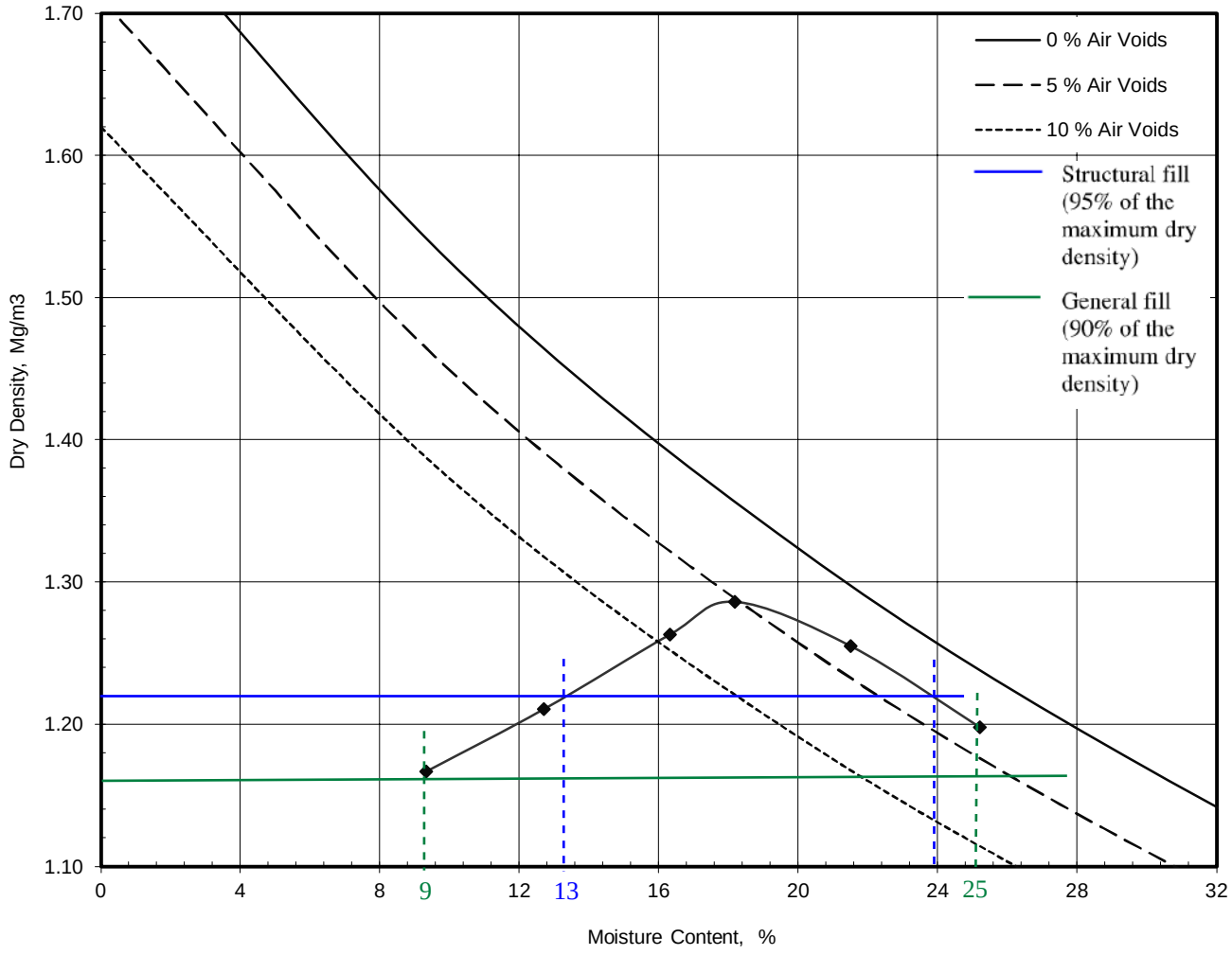


Preparation		Material used was air dried
Mould Type		1 LITRE
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.25

Maximum Dry Density	Mg/m³	**1.61**
Optimum Moisture Content	%	**14**

Remarks

bam ritchies	**Dry Density / Moisture Content Relationship Light Compaction**			Job Ref	**326R**
				Borehole / Pit No	BH328
Site Name	**Victoria North HIF Infrastructure & Enabling Works**			Sample No	WA1033831
Soil Description	Brown clayey gravelly SAND			Depth	2.00 m
Specimen Ref.	1	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	WA1033831
				Compaction Test Reference/No.	



Preparation		Material used was air dried
Mould Type		1 LITRE
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	10
Material Retained on 20.0 mm Sieve	%	25
Particle Density - Assumed	Mg/m³	1.80

Maximum Dry Density	Mg/m³	**1.29**
Optimum Moisture Content	%	**18**

Remarks

Test carried out Non-Standard, grading Zone X

The following sections present Geotechnical information taken from the GIR, which is used to assess material parameters for the design work undertaken. Charts are presented to highlight key trends and notes are presented for the method for deriving and correlating material parameters. Estimated parameters are based on chart trends and data after outliers are removed. The following section presents: SPT results, Atterberg results and Shear strength test results.

SPT results

Red Bank Plateau									
Stratum	**No. of tests**	**No. of outliers**	**Lower bound SPT N**	**Upper bound SPT N**	**Average SPT N (excluding outliers)**	**Average SPT N 60 (excluding outliers)**	**Avg. phi (degrees)**	**Cu (kPa)**	**Avg. E' (kPa)**
Cohesive made ground	42	2	2	26	7	7		35	15 000
Granular made ground	78	3	2	27	10	10	30		15 000
Cohesive glacial till	19	7	12	53	20	21		100	44 000
Granular Glacial till	38	8	8	50	15	16	31		24 000
Red Bank Terrace									
Stratum	**No. of tests**	**No. of outliers**	**Lower bound SPT N**	**Upper bound SPT N**	**Average SPT N (excluding outliers)**	**Average SPT N 60 (excluding outliers)**	**Avg. phi (degrees)**	**Cu (kPa)**	**Avg. E' (kPa)**
Cohesive made ground	13	2	6	27	10	10		50	20 000
Granular made ground	36	3	2	27	9	9	30		14 000
Cohesive glacial till	2	0	12	15	14	14		70	30 000
Granular Glacial till	8	1	12	43	20	21	33		30 000
St. Catherine's Wood									

Stratum	No. of tests	No. of outliers	Lower bound SPT N	Upper bound SPT N	Average SPT N (excluding outliers)	Average SPT N 60 (excluding outliers)	Avg. phi (degrees)	Cu (kPa)	Avg. E' (kPa)
Cohesive made ground	39	3	2	25	12	12		60	26 000
Granular made ground	37	1	2	28	10	10	30		15 000
Granular Glacial till	3	0	19	28	22	23	34		34 000
Granular Alluvium	18	2	2	11	7	7	29		11 000
Plateau Slope regrade zone									
Stratum	**No. of tests**	**No. of outliers**	**Lower bound SPT N**	**Upper bound SPT N**	**Average SPT N (excluding outliers)**	**Average SPT N 60 (excluding outliers)**	**Avg. phi (degrees)**	**Cu (kPa)**	**Avg. E' (kPa)**
Cohesive made ground	13	0	2	12	7	7		35	15 000
Granular made ground	53	2	2	20	8	9	30		13 000
P&P slope zone									
Stratum	**No. of tests**	**No. of outliers**	**Lower bound SPT N**	**Upper bound SPT N**	**Average SPT N (excluding outliers)**	**Average SPT N 60 (excluding outliers)**	**Avg. phi (degrees)**	**Cu (kPa)**	**Avg. E' (kPa)**
Cohesive made ground	31	2	2	25	10	10		50	22 000
Granular made ground	5	1	4	8	7	7	29		10 000

Parameters	Method of deriving	Source
Phi' (Granular)	$27.1 + (0.3*SPTN) - (0.00054*SPTN^2)$	Wolf 1989
Undrained shear strength (Cohesive)	5*SPTN	CIRIA 143 - Stroud
E' (Granular)	1.5*SPTN (MPa)	CIRIA 143 - Stroud
E' (Cohesive)	E' = 0.73.(600.Cu)	Barnes f.g 9.8 - Eu vs SPT, PI, OCR

Atterberg Limits

Red Bank Plateau			
Stratum	**No. of tests**	**PI Avg.**	**phi (degrees)**
Cohesive made ground	41	15	27
Cohesive glacial till	24	15	27
Redbank Terrace			
Stratum	**No. of tests**	**PI Avg.**	**phi (degrees)**
Cohesive made ground	5	14	28
St Catherine's Wood			
Stratum	**No. of tests**	**PI Avg.**	**phi (degrees)**
Cohesive made ground	31	15	27
Plateau Slope			
Stratum	**No. of tests**	**PI Avg.**	**phi (degrees)**
Cohesive made ground	7	15	27
P&P Slope			
Stratum	**No. of tests**	**PI Avg.**	**phi (degrees)**
Cohesive made ground	17	15	27

Parameters	Method of deriving	Source	Notes
Phi' (Cohesive)	$42 - 12.5\log_{10}(PI)$	BS8002 - Terzagi and peck	

4.3.1.4.8 For fine soils, the characteristic constant volume (also known as critical state) effective angle of shearing resistance ($\varphi'_{cv,k}$) may, in the absence of reliable test results, be estimated from:

$$\varphi'_{cv,k} = (42° - 12.5\log_{10} I_P) \text{ for } 5\% \le I_P \le 100\% \quad (8)$$

where:

I_P is the soil's plasticity index (entered as a %).

NOTE 1 Equation (8) is based on an expression proposed by Santamarina and Diaz-Rodriguez [23], which fits data presented by Terzaghi, Peck and Mesri [24].

NOTE 2 Values of $\varphi'_{cv,k}$ based on this expression are given in Table 2.

1.1 Quick Undrained tests results

Stratum	average Cu (MG-CO)	Average Cu (GTD-CO)	Notes
Redbank Plateau	35	n/a	MG-CO Cu is similar for QUT result and SPT estimate
Redbank Terrace	12	24	MG-CO value Based on one result – not used. SPT estimate disagrees
St Catherine's Wood	51	n/a	MG-CO Cu is similar for QUT result and SPT estimate
Plot RB02 and RB03 regrade zone	26	n/a	MG-CO Cu is similar for QUT result and SPT estimate
P&P slope zone	51	n/a	MG-CO Cu is similar for QUT result and SPT estimate

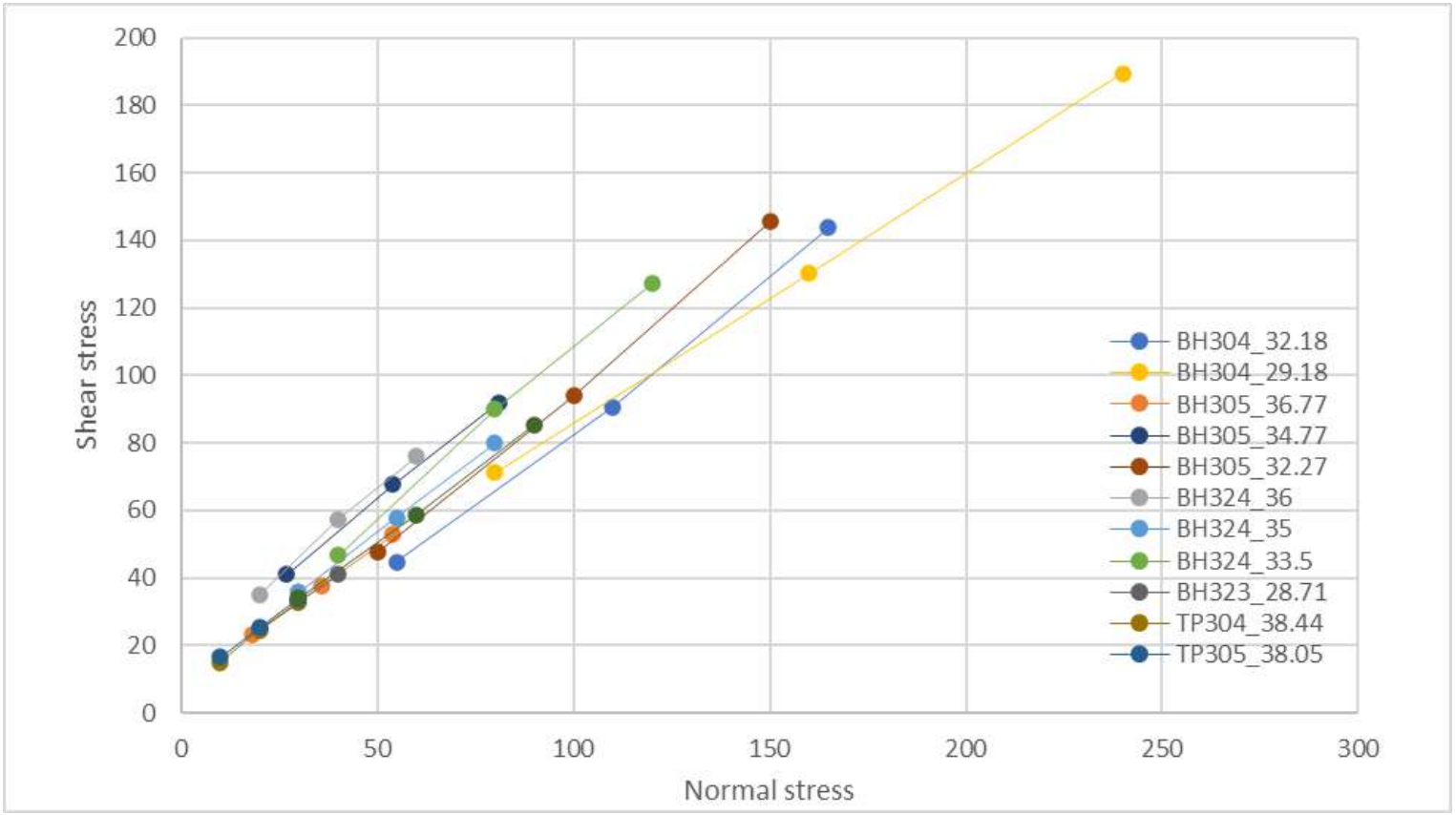
1.2 Undrained triaxial Consolidation results – P&P slope cohesive made ground

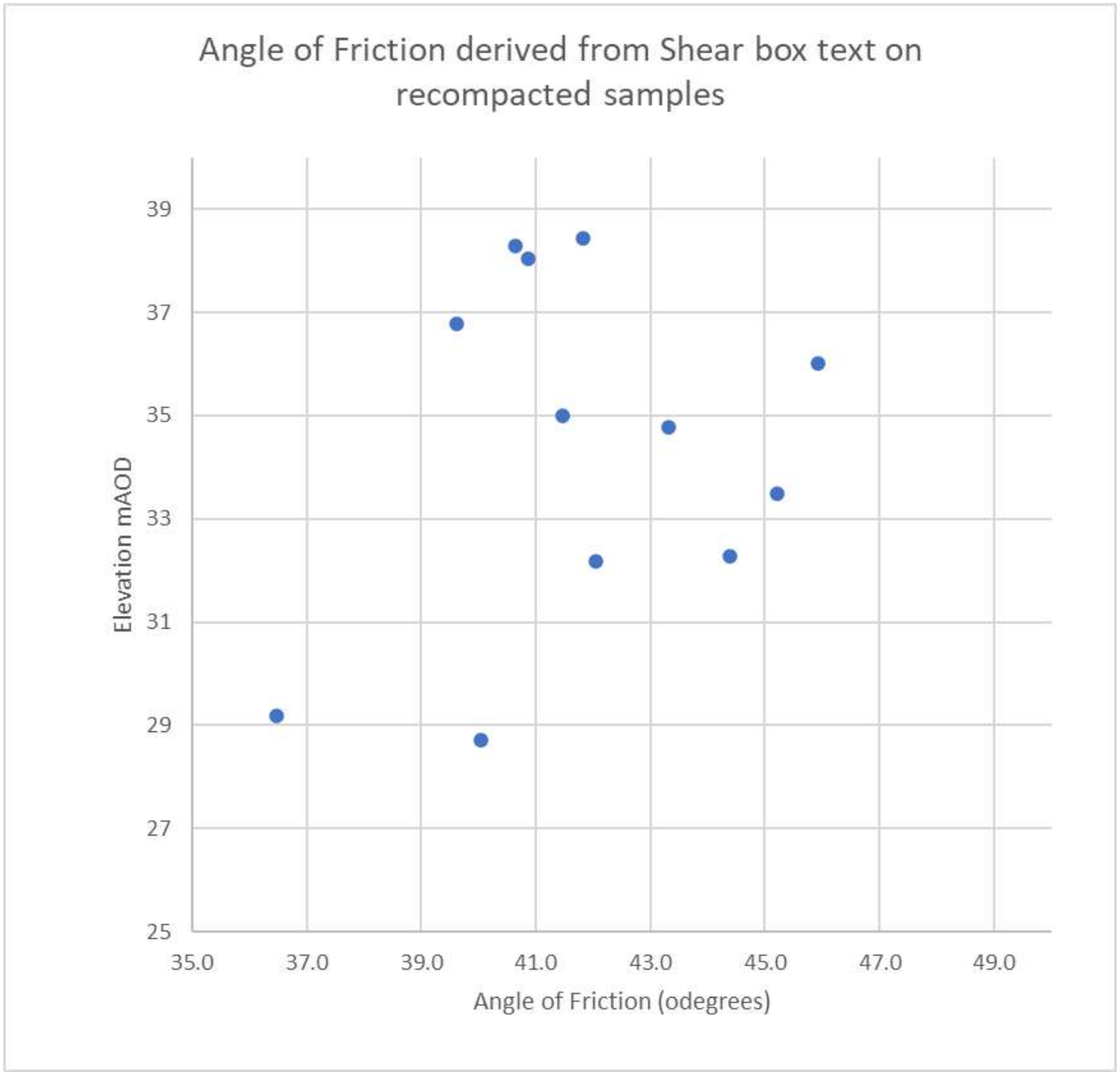
Hole ID	Geol code	Elevation	Sample depth	Sample type	Triaxial normal stress s'	Triaxial shear stress t
BH301B	MG-CO	37.96	4	UT	123.5	62.5
BH301B	MG-CO	34.46	7.5	UT	229.5	102.5
BH301B	MG-CO	29.96	12	UT	427	242
BH302	MG-CO	35.26	7.5	UT	100.5	47.5
BH302	MG-CO	35.26	7.5	UT	191.5	87.5
BH302	MG-CO	35.26	7.5	UT	315.5	146.5
BH315	MG-CO	37.26	2	UT	100.5	49.5
BH315	MG-CO	35.26	4	UT	125.5	56.5
BH315	MG-CO	31.76	7.5	UT	245	119

1.3 Shear box results

BH ID and elevations	Hole type	Zone	Geology	Sample depth	Normal stress	Peak shear stress	Estimated Phi
BH304_32.18	CP	Redbank Plateau,Slope regrade area	MG-G	9	55	44.7	42.0
BH304_32.18	CP	Redbank Plateau,Slope regrade area	MG-G	9	110	90.7	
BH304_32.18	CP	Redbank Plateau,Slope regrade area	MG-G	9	165	143.9	
BH304_29.18	CP	Redbank Plateau,Slope regrade area	MG-G	12	80	71.1	36.5
BH304_29.18	CP	Redbank Plateau,Slope regrade area	MG-G	12	160	130.2	
BH304_29.18	CP	Redbank Plateau,Slope regrade area	MG-G	12	240	189.4	
BH305_36.77	CP	Redbank Plateau,Slope regrade area	MG-G	3	18	23.1	39.6
BH305_36.77	CP	Redbank Plateau,Slope regrade area	MG-G	3	36	37.8	
BH305_36.77	CP	Redbank Plateau,Slope regrade area	MG-G	3	54	52.9	
BH305_34.77	CP	Redbank Plateau,Slope regrade area	MG-G	5	27	41	43.3
BH305_34.77	CP	Redbank Plateau,Slope regrade area	MG-G	5	54	67.7	
BH305_34.77	CP	Redbank Plateau,Slope regrade area	MG-G	5	81	91.9	
BH305_32.27	CP	Redbank Plateau,Slope regrade area	MG-G	7.5	50	47.6	44.4
BH305_32.27	CP	Redbank Plateau,Slope regrade area	MG-G	7.5	100	94	
BH305_32.27	CP	Redbank Plateau,Slope regrade area	MG-G	7.5	150	145.5	
BH324_36	CP	Redbank Plateau,Slope regrade area	MG-G	5	20	34.8	45.9
BH324_36	CP	Redbank Plateau,Slope regrade area	MG-G	5	40	57.4	
BH324_36	CP	Redbank Plateau,Slope regrade area	MG-G	5	60	76.1	
BH324_35	CP	Redbank Plateau,Slope regrade area	MG-G	6	30	35.7	41.5
BH324_35	CP	Redbank Plateau,Slope regrade area	MG-G	6	55	57.9	
BH324_35	CP	Redbank Plateau,Slope regrade area	MG-G	6	80	79.9	
BH324_33.5	CP	Redbank Plateau,Slope regrade area	MG-G	7.5	40	46.6	45.2
BH324_33.5	CP	Redbank Plateau,Slope regrade area	MG-G	7.5	80	90.1	
BH324_33.5	CP	Redbank Plateau,Slope regrade area	MG-G	7.5	120	127.2	
BH323_28.71	WLS	St Catherine's wood zone,Slope regrade area	MG-G	1.5	20	24.3	40.0
BH323_28.71	WLS	St Catherine's wood zone,Slope regrade area	MG-G	1.5	30	32.9	
BH323_28.71	WLS	St Catherine's wood zone,Slope regrade area	MG-G	1.5	40	41.1	
TP304_38.44	TP	Redbank Plateau,Slope regrade area	MG-G	2.9	10	14.9	41.8

TP304_38.44	TP	Redbank Plateau,Slope regrade area	MG-G	2.9	20	24.5	
TP304_38.44	TP	Redbank Plateau,Slope regrade area	MG-G	2.9	30	32.8	
TP305_38.05	TP	Redbank Plateau,Slope regrade area	MG-G	3	10	16.5	40.9
TP305_38.05	TP	Redbank Plateau,Slope regrade area	MG-G	3	20	25.2	
TP305_38.05	TP	Redbank Plateau,Slope regrade area	MG-G	3	30	33.8	
TP306_38.29	TP	Redbank Plateau,Slope regrade area	MG-G	1	30	34	40.6
TP306_38.29	TP	Redbank Plateau,Slope regrade area	MG-G	1	60	58.8	
TP306_38.29	TP	Redbank Plateau,Slope regrade area	MG-G	1	90	85.5	




Angle of Friction derived from Shear box text on recompacted samples
Elevation mAOD
39
37
35
33
31
29
27
25
35.0
37.0
39.0
41.0
43.0
45.0
47.0
49.0
Angle of Friction (odegrees)

Appendix C - Geoenvironmental screening

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH101	BH101	BH102	BH102	BH103	BH103
									Sample Ref	18	4	10	2	11	2
									Easting	384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
									Northing	399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
									Hole Elevation (mOD)	43.377	43.377	42.934	42.934	42.57	42.57
									Sample Depth (mbgl)	4.8	0.8	3.5	0.3	3.2	0.3
									Sample Date	03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		1.1	1.2	1.2	7.6	1.3	5
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		9.5	5.2	9.3	16	6.1	9.5
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.8	0.2	0.8	1.1	0.7	0.5
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.2	0.9	0.2	1	0.2	0.6
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		20	5.7	16	23	19	19
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1	<1	<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		28	50	27	140	46	100
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		53	38	91	**530**	28	230
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.11	0.16	0.17	0.44	<0.05	0.29
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		25	7.9	19	26	22	17
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		26	12	22	36	22	21
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		61	46	88	500	99	300
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.3	8.3	8.3	10.6	8.5	9.1
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.1	<0.1	<0.1	<0.1	<0.1	0.6
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.7	0.6	0.5	0.7	1.2	2.3
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.8	9.2	3.1	7.1	1.2	7.1
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD	NAD	NAD	NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0		na	na	na	na	na	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	0.9	<0.3	0.4	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5	2.7	130	2.4	<1.5	13
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2	15	240	9.3	<1.2	56
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5	57	160	22	<1.5	65
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4	350	120	120	<3.4	77
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2							
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01	<0.01	1.2	<0.01	<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref								BH101	BH101	BH102	BH102	BH103	BH103
Sample Ref								18	4	10	2	11	2
Easting								384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
Northing								399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
Hole Elevation (mOD)								43.377	43.377	42.934	42.934	42.57	42.57
Sample Depth (mbgl)								4.8	0.8	3.5	0.3	3.2	0.3
Sample Date								03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
Investigation								VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology								MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0	<10	420	650	160	<10	210
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0						
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0	<0.9	3.7	42	<0.9	<0.9	6.8
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0	<0.5	11	110	11	<0.5	37
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0	<0.6	56	150	52	<0.6	85
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0	<1.4	670	170	250	<1.4	120
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0						
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0	<0.01	<0.01	10	<0.01	<0.01	<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0						
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0						
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0						
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0						
PAH														
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0	<0.03	0.17	0.11	0.65	0.04	0.3
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0	<0.03	0.04	<0.03	0.11	<0.03	0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0	0.04	3.3	0.17	6.4	0.17	1.1
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0	<0.03	0.13	0.13	0.43	0.04	0.52
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0	<0.03	0.14	<0.03	0.78	<0.03	0.09
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0	0.06	0.72	0.28	2.3	0.2	1.4
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0	0.05	2.5	0.19	5.6	0.16	1
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0	<0.03	0.17	<0.03	0.22	0.04	0.62
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0						
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0						
Pah,Total		mg/kg	No GAC	-	<0.1	100		0	0.15	12	1.2	28	0.92	6.8
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0	<0.03	0.04	<0.03	0.06	<0.03	0.05
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0	<0.03	2.2	0.08	0.96	0.05	0.44
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0	<0.03	0.49	0.07	2.1	0.06	0.29
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0	<0.03	0.18	<0.03	0.94	<0.03	0.12
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0	<0.03	0.26	0.04	2.4	0.04	0.2
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0	<0.03	0.46	0.05	2.4	0.06	0.29
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0	<0.03	0.16	<0.03	1	<0.03	0.12
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0	<0.03	0.72	0.08	2	0.06	0.35
BTEX														
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0						
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0						
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0	<0.01	<0.01	1.9	<0.01	<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0						
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0						
PCBs														
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0						
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref								BH101	BH101	BH102	BH102	BH103	BH103
Sample Ref								18	4	10	2	11	2
Easting								384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
Northing								399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
Hole Elevation (mOD)								43.377	43.377	42.934	42.934	42.57	42.57
Sample Depth (mbgl)								4.8	0.8	3.5	0.3	3.2	0.3
Sample Date								03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
Investigation								VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology								MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0						
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0						
VOCs/SVOCs														
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0						
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0						
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0						
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0						
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0						
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0						
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0						
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0						
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0						
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0						
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0						
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0						
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0						
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0						
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0						
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0						
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0						
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0						
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0						
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Hole Ref	BH101	BH101	BH102	BH102	BH103	BH103
Sample Ref	18	4	10	2	11	2
Easting	384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
Northing	399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
Hole Elevation (mOD)	43.377	43.377	42.934	42.934	42.57	42.57
Sample Depth (mbgl)	4.8	0.8	3.5	0.3	3.2	0.3
Sample Date	03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology	MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH101	BH101	BH102	BH102	BH103	BH103
									Sample Ref	18	4	10	2	11	2
									Easting	384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
									Northing	399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
									Hole Elevation (mOD)	43.377	43.377	42.934	42.934	42.57	42.57
									Sample Depth (mbgl)	4.8	0.8	3.5	0.3	3.2	0.3
									Sample Date	03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH101	BH101	BH102	BH102	BH103	BH103
									Sample Ref	18	4	10	2	11	2
									Easting	384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
									Northing	399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
									Hole Elevation (mOD)	43.377	43.377	42.934	42.934	42.57	42.57
									Sample Depth (mbgl)	4.8	0.8	3.5	0.3	3.2	0.3
									Sample Date	03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Pesticides															
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0							
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0							
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0							
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0							
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0							
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0							
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0							
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0							
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0							
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0							
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0							
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0							
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0							
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0							
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0							
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0							
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0							
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0							
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref: BH101 / Sample Ref: 18 / Easting: 384796.682 / Northing: 399802.989 / Hole Elevation (mOD): 43.377 / Sample Depth (mbgl): 4.8 / Sample Date: 03/01/19 / Investigation: VN - Phase 1 GI / Geology: MG-CO / RB Plateau	Hole Ref: BH101 / Sample Ref: 4 / Easting: 384796.682 / Northing: 399802.989 / Hole Elevation (mOD): 43.377 / Sample Depth (mbgl): 0.8 / Sample Date: 03/01/19 / Investigation: VN - Phase 1 GI / Geology: MG-G / RB Plateau	Hole Ref: BH102 / Sample Ref: 10 / Easting: 384763.18 / Northing: 399691.375 / Hole Elevation (mOD): 42.934 / Sample Depth (mbgl): 3.5 / Sample Date: 03/01/19 / Investigation: VN - Phase 1 GI / Geology: MG-CO / RB Plateau	Hole Ref: BH102 / Sample Ref: 2 / Easting: 384763.18 / Northing: 399691.375 / Hole Elevation (mOD): 42.934 / Sample Depth (mbgl): 0.3 / Sample Date: 24/01/19 / Investigation: VN - Phase 1 GI / Geology: MG-G / RB Plateau	Hole Ref: BH103 / Sample Ref: 11 / Easting: 384689.014 / Northing: 399695.588 / Hole Elevation (mOD): 42.57 / Sample Depth (mbgl): 3.2 / Sample Date: 04/01/19 / Investigation: VN - Phase 1 GI / Geology: MG-CO / RB Plateau	Hole Ref: BH103 / Sample Ref: 2 / Easting: 384689.014 / Northing: 399695.588 / Hole Elevation (mOD): 42.57 / Sample Depth (mbgl): 0.3 / Sample Date: 04/01/19 / Investigation: VN - Phase 1 GI / Geology: MG-G / RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0						
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0						
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0						
Aluminium		mg/kg	No GAC	-	8270	9680		0						
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0						
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0						
Asbestos in soil		-	No GAC	-				0						
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0						
Barium		mg/kg	No GAC	-	68	198		0						
Calcium		mg/kg	No GAC	-	8540	8540		0						
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0						
Cobalt		mg/kg	No GAC	-	4	12		0						
Coronene		mg/kg	No GAC	-	0.04	0.12		0						
Cresols		mg/kg	No GAC	-				0						
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0						
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0						
EPH CWG GCxGC ID (for FID		-	No GAC	-				0						
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0						
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0						
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0						
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Iron		mg/kg	No GAC	-	43300	43300		0						
Loss on ignition		%	No GAC	-	1.3	24		0						
Magnesium		mg/kg	No GAC	-	1000	1000		0						
Manganese		mg/kg	No GAC	-	63	595		0						
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0						
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Molybdenum		mg/kg	No GAC	-	<1	8		0						
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0						
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0						
Perylene		mg/kg	No GAC	-	<0.1	25.6		0						
Potassium		mg/kg	No GAC	-	500	500		0						
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0						
SVOC TICs (Tentatively Identified		-	No GAC	-				0						
Silver		mg/kg	No GAC	-	<10	<10		0						
Sulphide		mg/kg	No GAC	-	<5	530		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH101	BH101	BH102	BH102	BH103	BH103
									Sample Ref	18	4	10	2	11	2
									Easting	384796.682	384796.682	384763.18	384763.18	384689.014	384689.014
									Northing	399802.989	399802.989	399691.375	399691.375	399695.588	399695.588
									Hole Elevation (mOD)	43.377	43.377	42.934	42.934	42.57	42.57
									Sample Depth (mbgl)	4.8	0.8	3.5	0.3	3.2	0.3
									Sample Date	03/01/19	03/01/19	03/01/19	24/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0							
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0							
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0		<10	1200	1100	470	<10	460
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0		<10	740	490	320	<10	250
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH103	BH103	BH104	BH104	BH104	BH105
									Sample Ref	4	16	15	28	4	14
									Easting	384689.014	384689.014	384607.46	384607.46	384607.46	384463.735
									Northing	399695.588	399695.588	399631.24	399631.24	399631.24	399571.588
									Hole Elevation (mOD)	42.57	42.57	41.588	41.588	41.588	40.666
									Sample Depth (mbgl)	1	4.8	4.7	9.7	0.7	3.3
									Sample Date	04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		4.8	1.3	1.2	1.8	5.9	1.1
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		11	12	8.2	19	23	10
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.5	0.8	0.7	2.1	2.8	0.7
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.8	0.4	0.2	0.2	0.6	0.1
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		19	24	20	22	16	18
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0			<1	<1	<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		140	9.1	33	100	300	18
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		210	13	42	75	180	12
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.26	<0.05	<0.05	0.38	0.45	<0.05
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		20	29	24	53	48	18
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	0.7	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		24	28	26	34	66	26
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		250	69	79	120	150	54
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		10	8.7	9.7	7.8	7.3	8.2
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.6	<0.1	<0.1	2.4	<0.1	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1.4	1.3	0.8	1.3	1.4	0.8
Total Organic Carbon		%	No GAC	-	<0.1	54		0		6.8	<0.5	2.2	13	29	0.6
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0			NAD	NAD	NAD	NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0			na	na	na	na	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		0.4	0.4	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0			<1.5	<1.5	<1.5	<1.5	<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2			<1.2	<1.2	<1.2	<1.2	<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6			<1.5	<1.5	<1.5	<1.5	<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14			<3.4	<3.4	<3.4	<3.4	<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2							
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0			<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0			<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0			<0.01	<0.01	<0.01	<0.01	<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH103	BH103	BH104	BH104	BH104	BH105
									Sample Ref	4	16	15	28	4	14
									Easting	384689.014	384689.014	384607.46	384607.46	384607.46	384463.735
									Northing	399695.588	399695.588	399631.24	399631.24	399631.24	399571.588
									Hole Elevation (mOD)	42.57	42.57	41.588	41.588	41.588	40.666
									Sample Depth (mbgl)	1	4.8	4.7	9.7	0.7	3.3
									Sample Date	04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0			<10	<10	<10	<10	<10
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			<0.9	<0.9	<0.9	<0.9	<0.9
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			<0.5	<0.5	0.7	<0.5	<0.5
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			<0.6	<0.6	4.3	<0.6	<0.6
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			<1.4	<1.4	9	<1.4	17
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0							
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			<0.01	<0.01	<0.01	<0.01	<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0		1700					
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			<0.03	<0.03	0.06	<0.03	<0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			<0.03	<0.03	<0.03	<0.03	<0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			<0.03	0.04	0.57	0.11	<0.03
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			<0.03	<0.03	0.06	<0.03	<0.03
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			<0.03	<0.03	0.09	<0.03	<0.03
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			<0.03	0.06	0.56	0.09	<0.03
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			<0.03	0.04	0.64	0.12	<0.03
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0			<0.03	<0.03	0.1	0.04	<0.03
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		22	<0.1	0.14	3.4	0.48	<0.1
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			<0.03	<0.03	<0.03	<0.03	<0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			<0.03	<0.03	0.1	<0.03	<0.03
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			<0.03	<0.03	0.24	0.05	<0.03
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			<0.03	<0.03	0.11	<0.03	<0.03
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			<0.03	<0.03	0.21	<0.03	<0.03
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			<0.03	<0.03	0.24	0.05	<0.03
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			<0.03	<0.03	0.1	<0.03	<0.03
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			<0.03	<0.03	0.25	0.07	<0.03
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.04					
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH103	BH103	BH104	BH104	BH104	BH105
									Sample Ref	4	16	15	28	4	14
									Easting	384689.014	384689.014	384607.46	384607.46	384607.46	384463.735
									Northing	399695.588	399695.588	399631.24	399631.24	399631.24	399571.588
									Hole Elevation (mOD)	42.57	42.57	41.588	41.588	41.588	40.666
									Sample Depth (mbgl)	1	4.8	4.7	9.7	0.7	3.3
									Sample Date	04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					BH103	BH103	BH104	BH104	BH104	BH105
Sample Ref					4	16	15	28	4	14
Easting					384689.014	384689.014	384607.46	384607.46	384607.46	384463.735
Northing					399695.588	399695.588	399631.24	399631.24	399631.24	399571.588
Hole Elevation (mOD)					42.57	42.57	41.588	41.588	41.588	40.666
Sample Depth (mbgl)					1	4.8	4.7	9.7	0.7	3.3
Sample Date					04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19
Investigation					VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology					MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0		
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0		
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0		
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0		
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0		
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0		
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0		
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0		
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0		
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0		
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0		
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0		
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0		
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0		
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0		
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0		
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0		
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0		
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0		
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0		
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0		
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0		
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0		
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0		
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0		
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0		
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0		
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0		
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0		
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0		
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0		
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0		
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0		
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0		
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0		
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0		
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0		
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0		
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0		
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0		
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0		
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0		
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0		
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH103	BH103	BH104	BH104	BH104	BH105
									Sample Ref	4	16	15	28	4	14
									Easting	384689.014	384689.014	384607.46	384607.46	384607.46	384463.735
									Northing	399695.588	399695.588	399631.24	399631.24	399631.24	399571.588
									Hole Elevation (mOD)	42.57	42.57	41.588	41.588	41.588	40.666
									Sample Depth (mbgl)	1	4.8	4.7	9.7	0.7	3.3
									Sample Date	04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

BH103	BH103	BH104	BH104	BH104	BH105	
4	16	15	28	4	14	
384689.014	384689.014	384607.46	384607.46	384607.46	384463.735	
399695.588	399695.588	399631.24	399631.24	399631.24	399571.588	
42.57	42.57	41.588	41.588	41.588	40.666	
1	4.8	4.7	9.7	0.7	3.3	
04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19	
VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	
MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	Sample Ref	Easting	Northing	Hole Elevation (mOD)	Sample Depth (mbgl)	Sample Date	Investigation	Geology	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
									BH103	4	384689.014	399695.588	42.57	1	04/01/19	VN - Phase 1 GI	MG-G						
									BH103	16	384689.014	399695.588	42.57	4.8	04/01/19	VN - Phase 1 GI	MM						
									BH104	15	384607.46	399631.24	41.588	4.7	04/01/19	VN - Phase 1 GI	MG-CO						
									BH104	28	384607.46	399631.24	41.588	9.7	07/01/19	VN - Phase 1 GI	MG-CO						
									BH104	4	384607.46	399631.24	41.588	0.7	04/01/19	VN - Phase 1 GI	MG-G						
									BH105	14	384463.735	399571.588	40.666	3.3	08/01/19	VN - Phase 1 GI	GTD - G						
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0															
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0															
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0															
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0															
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0															
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0															
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0															
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0															
Aluminium		mg/kg	No GAC	-	8270	9680		0															
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0															
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0										<0.01	<0.01	<0.01	<0.01	<0.01	
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0															
Asbestos in soil		-	No GAC	-				0															
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0															
Barium		mg/kg	No GAC	-	68	198		0															
Calcium		mg/kg	No GAC	-	8540	8540		0															
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0															
Cobalt		mg/kg	No GAC	-	4	12		0															
Coronene		mg/kg	No GAC	-	0.04	0.12		0															
Cresols		mg/kg	No GAC	-				0															
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0															
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0															
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0															
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0															
EPH CWG GCxGC ID (for FID		-	No GAC	-				0															
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0															
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0															
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0															
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0															
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0															
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0															
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0															
Iron		mg/kg	No GAC	-	43300	43300		0															
Loss on ignition		%	No GAC	-	1.3	24		0										11					
Magnesium		mg/kg	No GAC	-	1000	1000		0															
Manganese		mg/kg	No GAC	-	63	595		0															
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0															
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0															
Molybdenum		mg/kg	No GAC	-	<1	8		0															
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0															
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0															
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0										<0.01					
Perylene		mg/kg	No GAC	-	<0.1	25.6		0															
Potassium		mg/kg	No GAC	-	500	500		0															
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0															
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0															
SVOC TICs (Tentatively Identified		-	No GAC	-				0															
Silver		mg/kg	No GAC	-	<10	<10		0															
Sulphide		mg/kg	No GAC	-	<5	530		0															

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0
Tin		mg/kg	No GAC	-	<5	<5		0
Titanium		mg/kg	No GAC	-	67	420		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0
Total Aromatics		mg/kg	No GAC	-	76	101		0
Total Aromatics		mg/kg	No GAC	-	<1	6340		0
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0
VOC TICs		-	No GAC	-				0
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ortho Phosphate as P		mg/kg	No GAC	-				0
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols, Total		mg/kg	No GAC	-	<5	<5		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0

Contaminant Name	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Hole Ref	BH103	BH103	BH104	BH104	BH104	BH105
Sample Ref	4	16	15	28	4	14
Easting	384689.014	384689.014	384607.46	384607.46	384607.46	384463.735
Northing	399695.588	399695.588	399631.24	399631.24	399631.24	399571.588
Hole Elevation (mOD)	42.57	42.57	41.588	41.588	41.588	40.666
Sample Depth (mbgl)	1	4.8	4.7	9.7	0.7	3.3
Sample Date	04/01/19	04/01/19	04/01/19	07/01/19	04/01/19	08/01/19
Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology	MG-G	MM	MG-CO	MG-CO	MG-G	GTD - G
Total Aliphatics and Aromatics C5-C35	<10	<10	15	<10	17	
Total Aromatics C5-C35	<10	<10	15	<10	17	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH105	TP101	TP102	TP102	TP103	TP103
									Sample Ref	5	2	6	2	11	7
									Easting	384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
									Northing	399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
									Hole Elevation (mOD)	40.666	43.457	42.621	42.621	43.178	43.178
									Sample Depth (mbgl)	0.7	0.3	1.2	0.3	1.8	1
									Sample Date	04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		1.5	1.3	1.2	<1	<1	<1
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		11	6.8	10	6.1	8.1	4.1
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.9	1	1	0.2	0.8	0.6
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.2	0.4	0.3	0.4	0.2	0.2
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		23	21	29	14	22	8.7
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1	<1	<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		31	71	46	21	27	35
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		26	26	17	17	13	20
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.11	<0.05	<0.05	<0.05	<0.05	0.07
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		27	22	30	10	29	12
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		27	31	31	15	27	14
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		97	95	89	59	65	67
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.3	8.9	8.5	8.5	8.1	8.3
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1.2	1	0.7	0.6	0.5	0.6
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.6	2.9	1.6	3.2	2	2.8
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD	NAD	NAD		
Asbestos Analysts Comments		---	No GAC	-				0		na	na	na	na		
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	0.4	<0.3	0.5	<0.3	0.4
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2							
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH105	TP101	TP102	TP102	TP103	TP103
									Sample Ref	5	2	6	2	11	7
									Easting	384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
									Northing	399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
									Hole Elevation (mOD)	40.666	43.457	42.621	42.621	43.178	43.178
									Sample Depth (mbgl)	0.7	0.3	1.2	0.3	1.8	1
									Sample Date	04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0		<10	<10	<10	<10	<10	<10
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0							
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0					79		
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		<0.03	0.28	<0.03	0.46	<0.03	0.05
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		<0.03	0.06	<0.03	0.05	<0.03	<0.03
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		<0.03	0.12	<0.03	0.11	<0.03	0.05
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		0.04	0.28	<0.03	0.45	<0.03	0.04
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		0.12	1.5	<0.1	2.1	<0.1	0.15
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.03	0.04	<0.03	0.05	<0.03	<0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		<0.03	0.2	<0.03	0.22	<0.03	<0.03
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		<0.03	0.1	<0.03	0.15	<0.03	<0.03
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		0.05	0.06	<0.03	0.05	<0.03	<0.03
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		<0.03	0.08	<0.03	0.1	<0.03	<0.03
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		0.04	0.13	<0.03	0.19	<0.03	<0.03
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		<0.03	0.05	<0.03	0.07	<0.03	<0.03
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		<0.03	0.12	<0.03	0.21	<0.03	<0.03
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0					<0.04		
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref								BH105	TP101	TP102	TP102	TP103	TP103
Sample Ref								5	2	6	2	11	7
Easting								384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
Northing								399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
Hole Elevation (mOD)								40.666	43.457	42.621	42.621	43.178	43.178
Sample Depth (mbgl)								0.7	0.3	1.2	0.3	1.8	1
Sample Date								04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
Investigation								VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology								MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0						
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0						
VOCs/SVOCs														
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0						
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0						
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0						
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0						
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0						
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0						
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0						
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0						
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0						
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0						
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0						
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0						
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0						
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0						
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0						
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0						
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0						
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0						
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0						
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0						
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0						
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					BH105	TP101	TP102	TP102	TP103	TP103
Sample Ref					5	2	6	2	11	7
Easting					384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
Northing					399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
Hole Elevation (mOD)					40.666	43.457	42.621	42.621	43.178	43.178
Sample Depth (mbgl)					0.7	0.3	1.2	0.3	1.8	1
Sample Date					04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
Investigation					VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology					MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0		
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0		
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0		
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0		
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0		
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0		
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0		
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0		
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0		
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0		
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0		
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0		
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0		
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0		
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0		
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0		
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0		
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0		
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0		
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0		
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0		
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0		
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0		
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0		
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0		
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0		
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0		
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0		
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0		
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0		
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0		
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0		
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0		
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0		
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0		
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0		
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0		
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0		
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0		
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0		
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0		
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0		
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0		
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0		
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH105	TP101	TP102	TP102	TP103	TP103
									Sample Ref	5	2	6	2	11	7
									Easting	384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
									Northing	399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
									Hole Elevation (mOD)	40.666	43.457	42.621	42.621	43.178	43.178
									Sample Depth (mbgl)	0.7	0.3	1.2	0.3	1.8	1
									Sample Date	04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					BH105	TP101	TP102	TP102	TP103	TP103
Sample Ref					5	2	6	2	11	7
Easting					384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
Northing					399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
Hole Elevation (mOD)					40.666	43.457	42.621	42.621	43.178	43.178
Sample Depth (mbgl)					0.7	0.3	1.2	0.3	1.8	1
Sample Date					04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
Investigation					VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology					MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0						
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0						
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0						
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0						
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0						
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0						
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0						
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0						
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0						
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0						
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0						
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0						
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0						
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0						
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0						
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0						
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0						
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0						
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

BH105	TP101	TP102	TP102	TP103	TP103
5	2	6	2	11	7
384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
40.666	43.457	42.621	42.621	43.178	43.178
0.7	0.3	1.2	0.3	1.8	1
04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.3					
0.03					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH105	TP101	TP102	TP102	TP103	TP103
									Sample Ref	5	2	6	2	11	7
									Easting	384463.735	384759.647	384698.516	384698.516	384772.82	384772.82
									Northing	399571.588	399818.495	399742.661	399742.661	399769.313	399769.313
									Hole Elevation (mOD)	40.666	43.457	42.621	42.621	43.178	43.178
									Sample Depth (mbgl)	0.7	0.3	1.2	0.3	1.8	1
									Sample Date	04/01/19	03/01/19	03/01/19	03/01/19	03/01/19	03/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-CO	MG-G-G	GTD - CO	MG-G	GTD - CO	GTD - G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0							
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0							
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0		<10	<10	<10	<10	<10	<10
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0		<10	<10	<10	<10	<10	<10
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
									Easting	384780.328	384737.823	384655.011	384661.431	384661.431	384661.431
									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		3.8	1.2	7.9	4.1	3	4.8
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		23	12	37	28	**71**	19
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		1.5	0.9	1	**2.6**	**2.1**	**2**
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.7	0.2	0.4	0.5	0.4	0.2
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		48	23	36	19	15	18
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1	<1	<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		150	43	130	300	110	150
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		210	39	100	**1300**	180	**330**
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.34	0.32	<0.05	18	1.1	1.2
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		32	29	33	39	29	38
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		160	33	74	53	40	43
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		180	62	130	310	93	99
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.7	7.2	7.6	7.6	8.2	7.6
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.2	0.2	0.1	0.8	0.2	0.2
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.4	1.2	0.8	0.7	1	0.7
Total Organic Carbon		%	No GAC	-	<0.1	54		0		18	4.7	12	27	17	13
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD		NAD	NAD		NAD
Asbestos Analysts Comments		---	No GAC	-				0		na		na	na		na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		0.8	0.4	0.5	0.5	0.5	0.6
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5	<1.5	<1.5	<1.5		<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		16	<1.2	<1.2	<1.2		<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		72	<1.5	<1.5	<1.5		<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		230	<3.4	<3.4	<3.4		<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2							
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01	<0.01	<0.01	<0.01		<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01	<0.01	<0.01	<0.01		<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01	<0.01	<0.01	<0.01		<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
									Easting	384780.328	384737.823	384655.011	384661.431	384661.431	384661.431
									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0		320	<10	<10	<10		<10
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		12	<0.9	13	<0.9		<0.9
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		25	<0.5	19	<0.5		<0.5
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		85	<0.6	39	<0.6		<0.6
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		200	<1.4	68	<1.4		<1.4
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0							
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01		<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01	<0.01	<0.01	<0.01		<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0						38	
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			<0.03	0.59	0.04		<0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			<0.03	0.04	<0.03		<0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			0.03	2.5	0.35		0.27
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			<0.03	0.48	<0.03		<0.03
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			<0.03	0.1	0.08		0.07
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			<0.03	2.5	0.26		0.22
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			0.03	2.5	0.39		0.3
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		<0.01	<0.03	0.28	<0.03		0.03
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0			<0.1	12	2	9.9	1.6
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			<0.03	<0.03	<0.03		<0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			<0.03	0.61	0.04		0.05
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			<0.03	0.7	0.15		0.12
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			<0.03	0.15	0.11		0.1
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			<0.03	0.38	0.13		0.11
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			<0.03	0.5	0.16		0.13
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			<0.03	0.17	0.06		0.05
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			<0.03	0.78	0.2		0.14
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0		<0.01					
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0		<0.01					
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0			<0.01	<0.01	<0.01	<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0						<0.04	
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
									Easting	384780.328	384737.823	384655.011	384661.431	384661.431	384661.431
									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0		<0.01					
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0		<0.01					
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0		<0.01					
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0		<0.01					
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0		<0.01					
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0		<0.01					
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
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									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0							
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0		<0.01					
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0		<0.01					
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0							
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0							
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0							
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0							
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0							
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0							
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0							
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0							
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0		<0.01					
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0							
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0							
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0							
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0							
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0							
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0							
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0							
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0		<0.01					
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0		<0.01					
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0							
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0		<0.01					
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0		<0.01					
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0							
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0		<0.01					
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0		<0.01					
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
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									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
									Easting	384780.328	384737.823	384655.011	384661.431	384661.431	384661.431
									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Pesticides															
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0							
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0							
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0							
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0							
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0							
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0							
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0							
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0							
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0							
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0							
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0							
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0							
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0							
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0							
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0							
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0							
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0							
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0							
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

									Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
									Easting	384780.328	384737.823	384655.011	384661.431	384661.431	384661.431
									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**		**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0							
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0							
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0		<0.01	<0.01	<0.01	<0.01		<0.01
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0						11	
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0						<0.01	
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP104	TP107	TP108	TP109	TP109	TP109
									Sample Ref	2	8	2	2	5	11
									Easting	384780.328	384737.823	384655.011	384661.431	384661.431	384661.431
									Northing	399749.164	399704.019	399693.93	399650.774	399650.774	399650.774
									Hole Elevation (mOD)	43.131	42.764	42.312	41.958	41.958	41.958
									Sample Depth (mbgl)	0.3	1.2	0.3	0.3	1.3	3.3
									Sample Date	03/01/19	03/01/19	04/01/19	04/01/19	04/01/19	04/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G-G	MG-CO	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0							
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0							
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0		650	<10	140	<10		<10
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0		320	<10	140	<10		<10
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP110	TP111	TP111	TP112	TP112	TP115
									Sample Ref	5	8	2	2	8	2
									Easting	384638.835	384592.029	384592.029	384552.675	384552.675	384456.531
									Northing	399640.942	399655.215	399655.215	399614.062	399614.062	399526.838
									Hole Elevation (mOD)	41.427	41.467	41.467	40.83	40.83	40.513
									Sample Depth (mbgl)	1.3	2.5	0.3	0.3	2.3	0.3
									Sample Date	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		11	<1	4.3	55	20	12
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		34	4.5	18	19	44	40
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		1.9	0.6	0.9	2.2	1.6	2.2
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.6	0.1	0.6	0.3	0.3	0.4
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		21	13	26	18	18	25
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1		<1	<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		300	14	86	270	150	300
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		520	12	71	290	210	460
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		1.6	<0.05	0.25	0.45	0.29	0.63
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		38	15	28	38	35	45
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		59	16	74	54	46	76
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		240	28	180	120	91	130
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.3	7.7	7.8	6.1	6.5	6.5
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.5	<0.1	<0.1	<0.1	<0.1	0.3
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.7	0.6	0.7	0.7	0.7	0.9
Total Organic Carbon		%	No GAC	-	<0.1	54		0		28	0.5	12	13	11	27
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD		NAD	NAD	NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0		na		na	na	na	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	0.4	<0.3	<0.3	1	0.5
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5	<1.5	<1.5	<1.5		<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2	<1.2	<1.2	<1.2		<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5	<1.5	<1.5	<1.5		<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4	<3.4	<3.4	<3.4		<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2							
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01	<0.01	<0.01	<0.01		<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01	<0.01	<0.01	<0.01		<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01	<0.01	<0.01	<0.01		<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0
PAH								
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0
Pah,Total		mg/kg	No GAC	-	<0.1	100		0
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0
BTEX								
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0
PCBs								
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0

TP110	TP111	TP111	TP112	TP112	TP115	
5	8	2	2	8	2	
384638.835	384592.029	384592.029	384552.675	384552.675	384456.531	
399640.942	399655.215	399655.215	399614.062	399614.062	399526.838	
41.427	41.467	41.467	40.83	40.83	40.513	
1.3	2.5	0.3	0.3	2.3	0.3	
07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	
VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	
MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G-G	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
<10	<10	<10	<10		<10	
<0.9	<0.9	<0.9	<0.9		<0.9	
<0.5	<0.5	<0.5	<0.5		<0.5	
<0.6	<0.6	<0.6	<0.6		<0.6	
<1.4	<1.4	<1.4	<1.4		<1.4	
<0.01	<0.01	<0.01	<0.01		<0.01	
<0.01	<0.01	<0.01	<0.01		<0.01	
				31		
0.2	<0.03	<0.03	<0.03		0.05	
<0.03	<0.03	<0.03	<0.03		0.04	
1.2	<0.03	0.35	0.12		1	
0.2	<0.03	<0.03	<0.03		0.04	
0.11	<0.03	0.07	<0.03		0.15	
1.5	<0.03	0.16	0.11		0.54	
1.2	<0.03	0.4	0.1		1	
0.19	<0.03	<0.03	0.04		0.09	
6.5	<0.1	1.8	0.52	2.2	5.5	
<0.03	<0.03	<0.03	<0.03		0.04	
0.35	<0.03	0.09	<0.03		0.26	
0.36	<0.03	0.16	0.04		0.45	
0.13	<0.03	0.07	<0.03		0.18	
0.24	<0.03	0.1	<0.03		0.39	
0.32	<0.03	0.17	0.05		0.55	
0.13	<0.03	0.08	<0.03		0.19	
0.4	<0.03	0.2	0.06		0.49	
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
				<0.04		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP110	TP111	TP111	TP112	TP112	TP115
									Sample Ref	5	8	2	2	8	2
									Easting	384638.835	384592.029	384592.029	384552.675	384552.675	384456.531
									Northing	399640.942	399655.215	399655.215	399614.062	399614.062	399526.838
									Hole Elevation (mOD)	41.427	41.467	41.467	40.83	40.83	40.513
									Sample Depth (mbgl)	1.3	2.5	0.3	0.3	2.3	0.3
									Sample Date	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP110	TP111	TP111	TP112
Sample Ref					5	8	2	2
Easting					384638.835	384592.029	384592.029	384552.675
Northing					399640.942	399655.215	399655.215	399614.062
Hole Elevation (mOD)					41.427	41.467	41.467	40.83
Sample Depth (mbgl)					1.3	2.5	0.3	0.3
Sample Date					07/01/19	07/01/19	07/01/19	07/01/19
Investigation					VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology					MG-G	GTD - G	MG-G	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP110	TP111	TP111	TP112	TP112	TP115
									Sample Ref	5	8	2	2	8	2
									Easting	384638.835	384592.029	384592.029	384552.675	384552.675	384456.531
									Northing	399640.942	399655.215	399655.215	399614.062	399614.062	399526.838
									Hole Elevation (mOD)	41.427	41.467	41.467	40.83	40.83	40.513
									Sample Depth (mbgl)	1.3	2.5	0.3	0.3	2.3	0.3
									Sample Date	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP110	TP111	TP111	TP112
Sample Ref					5	8	2	2
Easting					384638.835	384592.029	384592.029	384552.675
Northing					399640.942	399655.215	399655.215	399614.062
Hole Elevation (mOD)					41.427	41.467	41.467	40.83
Sample Depth (mbgl)					1.3	2.5	0.3	0.3
Sample Date					07/01/19	07/01/19	07/01/19	07/01/19
Investigation					VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
Geology					MG-G	GTD - G	MG-G	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

TP110	TP111	TP111	TP112	TP112	TP115	
5	8	2	2	8	2	
384638.835	384592.029	384592.029	384552.675	384552.675	384456.531	
399640.942	399655.215	399655.215	399614.062	399614.062	399526.838	
41.427	41.467	41.467	40.83	40.83	40.513	
1.3	2.5	0.3	0.3	2.3	0.3	
07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	
VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	
MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G-G	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
		<0.01				<0.01
					8.1	
					<0.01	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP110	TP111	TP111	TP112	TP112	TP115
									Sample Ref	5	8	2	2	8	2
									Easting	384638.835	384592.029	384592.029	384552.675	384552.675	384456.531
									Northing	399640.942	399655.215	399655.215	399614.062	399614.062	399526.838
									Hole Elevation (mOD)	41.427	41.467	41.467	40.83	40.83	40.513
									Sample Depth (mbgl)	1.3	2.5	0.3	0.3	2.3	0.3
									Sample Date	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19	07/01/19
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI	VN - Phase 1 GI
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0							
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0							
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0		<10	<10	<10	<10		<10
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0		<10	<10	<10	<10		<10
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
									Sample Ref	5	11	3	7	4	7
									Easting	384456.531	384456.531	384762.04	384723.888	384723.888	384689.078
									Northing	399526.838	399526.838	399820.851	399716.141	399716.141	399735.153
									Hole Elevation (mOD)	40.513	40.513	43.4	42.663	42.663	42.578
									Sample Depth (mbgl)	1.3	3.3	0.3	2.2	1.2	1.8
									Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		8.2	12	1	1.4	2.2	<1
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		25	**40**	5.5	8.4	15	6.6
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		**3.9**	**2.3**	<0.2	0.9	1.5	0.5
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.3	0.5	0.3	0.4	0.6	0.1
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		27	17	11	17	16	14
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0			<1	<1		<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		260	310	33	56	120	18
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		190	**520**	27	48	140	9.8
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.44	1	<0.05	0.16	0.45	<0.05
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		50	40	9.8	21	30	18
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		58	61	18	25	37	18
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		88	180	65	83	190	41
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		6.5	6.9	8.6	8	8.1	8.1
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.4	**68**	0.1	<0.1	0.1	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1	0.5	0.2	0.4	0.7	0.4
Total Organic Carbon		%	No GAC	-	<0.1	54		0		17	32	0.3	0.8	1.4	0.4
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0			NAD	NAD		NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0			na	na		na	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		0.4	0.4	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0			<1.5	<1.5		<1.5	<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2			<1.2	<1.2		<1.2	<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6			<1.5	<1.5		<1.5	<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14			<3.4	<3.4		<3.4	<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2							<3.4
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0			<0.01	<0.01		<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0			<0.01	<0.01		<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0			<0.01	<0.01		<0.01	<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
									Sample Ref	5	11	3	7	4	7
									Easting	384456.531	384456.531	384762.04	384723.888	384723.888	384689.078
									Northing	399526.838	399526.838	399820.851	399716.141	399716.141	399735.153
									Hole Elevation (mOD)	40.513	40.513	43.4	42.663	42.663	42.578
									Sample Depth (mbgl)	1.3	3.3	0.3	2.2	1.2	1.8
									Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0			<10	<10		<10	
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			<0.9	<0.9		<0.9	<0.9
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			<0.5	<0.5		0.6	<0.5
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			<0.6	<0.6		7.9	<0.6
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			<1.4	<1.4		44	<1.4
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0							<1.4
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01	<0.01		<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			<0.01	<0.01		<0.01	<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0		210					
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			0.08	<0.03		0.29	<0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			0.06	<0.03		<0.03	<0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			1.2	0.32		1.9	<0.03
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			0.06	<0.03		0.29	<0.03
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			0.2	0.05		0.12	<0.03
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			0.71	0.14		2.2	<0.03
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			1.2	0.26		1.8	<0.03
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0			0.12	0.03		0.27	<0.03
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		14	6.7	1.5		9.3	<0.1
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			0.06	<0.03		0.06	<0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			0.33	0.18		0.38	<0.03
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			0.53	0.09		0.49	<0.03
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			0.23	0.06		0.14	<0.03
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			0.5	0.07		0.31	<0.03
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			0.67	0.13		0.39	<0.03
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			0.24	0.05		0.14	<0.03
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			0.58	0.14		0.58	<0.03
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01	<0.01		<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01	<0.01		<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01	<0.01		<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01	<0.01		<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.04					
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
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									Northing	399526.838	399526.838	399820.851	399716.141	399716.141	399735.153
									Hole Elevation (mOD)	40.513	40.513	43.4	42.663	42.663	42.578
									Sample Depth (mbgl)	1.3	3.3	0.3	2.2	1.2	1.8
									Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP115	TP115	BH201	BH202
Sample Ref					5	11	3	7
Easting					384456.531	384456.531	384762.04	384723.888
Northing					399526.838	399526.838	399820.851	399716.141
Hole Elevation (mOD)					40.513	40.513	43.4	42.663
Sample Depth (mbgl)					1.3	3.3	0.3	2.2
Sample Date					07/01/19	07/01/19	22/03/21	23/02/21
Investigation					VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604
Geology					MG-G-G	MG-G-G	MG-G	MG-CO
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
									Sample Ref	5	11	3	7	4	7
									Easting	384456.531	384456.531	384762.04	384723.888	384723.888	384689.078
									Northing	399526.838	399526.838	399820.851	399716.141	399716.141	399735.153
									Hole Elevation (mOD)	40.513	40.513	43.4	42.663	42.663	42.578
									Sample Depth (mbgl)	1.3	3.3	0.3	2.2	1.2	1.8
									Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
Sample Ref	5	11	3	7	4	7
Easting	384456.531	384456.531	384762.04	384723.888	384723.888	384689.078
Northing	399526.838	399526.838	399820.851	399716.141	399716.141	399735.153
Hole Elevation (mOD)	40.513	40.513	43.4	42.663	42.663	42.578
Sample Depth (mbgl)	1.3	3.3	0.3	2.2	1.2	1.8
Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	**100.00**
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

									Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
									Sample Ref	5	11	3	7	4	7
									Easting	384456.531	384456.531	384762.04	384723.888	384723.888	384689.078
									Northing	399526.838	399526.838	399820.851	399716.141	399716.141	399735.153
									Hole Elevation (mOD)	40.513	40.513	43.4	42.663	42.663	42.578
									Sample Depth (mbgl)	1.3	3.3	0.3	2.2	1.2	1.8
									Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
									Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**		**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0							
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0							<10
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0			<0.01	<0.01		<0.01	<0.01
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0		6.6					
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0		<0.01					
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0
Tin		mg/kg	No GAC	-	<5	<5		0
Titanium		mg/kg	No GAC	-	67	420		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0
Total Aromatics		mg/kg	No GAC	-	76	101		0
Total Aromatics		mg/kg	No GAC	-	<1	6340		0
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0
VOC TICs		-	No GAC	-				0
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ortho Phosphate as P		mg/kg	No GAC	-				0
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols, Total		mg/kg	No GAC	-	<5	<5		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	TP115	TP115	BH201	BH202	BH202	BH205
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Sample Date	07/01/19	07/01/19	22/03/21	23/02/21	23/02/21	31/03/21
Investigation	VN - Phase 1 GI	VN - Phase 1 GI	NW1604	NW1604	NW1604	NW1604
Geology	MG-G-G	MG-G-G	MG-G	MG-CO	MG-G	GTD - CO
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
						<10
			<10	<10	52	
			<10	<10	52	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
									Sample Ref	10	11	6	4	7	16
									Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
									Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
									Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
									Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
									Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		<1	<1	2.5	11		5.9
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		6.7	7.5	18	**53**		18
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.4	0.8	1	**2.6**		1.6
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.3	0.2	0.6	1.1		0.3
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		12	19	26	24		190
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1		<1			
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		13	27	73	240		130
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		6.4	14	51	240		190
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		<0.05	<0.05	0.1	0.69		0.17
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		14	28	38	38		25
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	1		1.3
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		16	23	38	61		640
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		29	63	180	300		88
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.3	7.7	7.6	6.8		7
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<0.1	<0.1	<0.1	0.5		1.3
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.3	0.3	0.4	0.4		0.8
Total Organic Carbon		%	No GAC	-	<0.1	54		0		0.6	0.5	0.6	30	7.4	22
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD		NAD	NAD		NAD
Asbestos Analysts Comments		---	No GAC	-				0		na		na	na		na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	<0.3	<0.3		0.4
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5		<1.5			
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2		<1.2			
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5		<1.5			
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4		<3.4			
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4					
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01		<0.01			
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01		<0.01			
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01		<0.01			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
									Sample Ref	10	11	6	4	7	16
									Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
									Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
									Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
									Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
									Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0				<10			
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		<0.9		<0.9			
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		<0.5		<0.5			
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		<0.6		<0.6			
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		<1.4		<1.4			
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		<1.4					
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01		<0.01			
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01		<0.01			
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							<10
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		<0.03		0.09	0.29		
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		<0.03		<0.03	0.04		
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		<0.03		0.74	1.4		
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		<0.03		0.1	0.15		
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		<0.03		0.09	0.12		
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		<0.03		0.83	1.3		
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		<0.03		0.76	1.4		
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		<0.03		0.17	0.51		
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		<0.1		4.2	7.2		<1.6
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.03		<0.03	<0.03		
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		<0.03		0.17	0.2		
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		<0.03		0.27	0.4		
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		<0.03		0.12	0.13		
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		<0.03		0.22	0.28		
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		<0.03		0.24	0.45		
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		<0.03		0.09	0.15		
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		<0.03		0.31	0.44		
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01		<0.01	<0.01		<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01		<0.01	<0.01		<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01		<0.01	<0.01		<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01		<0.01	<0.01		<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0							<0.04
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
									Sample Ref	10	11	6	4	7	16
									Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
									Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
									Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
									Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
									Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					BH205	BH206	BH206	BH207
Sample Ref					10	11	6	4
Easting					384689.078	384729.233	384729.233	384654.246
Northing					399735.153	399690.75	399690.75	399626.1
Hole Elevation (mOD)					42.578	42.692	42.692	41.638
Sample Depth (mbgl)					2.8	3.2	1.2	1.2
Sample Date					31/03/21	24/03/21	24/03/21	08/04/21
Investigation					NW1604	NW1604	NW1604	NW1604
Geology					GTD - CO	GTD - G	MG-G	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
									Sample Ref	10	11	6	4	7	16
									Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
									Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
									Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
									Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
									Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
Sample Ref	10	11	6	4	7	16
Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
									Sample Ref	10	11	6	4	7	16
									Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
									Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
									Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
									Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
									Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0							
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0		<10					
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0		<0.01		<0.01			
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0					6.2		
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0					<0.01		
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH205	BH206	BH206	BH207	BH207	BH207
									Sample Ref	10	11	6	4	7	16
									Easting	384689.078	384729.233	384729.233	384654.246	384654.246	384654.246
									Northing	399735.153	399690.75	399690.75	399626.1	399626.1	399626.1
									Hole Elevation (mOD)	42.578	42.692	42.692	41.638	41.638	41.638
									Sample Depth (mbgl)	2.8	3.2	1.2	1.2	2.2	5.2
									Sample Date	31/03/21	24/03/21	24/03/21	08/04/21	08/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	GTD - CO	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0			<10				
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0			<10				
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0						<10	
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0						<10	
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH207	BH207	BH208	BH208	BH208	BH209
									Sample Ref	26	32	3	12	20	4
									Easting	384654.246	384654.246	384562.98	384562.98	384562.98	384548.843
									Northing	399626.1	399626.1	399592.56	399592.56	399592.56	399628.33
									Hole Elevation (mOD)	41.638	41.638	40.66	40.66	40.66	41.214
									Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
									Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		2.8	2.1	8.9	2.3	6.5	3.6
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		21	30	28	25	36	22
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		**3.9**	1.7	**1.8**	1.6	**2**	**2.1**
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.9	0.7	1	0.3	0.6	0.4
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		28	31	17	25	29	13
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0				<1	<1		<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		160	79	220	130	220	130
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		170	140	150	90	160	100
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.21	0.2	10	0.07	17	0.48
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		45	35	28	30	33	37
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	0.6	<0.5	0.7	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		68	41	48	38	52	50
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		140	130	160	97	140	160
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		10.9	7.4	6.7	7.1	6.8	7.6
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		9.1	18	0.5	0.4	0.6	0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.5	0.8	0.3	0.4	0.4	0.3
Total Organic Carbon		%	No GAC	-	<0.1	54		0		18	19	29	29	29	1.8
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0			NAD	NAD	NAD		NAD
Asbestos Analysts Comments		---	No GAC	-				0			na	na	na		na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0			<0.1				
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	1.5	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0			<1.5	<1.5	<1.5		<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2			<1.2	<1.2	<1.2		<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6			<1.5	<1.5	<1.5		<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14			<3.4	<3.4	<3.4		<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2			<3.4	<3.4	<3.4		
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0			<0.01	<0.01	<0.01		<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0			<0.01	<0.01	<0.01		<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0			<0.01	<0.01	<0.01		<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH207	BH207	BH208	BH208	BH208	BH209
									Sample Ref	26	32	3	12	20	4
									Easting	384654.246	384654.246	384562.98	384562.98	384562.98	384548.843
									Northing	399626.1	399626.1	399592.56	399592.56	399592.56	399628.33
									Hole Elevation (mOD)	41.638	41.638	40.66	40.66	40.66	41.214
									Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
									Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							<10
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			<0.9	<0.9	<0.9		<0.9
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			<0.5	<0.5	<0.5		<0.5
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			<0.6	<0.6	<0.6		<0.6
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			<1.4	<1.4	<1.4		<1.4
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0			<1.4	<1.4	<1.4		
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01	<0.01	<0.01		<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			<0.01	<0.01	<0.01		<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			0.1	0.03	<0.03		<0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			0.04	<0.03	<0.03		<0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			1.7	0.54	0.12		0.27
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			0.24	<0.03	<0.03		<0.03
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			0.13	0.07	<0.03		0.04
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			1.4	0.29	0.09		0.31
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			1.8	0.55	0.1		0.24
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0			0.03	0.07	0.05		0.21
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0			7.9	2.5	0.4		1.5
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			0.08	<0.03	<0.03		<0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			0.39	0.05	<0.03		0.05
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			0.45	0.19	0.04		0.08
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			0.18	0.07	<0.03		0.04
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			0.3	0.14	<0.03		0.05
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			0.43	0.23	<0.03		0.07
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			0.14	0.09	<0.03		<0.03
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			0.41	0.18	0.04		0.11
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0			<0.01	<0.01	<0.01		<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0			<0.01	<0.01	<0.01		<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0			<0.01	<0.01	<0.01		<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0			<0.01				
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0			<0.01				
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0			<0.01	<0.01	<0.01		<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0							
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH207	BH207	BH208	BH208	BH208	BH209
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									Northing	399626.1	399626.1	399592.56	399592.56	399592.56	399628.33
									Hole Elevation (mOD)	41.638	41.638	40.66	40.66	40.66	41.214
									Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
									Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0			<0.01				
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0			<0.01				
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0			<0.01				
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0			<0.01				
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0			<0.01				
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0			<0.01				
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0			<0.1				
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0			<0.1				
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0			0.2				
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

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									Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
									Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0			<0.1				
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0			<0.01				
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0			<0.01				
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0			<0.1				
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0			0.2				
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0							
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0							
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0							
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1				
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0			<0.1				
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0			0.2				
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0			<0.01				
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0							
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0			<0.1				
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0			<0.1				
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0							
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0							
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0			<0.01				
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0			<0.01				
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0			<0.1				
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0			<0.01				
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0			<0.01				
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0							
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0			<0.01				
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0			<0.01				
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.01				
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.01				

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH207	BH207	BH208	BH208	BH208	BH209
									Sample Ref	26	32	3	12	20	4
									Easting	384654.246	384654.246	384562.98	384562.98	384562.98	384548.843
									Northing	399626.1	399626.1	399592.56	399592.56	399592.56	399628.33
									Hole Elevation (mOD)	41.638	41.638	40.66	40.66	40.66	41.214
									Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
									Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					BH207	BH207	BH208	BH208
Sample Ref					26	32	3	12
Easting					384654.246	384654.246	384562.98	384562.98
Northing					399626.1	399626.1	399592.56	399592.56
Hole Elevation (mOD)					41.638	41.638	40.66	40.66
Sample Depth (mbgl)					10.2	13.2	0.3	4.2
Sample Date					09/04/21	09/04/21	08/04/21	08/04/21
Investigation					NW1604	NW1604	NW1604	NW1604
Geology					MG-G	MG-G	MG-G	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	BH208	BH208	BH209					
Sample Ref	20	4						
Easting	384562.98	384548.843						
Northing	399592.56	399628.33						
Hole Elevation (mOD)	40.66	41.214						
Sample Depth (mbgl)	8.2	1.2						
Sample Date	08/04/21	24/03/21						
Investigation	NW1604	NW1604						
Geology	MG-G	MG-G						
	RB Plateau	RB Plateau						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH207	BH207	BH208	BH208	BH208	BH209
									Sample Ref	26	32	3	12	20	4
									Easting	384654.246	384654.246	384562.98	384562.98	384562.98	384548.843
									Northing	399626.1	399626.1	399592.56	399592.56	399592.56	399628.33
									Hole Elevation (mOD)	41.638	41.638	40.66	40.66	40.66	41.214
									Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
									Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0			<0.1				
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1				
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0			<10	<10	<10		
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0			<0.01	<0.01	<0.01		<0.01
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0							
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0							
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0
Tin		mg/kg	No GAC	-	<5	<5		0
Titanium		mg/kg	No GAC	-	67	420		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0
Total Aromatics		mg/kg	No GAC	-	76	101		0
Total Aromatics		mg/kg	No GAC	-	<1	6340		0
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0
VOC TICs		-	No GAC	-				0
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ortho Phosphate as P		mg/kg	No GAC	-				0
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols, Total		mg/kg	No GAC	-	<5	<5		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	BH207	BH207	BH208	BH208	BH208	BH209
Sample Ref	26	32	3	12	20	4
Easting	384654.246	384654.246	384562.98	384562.98	384562.98	384548.843
Northing	399626.1	399626.1	399592.56	399592.56	399592.56	399628.33
Hole Elevation (mOD)	41.638	41.638	40.66	40.66	40.66	41.214
Sample Depth (mbgl)	10.2	13.2	0.3	4.2	8.2	1.2
Sample Date	09/04/21	09/04/21	08/04/21	08/04/21	08/04/21	24/03/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Total Aliphatics and Aromatics C10-C44		<10				
Aromatics >C10-44		<10	<10	<10		
Total Aliphatics and Aromatics C10-C44	<10	<10				
Total Aliphatics and Aromatics C5-C35						<10
Total Aromatics C5-C35						<10

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		<1	2.9	1.6	6.2	11	7
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		6.4	21	7.8	21	35	**50**
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.4	1.5	0.9	**1.8**	**2**	1
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.1	0.1	0.2	0.3	0.4	0.3
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		9.2	7.8	22	13	14	470
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0				<1			
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		18	210	30	190	410	230
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		9.4	260	29	**490**	**600**	**460**
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		<0.05	0.15	0.09	0.28	0.95	1.2
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		12	34	29	29	37	28
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	0.7	<0.5	1.2	0.9	0.8
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		12	33	26	43	50	25
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		32	38	51	120	140	130
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.8	7.7	7.2	7.7	7.2	7.6
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<0.1	<0.1	0.1	2.9	2.5	**47**
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.2	0.2	0.4	0.8	1	2
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.1	1.1	54	5.4	4.6	1.5
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0				NAD	NAD	NAD	
Asbestos Analysts Comments		---	No GAC	-				0				na	na	na	
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0				<0.1	<0.5	<0.5	
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0					<0.5	<0.5	
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0				<1.5	<1.5	<1.5	
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2				<1.2	<1.2	<1.2	
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6				<1.5	<1.5	<1.5	
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14				<3.4	<3.4	<3.4	
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2				<3.4	<3.4	<3.4	
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0				<0.01	<0.01	<0.01	
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0				<0.01	<0.01	<0.01	
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0				<0.01	<0.01	<0.01	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0				<0.9	1.9	<0.9	
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0				8.6	10	<0.5	
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0				20	18	<0.6	
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0				17	21	<1.4	
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0				<1.4	<1.4	<1.4	
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0				<0.01	<0.01	<0.01	
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0				<0.01	<0.01	<0.01	
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0				0.96	0.04	<0.03	
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0				<0.03	<0.03	<0.03	
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0				1.3	0.29	0.29	
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0				0.59	<0.03	<0.03	
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0				0.08	0.04	0.05	
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0				2.7	0.23	0.2	
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0				1.3	0.27	0.28	
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0				0.05	0.08	0.04	
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0				11	1.4	1.4	
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0				<0.03	<0.03	<0.03	
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0				0.41	0.05	0.05	
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0				0.28	0.09	0.1	
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0				0.09	0.04	0.05	
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0				0.18	0.05	0.06	
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0				0.25	0.09	0.1	
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0				0.1	0.04	<0.03	
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0				0.4	0.1	0.13	
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0				<0.01	<0.01	<0.01	
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0				<0.01	<0.01	<0.01	
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0				<0.01	<0.01	<0.01	
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0				<0.01			
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0				<0.01			
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0				<0.01	<0.01	<0.01	
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0							
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0				<0.01			
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0				0.01			
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0				<0.01			
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0				<0.01			
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0				<0.01			
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0				<0.01			
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0				<0.01			
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0				<0.1			
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0				<0.1			
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0				1.6			
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0				<0.1			
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0				<0.01			
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0				<0.01			
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0				<0.1			
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0				0.8			
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0							
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0							
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0							
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0				<0.1			
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0				0.9			
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0				<0.01			
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0							
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0				<0.1			
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0				<0.1			
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0							
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0							
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0				<0.01			
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0				<0.01			
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0				<0.1			
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0				<0.01			
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0				<0.01			
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0							
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0				<0.01			
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0				<0.01			
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.01			
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.01			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Pesticides															
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0							
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0							
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0							
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0							
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0							
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0							
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0							
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0							
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0							
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0							
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0							
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0							
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0							
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0							
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0							
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0							
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0							
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0							
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
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									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0				0.3			
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0				<10	<10	<10	
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0				2.2			
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0				<0.01	<0.01	<0.01	
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0							
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0					<0.5	<0.5	
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0							
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0					<0.5	<0.5	
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH209	BH210	BH210	BH211A	BH211A	BH211A
									Sample Ref	9	12	6	8	14	20
									Easting	384548.843	384479.67	384479.67	384441.79	384441.79	384441.79
									Northing	399628.33	399554.7	399554.7	399513.96	399513.96	399513.96
									Hole Elevation (mOD)	41.214	40.45	40.45	40.44	40.44	40.44
									Sample Depth (mbgl)	2.5	4.2	1.2	2.2	5.2	9
									Sample Date	24/03/21	12/04/21	12/04/21	01/04/21	01/04/21	01/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0					<0.5	<0.5	
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0					<0.5	<0.5	
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0				35	40	<10	
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0					<5	<5	
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0				35	<10	<10	
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		2.5	1	<1	<1	<1	6.5
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		**40**	7.5	1.9	5.7	6.8	23
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.6	0.9	0.3	0.6	0.5	**1.9**
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.3	0.2	0.1	0.2	0.3	1.5
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		110	26	6.2	17	12	26
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1		<1		<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		78	28	13	20	32	300
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		180	12	12	22	33	**460**
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.87	<0.05	<0.05	0.64	<0.05	0.28
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		17	31	9.8	21	16	44
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		17	29	7	20	17	53
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		120	59	27	43	77	270
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.8	8.1	8	8.1	7.9	6.1
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		12	<0.1	<0.1	<0.1	0.1	0.8
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0		12					
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0		0.1					
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0		1.6					
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1.1	0.5	1	0.4	<0.2	<0.2
Total Organic Carbon		%	No GAC	-	<0.1	54		0		3.4	0.3	<0.1	0.5	0.7	2.4
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD		NAD		NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0		na		na		na	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0		<0.1					<0.1
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	<0.3	<0.3	<0.3	0.4
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5		<1.5		<1.5	<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		1.5		<1.2		<1.2	1.8
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		25		<1.5		<1.5	25
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		100		<3.4		<3.4	84
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4				<3.4	<3.4
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01		<0.01		<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01		<0.01		<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01		<0.01		<0.01	<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0				<10			
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		<0.9		<0.9		<0.9	<0.9
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		<0.5		<0.5		<0.5	4.3
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		8.5		<0.6		<0.6	41
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		59		<1.4		<1.4	78
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		<1.4				<1.4	<1.4
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01		<0.01		<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01		<0.01		<0.01	<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		<0.1		<0.03		0.46	1
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		<0.1		<0.03		0.04	0.24
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		<0.1		0.06		1.5	9.1
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		<0.1		<0.03		0.27	0.53
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		<0.1		<0.03		0.13	1
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		<0.1		0.05		2	5.8
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		<0.1		0.05		1.5	8.4
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		<0.01		<0.03		0.61	<0.01
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0				0.26		8.9	43
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.1		<0.03		<0.03	0.04
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		<0.1		<0.03		0.34	1.3
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		<0.1		0.03		0.43	3
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		<0.1		<0.03		0.15	1.3
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		<0.1		<0.03		0.32	2.5
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		<0.1		0.03		0.44	3.7
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		<0.1		<0.03		0.17	1.3
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		<0.1		0.03		0.55	3.5
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01		<0.01		<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01		<0.01		<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01		<0.01		<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0		<0.01					<0.01
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0		<0.01					<0.01
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0				<0.01		<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0							
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0		<0.01					<0.01
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0		<0.01					<0.01
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0		<0.01					<0.01
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0		<0.01					<0.01
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0		<0.01					<0.01
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0		<0.01					<0.01
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					<0.01
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0		<0.1					<0.1
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0		<0.1					<0.1
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0		<0.1					1.6
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					<0.1
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					<0.01
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					0.1
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
Sample Ref	22	9	6	8	2	2
Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether						
Bis(2-chloroisopropyl)ether	<0.1					<0.1
Bis(2-ethylhexyl)phthalate	<0.1					<0.1
Bromobenzene	<0.01					<0.01
Bromochloromethane	<0.01					<0.01
Bromodichloromethane	<0.01					<0.01
Bromoform	<0.01					<0.01
Bromomethane						
Butylbenzyl phthalate	<0.1					0.1
Carbazole	<0.1					1.8
Carbon Disulphide						
Carbon Tetrachloride	<0.01					<0.01
Chlorobenzene	<0.01					<0.01
Chloroethane						
Chloroethene	<0.01					<0.01
Chloroform	<0.01					<0.01
Chloromethane						
Di-N-Butyl Phthalate	<0.1					<0.1
Di-N-Octyl Phthalate	<0.1					<0.1
Dibenzofuran	<0.1					3.3
Dibromochloromethane	<0.01					<0.01
Dibromomethane	<0.01					<0.01
Dichloromethane						
Diethyl phthalate	<0.1					<0.1
Dimethyl phthalate	<0.1					<0.1
Diphenylamine	<0.1					<0.1
Hexachlorobenzene	<0.1					<0.1
Hexachlorobutadiene	<0.01					<0.01
Hexachlorocyclopentadiene	<0.1					<0.1
Hexachloroethane						
Isophorone						
Isopropylbenzene	<0.01					<0.01
M-Dinitrobenzene	<0.1					<0.1
MTBE	<0.01					<0.01
Nitrobenzene						
O-Dinitrobenzene	<0.1					<0.1
P-Dinitrobenzene	<0.1					<0.1
PCP; (Pentachlorophenol)	<0.1					<0.1
Sec-Butylbenzene	<0.01					<0.01
Styrene	<0.01					<0.01
Tert-Butylbenzene	<0.01					<0.01
Tetrachloroethene	<0.01					<0.01
Trichloroethene	<0.01					<0.01
Trichlorofluoromethane						
cis 1,2-Dichloroethene	<0.01					<0.01
cis 1,3-Dichloropropene						
cis1,3-Dichloropropene	<0.01					<0.01
n-Butylbenzene	<0.01					<0.01
n-Nitroso-n-dipropylamine						
n-Propylbenzene	<0.01					<0.01
trans 1,2-Dichloroethene	<0.01					<0.01
trans 1,3-Dichloropropene	<0.01					<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Pesticides															
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0							
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0							
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0							
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0							
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0							
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0							
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0							
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0							
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0							
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0							
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0							
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0							
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0							
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0							
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0							
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0							
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0							
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0							
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	**100.00**
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

									Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**		**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0		<0.1					<0.1
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					<0.1
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0		94				<10	94
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0		<0.01		<0.01		<0.01	<0.01
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0							
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0							
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH211A	BH215	BH215	TP201	TP201	TP202
									Sample Ref	22	9	6	8	2	2
									Easting	384441.79	384363	384363	384760.754	384760.754	384734.057
									Northing	399513.96	399541	399541	399795.983	399795.983	399762.842
									Hole Elevation (mOD)	40.44	44.523	44.523	42.99	42.99	42.855
									Sample Depth (mbgl)	10.5	2.2	1.1	2	0.3	0.3
									Sample Date	06/04/21	25/03/21	25/03/21	29/03/21	29/03/21	29/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	GTD - CO	MG-G	GTD - CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0		49				<10	110
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0		140				<10	200
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0				<10			
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0				<10			
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP202C	TP203	TP203	TP203	TP206	TP206A
									Sample Ref	2	5	8	14	2	8
									Easting	384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
									Northing	399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
									Hole Elevation (mOD)	42.618	43.277	43.277	43.277	43.375	41.988
									Sample Depth (mbgl)	0.3	1	2	4	0.3	2
									Sample Date	30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		<1	<1	1.3	<1	3.7	1.7
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		11	5.8	9	7.5	21	11
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.8	0.6	0.7	0.7	1.1	1.1
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.7	0.1	0.1	0.1	0.6	0.2
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		13	17	16	21	16	26
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1	<1		<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		100	13	29	25	130	94
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		110	10	16	16	200	27
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.07	<0.05	0.42	0.46	0.41	0.35
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		19	25	21	27	27	38
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	0.8	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		28	20	23	25	37	31
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		200	32	46	54	200	67
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.9	8.4	8.2	8.2	8.1	7.8
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.2	0.1	1	<0.1	2.2	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0						2.2	<0.2
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0						<0.1	<0.1
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0						<0.6	<0.6
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.8	0.4	0.4	0.4	0.4	0.6
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.5	0.4	1	1.1	14	0.8
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0						0.007	
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD	NAD		Chrysotile	NAD
Asbestos Analysts Comments		---	No GAC	-				0		na	na	na		Bundles of Chrysotile fibres	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							<0.1
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		2.1	<0.3	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5	<1.5	<1.5		<1.5	<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2	<1.2	<1.2		<1.2	4.9
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5	<1.5	<1.5		<1.5	3.7
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4	<3.4	<3.4		<3.4	<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4	<3.4	<3.4		<3.4	<3.4
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01	<0.01	<0.01		<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01	<0.01	<0.01		<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01	<0.01	<0.01		<0.01	<0.01

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP202C	TP203	TP203	TP203	TP206	TP206A
									Sample Ref	2	5	8	14	2	8
									Easting	384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
									Northing	399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
									Hole Elevation (mOD)	42.618	43.277	43.277	43.277	43.375	41.988
									Sample Depth (mbgl)	0.3	1	2	4	0.3	2
									Sample Date	30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		1.7	<0.9	<0.9		<0.9	3.7
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		9.7	<0.5	<0.5		2.9	31
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		15	<0.6	<0.6		11	52
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		36	<1.4	<1.4		62	59
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		<1.4	<1.4	<1.4		<1.4	<1.4
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01	<0.01	<0.01		<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01	<0.01	<0.01		<0.01	<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		0.61	<0.03	<0.03		1.1	0.45
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		0.05	<0.03	<0.03		**0.35**	0.07
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		3.2	<0.03	<0.03		10	1.4
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		0.35	<0.03	<0.03		2.3	0.75
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		0.22	<0.03	<0.03		1.5	0.25
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		2.8	<0.03	<0.03		14	3.2
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		2.7	<0.03	<0.03		18	3.7
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		0.18	<0.03	<0.03		0.35	0.74
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		14	<0.1	<0.1		75	17
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.03	<0.03	<0.03		0.42	0.37
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		0.52	<0.03	<0.03		3.5	0.55
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		0.79	<0.03	<0.03		5.3	0.65
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		0.28	<0.03	<0.03		2.6	0.51
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		0.52	<0.03	<0.03		**5.6**	0.61
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		0.79	<0.03	<0.03		**4.2**	0.59
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		0.29	<0.03	<0.03		1.6	0.14
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		0.91	<0.03	<0.03		4.8	0.72
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0			<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0			<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0			<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							<0.1
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							<0.1
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0			<0.01	<0.01	<0.01	<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0							
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP202C	TP203	TP203	TP203	TP206	TP206A
									Sample Ref	2	5	8	14	2	8
									Easting	384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
									Northing	399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
									Hole Elevation (mOD)	42.618	43.277	43.277	43.277	43.375	41.988
									Sample Depth (mbgl)	0.3	1	2	4	0.3	2
									Sample Date	30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							<0.1
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							<0.1
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							<0.1
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							<0.1
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							<0.1
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							<0.1
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							<0.1
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							<0.1
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							3.6
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref								TP202C	TP203	TP203	TP203	TP206	TP206A
Sample Ref								2	5	8	14	2	8
Easting								384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
Northing								399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
Hole Elevation (mOD)								42.618	43.277	43.277	43.277	43.375	41.988
Sample Depth (mbgl)								0.3	1	2	4	0.3	2
Sample Date								30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
Investigation								NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology								MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0						<0.1
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0						<0.1
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0						<0.1
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0						<0.1
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0						<0.1
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0						
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0						
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0						
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0						<0.1
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0						<0.1
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0						<0.1
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0						<0.1
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0						
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0						<0.1
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0						<0.1
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0						
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0						
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0						<0.1
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0						<0.1
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0						<0.1
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0						<0.1
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0						<0.1
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0						
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						<0.1
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0						<0.1
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0						<0.1
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.1
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						<0.1

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP202C	TP203	TP203	TP203	TP206	TP206A
Sample Ref					2	5	8	14	2	8
Easting					384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
Northing					399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
Hole Elevation (mOD)					42.618	43.277	43.277	43.277	43.375	41.988
Sample Depth (mbgl)					0.3	1	2	4	0.3	2
Sample Date					30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
Investigation					NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology					MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
					RB Plateau	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB05b School**	**RB05b School**
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0						
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0						
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0						
Herbicides														
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0						
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0						
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0						
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0						
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0						
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0						
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0						
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0						
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0						
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0						
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0						
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0						
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0						
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0						
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Propham		mg/kg	No GAC	-	<0.1	<0.1		0						
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0						
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0						
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP202C	TP203	TP203	TP203	TP206	TP206A
									Sample Ref	2	5	8	14	2	8
									Easting	384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
									Northing	399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
									Hole Elevation (mOD)	42.618	43.277	43.277	43.277	43.375	41.988
									Sample Depth (mbgl)	0.3	1	2	4	0.3	2
									Sample Date	30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Pesticides															
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0							
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0							
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0							
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0							
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0							
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0							
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0							
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0							
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0							
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0							
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0							
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0							
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0							
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0							
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0							
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0							
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0							
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0							
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0							
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0							
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0							
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0							
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0							
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0							
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0							
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

TP202C	TP203	TP203	TP203	TP206	TP206A	
2	5	8	14	2	8	
384712.277	384780.789	384780.789	384780.789	384828.06	384838.069	
399739.124	399725.902	399725.902	399725.902	399752.78	399756.435	
42.618	43.277	43.277	43.277	43.375	41.988	
0.3	1	2	4	0.3	2	
30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21	
NW1604	NW1604	NW1604	NW1604	NW1604	NW1604	
MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School	
					<0.1	
					<0.1	
					<0.1	
<10	<10	<10		<10	<10	
<0.01	<0.01	<0.01		<0.01	<0.01	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation						
Hole Ref									TP202C	TP203	TP203	TP203	TP206	TP206A
Sample Ref									2	5	8	14	2	8
Easting									384712.277	384780.789	384780.789	384780.789	384828.06	384838.069
Northing									399739.124	399725.902	399725.902	399725.902	399752.78	399756.435
Hole Elevation (mOD)									42.618	43.277	43.277	43.277	43.375	41.988
Sample Depth (mbgl)									0.3	1	2	4	0.3	2
Sample Date									30/03/21	06/04/21	06/04/21	06/04/21	07/04/21	12/04/21
Investigation									NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology									MG-G	MG-CO	MG-CO	MG-CO	MG-G	MG-CO
									RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB05b School	RB05b School
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0						
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Tin		mg/kg	No GAC	-	<5	<5		0						
Titanium		mg/kg	No GAC	-	67	420		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0						
Total Aromatics		mg/kg	No GAC	-	76	101		0						
Total Aromatics		mg/kg	No GAC	-	<1	6340		0						
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0						
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0						
VOC TICs		-	No GAC	-				0						
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0						
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0	49	<10	<10		65	130
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0						
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0						
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ortho Phosphate as P		mg/kg	No GAC	-				0						
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols, Total		mg/kg	No GAC	-	<5	<5		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0	49	<10	<10		65	140
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0						
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0						
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP207	TP209	TP210	TP210	TP210	TP211
									Sample Ref	5	5	13	2	5	11
									Easting	384809.151	384826.522	384755.497	384755.497	384755.497	384622.741
									Northing	399749.371	399800.992	399690.585	399690.585	399690.585	399659.29
									Hole Elevation (mOD)	43.344	43.175	43.076	43.076	43.076	41.643
									Sample Depth (mbgl)	1	1	3	0.3	1	3.1
									Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		<1	<1	1.1	<1	28	1
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		4.7	4.8	6.8	3.8	13	6.5
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.5	0.6	0.6	<0.2	0.6	0.7
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.1	0.4	<0.1	<0.1	0.7	<0.1
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		13	9.1	15	4.8	17	19
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1		<1	<1	
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		18	35	22	9.9	92	18
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		12	58	18	9.6	420	9.8
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		<0.05	<0.05	0.47	<0.05	<0.05	0.45
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		17	8.1	21	6.6	17	17
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		15	15	19	8.4	31	22
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		45	56	42	27	220	37
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.1	7.4	8	7.3	8.2	7.4
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<0.1	0.1	<0.1	0.2	0.4	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0		<0.2					
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0		<0.1					
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0		0.6					
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.3	1.2	0.3	0.2	1	0.7
Total Organic Carbon		%	No GAC	-	<0.1	54		0		0.9	1.1	0.8	1.1	2.4	0.5
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0						0.011	
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD		NAD	Chrysotile	
Asbestos Analysts Comments		---	No GAC	-				0		na	na		na	Chrysotile present in Microscopic Loose Fibrous Asbestos Debris	
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0		<0.1			<0.1		
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5	<1.5		<1.5	<1.5	
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2	<1.2		2.9	<1.2	
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5	<1.5		8	<1.5	
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4	<3.4		53	<3.4	
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4	<3.4		<3.4	<3.4	
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01	<0.01		<0.01	<0.01	
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01	<0.01		<0.01	<0.01	
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01	<0.01		<0.01	<0.01	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP207	TP209	TP210	TP210	TP210	TP211
									Sample Ref	5	5	13	2	5	11
									Easting	384809.151	384826.522	384755.497	384755.497	384755.497	384622.741
									Northing	399749.371	399800.992	399690.585	399690.585	399690.585	399659.29
									Hole Elevation (mOD)	43.344	43.175	43.076	43.076	43.076	41.643
									Sample Depth (mbgl)	1	1	3	0.3	1	3.1
									Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		<0.9	<0.9		<0.9	<0.9	
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		<0.5	7		9.4	<0.5	
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		<0.6	11		33	<0.6	
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		<1.4	40		200	<1.4	
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		<1.4	<1.4		81	<1.4	
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01	<0.01		<0.01	<0.01	
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01	<0.01		<0.01	<0.01	
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0		<10					
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		<0.03	<0.03		1.2	0.31	
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		<0.03	0.04		**0.76**	0.12	
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		<0.03	1.3		12	3.6	
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		<0.03	<0.03		0.8	0.27	
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		<0.03	0.2		2.8	0.46	
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		<0.03	0.1		5.8	3.1	
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		<0.03	1.7		11	3.7	
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		<0.01	<0.03		<0.01	0.25	
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		<0.1	6.2		65	19	
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.03	0.04		0.11	0.09	
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		<0.03	0.11		1.8	0.62	
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		<0.03	0.55		5.2	1.2	
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		<0.03	0.27		3.4	0.64	
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		<0.03	0.58		**5.6**	1	
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		<0.03	0.6		**7.1**	1.4	
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		<0.03	0.21		2.4	0.42	
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		<0.03	0.56		5.2	1.4	
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01		<0.01	<0.01	
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01		<0.01	<0.01	
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01		<0.01	<0.01	
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0		<0.01			<0.01		
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0		<0.01			<0.01		
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01		<0.01	<0.01	
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.04					
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP207	TP209	TP210	TP210	TP210	TP211
									Sample Ref	5	5	13	2	5	11
									Easting	384809.151	384826.522	384755.497	384755.497	384755.497	384622.741
									Northing	399749.371	399800.992	399690.585	399690.585	399690.585	399659.29
									Hole Elevation (mOD)	43.344	43.175	43.076	43.076	43.076	41.643
									Sample Depth (mbgl)	1	1	3	0.3	1	3.1
									Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0		<0.01			<0.01		
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0		<0.01			<0.01		
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0		<0.01			<0.01		
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0		<0.01			<0.01		
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0		<0.01			<0.01		
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0		<0.01			<0.01		
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0		<0.1			<0.1		
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0		<0.1			<0.1		
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0		<0.1			0.6		
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

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									Sample Depth (mbgl)	1	1	3	0.3	1	3.1
									Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0		<0.1			<0.1		
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0		<0.01			<0.01		
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0		<0.01			<0.01		
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0		<0.1			1.5		
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0							
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0							
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0							
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1			<0.1		
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0		<0.1			<0.1		
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0		<0.1			0.9		
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0		<0.01			<0.01		
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0							
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0		<0.1			<0.1		
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0		<0.1			<0.1		
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0							
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0							
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0		<0.01			<0.01		
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1			<0.1		
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0		<0.1			<0.1		
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0		<0.01			<0.01		
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0		<0.01			<0.01		
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0							
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0		<0.01			<0.01		
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01			<0.01		
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01			<0.01		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

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									Sample Depth (mbgl)	1	1	3	0.3	1	3.1
									Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP207	TP209	TP210	TP210
Sample Ref					5	5	13	2
Easting					384809.151	384826.522	384755.497	384755.497
Northing					399749.371	399800.992	399690.585	399690.585
Hole Elevation (mOD)					43.344	43.175	43.076	43.076
Sample Depth (mbgl)					1	1	3	0.3
Sample Date					01/04/21	30/03/21	31/03/21	31/03/21
Investigation					NW1604	NW1604	NW1604	NW1604
Geology					MG-CO	MG-G	GTD - CO	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP210	TP210	TP211	
Sample Ref					5	11		
Easting					384755.497	384622.741		
Northing					399690.585	399659.29		
Hole Elevation (mOD)					43.076	41.643		
Sample Depth (mbgl)					1	3.1		
Sample Date					31/03/21	31/03/21		
Investigation					NW1604	NW1604		
Geology					MG-G	GTD - CO		
					RB Plateau	RB Plateau		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

Hole Ref	TP207	TP209	TP210	TP210	TP210	TP211
Sample Ref	5	5	13	2	5	11
Easting	384809.151	384826.522	384755.497	384755.497	384755.497	384622.741
Northing	399749.371	399800.992	399690.585	399690.585	399690.585	399659.29
Hole Elevation (mOD)	43.344	43.175	43.076	43.076	43.076	41.643
Sample Depth (mbgl)	1	1	3	0.3	1	3.1
Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)						
trans-Chlordane (Gamma)						
2,3,5,6-Tetrachlorophenol	<0.1			<0.1		
2,4,5-T						
2,4-DP; (Dichlorprop)						
3+4-Methylphenol	<0.1			<0.1		
4-Chlorophenyl Phenyl Ether	<0.1			<0.1		
Aliphatics >C10-44	<10	<10		57	<10	
Aluminium						
Ammoniacal Nitrogen as N						
Aro >C5-C7	<0.01	<0.01		<0.01	<0.01	
Asbestos ACM - Suitable for Water Absorption Test?						
Asbestos in soil						
Asbestos in soil % composition (hand picking and weighing)						
Barium						
Calcium						
Chloride (water sol 2:1)						
Cobalt						
Coronene						
Cresols						
Cyanazine						
Demeton-S						
Dichlorodifluoromethane						
Dry Matter (Dry Solids) at 40C						
EPH CWG GCxGC ID (for FID						
Electrical conductivity @ 20degC						
Endrin Aldehyde						
Endrin Ketone						
Ethylene glycol (Monoethylene glycol)						
Fensulphothion						
Fluoride (water sol 2:1)						
Fluroxypyr						
Iron						
Loss on ignition	2.7					
Magnesium						
Manganese						
Mass Sample (1 stage WAC)						
Methabenzthiazuron						
Molybdenum						
Monolinuron						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)						
PCB Total	<0.01					
Perylene						
Potassium						
Prothiofos (Tokuthion)						
Resorcinol						
SVOC TICs (Tentatively Identified						
Silver						
Sulphide						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP207	TP209	TP210	TP210	TP210	TP211
									Sample Ref	5	5	13	2	5	11
									Easting	384809.151	384826.522	384755.497	384755.497	384755.497	384622.741
									Northing	399749.371	399800.992	399690.585	399690.585	399690.585	399659.29
									Hole Elevation (mOD)	43.344	43.175	43.076	43.076	43.076	41.643
									Sample Depth (mbgl)	1	1	3	0.3	1	3.1
									Sample Date	01/04/21	30/03/21	31/03/21	31/03/21	31/03/21	31/03/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	GTD - CO	MG-G	MG-G	GTD - CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0		<10	60		290	<10	
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0		<10	60		340	<10	
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation						
Hole Ref									TP211	TP211	TP212	TP212	TP212	TP213
Sample Ref									5	2	2	5	10	8
Easting									384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
Northing									399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
Hole Elevation (mOD)									41.643	41.643	42.018	42.018	42.018	43.311
Sample Depth (mbgl)									1	0.3	0.3	1	3	2
Sample Date									31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
Investigation									NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology									MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
									RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal														
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		4.4		2.1	3.7	<1
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		18		89	40	11
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		1.3		1	1.5	0.7
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.2		1	2.2	0.2
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		13		7.9	18	20
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1		<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		160		120	170	45
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		150		110	160	100
Manganese		mg/kg	No GAC	-				0						
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.15		<0.05	0.26	0.25
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		33		33	33	25
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5		<0.5	1.2	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		37		23	53	26
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		110		530	1000	69
Inorganic														
pH		pH Units	No GAC	-	4.52	10.9		0		7.3		6.8	6.9	7.7
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0						
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0						
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.2		<0.1	0.2	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0						
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0						
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0						
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1.1		0.6	0.7	0.4
Total Organic Carbon		%	No GAC	-	<0.1	54		0	0.9	3.8	5.3	10	6.1	3.4
Sulphate (acid soluble)		mg/kg	No GAC	-				0						
Asbestos														
Asbestos Matrix (microscope)		-	No GAC	-				0						
Asbestos Matrix (visual)		-	No GAC	-				0						
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0						
Asbestos (Presence of)		---	No GAC	-				0		NAD		NAD	NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0		na		na	na	na
Phenol and mineral oils														
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0						<0.1
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3		1.2	0.6	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0						
Xylenols		mg/kg	No GAC	-				0						
TPH														
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5		<1.5		<1.5
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2		<1.2		<1.2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5		<1.5		<1.5
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4		<3.4		<3.4
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4		<3.4		<3.4
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01		<0.01		<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01		<0.01		<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01		<0.01		1.5

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
									Sample Ref	5	2	2	5	10	8
									Easting	384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
									Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
									Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
									Sample Depth (mbgl)	1	0.3	0.3	1	3	2
									Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			<0.9		1.2		34
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			<0.5		3		160
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			<0.6		8.3		180
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			<1.4		6.3		150
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0			<1.4		<1.4		<1.4
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01		<0.01		<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			<0.01		<0.01		<0.01
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0		19		83			
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			<0.03		0.88	0.15	2.6
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			<0.03		0.06	<0.03	**0.46**
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			0.14		3.8	0.87	7.6
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			<0.03		0.59	0.09	6.5
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			<0.03		0.19	0.07	1.6
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			0.13		5.2	0.98	22
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			0.13		3.1	0.77	20
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0			0.04		5.7	0.63	8.1
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		5.9	0.63	14	24	4.7	100
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			<0.03		<0.03	<0.03	4.2
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			0.04		0.86	0.16	5.1
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			0.04		1	0.23	3.7
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			<0.03		0.19	0.07	2.7
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			<0.03		0.5	0.13	**5**
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			0.06		0.72	0.18	2.7
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			<0.03		0.26	0.07	0.8
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			0.05		1.2	0.29	4.4
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01	<0.01	<0.01	<0.01	0.24
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							0.18
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							0.39
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01	<0.01	<0.01	<0.01	0.2
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.04		<0.04			
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
									Sample Ref	5	2	2	5	10	8
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									Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
									Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
									Sample Depth (mbgl)	1	0.3	0.3	1	3	2
									Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							<0.1
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							<0.1
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							0.85
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							0.16
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							<0.1
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							0.42
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							<0.1
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							0.2
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							15
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
									Sample Ref	5	2	2	5	10	8
									Easting	384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
									Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
									Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
									Sample Depth (mbgl)	1	0.3	0.3	1	3	2
									Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0							<0.1
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0							<0.1
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0							<0.1
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0							<0.1
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0							<0.1
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0							
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0							
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0							
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0							<0.1
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0							<0.1
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0							<0.1
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0							<0.1
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0							
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0							<0.1
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0							<0.1
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0							
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0							
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0							<0.1
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0							<0.1
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							<0.1
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0							<0.1
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0							0.85
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0							<0.1
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0							
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0							<0.1
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0							<0.1
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0							<0.1
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							<0.1

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
									Sample Ref	5	2	2	5	10	8
									Easting	384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
									Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
									Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
									Sample Depth (mbgl)	1	0.3	0.3	1	3	2
									Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
Sample Ref	5	2	2	5	10	8
Easting	384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
Sample Depth (mbgl)	1	0.3	0.3	1	3	2
Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
Sample Ref	5	2	2	5	10	8
Easting	384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
Sample Depth (mbgl)	1	0.3	0.3	1	3	2
Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)						
trans-Chlordane (Gamma)						
2,3,5,6-Tetrachlorophenol						<0.1
2,4,5-T						
2,4-DP; (Dichlorprop)						
3+4-Methylphenol						<0.1
4-Chlorophenyl Phenyl Ether						<0.1
Aliphatics >C10-44		<10		<10		<10
Aluminium						
Ammoniacal Nitrogen as N						
Aro >C5-C7		<0.01		<0.01		<0.01
Asbestos ACM - Suitable for Water Absorption Test?						
Asbestos in soil						
Asbestos in soil % composition (hand picking and weighing)						
Barium						
Calcium						
Chloride (water sol 2:1)						
Cobalt						
Coronene						
Cresols						
Cyanazine						
Demeton-S						
Dichlorodifluoromethane						
Dry Matter (Dry Solids) at 40C						
EPH CWG GCxGC ID (for FID						
Electrical conductivity @ 20degC						
Endrin Aldehyde						
Endrin Ketone						
Ethylene glycol (Monoethylene glycol)						
Fensulphothion						
Fluoride (water sol 2:1)						
Fluroxypyr						
Iron						
Loss on ignition	3.4		16			
Magnesium						
Manganese						
Mass Sample (1 stage WAC)						
Methabenzthiazuron						
Molybdenum						
Monolinuron						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)						
PCB Total	<0.01		<0.01			
Perylene						
Potassium						
Prothiofos (Tokuthion)						
Resorcinol						
SVOC TICs (Tentatively Identified						
Silver						
Sulphide						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP211	TP211	TP212	TP212	TP212	TP213
									Sample Ref	5	2	2	5	10	8
									Easting	384622.741	384622.741	384702.486	384702.486	384702.486	384823.539
									Northing	399659.29	399659.29	399639.937	399639.937	399639.937	399770.354
									Hole Elevation (mOD)	41.643	41.643	42.018	42.018	42.018	43.311
									Sample Depth (mbgl)	1	0.3	0.3	1	3	2
									Sample Date	31/03/21	31/03/21	31/03/21	31/03/21	31/03/21	07/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-G	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0			<10		<10		<10
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0			<10		<10		<10
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP213	TP213	TP214	TP214	TP215	TP216
									Sample Ref	14	2	4	10	8	5
									Easting	384823.539	384823.539	384429.18	384429.18	384601.36	384495.068
									Northing	399770.354	399770.354	399548.501	399548.501	399627.554	399605.846
									Hole Elevation (mOD)	43.311	43.311	40.247	40.247	41.28	40.799
									Sample Depth (mbgl)	4	0.3	1	3	2	1
									Sample Date	07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		1	3.4	<1	<1	1.6	<1
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		7.5	18	14	5	16	8.6
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.6	1	0.9	0.3	1.3	0.9
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.1	0.8	0.1	<0.1	0.3	0.3
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		18	16	19	9.1	13	24
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1			<1	
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		27	200	23	12	83	29
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		190	230	13	9.3	97	11
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.15	0.97	1.1	<0.05	0.4	<0.05
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		22	26	22	9.9	38	32
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	0.9	<0.5	<0.5	<0.5	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		20	40	24	12	37	28
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		51	160	52	28	170	61
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.4	8.4	7.4	8.1	6.9	8
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<0.1	0.3	<0.1	<0.1	0.7	<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.5	0.6	1.2	0.4	0.6	0.5
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.4	17	<0.5	<0.5	6	0.7
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD			NAD	
Asbestos Analysts Comments		---	No GAC	-				0		na	na			na	
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0		<0.1					
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		1.6				<1.5	
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		15				<1.2	
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		21				<1.5	
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		7.2				<3.4	
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4				<3.4	
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01				<0.01	
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01				<0.01	
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		3.1				<0.01	

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Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

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									Hole Elevation (mOD)	43.311	43.311	40.247	40.247	41.28	40.799
									Sample Depth (mbgl)	4	0.3	1	3	2	1
									Sample Date	07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		3.3				<0.9	
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		26				<0.5	
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		41				<0.6	
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		24				<1.4	
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		<1.4				<1.4	
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01				<0.01	
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01				<0.01	
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0						<10	
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		0.45	0.52			0.04	
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		0.05	**0.75**			<0.03	
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		1.2	6			0.39	
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		0.93	0.49			<0.03	
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		0.15	3			0.05	
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		3.6	3.8			0.33	
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		2.4	11			0.38	
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		2	1			<0.03	
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		13	56			1.9	
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		0.43	1.3			<0.03	
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		0.74	1.7			0.06	
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		0.49	3.2			0.11	
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		0.28	5.6			0.06	
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		0.43	**6.2**			0.09	
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		0.35	**5.9**			0.14	
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		0.1	1.3			0.04	
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		0.5	4.2			0.15	
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01			<0.01	
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01			<0.01	
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		0.14	<0.01			<0.01	
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0		0.1					
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0		0.14					
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		0.49	<0.01			<0.01	
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0						<0.04	
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP213	TP213	TP214	TP214	TP215	TP216
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									Sample Depth (mbgl)	4	0.3	1	3	2	1
									Sample Date	07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0		0.01					
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0		<0.01					
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0		0.29					
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0		<0.01					
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0		<0.01					
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0		0.19					
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0		<0.01					
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0		<0.1					
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0		<0.1					
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0		<0.1					
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0		<0.1					
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0		<0.01					
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0		0.05					
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

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Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0	<0.1					
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0	<0.01					
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0	<0.01					
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0	<0.1					
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0	<0.1					
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0						
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0						
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0						
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1					
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0	<0.1					
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0	<0.1					
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0	<0.01					
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0	<0.01					
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0						
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0	<0.1					
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0	<0.1					
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0						
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0						
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0	0.06					
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0	<0.01					
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1					
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0	<0.1					
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0	0.29					
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0	<0.01					
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0						
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0	<0.01					
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.01					
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0	0.06					
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.01					
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.01					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP213	TP213	TP214	TP214	TP215	TP216
Sample Ref					14	2	4	10	8	5
Easting					384823.539	384823.539	384429.18	384429.18	384601.36	384495.068
Northing					399770.354	399770.354	399548.501	399548.501	399627.554	399605.846
Hole Elevation (mOD)					43.311	43.311	40.247	40.247	41.28	40.799
Sample Depth (mbgl)					4	0.3	1	3	2	1
Sample Date					07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
Investigation					NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology					MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO
					RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0		
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0		
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0		
Herbicides										
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0		
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0		
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0		
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0		
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0		
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0		
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0		
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0		
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0		
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0		
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0		
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0		
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0		
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0		
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0		
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0		
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0		
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0		
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0		
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0		
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0		
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0		
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0		
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0		
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0		
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0		
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0		
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0		
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0		
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0		
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0		
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0		
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0		
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0		
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0		
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0		
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0		
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0		
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0		
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0		
Propham		mg/kg	No GAC	-	<0.1	<0.1		0		
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0		
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0		
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP213	TP213	TP214	TP214	TP215	TP216
Sample Ref					14	2	4	10	8	5
Easting					384823.539	384823.539	384429.18	384429.18	384601.36	384495.068
Northing					399770.354	399770.354	399548.501	399548.501	399627.554	399605.846
Hole Elevation (mOD)					43.311	43.311	40.247	40.247	41.28	40.799
Sample Depth (mbgl)					4	0.3	1	3	2	1
Sample Date					07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
Investigation					NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology					MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO
					RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0						
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0						
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0						
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0						
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0						
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0						
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0						
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0						
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0						
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0						
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0						
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0						
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0						
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0						
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0						
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0						
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0						
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0						
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

									Hole Ref	TP213	TP213	TP214	TP214	TP215	TP216
									Sample Ref	14	2	4	10	8	5
									Easting	384823.539	384823.539	384429.18	384429.18	384601.36	384495.068
									Northing	399770.354	399770.354	399548.501	399548.501	399627.554	399605.846
									Hole Elevation (mOD)	43.311	43.311	40.247	40.247	41.28	40.799
									Sample Depth (mbgl)	4	0.3	1	3	2	1
									Sample Date	07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**		**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0		<0.1					
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0		<0.1					
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0		36				<10	
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0		<0.01				<0.01	
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0						19	
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0						<0.01	
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	TP213	TP213	TP214	TP214	TP215	TP216
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Sample Date	07/04/21	07/04/21	08/04/21	08/04/21	01/04/21	08/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-CO	MG-G	MG-CO	MG-G	MG-G	MG-CO

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0						
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Tin		mg/kg	No GAC	-	<5	<5		0						
Titanium		mg/kg	No GAC	-	67	420		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0						
Total Aromatics		mg/kg	No GAC	-	76	101		0						
Total Aromatics		mg/kg	No GAC	-	<1	6340		0						
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0						
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0						
VOC TICs		-	No GAC	-				0						
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0						
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0		75				<10
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0						
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0						
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ortho Phosphate as P		mg/kg	No GAC	-				0						
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols, Total		mg/kg	No GAC	-	<5	<5		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0		110				<10
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0						
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0						
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
									Sample Ref	13	10	4	8	5	2
									Easting	384495.068	384573.297	384573.297	384529.73	384733.24	384682.789
									Northing	399605.846	399653.391	399653.391	399585.19	399783.67	399673.896
									Hole Elevation (mOD)	40.799	41.342	41.342	40.52	43.51	42.123
									Sample Depth (mbgl)	3	3	1	2	1	0.2
									Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		<1	<1	5.1	1.1	4.1	3.4
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		6.2	5.9	37	12	44	21
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.6	0.4	1.3	0.6	2	1.7
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.2	0.2	2.4	0.1	2.4	0.3
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		13	8.7	26	25	18	10
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1			<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		25	21	230	27	280	130
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		12	11	160	50	170	100
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		<0.05	0.23	<0.05	0.14	<0.05	0.06
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		22	14	38	19	50	43
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	0.6	<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		18	12	75	18	64	39
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		58	44	780	43	910	170
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8	8.2	7.7	7.2	7.4	6.8
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<0.1	<0.1	0.5	0.7	0.3	0.3
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.2	2.4	1.1	0.3	0.4	0.3
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.2	<0.5	13	1.3	5.1	4.6
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD			NAD	NAD	NAD
Asbestos Analysts Comments		---	No GAC	-				0		na			na	na	na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0					<1.5	<1.5	
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2					<1.2	<1.2	
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6					<1.5	<1.5	
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14					<3.4	<3.4	
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2					<3.4	<3.4	
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0					<0.01	<0.01	
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0					<0.01	<0.01	
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0					<0.01	<0.01	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0
PAH								
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0
Pah,Total		mg/kg	No GAC	-	<0.1	100		0
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0
BTEX								
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0
PCBs								
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0

Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
Sample Ref	13	10	4	8	5	2
Easting	384495.068	384573.297	384573.297	384529.73	384733.24	384682.789
Northing	399605.846	399653.391	399653.391	399585.19	399783.67	399673.896
Hole Elevation (mOD)	40.799	41.342	41.342	40.52	43.51	42.123
Sample Depth (mbgl)	3	3	1	2	1	0.2
Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35						
Total Aliphatics						
Aro >C10-C12				<0.9	<0.9	
Aro >C12-C16				<0.5	<0.5	
Aro >C16-C21				<0.6	<0.6	
Aro >C21-C35				<1.4	<1.4	
Aro >C35-C44				<1.4	<1.4	
Aro >C7-C8				<0.01	<0.01	
Aro >C8-C10				<0.01	<0.01	
Mineral Oil (>C10-C40)						
TPH (Ali & Aro >C5-C35)						
TPH (Ali & Aro >C5-C44)						
TPH >C10-40						<10
PAH						
Acenaphthene	<0.03			<0.03	<0.03	
Dibenz-a-h-anthracene	<0.03			<0.03	<0.03	
Fluoranthene	<0.03			<0.03	0.2	
Fluorene	<0.03			<0.03	<0.03	
Indeno(1,2,3-cd)pyrene	<0.03			<0.03	0.04	
Phenanthrene	<0.03			<0.03	0.11	
Pyrene	<0.03			<0.03	0.23	
Naphthalene	<0.03			<0.03	<0.03	
PAH (total 17)						
Total PAH-16MS						
Pah,Total	<0.1			<0.1	1	<1.6
Acenaphthylene	<0.03			<0.03	<0.03	
Anthracene	<0.03			<0.03	0.06	
Benzo(a)anthracene	<0.03			<0.03	0.08	
Benzo (g,h,i) perylene	<0.03			<0.03	0.04	
Benzo(a)pyrene	<0.03			<0.03	0.07	
Benzo(b)fluoranthene	<0.03			<0.03	0.1	
Benzo(k)fluoranthene	<0.03			<0.03	0.04	
Chrysene	<0.03			<0.03	0.1	
BTEX						
BTEX - Benzene	<0.01			<0.01	<0.01	<0.01
BTEX - Toluene	<0.01			<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01			<0.01	<0.01	<0.01
BTEX - m & p Xylene						
BTEX - o Xylene						
Xylene	<0.01			<0.01	<0.01	<0.01
BTEX and MTBE Total						
BTEX (total)						<0.04
PCBs						
PCB BZ 105						
PCB BZ 114						
PCB BZ 118						
PCB BZ 123						
PCB BZ 126						
PCB BZ 156						
PCB BZ 157						
PCB BZ 167						
PCB BZ 169						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
									Sample Ref	13	10	4	8	5	2
									Easting	384495.068	384573.297	384573.297	384529.73	384733.24	384682.789
									Northing	399605.846	399653.391	399653.391	399585.19	399783.67	399673.896
									Hole Elevation (mOD)	40.799	41.342	41.342	40.52	43.51	42.123
									Sample Depth (mbgl)	3	3	1	2	1	0.2
									Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
Sample Ref	13	10	4	8	5	2
Easting	384495.068	384573.297	384573.297	384529.73	384733.24	384682.789
Northing	399605.846	399653.391	399653.391	399585.19	399783.67	399673.896
Hole Elevation (mOD)	40.799	41.342	41.342	40.52	43.51	42.123
Sample Depth (mbgl)	3	3	1	2	1	0.2
Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0						
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0						
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0						
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0						
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0						
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0						
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0						
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0						
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0						
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0						
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0						
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0						
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0						
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0						
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0						
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0						
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0						
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0						
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0						
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0						
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0						
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0						
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0						
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0						
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0						
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0						
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0						
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0						
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0						
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0						
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0						
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
Sample Ref	13	10	4	8	5	2
Easting	384495.068	384573.297	384573.297	384529.73	384733.24	384682.789
Northing	399605.846	399653.391	399653.391	399585.19	399783.67	399673.896
Hole Elevation (mOD)	40.799	41.342	41.342	40.52	43.51	42.123
Sample Depth (mbgl)	3	3	1	2	1	0.2
Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0						
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0						
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0						
Herbicides														
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0						
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0						
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0						
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0						
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0						
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0						
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0						
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0						
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0						
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0						
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0						
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0						
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0						
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0						
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Propham		mg/kg	No GAC	-	<0.1	<0.1		0						
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0						
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0						
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					TP216	TP217	TP217	TP218	WS201	WS205
Sample Ref					13	10	4	8	5	2
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Sample Date					08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
Investigation					NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology					MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0						
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0						
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0						
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0						
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0						
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0						
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0						
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0						
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0						
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0						
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0						
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0						
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0						
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0						
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0						
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0						
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0						
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0						
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

									Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
									Sample Ref	13	10	4	8	5	2
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									Sample Depth (mbgl)	3	3	1	2	1	0.2
									Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**		**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0							
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0					<10	<10	
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0					<0.01	<0.01	
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0							11
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0							<0.01
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0
Tin		mg/kg	No GAC	-	<5	<5		0
Titanium		mg/kg	No GAC	-	67	420		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0
Total Aromatics		mg/kg	No GAC	-	76	101		0
Total Aromatics		mg/kg	No GAC	-	<1	6340		0
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0
VOC TICs		-	No GAC	-				0
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ortho Phosphate as P		mg/kg	No GAC	-				0
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols, Total		mg/kg	No GAC	-	<5	<5		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	TP216	TP217	TP217	TP218	WS201	WS205
Sample Ref	13	10	4	8	5	2
Easting	384495.068	384573.297	384573.297	384529.73	384733.24	384682.789
Northing	399605.846	399653.391	399653.391	399585.19	399783.67	399673.896
Hole Elevation (mOD)	40.799	41.342	41.342	40.52	43.51	42.123
Sample Depth (mbgl)	3	3	1	2	1	0.2
Sample Date	08/04/21	07/04/21	07/04/21	06/04/21	29/03/21	06/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-CO	MG-G	MG-CO	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aromatics >C10-44				<10	<10	
Total Aliphatics and Aromatics C10-C44				<10	<10	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS205	WS205	WS207	WS207	WS207	WS210
									Sample Ref	21	22	5	9	13	2
									Easting	384682.789	384682.789	384628.92	384628.92	384628.92	384519.681
									Northing	399673.896	399673.896	399674.79	399674.79	399674.79	399609.597
									Hole Elevation (mOD)	42.123	42.123	41.91	41.91	41.91	40.881
									Sample Depth (mbgl)	2	3	1	3	5	0.3
									Sample Date	16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		12		1.1	<1	1	
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		**65**		13	6	8.6	
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		**2.3**		0.9	0.9	0.8	
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.4		0.3	0.2	0.3	
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		81		21	23	20	
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1		<1			
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		820		45	26	26	
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		**1400**		44	13	13	
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.51		<0.05	<0.05	<0.05	
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		56		19	28	25	
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5		<0.5	<0.5	<0.5	
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		380		33	26	25	
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		110		88	53	54	
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		6.6		5.4	7.8	7.8	
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.6		0.1	<0.1	<0.1	
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1.4		1	0.5	0.3	
Total Organic Carbon		%	No GAC	-	<0.1	54		0		12	27	3	0.6	0.6	16
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0				0.012			
Asbestos (Presence of)		---	No GAC	-				0		NAD		Chrysotile			
Asbestos Analysts Comments		---	No GAC	-				0		na		Chrysotile in microscopic loose fibrous asbestos debris and bundles in soil			
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3		<0.3	<0.3	<0.3	
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5					
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2					
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5					
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4					
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4					
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01					
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01					
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0
PAH								
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0
Pah,Total		mg/kg	No GAC	-	<0.1	100		0
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0
BTEX								
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0
PCBs								
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0

WS205	WS205	WS207	WS207	WS207	WS210	
21	22	5	9	13	2	
384682.789	384682.789	384628.92	384628.92	384628.92	384519.681	
399673.896	399673.896	399674.79	399674.79	399674.79	399609.597	
42.123	42.123	41.91	41.91	41.91	40.881	
2	3	1	3	5	0.3	
16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21	
NW1604	NW1604	NW1604	NW1604	NW1604	NW1604	
MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
<0.9						
<0.5						
<0.6						
<1.4						
<1.4						
<0.01						
<0.01						
	26					96
<0.03		<0.03				
<0.03		<0.03				
0.09		<0.03				
<0.03		<0.03				
<0.03		<0.03				
0.4	<1.6	<0.1				21
<0.03		<0.03				
<0.03		<0.03				
0.04		<0.03				
<0.03		<0.03				
<0.03		<0.03				
0.04		<0.03				
<0.03		<0.03				
0.04		<0.03				
<0.01	<0.01	<0.01				<0.01
<0.01	<0.01	<0.01				<0.01
<0.01	<0.01	<0.01				<0.01
<0.01	<0.01	<0.01				<0.01
	<0.04					<0.04

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS205	WS205	WS207	WS207	WS207	WS210
									Sample Ref	21	22	5	9	13	2
									Easting	384682.789	384682.789	384628.92	384628.92	384628.92	384519.681
									Northing	399673.896	399673.896	399674.79	399674.79	399674.79	399609.597
									Hole Elevation (mOD)	42.123	42.123	41.91	41.91	41.91	40.881
									Sample Depth (mbgl)	2	3	1	3	5	0.3
									Sample Date	16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	WS205	WS205	WS207	WS207	WS207	WS210
Sample Ref	21	22	5	9	13	2
Easting	384682.789	384682.789	384628.92	384628.92	384628.92	384519.681
Northing	399673.896	399673.896	399674.79	399674.79	399674.79	399609.597
Hole Elevation (mOD)	42.123	42.123	41.91	41.91	41.91	40.881
Sample Depth (mbgl)	2	3	1	3	5	0.3
Sample Date	16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0						
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0						
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0						
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0						
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0						
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0						
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0						
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0						
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0						
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0						
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0						
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0						
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0						
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0						
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0						
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0						
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0						
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0						
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0						
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0						
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0						
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0						
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0						
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0						
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0						
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0						
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0						
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0						
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0						
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0						
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0						
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS205	WS205	WS207	WS207	WS207	WS210
									Sample Ref	21	22	5	9	13	2
									Easting	384682.789	384682.789	384628.92	384628.92	384628.92	384519.681
									Northing	399673.896	399673.896	399674.79	399674.79	399674.79	399609.597
									Hole Elevation (mOD)	42.123	42.123	41.91	41.91	41.91	40.881
									Sample Depth (mbgl)	2	3	1	3	5	0.3
									Sample Date	16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

WS205	WS205	WS207	WS207	WS207	WS210	
21	22	5	9	13	2	
384682.789	384682.789	384628.92	384628.92	384628.92	384519.681	
399673.896	399673.896	399674.79	399674.79	399674.79	399609.597	
42.123	42.123	41.91	41.91	41.91	40.881	
2	3	1	3	5	0.3	
16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21	
NW1604	NW1604	NW1604	NW1604	NW1604	NW1604	
MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS205	WS205	WS207	WS207	WS207	WS210
									Sample Ref	21	22	5	9	13	2
									Easting	384682.789	384682.789	384628.92	384628.92	384628.92	384519.681
									Northing	399673.896	399673.896	399674.79	399674.79	399674.79	399609.597
									Hole Elevation (mOD)	42.123	42.123	41.91	41.91	41.91	40.881
									Sample Depth (mbgl)	2	3	1	3	5	0.3
									Sample Date	16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0							
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0							
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0		<10					
Aluminium		mg/kg	No GAC	-	8270	9680		0							
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0							
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0		<0.01					
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0							
Asbestos in soil		-	No GAC	-				0							
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0							
Barium		mg/kg	No GAC	-	68	198		0							
Calcium		mg/kg	No GAC	-	8540	8540		0							
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0							
Cobalt		mg/kg	No GAC	-	4	12		0							
Coronene		mg/kg	No GAC	-	0.04	0.12		0							
Cresols		mg/kg	No GAC	-				0							
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0							
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0							
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0							
EPH CWG GCxGC ID (for FID		-	No GAC	-				0							
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0							
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0							
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0							
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0							
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0							
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0							
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0							
Iron		mg/kg	No GAC	-	43300	43300		0							
Loss on ignition		%	No GAC	-	1.3	24		0		14					11
Magnesium		mg/kg	No GAC	-	1000	1000		0							
Manganese		mg/kg	No GAC	-	63	595		0							
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0							
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Molybdenum		mg/kg	No GAC	-	<1	8		0							
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0							
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0		<0.01					<0.01
Perylene		mg/kg	No GAC	-	<0.1	25.6		0							
Potassium		mg/kg	No GAC	-	500	500		0							
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0							
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0							
SVOC TICs (Tentatively Identified		-	No GAC	-				0							
Silver		mg/kg	No GAC	-	<10	<10		0							
Sulphide		mg/kg	No GAC	-	<5	530		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS205	WS205	WS207	WS207	WS207	WS210
									Sample Ref	21	22	5	9	13	2
									Easting	384682.789	384682.789	384628.92	384628.92	384628.92	384519.681
									Northing	399673.896	399673.896	399674.79	399674.79	399674.79	399609.597
									Hole Elevation (mOD)	42.123	42.123	41.91	41.91	41.91	40.881
									Sample Depth (mbgl)	2	3	1	3	5	0.3
									Sample Date	16/04/21	16/04/21	07/04/21	28/04/21	28/04/21	16/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-G	MG-CO	MG-CO	MG-CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0		<10					
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0		<10					
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS210	WS211	WS211	WS212	WS212	WS212
									Sample Ref	4	12	14	2	4	12
									Easting	384519.681	384557.31	384557.31	384501.81	384501.81	384501.81
									Northing	399609.597	399564.31	399564.31	399529.03	399529.03	399529.03
									Hole Elevation (mOD)	40.881	39.91	39.91	39.89	39.89	39.89
									Sample Depth (mbgl)	0.7	4	5	0.2	0.6	4
									Sample Date	16/04/21	28/04/21	28/04/21	16/04/21	16/04/21	28/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		3.6	1	2.8	4.3		1.9
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		25	11	21	28		9.2
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.9	0.7	1.6	2.3		0.7
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		1.3	0.2	0.4	1.2		0.3
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		44	15	18	16		14
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1			<1		
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		170	39	96	240		39
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		110	55	41	170		44
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.14	0.09	0.14	0.92		0.16
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		35	20	43	38		22
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5		<0.5
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		160	20	45	54		20
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		410	48	100	150		55
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.2	7.2	7.8	7.5		7.8
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.1	0.1	<0.1	0.2		<0.1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		0.8	0.2	<0.2	0.5		<0.2
Total Organic Carbon		%	No GAC	-	<0.1	54		0		14	8.6	2.8	38	33	4.6
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD		NAD		NAD
Asbestos Analysts Comments		---	No GAC	-				0		na	na		na		na
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.3	<0.3	<0.3	<0.3		<0.3
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1.5			<1.5		
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1.2			<1.2		
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1.5			<1.5		
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		<3.4			<3.4		
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		<3.4			<3.4		
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01			<0.01		
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01			<0.01		
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<0.01			<0.01		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS210	WS211	WS211	WS212	WS212	WS212
									Sample Ref	4	12	14	2	4	12
									Easting	384519.681	384557.31	384557.31	384501.81	384501.81	384501.81
									Northing	399609.597	399564.31	399564.31	399529.03	399529.03	399529.03
									Hole Elevation (mOD)	40.881	39.91	39.91	39.89	39.89	39.89
									Sample Depth (mbgl)	0.7	4	5	0.2	0.6	4
									Sample Date	16/04/21	28/04/21	28/04/21	16/04/21	16/04/21	28/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0							
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		<0.9			<0.9		
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		<0.5			3.8		
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		<0.6			21		
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		<1.4			45		
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		<1.4			<1.4		
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01			<0.01		
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		<0.01			<0.01		
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0							
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0						290	
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		<0.03	<0.03		1.9		<0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		<0.03	<0.03		0.09		<0.03
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		0.3	0.12		5.1		0.05
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		<0.03	<0.03		1.6		<0.03
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		0.03	<0.03		0.35		<0.03
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		0.25	0.13		8.6		0.05
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		0.31	0.12		5.6		0.05
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		0.04	0.04		5.5		<0.03
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0							
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0							
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		1.4	0.55		37	28	0.15
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.03	<0.03		0.05		<0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		0.06	<0.03		1.8		<0.03
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		0.12	0.04		1.7		<0.03
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		0.03	<0.03		0.38		<0.03
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		0.05	<0.03		0.97		<0.03
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		0.1	0.05		1.3		<0.03
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		0.03	<0.03		0.53		<0.03
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		0.12	0.06		1.6		<0.03
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0							
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0							
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01		<0.01	<0.01	<0.01
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0						<0.04	
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS210	WS211	WS211	WS212	WS212	WS212
									Sample Ref	4	12	14	2	4	12
									Easting	384519.681	384557.31	384557.31	384501.81	384501.81	384501.81
									Northing	399609.597	399564.31	399564.31	399529.03	399529.03	399529.03
									Hole Elevation (mOD)	40.881	39.91	39.91	39.89	39.89	39.89
									Sample Depth (mbgl)	0.7	4	5	0.2	0.6	4
									Sample Date	16/04/21	28/04/21	28/04/21	16/04/21	16/04/21	28/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					WS210	WS211	WS211	WS212
Sample Ref					4	12	14	2
Easting					384519.681	384557.31	384557.31	384501.81
Northing					399609.597	399564.31	399564.31	399529.03
Hole Elevation (mOD)					40.881	39.91	39.91	39.89
Sample Depth (mbgl)					0.7	4	5	0.2
Sample Date					16/04/21	28/04/21	28/04/21	16/04/21
Investigation					NW1604	NW1604	NW1604	NW1604
Geology					MG-G	MG-CO	MG-CO	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS210	WS211	WS211	WS212	WS212	WS212
									Sample Ref	4	12	14	2	4	12
									Easting	384519.681	384557.31	384557.31	384501.81	384501.81	384501.81
									Northing	399609.597	399564.31	399564.31	399529.03	399529.03	399529.03
									Hole Elevation (mOD)	40.881	39.91	39.91	39.89	39.89	39.89
									Sample Depth (mbgl)	0.7	4	5	0.2	0.6	4
									Sample Date	16/04/21	28/04/21	28/04/21	16/04/21	16/04/21	28/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					WS210	WS211	WS211	WS212
Sample Ref					4	12	14	2
Easting					384519.681	384557.31	384557.31	384501.81
Northing					399609.597	399564.31	399564.31	399529.03
Hole Elevation (mOD)					40.881	39.91	39.91	39.89
Sample Depth (mbgl)					0.7	4	5	0.2
Sample Date					16/04/21	28/04/21	28/04/21	16/04/21
Investigation					NW1604	NW1604	NW1604	NW1604
Geology					MG-G	MG-CO	MG-CO	MG-G
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Concentration exceeds GAC	**100.00**
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	WS210	WS211	WS211	WS212	WS212	WS212
Sample Ref	4	12	14	2	4	12
Easting	384519.681	384557.31	384557.31	384501.81	384501.81	384501.81
Northing	399609.597	399564.31	399564.31	399529.03	399529.03	399529.03
Hole Elevation (mOD)	40.881	39.91	39.91	39.89	39.89	39.89
Sample Depth (mbgl)	0.7	4	5	0.2	0.6	4
Sample Date	16/04/21	28/04/21	28/04/21	16/04/21	16/04/21	28/04/21
Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
Geology	MG-G	MG-CO	MG-CO	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0						
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0						
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0	<10			<10		
Aluminium		mg/kg	No GAC	-	8270	9680		0						
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0						
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0	<0.01			<0.01		
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0						
Asbestos in soil		-	No GAC	-				0						
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0						
Barium		mg/kg	No GAC	-	68	198		0						
Calcium		mg/kg	No GAC	-	8540	8540		0						
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0						
Cobalt		mg/kg	No GAC	-	4	12		0						
Coronene		mg/kg	No GAC	-	0.04	0.12		0						
Cresols		mg/kg	No GAC	-				0						
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0						
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0						
EPH CWG GCxGC ID (for FID		-	No GAC	-				0						Profile indicativ
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0						
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0						
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0						
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Iron		mg/kg	No GAC	-	43300	43300		0						
Loss on ignition		%	No GAC	-	1.3	24		0					12	
Magnesium		mg/kg	No GAC	-	1000	1000		0						
Manganese		mg/kg	No GAC	-	63	595		0						
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0						
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Molybdenum		mg/kg	No GAC	-	<1	8		0						
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0						
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0					<0.01	
Perylene		mg/kg	No GAC	-	<0.1	25.6		0						
Potassium		mg/kg	No GAC	-	500	500		0						
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0						
SVOC TICs (Tentatively Identified		-	No GAC	-				0						
Silver		mg/kg	No GAC	-	<10	<10		0						
Sulphide		mg/kg	No GAC	-	<5	530		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS210	WS211	WS211	WS212	WS212	WS212
									Sample Ref	4	12	14	2	4	12
									Easting	384519.681	384557.31	384557.31	384501.81	384501.81	384501.81
									Northing	399609.597	399564.31	399564.31	399529.03	399529.03	399529.03
									Hole Elevation (mOD)	40.881	39.91	39.91	39.89	39.89	39.89
									Sample Depth (mbgl)	0.7	4	5	0.2	0.6	4
									Sample Date	16/04/21	28/04/21	28/04/21	16/04/21	16/04/21	28/04/21
									Investigation	NW1604	NW1604	NW1604	NW1604	NW1604	NW1604
									Geology	MG-G	MG-CO	MG-CO	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0							
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0		<10			59		
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0		<10			59		
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
									Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
									Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
									Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
									Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
									Sample Depth (mbgl)	1	2	2	0	0	0
									Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
									Investigation	NW1604	NW1604	NW1604	326R	326R	326R
									Geology	MG-CO	MG-CO	MG-G			
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		1.3	1.1	<1			
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		13	8.4	3.6	<1	16	5
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.8	0.6	0.4			
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		0.3	<0.1	<0.1	1.5	3.5	0.9
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		18	18	11	31	60	30
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0		<1	<1		<1	<1	<1
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		38	23	11	121	121	43
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		32	26	7	50	116	24
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.38	0.19	<0.05	0.53	0.25	1.85
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		16	14	11	33	61	26
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<0.5	<0.5	<0.5	<1	<1	<1
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		28	28	13			
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		81	41	26	135	309	66
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.1	7.7	7.5	8.51	8.26	8.77
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0					3.5	10.1	3.3
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0							
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		0.6	<0.1	<0.1	<1	<1	<1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		1.3	0.5	0.3	<1	<1	<1
Total Organic Carbon		%	No GAC	-	<0.1	54		0		2.5	1.2	<0.5			
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0		NAD	NAD				
Asbestos Analysts Comments		---	No GAC	-				0		na	na				
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		2.7	<0.3	<0.3	<0.2	<0.2	<0.2
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0			<1.5		1	1	2
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2			<1.2		2	3	4
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6			<1.5		5	12	6
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14			<3.4		140	298	32
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2			<3.4		37	85	9
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0			<0.01		<0.01	<0.01	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0			<0.01		<0.01	<0.01	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0			<0.01		2	1	3

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
									Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
									Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
									Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
									Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
									Sample Depth (mbgl)	1	2	2	0	0	0
									Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
									Investigation	NW1604	NW1604	NW1604	326R	326R	326R
									Geology	MG-CO	MG-CO	MG-G			
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0					150	316	48
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0					188	400	57
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			<0.9		3	2	3
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			<0.5		9	8	14
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			<0.6		21	27	30
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			<1.4		39	62	44
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0			<1.4		22	58	3
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01		<0.01	<0.01	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			<0.01		3	2	2
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0							
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0					226	417	142
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0					285	560	154
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		<0.03	<0.03		0.05	0.04	0.02
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		<0.03	<0.03		<0.04	0.09	<0.04
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		0.06	<0.03		0.7	0.93	0.46
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		<0.03	<0.03		0.03	0.03	0.02
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		<0.03	<0.03		0.15	0.48	0.17
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		0.08	<0.03		0.41	0.39	0.27
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		0.05	<0.03		0.59	0.88	0.44
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		0.06	<0.03		0.07	0.08	0.1
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0					0.05	0.12	0.04
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0					3.42	6.36	2.82
Pah,Total		mg/kg	No GAC	-	<0.1	100		0		0.25	<0.1				
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		<0.03	<0.03		0.04	0.11	0.03
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		<0.03	<0.03		0.21	0.49	0.13
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		<0.03	<0.03		0.22	0.41	0.2
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		<0.03	<0.03		0.12	0.41	0.14
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		<0.03	<0.03		0.22	0.57	0.24
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		<0.03	<0.03		0.27	0.73	0.29
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		<0.03	<0.03		0.1	0.28	0.1
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		<0.03	<0.03		0.24	0.44	0.21
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01	<0.01		<0.01	<0.01	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01	<0.01		<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01	<0.01		<0.01	<0.01	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0					<0.01	<0.01	<0.01
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0					<0.01	<0.01	<0.01
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0		<0.01	<0.01				
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0							
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
									Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
									Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
									Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
									Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
									Sample Depth (mbgl)	1	2	2	0	0	0
									Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
									Investigation	NW1604	NW1604	NW1604	326R	326R	326R
									Geology	MG-CO	MG-CO	MG-G			
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0					<0.001	<0.001	<0.001
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0					<0.003	<0.003	<0.003
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0					<0.003	<0.003	<0.003
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0					<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0					<0.002	<0.002	<0.002
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0					<0.002	<0.002	<0.002
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0					<0.001	<0.001	<0.001
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
									Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
									Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
									Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
									Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
									Sample Depth (mbgl)	1	2	2	0	0	0
									Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
									Investigation	NW1604	NW1604	NW1604	326R	326R	326R
									Geology	MG-CO	MG-CO	MG-G			
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0							
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0					<0.005	<0.005	<0.005
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0					<0.01	<0.01	<0.01
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	<0.001	<0.001
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0							
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0							
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0					<0.001	<0.001	<0.001
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0					<0.001	<0.001	<0.001
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0					<0.01	<0.01	<0.01
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0							
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0							
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0							
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0					<0.003	<0.003	<0.003
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0					<0.005	<0.005	<0.005
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0							
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0							
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0							
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0							
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0							
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0							
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0					<0.01	<0.01	<0.01
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0							
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0					<0.001	<0.001	<0.001
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0					<0.002	<0.002	<0.002
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	<0.001	<0.001
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	<0.001	<0.001
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0							
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0							
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	<0.001	<0.001
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
									Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
									Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
									Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
									Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
									Sample Depth (mbgl)	1	2	2	0	0	0
									Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
									Investigation	NW1604	NW1604	NW1604	326R	326R	326R
									Geology	MG-CO	MG-CO	MG-G			
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

WS213A	WS213A	WS214	BAL01	BAL02	BAL03
2	5	6	WA1034026	WA1034027	WA1034028
384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
399535.74	399535.74	399536.111	399510.72	399550	399815.85
39.95	39.95	39.888	39.77	40.18	43.33
1	2	2	0	0	0
08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
NW1604	NW1604	NW1604	326R	326R	326R
MG-CO	MG-CO	MG-G			
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
Sample Depth (mbgl)	1	2	2	0	0	0
Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
Investigation	NW1604	NW1604	NW1604	326R	326R	326R
Geology	MG-CO	MG-CO	MG-G			
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)						
trans-Chlordane (Gamma)						
2,3,5,6-Tetrachlorophenol						
2,4,5-T						
2,4-DP; (Dichlorprop)						
3+4-Methylphenol						
4-Chlorophenyl Phenyl Ether						
Aliphatics >C10-44		<10				
Aluminium						
Ammoniacal Nitrogen as N						
Aro >C5-C7		<0.01		<0.01	<0.01	<0.01
Asbestos ACM - Suitable for Water Absorption Test?				N/A	N/A	N/A
Asbestos in soil				NAD	NAD	NAD
Asbestos in soil % composition (hand picking and weighing)						
Barium						
Calcium						
Chloride (water sol 2:1)						
Cobalt						
Coronene				0.05	0.12	0.04
Cresols						
Cyanazine						
Demeton-S						
Dichlorodifluoromethane				<0.001	<0.001	<0.001
Dry Matter (Dry Solids) at 40C						
EPH CWG GCxGC ID (for FID						
Electrical conductivity @ 20degC						
Endrin Aldehyde						
Endrin Ketone						
Ethylene glycol (Monoethylene glycol)						
Fensulphothion						
Fluoride (water sol 2:1)						
Fluroxypyr						
Iron						
Loss on ignition						
Magnesium						
Manganese						
Mass Sample (1 stage WAC)						
Methabenzthiazuron						
Molybdenum						
Monolinuron						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)						
PCB Total						
Perylene						
Potassium						
Prothiofos (Tokuthion)						
Resorcinol						
SVOC TICs (Tentatively Identified						
Silver						
Sulphide						

re of PAHs, lube oil, humic substances and other heavier hydrocarbons ier hydrocarbons ier hydrocarbons

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	WS213A	WS213A	WS214	BAL01	BAL02	BAL03
									Sample Ref	2	5	6	WA1034026	WA1034027	WA1034028
									Easting	384432.45	384432.45	384420.108	384412.01	384443.06	384749.56
									Northing	399535.74	399535.74	399536.111	399510.72	399550	399815.85
									Hole Elevation (mOD)	39.95	39.95	39.888	39.77	40.18	43.33
									Sample Depth (mbgl)	1	2	2	0	0	0
									Sample Date	08/04/21	16/04/21	28/04/21	06/04/22	06/04/22	06/04/22
									Investigation	NW1604	NW1604	NW1604	326R	326R	326R
									Geology	MG-CO	MG-CO	MG-G			
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0							
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0							
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0					76	101	94
Total Aromatics		mg/kg	No GAC	-	<1	6340		0					97	159	97
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0							
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0			<10				
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0							
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0							
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0				<10			
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0							
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref									BH301D	BH303	BH303	BH304	BH304	BH304
Sample Ref									1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0
Easting									384844.51	384719.84	384719.84	384618.46	384618.46	384618.46
Northing									399764.94	399660.22	399660.22	399600.49	399600.49	399600.49
Hole Elevation (mOD)									41.94	42.3	42.3	41.18	41.18	41.18
Sample Depth (mbgl)									2.9	0.5	7.5	5	0.5	1
Sample Date									10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22
Investigation									326R	326R	326R	326R	326R	326R
Geology									MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G
Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal														
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0	<5	<5		<5	<5	
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0	7	**45**		27	21	
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0	0.6	1		1.3	1.6	
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0	0.8	3.5		2.3	4.7	
Chromium	907	mg/kg	131 of 131	0	4.8	470		0	11	15		18	16	
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0	<1	<1				
Copper	7130	mg/kg	131 of 131	0	9.1	820		0	25	92		103	182	
Lead	310	mg/kg	131 of 131	19	6.4	1400		0	110	130		90	**547**	
Manganese		mg/kg	No GAC	-				0						
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0	0.18	<0.17		<0.17	<0.17	
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0	13	22		43	29	
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0	<1	2		<1	<1	
Vanadium	1200	mg/kg	128 of 128	0	7	640		0	16	26		26	48	
Zinc	40400	mg/kg	131 of 131	0	26	1300		0	35	355		224	1300	
Inorganic														
pH		pH Units	No GAC	-	4.52	10.9		0	8.31	6.13		7.64	7.38	
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0						
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0	<0.1	1.9	<0.1	5.3	32.9	45.7
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0	<1	<1		<1	<1	
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0		<1				
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0		<1				
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0	<5	<5				
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0	<1	<1		<1	<1	
Total Organic Carbon		%	No GAC	-	<0.1	54		0	1.51	34.2	16.2	21.1	18.9	13.4
Sulphate (acid soluble)		mg/kg	No GAC	-				0						
Asbestos														
Asbestos Matrix (microscope)		-	No GAC	-				0						
Asbestos Matrix (visual)		-	No GAC	-				0						
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0						
Asbestos (Presence of)		---	No GAC	-				0						
Asbestos Analysts Comments		---	No GAC	-				0						
Phenol and mineral oils														
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0	<0.1	<0.1				
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0	<0.2	<0.2		<0.2	<0.2	
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0						
Xylenols		mg/kg	No GAC	-				0						
TPH														
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0	1	10		<1	4	
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2	6	18		<1	7	
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6	6	17		<1	8	
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14	5	17		4	25	
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2	10	3		3	2	
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0	<0.01	<0.05		<0.05	<0.05	
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0	<0.01	<0.05		<0.05	<0.05	
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0	1	13		<1	10	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0
PAH								
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0
Pah,Total		mg/kg	No GAC	-	<0.1	100		0
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0
BTEX								
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0
PCBs								
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0

BH301D	BH303	BH303	BH304	BH304	BH304	
1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0	
384844.51	384719.84	384719.84	384618.46	384618.46	384618.46	
399764.94	399660.22	399660.22	399600.49	399600.49	399600.49	
41.94	42.3	42.3	41.18	41.18	41.18	
2.9	0.5	7.5	5	0.5	1	
10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22	
326R	326R	326R	326R	326R	326R	
MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G	
RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
29	79		8	55		
7	12		<1	9		
25	48		1	27		
20	66		2	32		
104	77		4	44		
13	2		2	2		
<0.01	<0.05		<0.05	<0.05		
4	9		<1	6		
		37			14	
203	292		18	175		
0.1	0.13		1.23	0.1		
0.47	<0.04		0.14	0.13		
0.5	0.75		5.41	1.85		
0.13	0.07		0.81	0.08		
2.62	0.16		0.53	0.49		
1	0.86		7.43	1.01		
1.15	0.74		5.02	1.8		
2.86	0.23		2.03	0.36		
		23.8			1.82	
23.6	4.81		31.8	11.6		
1.67	0.01		0.03	0.02		
0.54	0.13		1.35	0.23		
0.41	0.34		1.95	1.14		
3.76	0.15		0.44	0.4		
4.66	0.28		1.31	1.05		
2.38	0.37		1.56	1.26		
0.66	0.16		0.59	0.55		
0.72	0.43		1.97	1.16		
<0.01	<0.05		<0.05	<0.05		
<0.01	<0.05		<0.05	<0.05		
<0.01	<0.05		<0.05	<0.05		
<0.01	<0.05		<0.05	<0.05		
<0.01	<0.05		<0.05	<0.05		
		<0.01			<0.05	
<0.005	<0.005			<0.005		
<0.005	<0.005			<0.005		
<0.007	<0.007			<0.007		
<0.005	<0.005			<0.005		
<0.005	<0.005			<0.005		
<0.005	<0.005			<0.005		
<0.005	<0.005			<0.005		
<0.005	<0.005			<0.005		
<0.005	<0.005			<0.005		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref								BH301D	BH303	BH303	BH304	BH304	BH304
Sample Ref								1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0
Easting								384844.51	384719.84	384719.84	384618.46	384618.46	384618.46
Northing								399764.94	399660.22	399660.22	399600.49	399600.49	399600.49
Hole Elevation (mOD)								41.94	42.3	42.3	41.18	41.18	41.18
Sample Depth (mbgl)								2.9	0.5	7.5	5	0.5	1
Sample Date								10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22
Investigation								326R	326R	326R	326R	326R	326R
Geology								MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**	**RB05b School**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0	<0.005	<0.005			<0.005	
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0	<0.005	<0.005			<0.005	
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0	<0.005	<0.005			<0.005	
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0	<0.007	<0.007			<0.007	
VOCs/SVOCs														
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0	<0.001	<0.001				
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0	<0.003	<0.003				
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0	<0.003	<0.003				
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0	<0.001	<0.001				
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0	<0.002	<0.002				
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0	<0.002	<0.002				
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0	<0.001	<0.001				
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0						
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0	<0.1	<0.1				
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0	1.13	1.16				
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0						
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0						
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH301D	BH303	BH303	BH304	BH304	BH304
Sample Ref	1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0
Easting	384844.51	384719.84	384719.84	384618.46	384618.46	384618.46
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Hole Elevation (mOD)	41.94	42.3	42.3	41.18	41.18	41.18
Sample Depth (mbgl)	2.9	0.5	7.5	5	0.5	1
Sample Date	10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0	<0.5	<0.5				
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0	<0.005	<0.005				
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0	<0.01	<0.01				
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0	<0.001	<0.001				
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0	<0.1	0.162				
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0	<0.001	<0.001				
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0	<0.001	<0.001				
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0	<0.01	<0.01				
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0	<0.1	<0.1				
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0	<0.5	<0.5				
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0	<0.1	0.524				
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0	<0.003	<0.003				
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0	<0.005	<0.005				
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0	<0.1	<0.1				
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0	<0.1	<0.1				
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0	<0.1	<0.1				
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0	<0.01	<0.05	<0.05	<0.05		
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0	<0.1	<0.1				
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0	<0.001	<0.001				
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0	<0.002	<0.002				
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0	<0.001	<0.001				
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0	<0.001	<0.001				
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0	<0.1	<0.1				
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0	<0.001	<0.001				
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0	<0.001	<0.001				

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH301D	BH303	BH303	BH304	BH304	BH304
Sample Ref	1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0
Easting	384844.51	384719.84	384719.84	384618.46	384618.46	384618.46
Northing	399764.94	399660.22	399660.22	399600.49	399600.49	399600.49
Hole Elevation (mOD)	41.94	42.3	42.3	41.18	41.18	41.18
Sample Depth (mbgl)	2.9	0.5	7.5	5	0.5	1
Sample Date	10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0						
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0						
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0						
Herbicides														
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0						
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0						
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0						
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0						
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0						
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0						
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0						
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0						
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0						
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0						
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0						
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0						
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0						
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0						
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Propham		mg/kg	No GAC	-	<0.1	<0.1		0						
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0						
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0						
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH301D	BH303	BH303	BH304	BH304	BH304
Sample Ref	1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0
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Sample Date	10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0						
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0						
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0						
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0						
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0						
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0						
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0						
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0						
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0						
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0						
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0						
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0						
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0						
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0						
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0						
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0						
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0						
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0						
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

BH301D	BH303	BH303	BH304	BH304	BH304	
1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0	
384844.51	384719.84	384719.84	384618.46	384618.46	384618.46	
399764.94	399660.22	399660.22	399600.49	399600.49	399600.49	
41.94	42.3	42.3	41.18	41.18	41.18	
2.9	0.5	7.5	5	0.5	1	
10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22	
326R	326R	326R	326R	326R	326R	
MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G	
RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
<0.1	<0.1					
	9680					
<0.01	<0.05		<0.05	<0.05		
N/A	N/A		N/A	N/A		
NAD	NAD		NAD	NAD		
5						
<0.001	<0.001					
			80.5		84.1	
245	411					
			0.217		0.208	
			<0.007		<0.007	
0.209	0.293					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH301D	BH303	BH303	BH304	BH304	BH304
Sample Ref	1D-X-2.90-ES7-2	326R.BH303.ES0	326R.BH303.ES0	326R.BH304.ES0	326R.BH304.ES0	326R.BH304.ES0
Easting	384844.51	384719.84	384719.84	384618.46	384618.46	384618.46
Northing	399764.94	399660.22	399660.22	399600.49	399600.49	399600.49
Hole Elevation (mOD)	41.94	42.3	42.3	41.18	41.18	41.18
Sample Depth (mbgl)	2.9	0.5	7.5	5	0.5	1
Sample Date	10/04/22	14/02/22	14/02/22	16/02/22	16/02/22	16/02/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB05b School	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0						
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Tin		mg/kg	No GAC	-	<5	<5		0		<5				
Titanium		mg/kg	No GAC	-	67	420		0		67				
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0						
Total Aromatics		mg/kg	No GAC	-	76	101		0						
Total Aromatics		mg/kg	No GAC	-	<1	6340		0	174	213		10	120	
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0						
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0						
VOC TICs		-	No GAC	-				0						
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0						
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0						
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0						
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0						
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ortho Phosphate as P		mg/kg	No GAC	-				0						
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols, Total		mg/kg	No GAC	-	<5	<5		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0						
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0						
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0						
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
									Sample Ref	326R.BH304.ES1	326R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	326R.BH312.ES0
									Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
									Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
									Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
									Sample Depth (mbgl)	14	13	0.5	1	5	1
									Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0			<5		<5	<5	5
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0			5		27	3	11
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0			0.7		1.6	1	0.7
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0			1.1		1.4	0.9	1.2
Chromium	907	mg/kg	131 of 131	0	4.8	470		0			12		12	25	12
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0							
Copper	7130	mg/kg	131 of 131	0	9.1	820		0			31		110	19	45
Lead	310	mg/kg	131 of 131	19	6.4	1400		0			27		79	14	160
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0			<0.17		<0.17	<0.17	<0.17
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0			21		26	26	13
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0			<1		2	<1	2
Vanadium	1200	mg/kg	128 of 128	0	7	640		0			16		33	25	18
Zinc	40400	mg/kg	131 of 131	0	26	1300		0			69		110	49	165
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0			7.18		4.52	8.88	7.72
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0		<0.1	0.9	9.6	6.6	2	15.4
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0			<1		<1	<1	<1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0			<1		<1	<1	<1
Total Organic Carbon		%	No GAC	-	<0.1	54		0		1.23	2.28	45.2	48.5	0.75	3.13
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0							
Asbestos Analysts Comments		---	No GAC	-				0							
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0						<0.1	
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0			<0.2		<0.2	<0.2	<0.2
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0			5		35	<1	<1
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2			11		63	<1	<1
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6			14		54	<1	<1
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14			31		64	2	11
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2			5		8	<1	5
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0			<0.01		<0.05	<0.05	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0			0.01		<0.05	<0.05	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0			7		47	<1	<1

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
									Sample Ref	326R.BH304.ES1	326R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	326R.BH312.ES0
									Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
									Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
									Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
									Sample Depth (mbgl)	14	13	0.5	1	5	1
									Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0			74		272	2	16
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			32		34	<1	<1
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			26		81	2	4
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			39		117	3	15
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			87		193	3	46
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0			2		2	<1	3
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01		<0.05	<0.05	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			5		38	<1	<1
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0		<10		76	152		
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0			266		739	11	84
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			0.01		0.72	<0.01	0.03
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			<0.04		**0.53**	<0.04	0.05
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			0.17		7.32	<0.08	0.54
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			0.01		0.34	<0.01	0.02
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			0.07		2.19	<0.03	0.26
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			0.15		5.17	<0.03	0.33
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			0.15		7.76	<0.07	0.54
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0			<0.03		1.37	<0.03	<0.03
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0		<0.08		198	48.5		
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0			1.03		47.9	<0.08	3.53
Pah,Total		mg/kg	No GAC	-	<0.1	100		0							
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			<0.01		<0.01	<0.01	<0.01
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			0.04		0.72	<0.02	0.08
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			0.07		3.43	<0.04	0.27
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			0.07		2.26	<0.05	0.24
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			0.1		**4.27**	<0.04	0.34
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			0.1		**5.14**	<0.05	0.35
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			<0.07		1.91	<0.07	0.14
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			0.09		4.74	<0.06	0.34
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0			<0.01		<0.05	<0.05	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0			<0.01		<0.05	<0.05	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0			<0.01		<0.05	<0.05	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0			<0.01		<0.05	<0.05	<0.01
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0			<0.01		<0.05	<0.05	<0.01
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0							
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.01		<0.05	<0.05		
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0					<0.007		
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
									Sample Ref	326R.BH304.ES1	326R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	326R.BH312.ES0
									Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
									Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
									Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
									Sample Depth (mbgl)	14	13	0.5	1	5	1
									Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0					<0.005		
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0					<0.007		
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0						<0.001	
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0						<0.003	
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0						<0.003	
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0						<0.001	
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0						<0.002	
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0						<0.002	
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0						<0.001	
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0						<0.001	
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0						<0.1	
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0						<0.1	
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0						<0.1	
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1	
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1	
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1	
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0						<0.001	
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1	
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0						<0.1	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
Sample Ref	326R.BH304.ES1	826R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	826R.BH312.ES0
Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
Sample Depth (mbgl)	14	13	0.5	1	5	1
Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0					<0.5	
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0					<0.005	
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0					<0.01	
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0					<0.1	
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0					<0.1	
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0					<0.001	
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0					<0.001	
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0					<0.01	
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0					<0.1	
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0					<0.5	
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0					<0.1	
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0					<0.003	
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0					<0.005	
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0					<0.1	
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0					<0.1	
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0					<0.1	
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0					<0.001	
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0	<0.01		<0.05		<0.05	<0.01
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0					<0.1	
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0					<0.001	
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0					<0.002	
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0					<0.1	
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0					<0.001	
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0					<0.001	
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0					<0.001	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
Sample Ref	326R.BH304.ES1	326R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	326R.BH312.ES0
Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
Sample Depth (mbgl)	14	13	0.5	1	5	1
Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0						
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0						
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0						
Herbicides														
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0						
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0						
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0						
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0						
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0						
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0						
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0						
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0						
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0						
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0						
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0						
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0						
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0						
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0						
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Propham		mg/kg	No GAC	-	<0.1	<0.1		0						
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0						
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0						
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
Sample Ref	326R.BH304.ES1	626R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	626R.BH312.ES0
Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
Sample Depth (mbgl)	14	13	0.5	1	5	1
Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0						
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0						
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0						
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0						
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0						
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0						
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0						
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0						
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0						
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0						
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0						
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0						
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0						
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0						
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0						
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0						
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0						
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0						
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
Sample Ref	326R.BH304.ES1	326R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	326R.BH312.ES0
Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
Sample Depth (mbgl)	14	13	0.5	1	5	1
Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0						
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0					<0.1	
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0						
Aluminium		mg/kg	No GAC	-	8270	9680		0						
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0						
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0		<0.01		<0.05	<0.05	<0.01
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0		N/A		N/A	N/A	N/A
Asbestos in soil		-	No GAC	-				0		NAD		NAD	NAD	NAD
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0						
Barium		mg/kg	No GAC	-	68	198		0					154	
Calcium		mg/kg	No GAC	-	8540	8540		0						
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0					13	
Cobalt		mg/kg	No GAC	-	4	12		0						
Coronene		mg/kg	No GAC	-	0.04	0.12		0						
Cresols		mg/kg	No GAC	-				0						
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0						
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0					<0.001	
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0	86.7		78.2	77.9		
EPH CWG GCxGC ID (for FID		-	No GAC	-				0						
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0						
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0						
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0						
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Iron		mg/kg	No GAC	-	43300	43300		0						
Loss on ignition		%	No GAC	-	1.3	24		0					2.5	
Magnesium		mg/kg	No GAC	-	1000	1000		0						
Manganese		mg/kg	No GAC	-	63	595		0						
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0	0.202		0.224	0.225		
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Molybdenum		mg/kg	No GAC	-	<1	8		0					<1	
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0						
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0	<0.007		<0.007	<0.007		
Perylene		mg/kg	No GAC	-	<0.1	25.6		0					<0.1	
Potassium		mg/kg	No GAC	-	500	500		0						
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0						
SVOC TICs (Tentatively Identified		-	No GAC	-				0						
Silver		mg/kg	No GAC	-	<10	<10		0						
Sulphide		mg/kg	No GAC	-	<5	530		0					530	

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH304	BH304	BH305	BH305	BH311	BH312
Sample Ref	326R.BH304.ES1	326R.BH304.ES1	326R.BH305.ES0	326R.BH305.ES0	326R.BH311.ES0	326R.BH312.ES0
Easting	384618.46	384618.46	384525.98	384525.98	384411.7	384382.83
Northing	399600.49	399600.49	399549.39	399549.39	399557.68	399519.93
Hole Elevation (mOD)	41.18	41.18	39.77	39.77	46.2	45.6
Sample Depth (mbgl)	14	13	0.5	1	5	1
Sample Date	16/02/22	18/02/22	01/03/22	07/03/22		10/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	GTD - CO	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0					<5	
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Tin		mg/kg	No GAC	-	<5	<5		0						
Titanium		mg/kg	No GAC	-	67	420		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0						
Total Aromatics		mg/kg	No GAC	-	76	101		0						
Total Aromatics		mg/kg	No GAC	-	<1	6340		0		192		466	9	68
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0						
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0						
VOC TICs		-	No GAC	-				0						
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0						
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0						
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0						
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0						
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ortho Phosphate as P		mg/kg	No GAC	-				0						
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols, Total		mg/kg	No GAC	-	<5	<5		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0						
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0						
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0						
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
									Sample Ref	326R.BH313.ES0	326R.BH313.ES0	326R.BH313.ES0	326R.BH324.ES0	326R.BH324.ES0	326R.BH326.ES0
									Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
									Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
									Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
									Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
									Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		<5				11	6
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		13				37	16
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		1				1.4	**3.6**
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		<0.5				2.5	3.3
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		28				20	24
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0						<1	
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		36				142	179
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		74				**320**	109
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		0.61				0.99	0.42
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		22				29	48
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		<1				2	<1
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		27				34	46
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		59				226	117
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		8.65				7.45	8.28
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0		19.2	33.1	<0.1	<0.1	24.7	<0.1
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<1				<1	<1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		<1				<1	<1
Total Organic Carbon		%	No GAC	-	<0.1	54		0		4.48	1.75		12.4	14.2	14.8
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0							
Asbestos Analysts Comments		---	No GAC	-				0							
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.2				<0.2	<0.2
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0		<1				7	2
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2		<1				11	2
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6		<1				8	3
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14		4				29	17
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2		3				7	2
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0		<0.01				<0.05	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0		<0.01				<0.05	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0		<1				12	3

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
Sample Ref	326R.BH313.ES03	326R.BH313.ES03	326R.BH313.ES03	326R.BH324.ES03	326R.BH324.ES03	326R.BH326.ES0
Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0						
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0	8				75	31
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0	<1				52	2
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0	4				94	6
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0	15				172	7
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0	69				267	12
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0	2				5	<1
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0	<0.01				<0.05	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0	<1				8	2
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0		17		20		
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0						
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0	100				674	60
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0						
PAH														
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0	0.03				2.02	0.01
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0	<0.04				0.28	<0.04
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0	0.57				8.04	0.22
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0	0.02				1.37	0.02
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0	0.14				0.97	0.06
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0	0.23				11.5	0.31
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0	0.65				7.22	0.22
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0	<0.03				10.2	0.28
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0		0.87		4.21		
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0	3.22				57.2	1.6
Pah,Total		mg/kg	No GAC	-	<0.1	100		0						
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0	0.02				0.1	<0.01
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0	0.07				2.07	0.05
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0	0.27				3.52	0.08
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0	0.13				0.72	<0.05
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0	0.32				2.54	0.09
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0	0.3				2.6	0.13
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0	0.14				1.12	<0.07
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0	0.33				2.9	0.13
BTEX														
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0	<0.01				<0.05	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0	<0.01				<0.05	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0	<0.01				<0.05	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0	<0.01				<0.05	<0.01
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0	<0.01				<0.05	<0.01
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0						
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0						
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.01		<0.01		
PCBs														
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0						
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0
VOCs/SVOCs								
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0

Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
Sample Ref	326R.BH313.ES03	326R.BH313.ES03	326R.BH313.ES03	326R.BH324.ES03	326R.BH324.ES03	326R.BH326.ES0
Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
Sample Ref	326R.BH313.ES03	326R.BH313.ES03	326R.BH313.ES03	326R.BH324.ES03	326R.BH324.ES03	326R.BH326.ES0
Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0						
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0						
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0						
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0						
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0						
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0						
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0						
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0						
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0						
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0						
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0						
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0						
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0						
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0						
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0						
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0						
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0		<0.01				
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0						
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0						
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0						
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0						
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0	<0.01			<0.05	<0.01	
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0		<0.1				
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0						
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0						
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0						
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0						
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0						
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0						
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0						
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0						
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref					BH313	BH313	BH313	BH324
Sample Ref					326R.BH313.ES03	326R.BH313.ES03	326R.BH313.ES03	326R.BH324.ES03
Easting					384395.83	384395.83	384395.83	384593.99
Northing					399507.84	399507.84	399507.84	399584.6
Hole Elevation (mOD)					39.81	39.81	39.81	41
Sample Depth (mbgl)					0.5	1	0.3	5
Sample Date					22/02/22	22/02/22	23/02/22	09/04/22
Investigation					326R	326R	326R	326R
Geology					MG-G	MG-G	MG-G	MG-CO
					RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0
Herbicides								
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0
Propham		mg/kg	No GAC	-	<0.1	<0.1		0
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0

Contaminant Name	BH326	Total > Saturation
Hole Ref	BH326	
Sample Ref	326R.BH326.ES0	
Easting	384599	
Northing	399589	
Hole Elevation (mOD)	41.5	
Sample Depth (mbgl)	1.4	
Sample Date	11/04/22	
Investigation	326R	
Geology	MG-G	
	RB Plateau	
VOC Total (excl. BTEX)		
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		
Herbicides		
2,3,6-TBA		<0.1
2,4,5-TP; (Fenoprop); (Silvex)		<0.1
2,4-D		<0.1
2,4-DB		<0.1
4-CPA		<0.1
Ametryne		<0.2
Atraton		<0.1
Atrazine		<0.01
Benazolin		<0.1
Bentazone		<0.1
Bromacil		<0.1
Bromoxynil		<0.1
Carbetamide		<0.1
Chlorbufam		<0.1
Chlorpropham		<0.1
Chlortoluron		<0.1
Clopyralid		<0.1
Cyfluthrin		<0.1
Cyhalothrin		<0.1
Cypermethrin		<0.1
Deltamethrin		<0.1
Dicamba		<0.1
Diclofop		<0.1
Diuron		<0.1
Fenvalerate		<0.1
Flamprop		<0.1
Flamprop-isopropyl		<0.1
Ioxynil		<0.1
Isoproturon		<0.1
Linuron		<0.1
MCPA		<0.1
MCPB		<0.1
MCPP; (Mecoprop)		<0.1
Monuron		<0.1
Permethrin		<0.1
Picloram		<0.1
Pirimicarb		<0.1
Prometon		<0.1
Prometryn		<0.02
Propazine		<0.02
Propham		<0.1
Simazine		<0.01
Simetryn		<0.1
Terbuthylazine		<0.02

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
Sample Ref	326R.BH313.ES0	326R.BH313.ES0	326R.BH313.ES0	326R.BH324.ES0	326R.BH324.ES0	326R.BH326.ES0
Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0			<0.01			
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0			<0.01			
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
Sample Ref	326R.BH313.ES03	326R.BH313.ES03	326R.BH313.ES03	326R.BH324.ES03	326R.BH324.ES03	326R.BH326.ES0
Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)			<0.01			
trans-Chlordane (Gamma)			<0.01			
2,3,5,6-Tetrachlorophenol						
2,4,5-T			<0.1			
2,4-DP; (Dichlorprop)			<0.1			
3+4-Methylphenol						
4-Chlorophenyl Phenyl Ether						
Aliphatics >C10-44						
Aluminium						
Ammoniacal Nitrogen as N						
Aro >C5-C7	<0.01				<0.05	<0.01
Asbestos ACM - Suitable for Water Absorption Test?	N/A				N/A	N/A
Asbestos in soil	NAD				NAD	NAD
Asbestos in soil % composition (hand picking and weighing)						
Barium			68			
Calcium						
Chloride (water sol 2:1)			<10			
Cobalt						
Coronene						
Cresols						
Cyanazine			<0.02			
Demeton-S			<0.5			
Dichlorodifluoromethane						
Dry Matter (Dry Solids) at 40C	81.4				82.6	
EPH CWG GCxGC ID (for FID						
Electrical conductivity @ 20degC						
Endrin Aldehyde			<0.01			
Endrin Ketone			<0.01			
Ethylene glycol (Monoethylene glycol)						
Fensulphothion			<0.01			
Fluoride (water sol 2:1)						
Fluroxypyr			<0.1			
Iron						
Loss on ignition			2.8			
Magnesium						
Manganese						
Mass Sample (1 stage WAC)	0.215				0.212	
Methabenzthiazuron			<0.1			
Molybdenum			1			
Monolinuron			<0.1			
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)						
PCB Total	0.019				<0.007	
Perylene						
Potassium						
Prothiofos (Tokuthion)			<0.01			
Resorcinol						
SVOC TICs (Tentatively Identified						
Silver						
Sulphide			<5			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH313	BH313	BH313	BH324	BH324	BH326
									Sample Ref	326R.BH313.ES03	326R.BH313.ES03	326R.BH313.ES03	326R.BH324.ES03	326R.BH324.ES03	326R.BH326.ES0
									Easting	384395.83	384395.83	384395.83	384593.99	384593.99	384599
									Northing	399507.84	399507.84	399507.84	399584.6	399584.6	399589
									Hole Elevation (mOD)	39.81	39.81	39.81	41	41	41.5
									Sample Depth (mbgl)	0.5	1	0.3	5	1	1.4
									Sample Date	22/02/22	22/02/22	23/02/22	09/04/22	04/04/22	11/04/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-CO	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0				<5			
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0				<0.01			
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0				<0.02			
Tin		mg/kg	No GAC	-	<5	<5		0							
Titanium		mg/kg	No GAC	-	67	420		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0							
Total Aromatics		mg/kg	No GAC	-	76	101		0							
Total Aromatics		mg/kg	No GAC	-	<1	6340		0		92				599	29
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0				<0.01			
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0							
VOC TICs		-	No GAC	-				0							
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0							
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0							
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0							
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0				<0.5			
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Ortho Phosphate as P		mg/kg	No GAC	-				0							
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0				<0.01			
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0							
Phenols, Total		mg/kg	No GAC	-	<5	<5		0							
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0							
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0							
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0							
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0				<0.01			
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0				<0.01			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
									Sample Ref	326R.BH326.ES0	326R.BH327.ES0	326R.BH327.ES0	326R.BH328.ES0	326R.BH328.ES0	326R.OP01.ES01
									Easting	384599	384601	384601	384625	384625	384416.31
									Northing	399589	399608	399608	399609	399609	399512.95
									Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
									Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
									Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0				9		5	21
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0				**42**		**59**	**58**
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0				**2.4**		1.5	1.2
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0				5		3.9	7.2
Chromium	907	mg/kg	131 of 131	0	4.8	470		0				25		20	42
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0							
Copper	7130	mg/kg	131 of 131	0	9.1	820		0				460		158	275
Lead	310	mg/kg	131 of 131	19	6.4	1400		0				**1020**		173	**477**
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0				1.36		<0.17	0.32
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0				46		29	69
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0				2		2	<1
Vanadium	1200	mg/kg	128 of 128	0	7	640		0				56		52	71
Zinc	40400	mg/kg	131 of 131	0	26	1300		0				908		264	684
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0				6.75		7.01	7.9
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0				4		<1	<1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0				<1		<1	<1
Total Organic Carbon		%	No GAC	-	<0.1	54		0		18.2	38	9.67	15.3	40.6	NAD
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							Loose Insulation
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0							
Asbestos Analysts Comments		---	No GAC	-				0							
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0				<0.1			
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0				<0.2		<0.2	<0.2
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0				<1		21	2
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2				<1		30	3
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6				<1		30	9
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14				4		31	236
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2				<1		2	47
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0				<0.01		<0.05	<0.01
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0				<0.01		<0.05	<0.01
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0				1		40	3

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
Easting	384599	384601	384601	384625	384625	384416.31
Northing	399589	399608	399608	399609	399609	399512.95
Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0						
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0			5		155	301
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0			<1		16	5
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0			1		61	17
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0			4		75	50
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0			12		85	149
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0			<1		1	32
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0			<0.01		<0.05	<0.01
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0			<1		14	4
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0	<10	<40		222		
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0						
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0			23		406	557
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0						
PAH														
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0			<0.01		0.1	0.2
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0			<0.04		<0.04	0.24
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0			0.31		0.79	4.48
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0			0.01		0.09	0.17
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0			0.08		0.11	1.16
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0			0.31		1.52	2.6
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0			0.35		0.8	4.16
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0			0.08		1.97	0.16
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0	1.12	1.81		12.3		
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0			1.75		6.92	26
Pah,Total		mg/kg	No GAC	-	<0.1	100		0						
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0			<0.01		0.04	0.18
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0			0.05		0.16	1.04
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0			0.11		0.29	2.26
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0			0.08		0.11	1.04
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0			0.12		0.2	2.16
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0			0.12		0.29	2.64
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0			<0.07		0.09	1.02
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0			0.13		0.36	2.51
BTEX														
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0			<0.01		<0.05	<0.01
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0			<0.01		<0.05	<0.01
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0			<0.01		<0.05	<0.01
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0			<0.01		<0.05	<0.01
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0			<0.01		<0.05	<0.01
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0						
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0						
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0	<0.01	<0.01		<0.01		
PCBs														
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0						
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0						
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
									Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
									Easting	384599	384601	384601	384625	384625	384416.31
									Northing	399589	399608	399608	399609	399609	399512.95
									Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
									Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
									Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0				<0.001			
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0				<0.003			
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0				<0.003			
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0				<0.001			
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0				<0.002			
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0				<0.002			
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0				<0.001			
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0				<0.001			
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0				<0.1			
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0				<0.1			
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0				<0.1			
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0				<0.001			
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
Easting	384599	384601	384601	384625	384625	384416.31
Northing	399589	399608	399608	399609	399609	399512.95
Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0			<0.5			
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0			<0.005			
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0			<0.01			
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0			<0.001			
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0			<0.1			
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0			<0.1			
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0			<0.001			
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0			<0.001			
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0			<0.01			
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0			<0.1			
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0			<0.5			
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0			<0.1			
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0			<0.003			
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0			<0.001			
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0			<0.005			
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0			<0.1			
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0			<0.1			
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0			<0.1			
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0			<0.001			
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0			<0.01	<0.05	<0.01	
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0			<0.1			
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0			<0.001			
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0			<0.002			
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0			<0.001			
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0			<0.001			
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.001			
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0			<0.001			
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0			<0.001			
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0			<0.001			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
Easting	384599	384601	384601	384625	384625	384416.31
Northing	399589	399608	399608	399609	399609	399512.95
Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0						
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0						
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0						
Herbicides														
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0						
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0						
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0						
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0						
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0						
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0						
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0						
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0						
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0						
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0						
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0						
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0						
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0						
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0						
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0						
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0						
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0						
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0						
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0						
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0						
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0						
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0						
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0						
Propham		mg/kg	No GAC	-	<0.1	<0.1		0						
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0						
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0						
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
Easting	384599	384601	384601	384625	384625	384416.31
Northing	399589	399608	399608	399609	399609	399512.95
Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0						
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0						
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0						
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0						
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0						
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0						
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0						
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0						
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0						
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0						
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0						
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0						
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0						
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0						
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0						
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0						
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0						
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0						
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0						
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0						
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0						
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0						
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0						
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0						
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0						
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0						
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0						
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0						
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0						
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

	BH326	BH327	BH327	BH328	BH328	OP01
Hole Ref						
Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
Easting	384599	384601	384601	384625	384625	384416.31
Northing	399589	399608	399608	399609	399609	399512.95
Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
p,p-DDT (4,4)						
trans-Chlordane (Gamma)						
2,3,5,6-Tetrachlorophenol						
2,4,5-T						
2,4-DP; (Dichlorprop)						
3+4-Methylphenol			<0.1			
4-Chlorophenyl Phenyl Ether						
Aliphatics >C10-44						
Aluminium						
Ammoniacal Nitrogen as N						
Aro >C5-C7			<0.01		<0.05	<0.01
Asbestos ACM - Suitable for Water Absorption Test?			N/A		N/A	N/A
Asbestos in soil			NAD		NAD	Chrysotile
Asbestos in soil % composition (hand picking and weighing)						0.011
Barium						
Calcium						
Chloride (water sol 2:1)						
Cobalt						
Coronene						
Cresols						
Cyanazine						
Demeton-S						
Dichlorodifluoromethane			<0.001			
Dry Matter (Dry Solids) at 40C	79.4	78.4		79.2		
EPH CWG GCxGC ID (for FID						
Electrical conductivity @ 20degC						
Endrin Aldehyde						
Endrin Ketone						
Ethylene glycol (Monoethylene glycol)						
Fensulphothion						
Fluoride (water sol 2:1)						
Fluroxypyr						
Iron						
Loss on ignition						
Magnesium						
Manganese						
Mass Sample (1 stage WAC)	0.22	0.223		0.221		
Methabenzthiazuron						
Molybdenum						
Monolinuron						
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)						
PCB Total	<0.007	<0.007		<0.007		
Perylene			<0.1			
Potassium						
Prothiofos (Tokuthion)						
Resorcinol						
SVOC TICs (Tentatively Identified						
Silver						
Sulphide						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	BH326	BH327	BH327	BH328	BH328	OP01
Sample Ref	326R.BH326.ES03	326R.BH327.ES03	326R.BH327.ES03	326R.BH328.ES03	326R.BH328.ES03	326R.OP01.ES01
Easting	384599	384601	384601	384625	384625	384416.31
Northing	399589	399608	399608	399609	399609	399512.95
Hole Elevation (mOD)	41.5	41.3	41.3	41.4	41.4	39.57
Sample Depth (mbgl)	3.4	2.4	7.4	1.4	2.4	0.1
Sample Date	11/04/22	11/04/22	11/04/22	11/04/22	11/04/22	07/03/22
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G	MG-G	MG-G	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0						
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0						
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0						
Tin		mg/kg	No GAC	-	<5	<5		0						
Titanium		mg/kg	No GAC	-	67	420		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0						
Total Aromatics		mg/kg	No GAC	-	76	101		0						
Total Aromatics		mg/kg	No GAC	-	<1	6340		0			17		252	256
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0						
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0						
VOC TICs		-	No GAC	-				0						
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0						
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0						
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0						
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0						
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0						
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Ortho Phosphate as P		mg/kg	No GAC	-				0						
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0						
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0						
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0						
Phenols, Total		mg/kg	No GAC	-	<5	<5		0						
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0						
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0						
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0						
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0						
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref									OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
Sample Ref									326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
Easting									384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
Northing									399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
Hole Elevation (mOD)									40.06	42.6	42.12	44.52	43.63	42.84
Sample Depth (mbgl)									0.1	0	0	0	0	0
Sample Date									07/03/22					
Investigation									326R	326R	326R	326R	326R	326R
Geology									MG-G					
Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal														
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0	21	14	<5	41	35	<5
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0	18	3	8	36	6	4
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0	<0.5	0.7	0.7	1.1	0.5	0.6
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0	3.4	1	1.2	5.5	1.1	1.8
Chromium	907	mg/kg	131 of 131	0	4.8	470		0	23	31	29	40	21	27
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0						
Copper	7130	mg/kg	131 of 131	0	9.1	820		0	129	25	79	626	41	145
Lead	310	mg/kg	131 of 131	19	6.4	1400		0	191	44	237	683	172	75
Manganese		mg/kg	No GAC	-				0						
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0	<0.17	1.05	1.01	0.27	0.88	1.47
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0	28	27	21	38	14	22
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0	<1	<1	<1	10	<1	<1
Vanadium	1200	mg/kg	128 of 128	0	7	640		0	26	27	27	49	23	40
Zinc	40400	mg/kg	131 of 131	0	26	1300		0	322	79	206	988	169	933
Inorganic														
pH		pH Units	No GAC	-	4.52	10.9		0	7.14	8.79	8.37	7	8.05	8.16
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0						
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0	48.5	17.3	<0.1	<0.1	<0.1	12.1
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0	<1	<1	<1	1	<1	<1
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0						
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0						
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0						
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0	<1	<1	<1	3.5	1.3	<1
Total Organic Carbon		%	No GAC	-	<0.1	54		0	9.87	1.74	3.43	26.2	NDP	5.83
Sulphate (acid soluble)		mg/kg	No GAC	-				0						
Asbestos														
Asbestos Matrix (microscope)		-	No GAC	-				0					Loose fibres	
Asbestos Matrix (visual)		-	No GAC	-				0						
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0						
Asbestos (Presence of)		---	No GAC	-				0						
Asbestos Analysts Comments		---	No GAC	-				0						
Phenol and mineral oils														
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0						
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0						
Xylenols		mg/kg	No GAC	-				0						
TPH														
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0	<1					
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2	1					
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6	4					
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14	85					
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2	15					
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0	<0.01					
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0	<0.01					
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0	<1					

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
									Sample Ref	326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
									Easting	384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
									Northing	399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
									Hole Elevation (mOD)	40.06	42.6	42.12	44.52	43.63	42.84
									Sample Depth (mbgl)	0.1	0	0	0	0	0
									Sample Date	07/03/22					
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G					
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0		106					
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0		1					
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0		5					
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0		18					
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0		42					
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0		11					
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0		<0.01					
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0		1					
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0			25	52	158	35	786
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0		183					
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0		0.04					
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0		0.05					
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0		0.99					
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0		0.02					
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0		0.28					
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0		0.45					
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0		0.93					
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0		0.05					
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0			3.63	<0.16	220	9.3	187
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0		5.76					
Pah,Total		mg/kg	No GAC	-	<0.1	100		0							
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0		0.05					
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0		0.26					
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0		0.47					
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0		0.26					
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0		0.48					
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0		0.63					
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0		0.22					
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0		0.58					
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0		<0.01					
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0		<0.01					
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0		<0.01					
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0		<0.01					
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0		<0.01					
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0							
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0			<0.01	<0.01	<0.01	<0.01	<0.01
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
									Sample Ref	326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
									Easting	384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
									Northing	399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
									Hole Elevation (mOD)	40.06	42.6	42.12	44.52	43.63	42.84
									Sample Depth (mbgl)	0.1	0	0	0	0	0
									Sample Date	07/03/22					
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G					
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0							
VOCs/SVOCs															
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0							
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0							
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0							
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0							
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0							
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0							
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0							
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0							
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0							
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0							
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0							
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0							
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0							
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0							
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0							
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0							
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0							
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0							
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0							
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0							
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0							
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0

Hole Ref	OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
Sample Ref	326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
Easting	384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
Northing	399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
Hole Elevation (mOD)	40.06	42.6	42.12	44.52	43.63	42.84
Sample Depth (mbgl)	0.1	0	0	0	0	0
Sample Date	07/03/22					
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G					
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
									Sample Ref	326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
									Easting	384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
									Northing	399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
									Hole Elevation (mOD)	40.06	42.6	42.12	44.52	43.63	42.84
									Sample Depth (mbgl)	0.1	0	0	0	0	0
									Sample Date	07/03/22					
									Investigation	326R	326R	326R	326R	326R	326R
									Geology	MG-G					
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0							
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0							
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0							
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0							
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0							
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0							
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0							
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0							
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0							
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0							
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0							
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0							
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0							
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0							
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0							
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0							
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0							
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0							
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0							
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0							
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0							
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0							
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0							
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0							
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0							
Propham		mg/kg	No GAC	-	<0.1	<0.1		0							
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0							
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0							
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
					RB Plateau	RB Plateau		
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0
Pesticides								
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
Sample Ref	326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
Easting	384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
Northing	399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
Hole Elevation (mOD)	40.06	42.6	42.12	44.52	43.63	42.84
Sample Depth (mbgl)	0.1	0	0	0	0	0
Sample Date	07/03/22					
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G					
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09	
326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023	
384454.6	384689.47	384583.34	384667.48	384808.38	384760.26	
399552.16	399698.72	399659.31	399745.19	399770.76	399703.6	
40.06	42.6	42.12	44.52	43.63	42.84	
0.1	0	0	0	0	0	
07/03/22						
326R	326R	326R	326R	326R	326R	
MG-G						
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
<0.01						
N/A	N/A	N/A	N/A	N/A	N/A	
NAD	NAD	NAD	NAD	Chrysotile	NAD	
				<0.001		
91.3	68	64.3	87.5	91.5		
0.192	0.258	0.272	0.2	0.191		
<0.007	<0.014	<0.014	<0.007	0.012		

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Sulphur (elemental)		mg/kg	No GAC	-	<5	890		0
Telodrin		mg/kg	No GAC	-	<0.01	<0.01		0
Terbutryn		mg/kg	No GAC	-	<0.02	<0.02		0
Tin		mg/kg	No GAC	-	<5	<5		0
Titanium		mg/kg	No GAC	-	67	420		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	<10		0
Total Aromatics		mg/kg	No GAC	-	76	101		0
Total Aromatics		mg/kg	No GAC	-	<1	6340		0
Trichloronate		mg/kg	No GAC	-	<0.01	<0.01		0
Trimethylphenol		mg/kg	No GAC	-	<0.5	<0.5		0
VOC TICs		-	No GAC	-				0
Xylenols & Ethylphenols		mg/kg	No GAC	-	<0.5	<0.5		0
Aromatics >C10-44		mg/kg	No GAC	-	<10	290		0
Chloroxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Cresol & Chlorinated Phenol Total		mg/kg	No GAC	-	<0.1	<0.1		0
Demeton-O		mg/kg	No GAC	-	<0.5	<0.5		0
Diflubenzuron		mg/kg	No GAC	-	<0.1	<0.1		0
Dimefuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ethers Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Ethiofencarb		mg/kg	No GAC	-	<0.1	<0.1		0
Metoxuron		mg/kg	No GAC	-	<0.1	<0.1		0
Ortho Phosphate as P		mg/kg	No GAC	-				0
Pencycuron		mg/kg	No GAC	-	<0.1	<0.1		0
Permethrin I (cis)		mg/kg	No GAC	-	<0.01	<0.01		0
Phenmedipham		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols Total (from SVOC)		mg/kg	No GAC	-	<0.1	<0.1		0
Phenols, Total		mg/kg	No GAC	-	<5	<5		0
Total Aliphatics and Aromatics C10-C44		mg/kg	No GAC	-	<10	340		0
Total Aliphatics and Aromatics C5-C35		mg/kg	No GAC	-	<10	1200		0
Total Aromatics C5-C35		mg/kg	No GAC	-	<10	740		0
p,p-DDD (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
p,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0

Hole Ref	OP03	SoilSamp02	SoilSamp04	SoilSamp05	SoilSamp07	SoilSamp09
Sample Ref	326R.OP03.ES01	WA1034016	WA1034018	WA1034019	WA1034021	WA1034023
Easting	384454.6	384689.47	384583.34	384667.48	384808.38	384760.26
Northing	399552.16	399698.72	399659.31	399745.19	399770.76	399703.6
Hole Elevation (mOD)	40.06	42.6	42.12	44.52	43.63	42.84
Sample Depth (mbgl)	0.1	0	0	0	0	0
Sample Date	07/03/22					
Investigation	326R	326R	326R	326R	326R	326R
Geology	MG-G					
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

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Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305
									Sample Ref	WA1034024	WA1034025	326R.TP304.ES03	326R.TP304.ES03	326R.TP304.ES03	326R.TP305.ES03
									Easting	384608.59	384669.16	384627.23	384627.23	384627.23	384559.16
									Northing	399622.25	399650.53	399632.01	399632.01	399632.01	399588
									Hole Elevation (mOD)	41.24	42.01	41.34	41.34	41.34	41.05
									Sample Depth (mbgl)	0	0	0.5	1.2	2.45	1
									Sample Date			22/02/22	22/02/22	22/02/22	24/02/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology			MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Metal															
Antimony	617.5682	mg/kg	88 of 128	0	<1	55		0		19	5	<5			
Arsenic	39.9	mg/kg	130 of 131	17	<1	89		0		**45**	6	9			
Beryllium	1.7	mg/kg	124 of 128	25	<0.2	3.9		0		0.8	1.1	0.6			
Cadmium	85	mg/kg	122 of 131	0	<0.1	7.2		0		3.8	1.4	0.9			
Chromium	907	mg/kg	131 of 131	0	4.8	470		0		24	24	10			
Chromium (hexavalent)	6	mg/kg	0 of 77	0	<1	<1		0							
Copper	7130	mg/kg	131 of 131	0	9.1	820		0		744	39	93			
Lead	310	mg/kg	131 of 131	19	6.4	1400		0		**356**	154	77			
Manganese		mg/kg	No GAC	-				0							
Mercury	56	mg/kg	83 of 131	0	<0.05	18		0		2.09	1.14	<0.17			
Nickel	181.4	mg/kg	131 of 131	0	6.6	69		0		34	14	19			
Selenium	430	mg/kg	22 of 131	0	<0.5	10		0		1	<1	<1			
Vanadium	1200	mg/kg	128 of 128	0	7	640		0		40	21	16			
Zinc	40400	mg/kg	131 of 131	0	26	1300		0		228	139	301			
Inorganic															
pH		pH Units	No GAC	-	4.52	10.9		0		7.12	8.05	6.16			
% Moisture at <40C		% w/w	No GAC	-	3.3	10.1		0							
% Stones >10mm		% w/w	No GAC	-	<0.1	48.5		0		37.6	<0.1	40.6	13.3	22.5	5
Cyanide	24	mg/kg	56 of 131	2	<0.1	68		0		<1	<1		<1		
Complex Cyanide		mg/kg	No GAC	-	<0.2	12		0							
Cyanide (free)	24	mg/kg	1 of 5	0	<0.1	<1		0							
Thiocyanate		mg/kg	No GAC	-	<0.6	<5		0							
Boron	10775	mg/kg	97 of 131	0	<0.2	3.5		0		<1	<1		<1		
Total Organic Carbon		%	No GAC	-	<0.1	54		0		12.3	2.49		2.07	13.5	31.4
Sulphate (acid soluble)		mg/kg	No GAC	-				0							
Asbestos															
Asbestos Matrix (microscope)		-	No GAC	-				0							
Asbestos Matrix (visual)		-	No GAC	-				0							
Asbestos Quantification (Total %)		%	No GAC	-	0.007	0.012		0							
Asbestos (Presence of)		---	No GAC	-				0							
Asbestos Analysts Comments		---	No GAC	-				0							
Phenol and mineral oils															
Phenol	1200	mg/kg	0 of 20	0	<0.1	<0.5		0							
Phenol (Monohydric)	1200	mg/kg	26 of 131	0	<0.2	2.7		0		<0.2	<0.2	<0.2			
Cresols		mg/kg	No GAC	-	<0.5	<0.5		0							
Xylenols		mg/kg	No GAC	-				0							
TPH															
Ali >C10-C12	767	mg/kg	19 of 89	0	<1	130	283.0	0				<1			
Ali >C12-C16	4370	mg/kg	25 of 89	0	<1	262	142.0	2				<1			
Ali >C16-C21	48900	mg/kg	25 of 89	0	<1	315	50.90	6				<1			
Ali >C21-C35	48900	mg/kg	31 of 89	0	<1	350	50.90	14				2			
Ali >C35-C44	48901	mg/kg	18 of 56	0	<1	213	50.90	2				<1			
Ali >C5-C6	161	mg/kg	0 of 89	0	<0.01	<0.05		0				<0.01			
Ali >C6-C8	529	mg/kg	3 of 89	0	<0.01	1.2		0				<0.01			
Ali >C8-C10	155	mg/kg	17 of 89	0	<0.01	47		0				<1			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305
									Sample Ref	WA1034024	WA1034025	326R.TP304.ES03	326R.TP304.ES03	326R.TP304.ES03	326R.TP305.ES03
									Easting	384608.59	384669.16	384627.23	384627.23	384627.23	384559.16
									Northing	399622.25	399650.53	399632.01	399632.01	399632.01	399588
									Hole Elevation (mOD)	41.24	42.01	41.34	41.34	41.34	41.05
									Sample Depth (mbgl)	0	0	0.5	1.2	2.45	1
									Sample Date			22/02/22	22/02/22	22/02/22	24/02/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology			MG-G	MG-G	MG-G	MG-G
										RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Aliphatics >C5-35		mg/kg	No GAC	-	<10	650		0							
Total Aliphatics		mg/kg	No GAC	-	<1	1110		0					2		
Aro >C10-C12	1240	mg/kg	26 of 89	0	<0.9	105		0					<1		
Aro >C12-C16	2480	mg/kg	40 of 89	0	<0.5	675		0					<1		
Aro >C16-C21	1817	mg/kg	41 of 89	0	<0.6	1540		0					<1		
Aro >C21-C35	1930	mg/kg	44 of 89	1	<1	3710		0					2		
Aro >C35-C44	1930	mg/kg	18 of 56	0	<1	192		0					<1		
Aro >C7-C8	3928	mg/kg	1 of 89	0	<0.01	0.38		0					<0.01		
Aro >C8-C10	269	mg/kg	16 of 89	0	<0.01	109		0					<1		
Mineral Oil (>C10-C40)		mg/kg	No GAC	-	<10	1740		0		152	269			156	228
TPH (Ali & Aro >C5-C35)		mg/kg	No GAC	-	142	417		0							
TPH (Ali & Aro >C5-C44)		mg/kg	No GAC	-	<1	7450		0					4		
TPH >C10-40		mg/kg	No GAC	-	<10	1700		0							
PAH															
Acenaphthene	6040	mg/kg	51 of 96	0	<0.01	7.29	336.0	0					<0.01		
Dibenz-a-h-anthracene	0.32	mg/kg	31 of 96	7	<0.03	5.51		0					<0.04		
Fluoranthene	1580	mg/kg	75 of 96	0	<0.03	59		0					<0.08		
Fluorene	4460	mg/kg	47 of 96	0	<0.01	13.4	183.0	0					<0.01		
Indeno(1,2,3-cd)pyrene	46	mg/kg	61 of 96	0	<0.03	24.1		0					<0.03		
Phenanthrene	1520	mg/kg	74 of 96	0	<0.03	74.4		0					<0.03		
Pyrene	3790	mg/kg	76 of 96	0	<0.03	129		0					<0.07		
Naphthalene	13.2	mg/kg	54 of 97	0	<0.01	10.2		0					<0.03		
PAH (total 17)		mg/kg	No GAC	-	0.04	220		0		2.03	4.19			9.19	0.36
Total PAH-16MS		mg/kg	No GAC	-	<0.08	570		0					<0.08		
Pah,Total		mg/kg	No GAC	-	<0.1	100		0							
Acenaphthylene	5970	mg/kg	33 of 96	0	<0.01	10.9	506.0	0					<0.01		
Anthracene	36600	mg/kg	63 of 96	0	<0.02	19.1		0					<0.02		
Benzo(a)anthracene	15	mg/kg	69 of 96	1	<0.03	39.6		0					<0.04		
Benzo (g,h,i) perylene	359	mg/kg	61 of 96	0	<0.03	29.9		0					<0.05		
Benzo(a)pyrene	3.23	mg/kg	63 of 96	7	<0.03	39.6		0					<0.04		
Benzo(b)fluoranthene	4.06	mg/kg	70 of 96	5	<0.03	35.8		0					<0.05		
Benzo(k)fluoranthene	107	mg/kg	56 of 96	0	<0.03	12.7		0					<0.07		
Chrysene	31.9	mg/kg	70 of 96	1	<0.03	60		0					<0.06		
BTEX															
BTEX - Benzene	1.421879	mg/kg	1 of 108	0	<0.01	0.41		0					<0.01		
BTEX - Toluene	3927.625	mg/kg	1 of 108	0	<0.01	0.38		0					<0.01		
BTEX - Ethyl Benzene	439.718	mg/kg	3 of 108	0	<0.01	0.34		0					<0.01		
BTEX - m & p Xylene	428	mg/kg	3 of 35	0	<0.01	0.55		0					<0.01		
BTEX - o Xylene	475.7208	mg/kg	3 of 35	0	<0.01	0.46		0					<0.01		
Xylene	428	mg/kg	3 of 81	0	<0.01	1.9		0							
BTEX and MTBE Total		mg/kg	No GAC	-	<0.01	<0.01		0							
BTEX (total)		mg/kg	No GAC	-	<0.001	5.9		0		<0.01	<0.01			<0.01	<0.01
PCBs															
PCB BZ 105	0.000074	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 114	0.000004	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 118	0.000171	mg/kg	0 of 8	0	<0.007	<0.007		0							
PCB BZ 123	0.000006	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 126	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 156	0.000032	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 157	0.000008	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 167	0.000013	mg/kg	0 of 8	0	<0.005	<0.005		0							
PCB BZ 169	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0							

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
PCB BZ 189	0.000005	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 77	0.000016	mg/kg	0 of 8	0	<0.005	<0.005		0
PCB BZ 81	0.000001	mg/kg	0 of 8	0	<0.005	<0.005		0
Total Speciated PCB-WHO12		mg/kg	No GAC	-	<0.007	<0.007		0
VOCs/SVOCs								
1,1,1,2-Tetrachloroethane	8.2	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1,1-Trichloroethane	40.4	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1,2,2-Tetrachloroethane	17.2	mg/kg	0 of 12	0	<0.001	<0.001		0
1,1,2-Trichloroethane	5.53	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1-Dichloroethane	10.9	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1-Dichloroethene	1.17	mg/kg	0 of 22	0	<0.001	<0.1		0
1,1-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0
1,2,3 Trichlorobenzene	8.81	mg/kg	1 of 22	0	<0.003	<0.1		0
1,2,3-Trichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0
1,2,4-Trichlorobenzene	15.3	mg/kg	0 of 22	0	<0.003	<0.1		0
1,2,4-Trimethylbenzene	3.31	mg/kg	3 of 22	0	<0.001	0.85		0
1,2-Dibromo-3-Chloropropane		mg/kg	No GAC	-	<0.002	0.16		0
1,2-Dibromoethane		mg/kg	No GAC	-	<0.001	<0.1		0
1,2-Dichlorobenzene	133	mg/kg	0 of 22	0	<0.001	<0.1		0
1,2-Dichloroethane	0.0227	mg/kg	0 of 22	0	<0.002	<0.1		0
1,2-Dichloropropane	0.121	mg/kg	0 of 22	0	<0.001	<0.1		0
1,3,5-Trimethylbenzene		mg/kg	No GAC	-	<0.001	0.42		0
1,3-Dichlorobenzene	2.45	mg/kg	0 of 22	0	<0.001	<0.1		0
1,3-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0
1,4-Dichlorobenzene	350	mg/kg	0 of 22	0	<0.001	<0.1		0
2,2-Dichloropropane		mg/kg	No GAC	-	<0.001	<0.1		0
2,3,4,6-Tetrachlorophenol	229	mg/kg	0 of 9	0	<0.1	<0.1		0
2,4,5-Trichlorophenol	210	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4,6-Trichlorophenol	231	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4-Dichlorophenol	186	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4-Dimethylphenol	1040	mg/kg	0 of 18	0	<0.1	<0.1		0
2,4-Dinitrotoluene	254	mg/kg	0 of 18	0	<0.1	<0.1		0
2,6-Dinitrotoluene	125	mg/kg	1 of 18	0	<0.1	0.2		0
2-Chloronaphthalene	31.6	mg/kg	0 of 18	0	<0.1	<0.1		0
2-Chlorophenol	207	mg/kg	0 of 18	0	<0.1	<0.1		0
2-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0
2-Methyl-4,6-Dinitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2-Methylnaphthalene		mg/kg	No GAC	-	<0.1	15		0
2-Methylphenol	9930	mg/kg	0 of 18	0	<0.1	<0.1		0
2-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0
2-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0
3-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0
4-Bromophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
4-Chloro-3-Methylphenol		mg/kg	No GAC	-	<0.1	<0.1		0
4-Chlorotoluene		mg/kg	No GAC	-	<0.001	<0.1		0
4-Isopropyltoluene		mg/kg	No GAC	-	<0.001	<0.1		0
4-Nitroaniline		mg/kg	No GAC	-	<0.1	<0.1		0
4-Nitrophenol		mg/kg	No GAC	-	<0.1	<0.1		0
Aniline		mg/kg	No GAC	-	<0.1	<0.1		0
Azobenzene		mg/kg	No GAC	-	<0.1	<0.1		0
Benzyl Alcohol		mg/kg	No GAC	-	<0.1	<0.1		0
Bis(2-chloroethoxy)methane		mg/kg	No GAC	-	<0.1	<0.1		0

Hole Ref	SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305
Sample Ref	WA1034024	WA1034025	326R.TP304.ES03	326R.TP304.ES03	326R.TP304.ES03	326R.TP305.ES03
Easting	384608.59	384669.16	384627.23	384627.23	384627.23	384559.16
Northing	399622.25	399650.53	399632.01	399632.01	399632.01	399588
Hole Elevation (mOD)	41.24	42.01	41.34	41.34	41.34	41.05
Sample Depth (mbgl)	0	0	0.5	1.2	2.45	1
Sample Date			22/02/22	22/02/22	22/02/22	24/02/22
Investigation	326R	326R	326R	326R	326R	326R
Geology			MG-G	MG-G	MG-G	MG-G
	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305
Sample Ref	WA1034024	WA1034025	326R.TP304.ES03	326R.TP304.ES03	326R.TP304.ES03	326R.TP305.ES03
Easting	384608.59	384669.16	384627.23	384627.23	384627.23	384559.16
Northing	399622.25	399650.53	399632.01	399632.01	399632.01	399588
Hole Elevation (mOD)	41.24	42.01	41.34	41.34	41.34	41.05
Sample Depth (mbgl)	0	0	0.5	1.2	2.45	1
Sample Date			22/02/22	22/02/22	22/02/22	24/02/22
Investigation	326R	326R	326R	326R	326R	326R
Geology			MG-G	MG-G	MG-G	MG-G

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Bis(2-chloroethyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-chloroisopropyl)ether		mg/kg	No GAC	-	<0.1	<0.1		0						
Bis(2-ethylhexyl)phthalate	4090	mg/kg	0 of 18	0	<0.1	<0.5		0						
Bromobenzene	7	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromochloromethane		mg/kg	No GAC	-	<0.005	<0.1		0						
Bromodichloromethane	0.096	mg/kg	0 of 22	0	<0.01	<0.1		0						
Bromoform	32.4	mg/kg	0 of 22	0	<0.001	<0.1		0						
Bromomethane		mg/kg	No GAC	-	<0.001	<0.001		0						
Butylbenzyl phthalate	63800	mg/kg	1 of 18	0	<0.1	<0.1		0						
Carbazole		mg/kg	No GAC	-	<0.1	1.8		0						
Carbon Disulphide	0.622	mg/kg	0 of 12	0	<0.001	<0.001		0						
Carbon Tetrachloride	0.128	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chlorobenzene	2.41	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroethane	26	mg/kg	0 of 12	0	<0.001	<0.001		0						
Chloroethene	0.00153	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloroform	4.22	mg/kg	0 of 22	0	<0.001	<0.1		0						
Chloromethane	0.0188	mg/kg	0 of 12	0	<0.01	<0.01		0						
Di-N-Butyl Phthalate	645	mg/kg	0 of 18	0	<0.1	<0.1		0						
Di-N-Octyl Phthalate	4920	mg/kg	0 of 18	0	<0.1	<0.5		0						
Dibenzofuran		mg/kg	No GAC	-	<0.1	3.3		0						
Dibromochloromethane		mg/kg	No GAC	-	<0.003	<0.1		0						
Dibromomethane		mg/kg	No GAC	-	<0.001	<0.1		0						
Dichloromethane	6.37	mg/kg	0 of 12	0	<0.005	<0.005		0						
Diethyl phthalate	8970	mg/kg	0 of 18	0	<0.1	<0.1	65.0	0						
Dimethyl phthalate		mg/kg	No GAC	-	<0.1	<0.1		0						
Diphenylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachlorobenzene	6.38	mg/kg	0 of 21	0	<0.01	<0.1	1.190	0			<0.01			
Hexachlorobutadiene	1.79	mg/kg	0 of 22	0	<0.001	<0.1		0						
Hexachlorocyclopentadiene		mg/kg	No GAC	-	<0.1	<0.1		0						
Hexachloroethane	1.8	mg/kg	0 of 9	0	<0.1	<0.1		0						
Isophorone		mg/kg	No GAC	-	<0.1	<0.1		0						
Isopropylbenzene	95.4	mg/kg	1 of 22	0	<0.001	<0.1		0						
M-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
MTBE	319	mg/kg	0 of 35	0	<0.01	<0.1		0				<0.01		
Nitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
O-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
P-Dinitrobenzene		mg/kg	No GAC	-	<0.1	<0.1		0						
PCP; (Pentachlorophenol)	30.6	mg/kg	0 of 21	0	<0.1	<0.1		0			<0.1			
Sec-Butylbenzene		mg/kg	No GAC	-	<0.001	0.85		0						
Styrene	236	mg/kg	0 of 22	0	<0.001	<0.1		0						
Tert-Butylbenzene		mg/kg	No GAC	-	<0.002	<0.1		0						
Tetrachloroethene	0.92	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichloroethene	0.0797	mg/kg	0 of 22	0	<0.001	<0.1		0						
Trichlorofluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0						
cis 1,2-Dichloroethene	0.559	mg/kg	0 of 22	0	<0.001	<0.1		0						
cis 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.001		0						
cis1,3-Dichloropropene		mg/kg	No GAC	-	<0.01	<0.1		0						
n-Butylbenzene		mg/kg	No GAC	-	<0.001	<0.1		0						
n-Nitroso-n-dipropylamine		mg/kg	No GAC	-	<0.1	<0.1		0						
n-Propylbenzene	323	mg/kg	1 of 22	0	<0.001	<0.1		0						
trans 1,2-Dichloroethene	1.02	mg/kg	0 of 22	0	<0.001	<0.1		0						
trans 1,3-Dichloropropene		mg/kg	No GAC	-	<0.001	<0.1		0						

Concentration exceeds GAC	**100.00**
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

									Hole Ref	SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305
									Sample Ref	WA1034024	WA1034025	326R.TP304.ES0	326R.TP304.ES0	326R.TP304.ES0	326R.TP305.ES0
									Easting	384608.59	384669.16	384627.23	384627.23	384627.23	384559.16
									Northing	399622.25	399650.53	399632.01	399632.01	399632.01	399588
									Hole Elevation (mOD)	41.24	42.01	41.34	41.34	41.34	41.05
									Sample Depth (mbgl)	0	0	0.5	1.2	2.45	1
									Sample Date			22/02/22	22/02/22	22/02/22	24/02/22
									Investigation	326R	326R	326R	326R	326R	326R
									Geology			MG-G	MG-G	MG-G	MG-G
Contaminant Name	**GAC**	**Units**	**Total > LOD**	**Total > GAC**	**Min**	**Max**	**Saturation Value**	**Total > Saturation**		**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**	**RB Plateau**
VOC Total (excl. BTEX)		mg/kg	No GAC	-	<0.01	<0.01		0							
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)		mg/kg	No GAC	-	<0.1	0.277		0							
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)		mg/kg	No GAC	-	<0.1	0.277		0							
Herbicides															
2,3,6-TBA		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
2,4,5-TP; (Fenoprop); (Silvex)		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
2,4-D		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
2,4-DB		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
4-CPA		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Ametryne		mg/kg	No GAC	-	<0.2	<0.2		0				<0.2			
Atraton		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Atrazine	620	mg/kg	0 of 3	0	<0.01	<0.01		0				<0.01			
Benazolin		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Bentazone		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Bromacil		mg/kg	No GAC	-	<0.1	0.5		0				0.5			
Bromoxynil		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Carbetamide		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Chlorbufam		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Chlorpropham		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Chlortoluron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Clopyralid		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Cyfluthrin		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Cyhalothrin		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Cypermethrin		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Deltamethrin		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Dicamba		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Diclofop		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Diuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Fenvalerate		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Flamprop		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Flamprop-isopropyl		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Ioxynil		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Isoproturon		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Linuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
MCPA		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
MCPB		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
MCPP; (Mecoprop)		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Monuron		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Permethrin		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Picloram		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Pirimicarb		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Prometon		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Prometryn		mg/kg	No GAC	-	<0.02	<0.02		0				<0.02			
Propazine		mg/kg	No GAC	-	<0.02	<0.02		0				<0.02			
Propham		mg/kg	No GAC	-	<0.1	<0.1		0				<0.1			
Simazine		mg/kg	No GAC	-	<0.01	<0.01		0				<0.01			
Simetryn		mg/kg	No GAC	-	<0.02	<0.1		0				<0.02			
Terbuthylazine		mg/kg	No GAC	-	<0.02	<0.02		0				<0.02			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Hole Ref	SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305		
Sample Ref	WA1034024	WA1034025	326R.TP304.ES03	326R.TP304.ES03	326R.TP304.ES03	326R.TP305.ES03		
Easting	384608.59	384669.16	384627.23	384627.23	384627.23	384559.16		
Northing	399622.25	399650.53	399632.01	399632.01	399632.01	399588		
Hole Elevation (mOD)	41.24	42.01	41.34	41.34	41.34	41.05		
Sample Depth (mbgl)	0	0	0.5	1.2	2.45	1		
Sample Date			22/02/22	22/02/22	22/02/22	24/02/22		
Investigation	326R	326R	326R	326R	326R	326R		
Geology			MG-G	MG-G	MG-G	MG-G		

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau
Triclopyr		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Pesticides														
Aldrin	1.9	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
Azinphos-ethyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Azinphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Carbophenothion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorfenvinphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorothalonil		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorpyrifos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Chlorpyrifos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Coumaphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Diazinon (Dimpylate)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Dichlobenil		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Dichlorvos	6.6	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
Dieldrin	3.2	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
Dimethoate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Disulfoton		mg/kg	No GAC	-	<0.1	<0.1		0			<0.1			
Endosulphan I (Alpha)	404	mg/kg	0 of 3	0	<0.01	<0.01	0.0164	0			<0.01			
Endosulphan II (Beta)	440	mg/kg	0 of 3	0	<0.01	<0.01	0.000382	0			<0.01			
Endosulphan Sulphate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Endrin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Ethion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Fenitrothion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Fenthion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Heptachlor		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Heptachlor epoxide		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Isodrin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Malathion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Methyl Parathion		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Mevinphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Parathion (Ethyl Parathion)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Pendimethalin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Permethrin II (trans)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Phorate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Phosalone		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Pirimiphos-methyl		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Propetamphos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Quintozene (PCNB)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Tecnazene		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Triadimefon		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Triallate		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Triazophos		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
Trifluralin		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
alpha-Hexachlorocyclohexane (HCH)	11	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
beta-Hexachlorocyclohexane (HCH)	3.8	mg/kg	0 of 3	0	<0.01	<0.01		0			<0.01			
cis-Chlordane (Alpha)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
delta-Hexachlorocyclohexane (HCH)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-DDD (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-DDE (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-DDT (2,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
o,p-Methoxychlor		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			
p,p-DDE (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0			<0.01			

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Contaminant Name	GAC	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation
Hole Ref								
Sample Ref								
Easting								
Northing								
Hole Elevation (mOD)								
Sample Depth (mbgl)								
Sample Date								
Investigation								
Geology								
p,p-DDT (4,4)		mg/kg	No GAC	-	<0.01	<0.01		0
trans-Chlordane (Gamma)		mg/kg	No GAC	-	<0.01	<0.01		0
2,3,5,6-Tetrachlorophenol		mg/kg	No GAC	-	<0.1	<0.1		0
2,4,5-T		mg/kg	No GAC	-	<0.1	<0.1		0
2,4-DP; (Dichlorprop)		mg/kg	No GAC	-	<0.1	<0.1		0
3+4-Methylphenol		mg/kg	No GAC	-	<0.1	0.3		0
4-Chlorophenyl Phenyl Ether		mg/kg	No GAC	-	<0.1	<0.1		0
Aliphatics >C10-44		mg/kg	No GAC	-	<10	94		0
Aluminium		mg/kg	No GAC	-	8270	9680		0
Ammoniacal Nitrogen as N		mg/kg	No GAC	-	2.2	2.2		0
Aro >C5-C7		mg/kg	No GAC	-	<0.01	0.41		0
Asbestos ACM - Suitable for Water Absorption Test?		-	No GAC	-				0
Asbestos in soil		-	No GAC	-				0
Asbestos in soil % composition (hand picking and weighing)		% w/w	No GAC	-	<0.001	1.539		0
Barium		mg/kg	No GAC	-	68	198		0
Calcium		mg/kg	No GAC	-	8540	8540		0
Chloride (water sol 2:1)		mg/kg	No GAC	-	<10	13		0
Cobalt		mg/kg	No GAC	-	4	12		0
Coronene		mg/kg	No GAC	-	0.04	0.12		0
Cresols		mg/kg	No GAC	-				0
Cyanazine		mg/kg	No GAC	-	<0.02	<0.02		0
Demeton-S		mg/kg	No GAC	-	<0.5	<0.5		0
Dichlorodifluoromethane		mg/kg	No GAC	-	<0.001	<0.001		0
Dry Matter (Dry Solids) at 40C		% w/w	No GAC	-	59.1	91.5		0
EPH CWG GCxGC ID (for FID		-	No GAC	-				0
Electrical conductivity @ 20degC		uS/cm	No GAC	-	115	442		0
Endrin Aldehyde		mg/kg	No GAC	-	<0.01	<0.01		0
Endrin Ketone		mg/kg	No GAC	-	<0.01	<0.01		0
Ethylene glycol (Monoethylene glycol)		mg/kg	No GAC	-				0
Fensulphothion		mg/kg	No GAC	-	<0.01	<0.01		0
Fluoride (water sol 2:1)		mg/kg	No GAC	-				0
Fluroxypyr		mg/kg	No GAC	-	<0.1	<0.1		0
Iron		mg/kg	No GAC	-	43300	43300		0
Loss on ignition		%	No GAC	-	1.3	24		0
Magnesium		mg/kg	No GAC	-	1000	1000		0
Manganese		mg/kg	No GAC	-	63	595		0
Mass Sample (1 stage WAC)		kg	No GAC	-	0.191	0.296		0
Methabenzthiazuron		mg/kg	No GAC	-	<0.1	<0.1		0
Molybdenum		mg/kg	No GAC	-	<1	8		0
Monolinuron		mg/kg	No GAC	-	<0.1	<0.1		0
Naphthols (2-Naphthalenesulfonic acid, 1-hydroxy-)		mg/kg	No GAC	-	<0.5	<0.5		0
PCB Total		mg/kg	No GAC	-	<0.007	0.03		0
Perylene		mg/kg	No GAC	-	<0.1	25.6		0
Potassium		mg/kg	No GAC	-	500	500		0
Prothiofos (Tokuthion)		mg/kg	No GAC	-	<0.01	<0.01		0
Resorcinol		mg/kg	No GAC	-	<0.5	<0.5		0
SVOC TICs (Tentatively Identified		-	No GAC	-				0
Silver		mg/kg	No GAC	-	<10	<10		0
Sulphide		mg/kg	No GAC	-	<5	530		0

SoilSamp10	SoilSamp11	TP304	TP304	TP304	TP305	
WA1034024	WA1034025	326R.TP304.ES03	326R.TP304.ES03	326R.TP304.ES03	326R.TP305.ES03	
384608.59	384669.16	384627.23	384627.23	384627.23	384559.16	
399622.25	399650.53	399632.01	399632.01	399632.01	399588	
41.24	42.01	41.34	41.34	41.34	41.05	
0	0	0.5	1.2	2.45	1	
		22/02/22	22/02/22	22/02/22	24/02/22	
326R	326R	326R	326R	326R	326R	
		MG-G	MG-G	MG-G	MG-G	
RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	RB Plateau	
		<0.01				
		<0.01				
		<0.1				
		<0.1				
			<0.01			
N/A	N/A		N/A			
NAD	NAD		NAD			
		<0.02				
		<0.5				
83.3	83.3			79.4	74.4	
		<0.01				
		<0.01				
		<0.01				
		<0.1				
0.21	0.21			0.22	0.235	
		<0.1				
		<0.1				
<0.007	<0.007			<0.007	<0.007	
		<0.01				