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Report on
Detailed Site Investigation (Contamination)

School Upgrades - Proposed Works
Narrabeen Education Precinct
Namona Street, Narrabeen

Prepared for
NSW Department of Education

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1. Introduction

Douglas Partners Pty Ltd (DP) was engaged by Johnstaff Projects Pty Ltd on behalf of the NSW Department of Education to complete this detailed site investigation (contamination) (DSI) for the proposed school upgrades works at Narrabeen North Public School (NNPS) and Narrabeen Sports High School (NSHS) on Namona Street, Narrabeen (the site). The site, which is also referred to as the Narrabeen Education Precinct (NEP), comprises NNPS and NSHS. The investigation locations for this DSI focused on those areas likely to be subject to intrusive upgrade works based on the proposed works at the time of the investigation. The site and investigation areas are shown on Drawings 1, 2 and 3, Appendix A.

The investigation was undertaken in general accordance with DP's proposal 86973.04.P.002.Rev1 dated 16 March 2022, noting that changes were made to the scope over the course of the investigation to reflect changes to the proposed upgrade works. The results of the investigation are presented in DP (2022)[1], which described the investigation in the context of potential upgrade works that DP understands were being considered during the course of project development. Following final determination of the proposed upgrade works by NSW Department of Education, this report reflects those results from DP (2022) which are more relevant to proposed works to provide greater clarity for relevant planning submissions and project documentation. In this regard it is understood that the report will be used to assist project planning and may be included in documentation to support a development application for the proposed works.

The objective of the DSI was to assess the suitability of the investigation areas from a contamination perspective for their continued school use consistent with the proposed school upgrade works, and whether further investigation and / or management of contamination in these areas is required. At the time of the investigation reported in DP (2022), consideration was given to other proposed upgrade works around NSHS which are no longer proposed.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

[1] DP, *'Report on Detailed Site Investigation (Contamination), Narrabeen Education Precinct, Namona Street, Narrabeen',* dated 10 August 2022, DP reference: 86973.04.R.001.Rev1 (DP, 2022).

2. Proposed Development

The details of the proposed works understood at the time of preparing this report are listed below. Prior to commencing the investigation works, alternate options for the proposed upgrade works were being considered, although no final determination on the works had been made at the time. These areas formed the focus of DP's investigations and are shown on the Drawings in Appendix A.

Narrabeen North Public School (NNPS)

The proposed works at NNPS comprise:

- Demolition of Building H, Building J and the amphitheatre;
- Removal of some trees;
- Removal of some existing demountable classrooms;
- Upgrade works to Building B (double bini-shell) for use as library including heritage conservation and restoration works;
- Refurbishment of Building K and the ground floor of Building V;
- Construction of two new buildings, namely:
  - A two storey building used for general learning spaces; and
  - A two storey building containing administration facilities, multi-purpose hall and out-of-school-hours care facilities on the ground floor with associated covered outdoor leaning area and staff facilities and amenities on the first floor. A covered outdoor leaning area (COLA) will be extending to the east will form part of these works.
- Upgrades to hard and soft landscaping including new pedestrian entry ramps.

It is noted that the original proposed works included the demolition of the existing two-storey building in the south-eastern corner of the site (Building V) and replaced with a new two-storey classroom and hall building. Whilst this is currently not proposed to be undertaken, the area was included within the investigation should works in this area be re-considered in the future.

Whilst opportunistic sampling in the vicinity of the building has been undertaken to assist the project, finalised proposed upgrade works do not include any works to the single bini-dome (Building A).

Narrabeen Sports High School (NSHS)

The proposed works at NSHS comprise:

- Removal of two trees;
- Refurbishment and upgrades to Buildings A, C and K including conversion of Building K into new learning spaces;
- Construction of a two storey addition/extension to Building A containing new stage for the gymnasium and male and female change rooms on the ground floor and general learning spaces on the first floor; and
- Upgrades to hard and soft landscaping.

It is noted that information on foundation types, depths, excavation depths for services, etc. were not available at the time of reporting. In general, it is understood that new buildings will be at roughly the existing surface levels, with single storey buildings likely to be a shallow footing design, whilst the new two-storey buildings are more likely to incorporate a piled foundation design.

Given that building refurbishment will not include intrusive works below the existing ground floor slabs, these upgrade works on both schools were not considered by DP to be relevant from a land contamination perspective, and hence do not form part of this investigation.

DP is advised by the project team that the above works will follow different planning pathways. For example, the new building containing administration facilities and adjacent COLA on NNPS and the two storey addition/extension to Building A on NSHS will form part of a development application. Other works will be under exempt development or development without consent planning pathways. Information on planning pathways and requirements should be sought from the project planner.

3. Scope of Work

The scope of work undertaken as part of DP (2022) across the site, which was modified during the investigation to reflect changes to proposed works, and from which forms the basis of the information for this investigation report, included the following:

- Review of previous reports;
- Site inspection by an environmental scientist to set out test locations;
- Undertaking a Dial-Before-You-Dig search and checking the sample locations using an electronic services locator and ground penetrating radar (where feasible);
- Using 5 tonne and 2 tonne excavators, drilling and excavating a combination of boreholes and test pits at 38 locations up to 2.6 m below ground level (bgl), 0.5 m into natural soils or prior refusal of borehole/test pit (including borehole / test pit collapse);
- Drilling of eleven boreholes using hand tools (BH209, BH210, BH1011, BH1012, BH1021, BH1022 and BH1024 to BH1027), in areas where access by plant was limited, up to 2 m bgl, 0.5 m into natural soils or prior refusal of borehole / test pit (including borehole / test pit collapse);
- Backfilling of boreholes and test pits with spoil;
- Logging of each test location by an environmental scientist;
- Collecting of soil samples for contamination purposes at near surface, regular intervals, changes in strata and upon signs of contamination;
- Opportunistic collection of acid sulphate soil (ASS) samples from 15 of the sample locations (BH201, BH205, BH207, TP208, TP213, TP216, TP217, TP218, TP219, TP1001A, BH1004, TP1005, TP1008, BH1009, TP1018);
- Collection of four surface soil samples on NNPS. Samples SS1 to SS3 collected from the accessible area of the undercroft of Building J. Sample SS4 collected from the accessible area of the undercroft of a demountable building in the north-western corner of NNPS;
- Collection of four fragments of potential asbestos containing material (ACM) from the surface as samples (A01 to A04) observed incidentally during investigation works;

- Where sufficient fill sample could be collected, sieve testing of 10L samples for fragments of ACM;
- Screening of soil samples for volatile organic compounds (VOC) using a photoionisation detector (PID);
- Submission of soil samples (plus QA / QC samples) to a NATA accredited laboratory for analysis of a combination of the following common contaminants of concern and parameters:
  - Heavy metals;
  - Total recoverable hydrocarbons (TRH);
  - Benzene, toluene, ethylbenzene and xylenes (BTEX);
  - Polycyclic aromatic hydrocarbons (PAH);
  - Phenols;
  - Organochlorine pesticides (OCP);
  - Organophosphorus pesticides (OPP);
  - Polychlorinated biphenyls (PCB);
  - pH;
  - Cation exchange capacity (CEC); and
  - Asbestos.

  Based on initial results, the following additional analysis was undertaken on selected samples where considered appropriate:
  - Toxicity characteristic leaching procedure (TCLP) for preliminary waste classification purposes; and
  - Total petroleum hydrocarbons (TPH) to gain a better understanding of the nature of the TRH concentrations.
- Submission of selected fragments of potential ACM to a NATA accredited laboratory for asbestos ID analysis;
- pH screening of ASS samples. Based on a review of the screening results, selected samples were subject to chromium reducible sulphur (SCr) laboratory analysis to inform the ASS assessment; and
- Preparation of this DSI report which describes the works undertaken and outlines the field and laboratory results. This report provides comments on the potential for, and nature of, contamination within the investigation areas and comments on the need for remedial works. It also includes a preliminary waste classification to help inform off-site disposal considerations.

4. Site and Investigation Area Information

Site Address	Narrabeen North Public School (NNPS) and Narrabeen Sports High School (NSHS), No.6 and No.10 Namona Street, Narrabeen, respectively, refer Figure 1 below.
Investigation Areas (sub-sections of the site)	• NNPS 'Investigation Area' as shown on Drawing 2, Appendix A. • NSHS 'Investigation Area' as shown on Drawing 3, Appendix A.

Legal Description	NNPS: Lot 3, Deposited Plan 1018621. NSHS: Lot 12, Deposited Plan 1119562.
Approximate Site Area	9.4 ha (total combined school area)
Approximate Investigation Area (combined)	NNPS: 8,400 m^2. NSHS: 450 m^2.
Zoning	Zone SP2 Educational Establishment.
Local Council Area	Northern Beaches Council.
Current Use	Primary and High School.
Surrounding Uses	North - Grassed open space playing fields for recreational use (Warriewood Valley Sportsground), then Jacksons Road and shopping centre. East - Residential, Pittwater Road and then commercial, including two service stations on the eastern side of Pittwater Road. South - Pittwater Sports Centre and Mullet Creek and then low-rise residential. West – Northern Beaches Indoor Sports Centre (NBISC), Mullet Creek then low-rise residential and commercial including numerous vehicle workshops.

The site boundary is shown on Figure 1.

Figure 1: Site Location and Boundaries

5. Previous DP Reports

DP previously conducted a preliminary site (contamination) investigation (PSI)[2] with limited sampling and a geotechnical investigation[3] at the site to assist with initial master planning works for the education precinct. In addition, hazardous building materials (HBM) assessments were undertaken on NNPS[4] and NSHS[5] and reported separately. A summary of these investigations is provided below.

5.1 Preliminary Site (Contamination) Investigation (DP, 2020)

The PSI included a desktop study, a walkover and a preliminary intrusive soil and groundwater investigation to provide data on the potential nature of contamination at the site.

Desktop Review

A review of the historical aerial photographs indicated that in 1930 the site appeared to be vacant and surrounded by large lots with multiple parks, ovals, sports grounds and some roads. The site then appeared to undergo development progressively, with additional buildings appearing in aerial photographs from 1955 to present (early photographs did not capture the NNPS or were of insufficient quality to allow comment on development of NNPS prior to the 1955 aerial photograph). Demolition of some buildings was also inferred. Surrounding development appeared to occur progressively over the same period.

A historical title deeds search was undertaken and indicated, along with other desktop information, that land use of the site had generally been residential or vacant prior to 1929 for NNPS and 1947 for NSHS, after which the land use had transitioned to be used for education purposes, with intermediate ownership by council.

Review of the historical commercial and trade directory data indicated that significant portions of the broader area had been industrialised since the 1950s with a wide range of potentially contaminating activities operating mostly in the surrounding area and associated with motor car related services. The majority of these activities are associated with businesses to the east on the opposite side of Pittwater Road, to the south and west on the opposite side of Mullet Creek and to the north on the opposite side of Jackson Road.

Review of the NSW EPA database did not indicate the site, or abutting properties, to be subject to Section 58 Notices or Section 60 Notification under the *Contaminated Land Management Act 1997* or holding licences under Section 308 of the *Protection of the Environment Operations Act 1997*.

[2] DP, *'Report on Preliminary Site (Contamination) Investigation with Limited Sampling, Narrabeen Education Precinct, Namona Street, North Narrabeen',* dated April 2020, DP reference: 86973.01.R.001.Rev0 (DP, 2020).
[3] DP, *'Report on Geotechnical Investigation, Narrabeen Education Precinct, Namona Street, North Narrabeen',* dated March 2020, DP reference: 86973.00.R.002.Rev0 (DP, 2020a).
[4] DP, '*Hazardous Building Materials (HBM) Assessment, Narrabeen North Public School (3906)',* dated March 2020, DP reference: 86973.02.R.002.Rev0 (DP, 2020b).
[5] DP, '*Hazardous Building Materials (HBM) Assessment, Narrabeen Sports High School (8512)',* dated March 2020, DP reference: 86973.02.R.001.Rev0 (DP, 2020c).

Whilst the desktop information indicated potentially contaminating activities and properties in the area, DP (2020) noted that the majority of these properties are located some distance from the investigation areas, hydraulically down or across-gradient from the investigation areas and/or are located on the opposite side of Mullet Creek. Hence it was considered that these factors would reduce the potential of the subject properties to impact the site.

Review of the asbestos management plan (AMP) for NNPS[6] indicated that in 2003 the north-eastern area of the site had been subject to clean-up of visible fibrous cement and covered with topsoil / turf / garden beds / hardstands, whilst the western section of the site had been cleaned-up in 2008 with no further remedial works undertaken in this area (these two approximate areas are shown on Drawing 2, Appendix A). In addition, as part of the NSHS HBM assessment (DP, 2020c) friable asbestos beneath the NSHS school hall (Building G) was identified indicating the potential for asbestos impacts on soils from site buildings.

Based on the site history, it was considered that education precinct had been used as schools since at least the early 1950s (if not earlier, in particular for the NNPS) to the present day. The NEP has had multiple buildings constructed and demolished over time with fewer demolitions occurring within the investigation areas.

The potential sources of historical contamination identified were considered to be from surficial soils and fill, past and current site uses, deterioration of previous and existing buildings and adjacent land uses (past and present).

Intrusive Investigation Scope

The scope of the intrusive investigation component for the PSI comprised the following:

- Drilling of 27 boreholes across NNPS and NSHS in areas that were thought most likely to be subject to proposed works for the master plan, comprising:
  - 12 boreholes (BH1, BH3 - BH13) drilled at NNPS; and
  - 15 boreholes (BH102 - BH114, BH116 and BH117) drilled at NSHS.
- Conversion of six boreholes to groundwater monitoring wells (BH4, BH6, BH10, BH104, BH106 and BH111) for use as a screen on groundwater quality;
- Collection of soil samples for contamination testing from all boreholes;
- Development and sampling of the six groundwater wells;
- Dispatch and analysis of 47 selected soil samples, six groundwater samples and one material sample for analysis of a combination of the following contaminants and parameters at a NATA accredited laboratory: metals; TRH; BTEX; PAH; OCP; OPP; PCB; total phenols; asbestos; hardness; and TCLP; and
- ASS pH screening and selected SCr analysis to assess the potential presence of ASS.

[6] Parsons Brinckerhoff Australia Pty Ltd (PB), *'(draft) Asbestos in Grounds, Asbestos Management Plan, Narrabeen North Public School, Narrabeen North, NSW'*, dated January 2013, PB reference: 3906_ASB_231112_AMP.doc

Subsurface Conditions

The observed subsurface profile comprised pavements or topsoil overlying fill to depths generally between 0.2 m and 1.7 m bgl, with deeper fill recorded to depths between 2.6 m and 3.5 m in the mounds adjacent to Namona Street within NSHS. Natural sands were encountered in all boreholes (that did not refuse in fill) to depths of between 1.7 m to 6.8 m.

With respect to the fill (encountered in all boreholes) this comprised pale brown, brown and dark grey, sand, gravelly sand, silty sand, clayey sand, silty clay, sandy clay and gravelly clay with varying proportions on igneous, sandstone and ironstone gravels, silt and rootlets. Ash, charcoal, plastic, concrete glass, cobbles, shells, brick, clinker, building rubble and a fibre cement sheet fragment containing asbestos (BH112) were also observed in some of the fill.

The recorded groundwater levels across the site were considered to be relatively consistent and close to sea level, ranging from reduced level (RL) 0.6 m Australian Height Datum (AHD) to RL 0.9 m AHD, with slightly higher groundwater levels across NNPS. The depth to groundwater is deeper at NNPS which is generally higher in elevation when compared to NSHS. Groundwater was assessed to likely flow towards Mullet Creek.

Findings

The analytical data from DP (2020) is presented in summary tables in Appendix H3. Contamination identified in the soils, or considered likely based on the findings of the investigation, were summarised as follows:

- Asbestos in fill and / or surface soils:
- Copper hotspot in sample BH8/0.05-0.15 (350 mg/kg) which exceeded the environmental site assessment criteria (SAC); and
- TRH fractions F2 (190 mg/kg) and F3 (440 mg/kg) in the fill at BH103/0.15-0.25 (190 mg/kg) which exceeded the human health and environmental SAC.[7]

It was concluded that, whilst noting the preliminary nature of the assessment, gross widespread chemical contamination of the site did not appear to be prevalent, however, the primary risk driver for soil contamination, and likely future soil management, was considered to be associated with asbestos. There was considered to be a moderate to high risk that asbestos may be present in other parts of the investigation areas.

ASS was identified in the natural soil profiles across both NNPS (predominantly in the deeper natural soil profile) and NSHS (predominantly in the natural soil from around and just beneath the groundwater table).

In regard to groundwater, results were generally low with some detections for metals. DP did not consider there to be broad or significant contamination of the groundwater within the investigation areas.

[7] It is noted that since DP (2020) was issued, an error was detected in the sample ID and that the TRH exceedances previously indicated in sample BH102/0.4-0.5 were from BH103/0.15-0.25. For the purpose of accuracy, these samples and associated locations have been amended in the above summary and the summary tables included in Appendix H3.

This was generally consistent with the field observations and chemical analysis results of site soils (fill and natural).

Based on the above, the following was recommended:

- Further contamination investigations in the building footprints post-demolition, in the fill around BH8 and BH103 and for asbestos across the site;
- Additional ASS investigations to gain a better understanding of the nature and extent of ASS across the investigation areas. DP noted that an ASSMP for the redevelopment works was also anticipated to be required;
- For buildings requiring demolition, the removal and disposal of the identified HBM by an appropriately licensed and qualified contractor to an appropriately licensed disposal facility; and
- Validation / clearance of the demolition works area by a qualified occupational hygienist upon completion of demolition and removal of the buildings, confirming that there are no residual ACM or other HBM remaining on the surface in the subject area.

Fill across the site was preliminarily classified as either general solid waste (non-putrescible) or general solid waste (non-putrescible) - special waste (asbestos). However, it was noted that soils in other areas not currently classified as asbestos contaminated (i.e., not limited to the capped areas on NNPS and BH112) have the potential to be impacted by asbestos and hence also potentially classified as special waste (asbestos) in the future. In regard to natural soils, there were no exceedances of the published background levels for chemical contaminants, however, ASS was identified in the natural soil across the investigation area and hence a virgin excavated natural material (VENM) classification could not be provided. DP noted that the natural soils may be preliminarily classified as general solid waste (non-putrescible) subject to the appropriate treatment and validation of such soils for ASS.

DP considered that the site could be made suitable for the proposed development, subject to implementation of the above recommendations and any associated remediation and/or management requirements.

Site observations made during the current investigation indicated that the site appeared to have remained relatively unchanged since the PSI.

5.2 Geotechnical Investigation (DP, 2020a)

The geotechnical model generated as part of the 2020 geotechnical investigation indicated that the site is underlain by variable depths of fill, typically granular, including some surficial topsoil fill and pavement materials. Alluvial and estuarine sands of variable consistency, grading to medium dense and denser with depth, underlie the fill across the site. Alluvial deposits of clay and sand with variable consistency are present beneath the alluvial and estuarine sediments and these underlying deposits are inferred to be of Pleistocene Epoch age. Weathered rock underlies the alluvial deposits, at variable and substantial depths (greater than 30.5 m bgl at BH11/CPT11 on NNPS and 26 m bgl at BH106/CPT106 on NSHS). Groundwater was measured at depths of 1.3 m to 4.5 m (RL 0.4 m to 1.0 m AHD) during the field work and within the monitoring wells. The groundwater table was expected to vary between approximately RL 0 m and 2.0 m AHD.

5.3 Hazardous Building Materials Assessments (DP, 2020b and DP, 2020c)

The HBM assessments were non-destructive assessments with both schools identifying the presence, or likely presence (based on visual observations) of non-friable and friable asbestos, synthetic material fibre (SMF) insulation, lead dust, lead paint, PCB and refrigerants.

The reports noted that a full HBM should be conducted at the site, including prior to any disturbance of the buildings at the site that arises from maintenance, refurbishment, demolition and / or other relevant activities. It also indicated that HBM should be removed prior to undertaking the aforementioned activities.

In addition, it is noted that as part of the NSHS HBM (DP, 2020c) friable asbestos (loose fibres in sand / soil) beneath the NSHS school hall (Building G) was identified.

6. Environmental Setting

The environmental setting of the site is described in detail in the PSI report (DP, 2020) and is summarised below.

Regional Topography	Regional topography slopes gently south-west towards Mullet Creek.
Topography of Investigation Areas	Investigation areas are relatively flat (approximately 2-5 m AHD). It is noted that the northern and western sections of the NNPS investigation area slope down towards the site boundary.
Soil Landscape	Reference to the Sydney 1:100,000 Soil Landscape Series Sheet indicates that the investigation areas are in an area underlain by disturbed terrain.
Geology	Reference to the Sydney 1:100,000 Geological Series indicates that the investigation areas are in an area underlain by Quaternary Period stream alluvial and estuarine sediments. These sediments comprise silty to peaty quartz sand, silt and clay, ferruginous and humic cementation in places, and common shell layers.
Acid Sulphate Soils	Reference to the 1:25,000 Acid Sulfate Soils Risk map indicates that the investigation areas are located within an area of high probability of occurrence of ASS below 1-3 m depth.
Surface Water	No surface water is present within the site. The site is bordered by Mullet Creek on the south-western boundary. Groundwater at the site may discharge into the creek and be recharged by the creek given its proximity and connection to Narrabeen Lagoon.
Groundwater	Based on proximity to Narrabeen Lagoon and the adjacent Pacific Ocean and the porous nature of the underlying sands, groundwater was expected to be at approximately sea level or slightly higher. Given the regional topography and proximity to Mullet Creek, groundwater is expected to flow in a south-westerly direction towards Mullet Creek then east towards Narrabeen Lagoon.

7. Walkover of the Investigation Areas

A walkover of the site was undertaken on 20 January 2020 by an Environmental Engineer from DP as part of the PSI, and additional walkovers focussing on the investigation areas were undertaken on 19 April and 14 July 2022 as part of this DSI. Observations made during the DSI indicated that the site has generally remained unchanged since the PSI. The following features were observed and noted.

For NNPS:

- The majority of the investigation area was occupied by single storey buildings constructed of timber, concrete, brick, steel or fibre cement sheeting (demountable buildings);
- A two-storey building (Building V) occupied the south-eastern section of the investigation area, adjacent to the entry driveway off Namona Street;
- The investigation area was mostly covered by buildings and asphaltic concrete with grass and vegetation areas mostly present in the northern, western and southern sections of the area. The vegetation areas included some shrubbery and mature trees;
- The northern part of NNPS comprised a small playground area with outdoor seating AstroTurf and a limited grassed area;
- The pedestrian entry off Namona Street (near sample locations BH1015 and BH1016) is paved with garden beds on either side;
- The south-western section of the investigation area (around sample location TP1008) slopes down towards the level of the NBISC where a pedestrian gate is present; and
- Fragments of ACM (samples A01 to A04) were observed on and sampled from the ground surface under and near the demountable buildings on the northern end of the investigation area, in the vicinity of boreholes BH1024 to BH1026. It is noted that additional potential ACM fragments were observed in the same area from which the above samples were taken, and further fragments are likely to be present nearby.

For NSHS:

- The investigation area west of Building A was paved with some service pits also present in the area. A small portion of the adjacent grass area also extended into the investigation area.

Across other areas of NSHS, the following additional observations were made as part of DP (2022):

- The majority of the school buildings were clustered around the centre of the school from the northern boundary towards the southern boundary and consisted of medium-rise brick buildings (single to three storey buildings);
- An asphaltic concrete covered carpark was located at the northern boundary adjacent to Namona Street. It was showing some signs of deterioration;
- The south-eastern portion of the school was occupied by a grassed area. This area and the adjacent car park (used by others) were segregated by a fence and mound, with the mound covered with vegetation although appearing from the limited observations to contain soil and some building rubble; 1

- The western side of the school was occupied by a grass oval and four tennis courts, the north-western court forming part of the investigation area. Some initial deterioration of the playing surface on this court was evident, particularly around the extremities of the court;
- Vegetation across the site consisted mostly of grass with scattered mature trees including along the school boundaries. Notwithstanding, it is noted that mature trees occupied the footprints of the two proposed locations for the amenities buildings;
- Two mounds were located adjacent to the northern boundary (Namona Street). It is noted that the larger mound located to the west was included as part of this investigation and targeted by boreholes BH204 and BH205 (see Drawing 5, Appendix A); and
- The eastern side of the school was occupied by a synthetic oval and a two-storey brick building to the south. These features are not within the investigation area.

Surrounding areas:

- Northern boundary of NNPS was bounded by a grassed open space for recreational use and Jacksons Road;
- East of NNPS were low-rise residential buildings with Pittwater Road and commercial / industrial buildings beyond;
- East of the southern section of the NEP was bound by Pittwater Road, with a mixture of commercial / industrial and residential buildings beyond and Lake Park for recreational use;
- South of NSHS was Pittwater Sports Centre and low-rise residential buildings; and
- West of the NEP was Mullet Creek.

It should be noted that the walkovers did not constitute a detailed assessment of presence or abundance of ACM across the site's surface.

Selected photographs have been included in Appendix C for reference.

8. Conceptual Site Model

A Conceptual Site Model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e., it enables an assessment of the potential source - pathway - receptor linkages (complete pathways). A preliminary conceptual site model was derived in the PSI (DP, 2020) which has been updated below based on the findings and conclusions of that report.

8.1 Potential Sources

Based on the PSI, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

S1 – Surficial Soil and Fill - Associated with levelling, demolition of former buildings including imported contaminated fill or residual demolition waste within the investigation areas. HBM, such as asbestos and lead paint, may be a potential issue in surface soils and fill. Similarly, surficial fill may have also been impacted by the historical use of grounds maintenance chemicals and storage of vehicles and fuel associated with the general maintenance of the school grounds.

Primary COPC: Metals, total petroleum hydrocarbons (TPH) and asbestos.
Secondary COPC: BTEX, PCB, OCP, OPP, phenols.

S2 – Deterioration of Existing Buildings (and associated spalling).

Primary COPC: Asbestos, SMF, lead (in paint and dust) and PCB.

8.2 Potential Receptors

Human Health Receptors:

R1 - Current and end users (students, staff and general public);

R2 - Construction and maintenance workers; and

R3 - Adjacent site users.

Environmental Receptors:

R4 - Terrestrial ecology.

8.3 Potential Pathways

P1 - Ingestion and dermal contact; and

P2 - Inhalation of dust and / or vapours.

8.4 Summary of Potential Complete Pathways

A ‘source - pathway - receptor’ approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 to S2) and receptors (R1 to R4) are provided in Table 1 below.

Table 1: Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1 - Surficial Soil and Fill Primary COPC: Metals, TPH, asbestos Secondary COPC: BTEX, PAH, PCB, OCP, OPP and phenols	P1 - Ingestion and dermal contact P2 - Inhalation of dust and/or vapours	R1 - Current and end users R2 - Construction and maintenance workers R4 - Terrestrial ecology	An intrusive investigation is recommended to supplement the relevant findings of DP (2020) and to assess possible contamination within the areas of proposed works (i.e., the investigation areas) including testing of the soils. Detailed HBM assessment and appropriate removal and disposal of HBM prior to demolition of site buildings.
	P2 - Inhalation of dust and / or vapours	R3 - Adjacent site users	
S2 - Deterioration of Existing Buildings Primary COPC: Asbestos, SMF, lead (in paint) and PCB	P1 - Ingestion and dermal contact P2 - Inhalation of dust and / or vapours	R1 - Current users and end users R2 - Construction and maintenance workers R3 - Adjacent site users	

9. Sampling and Analysis Quality Plan

9.1 Data Quality Objectives

The DSI was devised with reference to the seven-step data quality objective process which is provided in Appendix B Schedule B2, NEPC (2013). The data quality objective process is outlined in Appendix D.

Based on the CSM and data quality objectives the sampling rationale outlined in the following sections was adopted.

9.2 Soil Sampling Rationale

Contamination

Table A of NSW Environment Protection Authority (EPA) *Contaminated Sites, Sampling Design Guidelines* 1995 (EPA, 1995) recommends varying numbers of sample locations for site characterisation based on the detection of circular hot spots using a systemic grid sampling pattern and the size of the investigation area, with additional locations recommended for identified point sources.

NNPS

The investigation area for NNPS covers approximately 8,400 m^2, and EPA (1995) recommends a minimum 20 sample locations for an area of this size. Taking into account the six previous sample locations within the investigation area from DP (2020), the additional 24 sample locations (1001-1020 and 1024-1027) were considered to be appropriate for a detailed assessment of the investigation area.

Five samples locations (TP1005, TP1008, TP1008, TP1019 and TP1020) were located to focus on the potential asbestos zone in the western section of the site based on the information from the AMP (PB, 2013). Three surface samples (SS1 to SS3) were collected from accessible areas under Building J given that this building is proposed to be demolished. One surface sample (SS4) and four samples (A01 to A04) of fibre cement material fragments were collected at the northern end of the investigation area following observations of potential ACM on the ground surface. It is noted that access under other structures was not available.

Additionally, given that the single bini-dome could not be disturbed and the number of inground services identified in close proximity to the dome, the three sample locations (BH1021, BH1022 and BH1023) selected within accessible areas and in proximity to the dome were considered suitable to provide an indication on contamination in the area should works occur in this area.

NSHS

The investigation area for NSHS associated with the proposed two-storey extension to Building A covers a footprint of approximately 450 m^2, and EPA (1995) recommends a minimum five sample locations for an area of this size. It is noted that three sample locations were located within the investigation area (two from this round of sampling plus one previous location) based on the building footprint area at the time of intrusive works being approximately 250 m^2. On review of the updated building footprint, DP considered that given the low concentration of contaminants both within this area and across NSHS (as discussed in DP (2022)), it is considered that the investigation area has been adequately characterised to meet the objectives of the investigation.

Soil samples were collected from each borehole at near surface (or directly below the pavement) then at regular intervals, changes in lithology or signs of contamination.

The general sampling methods are described in the field work methodology, included in Appendix E.

Acid Sulphate Soils

With respect to ASS, the Acid Sulfate Soils Management Advisory Committee *Acid Sulfate Soils Assessment Guidelines*, 1998 (ASSMAC, 1998) recommends a minimum of four sample locations for sites up to 1 ha and six sample locations for sites up to 2 ha.

Taking into account the two locations (BH4 and BH9) that have previously been sampled for ASS on the NNPS, and the area of investigation on NNPS being 8,400 m^2, the six locations (TP1001A, BH1004, TP1005, TP1008, BH1009, TP1018) were considered appropriate for ASS assessment of the soils in the upper natural profile (i.e., to the depth of the respective borehole / test pit).

With respect to the investigation area in NSHS, given the small footprint of the area and previous data from within the footprint at BH104, one additional ASS sample location (TP207) was considered appropriate.

The aforementioned approach allowed for focusing on areas where ASS is most likely to be encountered (i.e., within the proposed works / investigation areas). It is noted that additional locations for a broad coverage of the site were undertaken as reported in DP (2022) and allowed for broader coverage of the site.

ASS samples were collected from the base of the fill / top of natural soils and then at regular intervals to the base of the borehole/test pit at the respective sample location.

10. Site Assessment Criteria

The SAC applied in the current investigation are informed by the CSM (Section 8) which identified human and environmental receptors to potential contamination on the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic Residential A land use scenario. It is noted that Residential A land use includes primary schools. Although Recreational / Open Space C is suitable to be applied for secondary schools, for consistency in approach across the NEP, the more conservative land use of Residential A has been selected as an initial screen for NSHS, with exceedances also compared against the Recreational / Open Space C. The derivation of the SAC is included in Appendix G and the adopted SAC are listed on the summary analytical results tables in Appendix H.

The preliminary waste classification was conducted with reference to the NSW EPA *Waste Classification Guidelines, Part 1: Classifying Waste* (EPA, 2014). The waste classification criteria are shown in Tables H1D and H2D in Appendices H1and H2, respectively.

11. Results

11.1 Field Work Results

The borehole and test pit logs are included in Appendix F (F1 - NNPS, F2 - NSHS). This includes boreholes from areas outside the investigation areas for this assessment, as reported in DP (2022). Borehole logs from DP (2020) have also been included in Appendix F3 for reference.

The logs from the current investigation at NNPS recorded the following general sub-surface profile:

Asphaltic Concrete:	In BH1004, BH1009, BH1010, BH1013 and BH1014 to depths of between 0.025 and 0.03 m bgl.
Fill / Gravelly Sand:	Below hardstand in BH1004, BH1009, BH1010, BH1013 and BH1014 to depths of between 0.1 m and 0.2 m bgl.
Fill / Silty Clay and Sandy Clay:	Brown mottled red silty clay and yellow mottled red sandy clay encountered in BH1024 and BH1025 respectively to depths of 0.3 m (BH1024) and 1.1 m bgl (BH1025).
Fill / Silty Sand:	Dark brown silty sandy fill at the surface of all locations except those listed above, to depths of between 0.1 m and 0.7 m bgl.
Sand:	Grey sand at all locations to borehole / test pit termination.

The logs from the current investigation at NSHS recorded the following general sub-surface profile:

Concrete:	Concrete slab in BH206 to 0.13 m bgl.
Fill / Silty Sand:	Dark brown silty sand in TP207 to 0.2 m bgl.
Fill / Sand:	Brown sandy fill in BH206 and TP207 to 1.1 and 1.2 m bgl respectively.
Sand:	Grey sand at both locations to borehole / test pit termination (1.5-2.5 m bgl).

This profile was generally consistent with observations made during the PSI (DP, 2020).

Fragments of ACM were observed within the fill at TP1001A and BH1027. Anthropogenic materials indicative of building demolition materials, such as brick, tile, plastic, concrete, asphalt, glass and terracotta were observed at some locations, indicating the potential for further asbestos contamination.

It is noted that BH1021 and BH1022 located adjacent to the single bini-dome encountered refusal on a gravel and geofabric layer. The presence of the geofabric suggests the potential for capping of asbestos impacted soils in this area may have occurred, although current information is inconclusive. Alternatively, the find may be associated with inground services.

The PID screening results indicated that the sub-surface conditions were generally absent of VOC with recorded values generally less than 1 ppm.

Sulfuric odours were observed in natural sand in TP207, consistent with the potential presence of ASS.

Groundwater was observed at NNPS in TP1001A, TP1008, BH1024 and BH1025 at 1.4 m, 2.1 m, 0.9 m and 1.1 m bgl respectively. Groundwater was observed in BH206 and TP207 at 1.4 and 1.3 m bgl respectively. It is noted that precipitation events occurred prior to and during the course of the fieldwork. Moreover, groundwater levels are affected by climatic conditions and soil permeability and will therefore vary with time.

Groundwater levels were gauged from the existing serviceable groundwater monitoring wells installed as part of DP (2020) on 22 April 2022 using an electronic oil / water interface meter. The measured water levels are shown in Table 3. The results were generally consistent with DP (2020), with groundwater direction still anticipated to flow towards Mullet Creek. It is noted that no light non-aqueous phase liquid was observed during groundwater level gauging.

Table 3: Summary of Groundwater Level Measurements on 22 April 2022

Well ID	Location of Monitoring Well	Ground Level * m (AHD)	SWL m (bgl)	SWL m (AHD)
BH06	NNPS	4.65	2.85	1.80
BH106	NSHS	2.07	0.96	1.11
BH111	NSHS	2.06	1.18	0.88

Notes: *Surveyed by dGPS AHD – Australian Height Datum SWL – standing water level bgl – below ground level

11.2 Laboratory Analytical Results

The results of laboratory analysis for this investigation within current areas of proposed works, combined with relevant results from DP (2020) are summarised in the following tables in Appendices H1 (NNPS) and H2 (NSHS):

NNPS

- Table H1A: Summary of Laboratory Results - Site Suitability - NNPS;
- Table H1B: Summary of Results - Asbestos - NNPS;
- Table H1C: Summary of Soil Laboratory Results - Acid Sulphate Soils - NNPS; and
- Table H1D: Summary of Chemical Laboratory Results - Waste Classification - NNPS.

NSHS

- Table H2A: Summary of Laboratory Results - Site Suitability - NSHS;
- Table H2B: Summary of Results - Asbestos - NSHS;
- Table H2C: Summary of Soil Laboratory Results - Acid Sulphate Soils - NSHS; and
- Table H2D: Summary of Chemical Laboratory Results - Waste Classification - NSHS.

Results previously reported in DP (2020) and DP (2022) have also been included in Appendix H3 for reference.

The laboratory certificates of analysis together with the chain of custody and sample receipt information are provided in Appendix K. It is noted that as the investigation works were undertaken in conjunction with other investigation works on the NEP (as reported in DP (2022)), some laboratory certificates reference other sample locations not subject to this report.

12. Discussion

12.1 Contamination

The analytical results for BTEX, phenol, OPP and PCB in all samples analysed were below the practical quantitation limit (PQL). Detections (i.e., results greater than PQL) were recorded for metals, PAH and OCP in some locations, however, results for all samples analysed were below their respective SAC.

NNPS

The SAC were exceeded for TRH in the following samples:

- TRH F3 (C_{16-34}) in TP1001A/0-0.2 at 480 mg/kg which exceeded the EIL-A of 300 mg/kg;
- TRH F3 (C_{16-34}) in TP1008/0-0.2 at 550 mg/kg which exceeded the EIL-A of 300 mg/kg;
- TRH >C_{10-16} in TP1020/0-0.2 at 170 mg/kg which exceeded the EIL-A of 120 mg/kg;
- TRH F2 (C_{10-16}-napthalene) in TP1020/0-0.2 at 170 mg/kg which exceeded the HSL-A&B of 120 mg/kg; and
- TRH F3 in TP1020/0-0.2 at 540 mg/kg which exceeded the EIL-A of 300 mg/kg.

Five selected samples, including TP1008/0-0.2 and TP1020/0-0.2, were subject to TPH silica gel analysis with all TPH results recording results below PQL. This suggests that the TRH being detected was of a natural origin, consistent with the sample listed above being from the surface in garden beds and grassed areas with high organic content. Given this, the recorded TRH exceedances were not considered to be of significant concern.

It is noted that there were low concentrations for total chlordane (3.9 mg/kg - SAC of 50 mg/kg) and total endosulfan (0.4 mg/kg - SAC of 270 mg/kg) in sample BH1016/0-0.2. These (and other OCP) were not recorded in the underlying sample BH1016/0.5-0.6 and at the adjacent sample locations (BH1015/0-0.2, TP1017/0-0.2). As these concentrations were considerably below the SAC and were confined to one sample, they were not considered to be of significant concern.

The SAC was exceeded for asbestos in the following fill samples:

- Bonded ACM (chrysotile) in TP1001A/0.2-0.4 at 0.038% w/w which exceeded the HSL-A of 0.01% w/w;
- AF/FA (amosite - 0.0336 g) in TP1007/0-0.2 at 0.0069% w/w which exceeded the HSL-A of 0.001% w/w; and
- AF/FA (chrysotile, amosite and crocidolite - 4.0153 g) in BH1027/0-0.5 at 0.7663% w/w which exceeded the HSL-A of 0.001% w/w.

It is also noted that whilst below the SAC, AF/FA (amosite - 0.0001g) was also recorded in sample TP1008/0-0.2 at <0.001% w/w. Of surface samples A01 to A04, A02 and A04 were analysed for asbestos, both of which contained asbestos. These results indicated further potential for asbestos contamination within fill, particularly at the northern end of the investigation area around boreholes BH1024 to BH1027.

Exceedances of the SAC for asbestos in samples TP1001A/0.2-0.4, TP1007/0-0.2 and BH1027/0-0.5 are not considered suitable for proposed development works without further remediation and / or management. Despite falling below the SAC, detection of asbestos in soil sample TP1008/0-0.2 and surface fragment samples A02 and A04 indicates a risk of further asbestos contamination in the investigations area and may need to be considered further depending on the level of risk deemed acceptable by the client. Refer to the report conclusions and recommendations in Section 13.

NSHS

With the exception of metals, all analytical results for samples analysed within the NSHS investigation area fell below their respective PQL. Notwithstanding the metal detections, these concentrations were significantly below their respective SAC.

12.2 Acid Sulphate Soils

The ASSMAC pH screening criteria was exceeded marginally for most samples screened, and considerably for some samples, particularly at NSHS. Based on the screening results, additional SCr testing was requested on six samples from TP1001A, BH1009, TP1018 and TP207. Where suitable, samples were selected from near the suspected interface between ASS and non-ASS to indicate the depths at which ASS may be encountered.

Based on the results and cross reference of borehole and test pit logs with the SCr, the results suggest that:

- Potential Acid Sulphate Soils (PASS) are unlikely to be encountered at NNPS at depths of less than approximately 2.5 m bgl; and
- PASS are likely to be encountered at NSHS at depths of approximately 1.5 m or greater.

It should be noted that sampling undertaken as part of this investigation was generally limited to approximately 2-3 m. Deeper boreholes were drilled as part of the PSI (DP, 2020), and whilst many of these locations fall outside the investigation areas of the DSI, they do provide an indication on natural soils likely to be ASS. Notwithstanding, a review of the PSI and data from across the extent of the schools indicate that:

- PASS is likely to be encountered at NNPS at depths beyond approximately 2.5 m. As noted in DP (2020) it is likely PASS is present in the deeper layers of natural soils, particularly the indurated sand; and
- The potential for PASS at NSHS appears to reduce in the deeper soil profiles (i.e., around 4-8 m bgl).

The above comments focus on the need to manage ASS materials. In this regard, it noted that there were low level sulphur trail detections in samples collected between 1.8-2.3 m bgl at NNPS during the current investigation.

12.3 Preliminary Waste Classification

Table 4 presents the results of the six step procedure outlined in EPA (2014) for determining the type of waste and the waste classification. Given the presence of ASS, including low level sulphur trail detections on NNPS, the natural soils are unlikely to be able to be classified as VENM. Given this, the preliminary waste classification has been developed for all site soils within the investigation areas.

Table 4: Six Step Classification Procedure

Step	Comments	Rationale
1. Is the waste special waste?	Yes in areas	Asbestos was detected by the analytical laboratory in soil samples TP1001A/0.2-0.4, TP1007/0-0.2, TP1008/0-0.2 and BH1027/0-0.5, and surface fragment samples A02 and A04. Refer to Tables H1B and H2B, Appendix H.
2. Is the waste liquid waste?	No	The fill comprised a soil matrix.
3. Is the waste "pre-classified"?	No	The fill is not pre-classified with reference to NSW EPA (2014).
4. Does the waste possess hazardous waste characteristics?	No	The fill was not observed to contain or considered at risk to contain explosives, gases, flammable solids, oxidising agents, organic peroxides, toxic substances, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.
5. Determining a waste classification using chemical assessment	Conducted	Refer to Tables H1D and H2D, Appendix H.
6. Is the waste putrescible or non-putrescible?	Non-putrescible	The fill does not contain materials considered to be putrescible[a].

Note: a wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forest and crop materials, and natural fibrous organic and vegetative materials (EPA, 2014).

Based on the analytical results summarised in Tables H1D and H2D, Appendix H, the majority of the chemical results were within the CT1 criteria for general solid waste with the exception of lead in samples TP1019/0-0.2 (130 mg/kg) and BH1025/0-0.2 (110 mg/kg), and nickel in sample BH1013/0.1-0.2 (44 mg/kg). TCLP analysis was undertaken on these samples with all results within the SCC1 and TCLP1 criteria for general solid waste as defined in EPA (2014).

Given the detection of OCP above 2 mg/kg in sample BH1016/0-0.2, for the purposes of waste classification this material is considered to be Scheduled Chemical Waste under the NSW EPA *Chemical Control Order in Relation to Scheduled Chemical Wastes 2004* (EPA, 2004).

In summary, the following preliminary *in situ* waste classifications have been provided to assist with project planning. Additional sampling *in situ* (post demolition works) and / or *ex situ* during works could be considered with an objective of attempting to further delineate the asbestos impacts (if feasible):

NNPS:

- Given the presence of asbestos being recorded at TP1001A, TP1007, TP1008 and BH1027 in addition to surface fragments in the vicinity of BH1024 to BH1027, the central, western and northern sections of the investigation area (i.e., the area west of BH07 and BH09) is preliminary classified as general solid waste (non-putrescible) special waste (asbestos);
- Fill around BH1016/0-0.2 is preliminary classified as general solid waste (non-putrescible) scheduled waste; and
- Fill in the eastern section of the investigation area (i.e., the area east of BH09 and excluding BH1016) and the natural soils within the upper 2.5 m across the investigation area are preliminarily classified as general solid waste (non-putrescible). It is noted that deeper natural soils may also be classifiable as ASS, although further assessment of this would be required once the final scope / depth of the works are established.

In addition, given the detected presence of a geofabric layer adjacent to the single bini-dome and the previous detections of asbestos in the northern and eastern sections of the school, there is the potential that special waste (asbestos) may also be encountered in this area.

NSHS:

- Fill and natural soils above 1.5 m bgl within the investigation area[8] are preliminarily classified as general solid waste (non-putrescible); and
- The natural soils below 1.5 m bgl are preliminarily classified as general solid waste (non-putrescible) ASS.

Due to the heterogenous natural of asbestos contamination and given its detection on both schools at various locations, there is the potential for asbestos to be present in other sections of the investigation areas. Given this, and whilst noting the above classifications are preliminary in nature, it is considered possible that soils in other areas will be classified as special waste (asbestos).

The information provided in this section (Section 12.3) does not constitute a formal waste classification for off-site disposal purposes. Should any fill or soils require off-site disposal a formal waste classification assessment must be undertaken and reported.

12.4 Data Quality Assurance and Quality Control

The data quality assurance and quality control (QA / QC) results are included in Appendix I. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

[8] This is limited to the proposed addition/extension to Building A and excludes all previously proposed upgrade works at the site given they are no longer proposed. Fill in some of these areas would be preliminary classified as general solid waste (non-putrescible) special waste (asbestos).

13. Conclusions and Recommendations

This DSI comprised a review of the PSI, a walkover and an intrusive soil investigation to provide data on the potential nature of contamination within the investigation areas which represent areas where proposed intrusive school upgrade works may be undertaken.

Contamination identified in the soils within the investigation areas requiring consideration is largely related to asbestos. In this regard the following is noted:

- Asbestos impacted areas are identified in the NNPS AMP (PB, 2013). The area in the western section of the school overlaps with some of the areas proposed to be subject to the upgrade works;
- The historical aerial photographs show the demolition of older structures both within the investigation areas and the greater school boundaries;
- The investigation areas include existing buildings, the footprints of which have not been investigated;
- Asbestos was detected in soil samples TP1001A/0.2-0.4, TP1007/0-0.2, TP1008/0-0.2, BH1027/0- 0.5, as well as additional samples outside of the current investigation area on NSHS;
- Fragments of ACM have been observed on the ground surface at A01-A04, confirmed by laboratory analysis of representative samples A02 and A04;
- Asbestos has previously been identified in other areas of the schools (NNPS - northern and western areas as outlined in PB (2013); NSHS - HBM identified friable asbestos beneath the school hall (Building 6)); and
- Building rubble (concrete, glass and plastic) was observed in some sample locations which can be an indicator for the potential presence of asbestos.

The HBM reports prepared by DP also identified asbestos and other HBM in buildings within the school sites, and, as such, there is potential for HBM to further impact on surface soils as a result of demolition and refurbishment as part of the proposed works.

ASS was identified in the natural soil profiles across both NNPS (predominantly in the deeper natural soil profile) and NSHS (predominantly in the natural soil around and beneath the groundwater table).

Based on the above, the following comments and recommendations are provided:

- Post demolition investigations should be conducted in the building footprints, where appropriate. Assessment would include asbestos and other COPC for comparison against the adopted SAC;
- Development of a remediation action plan (RAP) to address the asbestos impacted soils within the investigation areas / proposed works areas, most notably in the central, western and northern sections of the NNPS investigation area. From a contaminated land perspective, soils with low levels of asbestos (i.e., below the SAC) may not require remediation, although from DP's experience on NSW school sites, a more stringent approach has been applied on occasions resulting in all asbestos impacted soils being remediated. DP has been advised NSW Department of Education that this more stringent approach to asbestos impacted fill is to be applied for this project. Remediation approaches would typically comprise:
    - Dig and dump strategy which removes the impacted material from the school and disposes it to a suitable licensed disposal facility; and / or

  - o Cap and contain strategy where a barrier is constructed over the impacted soils (e.g., building slab) and managed in the long term under the school's AMP.
- Additional ASS assessment may be required for the new NNPS buildings depending on the final depth and nature of works, e.g., if works are limited to 2.5 m or a driven pile approach then further investigations may not be warranted;
- Development of an ASS management plan. This is expected to be required on the NSHS site, whilst its need on the NNPS will be informed by the final depth and nature of the proposed works. In this regard, if soils on NSHS below 1.5 m bgl are proposed to be disturbed as part of the works, these would require treatment for ASS (e.g., liming);
- For all buildings where proposed disturbance of the building materials is proposed (e.g., maintenance, refurbishment, demolition), a HBM assessment should be undertaken. Subsequently the HBM to be disturbed during the works is to be removed and disposal of by an appropriately licensed and qualified contractor, at an appropriately licensed disposal facility;
- Validation / clearance of the works area post-demolition of buildings should be conducted by a qualified occupational hygienist upon completion of demolition and removal of the buildings. The validation / clearance is to confirm that there are no residual ACM or other HBM remaining on the site; and
- Implementation of an unexpected finds and asbestos finds protocol by the contractor, and in agreement with the client, prior to commencing works.

It is noted that validation of the remedial works will be required during the works by a qualified environmental consultant. In addition, final waste classification assessments of soils will be required prior to soils being disposed off-site.

The above recommendations and future investigations should be undertaken in consultation with other relevant project consultants such as, project manager, architect, geotechnical, civil, structural, heritage, landscape and arborist. Should the scope, boundaries or depths of the proposed development change, a suitably qualified environmental consultant should be engaged to assess their implications.

In conclusion, DP considers that the investigation areas could be made suitable for the proposed school upgrade works, subject to implementation of the above recommendations and any associated remediation and / or management requirements.

14. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Narrabeen North Public School and Narrabeen Sports High School, Namona Street, Narrabeen in general accordance with DP's original proposal 86973.04.P.002.Rev1 dated 16 March 2022 and variation 86973.04.P.004.Rev0 dated 20 July 2022. The work was carried out under the agreed Standard Form Agreement SINSW02795/21 dated 7 April 2022. This report is provided for the exclusive use of NSW Department of Education for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent

of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

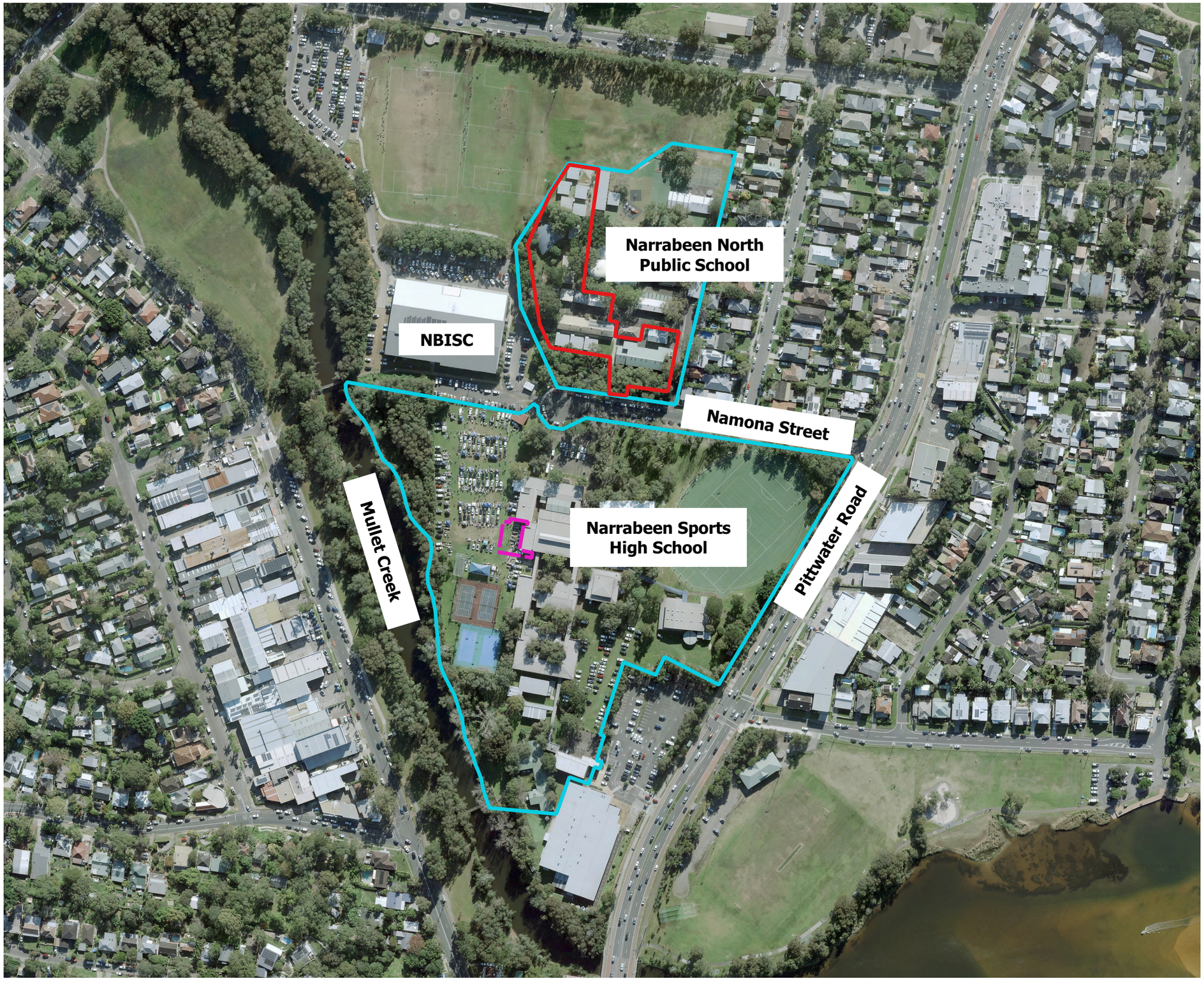
Asbestos has been observed on the ground surface, in the field sieve tests and detected by laboratory analysis in fill samples collected and analysed. Building demolition materials, such as (but not limited to) brick and concrete were observed at the site and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions, budget constraints, or to parts of the investigation areas (and the site more broadly) being inaccessible and not available for inspection/sampling. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

Drawings



LOCALITY MAP

Notes:
1. Basemap from metromap.com
2. Locality map from OSM Standard
3. Boundaries shown are approximate only

Legend
- Site Boundaries
- NNPS Investigation Area
- NSHS Investigation Area

0 50 100 150 200 m

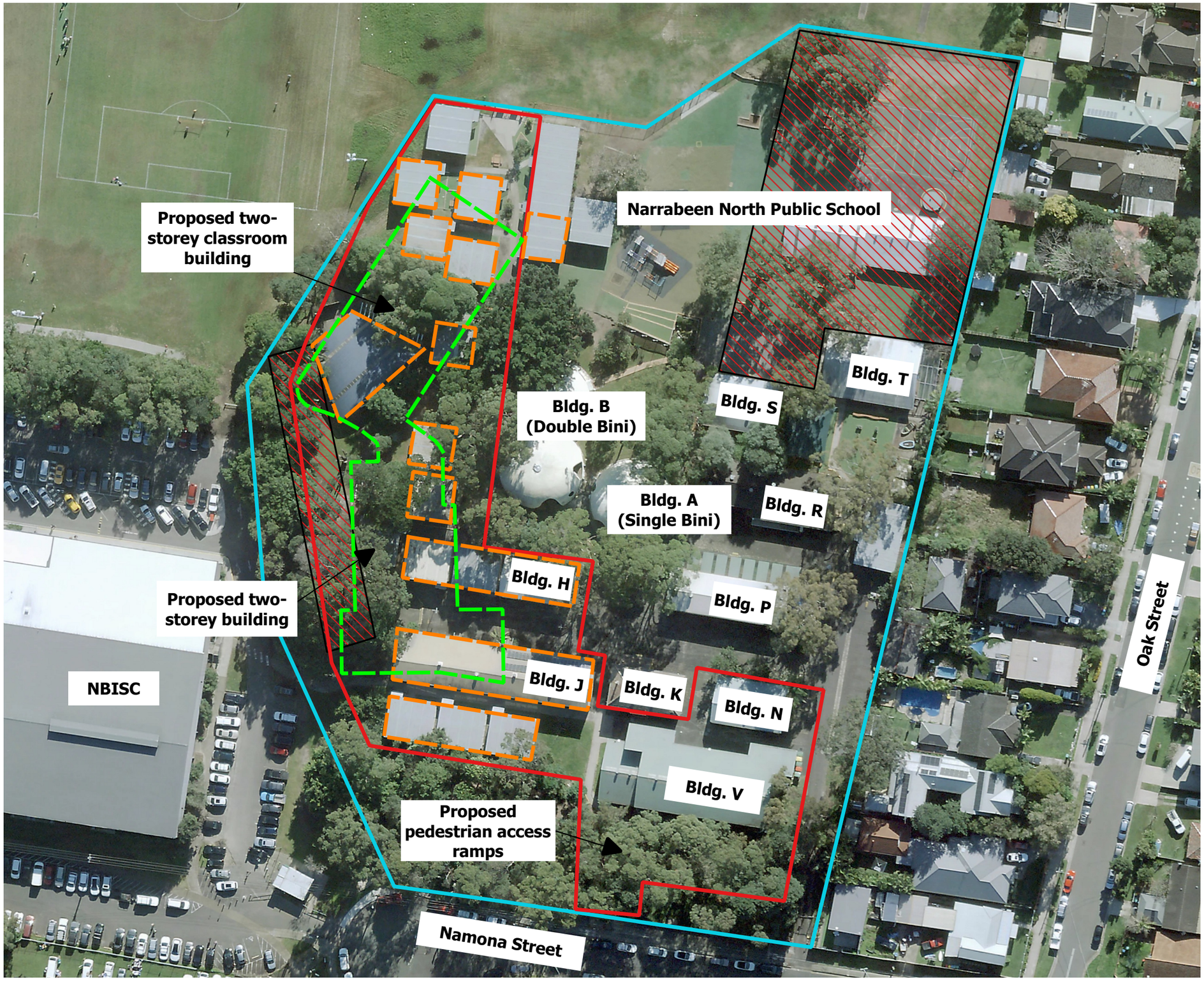
Douglas Partners
Geotechnics / Environment / Groundwater

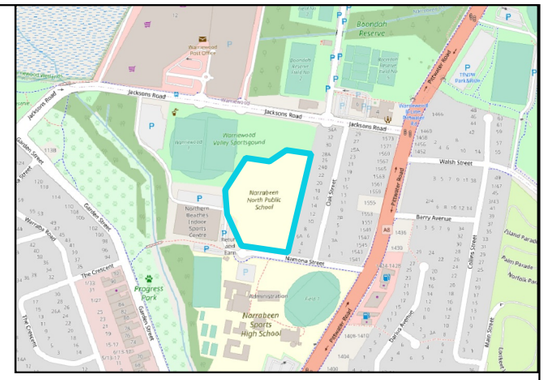
CLIENT:	NSW Department of Education		
OFFICE:	Sydney	DRAWN BY:	HD
SCALE:	1:3000 @ A3	DATE:	09.08.2022

TITLE: **Site Overview**
Narrabeen Education Precinct
Namona Street, North Narrabeen

N

PROJECT No:	86973.04
DRAWING No:	1
REVISION:	0





LOCALITY MAP

Notes:
1. Basemap from metromap.com
2. Locality map from OSM Standard
3. Boundaries shown are approximate only
4. NNPS AMP Asbestos Zones were sourced from Figure 1 of the AMP and are approximate only

Legend
- Narrabeen North Public School
- Investigation Area
- NNPS AMP Asbestos Zones
- Buildings Proposed for Demolition
- Proposed Buildings

0 20 40 60 m

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	NSW Department of Education		
OFFICE:	Sydney	DRAWN BY:	HD
SCALE:	1:850 @ A3	DATE:	11.08.2022

TITLE: **Site Location Plan - Narrabeen North Public School**
Narrabeen Education Precinct
Namona Street, North Narrabeen

N

PROJECT No:	86973.04
DRAWING No:	2
REVISION:	0

LOCALITY MAP

Notes:
1. Basemap from metromap.com
2. Locality map from OSM Standard
3. Boundaries shown are approximate only

Legend
- Narrabeen Sports High School
- Investigation Area

0 20 40 60 80 m

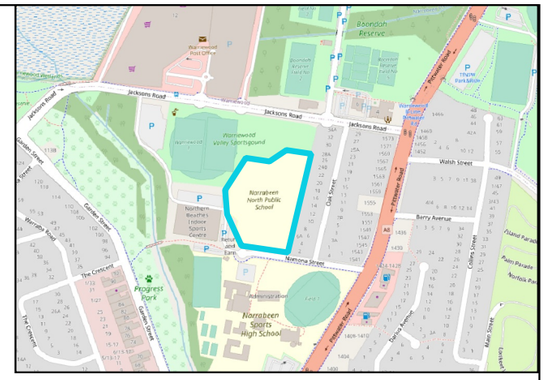
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	NSW Department of Education		
OFFICE:	Sydney	DRAWN BY:	HD
SCALE:	1:1500 @ A3	DATE:	09.08.2022

TITLE: **Site Location Plan - Narrabeen Sports High School**
Narrabeen Education Precinct
Namona Street, North Narrabeen

N

PROJECT No:	86973.04
DRAWING No:	3
REVISION:	0



LOCALITY MAP

Notes:
1. Basemap from metromap.com
2. Locality map from OSM Standard
3. Test locations and boundaries shown are approximate only
4. NNPS AMP Asbestos Zones were sourced from Figure 1 of the AMP and are approximate only
5. CPTs were also undertaken at some borehole locations

Legend

- Narrabeen North Public School
- Investigation Area
- NNPS AMP Asbestos Zones
- Buildings Proposed for Demolition
- Proposed Buildings

Current Investigation Test Locations

- Borehole
- Test Pit
- Surface Sample
- Fragment of Potential Asbestos Containing Material (PACM)

Previous Test Locations from DP (2020)

- Groundwater Monitoring Well
- Borehole
- CPT Only

0 20 40 60 m

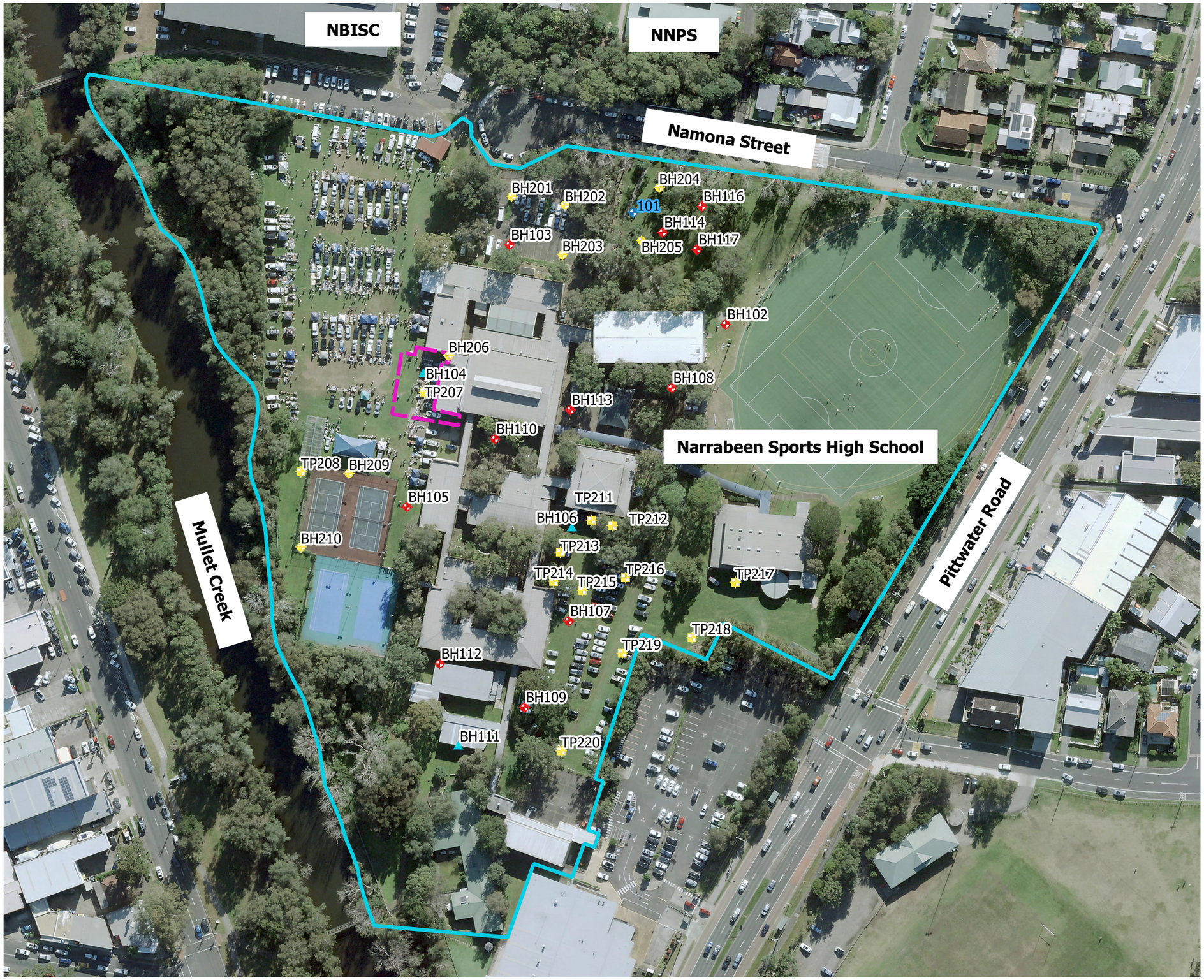
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	NSW Department of Education		
OFFICE:	Sydney	DRAWN BY:	HD
SCALE:	1:850 @ A3	DATE:	09.08.2022

TITLE: **Test Locations - Narrabeen North Public School**
Narrabeen Education Precinct
Namona Street, North Narrabeen

N

PROJECT No:	86973.04
DRAWING No:	4
REVISION:	0



LOCALITY MAP

Notes:
1. Basemap from metromap.com
2. Locality map from OSM Standard
3. Test locations and boundaries shown are approximate only
4. CPTs were also undertaken at some borehole locations

Legend

- Narrabeen Sports High School
- Investigation Area

Current Investigation Test Locations

- Borehole
- Test Pit

Previous Test Locations from DP (2020)

- Groundwater Monitoring Well
- Borehole
- CPT Only

0 20 40 60 80 m

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	NSW Department of Education		
OFFICE:	Sydney	DRAWN BY:	HD
SCALE:	1:1500 @ A3	DATE:	09.08.2022

TITLE: **Test Locations - Narrabeen Sports High School**
Narrabeen Education Precinct
Namona Street, North Narrabeen

N

PROJECT No:	86973.04
DRAWING No:	5
REVISION:	0

Appendix B

About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Appendix C

Site Photographs

Photo 1: NNPS – Northern side of bini-dome building

Photo 2: NNPS – Northern section of investigation area

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	86973.04
	Detailed Site Investigation (Contamination)	PLATE No:	1
	Narrabeen Education Precinct, Namona Street, Narrabeen	REV:	0
	CLIENT: NSW Department of Education	DATE	August 2022

Photo 3: NNPS - Amphitheatre near northern section of investigation area

Photo 4: NNPS - Building J (left) and demountable buildings (right) in the south-western part of NNPS

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	86973.04
	Detailed Site Investigation (Contamination)	PLATE No:	2
	Narrabeen Education Precinct, Namona Street, Narrabeen	REV:	0
	CLIENT: NSW Department of Education	DATE	August 2022

Photo 5: NNPS – Suspected asbestos-containing fibre cement material observed in northern part of investigation area.

Photo 6: NNPS – Asbestos-containing material (A02) sampled in northern part of investigation area.

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	86973.04
	Detailed Site Investigation (Contamination)	PLATE No:	3
	Narrabeen Education Precinct, Namona Street, Narrabeen	REV:	0
	CLIENT: NSW Department of Education	DATE	August 2022

Photo 7: NNPS – Source of samples SS1 to SS3 under Building J

Photo 8: NNPS – Looking at driveway entry off Namona Street and eastern side of Building V.

Photo 9: NNPS – Typical test pit returns

Photo 10: NNPS – Typical borehole returns

Photo 11: NSHS Investigation Area

Photo 12: Typical lithology encountered at NSHS

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	86973.04
	Detailed Site Investigation (Contamination)	PLATE No:	6
	Narrabeen Education Precinct, Namona Street, Narrabeen	REV:	0
	CLIENT: NSW Department of Education	DATE	August 2022

Appendix D

Data Quality Objectives

Appendix D
Data Quality Objectives
Narrabeen Education Precinct, Namona Street, Narrabeen

D1.0 Data Quality Objectives

The DSI has been devised broadly in accordance with the seven-step data quality objective process which is provided in Appendix B, Schedule B2 of NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

Step	Summary
1: State the problem	The objective of the investigation was to confirm the contamination status of the investigation areas with respect to the proposed land use. The investigation was undertaken as the schools are proposed to undergo a series of upgrades within sections of each school, including demolition of selected buildings and construction of new buildings and sports facilities. A conceptual site model (CSM) has been prepared (Section 8) for the proposed development. The project team consisted of experienced environmental engineers and scientists working in the roles of Project Principal, Project Reviewer, Project Manager and field staff.
2: Identify the decisions / goal of the study	The site history has identified possible contaminating previous uses which are identified in the CSM (Section 8). The CSM identifies the associated contaminants of potential concern (COPC) and the likely impacted media. The site assessment criteria (SAC) for each of the COPC are detailed in Appendix G. The decision was to establish whether contamination is present within the investigation areas by assessing whether analytical results fall below the SAC or whether the 95% upper confidence limit of the sample population falls below the SAC. On this basis, an assessment of the suitability of the investigation areas from a contamination perspective and whether (or not) further assessment and / or remediation was warranted.
3: Identify the information inputs	Inputs to the investigation were previous reports including DP (2020) and DP (2022), field observations and the results of analysis of samples to measure the concentrations of COPC identified in the CSM (Section 9) within the investigation areas using NATA accredited laboratories and methods, where possible. The SAC for each of the COPC are detailed in Appendix H. A photoionization detector (PID) was used in the field to screen soils for VOC. PID readings were used to inform sample selection for laboratory analysis.
4: Define the study boundaries	The lateral boundaries of the investigation areas are shown on Drawings 1 and 2, Appendix A. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment and site observations. The assessment is limited to the timeframe over which the field investigation was undertaken. Constraints to the assessment are identified and discussed in the conclusions of the report, Section 14.

Step	Summary
5: Develop the analytical approach (or decision rule)	The decision rule was to compare all analytical results with SAC (Appendix H, based on NEPC (2013)). Where guideline values were absent, other sources of guideline values accepted by NEPC (2013) were adopted where possible. Whilst ultimately not needing to be applied, the initial approach also included: - Where a sample result exceeded the adopted criterion, a further site-specific assessment was made as to the risk posed by the presence of that contaminant; and - Where required, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to assess potential risks posed by the site contamination. Quality control results were assessed according to their relative percent difference (RPD) values. For field duplicates, triplicates and laboratory results, RPDs should generally be below 30%; for field blanks and rinsates, results should be at or less than the limits of reporting (NEPC, 2013). The field and laboratory quality assurance assessment is included in Appendix I.
6: Specify the performance or acceptance criteria	Baseline condition: Contaminants within the investigation areas and/or statistical analysis of data (in line with NEPC (2013)) exceed human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants within the investigation areas and statistical analysis of data (in line with NEPC (2013)) comply with human health and environmental SAC and as such, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true.
7: Optimise the design for obtaining data	As the purpose of the sampling program was to assess for potential contamination across the site, the sampling program was reliant on professional judgement to identify and sample the potentially affected areas. Further details regarding the sampling plan are presented in Section 9.2.

Appendix E

Field Work Methodology

Appendix E
Fieldwork Methodology
Narrabeen Education Precinct, Namona Street, Narrabeen

E1.0 Guidelines

The key guideline were consulted for the field work methodology was NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

E2.0 Soil Sampling

Soil sampling was carried out in accordance with DP's standard operating procedures. The general sampling and sample management procedures comprised:

- Collection of soil samples directly from the excavator bucket, solid flight auger or hand auger at the nominated sample depth;
- Transfer samples into laboratory-prepared glass jars with Teflon lined lids by hand, capping immediately and minimising headspace within the sample jar;
- Collection of replicate samples in zip-lock bags for PID screening;
- Collection of ~500 ml samples for asbestos fines and friable asbestos (AF/FA) analysis;
- Collection of bulk (~10 L) soil samples from the fill, where sufficient sample return was present, for ACM field sieve test;
- Collection of ~40 g to 50 g samples in zip-lock bags for asbestos (presence / absence) analysis;
- Collection of ~100 g samples in zip-lock bags for acid sulphate soil analysis;
- Use of new disposable nitrile glove for each sample point, thereby minimising potential for cross-contamination;
- Collection of 10% replicate samples for QC purposes;
- Labelling of sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable);
- Placing samples into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain-of-custody documentation.

E2.1 Field Testing

Field testing was carried out in accordance with DP's standard operating procedures.

The general PID field testing comprised:

- Calibration of the PID with isobutylene gas at 100 ppm and with fresh air prior to commencement of each successive day's field work;
- Allowing the headspace in the PID zip-lock bag samples to equilibrate;
- Screening the sample using the PID; and
- Recording the results on the borehole / test pit log.

The general sieve testing for assessment of ACM in the fill comprised:

- Collection at least one bulk (~10 L) soil sample per metre of fill from each test pit / borehole (where sufficient sample return was present;
- Weighing of each bulk sample;
- Screening each bulk sample through a ≤7 mm aperture sieve;
- Weighing all retrieved potential ACM fragments;
- Submission of representative potential ACM fragments to a NATA accredited laboratory for analysis to confirm (or otherwise) the presence of asbestos; and
- Calculate the asbestos concentration (% w/w) in soil as per the procedure described in NEPC (2013).

It is noted that during the investigation, given the general sand composition of the fill and the high organic content in some of the samples given their collection from grassed and garden bed/landscaped areas, the density (and hence weight) of the 10 L sample was generally lower than is often encountered.

E3.0 Sample GPS Coordinates

After sampling, each sample location was surveyed using a DGPS to obtain approximate co-ordinates and site levels. These are presented on the borehole and test pit logs in Appendix F. Where levels were not able to be obtained due to obstructions by site features (e.g., trees, buildings, etc.) levels were inferred based on the survey provided by the client.

Douglas Partners Pty Ltd

Appendix F

Logs and Explanatory Notes

Appendix F1

NNPS Borehole and Test Pit Logs

TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.2 AHD
EASTING: 342193.1
NORTHING: 6269969.1

PIT No: TP1001
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
4	0.0	FILL/Silty SAND: fine to medium, grey-brown, trace charcoal and asphalt fragments, moist		E	0.0		PID < 1 ppm		
	0.2				0.2				
	0.3	Pit discontinued at 0.3m Possible service encountered							
3	1								1
2	2								2
1	3								3
0	4								4

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.1 AHD
EASTING: 342188.6
NORTHING: 6269974

PIT No: TP1001A
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
					0.0		PID < 1 ppm		
		FILL/Silty SAND: fine to medium, brown, with organics, trace rootlets, moist		E*					
	0.2				0.2		PID < 1 ppm		
		FILL/SAND: fine to medium, grey-brown, trace clay, brick, tile, plastic, concrete and asbestos containing material, moist		E	0.3				
					0.8		PID < 1 ppm		
	0.9			E	0.9				
		SAND SP: fine to medium, pale grey, with nodules of indurated brown sand, silt and clay (coffee rock), moist, alluvial and estuarine							
		Below 1.1 m: brown, with silt, trace clay			1.3		PID < 1 ppm		
				E	1.4				
					1.8		PID < 1 ppm		
				E	1.9				
		Below 2.1 m: wet						▼	
				E	2.2				
	2.3	Pit discontinued at 2.3m			2.3				
		Test pit collapse							

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 2.1 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey. *Blind replicate BD10/20220419 taken from 0-0.2 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.6 AHD
EASTING: 342206.6
NORTHING: 6269964.3
DIP/AZIMUTH: 90°/--

BORE No: BH1002
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
4.6	0.01	MULCH							
		FILL/Silty SAND: fine to medium, dark grey-brown, trace rootlets and charcoal, moist		E	0.1 0.2		PID < 1 ppm		
	0.4	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.5 0.6		PID < 1 ppm		
		Below 0.7 m: pale grey							
	1			E	1.0 1.1		PID < 1 ppm		1
		Below 1.3 m: brown, with silt, trace clay							
	1.5	Bore discontinued at 1.5m Target depth reached							
	2								2
	3								3
	4								4

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (150 mm) to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.7 AHD
EASTING: 342186.9
NORTHING: 6269942.3

PIT No: TP1003
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
					0.0				
		FILL/Silty SAND: fine to medium, grey-brown, trace charcoal, moist		E			PID < 1 ppm		
	0.2	FILL/Silty SAND: fine to medium, grey-brown, moist			0.2				
				E	0.3		PID < 1 ppm		
					0.4				
	0.5	SAND SP: fine to medium, pale grey, trace silt, moist, alluvial and estuarine							
				E	0.7		PID < 1 ppm		
					0.8				
		Below 0.9 m: with nodules of indurated brown sand, silt and clay (coffee rock)							
				E*	1.1		PID < 1 ppm		
					1.2				
	1.4	Pit discontinued at 1.4m Target depth reached							

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD1/20220413 taken from 1.1-1.2 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.7 AHD
EASTING: 342207.9
NORTHING: 6269937.9
DIP/AZIMUTH: 90°/--

BORE No: BH1004
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE							
	0.1	FILL/Gravelly SAND: fine to coarse, brown, angular to subangular igneous gravel, with silt, moist		E	0.2		PID < 1 ppm		
		FILL/Silty SAND: fine to medium, brown, trace rootlets, moist			0.3				
4	0.7	SAND SP: fine to medium, pale grey, trace silt, moist, alluvial and estuarine		E	0.8		PID < 1 ppm		
	1	Below 1.0 m: pale yellow-grey			0.9				1
		Below 1.2 m: with nodules of indurated brown sand, silt and clay (coffee rock)		E	1.3		PID < 1 ppm		
3					1.4				
	2			E	1.8				2
					1.9				
				E	2.3				
					2.4				
	2.5	Bore discontinued at 2.5m Target depth reached							
2									
	3								3
1									
	4								4
0									

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (150 mm) to 2.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.3 AHD
EASTING: 342175.1
NORTHING: 6269928

PIT No: TP1005
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
									5 10 15 20
		FILL/Silty SAND: fine to medium, grey-brown, trace rootlets, moist		E	0.0		PID < 1 ppm		
	0.2	SAND SP: fine to medium, pale grey, trace silt, moist, alluvial and estuarine			0.2				
				E	0.5		PID < 1 ppm		
					0.6				
	1			E	1.0		PID < 1 ppm		1
					1.1				
				E	1.5				
					1.6				
	2			E	2.0				2
	2.1	Pit discontinued at 2.1m Test pit collapse			2.1				
	3								3
	4								4

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.8 AHD
EASTING: 342196.8
NORTHING: 6269922.8
DIP/AZIMUTH: 90°/--

BORE No: BH1006
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.01	MULCH							
		FILL/Silty SAND: fine to medium, dark grey-brown, moist		E	0.1 0.2		PID < 1 ppm		
	0.4	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.6 0.7		PID < 1 ppm		
				E*	1.1 1.2		PID < 1 ppm		
	1.5	Bore discontinued at 1.5m Target depth reached							

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (150 mm) to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD2/20220413 taken from 1.1-1.2 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342176.3
NORTHING: 6269912.9

PIT No: TP1007
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
									5 10 15 20
		FILL/Silty SAND: fine to medium, dark brown, with roots and rootlets, trace plastic fragments and asbestos containing material, moist		E	0.0		PID < 1 ppm		
					0.2				
	0.3	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine							
		Below 0.5 m: pale grey, reducing silt		E	0.5		PID < 1 ppm		
					0.6				
	1			E	1.0		PID < 1 ppm		1
					1.1				
	1.5	Pit discontinued at 1.5m Target depth reached							
	2								2
	3								3
	4								4

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 3.0 AHD
EASTING: 342178
NORTHING: 6269895.4

PIT No: TP1008
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILL/Silty SAND: fine to medium, dark brown, with roots and rootlets, trace asbestos containing material, moist		E	0.0		PID < 1 ppm		
	0.3	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine			0.2				
				E	0.5		PID < 1 ppm		
					0.6				
	1	Below 0.9 m: with nodules of indurated brown sand, silt and clay (coffee rock)		E	1.0		PID < 1 ppm		
					1.1			▼	
		Below 1.4 m: wet		E	1.5				
					1.6				
	2			E	2.0				
					2.1				
				E	2.5				
	2.6	Pit discontinued at 2.6m Test pit collapse			2.6				
	3								
	4								

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.4 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.6 AHD
EASTING: 342203.6
NORTHING: 6269898.5
DIP/AZIMUTH: 90°/--

BORE No: BH1009
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.025	ASPHALTIC CONCRETE							
	0.1	FILL/Gravelly SAND: fine to coarse, grey-brown, with silt, angular to subangular igneous gravel, moist		E*	0.2 0.3		PID < 1 ppm		
		FILL/Silty SAND: fine to medium, dark grey, trace fine igneous gravel, moist							
	0.5	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.7 0.8		PID < 1 ppm		
	1	Below 1.0 m: reducing silt		E	1.2 1.3		PID < 1 ppm		
				E	1.8 1.9				
	2	2.0 Bore discontinued at 2.0m Target depth reached							
	3								
	4								

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 2.0 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD3/20220414 taken from 0.2-0.3 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.4 AHD
EASTING: 342217.2
NORTHING: 6269905.9
DIP/AZIMUTH: 90°/--

BORE No: BH1010
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE							
	0.1	FILL/Gravelly SAND: fine to coarse, grey-brown, with silt, angular to subangular igneous gravel, moist		E	0.2 0.3		PID < 1 ppm		
		FILL/Silty SAND: fine to medium, dark grey, trace fine igneous gravel, moist							
	0.6	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E*	0.7 0.8		PID < 1 ppm		
	1	Below 1.0 m: reducing silt							1
				E	1.2 1.3		PID < 1 ppm		
	1.5	Bore discontinued at 1.5m Target depth reached							
	2								2
	3								3
	4								4

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD4/20220414 taken from 0.7-0.8 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 3.5 AHD
EASTING: 342192.8
NORTHING: 6269875.6
DIP/AZIMUTH: 90°/--

BORE No: BH1011
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0 0.1		PID < 1 ppm		
	0.4	SAND SP: fine to medium, grey, moist, trace silt, alluvial and estuarine		E	0.6 0.7		PID < 1 ppm		
	1.0	Bore discontinued at 1.0m Target depth reached							

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.0 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.3 AHD
EASTING: 342210.4
NORTHING: 6269871.3
DIP/AZIMUTH: 90°/--

BORE No: BH1012
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0 0.1		PID < 1 ppm		
	0.5	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.6 0.7		PID < 1 ppm		
	1.0	Bore discontinued at 1.0m Target depth reached							

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.0 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.1 AHD
EASTING: 342250.9
NORTHING: 6269886.1
DIP/AZIMUTH: 90°/--

BORE No: BH1013
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE							
	0.2	FILL/Gravelly SAND: fine to coarse, grey-brown, fine to medium angular to subangular igneous gravel, with silt and asphalt, trace brick, moist		E	0.1 0.2		PID < 1 ppm		
		SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.3 0.4		PID < 1 ppm		
		Below 0.4 m: reducing silt							
	1.0	Bore discontinued at 1.0m Target depth reached		E	0.9 1.0		PID < 1 ppm		

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.0 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342264.8
NORTHING: 6269877.8
DIP/AZIMUTH: 90°/--

BORE No: BH1014
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE		E	0.05		PID < 1 ppm		
	0.15	FILL/Gravelly SAND: fine to coarse, grey-brown, with silt and asphalt, angular to subangular igneous gravel, moist			0.15				
		SAND SP: fine to medium, grey, with silt, moist, alluvial and estuarine		E	0.4		PID < 1 ppm		
		Below 0.5 m: trace silt			0.5				
				E*	0.9		PID < 1 ppm		
3	1.0	Bore discontinued at 1.0m Target depth reached			1.0				
2	2								
1	3								
0	4								

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.0 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD5/20220414 taken from 0.9-1.0 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.4 AHD
EASTING: 342235
NORTHING: 6269851.8
DIP/AZIMUTH: 90°/--

BORE No: BH1015
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND: fine to medium, dark brown, trace roots, rootlets and terracotta fragments, moist		E*	0.0 0.2		PID < 1 ppm		
	0.4	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.6 0.7		PID < 1 ppm		
				E	1.1 1.2		PID < 1 ppm		
	1.5	Bore discontinued at 1.5m Target depth reached							

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey. *Blind replicate BD6/20220414 taken from 0-0.2 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.2 AHD
EASTING: 342237.1
NORTHING: 6269842.4
DIP/AZIMUTH: 90°/--

BORE No: BH1016
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND: fine to medium, dark brown, with roots and rootlets, trace mulch, moist		E	0.0 0.2		PID < 1 ppm		
	0.5	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E*	0.5 0.6		PID < 1 ppm		
	1			E	1.0 1.1		PID < 1 ppm		
	1.5	Bore discontinued at 1.5m Target depth reached							
	2								
	3								
	4								

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey. *Blind replicate BD7/20220414 taken from 0.5-0.6 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.2 AHD
EASTING: 342245.1
NORTHING: 6269856.7

PIT No: TP1017
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, brown, trace clay, rootlets and terracotta fragment, moist		E	0.0		PID < 1 ppm		
	0.2	FILL/Silty SAND: fine to medium, dark grey-brown, trace rootlets, moist			0.2				
				E	0.4		PID < 1 ppm		
	0.6	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine			0.5				
				E	0.9		PID < 1 ppm		
					1.0				
				E*	1.4		PID < 1 ppm		
	1.5	Pit discontinued at 1.5m Target depth reached			1.5				

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey. *Blind replicate BD8/20220414 taken from 1.4-1.5 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342256.8
NORTHING: 6269842.9

PIT No: TP1018
PROJECT No: 86973.04
DATE: 14/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
									5 10 15 20
		FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E*	0.0		PID < 1 ppm		
					0.2				
	0.3	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine							
				E	0.5		PID < 1 ppm		
					0.6				
		Below 0.8 m: pale grey							
3	1			E	1.0		PID < 1 ppm		1
					1.1				
		Below 1.2 m: trace nodules of indurated brown sand, silt and clay (coffee rock)							
				E	1.5				
					1.6				
2	2			E	2.0				2
	2.1	Pit discontinued at 2.1m			2.1				
		Test pit collapse							
1	3								3
0	4								4

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates obtained via DGPS. Approximate levels inferred from provided survey. *Blind replicate BD9/20220414 taken from 0-0.2 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342172.1
NORTHING: 6269921.1

PIT No: TP1019
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, brown, with organics, trace rootlets, glass, brick, terracotta, concrete and plastic fragments, moist		E	0.0		PID < 1 ppm		
	0.2	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine			0.2				
				E	0.3		PID < 1 ppm		
		Below 0.6 m: pale grey			0.4				
				E	0.9		PID < 1 ppm		
	1.0	Pit discontinued at 1.0m Target depth reached			1.0				

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Approximate levels inferred from provided survey.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342180.1
NORTHING: 6269905.5

PIT No: TP1020
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, brown, with organics, trace rootlets, moist		E	0.0		PID < 1 ppm		
	0.2	FILL/SAND: fine to medium, with silt, grey-brown, trace gravel, rootlets and slag, moist			0.2				
				E	0.4		PID < 1 ppm		
					0.5				
	0.7	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine							
				E	0.9		PID < 1 ppm		
	1				1.0				1
				E*	1.4		PID < 1 ppm		
	1.5	Pit discontinued at 1.5m Target depth reached			1.5				
	2								2
	3								3
	4								4

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Approximate levels inferred from provided survey. *Blind replicate BD11/20220419 taken from 1.4-1.5 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.6 AHD
EASTING: 342237.3
NORTHING: 6269938.1
DIP/AZIMUTH: 90°/--

BORE No: BH1021
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND: fine to medium, dark brown, with rootlets, moist		E	0.1 0.2		PID < 1 ppm		
	0.25	Bore discontinued at 0.25m Refusal on gravel and geofabric							

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 0.25 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 5.1 AHD
EASTING: 342242.5
NORTHING: 6269937
DIP/AZIMUTH: 90°/--

BORE No: BH1022
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
5		FILL/Silty SAND: fine to medium, dark brown, with rootlets, moist			0.1				
		Below 0.1 m: trace rootlets		E	0.2		PID < 1 ppm		
					0.6				
				E			PID < 1 ppm		
	0.7				0.7				
4		Bore discontinued at 0.7m							
		Refusal on gravel and geofabric							
	1								1
3									
	2								2
2									
	3								3
1									
	4								4

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 0.7 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.6 AHD
EASTING: 342240.5
NORTHING: 6269914.9
DIP/AZIMUTH: 90°/--

BORE No: BH1023
PROJECT No: 86973.04
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.01	MULCH							
		FILL/Silty SAND: fine to medium, brown, trace rootlets and fine gravel, moist		E	0.1 0.2		PID < 1 ppm		
		Below 0.3 m: dark brown		E	0.4 0.5		PID < 1 ppm		
	0.7	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	0.9 1.0		PID < 1 ppm		
				E	1.4		PID < 1 ppm		
	1.5	Bore discontinued at 1.5m Target depth reached			1.5				

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (150 mm) to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.4 AHD
EASTING: 342188.4
NORTHING: 6269990.3
DIP/AZIMUTH: 90°/--

BORE No: BH1024
PROJECT No: 86973.04
DATE: 14/07/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.0	FILL/Silty CLAY: medium to high plasticity, brown mottled red, trace ironstone, rootlets and fine igneous gravel, w~PL		E	0.0		PID = 2 ppm		
	0.2				0.2				
	0.3	Silty SAND SM: fine to medium, dark grey-brown, moist, alluvial and estuarine			0.3				
	0.4			E*	0.4		PID = 2 ppm		
	0.6				0.6				
	0.9	Below 0.9 m: wet		E	0.9		PID = 1 ppm	▼	
	1.1	Bore discontinued at 1.1m Target depth reached			1.1				

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.1 m.

WATER OBSERVATIONS: Groundwater observed at 0.9 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD22/20220714 taken from 0.4-0.6 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 3.0 AHD
EASTING: 342198.4
NORTHING: 6269993
DIP/AZIMUTH: 90°/--

BORE No: BH1025
PROJECT No: 86973.04
DATE: 14/07/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
3	0.0	FILL/SAND: fine to medium, grey, trace clay, fine to coarse gravel, brick and concrete fragments, moist, reworked natural		E	0.0 - 0.2		PID = 2 ppm		
				E	0.5 - 0.7		PID = 1 ppm		
2	0.8	FILL/Sandy CLAY: medium to high plasticity, yellow mottled red, trace silt and ironstone, w~PL		E	0.9 - 1.1		PID = 1 ppm	▼	1
	1.1	Silty SAND SM: fine to medium, dark grey-brown, trace rootlets, wet, alluvial and estuarine		E	1.2 - 1.4		PID = 1 ppm		
	1.7	Bore discontinued at 1.7m Target depth reached							
1	2								2
0	3								3
-1	4								4

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.7 m.

WATER OBSERVATIONS: Groundwater observed at 1.1 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 3.5 AHD
EASTING: 342210.9
NORTHING: 6269985.5
DIP/AZIMUTH: 90°/--

BORE No: BH1026
PROJECT No: 86973.04
DATE: 14/07/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/SAND: fine to medium, grey, trace clay, silt, brick, tile and plastic fragments, moist, possibly reworked natural		E*	0.0		PID = 1 ppm		
					0.2				
		Below 0.9 m: brown, with silt and clay, trace clay nodules		E	0.9		PID = 2 ppm		
	1.1	SAND SP: fine to medium, dark grey-brown, moist, alluvial and estuarine			1.1				
				E	1.2		PID = 1 ppm		
					1.4				
	1.5	Bore discontinued at 1.5m Target depth reached							

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.5 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Approximate coordinates obtained via DGPS. Approximate levels inferred by comparison with nearby boreholes. *Blind replicate BD23/20220714 taken from 0-0.2 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342199.8
NORTHING: 6270003.5
DIP/AZIMUTH: 90°/--

BORE No: BH1027
PROJECT No: 86973.04
DATE: 14/07/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
4		FILL/Silty SAND: fine to medium, brown, trace fine igneous gravel, rootlets and asbestos containing material, moist		E	0.0 0.2		PID = 2 ppm		
	0.6	SAND SP: fine to medium, grey, moist, alluvial and estuarine		E	0.6 0.8		PID = 3 ppm		
3	1	Below 1.2 m: indurated brown sand, silt and clay (coffee rock)		E	1.2 1.4		PID = 3 ppm		1
	1.6	Bore discontinued at 1.6m Target depth reached							
2	2								2
1	3								3
0	4								4

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.6 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Appendix F2

NSHS Borehole and Test Pit Logs

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 1.9 AHD
EASTING: 342187.2
NORTHING: 6269801.6
DIP/AZIMUTH: 90°/--

BORE No: BH201
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND: fine to medium, brown, trace rootlets and glass, moist		E*	0.0		PID < 1 ppm		
		Below 0.2 m: trace fine to medium sandstone gravel			0.2				
				E	0.4		PID < 1 ppm		
	0.5	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine			0.5				
				E	0.9		PID < 1 ppm		
	1				1.0			▼	1
		Below 1.1 m: wet							
				E	1.4		PID < 1 ppm		
					1.5				
		Below 1.6 m: dark brown, sulfuric odour							
				E	1.9				
	2				2.0				2
				E	2.4				
	2.5	Bore discontinued at 2.5m Target depth reached			2.5				
	3								3
	4								4

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 2.5 m.

WATER OBSERVATIONS: Groundwater observed at 1.1 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD12/20220419 taken from 0-0.2 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.0 AHD
EASTING: 342207.6
NORTHING: 6269798.3
DIP/AZIMUTH: 90°/--

BORE No: BH202
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE							
	0.09	CONCRETE SLAB		E	0.1 0.2		PID < 1 ppm		
	0.4	FILL/Sandy CLAY: medium to high plasticity, orange mottled yellow, trace fine to medium ironstone and clinker, w~PL		E	0.4 0.5		PID < 1 ppm	▼	
		SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine Below 0.7 m: wet		E*	0.9		PID < 1 ppm		
	1.0	Bore discontinued at 1.0m Target depth reached			1.0				

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.0 m.

WATER OBSERVATIONS: Groundwater observed at 0.7 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD13/20220419 taken from 0.9-1.0 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 1.9 AHD
EASTING: 342206.6
NORTHING: 6269779.2
DIP/AZIMUTH: 90°/--

BORE No: BH203
PROJECT No: 86973.04
DATE: 19/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE							
	0.11	CONCRETE SLAB							
		FILL/Sandy CLAY: medium to high plasticity, orange mottled yellow, trace ironstone and clinker, w~PL		E	0.2 0.3		PID < 1 ppm		
	0.5	FILL/SAND: fine to medium, brown, trace shells, moist		E	0.6		PID < 1 ppm		
	0.7	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine			0.7				
	1	Below 1.0 m: wet, sulfuric odour		E	0.9 1.0		PID < 1 ppm	▼	1
				E	1.4		PID < 1 ppm		
	1.5	Bore discontinued at 1.5m Target depth reached			1.5				

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 1.5 m.

WATER OBSERVATIONS: Groundwater observed at 1.0 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 3.8 AHD
EASTING: 342243.8
NORTHING: 6269805
DIP/AZIMUTH: 90°/--

BORE No: BH204
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0–0.1		PID < 1 ppm		
		FILL/SAND: fine to medium, brown, trace shells, sandstone gravel and cobbles, slag and terracotta, moist		E	0.3–0.4		PID < 1 ppm		
				E	0.8–0.9		PID < 1 ppm		
	1.2	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	1.3–1.4		PID < 1 ppm		
				E	1.8–1.9		PID < 1 ppm		
	2.0	Bore discontinued at 2.0m Target depth reached							

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 2.0 m.

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 3.3 AHD
EASTING: 342237
NORTHING: 6269784.6
DIP/AZIMUTH: 90°/--

BORE No: BH205
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0 0.1		PID < 1 ppm		
		FILL/SAND: fine to medium, brown, trace shells and sandstone gravel, moist		E	0.3 0.4		PID < 1 ppm		
				E	0.8 0.9		PID < 1 ppm	▼	
		Below 1.0 m: wet		E	1.3 1.4		PID < 1 ppm		
	1.5	SAND SP: fine to medium, dark grey, trace silt, wet, alluvial and estuarine, sulfuric odour		E	1.8 1.9		PID < 1 ppm		
				E	2.3				
	2.4	Bore discontinued at 2.4m Target depth reached			2.4				

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Solid flight auger (300 mm) to 2.4 m.

WATER OBSERVATIONS: Groundwater observed at 1.0 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.8 AHD
EASTING: 342163
NORTHING: 6269740.5
DIP/AZIMUTH: 90°/--

BORE No: BH206
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.13	CONCRETE SLAB							
		FILL/SAND: fine to medium, brown, trace silt, shells and gravel, moist		E*	0.2 0.3		PID < 1 ppm		
				E	0.7 0.8		PID < 1 ppm		
	1.1	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine Below 1.4 m: wet		E	1.2 1.3		PID < 1 ppm	▼	
	1.5	Bore discontinued at 1.5m Target depth reached							

RIG: 5 Tonne Excavator **DRILLER:** A&A Hire Service **LOGGED:** HD **CASING:** -

TYPE OF BORING: Dia-core (300 mm) to 0.13 m, solid flight auger (300 mm) to 1.5 m.

WATER OBSERVATIONS: Groundwater observed at 1.4 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD14/20220420 taken from 0.2-0.3 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342153.7
NORTHING: 6269726.5

PIT No: TP207
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E*	0.0		PID < 1 ppm		
2	0.2	FILL/SAND: fine to medium, brown, trace brick and plastic fragments, moist			0.2				
				E	0.4		PID < 1 ppm		
					0.5				
				E	0.9		PID < 1 ppm		
1					1.0				1
1	1.2	SAND SP: fine to medium, pale grey, trace silt, moist, alluvial and estuarine						▼	
		Below 1.3 m: wet		E	1.4		PID < 1 ppm		
					1.5				
		Below 1.7 m: dark grey, sulfuric odour		E	1.9		PID < 1 ppm		
0	2				2.0				2
				E	2.4				
	2.5	Pit discontinued at 2.5m Test pit collapse			2.5				
-1	3								3
-2	4								4

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.3 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD15/20220420 taken from 0-0.2 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 1.8 AHD
EASTING: 342106.3
NORTHING: 6269696

PIT No: TP208
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0		PID < 1 ppm		
	0.2	FILL/SAND: fine to medium, brown, trace silt and shells, moist			0.2				
				E	0.4		PID < 1 ppm		
					0.5				
				E	0.9		PID < 1 ppm		
	1.1				1.0				
		SAND SP: fine to medium, dark grey, trace silt, moist, alluvial and estuarine, sulfuric odour		E	1.4		PID < 1 ppm		
					1.5			▼	
		Below 1.8 m: wet		E	1.9				
	2.0	Pit discontinued at 2.0m Test pit collapse			2.0				

RIG: 5 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.8 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.0 AHD
EASTING: 342124.7
NORTHING: 6269695.4
DIP/AZIMUTH: 90°/--

BORE No: BH209
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
2	0.04	ASPHALTIC CONCRETE		E	0.05		PID < 1 ppm		
	0.15	FILL/Gravelly SAND: fine to coarse, dark grey, fine to medium gravel, with silt, moist, slight organic odour			0.15				
		FILL/SAND: fine to medium, brown, trace shells, moist		E*	0.7 0.8		PID < 1 ppm		
1	1								1
		Below 1.3 m: wet		E	1.4		PID < 1 ppm	▼	
	1.5	Bore discontinued at 1.5m Borehole collapse			1.5				
0	2								2
-1	3								3
-2	4								4

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.5 m.

WATER OBSERVATIONS: Groundwater observed at 1.3 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD16/20220420 taken from 0.7-0.8 m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 1.8 AHD
EASTING: 342106.3
NORTHING: 6269667.2
DIP/AZIMUTH: 90°/--

BORE No: BH210
PROJECT No: 86973.04
DATE: 20/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE							
	0.2	FILL/Gravelly SAND: fine to coarse, dark grey, fine to medium gravel, with silt, moist, slight organic odour		E	0.1 0.2		PID < 1 ppm		
		FILL/SAND: fine to medium, brown, trace shells, moist		E	0.5 0.6		PID < 1 ppm		
	0.9	SAND SP: fine to medium, pale grey, trace silt, moist, alluvial and estuarine		E	1.0 1.1		PID < 1 ppm	▼	
		Below 1.3 m: wet							
	1.4	Bore discontinued at 1.4m Target depth reached							

RIG: Hand Tools **DRILLER:** HD **LOGGED:** HD **CASING:** -

TYPE OF BORING: Hand auger to 1.4 m.

WATER OBSERVATIONS: Groundwater observed at 1.3 m.

REMARKS: Location coordinates are in MGA94 Zone 56. Coordinates and levels obtained via DGPS.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342217.7
NORTHING: 6269677.4

PIT No: TP211
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E*	0.0		PID < 1 ppm		
	0.2	FILL/SAND: fine to medium, brown, with silt, trace fine to medium gravel and plastic fragments, moist			0.2				
				E	0.4		PID < 1 ppm		
					0.5				
	0.6	FILL/SAND: fine to medium, pale brown, moist							
				E	0.9		PID < 1 ppm		
	1.0	Below 0.9 m: with nodules of medium plasticity sandy clay, trace fine to medium sandstone gravel			1.0				
		SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine						▼	
		Below 1.2 m: wet		E	1.4		PID < 1 ppm		
					1.5				
				E	1.9		PID < 1 ppm		
	2.0	Pit discontinued at 2.0m Target depth reached			2.0				

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.2 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD17/20220421 taken from 0-0.2 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 1.9 AHD
EASTING: 342225.7
NORTHING: 6269675.3

PIT No: TP212
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, concrete and sandstone cobbles, moist		E	0.0		PID < 1 ppm		
					0.2				
	0.4	FILL/SAND: fine to medium, brown, moist							
				E	0.5		PID < 1 ppm		
		Below 0.7 m: with nodules of medium plasticity sandy clay, trace ironstone cobbles and sandstone gravel			0.6				
				E	0.9		PID < 1 ppm		
	1.0	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine			1.0			▼	
		Below 1.2 m: wet		E	1.4		PID < 1 ppm		
	1.5	Pit discontinued at 1.5m Target depth reached			1.5				

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.2 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342205.8
NORTHING: 6269665.2

PIT No: TP213
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets and fine to medium igneous gravel, moist		E	0.0		PID < 1 ppm		
					0.2				
	0.3	FILL/SAND: fine to medium, pale brown, moist		E*	0.4		PID < 1 ppm		
					0.5				
		Below 0.6 m: trace nodules of medium plasticity silty clay							
				E	0.9		PID < 1 ppm		
	1				1.0				1
	1.2	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine, slight sulfuric odour							
		Below 1.4 m: wet		E	1.4		PID < 1 ppm	▼	
					1.5				
				E	1.9		PID < 1 ppm		
	2 2.0	Pit discontinued at 2.0m Test pit collapse			2.0				2
	3								3
	4								4

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.4 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD18/20220421 taken from 0.4-0.5 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342203.2
NORTHING: 6269654

PIT No: TP214
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0			E	0.0		PID < 1 ppm		
	0.1	FILL/Silty SAND: fine to medium, dark brown, trace rootlets and fine to medium igneous gravel, moist			0.1				
		FILL/SAND: fine to medium, brown, trace shells and brick fragments, moist							
		Below 0.4 m: pale brown		E	0.4		PID < 1 ppm		
					0.5				
				E	0.9		PID < 1 ppm		
	1				1.0				1
	1.1	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine							
				E*	1.4		PID < 1 ppm		
	1.5	Pit discontinued at 1.5m Test pit collapse			1.5				
	2								2
	3								3
	4								4

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD19/20220421 taken from 1.4-1.5 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.0 AHD
EASTING: 342214.2
NORTHING: 6269650.5

PIT No: TP215
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
2	0.1	FILL/Silty SAND: fine to medium, dark brown, trace rootlets and igneous gravel, moist		E*	0.0 0.1		PID < 1 ppm		5 10 15 20
		FILL/SAND: fine to medium, pale brown, trace shells, moist		E	0.4 0.5		PID < 1 ppm		
1	0.9 1	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine		E	1.0 1.1		PID < 1 ppm		1
	1.2	Pit discontinued at 1.2m Test pit collapse							
0	2								2
-1	3								3
-2	4								4

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD20/20220421 taken from 0-0.1 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 1.9 AHD
EASTING: 342230.8
NORTHING: 6269655.4

PIT No: TP216
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
					0.0		PID < 1 ppm		5 10 15 20
		FILL/Silty SAND: fine to medium, dark brown, trace rootlets and igneous gravel, moist		E					
	0.2	FILL/SAND: fine to medium, pale brown, trace shells and concrete cobbles, moist			0.2				
				E	0.5		PID < 1 ppm		
					0.6			▼	
	0.9	SAND SP: fine to medium, dark grey, with silt, wet, alluvial and estuarine, sulfuric odour		E	1.0		PID < 1 ppm		
					1.1				
	1.2	Pit discontinued at 1.2m Test pit collapse							

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 0.9 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342273
NORTHING: 6269653.6

PIT No: TP217
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace clay, rootlets, igneous gravel, asbestos containing material, glass and brick fragments, moist		E*	0.0		PID < 1 ppm		
	0.2	FILL/SAND: fine to medium, pale brown, trace shells, concrete and sandstone gravel and cobbles, moist		E	0.2		PID < 1 ppm		
					0.4				
					0.5				
				E	0.9		PID < 1 ppm		
	1	Below 1.0 m: wet			1.0			▼	1
	1.2	SAND SP: fine to medium, grey, trace silt, wet, alluvial and estuarine		E	1.4		PID < 1 ppm		
	1.5	Pit discontinued at 1.5m Test pit collapse			1.5				

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.0 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS. *Blind replicate BD21/20220421 taken from 0-0.2 m.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.3 AHD
EASTING: 342256.3
NORTHING: 6269632.4

PIT No: TP218
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets and asbestos containing material, moist		E	0.0		PID < 1 ppm		
					0.2				
	0.4	FILL/SAND: fine to medium, brown, moist							
				E	0.6				
					0.7				
	1.1	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine							
		Below 1.3 m: wet		E	1.2			▼	
					1.3				
				E	1.8		PID < 1 ppm		
	1.9	Pit discontinued at 1.9m			1.9				
		Test pit collapse							

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.3 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342229.6
NORTHING: 6269626.4

PIT No: TP219
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0		PID < 1 ppm		
					0.2				
	0.3	FILL/SAND: fine to medium, pale brown, trace shells and fine to medium ironstone gravel, moist							
				E	0.5		PID < 1 ppm		
					0.6				
	1.0	SAND SP: fine to medium, grey, trace silt, moist, alluvial and estuarine, sulfuric odour Below 1.1 m: wet						▼	
				E	1.2		PID < 1 ppm		
					1.3				
				E	1.7		PID < 1 ppm		
	1.8	Pit discontinued at 1.8m Test pit collapse			1.8				

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Groundwater observed at 1.1 m.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: NSW Department of Education
PROJECT: Proposed School Upgrade
LOCATION: Namona Street, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342206.1
NORTHING: 6269588.9

PIT No: TP220
PROJECT No: 86973.04
DATE: 21/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	0.0	FILL/Silty SAND: fine to medium, dark brown, trace rootlets and asphalt fragments, moist		E	0.0		PID < 1 ppm		
	0.2	FILL/SAND: fine to medium, brown, trace shells, asphalt and brick fragments and concrete gravel, cobbles and boulders, moist			0.2				
				E	0.5		PID < 1 ppm		
	0.9	Pit discontinued at 0.9m Refusal on concrete boulders			0.6				

RIG: 2 Tonne Excavator with 300 mm wide bucket

LOGGED: HD

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed.

REMARKS: Location coordinates are in MGA Zone 56. Coordinates and levels obtained via DGPS.

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Appendix F3

DP (2020) Previous Boreholes

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.3 AHD
EASTING: 342285.8
NORTHING: 6269998.5
DIP/AZIMUTH: 90°/--

BORE No: BH01
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	ASPHALTIC CONCRETE		E	0.05		PID<1ppm		
	0.15	FILL/Gravelly SAND SP: fine to coarse, brown, igneous, trace silt, moist		E*	0.15 0.4 0.5		PID<1ppm		
	0.6	FILL/Silty SAND SM: fine to medium, dark grey, trace ash, moist							
	1	SAND SP: fine to medium, pale grey, moist, alluvial and estuarine		E	0.9 1.0		PID<1ppm		
	1.5	Silty SAND SM: fine to coarse, dark brown, indurated, moist, alluvial and estuarine		E	1.4 1.5		PID<1ppm		
	2 2.0	Bore discontinued at 2.0m - Target Depth Reached		E	1.9 2.0		PID<1ppm		

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 2.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD1/20200123 taken at 0.4-0.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.5 AHD
EASTING: 342229.9
NORTHING: 6269957.2
DIP/AZIMUTH: 90°/--

BORE No: BH03
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILL/TOPSOIL (Silty SAND) SM: fine to medium, dark brown, trace rootlets, moist		E	0.0		PID<1ppm		
				E	0.1		PID<1ppm		
	0.35	FILL/Silty SAND SM: fine to coarse, brown and orange-brown, moist		E	0.2		PID<1ppm		
	0.5				0.3				
					0.35				
	0.8	FILL/Silty SAND SM: fine to medium, dark grey, trace ash and charcoal, moist			0.45				
				E	0.9		PID<1ppm		
		FILL/SAND SP: fine to medium, grey, trace ash, moist (possible natural)			1.0				
				E	1.4		PID<1ppm		
		SAND SP: fine to medium, grey, moist, alluvial and estuarine			1.5				
		- From 1.0m: pale grey		E	1.9		PID<1ppm		
					2.0				
	2.65	SAND SP: fine to medium, dark brown, trace rootlets, indurated, moist, alluvial and estuarine							
	3.0	Bore discontinued at 3.0m - Target Depth Reached, refusal on coffee rock							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.9 AHD
EASTING: 342213.9
NORTHING: 6270007.2
DIP/AZIMUTH: 90°/--

BORE No: BH04
PROJECT No: 86973.01
DATE: 21/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILL/TOPSOIL (Silty SAND) SM: fine to coarse, dark brown, trace rootlets, moist		E	0.0		PID<1ppm		Well Plug and Flush Gatic Cover Concrete 0-0.15m
	0.3	FILL/Gravelly CLAY CH: medium to high plasticity, orange-brown, ironstone, sandstone, igneous, trace silt, w~PL		E*	0.1		PID<1ppm		
					0.3				Bentonite 0.15-0.9m
				E	0.4		PID<1ppm		Plain PVC 0-1.5m
		SAND SP: fine to medium, grey, moist, alluvial and estuarine			0.5				
		- From 0.4m: fine, pale grey		E	0.9		PID<1ppm		
					1.0				
				E	1.5		PID<1ppm		
					1.6				
	2.1	- From 2.0m: wet							
		SAND SP: fine to medium, brown and dark brown, indurated, wet, alluvial and estuarine		E**	2.4		PID<1ppm		
					2.5				Gravel 0.9-4.5m
									Machine Slotted PVC Screen 1.5-4.5m
					3.5				
	3.6	Sandy CLAY CL: low plasticity, brown and dark brown, fine to medium sand, trace sub-rounded gravel, wet, alluvial and estuarine		E			PID<1ppm		
					4.0				
					4.5				End Cap
				E			PID<1ppm		
					5.0				
	5.2	SAND SP: fine to medium, yellow-brown, trace sub-rounded gravel, saturated, alluvial and estuarine			5.5				
				E			PID<1ppm		
					6.0				
					6.5				
				E			PID<1ppm		
					7.0				
					7.5				
				E			PID<1ppm		
	8.0	Bore discontinued at 8.0m - Target Depth Reached			8.0				

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 2.0m, Solid flight augers (TC-bit) to 8.0m

WATER OBSERVATIONS: Free groundwater observed whilst push tubing at 2.0m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD4/20200121 taken from 0.1-0.3m, **Blind replicate sample BD5/20200121 taken from 2.4-2.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.7 AHD
EASTING: 342193.8
NORTHING: 6269948.2
DIP/AZIMUTH: 90°/--

BORE No: BH05
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.15	FILL/TOPSOIL (Silty SAND) SM: fine to coarse, brown, trace rootlets, gravel, moist		E	0.0 0.1		PID<1ppm		
		FILL/Silty SAND SM: fine to coarse, grey, trace ash and charcoal, moist		E	0.4 0.5		PID<1ppm		
	0.8	Silty SAND SM: fine to medium, grey and pale grey, moist, alluvial and estuarine		E	0.9 1.0		PID<1ppm		
				E	1.4 1.5		PID<1ppm		
	1.5	Silty SAND SM: fine to medium, brown, trace rootlets, moist, alluvial and estuarine		E	1.9 2.0		PID<1ppm		
		- From 2.4m: red-brown							
	3.0	Bore discontinued at 3.0m - Target Depth Reached		E*	2.9 3.0		PID<1ppm		

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD8/20200122 taken from 2.9-3.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.7 AHD
EASTING: 342195.8
NORTHING: 6269907.2
DIP/AZIMUTH: 90°/--

BORE No: BH06
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE		E	0.05 0.15		PID<1ppm		Well Plug and Flush Gatic Cover Concrete 0-0.15m
	0.2	FILL/Silty SAND SM: fine to medium, dark grey, trace ash, moist		E	0.4 0.5		PID<1ppm		
		SAND SP: fine to medium, grey, moist From 0.7m: pale grey		E	0.9 1.0		PID<1ppm		Backfill 0.15-1.3m
				E*	1.4 1.5		PID<1ppm		Plain PVC 0-2.8m
				E	1.9 2.0		PID<1ppm		Bentonite 1.3-2.3m
	2.3	SAND SP: fine to medium, brown and red-brown, indurated, moist, alluvial and estuarine		A	2.4 2.5		PID<1ppm		
	3.2	SAND SP: fine to medium, pale grey, moist, alluvial and estuarine						▼	Gravel 2.3-5.8m Machine slotted PVC Screen 2.8-5.8m
	6.0	Bore discontinued at 6.0m - Target Depth Reached							End Cap

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m, Solid flight augers (TC-bit) to 6.0m

WATER OBSERVATIONS: Free groundwater observed whilst augering at 4.0m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD4/20200122 taken from 1.4-1.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.3 AHD
EASTING: 342224.6
NORTHING: 6269898.6
DIP/AZIMUTH: 90°/--

BORE No: BH07
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE		E	0.05		PID<1ppm		
	0.05	ROADBASE: gravel, igneous <20mm			0.15				
		FILL/Silty SAND SM: fine to medium, dark grey, trace ash, moist		E	0.4		PID<1ppm		
	0.7				0.5				
		SAND SP: fine to medium, pale grey, moist, alluvial and estuarine		E	0.9		PID<1ppm		
					1.0				
				E*	1.4		PID<1ppm		
					1.5				
				E	1.9		PID<1ppm		
					2.0				
				E	2.4		PID<1ppm		
	2.5	Bore discontinued at 2.5m - Target Depth Reached			2.5				

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD5/20200122 taken from 1.4-1.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.2 AHD
EASTING: 342263.8
NORTHING: 6269899.7
DIP/AZIMUTH: 90°/--

BORE No: BH08
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE		E	0.05		PID<1ppm		
	0.05				0.15				
	0.15	ROADBASE: gravel, igneous <20mm		E	0.4		PID<1ppm		
		FILL/Silty SAND SM: fine to coarse, dark grey, trace ash and chemical , moist			0.5				
	0.9	FILL/Silty SAND SM: fine to medium, grey, trace ash, moist		E	0.9		PID<1ppm		
					1.0				
		Silty SAND SM: fine to medium, grey, moist, alluvial and estuarine		E	1.4		PID<1ppm		
					1.5				
	1.7	Silty SAND SM: fine to medium, brown and red-brown, indurated, moist, alluvial and estuarine		E*	1.9		PID<1ppm		
					2.0				
				E			PID<1ppm		
	2.5	Bore discontinued at 2.5m - Target Depth Reached			2.5				

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD6/20200122 taken from 1.9-2.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.2 AHD
EASTING: 342223.1
NORTHING: 6269873
DIP/AZIMUTH: 90°/--

BORE No: BH09
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND SM: fine to coarse, dark grey, trace plastic, ash, moist		E	0.0		PID<1ppm		
					0.1				
				E	0.2		PID<1ppm		
				E*	0.4		PID<1ppm		
					0.5				
	0.7	SAND SP: fine, pale grey, moist, alluvial and estuarine							
				E**	0.9		PID<1ppm		
					1.0				
				E	1.4		PID<1ppm		
					1.5				
				E	1.9		PID<1ppm		
					2.0				
				E	2.4		PID<1ppm		
					2.5				
				E	2.9		PID<1ppm		
	3.0	SAND SP: fine to coarse, dark brown, wet, alluvial and estuarine			3.0				
				E	3.1		PID<1ppm	▼	
		- From 3.3m: saturated			3.2				
	3.5			E	3.4		PID<1ppm		
		Silty SAND SM: fine to coarse, brown and yellow-brown, trace shells, saturated, alluvial and estuarine			3.5				
				E			PID<1ppm		
					4.0				
					4.5				
				E			PID<1ppm Slight Sulfidic Odour		
					5.0				
					5.5				
				E			PID<1ppm Slight Sulfidic Odour and Stain		
					6.0				
					6.5				
				E			PID<1ppm		
					7.0				
					7.5				
				E			PID<1ppm		
	8.0	Bore discontinued at 8.0m - Target Depth Reached			8.0				

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m, Solid flight augers (TC-bit) to 8.0m

WATER OBSERVATIONS: Free groundwater observed whilst augering at 3.3m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD2/20200121 taken from 0.4-0.5m, **Blind replicate sample BD3/20200121 taken from 0.9-1.0, Bulk sample for CBR taken from 0.2-0.8m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 3.8 AHD
EASTING: 342270.9
NORTHING: 6269850.6
DIP/AZIMUTH: 90°/--

BORE No: BH10
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	FILL/TOPSOIL (Silty SAND) SM: fine to medium, dark brown, with clay, trace rootlets, moist		E	0.0		PID<1ppm		Well Plug and Flush Gatic Cover
				E	0.1		PID<1ppm		Concrete 0-0.15m
	0.35	FILL/Silty CLAY CL-CH: low to medium plasticity, orange and brown, with sand and ironstone gravel, trace rootlets, moist		E	0.2		PID<1ppm		Backfill 0.15-0.5m
					0.3				
					0.4				
					0.5				
	1	Silty SAND SM: fine to medium, grey, dry, alluvial and estuarine		E*	0.9		PID<1ppm		Plain PVC 0-2.0m
		- From 0.8m: pale grey			1.0				Bentonite 0.5-1.5m
				E	1.4		PID<1ppm		
					1.5				
	1.8	Silty SAND SM: fine to medium, dark brown, indurated, moist, alluvial and estuarine		E	1.9		PID<1ppm		
					2.0				
				E	2.4		PID<1ppm		
					2.5				
				E	2.9		PID<1ppm		
					3.0				
		- From 3.1m: wet							
	3.3	SAND SM-SC: fine to medium, brown and yellow-brown, trace silt and clay, wet, alluvial and estuarine							Gravel 1.5-6.0m
					4.0				Machine Slotted PVC Screen 2.0-6.0m
				A			PID<1ppm		
					4.5				
		- From 5.1m: silty							
	6.0	Bore discontinued at 6.0m							End cap
		- Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m, Solid flight augers (TC-bit) to 6.0m

WATER OBSERVATIONS: Free groundwater obserbed whilst augering at 3.1m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD1/20200121 taken from 0.9-1.0m,

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.2 AHD
EASTING: 342289.3
NORTHING: 6269918.2
DIP/AZIMUTH: 90°/--

BORE No: BH11
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	ASPHALTIC CONCRETE							
	0.25	ROADBASE: gravel, igneous <20mm		E	0.3 0.4		PID<1ppm		
		FILL/Silty SAND SM: fine to medium, grey, trace roots, moist		E*	0.9 1.0		PID<1ppm		
	1.3	Silty SAND SM: fine to medium, pale brown and pale grey, trace roots, moist, alluvial and estuarine - From 1.5m: pale brown		E	1.5 1.7		PID<1ppm		
				E	1.9 2.0		PID<1ppm		
	2.3	Silty SAND SM: fine to medium, dark grey, moist, alluvial and estuarine		E	2.4 2.5		PID<1ppm		
				E	2.9 3.0		PID<1ppm		
	3.0	Bore discontinued at 3.0m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD7/20200122 taken from 0.9-1.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▽	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.4 AHD
EASTING: 342259.1
NORTHING: 6269921.8
DIP/AZIMUTH: 90°/--

BORE No: BH12
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASPHALTIC CONCRETE		E	0.05 0.15		PID<1ppm		
	0.2	FILL/Silty SAND SM: fine to medium, dark grey, trace ash and charcoal, moist		E	0.4 0.5		PID<1ppm		
		SAND SP: fine to medium, pale grey, trace ash, dry, alluvial and estuarine		E	0.9 1.0		PID<1ppm		
	1.5	Bore discontinued at 1.5m - Target Depth Reached		E	1.4 1.5		PID<1ppm		

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 1.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.0 AHD
EASTING: 342230.9
NORTHING: 6269984.8
DIP/AZIMUTH: 90°/--

BORE No: BH13
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILL/Silty SAND SM: fine to coarse, brown and dark brown, trace rootlets, moist		E	0.0 0.1		PID<1ppm		
		FILL/Silty SAND SM: fine to medium, dark grey, trace ash, moist		E	0.4 0.5		PID<1ppm		
	0.8	SAND SP: fine to medium, pale grey, moist		E	0.9 1.0		PID<1ppm		
				E	1.4 1.5		PID<1ppm		
				E	1.9 2.0		PID<1ppm		
	2.5	Bore discontinued at 2.5m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342269.2
NORTHING: 6269752.5
DIP/AZIMUTH: 90°/--

BORE No: BH102
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
2	0.3	FILL/Silty SAND SM: fine to coarse, dark brown, trace clay and rootlets, moist		E B	0.0 0.03 0.1		PID<1ppm		
		FILL/SAND SW: fine to coarse, pale brown, trace gravel, concrete and glass, moist		E B	0.4 0.5		PID<1ppm PID<1ppm		
1	1.0	Silty SAND SM: fine to medium, dark grey, moist, alluvial and estuarine - From 1.3m: pale grey, wet		E* E	1.0 1.1 1.4 1.5		PID<1ppm PID<1ppm	▼	1
0	2.0	Bore discontinued at 2.0m - Target Depth Reached							2
-1	3								3
-2	4								4
-3	5								5
-4	6								6
-5	7								7
-6	8								8
-7	9								9

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight augers (TC-bit) to 0.5m, Push tube to 2.0m

WATER OBSERVATIONS: Free groundwater observedwhilst push tubing at 1.3m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD4/20200123 taken at 1.0-1.1m, Bulk sample for CBR taken from 0.5-1.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 1.9 AHD
EASTING: 342186.3
NORTHING: 6269783
DIP/AZIMUTH: 90°/--

BORE No: BH103
PROJECT No: 86973.01
DATE: 20/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.03	ASHPALTIC CONCRETE							
	0.12	CONCRETE: grey with aggregate <20mm		A	0.15 0.25		PID=5ppm		
	0.4	FILL/SAND SW: fine to coarse, brown, with sandstone gravels and cobbles, trace shells, moist		A	0.4 0.5		PID<1ppm		
				E					
	1	SAND SP: fine to medium, pale grey, moist, alluvial and estuarine			1.0				
				E*	1.4 1.5		PID<1ppm	▼	
	1.5	Bore discontinued at 1.5m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight augers (TC-bit) to 0.5m, Push Tube to 1.5m

WATER OBSERVATIONS: Free groundwater observed whilst push tubing at 1.5m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD1/20200120 taken at 1.4-1.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.3 AHD
EASTING: 342153.3
NORTHING: 6269733.5
DIP/AZIMUTH: 90°/--

BORE No: BH104
PROJECT No: 86973.01
DATE: 21/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	FILL/TOPSOIL (Silty SAND) SM: fine to medium, dark brown, trace rootlets, moist		A*	0.0 0.1		PID<1ppm		Well Plug and Flush Gatic Cover
		FILL/SAND SW: fine to coarse, pale brown, with shell fragments, moist		A	0.4 0.5		PID<1ppm		Concrete 0-0.15m Bentonite 0.15-1.1m Plain PVC 0-1.1m
	0.9			A	0.9		PID<1ppm		
	0.95	FILL/Silty CLAY CL-CH: low to medium plasticity, dark brown, trace rootlets and organic matter, moist (possible original topsoil)		E	0.95 1.0		PID<1ppm		
	1.38	FILL/SAND SW: fine to coarse, pale yellow-brown, with shell fragments, moist		E	1.4 1.5		PID<1ppm	▼	
		Silty SAND SM: fine to medium, grey, trace shells, moist, alluvial and estuarine		E	1.9 2.0		PID<1ppm		
		- From 1.6m: dark grey, wet							
		- From 2.3m: with organic matter		E	2.4 2.5		PID<1ppm		
	2.7	SAND SP: fine to medium, dark grey, trace shells, wet, alluvial and estuarine							
		- From 3.5m: saturated		E	3.5		PID<1ppm		Gravel 1.1-6.0m Machine Slotted PVC Screen 1.1-6.0m
					4.0				
				E	4.5		PID<1ppm		
					5.0				
				E	5.5		PID<1ppm		
					6.0				End Cap
		- From 6.5m: brown and grey		E	6.5		PID<1ppm		
	7.0	Silty SAND SM: fine to medium, brown, trace shell fragments, saturated, alluvial and estuarine			7.0				
				E	7.5		PID<1ppm		
	8.0	Bore discontinued at 8.0m - Target Depth Reached			8.0				

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** HW Cased to 6.0m

TYPE OF BORING: Solid flight augers (TC-bit) to 0.5m, Push tube to 6.0m, Wash bore to 8.0m

WATER OBSERVATIONS: Free groundwater observed whilst push tubing at 1.6m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD3/20200120 taken from 0-0.1m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342146.9
NORTHING: 6269682.5
DIP/AZIMUTH: 90°/--

BORE No: BH105
PROJECT No: 86973.01
DATE: 20/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	FILL/TOPSOIL (Silty SAND) SM: fine to medium, dark brown, trace rootlets, moist		A	0.0 0.1		PID<1ppm		
		FILL/SAND SW: fine to coarse, brown, trace shells and gravel, moist		A	0.4 0.5		PID<1ppm		
				E	0.9 1.0		PID=1ppm		
	1.4	- From 1.3m : dark brown		E	1.3		PID<1ppm		
		Silty SAND SM: fine to medium, grey, moist, alluvial and estuarine		E	1.4 1.5		PID<1ppm	▼	
		- From 1.62m: wet		E	1.9 2.0		PID<1ppm		
	2.5	Bore discontinued at 2.5m - Target Depth Reached		E	2.4 2.5		PID<1ppm		

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight augers (TC-bit) to 0.5m, Push tube to 2.5m

WATER OBSERVATIONS: Free groundwater observed whlist push tubing at 1.62m

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342210.2
NORTHING: 6269674.3
DIP/AZIMUTH: 90°/--

BORE No: BH106
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.15	FILL/TOPSOIL (Silty SAND) SM: fine to medium, dark brown, trace rootlets, moist		E	0.0 0.1		PID<1ppm		Well Plug and Flush Gatic Cover
	0.5	FILL/SAND SP: fine to medium, brown, trace glass, moist		E E*	0.3 0.4 0.5		PID<1ppm PID<1ppm		Concrete 0-0.15m Bentonite 0.15-0.4m Plain PVC 0-1.0m
		FILL/Sandy CLAY CH: medium to high plasticity, mottled red, yellow-brown, pale-brown and pale grey, with igneous, sandstone and ironstone gravel, trace clinker, moist		E	0.9 1.0		PID<1ppm		
	1.48	Silty SAND SM: fine to medium, grey, wet, alluvial and estuarine		E	1.4 1.5		PID<1ppm	▼	
				E	1.9 2.0		PID<1ppm		Gravek 0.4-4.0m
	2.5	SAND SP: fine to medium, grey, saturated, alluvial and estuarine		E	2.9 3.0		PID<1ppm		Machine Slotted PVC Screen 1.0-4.0m
	4.0	Bore discontinued at 4.0m - Target Depth Reached							End Cap

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m, Solid flight augers (TC-bit) 4.0m

WATER OBSERVATIONS: Free groundwater observed whlist push tubing at 1.5m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD2/20200122 taken from 0.4-0.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.0 AHD
EASTING: 342209
NORTHING: 6269638.7
DIP/AZIMUTH: 90°/--

BORE No: BH107
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.28	FILL/Silty SAND SM: fine to coarse, dark brown, trace rootlets, moist		E	0.0 0.1		PID<1ppm		
	0.72	FILL/SAND SW: fine to coarse, pale yellow-brown, trace shells, dry to moist		E*	0.4 0.5		PID<1ppm		
	1	FILL/SAND SW: fine to coarse, pale brown, with shell fragments, moist to wet		E	0.9 1.0		PID<1ppm		
	1.5			E	1.4 1.5		PID<1ppm	▼	
	1.7	FILL/Silty SAND SM: fine to medium, dark grey, trace ash, wet							
	2	SAND SP: fine to medium, grey, wet, alluvial and estuarine		E	1.9 2.0		PID<1ppm		
		- From 2.5m: dark grey		E	2.4 2.5		PID<1ppm		
	3.0	Bore discontinued at 3.0m - Target Depth Reached		E	2.9 3.0		PID<1ppm		

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m

WATER OBSERVATIONS: Free groundwater observed whlist push tubing at 1.5m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD1/20200122 taken at 0.4-0.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342248.5
NORTHING: 6269728.1
DIP/AZIMUTH: 90°/--

BORE No: BH108
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.3	FILL/TOPSOIL (Silty SAND) SM : fine to coarse, dark brown, with gravel, trace rootlets and ash, moist		E*	0.0 0.1		PID<1ppm		
	0.7	FILL/Silty SAND SM: fine to medium, brown, trace gravel, rootlets and ash, moist		E	0.4 0.5		PID<1ppm		
	1.2	FILL/SAND SW: fine to coarse, pale brown, trace shell, moist		E	0.9 1.0		PID<1ppm		
		SAND SP: fine to medium, pale grey, moist, alluvial and estuarine - From 1.5m: wet		E	1.4 1.5		PID<1ppm	▼	
		- From 2.1m: saturated		E	1.9 2.0		PID<1ppm		
	2.5	Bore discontinued at 2.5m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube 2.5m

WATER OBSERVATIONS: Free groundwater observed whlist push tubing at 1.5m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD3/20200123 taken at 0.0-0.1m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342192
NORTHING: 6269605.7
DIP/AZIMUTH: 90°/--

BORE No: BH109
PROJECT No: 86973.01
DATE: 22/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	FILL/TOPSOIL (Silty SAND) SM: dark brown, trace rootlets, moist		E	0.0 0.1		PID<1ppm		
	0.5	FILL/SAND SW: fine to coarse, pale brown, trace brick, moist		E	0.3 0.5		PID<1ppm		
		FILL/SAND SW: fine to coarse, pale brown, trace shells, moist		E*	0.9 1.0		PID<1ppm		
	1.45			E	1.4 1.45		PID<1ppm	▼	
	1.55	FILL/Silty SAND SM: dark grey, fine to coarse grained, trace rootlets, wet			1.55				
		SAND SP: grey, fine to medium grained, wet, alluvial and estuarine		E E	1.9 2.0		PID<1ppm PID<1ppm		
		- 2.4m: dark grey, sulphidic odour, mottled brown colour		E	2.4 2.5		PID<1ppm Slight Sulfidic Odour		
		= 2.7m: wuth shells to 2.9m, slight to no odour		E	2.9 3.0		PID<1ppm		
	3.0	Bore discontinued at 3.0m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 3.0m

WATER OBSERVATIONS: Free groundwater observed whilst push tubing at 1.45m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD3/20200122 taken from 0.9-1.0

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.2 AHD
EASTING: 342180.6
NORTHING: 6269708.6
DIP/AZIMUTH: 90°/--

BORE No: BH110
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
2	0.05	FILL/Silty SAND SM: fine to medium, dark brown, trace roots, moist		A	0.1		PID<1ppm		
				A	0.2		PID<1ppm		
	0.35	FILL/Silty SAND SM: fine to medium, dark brown, moist		A	0.3		PID<1ppm		
					0.4				
	0.6	SAND SC: fine to medium, pale brown with gravel, trace clay, moist, alluvial and estuarine			0.5				
1				A	0.9		PID<1ppm		1
	1.1	SAND SW: fine to coarse, pale brown, trace shells, moist, alluvial and estuarine							
				A	1.2		PID<1ppm		
					1.3				
	1.5	SAND SW: fine to coarse, dark grey, moist, alluvial and estuarine - From 1.5m: fine to medium, pale grey		A	1.4		PID<1ppm		
					1.5				
0		Bore discontinued at 1.5m - Target Depth Reached							2
									3
-1									4
-2									5
-3									6
-4									7
-5									8
-6									9
-7									

RIG: Hand Tools **DRILLER:** LT/TB **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Hand auger to 1.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342166.6
NORTHING: 6269590.6
DIP/AZIMUTH: 90°/--

BORE No: BH111
PROJECT No: 86973.01
DATE: 20/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILL/Silty SAND SM: fine to medium, dark brown, trace shells, gravel, organics and plastic, moist		A	0.0–0.1		PID<1ppm		Well Plug and Flush Gatic Cover Concrete 0-0.15m
				A	0.4–0.5		PID<1ppm		Bentonite 0.15-0.7m
	0.7	FILL/SAND SW: fine to coarse, pale brown, trace shells, moist							Plain PVC 0-1.0m
				E*	0.9–1.0		PID<1ppm		
	1.4	FILL/SAND SM: fine to coarse, dark grey, trace organic matter, ash and clay, moist		E	1.4–1.5		PID<1ppm	▼	
	1.7	SAND SP: fine to medium, grey and pale grey, trace roots and shell fragments, wet, alluvial and estuarine		E	1.9–2.0		PID<1ppm		
				E	2.4–2.5		PID<1ppm		
				E	3.0–3.5		PID<1ppm		Gravel 0.7-6.0
									Machine Slotted PVC Screen 1.0-6.0m
				E	4.0–4.5		PID<1ppm		
				E	5.0–5.5		PID<1ppm		
				E	6.0–6.5		PID<1ppm		End Cap
				E	7.0–7.5		PID<1ppm		
				E	7.5–8.0		PID<1ppm		
	8.0	Bore discontinued at 8.0m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** HW Cased to 6.0m

TYPE OF BORING: Solid flight augers (TC-bit) to 0.5m, Push tube to 5.5m, Wash bore to to 8.0m

WATER OBSERVATIONS: Free groundwater observed whlist push tubing at 1.5m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD2/20200120 taken at 0.9-1.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.1 AHD
EASTING: 342159.5
NORTHING: 6269622.3
DIP/AZIMUTH: 90°/--

BORE No: BH112
PROJECT No: 86973.01
DATE: 20/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
				A	0.0		PID<1ppm		
	0.3	FILL/TOPSOIL (Silty SAND) SM: fine to medium, dark brown, trace rootlets and clay, moist			0.1				
		FILL/Silty SAND SM: fine to coarse, brown with sandstone and igneous gravels and cobbles, trace concrete, buildling rubble and fibre cement sheet (asbestos containing material), moist		A	0.4		PID<1ppm		
	0.6			A1	0.5		Fibre cement sheet sample 'A1'		
					0.6				
		Bore discontinued at 0.6m - Refusal at depth 0.6m on possible gravel							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight augers (TC-bit) to 0.6m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 2.3 AHD
EASTING: 342209.6
NORTHING: 6269719.7
DIP/AZIMUTH: 90°/--

BORE No: BH113
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.13	CONCRETE: grey with aggregate <20mm							
	0.16	FILL/GRAVEL GP: fine to coarse, grey brown, igneous and sandstone, with sand, moist		E	0.2		PID<1ppm		
	0.3			E	0.3		PID<1ppm		
					0.4				
		FILL/SAND SW: fine to coarse, brown and pale brown, with shells, moist		E	0.7		PID<1ppm		
	0.85				0.8				
		FILL/Clayey SAND SC: fine to coarse, brown, trace gravel, roots and ash, moist		E*	0.9		PID<1ppm		
					1.0				
		SAND SW: fine to coarse, dark grey and grey, moist, alluvial and estuarine		E	1.4		PID<1ppm		
					1.5			▼	
		- From 1.8m: wet		E	1.9		PID=2ppm		
		- From 2.1m: Saturated			2.0				
	2.5	Bore discontinued at 2.5m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 2.5m

WATER OBSERVATIONS: Free groundwater observed whilst push tubing at 1.8m

REMARKS: Location coordinates are in MGA94 Zone 56. *Blind replicate sample BD2/20200123 taken at 0.9-1.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 3.4 AHD
EASTING: 342245.1
NORTHING: 6269787.8
DIP/AZIMUTH: 90°/--

BORE No: BH114
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	FILL/Silty SAND: fine to medium, dark brown, trace rootlets, moist		E	0.0 0.1		PID<1ppm		
		FILL/SAND SM: fine to coarse, brown, with shells and organic matter, trace silt moist		E	0.4 0.5		PID<1ppm		
				E	0.9 1.0		PID<1ppm		
		- From 1.8m: with irontstone and concrete gravel							
	2.6	Bore discontinued at 2.6m - Refusal at 2.6m on possible gravel							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight augers (TC-bit) to 2.6m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 5.0 AHD
EASTING: 342260.1
NORTHING: 6269797.7
DIP/AZIMUTH: 90°/--

BORE No: BH116
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.15	FILL/Silty SAND SM: fine to medium, trace clay, roots							
		FILL/SAND SW: fine to coarse, pale brown, with shells, moist		E	0.4 0.5		PID<1ppm		
				E	0.9 1.0		PID<1ppm		
				E	1.4 1.5		PID<1ppm		
				E	1.9 2.0		PID<1ppm		
				E	2.4 2.5		PID<1ppm		
				E	2.9 3.0		PID<1ppm		
	3.1			E	3.1 3.2		PID=2ppm		
	3.2	FILL.Silty SAND SM: fine to coarse, brown, trace clay, moist		E	3.4		PID<1ppm		
	3.5	FILL/SAND SP: fine to medium, red-brown, moist		E	3.5 3.6		PID<1ppm		
	3.7	Silty SAND SM: fine to medium, dark brown, trace organic matter, moist			3.7				
		SAND SP: fine to medium, pale brown, moist, alluvial and estuarine		E	4.1 4.2		PID<1ppm		
	4.5	- From 4.4m: wet		E	4.4 4.5		PID<1ppm	▼	
		Bore discontinued at 4.5m - Target Depth Reached							

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Push tube to 4.5m

WATER OBSERVATIONS: Free groundwater observed whilst push tubing at 4.5m

REMARKS: Location coordinates are in MGA94 Zone 56.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: NSW Department of Education
PROJECT: Narrabeen Education Project
LOCATION: Namona St, North Narrabeen

SURFACE LEVEL: 4.5 AHD
EASTING: 342258.2
NORTHING: 6269781.2
DIP/AZIMUTH: 90°/--

BORE No: BH117
PROJECT No: 86973.01
DATE: 23/1/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.2	FILL/SAND SM: fine to medium, dark brown, trace silt and roots, moist		E	0.1 0.2		PID<1ppm		
	0.6	FILL/SAND SM: fine to coarse, pale brown, with shells, trace ash and asphaltic concrete, dry		E	0.4 0.5		PID<1ppm		
		FILL/ Silty SAND SM: fine to coarse, brown, with shells, trace gravel, moist		E	0.9 1.0		PID<1ppm		
				E	1.4 1.5		PID<1ppm		
				E*	1.9 2.0		PID<1ppm		
				E	2.4 2.5		PID<1ppm		
	2.7	SAND SW: fine to coarse, orange-brown, trace shell grafments, moist		E	2.9 3.0		PID=2ppm		
	3.0	SAND SP: fine to medium, pale grey, moist, alluvial and estuarine - From 3.5m: wet		E	3.4 3.5		PID<1ppm	▼	
	4.0	Bore discontinued at 4.0m - Target Depth Reached		E	3.9 4.0		PID<1ppm		

RIG: MD-200 **DRILLER:** Tightsite **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight augers (TC-bit) to 4.0m

WATER OBSERVATIONS: Free groundwater observed whilst augering at 3.5m

REMARKS: Location coordinates are in MGA94 Zone 56. * Blind replicate sample BD5/20200123 taken at 1.9-2.0m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Appendix F4

Explanatory Notes

Sampling Methods

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Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are generally based on Australian Standard AS1726:2017, Geotechnical Site Investigations. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	19 - 63
Medium gravel	6.7 - 19
Fine gravel	2.36 – 6.7
Coarse sand	0.6 - 2.36
Medium sand	0.21 - 0.6
Fine sand	0.075 - 0.21

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

The proportions of secondary constituents of soils are described as follows:

In fine grained soils (>35% fines)

Term	Proportion of sand or gravel	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	>30%	Sandy Clay
With	15 – 30%	Clay with sand
Trace	0 - 15%	Clay with trace sand

In coarse grained soils (>65% coarse)
- with clays or silts

Term	Proportion of fines	Example
And	Specify	Sand (70%) and Clay (30%)
Adjective	>12%	Clayey Sand
With	5 - 12%	Sand with clay
Trace	0 - 5%	Sand with trace clay

In coarse grained soils (>65% coarse)
- with coarser fraction

Term	Proportion of coarser fraction	Example
And	Specify	Sand (60%) and Gravel (40%)
Adjective	>30%	Gravelly Sand
With	15 - 30%	Sand with gravel
Trace	0 - 15%	Sand with trace gravel

The presence of cobbles and boulders shall be specifically noted by beginning the description with 'Mix of Soil and Cobbles/Boulders' with the word order indicating the dominant first and the proportion of cobbles and boulders described together.

Soil Descriptions

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very stiff	VSt	100 - 200
Hard	H	>200
Friable	Fr	-

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	Density Index (%)
Very loose	VL	<15
Loose	L	15-35
Medium dense	MD	35-65
Dense	D	65-85
Very dense	VD	>85

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Extremely weathered material – formed from in-situ weathering of geological formations. Has soil strength but retains the structure or fabric of the parent rock;
- Alluvial soil – deposited by streams and rivers;
- Estuarine soil – deposited in coastal estuaries;
- Marine soil – deposited in a marine environment;
- Lacustrine soil – deposited in freshwater lakes;
- Aeolian soil – carried and deposited by wind;
- Colluvial soil – soil and rock debris transported down slopes by gravity;
- Topsoil – mantle of surface soil, often with high levels of organic material.
- Fill – any material which has been moved by man.

Moisture Condition – Coarse Grained Soils

For coarse grained soils the moisture condition should be described by appearance and feel using the following terms:

- Dry (D) Non-cohesive and free-running.
- Moist (M) Soil feels cool, darkened in colour.
  Soil tends to stick together.
  Sand forms weak ball but breaks easily.
- Wet (W) Soil feels cool, darkened in colour.
  Soil tends to stick together, free water forms when handling.

Moisture Condition – Fine Grained Soils

For fine grained soils the assessment of moisture content is relative to their plastic limit or liquid limit, as follows:

- ‘Moist, dry of plastic limit’ or ‘w <PL’ (i.e. hard and friable or powdery).
- ‘Moist, near plastic limit’ or ‘w ≈ PL (i.e. soil can be moulded at moisture content approximately equal to the plastic limit).
- ‘Moist, wet of plastic limit’ or ‘w >PL’ (i.e. soils usually weakened and free water forms on the hands when handling).
- ‘Wet’ or ‘w ≈LL’ (i.e. near the liquid limit).
- ‘Wet’ or ‘w >LL’ (i.e. wet of the liquid limit).

Rock Strength

Rock strength is defined by the Unconfined Compressive Strength and it refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects.

The Point Load Strength Index $Is_{(50)}$ is commonly used to provide an estimate of the rock strength and site specific correlations should be developed to allow UCS values to be determined. The point load strength test procedure is described by Australian Standard AS4133.4.1-2007. The terms used to describe rock strength are as follows:

Strength Term	Abbreviation	Unconfined Compressive Strength MPa	Point Load Index * $Is_{(50)}$ MPa
Very low	VL	0.6 - 2	0.03 - 0.1
Low	L	2 - 6	0.1 - 0.3
Medium	M	6 - 20	0.3 - 1.0
High	H	20 - 60	1 - 3
Very high	VH	60 - 200	3 - 10
Extremely high	EH	>200	>10

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$. It should be noted that the UCS to $Is_{(50)}$ ratio varies significantly for different rock types and specific ratios should be determined for each site.

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Residual Soil	RS	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely weathered	XW	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible
Highly weathered	HW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately weathered	MW	The whole of the rock material is discoloured , usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly weathered	SW	Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh	FR	No signs of decomposition or staining.
Note: If HW and MW cannot be differentiated use DW (see below)		
Distinctly weathered	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching or may be decreased due to deposition of weathered products in pores.

Rock Descriptions

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with occasional fragments
Fractured	Core lengths of 30-100 mm with occasional shorter and longer sections
Slightly Fractured	Core lengths of 300 mm or longer with occasional sections of 100-300 mm
Unbroken	Core contains very few fractures

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or stronger. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

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Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

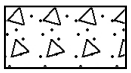
Symbols & Abbreviations

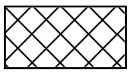
Graphic Symbols for Soil and Rock

General

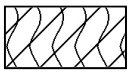

Asphalt

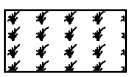

Road base

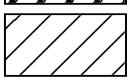

Concrete


Filling

Soils


Topsoil

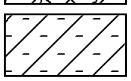

Peat


Clay


Silty clay

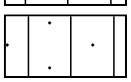

Sandy clay

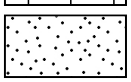

Gravelly clay

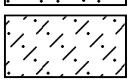

Shaly clay

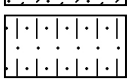

Silt


Clayey silt


Sandy silt

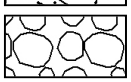

Sand


Clayey sand


Silty sand


Gravel

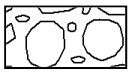

Sandy gravel


Cobbles, boulders

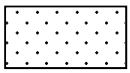

Talus

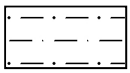
Sedimentary Rocks

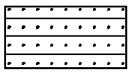

Boulder conglomerate

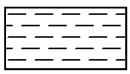

Conglomerate


Conglomeratic sandstone

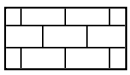

Sandstone


Siltstone

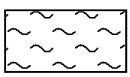

Laminite

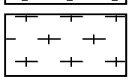

Mudstone, claystone, shale

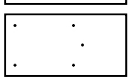

Coal


Limestone

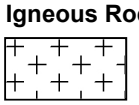
Metamorphic Rocks

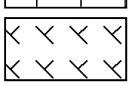

Slate, phyllite, schist

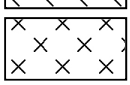

Gneiss

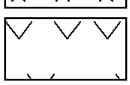

Quartzite

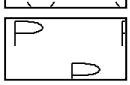
Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

Appendix G

Site Assessment Criteria

Appendix G
Site Assessment Criteria
Narrabeen Education Precinct, Namona Street, Narrabeen

G1.0 Introduction

G1.1 Guidelines

The following key guidelines were consulted for deriving the site assessment criteria (SAC):

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- CRC CARE *Health screening levels for petroleum hydrocarbons in soil and groundwater* (CRC CARE, 2011).

G1.2 General

The SAC applied in the current investigation are informed by the CSM which identified human and environmental receptors to potential contamination at the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The following inputs are relevant to the selection and/or derivation of the SAC:

- Land use: Primary and high school.
  - Corresponding to land use category 'A', residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry)), also includes children's day care centres, preschools and primary schools.
  - It is noted that whilst Residential A land use includes primary schools, Recreational / Open Space category 'C' is suitable for a secondary school land use. In this regard, for consistency in approach across the Narrabeen Education Precinct, the more conservative land use of Residential A has been selected as an initial screen for NSHS, with exceedances also compared against the Recreational / Open Space C.
- Soil type: Sand; and
- Whilst future site levels are anticipated to be similar to existing levels, given these are still to be finalised as a conservative approach exposure has been assumed to be at the shallowest depth for generating criteria for the relevant media.

G2.0 Soils

G2.1 Health Investigation and Screening Levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of human health risk via all relevant pathways of exposure associated with contamination at the site. The adopted soil HIL and HSL for the contaminants of concern are in Table 1 and Table 2.

Table 1: Health Investigation Levels (mg/kg)

Contaminant	HIL-A	HIL-C
Metals		
Arsenic	100	300
Cadmium	20	90
Chromium (VI)	100	300
Copper	6000	17 000
Lead	300	600
Mercury (inorganic)	40	80
Nickel	400	1200
Zinc	7400	30 000
PAH		
B(a)P TEQ	3	3
Total PAH	300	300
Phenols		
Phenol	3000	40 000
Pentachlorophenol	100	120
OCP		
DDT+DDE+DDD	240	400
Aldrin and dieldrin	6	10
Chlordane	50	70
Endosulfan	270	340
Endrin	10	20
Heptachlor	6	10
HCB	10	10
Methoxychlor	300	400

OPP		
Chlorpyrifos	160	250
PCB		
PCB	1	1
VOC (various analytes)	-	-

Table 2: Health Screening Levels (mg/kg)

Contaminant	HSL-A&B	HSL-C
SAND	**0 m to <1 m**	**0 m to <1 m**
Benzene	0.5	NL
Toluene	160	NL
Ethylbenzene	55	NL
Xylenes	40	NL
Naphthalene	3	NL
TRH F1	45	NL
TRH F2	110	NL

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX

TRH F2 is TRH >C_{10}-C_{16} minus naphthalene

The soil saturation concentration (Csat) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

The HSL for direct contact derived from CRC CARE (2011) are in Table 3.

Table 3: Health Screening Levels for Direct Contact (mg/kg)

Contaminant	DC HSL-A	DC HSL-C	DC HSL-IMW
Benzene	100	120	1100
Toluene	14 000	18 000	120 000
Ethylbenzene	4500	5300	85 000
Xylenes	12 000	15 000	130 000
Naphthalene	1400	1900	29 000
TRH F1	4400	5100	82 000
TRH F2	3300	3800	62 000
TRH F3	4500	5300	85 000
TRH F4	6300	7400	120 000

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} minus naphthalene
IMW intrusive maintenance worker

G2.2 Asbestos in Soil

The HSL for asbestos in soil are based on likely exposure levels for different scenarios published in NEPC (2013) for the following forms of asbestos:

- Bonded asbestos containing material (ACM); and
- Fibrous asbestos and asbestos fines (FA and AF).

The HSL are in Table 4.

Table 4: Health Screening Levels for Asbestos

Form of Asbestos	HSL-A	HSL-C
ACM	0.01%	0.02%
FA and AF	0.001%	0.001%
FA and AF and ACM	No visible asbestos for surface soil *	No visible asbestos for surface soil *

Notes: Surface soils defined as top 100 mm.
* Based on site observations at the sampling points and the analytical results of surface samples.

G2.3 Ecological Investigation Levels

Ecological investigation levels (EIL) and added contaminant limits (ACL), where appropriate, have been derived in NEPC (2013) for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene. The adopted EIL, derived using the interactive (excel) calculation spreadsheet on the NEPM toolbox website are shown in Table 6, with inputs into their derivation shown in Table 5.

Table 5: Inputs to the Derivation of the Ecological Investigation Levels

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years)	
pH	11.5	Measured average
CEC	6.76 $cmol_c/kg$	Measured average
Clay content	1%	Conservative value used as an initial screen
Traffic volumes	High	
State / Territory	NSW	

Table 6: Ecological Investigation Levels (mg/kg)

Contaminant	EIL-A-B-C
Metals	
Arsenic	100
Copper	220
Nickel	190
Chromium III	200
Lead	1100
Zinc	570
PAH	
Naphthalene	170
OCP	
DDT	180

Notes: EIL-A-B-C urban residential and public open space

G2.4 Ecological Screening Levels

Ecological screening levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESL are shown in Table 7.

Table 7: Ecological Screening Levels (mg/kg)

Contaminant	Soil Type	EIL-A-B-C
Benzene	Coarse	50
Toluene	Coarse	85
Ethylbenzene	Coarse	70
Xylenes	Coarse	105
TRH F1	Coarse/ Fine	180*
TRH F2	Coarse/ Fine	120*
TRH F3	Coarse	300
TRH F4	Coarse	2800
B(a)P	Coarse	0.7^

Notes: ESL are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene
EIL-A-B-C urban residential and public open space
^ CRC Care Technical Report No. 39 Risk-based management and remediation guidance for benzo(a)pyrene provides a higher reliability (and less conservative) screening criteria for benzo(a)pyrene and should be considered where exceedances of the 0.7 mg/kg screening criteria from NEPC (2013) are encountered.

G2.5 Management Limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g., penetration of, or damage to, in-ground services.

The adopted management limits are in Table 8.

Table 8: Management Limits (mg/kg)

Contaminant	Soil Type	ML-A-B-C
TRH F1	Coarse	700
TRH F2	Coarse	1000
TRH F3	Coarse	2500
TRH F4	Coarse	10 000

Notes: TRH F1 is TRH C_6-C_{10} including BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene
ML-A-B-C residential, parkland and public open space

Douglas Partners Pty Ltd

Appendix H

Summary of Results

Appendix H1

NNPS: Current Results

Douglas Partners
Geotechnics / Environment / Groundwater

Table H1A: Summary of Laboratory Results – Site Suitability - NNPS

				Metals								TRH						TPH (silica gel)						BTEX						PAH					OCP										OPP	
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs	Phenol	DDT+DDE+DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Total PCB
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																																													
TP1001	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	**4**	**6**	**7**	<0.1	**4**	**21**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1001A	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	<1	**5**	**2**	<0.1	<1	**30**	<25	**50**	<25	**50**	**480**	**190**	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD10/20220419	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	**2**	**8**	**6**	<0.1	<1	**46**	<25	<50	<25	<50	**540**	**490**	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1001A	0.2 - 0.3 m	Fill	19/04/2022	<4	<0.4	**3**	**11**	**23**	**1**	**2**	**60**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1001A	1.3 - 1.4 m	Natural	19/04/2022	<4	<0.4	**5**	<1	**2**	<0.1	<1	**1**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	70 180	240 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1002	0.1 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	<1	**2**	<0.1	<1	**4**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1003	0.3 - 0.4 m	Fill	13/04/2022	<4	<0.4	<1	<1	**3**	<0.1	<1	**4**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1003	0.7 - 0.8 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1003	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	**1**	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	70 180	240 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD1/20220413	1.1 - 1.2 m	Natural	13/04/2022	<5	<1	<2	<5	<5	<0.1	<2	<5	<10	<50	<10	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1004	0.2 - 0.3 m	Fill	13/04/2022	<4	<0.4	**2**	**4**	**5**	<0.1	<1	**6**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1005	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	<1	**2**	<0.1	<1	**6**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1006	0.1 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	**3**	**9**	<0.1	<1	**20**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1006	0.6 - 0.7 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1006	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	70 180	240 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD2/20220413	1.1 - 1.2 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1007	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	**6**	**14**	**31**	**0.1**	**4**	**94**	<25	**53**	<25	**53**	**270**	**210**	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP1007	0.5 - 0.6 m	Natural	13/04/2022	<4	<0.4	<1	**2**	**8**	<0.1	<1	**6**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1008	0 - 0.2 m	Fill	13/04/2022	**4**	<0.4	**6**	**12**	**79**	<0.1	**1**	**96**	<25	**98**	<25	**98**	**550**	**460**	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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BH1009	0.2 - 0.3 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1009	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1010	0.2 - 0.3 m	Fill	14/04/2022	<4	<0.4	**3**	**4**	**2**	<0.1	**6**	**15**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH1010	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	**1**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD4/20220414	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH1011	0.6 - 0.7 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1012	0 - 0.1 m	Fill	19/04/2022	<4	<0.4	<1	<1	**4**	<0.1	<1	**9**	<25	<50	<25	<50	**250**	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1013	0.1 - 0.2 m	Fill	14/04/2022	**67**	<0.4	**35**	**45**	**10**	<0.1	**44**	**39**	<25	<500	<25	<500	<1000	<1000	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.5	<5	<0.5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1014	0.05 - 0.15 m	Fill	14/04/2022	<4	<0.4	**18**	**32**	**6**	<0.1	**23**	**46**	<25	<500	<25	<500	<1000	<1000	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.5	<5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
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				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1015	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**2**	**4**	**10**	<0.1	**2**	**23**	<25	<50	<25	<50	**140**	**120**	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	**0.08**	<0.5	**0.08**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1015	0.6 - 0.7 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	**2**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1016	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**1**	**5**	**18**	**0.1**	<1	**35**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	**3.9**	<0.1	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1016	0.5 - 0.6 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	**2**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD7/20220414	0.5 - 0.6 m	Natural	14/04/2022	<5	<1	<2	<5	<5	<0.1	<2	<5	<10	<50	<10	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1017	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**8**	**6**	**8**	<0.1	**5**	**18**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1017	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	**2**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1017	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -

Table H1A: Summary of Laboratory Results – Site Suitability - NNPS

				Metals								TRH						TPH (silica gel)						BTEX						PAH				Phenol	OCP										OPP	Total PCB
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs		DDT+DDE+DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos		
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1018	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	1	6	22	<0.1	1	57	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
TP1019	0 - 0.2 m	Fill	19/04/2022	<4	0.9	7	57	130	0.3	3	240	<25	<50	<25	<50	190	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
TP1020	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	1	9	6	<0.1	1	78	<25	170	<25	170	540	410	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	0.08	<0.5	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
TP1020	0.4 - 0.5 m	Fill	19/04/2022	<4	<0.4	3	9	32	0.1	2	81	<25	<50	<25	<50	180	110	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1021	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	2	42	5	<0.1	2	19	<25	<50	<25	<50	240	160	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1022	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	4	14	7	<0.1	3	42	<25	<50	<25	<50	130	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1023	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	2	4	1	<0.1	3	15	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1023	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1024	0 - 0.2 m	Fill	14/07/2022	7	<0.4	26	3	14	<0.1	3	19	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1024	0.4 - 0.6 m	Natural	14/07/2022	<4	<0.4	<1	<1	2	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1025	0 - 0.2 m	Fill	14/07/2022	8	<0.4	17	31	110	<0.1	7	81	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1025	0.9 - 1.1 m	Fill	14/07/2022	<4	0.4	16	9	34	<0.1	2	48	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1026	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	7	6	10	<0.1	5	18	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BD23/20220714	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	5	4	11	<0.1	2	21	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1026	0.9 - 1.1 m	Fill	14/07/2022	<4	<0.4	<1	<1	2	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1027	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	6	15	20	<0.1	6	55	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH1027	0.6 - 0.8 m	Natural	14/07/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
SS1	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	3	2	<0.1	<1	17	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
SS2	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	1	<1	<0.1	<1	15	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
SS3	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	1	6	15	<0.1	<1	96	<25	<50	<25	<50	190	<100	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
SS4	0 - 0.1 m	Fill	14/07/2022	<4	<0.4	4	5	12	<0.1	<1	20	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
DP (2020)																																															
BH4	0.1 - 0.3 m	Fill	21/01/2020	<4	<0.4	20	13	15	<0.1	11	22	<25	<50	<25	<50	230	120	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	1.8	2.7	14	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH4	1.5 - 1.6 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH5	0 - 0.1 m	Fill	22/01/2020	6	<0.4	3	2	6	<0.1	1	12	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH6	0.4 - 0.5 m	Natural	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH6	2.4 - 2.5 m	Natural	21/01/2020	10	<0.4	10	<1	4	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH7	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH9	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BH10	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-
BD1/20200121	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	- 100	200	6000	220	300	1100	40	- 400	190	7400	570	-	-	- 120	45	180	110	- 300	- 2800	-	-	-	-	-	-	-	-	-	-	0.5	50	160	85	55	70	-	-	-	-	40	105	3	170	- 0.7	3	- 300	- 100	- 240	180	- 180	6	- 50	- 10	- 270	- 6	- 10	- 300	- 160	- 1	-

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Non limiting AD = Asbestos detected NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Reported naphthalene laboratory result obtained from BTEXN suite

c Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

SAC based on generic land use thresholds for Residential A with garden/accessible soil

HIL A	Residential / Low - High Density (NEPC, 2013)	EIL/ESL Uf Urban Residential and Public Open Space (NEPC, 2013)
HSL A/B	Residential / Low - High Density (vapour intrusion) (NEPC, 2013)	ML R/P/PO Residential, Parkland and Public Open Space (NEPC, 2013)
DC HSL A	Direct contact HSL A Residential (Low density) (direct contact) (CRC CARE, 2011)	

Table H1B: Summary of Results - Asbestos - NNPS			Field Screening							Laboratory Analysis				
			Approximate Sample Volume	Weight of Sample	Number of Fragments	Condition of Fragments (good/poor)	Size Range of Fragments (mm)	Weight of Retained ACM	Bonded ACM in Soil	Trace Analysis	ACM >7mm Estimation	Asbestos- AF/FA Estimation	Asbestos- AF/FA Estimation	Asbestos ID
		Units	L	g	-	-	mm	g	% w/w	-	g	g	% w/w	-
		PQL	-	0.1	-	-	1	1	-	-	0.1	-	0.001	-
Sample ID	**Depth**	**Sample Date**												
TP1001	0 - 0.3 m	13/04/2022	10	10390	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1001A	0 - 0.2 m	19/04/2022	10	4125	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1001A	0.2 - 0.4 m	19/04/2022	10	11528	**1**	**Good**	**50 x 70**	**29**	**0.038**	NAD	-	-	<0.001	NAD
TP1001A	0.7 - 0.9 m	19/04/2022	10	13823	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1002	0.1 - 0.4 m	13/04/2022	10	8740	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1003	0 - 0.5 m	13/04/2022	10	13382	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1004	0.1 - 0.5 m	13/04/2022	5	4643	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1005	0 - 0.2 m	13/04/2022	10	11752	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1006	0.1 - 0.4 m	13/04/2022	5	4642	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1007	0 - 0.2 m	13/04/2022	10	9540	0	-	-	-	-	NAD	-	**0.0336**	**0.0069**	**Detected**
TP1008	0 - 0.2 m	13/04/2022	10	6142	0	-	-	-	-	NAD	-	**0.0001**	<0.001	**Detected**
BH1009	0.025 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH1009	0.1 - 0.5 m	14/04/2022	10	11836	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1010	0.1 - 0.5 m	14/04/2022	10	9843	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1011	0 - 0.4 m	19/04/2022	10	10810	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1012	0 - 0.5 m	19/04/2022	10	9965	0	-	-	-	-	NAD	-	-	-	NAD
BH1013	0.03 - 0.2 m	14/04/2022	10	13699	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1014	0.05 - 0.15 m	14/04/2022	10	11571	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1015	0 - 0.4 m	14/04/2022	10	14650	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1016	0 - 0.5 m	14/04/2022	10	13387	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1017	0 - 0.2 m	14/04/2022	10	12332	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1017	0.2 - 0.6 m	14/04/2022	10	13824	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1018	0 - 0.3 m	14/04/2022	10	10702	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1019	0 - 0.2 m	19/04/2022	10	6728	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1020	0 - 0.2 m	19/04/2022	10	5120	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1020	0.2 - 0.7 m	19/04/2022	10	9989	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1021	0 - 0.25 m	19/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH1022	0 - 0.7 m	19/04/2022	10	13589	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1023	0.1 - 0.3 m	13/04/2022	10	8142	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1024	0 - 0.3 m	14/07/2022	10	8173	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1025	0 - 0.8 m	14/07/2022	10	10231	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1025	0.8 - 1.1 m	14/07/2022	10	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH1026	0 - 0.6 m	14/07/2022	10	9870	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1027	0 - 0.5 m	14/07/2022	10	10089	0	-	-	-	-	NAD	-	**4.0153**	**0.7663**	**Detected**
SS1	0 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
SS2	0 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
SS3	0 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
SS4	0 - 0.1 m	14/07/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
A01	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	-
A02	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	**Detected**
A03	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	-
A04	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	**Detected**

Notes:

1. Asbestos results from DP (2020) tabulated in Appendix H3 - no asbestos previously detected within investigation area at DP (2020) sample locations

Table H1C: Summary of Soil Laboratory Results - Acid Sulphate Soils - NNPS

Borehole / Test Pit ID	Depth (m)	Soil Description	Screening Tests[1]				Chromium Reducible Sulfur					
			pH_F	pH_{FOX}	Reaction[2] Strength	Δ pH[3]	pH_{KCl}	TAA[4] (%S)	S_{NAS}[6] (%S)	ANC[7] (%S)	Scr %S[8]	Net Acidity (%S)[9]
Assessment Criteria*			<4	<3	-	>1	-	-	-	-	>0.03	
Current Investigation												
TP1001A	0.8-0.9	Fill	7.5	4.9	Low reaction	**2.6**	-	-	-	-	-	-
TP1001A	1.3-1.4	SAND	6.7	5.4	Low reaction	**1.3**	-	-	-	-	-	-
TP1001A	1.8-1.9	SAND	6.3	4.8	Low reaction	**1.5**	5.3	0.02	-	-	0.005	0.020
TP1001A	2.2-2.3	SAND	6.2	4.7	Low reaction	**1.5**	5.3	<0.01	-	-	0.008	0.015
BH1004	0.8-0.9	SAND	8.0	5.8	Low reaction	**2.2**	-	-	-	-	-	-
BH1004	1.3-1.4	SAND	5.4	6.3	Low reaction	-0.9	-	-	-	-	-	-
BH1004	1.8-1.9	SAND	5.6	4.4	Low reaction	**1.2**	-	-	-	-	-	-
BH1004	2.3-2.4	SAND	5.8	4.7	Low reaction	**1.1**	-	-	-	-	-	-
TP1005	0.5-0.6	SAND	4.6	4.6	Low reaction	0	-	-	-	-	-	-
TP1005	1-1.1	SAND	4.7	4.1	Low reaction	0.6	-	-	-	-	-	-
TP1005	1.5-1.6	SAND	4.8	4.3	Low reaction	0.5	-	-	-	-	-	-
TP1005	2-2.1	SAND	4.9	4.5	Low reaction	0.4	-	-	-	-	-	-
TP1008	0.5-0.6	SAND	4.9	3.6	Low reaction	**1.3**	-	-	-	-	-	-
TP1008	1-1.1	SAND	5.1	4.5	Medium reaction	0.6	-	-	-	-	-	-
TP1008	1.5-1.6	SAND	5.1	3.4	Medium reaction	**1.7**	-	-	-	-	-	-
TP1008	2-2.1	SAND	5.8	4.5	Medium reaction	**1.3**	-	-	-	-	-	-
TP1008	2.5-2.6	SAND	5.8	3.9	Medium reaction	**1.9**	-	-	-	-	-	-
BH1009	0.7-0.8	SAND	5.1	5.2	Low reaction	-0.1	-	-	-	-	-	-
BH1009	1.2-1.3	SAND	5.4	5.4	Low reaction	0	-	-	-	-	-	-
BH1009	1.8-1.9	SAND	5.3	5.4	Low reaction	-0.1	6.0	<0.01	-	-	0.006	0.0060
TP1018	0.5-0.6	SAND	5.6	4.3	Low reaction	**1.3**	-	-	-	-	-	-
TP1018	1-1.1	SAND	5.6	5.0	Low reaction	0.6	-	-	-	-	-	-
TP1018	1.5-1.6	SAND	5.3	3.9	Low reaction	**1.4**	-	-	-	-	-	-
TP1018	2-2.1	SAND	5.6	4.0	Low reaction	**1.6**	5.0	0.01	-	-	0.005	0.020
DP (2020)												
BH4	0.1-0.3	Fill	7.7	7.1	High reaction	0.6	-	-	-	-	-	-
BH4	0.9-1.0	SAND	8.1	6.1	Medium reaction	**2**	-	-	-	-	-	-
BH4	1.5-1.6	SAND	8.2	6.1	Medium reaction	**2.1**	6.5	<0.01	-	<0.05	0.02	0.02
BH4	2.4-2.5	SILTY SAND	6.3	5.3	Medium reaction	1	-	-	-	-	-	-
BH4	3.5-4.0	SILTY SAND	5.4	**3.1**	High reaction	**2.3**	-	-	-	-	-	-
BH4	4.5-5.0	SILTY SAND	6.2	**3.2**	High reaction	**3**	-	-	-	-	-	-
BH4	5.5-6.0	SILTY SAND	5.4	**2.7**	High reaction	**2.7**	-	-	-	-	-	-
BH4	6.5-7.0	SILTY SAND	5.5	**3**	High reaction	**2.5**	-	-	-	-	-	-
BH4	7.5-8.0	SILTY SAND	5.3	**2.9**	High reaction	**2.4**	5	0.01	-	<0.05	0.03	**0.044**
BH9	0.4-0.5	Fill	4	**2.9**	Low reaction	**1.1**	3.3	0.08	<0.005	<0.05	<0.005	**0.081**
BH9	0.9-1.0	SAND	4.4	4.3	Low reaction	0.1	-	-	-	-	-	-
BH9	1.4-1.5	SAND	4.6	3.9	Low reaction	0.7	-	-	-	-	-	-
BH9	1.9-2.0	SAND	4.7	3.9	Low reaction	0.8	5.5	<0.01	-	<0.05	<0.005	<0.005
BH9	2.4-2.5	SAND	4.2	3.8	Low reaction	0.4	-	-	-	-	-	-
BH9	2.9-3.0	SAND	4.5	5.1	Low reaction	-0.6	-	-	-	-	-	-
BH9	3.4-3.5	Silty SAND	5	3.8	Medium reaction	**1.2**	-	-	-	-	-	-
BH9	3.5-4.0	Silty SAND	5.4	**3.2**	High reaction	**2.2**	-	-	-	-	-	-
BH9	4.5-5.0	Silty SAND	5.5	**3.2**	High reaction	**2.3**	-	-	-	-	-	-
BH9	5.5-6.0	Silty SAND	5.4	**2.9**	High reaction	**2.5**	-	-	-	-	-	-
BH9	6.5-7.0	Silty SAND	5.5	**2.9**	High reaction	**2.6**	-	-	-	-	-	-
BH9	7.5-8.0	Silty SAND	5.2	**3.1**	High reaction	**2.1**	4.7	0.02	-	<0.05	0.01	0.03

Notes:

1. Screening Tests undertaken by ELS
2. Low – indicates no or slight effervescence in hydrogen peroxide
   Medium – indicates moderate effervescence in hydrogen peroxide
   High – indicates vigorous effervescence in hydrogen peroxide
   Extreme/Volcanic - indicates very vigorous effervescence in hydrogen peroxide
3. Δ pH = pHF - pHFOX
4. TAA – titratable actual acidity
5. TPA – titratable peroxide acidity;
6. NAS – net acid soluable sulfur (reported for pHkCl < 4.5)
7. ANCe – excess acid neutralising capacity (reported for pHkCl > 6.5).
8. Scr - Chromium Reducible Sulphur
9. Net Acidity = TAA + Scr + Snas. (It should be noted that ANC is excluded as per WA Guidelines)

* ASSMAC (1998) action criteria for coarse (sand) materials

- Not Tested
- Exceedance of field screening criteria
- **0.03** Exceedance of criteria.

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Table H1D: Summary of Chemical Laboratory Results – Waste Classification - NNPS ^

				Metals										TRH					BTEX						PAH			Phenol	OCP		OPP		
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Lead in TCLP	Mercury (inorganic)	Nickel	Nickel in TCLP	Zinc	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)	BaP in TCLP	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	CHlorpyrifos	Total Analysed OPP	Total PCB
			PQL	4	0.4	1	1	1	0.03	0.1	1	0.02	1	25	50	100	100	50	0.2	0.5	1	2	1	1	0.05	0.001	0.05	5	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																																	
TP1001	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	**4**	**6**	**7**	-	<0.1	**4**	-	**21**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP1001A	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	<1	**5**	**2**	-	<0.1	<1	-	**30**	<25	<50	**270**	**290**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD10/20220419	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	**2**	**8**	**6**	-	<0.1	<1	-	**46**	<25	<50	**180**	**540**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1001A	0.2 - 0.3 m	Fill	19/04/2022	<4	<0.4	**3**	**11**	**23**	-	**1**	**2**	-	**60**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1001A	1.3 - 1.4 m	Natural	19/04/2022	<4	<0.4	**5**	<1	**2**	-	<0.1	<1	-	**1**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1002	0.1 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	<1	**2**	-	<0.1	<1	-	**4**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1003	0.3 - 0.4 m	Fill	13/04/2022	<4	<0.4	<1	<1	**3**	-	<0.1	<1	-	**4**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1003	0.7 - 0.8 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1003	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	**1**	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD1/20220413	1.1 - 1.2 m	Natural	13/04/2022	<5	<1	<2	<5	<5	-	<0.1	<2	-	<5	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	-	-	-
BH1004	0.2 - 0.3 m	Fill	13/04/2022	<4	<0.4	**2**	**4**	**5**	-	<0.1	<1	-	**6**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP1005	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	<1	**2**	-	<0.1	<1	-	**6**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1006	0.1 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	**3**	**9**	-	<0.1	<1	-	**20**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1006	0.6 - 0.7 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1006	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD2/20220413	1.1 - 1.2 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1007	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	**6**	**14**	**31**	-	**0.1**	**4**	-	**94**	<25	<50	**170**	**180**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1007	0.5 - 0.6 m	Natural	13/04/2022	<4	<0.4	<1	**2**	**8**	-	<0.1	<1	-	**6**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1008	0 - 0.2 m	Fill	13/04/2022	**4**	<0.4	**6**	**12**	**79**	-	<0.1	**1**	-	**96**	<25	**67**	**370**	**340**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1009	0.2 - 0.3 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1009	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1010	0.2 - 0.3 m	Fill	14/04/2022	<4	<0.4	**3**	**4**	**2**	-	<0.1	**6**	-	**15**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1010	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	**1**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD4/20220414	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1011	0 - 0.1 m	Fill	19/04/2022	<4	<0.4	**1**	**5**	**10**	-	<0.1	<1	-	**14**	<25	<50	<100	**130**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1011	0.6 - 0.7 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1012	0 - 0.1 m	Fill	19/04/2022	<4	<0.4	<1	<1	**4**	-	<0.1	<1	-	**9**	<25	<50	**150**	**160**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1013	0.1 - 0.2 m	Fill	14/04/2022	**67**	<0.4	**35**	**45**	**10**	-	<0.1	**44**	**0.03**	**39**	<25	<500	<1000	<1000	-	<0.2	<0.5	<1	<2	<1	<1	<0.5	-	<0.5	<5	<1	<1	<1	<1	<0.1
BH1014	0.05 - 0.15 m	Fill	14/04/2022	<4	<0.4	**18**	**32**	**6**	-	<0.1	**23**	-	**46**	<25	<500	<1000	<1000	-	<0.2	<0.5	<1	<2	<1	<1	<0.5	-	<0.5	-	-	-	-	-	-
BH1014	0.4 - 0.5 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1015	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**2**	**4**	**10**	-	<0.1	**2**	-	**23**	<25	<50	<100	**120**	-	<0.2	<0.5	<1	<2	<1	<1	**0.08**	-	**0.08**	-	<0.1	<0.1	<0.1	<0.1	<0.1
BH1015	0.6 - 0.7 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	**2**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1016	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**1**	**5**	**18**	-	**0.1**	<1	-	**35**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	**0.4**	**4.5**	<0.1	<0.1	<0.1
BH1016	0.5 - 0.6 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	**2**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	<0.1	<0.1	<0.1	<0.1	<0.1
BD7/20220414	0.5 - 0.6 m	Natural	14/04/2022	<5	<1	<2	<5	<5	-	<0.1	<2	-	<5	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	-	-	-
TP1017	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**8**	**6**	**8**	-	<0.1	**5**	-	**18**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP1017	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	**2**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1017	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1018	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	**1**	**6**	**22**	-	<0.1	**1**	-	**57**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1019	0 - 0.2 m	Fill	19/04/2022	<4	**0.9**	**7**	**57**	**130**	<0.03	**0.3**	**3**	-	**240**	<25	<50	<100	**150**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1020	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	**1**	**9**	**6**	-	<0.1	**1**	-	**78**	<25	**270**	**280**	**430**	-	<0.2	<0.5	<1	<2	<1	<1	**0.08**	-	**0.4**	-	-	-	-	-	-
TP1020	0.4 - 0.5 m	Fill	19/04/2022	<4	<0.4	**3**	**9**	**32**	-	**0.1**	**2**	-	**81**	<25	<50	<100	**170**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1021	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	**2**	**42**	**5**	-	<0.1	**2**	-	**19**	<25	<50	<100	**210**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1022	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	**4**	**14**	**7**	-	<0.1	**3**	-	**42**	<25	<50	<100	**120**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1023	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	**2**	**4**	**1**	-	<0.1	**3**	-	**15**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1023	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1024	0 - 0.2 m	Fill	14/07/2022	**7**	<0.4	**26**	**3**	**14**	-	<0.1	**3**	-	19	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1024	0.4 - 0.6 m	Natural	14/07/2022	<4	<0.4	<1	<1	**2**	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1025	0 - 0.2 m	Fill	14/07/2022	**8**	<0.4	**17**	**31**	**110**	<0.03	<0.1	**7**	-	81	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1025	0.9 - 1.1 m	Fill	14/07/2022	<4	0.4	**16**	**9**	**34**	-	<0.1	**2**	-	48	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1026	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	**7**	**6**	**10**	-	<0.1	**5**	-	18	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD23/20220714	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	**5**	**4**	**11**	-	<0.1	**2**	-	21	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1026	0.9 - 1.1 m	Fill	14/07/2022	<4	<0.4	<1	<1	**2**	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1027	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	**6**	**15**	**20**	-	<0.1	**6**	-	55	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1027	0.6 - 0.8 m	Natural	14/07/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
SS1	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	**3**	**2**	-	<0.1	<1	-	**17**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
SS2	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	**1**	<1	-	<0.1	<1	-	**15**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
SS3	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	**1**	**6**	**15**	-	<0.1	<1	-	**96**	<25	<50	**110**	**120**	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
SS4	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	4	5	12	-	<0.1	<1	-	**20**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
DP (2020)																																	
BH4	0.1 - 0.3 m	Fill	21/01/2020	<4	<0.4	**20**	**13**	**15**	-	<0.1	**11**	-	**22**	<25	<50	**110**	**160**	**270**	<0.2	<0.5	<1	<2	<1	<3	**1.8**	<0.001	**14**	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH4	1.5 - 1.6 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH5	0 - 0.1 m	Fill	22/01/2020	**6**	<0.4	**3**	**2**	**6**	-	<0.1	**1**	-	**12**	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH6	0.4 - 0.5 m	Natural	22/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH6	2.4 - 2.5 m	Natural	21/01/2020	**10**	<0.4	**10**	<1	**4**	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH7	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH9	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH10	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BD1/20200121	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
Waste Classification Criteria [f]																																	
CT1				100	20	100	NC	100	N/A	4	40	N/A	NC	650	NC	NC	NC	10000	10	288	600	NC	NC	1000	0.8	N/A	200	288	60	<50	4	4	<50
SCC1				500	100	1900	NC	1500	N/A	50	1050	N/A	NC	650	NC	NC	NC	10000	18	518	1080	NC	NC	1800	10	N/A	200	518	108	<50	7.5	7.5	<50
TCLP1				N/A	N/A	N/A	NC	N/A	5	N/A	N/A	2	NC	N/A	NC	NC	NC	N/A	N/A	N/A	N/A	NC	NC	N/A	N/A	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A

CT1 exceedance | TCLP1 and/or SCC1 exceedance | CT2 exceedance | TCLP2 and/or SCC2 exceedance

- = Not tested NL = Non limiting NC = No criteria NA = Not applicable

Notes:

^ Refer to Table H1B for asesbtos results. Soils impacted with asebstos are classified as Special Waste (Asbestos).

a QA/QC replicate of sample listed directly below the primary sample

b Total chromium used as initial screen for chromium(VI).

c Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)

d Criteria for scheduled chemicals used as an initial screen

e Criteria for Chlorpyrifos used as initial screen

f All criteria are in the same units as the reported results

PQL Practical quantitation limit

CT1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste

SCC1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

TCLP1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

Appendix H2

NSHS: Current Results

Douglas Partners
Geotechnics / Environment / Groundwater

Table H2A: Summary of Laboratory Results – Site Suitability - NSHS

				Metals								TRH						TPH (silica gel)						BTEX						PAH				Phenol	OCP										OPP	PCB
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs		DDT+DDE-DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																																													
BH206	0.2 - 0.3 m	Fill	20/04/2022	**4**	<0.4	**32**	**14**	**3**	<0.1	**33**	**24**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	45	180	110	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	160	85	55	70	3	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-
BD14/20220420	0.2 - 0.3 m	Fill	20/04/2022	**9**	<1	**21**	**7**	**6**	<0.1	**17**	**22**	<10	<50	<10	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	45	180	110	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	160	85	55	70	3	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-
BH206	0.7 - 0.8 m	Fill	20/04/2022	**6**	<0.4	**7**	**4**	**3**	<0.1	**5**	**7**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	45	180	110	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	160	85	55	70	3	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-
TP207	0 - 0.2 m	Fill	20/04/2022	<4	<0.4	**5**	**7**	**14**	<0.1	**2**	**22**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	45	180	110	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	160	85	55	70	3	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-
TP207	1.4 - 1.5 m	Natural	20/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	**3**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	70	180	240	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	220	85	NL	70	NL	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-
DP (2020)																																													
BH104	0.4 - 0.5 m	Fill	20/01/2020	**6**	<0.4	**11**	**5**	**5**	<0.1	**10**	**13**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	45	180	110	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	160	85	55	70	3	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-
BH104	1.9 - 2.0 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
				100	100	20	-	100	200	6000	220	300	1100	40	-	400	190	7400	570	-	-	-	120	45	180	110	-	300	-	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
																								0.5	50	160	85	55	70	3	170	-	0.7	3	-	300	-	100	-	240	180	-	180	6	-	50	-	10	-	270	-	6	-	10	-	300	-	160	-	1	-

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance | EIL/ESL exceedance | HIL/HSL and EIL/ESL exceedance | ML exceedance | ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance | HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Non limiting AD = Asbestos detected NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Reported naphthalene laboratory result obtained from BTEXN suite

c Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

	SAC based on generic land use thresholds for Residential A with garden/accessible soil
HIL A	Residential / Low - High Density (NEPC, 2013)
HSL A/B	Residential / Low - High Density (vapour intrusion) (NEPC, 2013)
DC HSL A	Direct contact HSL A Residential (Low density) (direct contact) (CRC CARE, 2011)
EIL/ESL UR/POS	Urban Residential and Public Open Space (NEPC, 2013)
ML R/P/POS	Residential, Parkland and Public Open Space (NEPC, 2013)

Table H2B: Summary of Results - Asbestos - NSHS			Field Screening							Laboratory Analysis				
			Approximate Sample Volume	Weight of Sample	Number of Fragments	Condition of Fragments (good/poor)	Size Range of Fragments	Weight of Retained ACM	Bonded ACM in Soil	Trace Analysis	ACM >7mm Estimation	Asbestos- AF/FA Estimation	Asbestos- AF/FA Estimation	Asbestos ID
		Units	L	g	-	-	mm	g	% w/w	-	g	g	% w/w	-
		PQL	-	0.1	-	-	1	1	-	-	0.1	-	0.001	-
Sample ID	**Depth**	**Sample Date**												
BH206	0.2 - 0.5 m	20/04/2022	10	12638	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH206	0.5 - 0.9 m	20/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
TP207	0 - 0.2 m	20/04/2022	10	13220	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP207	0.2 - 0.5 m	20/04/2022	10	12987	0	-	-	-	-	NAD	-	-	<0.001	NAD

Notes:

1. Asbestos results from DP (2020) tabulated in Appendix H3 - no asbestos detected within investigation area, although was recorded outside the investigation area.

Table H2C: Summary of Soil Laboratory Results - Acid Sulphate Soils - NSHS

Borehole / Test Pit ID	Depth (m)	Soil Description	Screening Tests[1]								Chromium Reducible Sulfur	
			pH_F	pH_{FOX}	Reaction[2] Strength	Δ pH[3]	pH_{KCl}	TAA[4] (%S)	S_{NAS}[6] (%S)	ANC[7] (%S)	Scr %S[8]	Net Acidity (%S)[9]
Assessment Criteria*			<4	<3	-	>1	-	-	-	-	>0.03	
Currrent Investigation												
TP207	0.4-0.5	Fill	8.0	6.1	Medium reaction	**1.9**	-	-	-	-	-	-
TP207	0.9-1	Fill	8.4	6.2	Medium reaction	**2.2**	-	-	-	-	-	-
TP207	1.4-1.5	SAND	8.4	6.2	Medium reaction	**2.2**	9.8	<0.01	-	0.16	0.009	<0.005
TP207	1.9-2	SAND	7.1	**1.2**	Volcanic reaction	**5.9**	4.7	0.02	-	-	**0.15**	**0.18**
TP207	2.4-2.5	SAND	6.8	**2.5**	Volcanic reaction	**4.3**	-	-	-	-	-	-
DP (2020)												
BH104	0-0.1	Fill	7.6	5.7	High reaction	**1.9**	-	-	-	-	-	-
BH104	0.4-0.5	Fill	8.1	6.5	High reaction	**1.6**	-	-	-	-	-	-
BH104	0.95-1.0	Fill	8.5	8.3	Extreme reaction	0.2	-	-	-	-	-	-
BH104	1.4-1.5	Silty SAND	8.4	6.1	Medium reaction	**2.3**	-	-	-	-	-	-
BH104	1.9-2.0	Silty SAND	8.4	6.3	Low reaction	**2.1**	-	-	-	-	-	-
BH104	2.4-2.5	Silty SAND	8	5.9	Medium reaction	**2.1**	6.8	<0.01	-	0.08	<0.005	<0.005
BH104	3.5-4.0	SAND	7.6	6.5	High reaction	**1.1**	-	-	-	-	-	-
BH104	4.5-5.0	SAND	7.8	6.9	High reaction	0.9	-	-	-	-	-	-
BH104	5.5-6.0	SAND	7.9	6.9	High reaction	1	-	-	-	-	-	-
BH104	6.5-7.0	SAND	7.3	6.7	High reaction	0.6	-	-	-	-	-	-
BH104	7.5-8.0	SAND	6.9	5.5	High reaction	**1.4**	6.9	<0.01	-	<0.05	<0.005	<0.005

Notes:

1. Screening Tests undertaken by ELS
2. Low – indicates no or slight effervescence in hydrogen peroxide
   Medium – indicates moderate effervescence in hydrogen peroxide
   High – indicates vigorous effervescence in hydrogen peroxide
   Extreme/Volcanic - indicates very vigorous effervescence in hydrogen peroxide
3. Δ pH = pHF - pHFOX
4. TAA – titratable actual acidity
5. TPA – titratable peroxide acidity;
6. NAS – net acid soluable sulfur (reported for pHkCl < 4.5)
7. ANCe – excess acid neutralising capacity (reported for pHkCl > 6.5).
8. Scr - Chromium Reducible Sulphur
9. Net Acidity = TAA + Scr + Snas. (It should be noted that ANC is excluded as per WA Guidelines)

* ASSMAC (1998) action criteria for coarse (sand) materials

-	Not Tested
	Exceedance of field screening criteria
0.03	Exceedance of criteria.

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Table H2D: Summary of Chemical Laboratory Results – Waste Classification - NSHS ^

				Metals									TRH					BTEX						PAH		Phenol	OCP		OPP		
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Nickel in TCLP	Zinc	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	Chlorpyriphos	Total Analysed OPP	Total PCB
			PQL	4	0.4	1	1	1	0.1	1	0.02	1	25	50	100	100	50	0.2	0.5	1	2	1	1	0.05	0.05	5	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																															
BH206	0.2 - 0.3 m	Fill	20/04/2022	**4**	<0.4	**32**	**14**	**3**	<0.1	**33**	**-**	**24**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BD14/20220420	0.2 - 0.3 m	Fill	20/04/2022	**9**	<1	**21**	**7**	**6**	<0.1	**17**	**-**	**22**	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
BH206	0.7 - 0.8 m	Fill	20/04/2022	**6**	<0.4	**7**	**4**	**3**	<0.1	**5**	**-**	**7**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP207	0 - 0.2 m	Fill	20/04/2022	<4	<0.4	**5**	**7**	**14**	<0.1	**2**	**-**	**22**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP207	1.4 - 1.5 m	Natural	20/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	**-**	**3**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
DP (2020)																															
BH104	0.4 - 0.5 m	Fill	20/01/2020	**6**	<0.4	**11**	**5**	**5**	<0.1	**10**	**-**	**13**	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BH104	1.9 - 2.0 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	**-**	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
Waste Classification Criteria [f]																															
CT1				100	20	100	NC	100	4	40	N/A	NC	650	NC	NC	NC	10000	10	288	600	NC	NC	1000	0.8	200	288	60	<50	4	4	<50
SCC1				500	100	1900	NC	1500	50	1050	N/A	NC	650	NC	NC	NC	10000	18	518	1080	NC	NC	1800	10	200	518	108	<50	7.5	7.5	<50
TCLP1				N/A	N/A	N/A	NC	N/A	N/A	N/A	2	NC	N/A	NC	NC	NC	N/A	N/A	N/A	N/A	NC	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance

- = Not tested NL = Non limiting NC = No criteria NA = Not applicable

Notes:

^ Refer to Table H2B for asesbtos results. Soils impacted with asebstos are classified as Special Waste (Asbestos).

a QA/QC replicate of sample listed directly below the primary sample

b Total chromium used as initial screen for chromium(VI).

c Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)

d Criteria for scheduled chemicals used as an initial screen

e Criteria for Chlorpyrifos used as initial screen

f All criteria are in the same units as the reported results

PQL Practical quantitation limit

CT1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste

SCC1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

TCLP1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

Appendix H3

DP (2020) and DP (2022) Previous Results

Extracted from Appendix H1A, DP (2022)

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Table H1A: Summary of Laboratory Results – Site Suitability - NNPS

				Metals								TRH						TPH (silica gel)						BTEX						PAH					OCP									OPP	
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs	Phenol	DDT+DDE+DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Total PCB
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																																													
TP1001	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	4	6	7	<0.1	4	21	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1001A	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	<1	5	2	<0.1	<1	30	<25	50	<25	50	480	190	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH1014	0.05 - 0.15 m	Fill	14/04/2022	<4	<0.4	18	32	6	<0.1	23	46	<25	<500	<25	<500	<1000	<1000	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.5	<5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1014	0.4 - 0.5 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1015	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	2	4	10	<0.1	2	23	<25	<50	<25	<50	140	120	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	0.08	<0.5	0.08	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1015	0.6 - 0.7 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1016	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	1	5	18	0.1	<1	35	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	3.9	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH1016	0.5 - 0.6 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD7/20220414	0.5 - 0.6 m	Natural	14/04/2022	<5	<1	<2	<5	<5	<0.1	<2	<5	<10	<50	<10	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1017	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	8	6	8	<0.1	5	18	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1017	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP1017	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -

Extracted from Appendix H1A, DP (2022)

Table H1A: Summary of Laboratory Results – Site Suitability - NNPS

				Metals								TRH						TPH (silica gel)						BTEX						PAH				Phenol	OCP										OPP	Total PCB
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benz(a)pyrene (BaP)	Benz(a)pyrene TEQ	Total PAHs		DDT+DDE+DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyrifos	
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1018	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	1	6	22	<0.1	1	57	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
TP1019	0 - 0.2 m	Fill	19/04/2022	<4	0.9	7	57	130	0.3	3	240	<25	<50	<25	<50	190	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
TP1020	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	1	9	6	<0.1	1	78	<25	170	<25	170	540	410	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	0.08	<0.5	0.4	-	-	-	-	-	-	-	-	-	-	-	-
TP1020	0.4 - 0.5 m	Fill	19/04/2022	<4	<0.4	3	9	32	0.1	2	81	<25	<50	<25	<50	180	110	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1021	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	2	42	5	<0.1	2	19	<25	<50	<25	<50	240	160	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH1022	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	4	14	7	<0.1	3	42	<25	<50	<25	<50	130	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1023	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	2	4	1	<0.1	3	15	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1023	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1024	0 - 0.2 m	Fill	14/07/2022	7	<0.4	26	3	14	<0.1	3	19	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH1024	0.4 - 0.6 m	Natural	14/07/2022	<4	<0.4	<1	<1	2	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1025	0 - 0.2 m	Fill	14/07/2022	8	<0.4	17	31	110	<0.1	7	81	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1025	0.9 - 1.1 m	Fill	14/07/2022	<4	0.4	16	9	34	<0.1	2	48	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1026	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	7	6	10	<0.1	5	18	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BD23/20220714	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	5	4	11	<0.1	2	21	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1026	0.9 - 1.1 m	Fill	14/07/2022	<4	<0.4	<1	<1	2	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH1027	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	6	15	20	<0.1	6	55	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH1027	0.6 - 0.8 m	Natural	14/07/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
SS1	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	3	2	<0.1	<1	17	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SS2	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	1	<1	<0.1	<1	15	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SS3	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	1	6	15	<0.1	<1	96	<25	<50	<25	<50	190	<100	<50	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SS4	0 - 0.1 m	Fill	14/07/2022	<4	<0.4	4	5	12	<0.1	<1	20	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
DP (2020)																																														
BH4	0.1 - 0.3 m	Fill	21/01/2020	<4	<0.4	20	13	15	<0.1	11	22	<25	<50	<25	<50	230	120	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	1.8	2.7	14	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH4	1.5 - 1.6 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0 - 0.1 m	Fill	22/01/2020	6	<0.4	3	2	6	<0.1	1	12	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH6	0.4 - 0.5 m	Natural	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH6	2.4 - 2.5 m	Natural	21/01/2020	10	<0.4	10	<1	4	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH9	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BH10	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
BD1/20200121	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Non limiting AD = Asbestos detected NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Reported naphthalene laboratory result obtained from BTEXN suite

c Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

SAC based on generic land use thresholds for Residential A with garden/accessible soil

HIL A	Residential / Low - High Density (NEPC, 2013)	EIL/ESL UF Urban Residential and Public Open Space (NEPC, 2013)
HSL A/B	Residential / Low - High Density (vapour intrusion) (NEPC, 2013)	ML R/P/PO Residential, Parkland and Public Open Space (NEPC, 2013)
DC HSL A	Direct contact HSL A Residential (Low density) (direct contact) (CRC CARE, 2011)	

Extracted from Appendix H1B, DP (2022)

Table H1B: Summary of Results - Asbestos - NNPS			Field Screening							Laboratory Analysis				
			Approximate Sample Volume	Weight of Sample	Number of Fragments	Condition of Fragments (good/poor)	Size Range of Fragments (mm)	Weight of Retained ACM	Bonded ACM in Soil	Trace Analysis	ACM >7mm Estimation	Asbestos- AF/FA Estimation	Asbestos- AF/FA Estimation	Asbestos ID
		Units	L	g	-	-	mm	g	% w/w	-	g	g	% w/w	-
		PQL	-	0.1	-	-	1	1	-	-	0.1	-	0.001	-
Sample ID	**Depth**	**Sample Date**												
TP1001	0 - 0.3 m	13/04/2022	10	10390	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1001A	0 - 0.2 m	19/04/2022	10	4125	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1001A	0.2 - 0.4 m	19/04/2022	10	11528	**1**	**Good**	**50 x 70**	**29**	**0.038**	NAD	-	-	<0.001	NAD
TP1001A	0.7 - 0.9 m	19/04/2022	10	13823	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1002	0.1 - 0.4 m	13/04/2022	10	8740	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1003	0 - 0.5 m	13/04/2022	10	13382	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1004	0.1 - 0.5 m	13/04/2022	5	4643	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1005	0 - 0.2 m	13/04/2022	10	11752	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1006	0.1 - 0.4 m	13/04/2022	5	4642	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1007	0 - 0.2 m	13/04/2022	10	9540	0	-	-	-	-	NAD	-	**0.0336**	**0.0069**	**Detected**
TP1008	0 - 0.2 m	13/04/2022	10	6142	0	-	-	-	-	NAD	-	**0.0001**	<0.001	**Detected**
BH1009	0.025 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH1009	0.1 - 0.5 m	14/04/2022	10	11836	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1010	0.1 - 0.5 m	14/04/2022	10	9843	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1011	0 - 0.4 m	19/04/2022	10	10810	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1012	0 - 0.5 m	19/04/2022	10	9965	0	-	-	-	-	NAD	-	-	-	NAD
BH1013	0.03 - 0.2 m	14/04/2022	10	13699	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1014	0.05 - 0.15 m	14/04/2022	10	11571	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1015	0 - 0.4 m	14/04/2022	10	14650	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1016	0 - 0.5 m	14/04/2022	10	13387	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1017	0 - 0.2 m	14/04/2022	10	12332	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1017	0.2 - 0.6 m	14/04/2022	10	13824	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1018	0 - 0.3 m	14/04/2022	10	10702	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1019	0 - 0.2 m	19/04/2022	10	6728	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1020	0 - 0.2 m	19/04/2022	10	5120	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP1020	0.2 - 0.7 m	19/04/2022	10	9989	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1021	0 - 0.25 m	19/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH1022	0 - 0.7 m	19/04/2022	10	13589	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1023	0.1 - 0.3 m	13/04/2022	10	8142	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1024	0 - 0.3 m	14/07/2022	10	8173	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1025	0 - 0.8 m	14/07/2022	10	10231	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1025	0.8 - 1.1 m	14/07/2022	10	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH1026	0 - 0.6 m	14/07/2022	10	9870	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH1027	0 - 0.5 m	14/07/2022	10	10089	0	-	-	-	-	NAD	-	**4.0153**	**0.7663**	**Detected**
SS1	0 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
SS2	0 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
SS3	0 - 0.1 m	14/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
SS4	0 - 0.1 m	14/07/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
A01	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	-
A02	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	**Detected**
A03	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	-
A04	Surface Fragment	14/07/2022	-	-	-	-	-	-	-	-	-	-	-	**Detected**

Notes:

1. Asbestos results from DP (2020) tabulated in Appendix H3 - no asbestos previously detected within investigation area at DP (2020) sample locations

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Table H1C: Summary of Soil Laboratory Results - Acid Sulphate Soils - NNPS

Borehole / Test Pit ID	Depth (m)	Soil Description	Screening Tests[1]				Chromium Reducible Sulfur					
			pH_F	pH_{FOX}	Reaction[2] Strength	Δ pH[3]	pH_{KCl}	TAA[4] (%S)	S_{NAS}[6] (%S)	ANC[7] (%S)	Scr %S[8]	Net Acidity (%S)[9]
Assessment Criteria*			<4	<3	-	>1	-	-	-	-	>0.03	
Current Investigation												
TP1001A	0.8-0.9	Fill	7.5	4.9	Low reaction	**2.6**	-	-	-	-	-	-
TP1001A	1.3-1.4	SAND	6.7	5.4	Low reaction	**1.3**	-	-	-	-	-	-
TP1001A	1.8-1.9	SAND	6.3	4.8	Low reaction	**1.5**	5.3	0.02	-	-	0.005	0.020
TP1001A	2.2-2.3	SAND	6.2	4.7	Low reaction	**1.5**	5.3	<0.01	-	-	0.008	0.015
BH1004	0.8-0.9	SAND	8.0	5.8	Low reaction	**2.2**	-	-	-	-	-	-
BH1004	1.3-1.4	SAND	5.4	6.3	Low reaction	-0.9	-	-	-	-	-	-
BH1004	1.8-1.9	SAND	5.6	4.4	Low reaction	**1.2**	-	-	-	-	-	-
BH1004	2.3-2.4	SAND	5.8	4.7	Low reaction	**1.1**	-	-	-	-	-	-
TP1005	0.5-0.6	SAND	4.6	4.6	Low reaction	0	-	-	-	-	-	-
TP1005	1-1.1	SAND	4.7	4.1	Low reaction	0.6	-	-	-	-	-	-
TP1005	1.5-1.6	SAND	4.8	4.3	Low reaction	0.5	-	-	-	-	-	-
TP1005	2-2.1	SAND	4.9	4.5	Low reaction	0.4	-	-	-	-	-	-
TP1008	0.5-0.6	SAND	4.9	3.6	Low reaction	**1.3**	-	-	-	-	-	-
TP1008	1-1.1	SAND	5.1	4.5	Medium reaction	0.6	-	-	-	-	-	-
TP1008	1.5-1.6	SAND	5.1	3.4	Medium reaction	**1.7**	-	-	-	-	-	-
TP1008	2-2.1	SAND	5.8	4.5	Medium reaction	**1.3**	-	-	-	-	-	-
TP1008	2.5-2.6	SAND	5.8	3.9	Medium reaction	**1.9**	-	-	-	-	-	-
BH1009	0.7-0.8	SAND	5.1	5.2	Low reaction	-0.1	-	-	-	-	-	-
BH1009	1.2-1.3	SAND	5.4	5.4	Low reaction	0	-	-	-	-	-	-
BH1009	1.8-1.9	SAND	5.3	5.4	Low reaction	-0.1	6.0	<0.01	-	-	0.006	0.0060
TP1018	0.5-0.6	SAND	5.6	4.3	Low reaction	**1.3**	-	-	-	-	-	-
TP1018	1-1.1	SAND	5.6	5.0	Low reaction	0.6	-	-	-	-	-	-
TP1018	1.5-1.6	SAND	5.3	3.9	Low reaction	**1.4**	-	-	-	-	-	-
TP1018	2-2.1	SAND	5.6	4.0	Low reaction	**1.6**	5.0	0.01	-	-	0.005	0.020
DP (2020)												
BH4	0.1-0.3	Fill	7.7	7.1	High reaction	0.6	-	-	-	-	-	-
BH4	0.9-1.0	SAND	8.1	6.1	Medium reaction	**2**	-	-	-	-	-	-
BH4	1.5-1.6	SAND	8.2	6.1	Medium reaction	**2.1**	6.5	<0.01	-	<0.05	0.02	0.02
BH4	2.4-2.5	SILTY SAND	6.3	5.3	Medium reaction	1	-	-	-	-	-	-
BH4	3.5-4.0	SILTY SAND	5.4	**3.1**	High reaction	**2.3**	-	-	-	-	-	-
BH4	4.5-5.0	SILTY SAND	6.2	**3.2**	High reaction	**3**	-	-	-	-	-	-
BH4	5.5-6.0	SILTY SAND	5.4	**2.7**	High reaction	**2.7**	-	-	-	-	-	-
BH4	6.5-7.0	SILTY SAND	5.5	**3**	High reaction	**2.5**	-	-	-	-	-	-
BH4	7.5-8.0	SILTY SAND	5.3	**2.9**	High reaction	**2.4**	5	0.01	-	<0.05	0.03	**0.044**
BH9	0.4-0.5	Fill	4	**2.9**	Low reaction	**1.1**	3.3	0.08	<0.005	<0.05	<0.005	**0.081**
BH9	0.9-1.0	SAND	4.4	4.3	Low reaction	0.1	-	-	-	-	-	-
BH9	1.4-1.5	SAND	4.6	3.9	Low reaction	0.7	-	-	-	-	-	-
BH9	1.9-2.0	SAND	4.7	3.9	Low reaction	0.8	5.5	<0.01	-	<0.05	<0.005	<0.005
BH9	2.4-2.5	SAND	4.2	3.8	Low reaction	0.4	-	-	-	-	-	-
BH9	2.9-3.0	SAND	4.5	5.1	Low reaction	-0.6	-	-	-	-	-	-
BH9	3.4-3.5	Silty SAND	5	3.8	Medium reaction	**1.2**	-	-	-	-	-	-
BH9	3.5-4.0	Silty SAND	5.4	**3.2**	High reaction	**2.2**	-	-	-	-	-	-
BH9	4.5-5.0	Silty SAND	5.5	**3.2**	High reaction	**2.3**	-	-	-	-	-	-
BH9	5.5-6.0	Silty SAND	5.4	**2.9**	High reaction	**2.5**	-	-	-	-	-	-
BH9	6.5-7.0	Silty SAND	5.5	**2.9**	High reaction	**2.6**	-	-	-	-	-	-
BH9	7.5-8.0	Silty SAND	5.2	**3.1**	High reaction	**2.1**	4.7	0.02	-	<0.05	0.01	0.03

Notes:

1. Screening Tests undertaken by ELS
2. Low – indicates no or slight effervescence in hydrogen peroxide
   Medium – indicates moderate effervescence in hydrogen peroxide
   High – indicates vigorous effervescence in hydrogen peroxide
   Extreme/Volcanic - indicates very vigorous effervescence in hydrogen peroxide
3. Δ pH = pHF - pHFOX
4. TAA – titratable actual acidity
5. TPA – titratable peroxide acidity;
6. NAS – net acid soluable sulfur (reported for pHkCl < 4.5)
7. ANCe – excess acid neutralising capacity (reported for pHkCl > 6.5).
8. Scr - Chromium Reducible Sulphur
9. Net Acidity = TAA + Scr + Snas. (It should be noted that ANC is excluded as per WA Guidelines)

* ASSMAC (1998) action criteria for coarse (sand) materials

-	Not Tested
	Exceedance of field screening criteria
0.03	Exceedance of criteria.

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Table H1D: Summary of Chemical Laboratory Results – Waste Classification - NNPS ^

				Metals										TRH					BTEX						PAH			Phenol	OCP		OPP		
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Lead in TCLP	Mercury (inorganic)	Nickel	Nickel in TCLP	Zinc	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)	BaP in TCLP	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	Chlorpyrifos	Total Analysed OPP	Total PCB
			PQL	4	0.4	1	1	1	0.03	0.1	1	0.02	1	25	50	100	100	50	0.2	0.5	1	2	1	1	0.05	0.001	0.05	5	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																																	
TP1001	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	4	6	7	-	<0.1	4	-	21	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP1001A	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	<1	5	2	-	<0.1	<1	-	30	<25	<50	270	290	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD10/20220419	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	2	8	6	-	<0.1	<1	-	46	<25	<50	180	540	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1001A	0.2 - 0.3 m	Fill	19/04/2022	<4	<0.4	3	11	23	-	1	2	-	60	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1001A	1.3 - 1.4 m	Natural	19/04/2022	<4	<0.4	5	<1	2	-	<0.1	<1	-	1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1002	0.1 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	<1	2	-	<0.1	<1	-	4	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1003	0.3 - 0.4 m	Fill	13/04/2022	<4	<0.4	<1	<1	3	-	<0.1	<1	-	4	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1003	0.7 - 0.8 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1003	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD1/20220413	1.1 - 1.2 m	Natural	13/04/2022	<5	<1	<2	<5	<5	-	<0.1	<2	-	<5	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	-	-	-
BH1004	0.2 - 0.3 m	Fill	13/04/2022	<4	<0.4	2	4	5	-	<0.1	<1	-	6	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP1005	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	<1	2	-	<0.1	<1	-	6	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1006	0.1 - 0.2 m	Fill	13/04/2022	<4	<0.4	<1	3	9	-	<0.1	<1	-	20	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1006	0.6 - 0.7 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1006	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD2/20220413	1.1 - 1.2 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1007	0 - 0.2 m	Fill	13/04/2022	<4	<0.4	6	14	31	-	0.1	4	-	94	<25	<50	170	180	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1007	0.5 - 0.6 m	Natural	13/04/2022	<4	<0.4	<1	2	8	-	<0.1	<1	-	6	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1008	0 - 0.2 m	Fill	13/04/2022	4	<0.4	6	12	79	-	<0.1	1	-	96	<25	67	370	340	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1009	0.2 - 0.3 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1009	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1010	0.2 - 0.3 m	Fill	14/04/2022	<4	<0.4	3	4	2	-	<0.1	6	-	15	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1010	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD4/20220414	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1011	0 - 0.1 m	Fill	19/04/2022	<4	<0.4	1	5	10	-	<0.1	<1	-	14	<25	<50	<100	130	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1011	0.6 - 0.7 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1012	0 - 0.1 m	Fill	19/04/2022	<4	<0.4	<1	<1	4	-	<0.1	<1	-	9	<25	<50	150	160	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1013	0.1 - 0.2 m	Fill	14/04/2022	67	<0.4	35	45	10	-	<0.1	44	0.03	39	<25	<500	<1000	<1000	-	<0.2	<0.5	<1	<2	<1	<1	<0.5	-	<0.5	<5	<1	<1	<1	<1	<0.1
BH1014	0.05 - 0.15 m	Fill	14/04/2022	<4	<0.4	18	32	6	-	<0.1	23	-	46	<25	<500	<1000	<1000	-	<0.2	<0.5	<1	<2	<1	<1	<0.5	-	<0.5	-	-	-	-	-	-
BH1014	0.4 - 0.5 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1015	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	2	4	10	-	<0.1	2	-	23	<25	<50	<100	120	-	<0.2	<0.5	<1	<2	<1	<1	0.08	-	0.08	-	<0.1	<0.1	<0.1	<0.1	<0.1
BH1015	0.6 - 0.7 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1016	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	1	5	18	-	0.1	<1	-	35	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	0.4	4.5	<0.1	<0.1	<0.1
BH1016	0.5 - 0.6 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	<0.1	<0.1	<0.1	<0.1	<0.1
BD7/20220414	0.5 - 0.6 m	Natural	14/04/2022	<5	<1	<2	<5	<5	-	<0.1	<2	-	<5	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	-	-	-
TP1017	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	8	6	8	-	<0.1	5	-	18	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP1017	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1017	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1018	0 - 0.2 m	Fill	14/04/2022	<4	<0.4	1	6	22	-	<0.1	1	-	57	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1019	0 - 0.2 m	Fill	19/04/2022	<4	0.9	7	57	130	<0.03	0.3	3	-	240	<25	<50	<100	150	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
TP1020	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	1	9	6	-	<0.1	1	-	78	<25	270	280	430	-	<0.2	<0.5	<1	<2	<1	<1	0.08	-	0.4	-	-	-	-	-	-
TP1020	0.4 - 0.5 m	Fill	19/04/2022	<4	<0.4	3	9	32	-	0.1	2	-	81	<25	<50	<100	170	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1021	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	2	42	5	-	<0.1	2	-	19	<25	<50	<100	210	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1022	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	4	14	7	-	<0.1	3	-	42	<25	<50	<100	120	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1023	0.4 - 0.5 m	Fill	14/04/2022	<4	<0.4	2	4	1	-	<0.1	3	-	15	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1023	0.9 - 1 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1024	0 - 0.2 m	Fill	14/07/2022	7	<0.4	26	3	14	-	<0.1	3	-	19	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1024	0.4 - 0.6 m	Natural	14/07/2022	<4	<0.4	<1	<1	2	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1025	0 - 0.2 m	Fill	14/07/2022	8	<0.4	17	31	110	<0.03	<0.1	7	-	81	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1025	0.9 - 1.1 m	Fill	14/07/2022	<4	0.4	16	9	34	-	<0.1	2	-	48	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1026	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	7	6	10	-	<0.1	5	-	18	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BD23/20220714	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	5	4	11	-	<0.1	2	-	21	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1026	0.9 - 1.1 m	Fill	14/07/2022	<4	<0.4	<1	<1	2	-	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
BH1027	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	6	15	20	-	<0.1	6	-	55	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH1027	0.6 - 0.8 m	Natural	14/07/2022	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
SS1	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	3	2	-	<0.1	<1	-	17	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
SS2	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	<1	1	<1	-	<0.1	<1	-	15	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
SS3	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	1	6	15	-	<0.1	<1	-	96	<25	<50	110	120	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
SS4	0 - 0.1 m	Fill	14/04/2022	<4	<0.4	4	5	12	-	<0.1	<1	-	20	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	-	<0.05	-	-	-	-	-	-
DP (2020)																																	
BH4	0.1 - 0.3 m	Fill	21/01/2020	<4	<0.4	20	13	15	-	<0.1	11	-	22	<25	<50	110	160	270	<0.2	<0.5	<1	<2	<1	<3	1.8	<0.001	14	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH4	1.5 - 1.6 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH5	0 - 0.1 m	Fill	22/01/2020	6	<0.4	3	2	6	-	<0.1	1	-	12	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH6	0.4 - 0.5 m	Natural	22/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH6	2.4 - 2.5 m	Natural	21/01/2020	10	<0.4	10	<1	4	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH7	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH9	0.4 - 0.5 m	Fill	22/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BH10	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
BD1/20200121	0.9 - 1.0 m	Natural	21/01/2020	<4	<0.4	<1	<1	<1	-	<0.1	<1	-	<1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	-	<0.05	-	-	-	-	-	-
Waste Classification Criteria [f]																																	
CT1				100	20	100	NC	100	N/A	4	40	N/A	NC	650	NC	NC	NC	10000	10	288	600	NC	NC	1000	0.8	N/A	200	288	60	<50	4	4	<50
SCC1				500	100	1900	NC	1500	N/A	50	1050	N/A	NC	650	NC	NC	NC	10000	18	518	1080	NC	NC	1800	10	N/A	200	518	108	<50	7.5	7.5	<50
TCLP1				N/A	N/A	N/A	NC	N/A	5	N/A	N/A	2	NC	N/A	NC	NC	NC	N/A	N/A	N/A	N/A	NC	NC	N/A	N/A	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A

CT1 exceedance | TCLP1 and/or SCC1 exceedance | CT2 exceedance | TCLP2 and/or SCC2 exceedance

- = Not tested NL = Non limiting NC = No criteria NA = Not applicable

Notes:

^ Refer to Table H1B for asesbtos results. Soils impacted with asebstos are classified as Special Waste (Asbestos).

a QA/QC replicate of sample listed directly below the primary sample

b Total chromium used as initial screen for chromium(VI).

c Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)

d Criteria for scheduled chemicals used as an initial screen

e Criteria for Chlorpyrifos used as initial screen

f All criteria are in the same units as the reported results

PQL Practical quantitation limit

CT1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste

SCC1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

TCLP1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

Extracted from Appendix H2A, DP (2022)

Douglas Partners
Geotechnics / Environment / Groundwater

Table H2A: Summary of Laboratory Results – Site Suitability - NSHS

				Metals								TRH						TPH (silica gel)						BTEX						PAH					OCP									OPP	
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs	Phenol	DDT+DDE+DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	PCB
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																																													
BH201	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	6	8	18	<0.1	4	29	<25	<50	<25	<50	120	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD12/20220419	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	5	5	10	<0.1	3	18	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH201	0.4 - 0.5 m	Fill	19/04/2022	<4	<0.4	5	6	23	<0.1	4	58	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH202	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	14	<1	2	<0.1	<1	1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH202	0.9 - 1 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD13/20220419	0.9 - 1 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH203	0.2 - 0.3 m	Fill	19/04/2022	<4	<0.4	21	<1	3	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH204	0 - 0.1 m	Fill	20/04/2022	<4	<0.4	5	5	9	<0.1	4	21	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH204	0.3 - 0.4 m	Fill	20/04/2022	9	<0.4	4	2	2	<0.1	1	5	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH205	0 - 0.1 m	Fill	20/04/2022	4	<0.4	6	6	10	<0.1	3	26	<25	<50	<25	<50	270	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH205	1.8 - 1.9 m	Natural	20/04/2022	<4	<0.4	1	<1	1	<0.1	<1	2	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH206	0.2 - 0.3 m	Fill	20/04/2022	4	<0.4	32	14	3	<0.1	33	24	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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BH206	0.7 - 0.8 m	Fill	20/04/2022	6	<0.4	7	4	3	<0.1	5	7	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP207	0 - 0.2 m	Fill	20/04/2022	<4	<0.4	5	7	14	<0.1	2	22	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP207	1.4 - 1.5 m	Natural	20/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	3	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP208	0 - 0.2 m	Fill	20/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP208	1.4 - 1.5 m	Natural	20/04/2022	<4	<0.4	3	2	3	<0.1	<1	7	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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BH209	0.05 - 0.15 m	Fill	20/04/2022	<4	<0.4	4	52	1	<0.1	81	26	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH209	0.7 - 0.8 m	Fill	20/04/2022	5	<0.4	3	9	7	<0.1	9	38	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
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BH210	0.1 - 0.2 m	Fill	20/04/2022	<4	<0.4	6	110	2	<0.1	120	39	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH210	0.5 - 0.6 m	Fill	20/04/2022	<4	<0.4	2	<1	1	<0.1	<1	4	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP211	0 - 0.2 m	Fill	21/04/2022	6	<0.4	6	5	13	<0.1	4	26	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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TP211	0.4 - 0.5 m	Fill	21/04/2022	7	<0.4	7	6	10	<0.1	4	23	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP212	0 - 0.2 m	Fill	21/04/2022	4	<0.4	5	8	12	<0.1	4	35	<25	<50	<25	<50	150	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP212	1.4 - 1.5 m	Natural	21/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP213	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	8	7	8	<0.1	8	23	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP213	0.4 - 0.5 m	Fill	21/04/2022	9	<0.4	4	3	2	<0.1	1	6	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP214	0 - 0.1 m	Fill	21/04/2022	<4	<0.4	5	7	5	<0.1	2	29	<25	<50	<25	<50	200	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
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TP214	1.4 - 1.5 m	Natural	21/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	70 180	240 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD19/20220421	1.4 - 1.5 m	Natural	21/04/2022	<5	<1	<2	<5	<5	<0.1	<2	<5	<10	<50	<10	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP215	0 - 0.1 m	Fill	21/04/2022	7	<0.4	6	4	9	<0.1	4	18	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP215	1 - 1.1 m	Natural	21/04/2022	<4	<0.4	1	<1	2	<0.1	<1	1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	70 180	240 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP216	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	7	7	9	<0.1	7	26	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP216	0.5 - 0.6 m	Fill	21/04/2022	10	<0.4	5	2	5	<0.1	2	16	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP217	0 - 0.2 m	Fill	21/04/2022	5	<0.4	8	7	11	<0.1	5	26	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	45 180	110 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP217	1.4 - 1.5 m	Natural	21/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- 120	70 180	240 -	- 300	- 2800	- -	- -	- -	- -	- -	- -	0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	- 180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -

Extracted from Appendix H2A, DP (2022)

Table H2A: Summary of Laboratory Results – Site Suitability - NSHS

				Metals								TRH						TPH (silica gel)						BTEX						PAH					OCP										OPP	PCB
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH >C10-C16	TPH >C16-C34	TPH >C34-C40	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs	Phenol	DDT+DDE+DDD [c]	DDT	Aldrin & Dieldrin	Total Chlordane	Eindrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyrifos	
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	50	100	100	50	100	100	0.2	0.5	1	1	2	1	0.1	0.05	0.5	0.05	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP218	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	7	12	30	<0.1	5	81	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	**0.6**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP218	0.6 - 0.7 m	Fill	21/04/2022	**8**	<0.4	**4**	**3**	**6**	<0.1	**1**	**14**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP219	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	**9**	**11**	**9**	<0.1	**9**	**27**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP219	1.2 - 1.3 m	Natural	21/04/2022	<4	<0.4	**2**	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	70 180	240 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	220 85	NL 70	- -	- -	60 105	NL 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP220	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	**8**	**8**	**14**	<0.1	**8**	**35**	<25	**69**	<25	**69**	**520**	**130**	**61**	<100	<100	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
TP220	0.5 - 0.6 m	Fill	21/04/2022	**6**	<0.4	**3**	**3**	**4**	<0.1	**2**	**9**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
DP (2020)																																													
BH103	0.15 - 0.25 m	Fill	23/01/2020	**10**	<0.4	**8**	**37**	**3**	<0.1	**8**	**13**	<25	**190**	<25	**190**	**440**	**210**	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH103	1.4 - 1.5 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD1/20200120	1.4 - 1.5 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH104	0.4 - 0.5 m	Fill	20/01/2020	**6**	<0.4	**11**	**5**	**5**	<0.1	**10**	**13**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH104	1.9 - 2.0 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH106	0.3 - 0.4 m	Fill	22/01/2020	**10**	<0.4	**5**	**3**	**2**	<0.1	**2**	**7**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH106	0.4 - 0.5 m	Fill	22/01/2020	**5**	<0.4	**8**	**2**	**14**	<0.1	<1	**2**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BD2/20200122	0.4 - 0.5 m	Fill	20/01/2020	<4	<0.4	**7**	**2**	**9**	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH107	0 - 0.1 m	Fill	22/01/2020	**5**	<0.4	**9**	**8**	**16**	<0.1	**8**	**41**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -
BH114	0.9 - 1.0 m	Fill	23/01/2020	**7**	<0.4	**10**	**6**	**8**	<0.1	**4**	**26**	<25	<50	<25	<50	<100	<100	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<2	<1	<1	<0.05	<0.5	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
				100 100	20 -	100 200	6000 220	300 1100	40 -	400 190	7400 570	- -	- -	120	45 180	110 -	300 -	2800		- -	- -	- -	- -	- -		0.5 50	160 85	55 70	- -	- -	40 105	3 170	- 0.7	3 -	300 -	100 -	240 180	180	6 -	50 -	10 -	270 -	6 -	10 -	300 -	160 -	1 -

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Non limiting AD = Asbestos detected NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Reported naphthalene laboratory result obtained from BTEXN suite

c Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

SAC based on generic land use thresholds for Residential A with garden/accessible soil

HIL A	Residential / Low - High Density (NEPC, 2013)
HSL A/B	Residential / Low - High Density (vapour intrusion) (NEPC, 2013)
DC HSL A	Direct contact HSL A Residential (Low density) (direct contact) (CRC CARE, 2011)
EIL/ESL UR/POS	Urban Residential and Public Open Space (NEPC, 2013)
ML R/P/POS	Residential, Parkland and Public Open Space (NEPC, 2013)

Extracted from Appendix H2B, DP (2022)

Table H2B: Summary of Results - Asbestos - NSHS			Field Screening							Laboratory Analysis				
			Approximate Sample Volume	Weight of Sample	Number of Fragments	Condition of Fragments (good/poor)	Size Range of Fragments	Weight of Retained ACM	Bonded ACM in Soil	Trace Analysis	ACM >7mm Estimation	Asbestos- AF/FA Estimation	Asbestos- AF/FA Estimation	Asbestos ID
		Units	L	g	-	-	mm	g	% w/w	-	g	g	% w/w	-
		PQL	-	0.1	-	-	1	1	-	-	0.1	-	0.001	-
Sample ID	**Depth**	**Sample Date**												
BH201	0 - 0.2 m	19/04/2022	10	12488	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH201	0.2 - 0.5 m	19/04/2022	10	11302	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH202	0.1 - 0.4 m	19/04/2022	10	11901	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH203	0.2 - 0.5 m	19/04/2022	10	12709	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH203	0.5 - 0.7 m	19/04/2022	10	12888	0	-	-	-	-	-	-	-	-	NAD
BH204	0 - 0.1 m	20/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH204	0.2 - 0.5 m	20/04/2022	10	11902	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH205	0 - 0.1 m	20/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH205	0.2 - 0.5 m	20/04/2022	10	12301	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH206	0.2 - 0.5 m	20/04/2022	10	12638	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH206	0.5 - 0.9 m	20/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
TP207	0 - 0.2 m	20/04/2022	10	13220	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP207	0.2 - 0.5 m	20/04/2022	10	12987	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP208	0 - 0.2 m	20/04/2022	10	10172	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP208	0.2 - 0.5 m	20/04/2022	10	10928	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH209	0.05 - 0.15 m	20/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH209	0.2 - 1.5 m	20/04/2022	10	11502	0	-	-	-	-	NAD	-	-	<0.001	NAD
BH210	0.03 - 0.2 m	20/04/2022	-	-	-	-	-	-	-	NAD	-	-	<0.001	NAD
BH210	0.2 - 0.9 m	20/04/2022	10	9827	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP211	0 - 0.2 m	21/04/2022	10	9102	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP211	0.2 - 0.6 m	21/04/2022	10	10529	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP211	0.6 - 1.0 m	21/04/2022	10	11801	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP212	0 - 0.4 m	21/04/2022	10	8925	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP212	0.4 - 0.7 m	21/04/2022	10	10726	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP212	0.7 - 1.0 m	21/04/2022	10	13222	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP213	0 - 0.3 m	21/04/2022	10	84102	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP213	0.3 - 1.0 m	21/04/2022	10	10599	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP214	0 - 0.1 m	21/04/2022	10	9278	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP214	0.1 - 1.0 m	21/04/2022	10	12371	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP215	0 - 0.1 m	21/04/2022	10	9401	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP215	0.1 - 0.9 m	21/04/2022	10	11924	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP216	0 - 0.2 m	21/04/2022	10	8902	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP216	0.2 - 0.9 m	21/04/2022	10	10132	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP217	0 - 0.2 m	21/04/2022	10	12758	0 ^	-	-	-	-	NAD	-	**0.0014**	<0.001	**Detected**
TP217	0.2 - 0.5 m	21/04/2022	10	13112	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP218	0 - 0.4 m	21/04/2022	10	12101	0	-	-	-	-	NAD	**0.67**	-	<0.001	**Detected**
TP218	0.4 - 1.0 m	21/04/2022	10	12982	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP219	0 - 0.3 m	21/04/2022	10	13188	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP219	0.3 - 1.0 m	21/04/2022	10	15979	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP220	0 - 0.2 m	21/04/2022	10	12902	0	-	-	-	-	NAD	-	-	<0.001	NAD
TP220	0.2 - 0.9 m	21/04/2022	10	14133	0	-	-	-	-	NAD	-	-	<0.001	NAD

Notes:

1. Asbestos results from DP (2020) tabulated in Appendix H3 - no asbestos detected within investigation area at DP (2020) sample locations, although was recorded at BH112.

^ One non-asbestos containing fragment found.

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Table H2C: Summary of Soil Laboratory Results - Acid Sulphate Soils - NSHS

Borehole / Test Pit ID	Depth (m)	Soil Description	Screening Tests[1]								Chromium Reducible Sulfur	
			pH_F	pH_{FOX}	Reaction[2] Strength	Δ pH[3]	pH_{KCl}	TAA[4] (%S)	S_{NAS}[6] (%S)	ANC[7] (%S)	Scr %S[8]	Net Acidity (%S)[9]
Assessment Criteria*			<4	<3	-	>1	-	-	-	-	>0.03	
Currrent Investigation												
BH201	0.4-0.5	Fill	7.2	5.6	Medium reaction	**1.6**	-	-	-	-	-	-
BH201	0.9-1	SAND	8.0	5.2	Low reaction	**2.8**	-	-	-	-	-	-
BH201	1.4-1.5	SAND	7.8	5.7	Low reaction	**2.1**	7.5	<0.01	-	0.24	<0.005	<0.005
BH201	1.9-2	SAND	6.3	**1.0**	Volcanic reaction	**5.3**	4.3	0.1	<0.005	-	**0.16**	**0.26**
BH201	2.4-2.5	SAND	6.0	**1.4**	Volcanic reaction	**4.6**	-	-	-	-	-	-
BH205	0.3-0.4	Fill	6.3	5.7	High reaction	0.6	-	-	-	-	-	-
BH205	0.8-0.9	Fill	8.8	6.1	Medium reaction	**2.7**	-	-	-	-	-	-
BH205	1.3-1.4	Fill	8.0	6.3	Low reaction	**1.7**	9.9	<0.01	-	1.8	<0.005	<0.005
BH205	1.8-1.9	SAND	7.6	5.7	Low reaction	**1.9**	9.3	<0.01	-	0.30	**0.59**	**0.39**
BH205	2.3-2.4	SAND	7.2	**1.5**	Volcanic reaction	**5.7**	8.0	<0.01	-	0.51	**0.97**	**0.63**
TP207	0.4-0.5	Fill	8.0	6.1	Medium reaction	**1.9**	-	-	-	-	-	-
TP207	0.9-1	Fill	8.4	6.2	Medium reaction	**2.2**	-	-	-	-	-	-
TP207	1.4-1.5	SAND	8.4	6.2	Medium reaction	**2.2**	9.8	<0.01	-	0.16	0.009	<0.005
TP207	1.9-2	SAND	7.1	**1.2**	Volcanic reaction	**5.9**	4.7	0.02	-	-	**0.15**	**0.18**
TP207	2.4-2.5	SAND	6.8	**2.5**	Volcanic reaction	**4.3**	-	-	-	-	-	-
TP208	0.4-0.5	Fill	9.1	6.7	Medium reaction	**2.4**	-	-	-	-	-	-
TP208	0.9-1	Fill	9.2	6.7	Low reaction	**2.5**	-	-	-	-	-	-
TP208	1.4-1.5	SAND	7.1	6.0	Low reaction	**1.1**	9.4	<0.01	-	1.4	0.01	<0.005
TP213	0.4-0.5	Fill	8.8	6.8	Medium reaction	**2**	-	-	-	-	-	-
TP213	0.9-1	Fill	6.5	6.7	Low reaction	-0.2	-	-	-	-	-	-
TP213	1.4-1.5	SAND	7.1	6.0	Low reaction	**1.1**	-	-	-	-	-	-
TP213	1.9-2	SAND	7.1	6.3	Low reaction	0.8	9.7	<0.01	-	0.48	<0.005	<0.005
TP216	1-1.1	SAND	7.3	6.2	Low reaction	**1.1**	-	-	-	-	-	-
TP217	0.4-0.5	Fill	8.8	8.2	Medium reaction	0.6	-	-	-	-	-	-
TP217	0.9-1	Fill	9.1	8.0	Medium reaction	**1.1**	-	-	-	-	-	-
TP217	1.4-1.5	SAND	8.2	6.8	Low reaction	**1.4**	9.5	<0.01	-	0.26	<0.005	<0.005
TP218	0.6-0.7	Fill	8.8	6.9	Medium reaction	**1.9**	-	-	-	-	-	-
TP218	1.2-1.3	SAND	8.2	6.8	Medium reaction	**1.4**	-	-	-	-	-	-
TP218	1.8-1.9	SAND	8.0	6.2	Low reaction	**1.8**	-	-	-	-	-	-
TP219	0.5-0.6	Fill	8.7	6.8	Medium reaction	**1.9**	-	-	-	-	-	-
TP219	1.2-1.3	SAND	8.0	6.1	Low reaction	**1.9**	-	-	-	-	-	-
TP219	1.7-1.8	SAND	7.8	6.3	Low reaction	**1.5**	7.9	<0.01	-	0.1	<0.005	<0.005
DP (2020)												
BH103	0.15-0.25	Fill	10.8	9.9	Extreme reaction	0.9	-	-	-	-	-	-
BH104	0-0.1	Fill	7.6	5.7	High reaction	**1.9**	-	-	-	-	-	-
BH104	0.4-0.5	Fill	8.1	6.5	High reaction	**1.6**	-	-	-	-	-	-
BH104	0.95-1.0	Fill	8.5	8.3	Extreme reaction	0.2	-	-	-	-	-	-
BH104	1.4-1.5	Silty SAND	8.4	6.1	Medium reaction	**2.3**	-	-	-	-	-	-
BH104	1.9-2.0	Silty SAND	8.4	6.3	Low reaction	**2.1**	-	-	-	-	-	-
BH104	2.4-2.5	Silty SAND	8	5.9	Medium reaction	**2.1**	6.8	<0.01	-	0.08	<0.005	<0.005
BH104	3.5-4.0	SAND	7.6	6.5	High reaction	**1.1**	-	-	-	-	-	-
BH104	4.5-5.0	SAND	7.8	6.9	High reaction	0.9	-	-	-	-	-	-
BH104	5.5-6.0	SAND	7.9	6.9	High reaction	1	-	-	-	-	-	-
BH104	6.5-7.0	SAND	7.3	6.7	High reaction	0.6	-	-	-	-	-	-
BH104	7.5-8.0	SAND	6.9	5.5	High reaction	**1.4**	6.9	<0.01	-	<0.05	<0.005	<0.005

Notes:

1. Screening Tests undertaken by ELS
2. Low – indicates no or slight effervescence in hydrogen peroxide
   Medium – indicates moderate effervescence in hydrogen peroxide
   High – indicates vigorous effervescence in hydrogen peroxide
   Extreme/Volcanic - indicates very vigorous effervescence in hydrogen peroxide
3. Δ pH = pHF - pHFOX
4. TAA – titratable actual acidity
5. TPA – titratable peroxide acidity;
6. NAS – net acid soluable sulfur (reported for pHkCl < 4.5)
7. ANCe – excess acid neutralising capacity (reported for pHkCl > 6.5).
8. Scr - Chromium Reducible Sulphur
9. Net Acidity = TAA + Scr + Snas. (It should be noted that ANC is excluded as per WA Guidelines)

* ASSMAC (1998) action criteria for coarse (sand) materials

- Not Tested
- Exceedance of field screening criteria
- **0.03** Exceedance of criteria.

Extracted from Appendix H2D, DP (2022)

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Table H2D: Summary of Chemical Laboratory Results – Waste Classification - NSHS ^

				Metals									TRH					BTEX						PAH		Phenol	OCP		OPP		
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Nickel in TCLP	Zinc	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	Chlorpyriphos	Total Analysed OPP	Total PCB
			PQL	4	0.4	1	1	1	0.1	1	0.02	1	25	50	100	100	50	0.2	0.5	1	2	1	1	0.05	0.05	5	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Current Investigation																															
BH201	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	6	8	18	<0.1	4	-	29	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BD12/20220419	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	5	5	10	<0.1	3	-	18	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH201	0.4 - 0.5 m	Fill	19/04/2022	<4	<0.4	5	6	23	<0.1	4	-	58	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH202	0.1 - 0.2 m	Fill	19/04/2022	<4	<0.4	14	<1	2	<0.1	<1	-	1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH202	0.9 - 1 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BD13/20220419	0.9 - 1 m	Natural	19/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH203	0.2 - 0.3 m	Fill	19/04/2022	<4	<0.4	21	<1	3	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH204	0 - 0.1 m	Fill	20/04/2022	<4	<0.4	5	5	9	<0.1	4	-	21	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH204	0.3 - 0.4 m	Fill	20/04/2022	9	<0.4	4	2	2	<0.1	1	-	5	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH205	0 - 0.1 m	Fill	20/04/2022	4	<0.4	6	6	10	<0.1	3	-	26	<25	70	150	180	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH205	1.8 - 1.9 m	Natural	20/04/2022	<4	<0.4	1	<1	1	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH206	0.2 - 0.3 m	Fill	20/04/2022	4	<0.4	32	14	3	<0.1	33	-	24	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BD14/20220420	0.2 - 0.3 m	Fill	20/04/2022	9	<1	21	7	6	<0.1	17	-	22	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
BH206	0.7 - 0.8 m	Fill	20/04/2022	6	<0.4	7	4	3	<0.1	5	-	7	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP207	0 - 0.2 m	Fill	20/04/2022	<4	<0.4	5	7	14	<0.1	2	-	22	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP207	1.4 - 1.5 m	Natural	20/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	3	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP208	0 - 0.2 m	Fill	20/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP208	1.4 - 1.5 m	Natural	20/04/2022	<4	<0.4	3	2	3	<0.1	<1	-	7	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BH209	0.05 - 0.15 m	Fill	20/04/2022	<4	<0.4	4	52	1	<0.1	81	0.2	26	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH209	0.7 - 0.8 m	Fill	20/04/2022	5	<0.4	3	9	7	<0.1	9	-	38	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BD16/20220420	0.7 - 0.8 m	Fill	20/04/2022	8	<1	8	13	8	<0.1	25	-	80	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
BH210	0.1 - 0.2 m	Fill	20/04/2022	<4	<0.4	6	110	2	<0.1	120	0.2	39	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
BH210	0.5 - 0.6 m	Fill	20/04/2022	<4	<0.4	2	<1	1	<0.1	<1	-	4	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP211	0 - 0.2 m	Fill	21/04/2022	6	<0.4	6	5	13	<0.1	4	-	26	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP211	0.4 - 0.5 m	Fill	21/04/2022	7	<0.4	7	6	10	<0.1	4	-	23	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP212	0 - 0.2 m	Fill	21/04/2022	4	<0.4	5	8	12	<0.1	4	-	35	<25	<50	<100	120	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP212	1.4 - 1.5 m	Natural	21/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP213	0 - 0.2 m	Fill	21-04-22	<4	<0.4	8	7	8	<0.1	8	-	23	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP213	0.4 - 0.5 m	Fill	21/04/2022	9	<0.4	4	3	2	<0.1	1	-	6	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP214	0 - 0.1 m	Fill	21/04/2022	<4	<0.4	5	7	5	<0.1	2	-	29	<25	<50	<100	170	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP214	1.4 - 1.5 m	Natural	21/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
BD19/20220421	1.4 - 1.5 m	Natural	21/04/2022	<5	<1	<2	<5	<5	<0.1	<2	-	<5	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
TP215	0 - 0.1 m	Fill	21/04/2022	7	<0.4	6	4	9	<0.1	4	-	18	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP215	1 - 1.1 m	Natural	21/04/2022	<4	<0.4	1	<1	2	<0.1	<1	-	1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP216	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	7	7	9	<0.1	7	-	26	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP216	0.5 - 0.6 m	Fill	21/04/2022	10	<0.4	5	2	5	<0.1	2	-	16	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP217	0 - 0.2 m	Fill	21/04/2022	5	<0.4	8	7	11	<0.1	5	-	26	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP217	1.4 - 1.5 m	Natural	21/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP218	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	7	12	30	<0.1	5	-	81	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	0.6	<0.1	<0.1	<0.1
TP218	0.6 - 0.7 m	Fill	21/04/2022	8	<0.4	4	3	6	<0.1	1	-	14	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP219	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	9	11	9	<0.1	9	-	27	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	<0.1
TP219	1.2 - 1.3 m	Natural	21/04/2022	<4	<0.4	2	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP220	0 - 0.2 m	Fill	21/04/2022	<4	<0.4	8	8	14	<0.1	8	-	35	<25	130	270	340	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
TP220	0.5 - 0.6 m	Fill	21/04/2022	6	<0.4	3	3	4	<0.1	2	-	9	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<1	<0.05	<0.05	-	-	-	-	-	-
DP (2020)																															
BH103	0.15 - 0.25 m	Fill	23/01/2020	10	<0.4	8	37	3	<0.1	8	-	13	<25	150	250	300	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BH103	1.4 - 1.5 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BD1/20200120	1.4 - 1.5 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BH104	0.4 - 0.5 m	Fill	20/01/2020	6	<0.4	11	5	5	<0.1	10	-	13	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BH104	1.9 - 2.0 m	Natural	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BH106	0.4 - 0.5 m	Fill	22/01/2020	5	<0.4	8	2	14	<0.1	<1	-	2	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BD2/20200122	0.4 - 0.5 m	Fill	20/01/2020	<4	<0.4	7	2	9	<0.1	<1	-	<1	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	-	-	-	-	-	-
BH106	0.3 - 0.4 m	Fill	22/01/2020	10	<0.4	5	3	2	<0.1	2	-	7	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	-
BH107	0 - 0.1 m	Fill	22/01/2020	5	<0.4	9	8	16	<0.1	8	-	41	<25	<50	<100	<100	-	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.05	<5	<0.1	<0.1	<0.1	<0.1	-
Waste Classification Criteria [f]																															
CT1				100	20	100	NC	100	4	40	N/A	NC	650	NC	NC	NC	10000	10	288	600	NC	NC	1000	0.8	200	288	60	<50	4	4	<50
SCC1				500	100	1900	NC	1500	50	1050	N/A	NC	650	NC	NC	NC	10000	18	518	1080	NC	NC	1800	10	200	518	108	<50	7.5	7.5	<50
TCLP1				N/A	N/A	N/A	NC	N/A	N/A	N/A	2	NC	N/A	NC	NC	NC	N/A	N/A	N/A	N/A	NC	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance

- = Not tested NL = Non limiting NC = No criteria NA = Not applicable

Notes:

^ Refer to Table H2B for asesbtos results. Soils impacted with asebstos are classified as Special Waste (Asbestos).

a QA/QC replicate of sample listed directly below the primary sample

b Total chromium used as initial screen for chromium(VI).

c Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)

d Criteria for scheduled chemicals used as an initial screen

e Criteria for Chlorpyrifos used as initial screen

f All criteria are in the same units as the reported results

PQL Practical quantitation limit

CT1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste

SCC1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

TCLP1 NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste

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Table H1: Summary of Laboratory Results – Site Assessment NNPS

				Metals								TRH						BTEX				PAH			
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID	Depth	Soil Matrix	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Site Assessment Criteria - Residential A Land Use																									
HIL A				100	20	100	6,000	300	40	400	7,400													3	300
HSL A	0- <1m	(sand)												45	110			0.5	160	55	40	3			
EIL/ ESL		(coarse)		100		410	55	1,100		35	150		120	180		300	2,800	50	85	70	105	170	0.7		
Management Limit		(coarse)										700	1,000			2,500	10,000								
Direct Contact A														4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400			
Laboratory Results																									
BH1/0.05-0.15	0.05-0.15	FILL	23/01/2020	<4 100 100	<0.4 20 NC	**19** 100 410	**19** 6000 55	**7** 300 1100	<0.1 40 NC	**14** 400 35	**31** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	**0.1** NC 0.7	<0.5 3 NC	**1** 300 NC
BH3/0-0.1	0-0.1	FILL	22/01/2020	<4 100 100	<0.4 20 NC	**20** 100 410	**8** 6000 55	**8** 300 1100	<0.1 40 NC	**10** 400 35	**11** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH4/0.1-0.3	0.1-0.3	FILL	21/01/2020	<4 100 100	<0.4 20 NC	**20** 100 410	**13** 6000 55	**15** 300 1100	<0.1 40 NC	**11** 400 35	**22** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	**230** NC 300	**120** NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	**1.8** NC 0.7	**2.7** 3 NC	**14** 300 NC
BH4/1.5-1.6	1.5-1.6	SAND	21/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH5/0-0.1	0-0.1	FILL	22/01/2020	**6** 100 100	<0.4 20 NC	**3** 100 410	**2** 6000 55	**6** 300 1100	<0.1 40 NC	**1** 400 35	**12** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH6/0.4-0.5	0.4-0.5	SAND	22/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH6/2.4-2.5	2.4-2.5	Silty SAND	21/01/2020	**10** 100 100	<0.4 20 NC	**10** 100 410	<1 6000 55	**4** 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH7/0.4-0.5	0.4-0.5	SAND	22/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH8/0.05-0.15	0.05-0.15	FILL	22/01/2020	<4 100 100	<0.4 20 NC	**2** 100 410	**350** 6000 55	**8** 300 1100	<0.1 40 NC	**4** 400 35	**35** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH9/0.4-0.5	0.4-0.5	FILL	22/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH10/0.9-1.0	0.9-1.0	SAND	21/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BD1/20200121	0.9-1.0	SAND	21/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH11/0.9-1.0	0.9-1.0	FILL	22/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	<1 6000 55	<1 300 1100	<0.1 40 NC	<1 400 35	<1 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH12/0.05-0.15	0.05-0.15	FILL	22/01/2020	<4 100 100	<0.4 20 NC	<1 100 410	**2** 6000 55	**5** 300 1100	<0.1 40 NC	<1 400 35	**2** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	**120** NC 300	**110** NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC
BH13/0-0.1	0-0.1	FILL	23/01/2020	<4 100 100	<0.4 20 NC	**8** 100 410	**9** 6000 55	**11** 300 1100	<0.1 40 NC	**8** 400 35	**35** 7400 150	<25 NC NC	<50 NC 120	<25 45 180	<50 110 NC	<100 NC 300	<100 NC 2800	<0.2 0.5 50	<0.5 160 85	<1 55 70	<1 40 105	<1 3 170	<0.05 NC 0.7	<0.5 3 NC	<0.05 300 NC

Lab result
HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL A (Residential / Low Density), HSL A/B (Residential / Low - High Density), DC HSL A (Direct contact HSL A Residential (Low density))
EIL/ESL	NEPC, Schedule B1 - EIL UR/POS (Urban Residential and Public Open Space), ESL UR/POS (Urban Residential and Public Open Space)
ML	NEPC, Schedule B1 - ML R/P/POS (Residential, Parkland and Public Open Space)
a	QA/QC replicate of sample listed directly below the primary sample
b	Reported naphthalene laboratory result obtained from BTEXN suite
c	Criteria applies to DDT only

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Table H1: NNPS Summary of Laboratory Results – Site Assessment NNPS

				Phenol	OCP								OPP	PCB	Asbestos
				Phenol	DDT+DDE+DDD [c]	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Chlorpyriphos	Total PCB	Asbestos ID in soil >0.1g/kg
			PQL	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Soil Matrix	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg
Site Assessment Criteria - Residential A Land Use															
HIL A				100	240	6	50	270	10	6	10	300	160	1	-
HSL A	0- <1m	(sand)													
EIL/ ESL		(coarse)			180 [c]										
Management Limit		(coarse)													
Direct Contact A				3,000											
Laboratory Results															
BH1/0.05-0.15	0.05-0.15	FILL	23/01/2020	<5 100 NC	<0.1 240 180	<0.1 6 NC	<0.1 50 NC	<0.1 270 NC	<0.1 10 NC	<0.1 6 NC	<0.1 10 NC	<0.1 300 NC	<0.1 160 NC	<0.1 1 NC	NAD
BH3/0-0.1	0-0.1	FILL	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH4/0.1-0.3	0.1-0.3	FILL	21/01/2020	<5 100 NC	<0.1 240 180	<0.1 6 NC	<0.1 50 NC	<0.1 270 NC	<0.1 10 NC	<0.1 6 NC	<0.1 10 NC	<0.1 300 NC	<0.1 160 NC	<0.1 1 NC	NAD
BH4/1.5-1.6	1.5-1.6	SAND	21/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NT
BH5/0-0.1	0-0.1	FILL	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH6/0.4-0.5	0.4-0.5	SAND	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH6/2.4-2.5	2.4-2.5	Silty SAND	21/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NT
BH7/0.4-0.5	0.4-0.5	SAND	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH8/0.05-0.15	0.05-0.15	FILL	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH9/0.4-0.5	0.4-0.5	FILL	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH10/0.9-1.0	0.9-1.0	SAND	21/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NT
BD1/20200121	0.9-1.0	SAND	21/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NT
BH11/0.9-1.0	0.9-1.0	FILL	22/01/2020	<5 100 NC	<0.1 240 180	<0.1 6 NC	<0.1 50 NC	<0.1 270 NC	<0.1 10 NC	<0.1 6 NC	<0.1 10 NC	<0.1 300 NC	<0.1 160 NC	<0.1 1 NC	NAD
BH12/0.05-0.15	0.05-0.15	FILL	22/01/2020	NT 100 NC	NT 240 180	NT 6 NC	NT 50 NC	NT 270 NC	NT 10 NC	NT 6 NC	NT 10 NC	NT 300 NC	NT 160 NC	NT 1 NC	NAD
BH13/0-0.1	0-0.1	FILL	23/01/2020	<5 100 NC	<0.1 240 180	<0.1 6 NC	<0.1 50 NC	<0.1 270 NC	<0.1 10 NC	<0.1 6 NC	<0.1 10 NC	<0.1 300 NC	<0.1 160 NC	<0.1 1 NC	NAD

Lab result
HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL A (Residential / Low Density), HSL A/B (Residential / Low - High Density), DC HSL A (Direct contact HSL A Residential (Low dens
EIL/ESL	NEPC, Schedule B1 - EIL UR/POS (Urban Residential and Public Open Space), ESL UR/POS (Urban Residential and Public Open Space)
ML	NEPC, Schedule B1 - ML R/P/POS (Residential, Parkland and Public Open Space)
a	QA/QC replicate of sample listed directly below the primary sample
b	Reported naphthalene laboratory result obtained from BTEXN suite
c	Criteria applies to DDT only

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Table H2: Summary of Laboratory Results – Site Assessment NSHS

				Metals								TRH						BTEX				PAH			
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID	Depth	Soil Matrix	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Site Assessment Criteria - Residential A Land Use																									
HIL A				100	20	100	6,000	300	40	400	7,400													3	300
HSL A/B	0- <1m	(sand)												45	110			0.5	160	55	40	3			
EIL/ ESL		(coarse)		100		410	55	1,100		35	150		120	180		300	2,800	50	85	70	105	170	0.7		
Management Limit		(coarse)										700	1,000			2,500	10,000								
Direct Contact A														4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400			
Laboratory Results																									
BH103/0.15-0.25	0.15-0.25	FILL	20/01/2020	**10**	<0.4	**8**	**37**	**3**	<0.1	**8**	**13**	<25	**190**	<25	**190**	**440**	**210**	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH103/1.4-1.5	1.4-1.5	SAND	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BD1/20200120	1.4-1.5	SAND	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH104/0.4-0.5	0.4-0.5	FILL	20/01/2020	**6**	<0.4	**11**	**5**	**5**	<0.1	**10**	**13**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH104/1.9-2.0	1.9-2.0	SAND	20/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH105/1.3-1.4	1.3-1.4	FILL	20/01/2020	<4	<0.4	**1**	<1	**4**	<0.1	<1	**3**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH106/0.4-0.5	0.4-0.5	FILL	22/01/2020	**5**	<0.4	**8**	**2**	**14**	<0.1	<1	**2**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BD2/20200122	0.4-0.5	FILL	20/01/2020	<4	<0.4	**7**	**2**	**9**	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH106/0.3-0.4	0.3-0.4	FILL	22/01/2020	**10**	<0.4	**5**	**3**	**2**	<0.1	**2**	**7**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH107/0-0.1	0-0.1	FILL	22/01/2020	**5**	<0.4	**9**	**8**	**16**	<0.1	**8**	**41**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH108/0-0.1	0-0.1	FILL	22/01/2020	<4	<0.4	**5**	<1	**4**	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH109/0.3-0.5	0.3-0.5	FILL	22/01/2020	**8**	<0.4	**7**	**8**	**15**	**0.5**	**5**	**35**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	**0.1**
BH109/1.45-1.55	1.45-1.55	FILL	22/01/2020	**5**	<0.4	**6**	**2**	**5**	<0.1	**2**	**5**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH110/0.2-0.3	0.2-0.3	FILL	22/01/2020	**7**	<0.4	**12**	**7**	**7**	<0.1	**10**	**22**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH111/0.4-0.5	0.4-0.5	FILL	20/01/2020	**10**	**1**	**15**	**87**	**160**	**7.3**	**8**	**240**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH111/1.4-1.5	1.4-1.5	FILL	20/01/2020	<4	<0.4	**3**	**1**	**2**	<0.1	<1	**1**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH111/2.4-2.5	2.4-2.5	SAND	20/01/2020	**8**	<0.4	**2**	<1	<1	<0.1	**1**	**1**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH112/0-0.1	0-0.1	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH112/0.4-0.5	0.4-0.5	FILL	20/01/2020	**7**	<0.4	**11**	**19**	**41**	**0.1**	**6**	**110**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
A1	0.5-0.6	Fibre Cement Material	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH114/0-0.1	0-0.1	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH114/0.4-0.5	0.4-0.5	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH114/0.9-1.0	0.9-1.0	FILL	23/01/2020	**7**	<0.4	**10**	**6**	**8**	<0.1	**4**	**26**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH116/0.4-0.5	0.4-0.5	FILL	23/01/2020	**10**	<0.4	**5**	**3**	**2**	<0.1	**2**	**8**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH116/1.4-1.5	1.4-1.5	FILL	23/01/2020	**10**	<0.4	**5**	**3**	**2**	<0.1	**2**	**7**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH116/3.1-3.2	3.1-3.2	FILL	23/01/2020	**6**	<0.4	**8**	**6**	**7**	**0.1**	**4**	**17**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
BH117/0.4-0.5	0.4-0.5	FILL	23/01/2020	**11**	<0.4	**6**	**4**	**3**	<0.1	**3**	**11**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**	<0.5	**1.9**	
BH117/1.9-2.0	1.9-2.0	FILL	23/01/2020	**6**	<0.4	**8**	**7**	**9**	**0.5**	**5**	**25**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.3**	<0.5	**3**	
BD5/20200123	1.9-2.0	FILL	23/01/2020	**6**	<0.4	**8**	**7**	**7**	**0.2**	**6**	**19**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**	<0.5	**1.6**	
BH117/2.4-2.5	2.4-2.5	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Lab result
HIL/HSL value EIL/ESL value

HIL/HSL exceedance; EIL/ESL exceedance; HIL/HSL and EIL/ESL exceedance; ML exceedance; ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL A (Residential / Low Density), HSL A/B (Residential / Low - High Density), DC HSL A (Direct contact HSL A Residential (Low density))
EIL/ESL	NEPC, Schedule B1 - EIL UR/POS (Urban Residential and Public Open Space), ESL UR/POS (Urban Residential and Public Open Space)
ML	NEPC, Schedule B1 - ML R/P/POS (Residential, Parkland and Public Open Space)
a	QA/QC replicate of sample listed directly below the primary sample
b	Reported naphthalene laboratory result obtained from BTEXN suite

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Table H2: Summary of Laboratory Results – Site Assessment NSHS

				Phenol	OCP									OPP	PCB	Asbestos			
				Phenol	DDT+DDE+DDD [c]	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Chlorpyriphos	Total PCB	Asbestos ID in soil >0.1g/kg (40-50g sample)	ACM >7mm Estimation (500 ml sample)	Asbestos (500 ml)	Asbestos ID - materials
			PQL	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.001	-
Sample ID	Depth		Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg	type (g)	%(w/w)	type
Site Assessment Criteria - Residential A Land Use																		
HIL A				100	240	6	50	270	10	6	10	300	160	1	-	-	0.001	-
HSL A/B	0- <1m	(sand)																
EIL/ ESL		(coarse)			180 [c]													
Management Limit		(coarse)																
Direct Contact A				3,000														
Laboratory Results																		
BH103/0.15-0.25	0.15-0.25	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH103/1.4-1.5	1.4-1.5	SAND	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BD1/20200120	1.4-1.5	SAND	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH104/0.4-0.5	0.4-0.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH104/1.9-2.0	1.9-2.0	SAND	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH105/1.3-1.4	1.3-1.4	SAND	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH106/0.4-0.5	0.4-0.5	FILL	22/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BD2/20200122	0.4-0.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH106/0.3-0.4	0.3-0.4	FILL	22/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**NAD**	NT	NT	NT
BH107/0-0.1	0-0.1	FILL	22/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**NAD**	NT	NT	NT
BH108/0-0.1	0-0.1	FILL	22/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**NAD**	NT	NT	NT
BH109/0.3-0.5	0.3-0.5	FILL	22/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	**NAD**	**NAD**	NT
BH109/1.45-1.55	1.45-1.55	FILL	22/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH110/0.2-0.3	0.2-0.3	FILL	22/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH111/0.4-0.5	0.4-0.5	FILL	20/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**NAD**	NT	NT	NT
BH111/1.4-1.5	1.4-1.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH111/2.4-2.5	2.4-2.5	SAND	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH112/0-0.1	0-0.1	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	**NAD**	NT
BH112/0.4-0.5	0.4-0.5	FILL	20/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	**Chrysotile and amosite (0.541%)**	**<0.001**	NT
A1	0.5-0.6	Fibre Cement Material	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**Chrysotile**
BH114/0-0.1	0-0.1	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	**NAD**	NT
BH114/0.4-0.5	0.4-0.5	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	**NAD**	NT
BH114/0.9-1.0	0.9-1.0	SAND	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH116/0.4-0.5	0.4-0.5	FILL	23/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	**NAD**	**NAD**	NT
BH116/1.4-1.5	1.4-1.5	FILL	23/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**NAD**	NT	NT	NT
BH116/3.1-3.2	3.1-3.2	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BH117/0.4-0.5	0.4-0.5	FILL	23/01/2020	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	NT	NT
BH117/1.9-2.0	1.9-2.0	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	NT	NT	NT
BD5/20200123	1.9-2.0	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH117/2.4-2.5	2.4-2.5	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**NAD**	**NAD**	NT

Each cell: HIL/HSL value | EIL/ESL value | NC = No criteria

Lab result
HIL/HSL value EIL/ESL value

HIL/HSL exceedance; EIL/ESL exceedance; HIL/HSL and EIL/ESL exceedance; ML exceedance; ML and HIL/HSL or EIL/ESL exc

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL A (Residential / Low Density), HSL A/B (Residential / Low - High Density), DC HSL A (Direct contact HSL A Re
EIL/ESL	NEPC, Schedule B1 - EIL UR/POS (Urban Residential and Public Open Space), ESL UR/POS (Urban Residential and Public Open Space)
ML	NEPC, Schedule B1 - ML R/P/POS (Residential, Parkland and Public Open Space)
a	QA/QC replicate of sample listed directly below the primary sample
b	reported naphthalene laboratory result obtained from BTEXN suite
c	criteria applies to DDT only

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Table H3: Summary of Soil Laboratory Results - Acid Sulfate Soils

Borehole ID	Depth (m)	Soil Description	Screening Tests[1]								Chromium Reducible Sulfur	
			pH_F	pH_{FOX}	Reaction[2] Strength	Δ pH[3]	pH_{KCl}	TAA[4] (%S)	S_{NAS}[6] (%S)	ANC[7] (%S)	Scr %S[8]	Net Acidity (%S)[9]
Assessment Criteria*			<4	<3	-	>1	-	-	-	-	>0.03	
Results for NNPS												
BH4	0.1-0.3	Fill	7.7	7.1	High reaction	0.6	NT	NT	NT	NT	NT	NT
BH4	0.9-1.0	SAND	8.1	6.1	Medium reaction	**2**	NT	NT	NT	NT	NT	NT
BH4	1.5-1.6	SAND	8.2	6.1	Medium reaction	**2.1**	6.5	<0.01	NT	<0.05	0.02	0.02
BH4	2.4-2.5	SILTY SAND	6.3	5.3	Medium reaction	1	NT	NT	NT	NT	NT	NT
BH4	3.5-4.0	SILTY SAND	5.4	**3.1**	High reaction	**2.3**	NT	NT	NT	NT	NT	NT
BH4	4.5-5.0	SILTY SAND	6.2	**3.2**	High reaction	**3**	NT	NT	NT	NT	NT	NT
BH4	5.5-6.0	SILTY SAND	5.4	**2.7**	High reaction	**2.7**	NT	NT	NT	NT	NT	NT
BH4	6.5-7.0	SILTY SAND	5.5	**3**	High reaction	**2.5**	NT	NT	NT	NT	NT	NT
BH4	7.5-8.0	SILTY SAND	5.3	**2.9**	High reaction	**2.4**	5	0.01	NT	<0.05	0.03	**0.044**
BH9	0.4-0.5	Fill	4	**2.9**	Low reaction	**1.1**	3.3	0.08	<0.005	<0.05	<0.005	**0.081**
BH9	0.9-1.0	SAND	4.4	4.3	Low reaction	0.1	NT	NT	NT	NT	NT	NT
BH9	1.4-1.5	SAND	4.6	3.9	Low reaction	0.7	NT	NT	NT	NT	NT	NT
BH9	1.9-2.0	SAND	4.7	3.9	Low reaction	0.8	5.5	<0.01	NT	<0.05	<0.005	<0.005
BH9	2.4-2.5	SAND	4.2	3.8	Low reaction	0.4	NT	NT	NT	NT	NT	NT
BH9	2.9-3.0	SAND	4.5	5.1	Low reaction	-0.6	NT	NT	NT	NT	NT	NT
BH9	3.4-3.5	SILTY SAND	5	3.8	Medium reaction	**1.2**	NT	NT	NT	NT	NT	NT
BH9	3.5-4.0	SILTY SAND	5.4	**3.2**	High reaction	**2.2**	NT	NT	NT	NT	NT	NT
BH9	4.5-5.0	SILTY SAND	5.5	**3.2**	High reaction	**2.3**	NT	NT	NT	NT	NT	NT
BH9	5.5-6.0	SILTY SAND	5.4	**2.9**	High reaction	**2.5**	NT	NT	NT	NT	NT	NT
BH9	6.5-7.0	SILTY SAND	5.5	**2.9**	High reaction	**2.6**	NT	NT	NT	NT	NT	NT
BH9	7.5-8.0	SILTY SAND	5.2	**3.1**	High reaction	**2.1**	4.7	0.02	NT	<0.05	0.01	0.03
Results for NSHS												
BH103	0.15-0.25	Fill	10.8	9.9	Extreme reaction	0.9	NT	NT	NT	NT	NT	NT
BH104	0-0.1	Fill	7.6	5.7	High reaction	**1.9**	NT	NT	NT	NT	NT	NT
BH104	0.4-0.5	Fill	8.1	6.5	High reaction	**1.6**	NT	NT	NT	NT	NT	NT
BH104	0.95-1.0	Fill	8.5	8.3	Extreme reaction	0.2	NT	NT	NT	NT	NT	NT
BH104	1.4-1.5	SAND	8.4	6.1	Medium reaction	**2.3**	NT	NT	NT	NT	NT	NT
BH104	1.9-2.0		8.4	6.3	Low reaction	**2.1**	NT	NT	NT	NT	NT	NT
BH104	2.4-2.5	SAND	8	5.9	Medium reaction	**2.1**	6.8	<0.01	NT	0.08	<0.005	<0.005
BH104	3.5-4.0	SAND	7.6	6.5	High reaction	**1.1**	NT	NT	NT	NT	NT	NT
BH104	4.5-5.0	SAND	7.8	6.9	High reaction	0.9	NT	NT	NT	NT	NT	NT
BH104	5.5-6.0	SAND	7.9	6.9	High reaction	1	NT	NT	NT	NT	NT	NT
BH104	6.5-7.0	SAND	7.3	6.7	High reaction	0.6	NT	NT	NT	NT	NT	NT
BH104	7.5-8.0	SAND	6.9	5.5	High reaction	**1.4**	6.9	<0.01	NT	<0.05	<0.005	<0.005
BH109	1.45-1.55	FILL	8.1	6.5	High reaction	**1.6**	NT	NT	NT	NT	NT	NT
BH109	2.4-2.5	SAND	6.6	**1.9**	Extreme reaction	**4.7**	4.5	0.02	NT	<0.05	**0.24**	**0.26**
BH109	2.9-3.0	SAND	7.7	6.5	High reaction	**1.2**	9.5	<0.01	NT	3.1	0.20	<0.005
BH111	0.4-0.5	FILL	8	6.6	High reaction	**1.4**	NT	NT	NT	NT	NT	NT
BH111	0.9-1.0	FILL	8.5	8.7	Extreme reaction	-0.2	NT	NT	NT	NT	NT	NT
BH111	1.4-1.5	FILL	8	6.9	High reaction	**1.1**	9.4	<0.01	NT	3.4	0.03	<0.005
BH111	1.9-2.0	SAND	7.9	5.4	Low reaction	**2.5**	NT	NT	NT	NT	NT	NT
BH111	2.4-2.5	SAND	7.1	**1.6**	High reaction	**5.5**	4.9	<0.01	NT	<0.05	**0.07**	**0.073**
BH111	3.0-3.5	SAND	7.7	6.4	Extreme reaction	**1.3**	9.6	<0.01	NT	2	**0.32**	<0.005
BH111	4.0-4.5	SAND	7.9	6.8	High reaction	**1.1**	NT	NT	NT	NT	NT	NT
BH111	5.0-5.5	SAND	7.9	7.1	High reaction	0.8	NT	NT	NT	NT	NT	NT
BH111	6.0-6.5	SAND	7.8	7.1	High reaction	0.7	NT	NT	NT	NT	NT	NT
BH111	7.0-7.5	SAND	8	7.2	High reaction	0.8	NT	NT	NT	NT	NT	NT
BH111	7.5-8.0	SAND	8.1	7.1	High reaction	1	NT	NT	NT	NT	NT	NT

Notes:

1. Screening Tests undertaken by ELS
2. Slight – indicates no or slight effervescence in hydrogen peroxide
   Moderate – indicates moderate effervescence in hydrogen peroxide
   High – indicates vigorous effervescence in hydrogen peroxide
   Extrene - indicates very vigorous effervescence in hydrogen peroxide
3. Δ pH – pHF - pHFOX
4. TAA – titratable actual acidity
5. TPA – titratable peroxide acidity;
6. NAS – net acid soluable sulfur (reported for pHkCl < 4.5)
7. ANCe – excess acid neutralising capacity (reported for pHkCl > 6.5).
8. Scr - Chromium Reducible Sulfur
9. Net Acidity = TAA + Scr + Snas. (It should be noted that ANC is excluded as per WA Guidelines)

* ASSMAC (1998) action criteria for coarse (sand) materials

NT	Not Tested
	Exceedance of field screening criteria
0.03	Exceedance of criteria.

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Table H4: Summary of Laboratory Results – Preliminary Waste Classification Assessment NNPS

				Metals								TRH		BTEX												
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C9	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)	Benzo(a)pyrene (BaP) in TCLP	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b,j+k)fluora
			PQL	4	0.4	1	1	1	0.1	1	1	25	50	0.2	0.5	1	2	1	3	0.05	0.001	0.1	0.1	0.1	0.1	0.
Sample ID	Depth	Soil Matrix	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg
Waste Classification Criteria																										
CT1 (mg/kg)				100	20	100	NC	100	4	40	NC	650	10000	10	288	600	N/A	N/A	1000	0.8	0.8	N/A	N/A	N/A	N/A	N/
SCC1 (mg/kg)				500	100	1900	NC	1500	50	1050	NC	650	10000	18	518	1080	N/A	N/A	1800	10	10	N/A	N/A	N/A	N/A	N/
TCLP1 (mg/L)				N/A	N/A	N/A	NC	N/A	N/A	N/A	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.04	N/A	N/A	N/A	N/A	N/
Published Background Values																										
ANZECC (1992)^				0.2-30	0.04-2	0.5-110	1-190	<2-200	0.001-0.1	2-400	2-180	<PQL	<PQL	0.05 - 1	0.1 - 1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<P
ANZECC (2000)				1-53	0.016-0.78	2.5-673	0.4-412	2-81	-	1-517	1-263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory Results																										
BH1/0.05-0.15	0.05-0.15	FILL	23/01/2020	<4	<0.4	**19**	**19**	**7**	<0.1	**14**	**31**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	**0.1**	NT	<0.1	<0.1	<0.1	**0.1**	<0
BH3/0-0.1	0-0.1	FILL	22/01/2020	<4	<0.4	**20**	**8**	**8**	<0.1	**10**	**11**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH4/0.1-0.3	0.1-0.3	FILL	21/01/2020	<4	<0.4	**20**	**13**	**15**	<0.1	**11**	**22**	<25	**270**	<0.2	<0.5	<1	<2	<1	<3	**1.8**	<0.001	<0.1	**0.1**	**0.2**	**1.2**	**2.**
BH4/1.5-1.6	1.5-1.6	SAND	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH5/0-0.1	0-0.1	FILL	22/01/2020	**6**	<0.4	**3**	**2**	**6**	<0.1	**1**	**12**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH6/0.4-0.5	0.4-0.5	SAND	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH6/2.4-2.5	2.4-2.5	Silty SAND	21/01/2020	**10**	<0.4	**10**	<1	**4**	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH7/0.4-0.5	0.4-0.5	SAND	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH8/0.05-0.15	0.05-0.15	FILL	22/01/2020	<4	<0.4	**2**	**350**	**8**	<0.1	**4**	**35**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH9/0.4-0.5	0.4-0.5	FILL	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH10/0.9-1.0	0.9-1.0	SAND	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BD1/20200121	0.9-1.0	SAND	21/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH11/0.9-1.0	0.9-1.0	FILL	22/01/2020	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH12/0.05-0.15	0.05-0.15	FILL	22/01/2020	<4	<0.4	<1	**2**	**5**	<0.1	<1	**2**	<25	**110**	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0
BH13/0-0.1	0-0.1	FILL	23/01/2020	<4	<0.4	8	9	11	<0.1	8	35	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	NT	<0.1	<0.1	<0.1	<0.1	<0

Notes:

CT1 exceedance TCLP1 and/or SCC1 exceedance Asbestos detection

NT = Not tested NC = No criteria AD = Asbestos detected NAD = No asbestos detected

*	QA/QC replicate of sample listed directly below the primary sample
**	Total chromium used as initial screen for chromium(VI).
***	Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)
****	Criteria for scheduled chemicals used as an initial screen
*****	Criteria for Chlorpyrifos used as initial screen
PQL	Practical quantitation limit
CT1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
SCC1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
^	For organics with no published background levels, the PQL has been used as a screening level

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Table H4: Summary of Laboratory Results – Preliminary Waste Classification Assessment NNPS

				PAH											Phenol	OCP		OPP	PCB	
				nthene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	Total Analysed OPP	Total PCB	Asbestos ID in soil >0.1g/kg
			PQL	.2	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.05	5	0.1	0.1	0.1	0.1	0.1
Sample ID	Depth	Soil Matrix	Sampled Date	/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg
Waste Classification Criteria																				
CT1 (mg/kg)				/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	200	288	60	<50	4	<50	NIL
SCC1 (mg/kg)				/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	200	518	108	<50	7.5	<50	NIL
TCLP1 (mg/L)				/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Published Background Values																				
ANZECC (1992)^				QL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.95-5	0.03 – 0.5	<0.001 - <0.97	<PQL	<PQL	0.02 – 0.1	NIL
ANZECC (2000)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory Results																				
BH1/0.05-0.15	0.05-0.15	FILL	23/01/2020	.2	**0.1**	**0.2**	<0.1	**0.3**	<0.1	<0.1	<1	<0.1	**0.2**	**1**	<5	<0.1	<0.1	<0.1	<0.1	NAD
BH3/0-0.1	0-0.1	FILL	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH4/0.1-0.3	0.1-0.3	FILL	21/01/2020	**.5**	**1.4**	**1.4**	**0.3**	**1.7**	<0.1	**1.1**	<1	**0.4**	**1.9**	**14**	<5	<0.1	<0.1	<0.1	<0.1	NAD
BH4/1.5-1.6	1.5-1.6	SAND	21/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT
BH5/0-0.1	0-0.1	FILL	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH6/0.4-0.5	0.4-0.5	SAND	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH6/2.4-2.5	2.4-2.5	Silty SAND	21/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT
BH7/0.4-0.5	0.4-0.5	SAND	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH8/0.05-0.15	0.05-0.15	FILL	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH9/0.4-0.5	0.4-0.5	FILL	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH10/0.9-1.0	0.9-1.0	SAND	21/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT
BD1/20200121	0.9-1.0	SAND	21/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT
BH11/0.9-1.0	0.9-1.0	FILL	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD
BH12/0.05-0.15	0.05-0.15	FILL	22/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD
BH13/0-0.1	0-0.1	FILL	23/01/2020	.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD

Notes: CT1 exceedance TCLP1 and/or SCC1 exceedance Asbestos detection

NT = Not tested

*	QA/QC replicate of sample listed directly below the primary sample
**	Total chromium used as initial screen for chromium(VI).
***	Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)
****	Criteria for scheduled chemicals used as an initial screen
*****	Criteria for Chlorpyrifos used as initial screen
PQL	Practical quantitation limit
CT1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
SCC1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
^	For organics with no published background levels, the PQL has been used as a screening level

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Table H5: Summary of Laboratory Results – Preliminary Waste Classification Assessment NSHS

				Metals										TRH		BTEX										
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Lead in TCLP	Mercury (inorganic)	Mercury in TCLP	Nickel	Zinc	TRH C6 - C9	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene
			PQL	4	0.4	1	1	1	0.03	0.1	0.0005	1	1	25	50	0.2	0.5	1	2	1	3	0.05	0.1	0.1	0.1	0.1
Sample ID	Depth	Soil Matrix	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Waste Classification Criteria																										
CT1 (mg/kg)				100	20	100	NC	100	-	4	-	40	NC	650	10000	10	288	600	N/A	N/A	1000	0.8	N/A	N/A	N/A	N/A
SCC1 (mg/kg)				500	100	1900	NC	1500	1500	50	50	1050	NC	650	10000	18	518	1080	N/A	N/A	1800	10	N/A	N/A	N/A	N/A
TCLP1 (mg/L)				N/A	N/A	N/A	NC	N/A	5	N/A	0.2	N/A	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Published Background Values																										
ANZECC (1992)				0.2-30	0.04-2	0.5-110	1-190	<2-200	<PQL	0.001-0.1	<PQL	2-400	2<PQL180	<PQL	<PQL	0.05 - 1	0.1 - 1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
ANZECC (2000)				1-53	0.016-0.78	2.5-673	0.4-412	2-81	-	-	-	1-517	1-263	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory Results																										
BH103/0.15-0.25	0.15-0.25	FILL	20-01-20	**10**	<0.4	**8**	**37**	**3**	NT	<0.1	NT	**8**	**13**	<25	**700**	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH103/1.4-1.5	1.4-1.5	SAND	20/01/2020	<4	<0.4	<1	<1	<1	NT	<0.1	NT	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BD1/20200120	0.4-0.5	SAND	20/01/2020	<4	<0.4	<1	<1	<1	NT	<0.1	NT	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH104/0.4-0.5	0.4-0.5	FILL	20/01/2020	**6**	<0.4	**11**	**5**	**5**	NT	<0.1	NT	**10**	**13**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH104/1.9-2.0	1.9-2.0	SAND	20/01/2020	<4	<0.4	<1	<1	<1	NT	<0.1	NT	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH105/1.3-1.4	1.3-1.4	FILL	20/01/2020	<4	<0.4	**1**	<1	**4**	NT	<0.1	NT	<1	**3**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH106/0.3-0.4	0.3-0.4	FILL	22/01/2020	**10**	<0.4	**5**	**3**	**2**	NT	<0.1	NT	**2**	**7**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH106/0.4-0.5	0.4-0.5	FILL	22/01/2020	**5**	<0.4	**8**	**2**	**14**	NT	<0.1	NT	<1	**2**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BD2/20200122	0.4-0.5	FILL	20/01/2020	<4	<0.4	**7**	**2**	**9**	NT	<0.1	NT	<1	<1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH107/0-0.1	0-0.1	FILL	22/01/2020	**5**	<0.4	**9**	**8**	**16**	NT	<0.1	NT	**8**	**41**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH108/0-0.1	0-0.1	FILL	22/01/2020	<4	<0.4	**5**	<1	**4**	NT	<0.1	NT	<1	**<1**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH109/0.3-0.5	0.3-0.5	FILL	22/01/2020	**8**	<0.4	**7**	**8**	**15**	NT	**0.5**	NT	**5**	**35**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH109/1.45-1.55	1.45-1.55	FILL	22/01/2020	**5**	<0.4	**6**	**2**	**5**	NT	<0.1	NT	**2**	**5**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH110/0.2-0.3	0.2-0.3	FILL	22/01/2020	**7**	<0.4	**12**	**7**	**7**	NT	<0.1	NT	**10**	**22**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH111/0.4-0.5	0.4-0.5	FILL	20/01/2020	**10**	**1**	**15**	**87**	**160**	**0.05**	**7.3**	<0.0005	**8**	**240**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH111/1.4-1.5	1.4-1.5	FILL	20/01/2020	<4	<0.4	**3**	**1**	**2**	NT	<0.1	NT	<1	**1**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH111/2.4-2.5	2.4-2.5	SAND	20/01/2020	8	<0.4	2	<1	<1	NT	<0.1	NT	1	1	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH112/0-0.1	0-0.1	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH112/0.4-0.5	0.4-0.5	FILL	20/01/2020	**7**	<0.4	**11**	**19**	**41**	NT	**0.1**	NT	**6**	**110**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
A1	0.5-0.6	FILL	20-02-20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH114/0.4-0.5	0.4-0.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH114/0-0.1	0-0.1	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH114/0.9-1.0	0.9-1.0	FILL	23/01/2020	**7**	<0.4	**10**	**6**	**8**	NT	<0.1	NT	**4**	**26**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH116/0.4-0.5	0.4-0.5	FILL	23/01/2020	**10**	<0.4	**5**	**3**	**2**	NT	<0.1	NT	**2**	**8**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH116/1.4-1.5	1.4-1.5	FILL	23/01/2020	**10**	<0.4	**5**	**3**	**2**	NT	<0.1	NT	**2**	**7**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH116/3.1-3.2	3.1-3.2	FILL	23/01/2020	**6**	<0.4	**8**	**6**	**7**	NT	**0.1**	NT	**4**	**17**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	<0.05	<0.1	<0.1	<0.1	<0.1
BH117/0.4-0.5	0.4-0.5	FILL	23/01/2020	**11**	<0.4	**6**	**4**	**3**	NT	<0.1	NT	**3**	**11**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	**0.2**	<0.1	<0.1	**0.1**	**0.2**
BH117/1.9-2.0	1.9-2.0	FILL	23/01/2020	**6**	<0.4	**8**	**7**	**9**	NT	**0.5**	NT	**5**	**25**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	**0.3**	<0.1	<0.1	<0.1	**0.4**
BD5/20200123	1.9-2.0	FILL	22/01/2020	**6**	<0.4	**8**	**7**	**7**	NT	**0.2**	NT	**6**	**19**	<25	<50	<0.2	<0.5	<1	<2	<1	<3	**0.2**	<0.1	<0.1	<0.1	**0.2**
BH117/2.4-2.5	2.4-2.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

CT1 exceedance TCLP1 and/or SCC1 exceedance Asbestos detection

NT = Not tested NC = No criteria AD = Asbestos detected NAD = No asbestos detected

*	QA/QC replicate of sample listed directly below the primary sample
**	Total chromium used as initial screen for chromium(VI).
***	Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)
****	Criteria for scheduled chemicals used as an initial screen
*****	Criteria for Chlorpyrifos used as initial screen
PQL	Practical quantitation limit
CT1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
SCC1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
TCLP1	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste, Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
^	For organics with no published background levels, the PQL has been used as a screening level

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Table H5: Summary of Laboratory Results – Preliminary Waste Classification Assessment NSHS

				PAH											Phenol	OCP		OPP	PCB	Asbestos			
				Benzo(b,j+k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	Total Analysed OPP	Total PCB	Asbestos ID in soil >0.1g/kg (40g sample)	ACM >7mm Estimation (500 ml sample)	Asbestos (500ml)	Asbestos ID - materials
			PQL	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.05	5	0.1	0.1	0.1	0.1	0.1	0.01	0.01	-
Sample ID	Depth	Soil Matrix	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg	type (g)	%w/w	type
Waste Classification Criteria																							
CT1 (mg/kg)				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	200	288	60	<50	4	<50	NIL	NIL	NIL	NIL
SCC1 (mg/kg)				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	200	518	108	<50	7.5	<50	NIL	NIL	NIL	NIL
TCLP1 (mg/L)				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Published Background Values																							
ANZECC (1992)				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.95-5	0.03 – 0.5	<0.001-<0.97	<PQL	<PQL	0.02 – 0.1	<PQL	NIL	NIL	NIL
ANZECC (2000)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- -	
Laboratory Results																							
BH103/0.15-0.25	0.15-0.25	FILL	20-01-20	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH103/1.4-1.5	1.4-1.5	SAND	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT
BD1/20200120	0.4-0.5	SAND	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH104/0.4-0.5	0.4-0.5	FILL	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH104/1.9-2.0	1.9-2.0	SAND	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH105/1.3-1.4	1.3-1.4	FILL	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH106/0.3-0.4	0.3-0.4	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD	NT	NT	NT
BH106/0.4-0.5	0.4-0.5	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BD2/20200122	0.4-0.5	FILL	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH107/0-0.1	0-0.1	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD	NT	NT	NT
BH108/0-0.1	0-0.1	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD	NT	NT	NT
BH109/0.3-0.5	0.3-0.5	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	**0.1**	**0.1**	<5	<0.1	<0.1	<0.1	<0.1	NT	NAD	NAD	NT
BH109/1.45-1.55	1.45-1.55	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH110/0.2-0.3	0.2-0.3	FILL	22/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH111/0.4-0.5	0.4-0.5	FILL	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD	NT	NT	NT
BH111/1.4-1.5	1.4-1.5	FILL	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH111/2.4-2.5	2.4-2.5	SAND	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH112/0-0.1	0-0.1	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NAD	NAD	NT
BH112/0.4-0.5	0.4-0.5	FILL	20/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NT	**Chrysotile and amosite asbestos (0.5415)**	**<0.001**	NT
A1	0.5-0.6	FILL	20-02-20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**Chrysotile**
BH114/0.4-0.5	0.4-0.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NAD	NAD	NT
BH114/0-0.1	0-0.1	FILL	23/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NAD	NAD	NT
BH114/0.9-1.0	0.9-1.0	FILL	23/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH116/0.4-0.5	0.4-0.5	FILL	23/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NT	NAD	NAD	NT
BH116/1.4-1.5	1.4-1.5	FILL	23/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	<5	<0.1	<0.1	<0.1	<0.1	NAD	NT	NT	NT
BH116/3.1-3.2	3.1-3.2	FILL	23/01/2020	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.05	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BH117/0.4-0.5	0.4-0.5	FILL	23/01/2020	<0.2	<0.1	**0.2**	<0.1	**0.3**	<0.1	<0.1	<1	**0.5**	**0.5**	**1.9**	<5	<0.1	<0.1	<0.1	<0.1	NT	NT	NT	NT
BH117/1.9-2.0	1.9-2.0	FILL	23/01/2020	**0.3**	**0.2**	**0.3**	<0.1	**0.4**	<0.1	**0.1**	<1	**0.3**	**0.7**	**3**	NT	NT	NT	NT	NT	NAD	NT	NT	NT
BD5/20200123	1.9-2.0	FILL	22/01/2020	<0.2	**0.1**	**0.2**	<0.1	**0.2**	<0.1	<0.1	<1	**0.2**	**0.5**	**1.6**	NT	NT	NT	NT	NT	NT	NT	NT	NT
BH117/2.4-2.5	2.4-2.5	FILL	20/01/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NAD	NAD	NT

Notes:

CT1 exceedance TCLP1 and/or SCC1 exceedance Asbestos detection

NT = Not tested NC = No criteria AD = Asbestos detected NAD = No asbestos detected

*	QA/QC replicate of sample listed directly below the primary sample
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^	For organics with no published background levels, the PQL has been used as a screening level

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Table H6: Summary of Laboratory results - Groundwater Site Assessment

		Dissolved Heavy Metals								Total Recoverable Hydrocarbons							BTEX					Polycyclic Aromatic Hydrocarbon			OCPs and OPPs								
		Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Sum* (C10 - C36)	C6 - C10 less BTEX [F1]	>C10-C16 less Naphthalene [F2]	Benzene	Toluene	Ethylbenzene	m+p xylene	o-xylene	Naphthalene	Benzo(a)pyrene	Total PAH	Aldrin	Dieldrin	Chlordane	DDT	Heptachlor	All Other OCPs	All Other OPPs	All PCBs	Phenols
	PQL	1	0.1	1	1	1	0.05	1	1	10	50	100	100	250	10	50	1	1	1	2	1	1	1	-	0.001	0.001	0.001	0.001	0.001	-	-	2	0.05
Sample ID	Sampled Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
Site Assessment Criteria																																	
ANZG (2018) Marine Water Default Guideline Values for 95% species protection^		2.3as AsIII)[b]	1.4	50.7 as Cr(III)	1.3	11.4	0.1	13.2	28.4	-	-	-	-	-	-	-	500[a]	180	80	75	350[b]	50 [ac]	0.1 [ab]	-	0.003 [b]	0.01 [b]	0.001 [b]	0.0004 [b]	0.0004 [b]	0.0004 [b]	0.009 [cf]	0.01 [bd]	400 [e]
NEPM (2013) Groundwater HSL A for Vapour Intrusion, Sand		-	-	-	-	-	-	-	-		-	-	-	-	1	1	0.8	NL	NL	NL		NL	-	-	-	-	-	-	-	-		-
Laboratory Results																																	
Results for NNPS																																	
BH4	2/03/2020	**3**	<0.1	<1	**2**	<1	<0.05	**1**	**5**	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<PQL	<PQL	<0.01	<0.05
BH6	2/03/2020	**12**	<0.1	**2**	<1	1	<0.05	<1	**8**	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.05
BH10	2/03/2020	**13**	<0.1	**5**	<1	<1	<0.05	<1	**4**	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.05
Results for NSHS																																	
BH104	2/03/2020	**4**	<0.1	<1	<1	<1	<0.05	<1	**5**	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<PQL	<PQL	<0.01	<0.05
BH106	2/03/2020	<1	<0.1	<1	<1	<1	<0.05	<1	**3**	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.05
BD1/20200124[#]	2/03/2020	<1	<0.1	<1	<1	<1	<0.05	<1	<1	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.05
BH111	2/03/2020	1	<0.1	<1	1	<1	<0.05	<1	**4**	<10	<50	<100	<100	<250	<10	<50	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.05

Notes:

PQL	Practical Quantitation Limit
-	Not analysed / No value
	Exceedance of ANZG (2018) default guideline values
*	Sum of C10 - C36 is equal to the concentration of detects + PQL of non detects
^	freshwater values used where marine data not available
#	Blind replicate sample collected from the same llocation as the sample listed directly above in this table
a	ANZG (2018) Default Guideline Values for a slightly to moderately disturbed system based on 99% level of species protection (bioaccumulation)
b	Insufficient data for reliable trigger value; unknown reliatbility or low reliability value used
c	Moderate reliability value
d	DGV for Aroclor 1254 as it is the most conservative value
e	ANZG (2018) Default Guideline Values for a slightly to moderately disturbed system based on 95% level of species protection (bioaccumulation)
f	DGV for Chlorpyrifos as it is the most conservative value

Appendix I

Data Quality Assurance and Quality Control

Appendix I
Data Quality Objectives
Narrabeen Education Precinct, Namona Street, Narrabeen

I1.0 Field and Laboratory Data Quality Assurance and Quality Control

The field and laboratory data quality assurance and quality control (QA / QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included in Tables QA1 to QA4 at the end of this appendix.

Table 1: Field and Laboratory Quality Control

Item	Evaluation / Acceptance Criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	5% of primary samples; <30% RPD	C PC
Inter-laboratory replicates	5% of primary samples; <30% RPD	C PC
Trip Spikes	1 per sampling event; 60-140% recovery	C[1]
Trip Blanks	1 per sampling event; <PQL	C[1]
Rinsates	1 per sampling event; <PQL	PC[2]
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Laboratory Duplicate	1 per lab batch; As laboratory certificate	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:
C = compliance; PC = partial compliance; NC = non-compliance
1. Initial sampling event conducted over multiple days; trip spike and blank taken on one day.
2. Rinsate taken during initial sampling event only.

The RPD results were all within the acceptable range, with the exception of those indicated in Table QA1. The exceedances are not, however, considered to be of concern given that:

- The typically low actual differences in the concentrations of the replicate pairs where some RPD exceedances occurred, including concentrations being less than five times the PQL which the laboratory does not consider to be significant;
- Where concentrations and RPD's were higher these were associated with replicate pairs being collected from fill soils which by its nature is heterogeneous;
- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater variability can be expected;
- Most of the recorded concentrations being relatively close to the PQL;
- The majority of RPDs within a replicate pair being within the acceptable limits; and
- All other QA / QC parameters met the DQIs.

In summary, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

I2.0 Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole and test pit logs, sample location plan and chain of custody records.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the Conceptual Site Model (CSM).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced sampler used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQOs.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed DP's standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been generally complied with.

I3.0 Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQIs it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

I4.0 References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

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Table QA1: Relative Percentage Difference Results – Intra- and Inter-laboratory Replicates

				Metals								TRH						BTEX						PAH			
				Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
Sample ID	Depth	Matrix	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Intra-laboratory Replicates																											
BD2/20220413	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
BH1006	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			RPD	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
BD4/20220414	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
BH1010	0.7 - 0.8 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			RPD	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
BD10/20220419	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	2	8	6	<0.1	<1	46	<25	<50	<25	<50	540	490	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
TP1001A	0 - 0.2 m	Fill	19/04/2022	<4	<0.4	<1	5	2	<0.1	<1	30	<25	50	<25	50	480	190	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	0	0	1	3	4	0	0	16	0	0	0	0	60	300	0	0	0	0	0	0	0	0	0	0
			RPD	0%	0%	**67%**	**46%**	**100%**	0%	0%	**42%**	0%	0%	0%	0%	12%	**88%**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
BD23/20220714	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	**5**	**4**	**11**	<0.1	**2**	**21**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
BH1026	0 - 0.2 m	Fill	14/07/2022	<4	<0.4	**7**	**6**	**10**	<0.1	**5**	**18**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	0	0	2	2	1	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			RPD	0%	0%	33%	**40%**	10%	0%	**86%**	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inter-laboratory Replicates																											
BD1/20220413	1.1 - 1.2 m	Natural	13/04/2022	<5	<1	<2	<5	<5	<0.1	<2	<5	<10	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-
TP1003	1.1 - 1.2 m	Natural	13/04/2022	<4	<0.4	1	<1	<1	<0.1	<1	<1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	1	0.6	1	4	4	0	1	4	15	0	15	0	0	0	0	0	0.5	0.5	1.5	0.5	0.9	0.45	0	-
			RPD	0%	0%	**67%**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
BD7/20220414	0.5 - 0.6 m	Natural	14/04/2022	<5	<1	<2	<5	<5	<0.1	<2	<5	<10	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-
BH1016	0.5 - 0.6 m	Natural	14/04/2022	<4	<0.4	<1	<1	<1	<0.1	<1	2	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	1	0.6	1	4	4	0	1	3	15	0	15	0	0	0	0	0	0.5	0.5	1.5	0.5	0.9	0.45	0	-
			RPD	0%	0%	0%	0%	0%	0%	0%	**86%**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
BD14/20220420	0.2 - 0.3 m	Fill	20/04/2022	9	<1	21	7	6	<0.1	17	22	<10	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	-
BH206	0.2 - 0.3 m	Fill	20/04/2022	4	<0.4	32	14	3	<0.1	33	24	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<2	<1	<0.1	<0.05	<0.5	<0.05
			Difference	5	0.6	11	7	3	0	16	2	15	0	15	0	0	0	0	0	0.5	0.5	1.5	0.5	0.9	0.45	0	-
			RPD	**77%**	0%	**42%**	**67%**	**67%**	0%	**64%**	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-

Table QA2: Trip Blank Results - Soils (mg/kg)

Sample ID	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene
TB1/20220421	<0.2	<0.5	<1	<1	<2
TB2/20220714	<0.2	<0.5	<1	<1	<2

Table QA3: Trip Spike Results - Soils (% Recovery)

Sample ID	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene
TS1/20220421	98	104	100	101	102
TS2/20220714	96	97	100	99	100

Table QA4: Rinsate Blank Results

	Metals								TRH					BTEX				
Sample ID	Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	C10-C36 recoverable hydrocarbons	Benzene	Toluene	Ethylbenzene	m+p-Xylene	o-Xylene
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
RB1/20220421	<0.05	<0.01	<0.01	<0.01	<0.03	<0.0005	<0.02	<0.02	<10	<50	<100	<100	<50	<1	<1	<1	<2	<1

Appendix J

PID Calibration Certificates

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CALIBRATION RECORD

Project:	86973.04	"
Project Number:	Various	"
Calibrated Equipment		
Model:	Minirae Lite	
Serial No.:	595 - 004553	"
DP Reference:	PID4.	"
Other:	10.6eV Lamp	
Calibration		
Date(s):	13/4	20/4
Operator(s):	HD	HD
Zero Gas:	ambient air	
Span Gas:	isobutylene	
Span Gas Concentration:	100	
Response Factor:	1.0	
Pre-calibration Reading		99.3
Post-calibration Reading	99.9	100.0
Approved:	HD	HS
Date:	13/4/22	20/4/22

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CALIBRATION RECORD

Project:	Narrabeen
Project Number:	86973.04

Calibrated Equipment

Model:	Mini Rae Lite.
Serial No.:	595-002219
DP Reference:	PID3
Other:	10.6eV Lamp

Calibration

Date(s):	13/7/22
Operator(s):	HD
Zero Gas:	ambient air
Span Gas:	isobutylene
Span Gas Concentration:	100
Response Factor:	1.0
Pre-calibration Reading:	100.5
Post-calibration Reading:	99.9

Approved:	HD
Date:	13/7/22

Appendix K

Laboratory Documentation

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 293616

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	87 Soil
Date samples received	14/04/2022
Date completed instructions received	20/04/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	28/04/2022
Date of Issue	28/04/2022

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Panika Wongchanda
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Lucy Zhu, Asbestos Supervisor
Priya Samarawickrama, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-1	293616-3	293616-8	293616-10	293616-11
Your Reference	UNITS	TP1001	BH1002	TP1003	TP1003	TP1003
Depth		0-0.2	0.1-0.2	0.3-0.4	0.7-0.8	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	86	83	91	90

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-13	293616-18	293616-23	293616-25	293616-26
Your Reference	UNITS	BH1004	TP1005	BH1006	BH1006	BH1006
Depth		0.2-0.3	0-0.2	0.1-0.2	0.6-0.7	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	93	97	89	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-27	293616-28	293616-30	293616-38	293616-39
Your Reference	UNITS	TP1007	TP1007	TP1008	BH1009	BH1009
Depth		0-0.2	0.5-0.6	0-0.2	0.2-0.3	0.7-0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	75	90	82	95	99

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-43	293616-44	293616-47	293616-50	293616-51
Your Reference	UNITS	BH1010	BH1010	BH1013	BH1014	BH1014
Depth		0.2-0.3	0.7-0.8	0.1-0.2	0.05-0.15	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	95	95	98	99

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-53	293616-55	293616-57	293616-58	293616-60
Your Reference	UNITS	BH1015	BH1015	BH1016	BH1016	TP1017
Depth		0-0.2	0.6-0.7	0-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	94	90	93	99

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-62	293616-63	293616-65	293616-73	293616-74
Your Reference	UNITS	TP1017	TP1017	TP1018	BH1023	BH1023
Depth		0.4-0.5	0.9-1	0-0.2	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	101	91	97	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		293616-77	293616-79	293616-85	293616-86	293616-87
Your Reference	UNITS	BD2/20220413	BD4/20220414	SS1	SS2	SS3
Depth		.	.	.	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	.	.	.
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	101	95	106	109

svTRH (C10-C40) in Soil						
Our Reference		293616-1	293616-3	293616-8	293616-10	293616-11
Your Reference	UNITS	TP1001	BH1002	TP1003	TP1003	TP1003
Depth		0-0.2	0.1-0.2	0.3-0.4	0.7-0.8	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	87	86	87	86

svTRH (C10-C40) in Soil						
Our Reference		293616-13	293616-18	293616-23	293616-25	293616-26
Your Reference	UNITS	BH1004	TP1005	BH1006	BH1006	BH1006
Depth		0.2-0.3	0-0.2	0.1-0.2	0.6-0.7	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	88	87	84	86	89

svTRH (C10-C40) in Soil						
Our Reference		293616-27	293616-28	293616-30	293616-38	293616-39
Your Reference	UNITS	TP1007	TP1007	TP1008	BH1009	BH1009
Depth		0-0.2	0.5-0.6	0-0.2	0.2-0.3	0.7-0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	23/04/2022	23/04/2022	23/04/2022	23/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	67	<50	<50
TRH C_{15} - C_{28}	mg/kg	170	<100	370	<100	<100
TRH C_{29} - C_{36}	mg/kg	180	<100	340	<100	<100
TRH >C_{10} -C_{16}	mg/kg	53	<50	98	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	53	<50	98	<50	<50
TRH >C_{16} -C_{34}	mg/kg	270	<100	550	<100	<100
TRH >C_{34} -C_{40}	mg/kg	210	<100	460	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	530	<50	1,100	<50	<50
Surrogate o-Terphenyl	%	104	83	115	86	87

svTRH (C10-C40) in Soil						
Our Reference		293616-43	293616-44	293616-47	293616-50	293616-51
Your Reference	UNITS	BH1010	BH1010	BH1013	BH1014	BH1014
Depth		0.2-0.3	0.7-0.8	0.1-0.2	0.05-0.15	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	23/04/2022	23/04/2022	23/04/2022	23/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<500	<500	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<1000	<1000	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<1000	<1000	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<500	<500	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<500	<500	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<1000	<1000	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<1000	<1000	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	87	86	94	92	86

svTRH (C10-C40) in Soil						
Our Reference		293616-53	293616-55	293616-57	293616-58	293616-60
Your Reference	UNITS	BH1015	BH1015	BH1016	BH1016	TP1017
Depth		0-0.2	0.6-0.7	0-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	23/04/2022	23/04/2022	23/04/2022	23/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	120	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	140	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	120	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	250	<50	<50	<50	<50
Surrogate o-Terphenyl	%	84	85	82	82	83

svTRH (C10-C40) in Soil						
Our Reference		293616-62	293616-63	293616-65	293616-73	293616-74
Your Reference	UNITS	TP1017	TP1017	TP1018	BH1023	BH1023
Depth		0.4-0.5	0.9-1	0-0.2	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	23/04/2022	23/04/2022	23/04/2022	23/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	84	83	80	82

svTRH (C10-C40) in Soil						
Our Reference		293616-77	293616-79	293616-85	293616-86	293616-87
Your Reference	UNITS	BD2/20220413	BD4/20220414	SS1	SS2	SS3
Depth		.	.	.	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	.	.	.
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	23/04/2022	23/04/2022	23/04/2022	23/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	110
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	120
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	190
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	190
Surrogate o-Terphenyl	%	82	84	83	86	91

PAHs in Soil						
Our Reference		293616-1	293616-3	293616-8	293616-10	293616-11
Your Reference	UNITS	TP1001	BH1002	TP1003	TP1003	TP1003
Depth		0-0.2	0.1-0.2	0.3-0.4	0.7-0.8	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	26/04/2022	26/04/2022	26/04/2022	26/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	102	103	104	101

PAHs in Soil						
Our Reference		293616-13	293616-18	293616-23	293616-25	293616-26
Your Reference	UNITS	BH1004	TP1005	BH1006	BH1006	BH1006
Depth		0.2-0.3	0-0.2	0.1-0.2	0.6-0.7	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	26/04/2022	26/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	82	89	87	101	102

PAHs in Soil						
Our Reference		293616-27	293616-28	293616-30	293616-38	293616-39
Your Reference	UNITS	TP1007	TP1007	TP1008	BH1009	BH1009
Depth		0-0.2	0.5-0.6	0-0.2	0.2-0.3	0.7-0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	26/04/2022	26/04/2022	22/04/2022	22/04/2022	26/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	107	97	108	80	108

PAHs in Soil						
Our Reference		293616-43	293616-44	293616-47	293616-50	293616-51
Your Reference	UNITS	BH1010	BH1010	BH1013	BH1014	BH1014
Depth		0.2-0.3	0.7-0.8	0.1-0.2	0.05-0.15	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	26/04/2022	26/04/2022	22/04/2022	26/04/2022	26/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<2	<2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.5	<0.5	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<1	<1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.5	<0.5	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<5	<5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<5	<5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<5	<5	<0.5
Surrogate p-Terphenyl-d14	%	104	100	84	98	98

PAHs in Soil						
Our Reference		293616-53	293616-55	293616-57	293616-58	293616-60
Your Reference	UNITS	BH1015	BH1015	BH1016	BH1016	TP1017
Depth		0-0.2	0.6-0.7	0-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	26/04/2022	26/04/2022	22/04/2022	26/04/2022	22/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.08	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.08	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	97	99	84	97	83

PAHs in Soil						
Our Reference		293616-62	293616-63	293616-65	293616-73	293616-74
Your Reference	UNITS	TP1017	TP1017	TP1018	BH1023	BH1023
Depth		0.4-0.5	0.9-1	0-0.2	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	26/04/2022	26/04/2022	26/04/2022	26/04/2022	26/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	95	100	96	95	96

PAHs in Soil						
Our Reference		293616-77	293616-79	293616-85	293616-86	293616-87
Your Reference	UNITS	BD2/20220413	BD4/20220414	SS1	SS2	SS3
Depth		.	.	.	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	.	.	.
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	26/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	102	85	85	89	86

Organochlorine Pesticides in soil						
Our Reference		293616-1	293616-13	293616-18	293616-30	293616-38
Your Reference	UNITS	TP1001	BH1004	TP1005	TP1008	BH1009
Depth		0-0.2	0.2-0.3	0-0.2	0-0.2	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	84	79	88	106	80

Organochlorine Pesticides in soil						
Our Reference		293616-47	293616-57	293616-60	293616-85	293616-86
Your Reference	UNITS	BH1013	BH1016	TP1017	SS1	SS2
Depth		0.1-0.2	0-0.2	0-0.2	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	.	.
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
alpha-BHC	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<1	0.2	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<1	2.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<1	1.8	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<1	0.4	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	78	82	77	89	84

Organochlorine Pesticides in soil		
Our Reference		293616-87
Your Reference	UNITS	SS3
Depth		.
Type of sample		Soil
Date Sampled		.
Date extracted	-	21/04/2022
Date analysed	-	22/04/2022
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	80

Organophosphorus Pesticides in Soil						
Our Reference		293616-1	293616-13	293616-18	293616-30	293616-38
Your Reference	UNITS	TP1001	BH1004	TP1005	TP1008	BH1009
Depth		0-0.2	0.2-0.3	0-0.2	0-0.2	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	84	79	88	106	80

Organophosphorus Pesticides in Soil						
Our Reference		293616-47	293616-57	293616-60	293616-85	293616-86
Your Reference	UNITS	BH1013	BH1016	TP1017	SS1	SS2
Depth		0.1-0.2	0-0.2	0-0.2	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	.	.
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Dichlorvos	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	78	82	77	89	84

Organophosphorus Pesticides in Soil		
Our Reference		293616-87
Your Reference	UNITS	SS3
Depth		.
Type of sample		Soil
Date Sampled		.
Date extracted	-	21/04/2022
Date analysed	-	22/04/2022
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Surrogate TCMX	%	80

PCBs in Soil						
Our Reference		293616-1	293616-13	293616-18	293616-30	293616-38
Your Reference	UNITS	TP1001	BH1004	TP1005	TP1008	BH1009
Depth		0-0.2	0.2-0.3	0-0.2	0-0.2	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	14/04/2022
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	84	79	88	106	80

PCBs in Soil						
Our Reference		293616-47	293616-57	293616-60	293616-85	293616-86
Your Reference	UNITS	BH1013	BH1016	TP1017	SS1	SS2
Depth		0.1-0.2	0-0.2	0-0.2	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	.	.
Date extracted	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	78	82	77	89	84

PCBs in Soil		
Our Reference		293616-87
Your Reference	UNITS	SS3
Depth		.
Type of sample		Soil
Date Sampled		.
Date extracted	-	21/04/2022
Date analysed	-	22/04/2022
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCMX	%	80

Acid Extractable metals in soil						
Our Reference		293616-1	293616-3	293616-8	293616-10	293616-11
Your Reference	UNITS	TP1001	BH1002	TP1003	TP1003	TP1003
Depth		0-0.2	0.1-0.2	0.3-0.4	0.7-0.8	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	4	<1	<1	<1	1
Copper	mg/kg	6	<1	<1	<1	<1
Lead	mg/kg	7	2	3	<1	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	<1	<1	<1	<1
Zinc	mg/kg	21	4	4	<1	<1

Acid Extractable metals in soil						
Our Reference		293616-13	293616-18	293616-23	293616-25	293616-26
Your Reference	UNITS	BH1004	TP1005	BH1006	BH1006	BH1006
Depth		0.2-0.3	0-0.2	0.1-0.2	0.6-0.7	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	2	<1	<1	<1	<1
Copper	mg/kg	4	<1	3	<1	<1
Lead	mg/kg	5	2	9	<1	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	<1
Zinc	mg/kg	6	6	20	<1	<1

Acid Extractable metals in soil						
Our Reference		293616-27	293616-28	293616-30	293616-38	293616-39
Your Reference	UNITS	TP1007	TP1007	TP1008	BH1009	BH1009
Depth		0-0.2	0.5-0.6	0-0.2	0.2-0.3	0.7-0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Arsenic	mg/kg	<4	<4	4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	<1	6	<1	<1
Copper	mg/kg	14	2	12	<1	<1
Lead	mg/kg	31	8	79	<1	<1
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	<1	1	<1	<1
Zinc	mg/kg	94	6	96	<1	<1

Acid Extractable metals in soil						
Our Reference		293616-43	293616-44	293616-47	293616-50	293616-51
Your Reference	UNITS	BH1010	BH1010	BH1013	BH1014	BH1014
Depth		0.2-0.3	0.7-0.8	0.1-0.2	0.05-0.15	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Arsenic	mg/kg	<4	<4	67	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	3	<1	35	18	<1
Copper	mg/kg	4	<1	45	32	<1
Lead	mg/kg	2	<1	10	6	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	<1	44	23	<1
Zinc	mg/kg	15	1	39	46	<1

Acid Extractable metals in soil						
Our Reference		293616-53	293616-55	293616-57	293616-58	293616-60
Your Reference	UNITS	BH1015	BH1015	BH1016	BH1016	TP1017
Depth		0-0.2	0.6-0.7	0-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	27/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	2	<1	1	<1	8
Copper	mg/kg	4	<1	5	<1	6
Lead	mg/kg	10	<1	18	<1	8
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Nickel	mg/kg	2	<1	<1	<1	5
Zinc	mg/kg	23	2	35	2	18

Acid Extractable metals in soil						
Our Reference		293616-62	293616-63	293616-65	293616-73	293616-74
Your Reference	UNITS	TP1017	TP1017	TP1018	BH1023	BH1023
Depth		0.4-0.5	0.9-1	0-0.2	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	<1	1	2	<1
Copper	mg/kg	<1	<1	6	4	<1
Lead	mg/kg	<1	<1	22	1	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	1	3	<1
Zinc	mg/kg	2	<1	57	15	<1

Acid Extractable metals in soil						
Our Reference		293616-77	293616-79	293616-85	293616-86	293616-87
Your Reference	UNITS	BD2/20220413	BD4/20220414	SS1	SS2	SS3
Depth		.	.	.	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	.	.	.
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	<1	<1	<1	1
Copper	mg/kg	<1	<1	3	1	6
Lead	mg/kg	<1	<1	2	<1	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	<1
Zinc	mg/kg	<1	<1	17	15	96

Acid Extractable metals in soil		
Our Reference		293616-88
Your Reference	UNITS	TP1008 - [TRIPLICATE]
Depth		0-0.3
Type of sample		Soil
Date Sampled		13/04/2022
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Arsenic	mg/kg	4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	7
Copper	mg/kg	13
Lead	mg/kg	26
Mercury	mg/kg	<0.1
Nickel	mg/kg	1
Zinc	mg/kg	95

Misc Soil - Inorg						
Our Reference		293616-1	293616-13	293616-18	293616-30	293616-38
Your Reference	UNITS	TP1001	BH1004	TP1005	TP1008	BH1009
Depth		0-0.2	0.2-0.3	0-0.2	0-0.2	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	14/04/2022
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		293616-47	293616-57	293616-60	293616-85	293616-86
Your Reference	UNITS	BH1013	BH1016	TP1017	SS1	SS2
Depth		0.1-0.2	0-0.2	0-0.2	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	.	.
Date prepared	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg		
Our Reference		293616-87
Your Reference	UNITS	SS3
Depth		.
Type of sample		Soil
Date Sampled		.
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Total Phenolics (as Phenol)	mg/kg	<5

Moisture						
Our Reference		293616-1	293616-3	293616-8	293616-10	293616-11
Your Reference	UNITS	TP1001	BH1002	TP1003	TP1003	TP1003
Depth		0-0.2	0.1-0.2	0.3-0.4	0.7-0.8	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	15	11	11	7.4	8.2

Moisture						
Our Reference		293616-13	293616-18	293616-23	293616-25	293616-26
Your Reference	UNITS	BH1004	TP1005	BH1006	BH1006	BH1006
Depth		0.2-0.3	0-0.2	0.1-0.2	0.6-0.7	1.1-1.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	9.0	11	15	10	6.4

Moisture						
Our Reference		293616-27	293616-28	293616-30	293616-38	293616-39
Your Reference	UNITS	TP1007	TP1007	TP1008	BH1009	BH1009
Depth		0-0.2	0.5-0.6	0-0.2	0.2-0.3	0.7-0.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	33	56	43	13	30

Moisture						
Our Reference		293616-43	293616-44	293616-47	293616-50	293616-51
Your Reference	UNITS	BH1010	BH1010	BH1013	BH1014	BH1014
Depth		0.2-0.3	0.7-0.8	0.1-0.2	0.05-0.15	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	6.6	5.2	4.4	4.0	7.8

Moisture						
Our Reference		293616-53	293616-55	293616-57	293616-58	293616-60
Your Reference	UNITS	BH1015	BH1015	BH1016	BH1016	TP1017
Depth		0-0.2	0.6-0.7	0-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	14	8.0	16	11	14

Moisture						
Our Reference		293616-62	293616-63	293616-65	293616-73	293616-74
Your Reference	UNITS	TP1017	TP1017	TP1018	BH1023	BH1023
Depth		0.4-0.5	0.9-1	0-0.2	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	14	7.5	14	16	6.9

Moisture						
Our Reference		293616-77	293616-79	293616-85	293616-86	293616-87
Your Reference	UNITS	BD2/20220413	BD4/20220414	SS1	SS2	SS3
Depth		.	.	.	.	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	.	.	.
Date prepared	-	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	22/04/2022	22/04/2022	22/04/2022	22/04/2022	22/04/2022
Moisture	%	6.2	4.4	12	0.3	2.2

Asbestos ID - soils NEPM						
Our Reference		293616-2	293616-4	293616-9	293616-12	293616-18
Your Reference	UNITS	TP1001	BH1002	TP1003	BH1004	TP1005
Depth		0-0.3	0.1-0.4	0-0.5	0.1-0.5	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date analysed	-	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022
Sample mass tested	g	863.22	514.86	929.29	902.06	928.6
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected Synthetic mineral fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		293616-24	293616-27	293616-30	293616-36	293616-37
Your Reference	UNITS	BH1006	TP1007	TP1008	BH1009	BH1009
Depth		0.1-0.4	0-0.2	0-0.2	0.025-0.1	0.1-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date analysed	-	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022
Sample mass tested	g	960.8	489.36	363.48	736.73	697.13
Sample Description	-	Brown sandy soil	Brown sandy soil &debris	Brown sandy soil &debris	Brown coarse-grained soil & rocks	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	Amosite	Amosite	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	0.0336	0.0001	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	0.0069	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		293616-42	293616-46	293616-50	293616-54	293616-57
Your Reference	UNITS	BH1010	BH1013	BH1014	BH1015	BH1016
Depth		0.1-0.5	0.03-0.2	0.05-0.15	0-0.4	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date analysed	-	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022
Sample mass tested	g	874.56	801.31	838.12	829.33	188.86
Sample Description	-	Brown sandy soil	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil	Brown sandy soil &debris
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		293616-60	293616-61	293616-66	293616-72	293616-85
Your Reference	UNITS	TP1017	TP1017	TP1018	BH1023	SS1
Depth		0-0.2	0.2-0.6	0-0.3	0.1-0.3	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	.
Date analysed	-	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022
Sample mass tested	g	753.23	963.96	703.97	463.92	1,558.8
Sample Description	-	Brown coarse-grained soil & rocks	Brown sandy soil	Brown sandy soil	Brown sandy soil	Beige sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM			
Our Reference		293616-86	293616-87
Your Reference	UNITS	SS2	SS3
Depth		.	.
Type of sample		Soil	Soil
Date Sampled		.	.
Date analysed	-	27/04/2022	27/04/2022
Sample mass tested	g	1,287.9	1,076.11
Sample Description	-	Beige sandy soil	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–
FA and AF Estimation*	g	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001

sPOCAS field test						
Our Reference		293616-14	293616-15	293616-16	293616-17	293616-19
Your Reference	UNITS	BH1004	BH1004	BH1004	BH1004	TP1005
Depth		0.8-0.9	1.3-1.4	1.8-1.9	2.3-2.4	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	8.0	5.4	5.6	5.8	4.6
pH_{FOX} (field peroxide test)*	pH Units	5.8	6.3	4.4	4.7	4.6
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Low reaction

sPOCAS field test						
Our Reference		293616-20	293616-21	293616-22	293616-31	293616-32
Your Reference	UNITS	TP1005	TP1005	TP1005	TP1008	TP1008
Depth		1-1.1	1.5-1.6	2-2.1	0.5-0.6	1-1.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	13/04/2022	13/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	4.7	4.8	4.9	4.9	5.1
pH_{FOX} (field peroxide test)*	pH Units	4.1	4.3	4.5	3.6	4.5
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Medium reaction

sPOCAS field test						
Our Reference		293616-33	293616-34	293616-35	293616-39	293616-40
Your Reference	UNITS	TP1008	TP1008	TP1008	BH1009	BH1009
Depth		1.5-1.6	2-2.1	2.5-2.6	0.7-0.8	1.2-1.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/04/2022	13/04/2022	13/04/2022	14/04/2022	14/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	5.1	5.8	5.8	5.1	5.4
pH_{FOX} (field peroxide test)*	pH Units	3.4	4.5	3.9	5.2	5.4
Reaction Rate*	-	Medium reaction	Medium reaction	Medium reaction	Low reaction	Low reaction

sPOCAS field test						
Our Reference		293616-41	293616-67	293616-68	293616-69	293616-70
Your Reference	UNITS	BH1009	TP1018	TP1018	TP1018	TP1018
Depth		1.8-1.9	0.5-0.6	1-1.1	1.5-1.6	2-2.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		14/04/2022	14/04/2022	14/04/2022	14/04/2022	14/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	5.3	5.6	5.6	5.3	5.6
pH_{FOX} (field peroxide test)*	pH Units	5.4	4.3	5.0	3.9	4.0
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Low reaction

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-063	pH- measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide or extracted with water. Based on section H, Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004. To ensure accurate results these tests are recommended to be done in the field as pH may change with time thus these results may not be representative of true field conditions.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date extracted	-			21/04/2022	1	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	114	106
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	114	106
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	102	101
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	107	100
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	105	97
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	127	115
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	93	86
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	90	1	83	90	8	86	86

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	293616-60
Date extracted	-			[NT]	30	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			[NT]	30	22/04/2022	22/04/2022		22/04/2022	22/04/2022
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	30	<25	<25	0	109	116
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	30	<25	<25	0	109	116
Benzene	mg/kg	0.2	Org-023	[NT]	30	<0.2	<0.2	0	104	115
Toluene	mg/kg	0.5	Org-023	[NT]	30	<0.5	<0.5	0	101	111
Ethylbenzene	mg/kg	1	Org-023	[NT]	30	<1	<1	0	95	109
m+p-xylene	mg/kg	2	Org-023	[NT]	30	<2	<2	0	122	122
o-Xylene	mg/kg	1	Org-023	[NT]	30	<1	<1	0	90	102
Naphthalene	mg/kg	1	Org-023	[NT]	30	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	30	82	83	1	111	103

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	57	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	57	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	57	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	57	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	57	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	57	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	57	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	57	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	57	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	57	90	88	2	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	85	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	85	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	85	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	85	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	85	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	85	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	85	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	85	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	85	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	85	95	104	9	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date extracted	-			21/04/2022	1	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			23/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	86	86
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	123	129
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	110	10	117	117
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	86	86
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	140	33	123	129
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	150	40	117	117
Surrogate o-Terphenyl	%		Org-020	88	1	85	87	2	89	88

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	293616-60
Date extracted	-			[NT]	30	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			[NT]	30	23/04/2022	23/04/2022		23/04/2022	23/04/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	30	67	96	36	86	66
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	30	370	400	8	123	108
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	30	340	390	14	117	108
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	30	98	130	28	86	66
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	30	550	600	9	123	108
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	30	460	480	4	117	108
Surrogate o-Terphenyl	%		Org-020	[NT]	30	115	122	6	89	83

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	57	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	23/04/2022	23/04/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	57	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	57	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	57	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	57	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	57	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	57	<100	120	18	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	57	82	83	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	85	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	23/04/2022	23/04/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	85	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	85	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	85	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	85	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	85	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	85	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	85	83	84	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date extracted	-			21/04/2022	1	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	105	111
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	105	105
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	105
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	124
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	106
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	113
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117	111
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	104	96
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	106	1	87	92	6	92	86

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	293616-60
Date extracted	-			[NT]	30	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			[NT]	30	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	111	105
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	103	95
Fluorene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	107	97
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	122	108
Anthracene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	109	96
Pyrene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	113	99
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	95	99
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	30	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	30	<0.05	<0.05	0	83	82
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	30	108	102	6	108	78

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	57	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	57	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	57	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	57	84	84	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	85	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	85	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	85	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	85	85	84	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date extracted	-			21/04/2022	1	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	92
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	89
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	69
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	116	113
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	98
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	105
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	108
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	80
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	102
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	80
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	79	1	84	87	4	85	85

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	30	22/04/2022	22/04/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	30	106	94	12	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	57	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	57	0.2	0.2	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	57	2.1	1.6	27	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	57	1.8	1.4	25	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	57	0.4	0.3	29	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	57	82	80	2	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	85	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	85	89	80	11	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date extracted	-			21/04/2022	1	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	120	108
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	97
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	97
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	132	118
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	118	112
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	86
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	104
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	79	1	84	87	4	85	85

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	30	22/04/2022	22/04/2022		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	30	106	94	12	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	57	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	57	82	80	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	85	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	85	89	80	11	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date extracted	-			21/04/2022	1	21/04/2022	21/04/2022		21/04/2022	21/04/2022
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	106	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	79	1	84	87	4	85	85

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	30	22/04/2022	22/04/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	30	106	94	12	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	57	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	57	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	57	82	80	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	85	21/04/2022	21/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	85	89	80	11	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	293616-13
Date prepared	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	94	96
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	93	89
Chromium	mg/kg	1	Metals-020	<1	1	4	4	0	96	94
Copper	mg/kg	1	Metals-020	<1	1	6	6	0	93	100
Lead	mg/kg	1	Metals-020	<1	1	7	8	13	97	94
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	116	#
Nickel	mg/kg	1	Metals-020	<1	1	4	4	0	95	94
Zinc	mg/kg	1	Metals-020	<1	1	21	24	13	96	97

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	293616-60
Date prepared	-			[NT]	30	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Date analysed	-			[NT]	30	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Arsenic	mg/kg	4	Metals-020	[NT]	30	4	4	0	97	89
Cadmium	mg/kg	0.4	Metals-020	[NT]	30	<0.4	<0.4	0	94	81
Chromium	mg/kg	1	Metals-020	[NT]	30	6	7	15	96	89
Copper	mg/kg	1	Metals-020	[NT]	30	12	12	0	94	95
Lead	mg/kg	1	Metals-020	[NT]	30	79	24	107	96	87
Mercury	mg/kg	0.1	Metals-021	[NT]	30	<0.1	<0.1	0	121	116
Nickel	mg/kg	1	Metals-020	[NT]	30	1	1	0	96	87
Zinc	mg/kg	1	Metals-020	[NT]	30	96	95	1	96	91

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
Date analysed	-			[NT]	57	22/04/2022	22/04/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	57	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	57	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	57	1	1	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	57	5	5	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	57	18	17	6	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	57	0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	57	<1	1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	57	35	26	30	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
Date analysed	-			[NT]	85	22/04/2022	22/04/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	85	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	85	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	85	<1	<1	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	85	3	<1	100	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	85	2	1	67	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	85	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	85	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	85	17	15	12	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date prepared	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	[NT]
Date analysed	-			22/04/2022	1	22/04/2022	22/04/2022		22/04/2022	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	106	[NT]

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date prepared	-			28/04/2022	14	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			28/04/2022	14	28/04/2022	28/04/2022		28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	14	8.0	7.8	3	100	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	14	5.8	5.9	2	100	[NT]

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date prepared	-			[NT]	35	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	35	28/04/2022	28/04/2022		28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	35	5.8	5.8	0	101	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	35	3.9	4.0	3	101	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

PAHs in Soil - The PQL for 293616-47 and 50 has been raised due to the sample matrix thereby requiring a dilution.

OC's in Soil - The PQL for 293616-47 has been raised due to the sample matrix thereby requiring a dilution.

OP's in Soil - The PQL for 293616-47 has been raised due to the sample matrix thereby requiring a dilution.

PCBs in Soil - The PQL for 293616-47 has been raised due to the sample matrix thereby requiring a dilution.

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 293616-30 for Pb. Therefore a triplicate result has been issued as laboratory sample number 293616-88.
- # High spike recovery was obtained for this sample. Sample matrix interference is suspected. However, an acceptable recovery was obtained for the LCS

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Factual description of asbestos identified in the soil samples: NEPM
Sample 293616-27; Amosite asbestos identified in 0.0420g of fibrous matted material & loose fibre bundles

Sample 293616-30; Amosite asbestos identified in 0.0001g of loose fibre bundles

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	293616
Date Sample Received	14/04/2022
Date Instructions Received	20/04/2022
Date Results Expected to be Reported	28/04/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	87 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	On Hold
TP1001-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
TP1001-0-0.3									✓		
BH1002-0.1-0.2	✓	✓	✓				✓				
BH1002-0.1-0.4									✓		
BH1002-0.5-0.6											✓
BH1002-1-1.1											✓
TP1003-0-0.2											✓
TP1003-0.3-0.4	✓	✓	✓				✓				
TP1003-0-0.5									✓		
TP1003-0.7-0.8	✓	✓	✓				✓				
TP1003-1.1-1.2	✓	✓	✓				✓				
BH1004-0.1-0.5									✓		
BH1004-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓			
BH1004-0.8-0.9										✓	
BH1004-1.3-1.4										✓	
BH1004-1.8-1.9										✓	
BH1004-2.3-2.4										✓	
TP1005-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
TP1005-0.5-0.6										✓	
TP1005-1-1.1										✓	
TP1005-1.5-1.6										✓	
TP1005-2-2.1										✓	
BH1006-0.1-0.2	✓	✓	✓				✓				
BH1006-0.1-0.4									✓		
BH1006-0.6-0.7	✓	✓	✓				✓				
BH1006-1.1-1.2	✓	✓	✓				✓				
TP1007-0-0.2	✓	✓	✓				✓		✓		
TP1007-0.5-0.6	✓	✓	✓				✓				
TP1007-1-1.1											✓
TP1008-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
TP1008-0.5-0.6										✓	
TP1008-1-1.1										✓	

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	On Hold
TP1008-1.5-1.6										✓	
TP1008-2-2.1										✓	
TP1008-2.5-2.6										✓	
BH1009-0.025-0.1									✓		
BH1009-0.1-0.5									✓		
BH1009-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓			
BH1009-0.7-0.8	✓	✓	✓				✓			✓	
BH1009-1.2-1.3										✓	
BH1009-1.8-1.9										✓	
BH1010-0.1-0.5									✓		
BH1010-0.2-0.3	✓	✓	✓				✓				
BH1010-0.7-0.8	✓	✓	✓				✓				
BH1010-1.2-1.3											✓
BH1013-0.03-0.2									✓		
BH1013-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
BH1013-0.3-0.4											✓
BH1013-0.9-1											✓
BH1014-0.05-0.15	✓	✓	✓				✓		✓		
BH1014-0.4-0.5	✓	✓	✓				✓				
BH1014-0.9-1											✓
BH1015-0-0.2	✓	✓	✓				✓				
BH1015-0-0.4									✓		
BH1015-0.6-0.7	✓	✓	✓				✓				
BH1015-1.1-1.2											✓
BH1016-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
BH1016-0.5-0.6	✓	✓	✓				✓				
BH1016-1-1.1											✓
TP1017-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
TP1017-0.2-0.6									✓		
TP1017-0.4-0.5	✓	✓	✓				✓				
TP1017-0.9-1	✓	✓	✓				✓				
TP1017-1.4-1.5											✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	On Hold
TP1018-0-0.2	✓	✓	✓				✓				
TP1018-0-0.3									✓		
TP1018-0.5-0.6										✓	
TP1018-1-1.1										✓	
TP1018-1.5-1.6										✓	
TP1018-2-2.1										✓	
BH1023-0.1-0.2											✓
BH1023-0.1-0.3									✓		
BH1023-0.4-0.5	✓	✓	✓				✓				
BH1023-0.9-1	✓	✓	✓				✓				
BH1023-1.4-1.5											✓
BD1/20220413-.											✓
BD2/20220413-.	✓	✓	✓				✓				
BD3/20220414-.											✓
BD4/20220414-.	✓	✓	✓				✓				
BD5/20220414-.											✓
BD6/20220414-.											✓
BD7/20220414-.											✓
BD8/20220414-.											✓
BD9/20220414-.											✓
SS1-.	✓	✓	✓	✓	✓	✓	✓	✓	✓		
SS2-.	✓	✓	✓	✓	✓	✓	✓	✓	✓		
SS3-.	✓	✓	✓	✓	✓	✓	✓	✓	✓		

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**	-	**Sampler:**	HD		*12 Ashley St, Chatswood NSW 2067*
Email:	David.Holden@douglaspartners.com.au; henri.dubourdieu				**Attn:**	*Aileen Hie*
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				**Contact:**	*(02) 9910 6200*
Prior Storage:	☑ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☑ Yes	(If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Combo 8	Combo 3	Combo 3a	AF/FA	ASS Screen	Hold						Notes/ Preservation/ Additional Requirements
1	TP1001	0	0.2	13-04-22	S	G	x											
2	TP1001	0	0.3	13-04-22	S	P				x								
3	BH1002	0.1	0.2	13-04-22	S	G		x										
4	BH1002	0.1	0.4	13-04-22	S	P				x								293616
5	BH1002	0.5	0.6	13-04-22	S	G						x						14/04/2022
6	BH1002	1	1.1	13-04-22	S	G						x						1500
7	TP1003	0	0.2	13-04-22	S	G						x						TBH
8	TP1003	0.3	0.4	13-04-22	S	G		x										
9	TP1003	0	0.5	13-04-22	S	P				x								
10	TP1003	0.7	0.8	13-04-22	S	G		x										
11	TP1003	1.1	1.2	13-04-22	S	G		x										
12	BH1004	0.1	0.5	13-04-22	S	P				x								
13	BH1004	0.2	0.3	13-04-22	S	G/P	x											
14	BH1004	0.8	0.9	13-04-22	S	G/P					x							

Updated COC 20/04/2022 13:30

Metals to analyse:			
Number of samples in container:		**Transported to laboratory by:**	DP
Send results to:	Douglas Partners Pty Ltd		
Address:	96 Hermitage Road, West Ryde NSW 2114	**Phone:**	(02) 9809 0666
Relinquished by:	HD	**Date:**	14.4.22
		Signed:	

LAB RECEIPT	
Lab Ref. No:	293616
Received by:	Tanya Doherty
Date & Time:	
Signed:	

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**		**Dispatch date:**	14.4.22
					12 Ashley St, Chatswood NSW 2067

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Combo 8	Combo 3	Combo 3a	AF/FA	ASS Screen	Hold						
15	BH1004	1.3	1.4	13-04-22	S	G/P					x							
16	BH1004	1.8	1.9	13-04-22	S	P					x							
17	BH1004	2.3	2.4	13-04-22	S	P					x							
18	TP1005	0	0.2	13-04-22	S	G/P	x			x								
19	TP1005	0.5	0.6	13-04-22	S	G/P					x							
20	TP1005	1	1.1	13-04-22	S	G/P					x							
21	TP1005	1.5	1.6	13-04-22	S	P					x							
22	TP1005	2	2.1	13-04-22	S	P					x							
23	BH1006	0.1	0.2	13-04-22	S	G		x										
24	BH1006	0.1	0.4	13-04-22	S	P				x								
25	BH1006	0.6	0.7	13-04-22	S	G		x										
26	BH1006	1.1	1.2	13-04-22	S	G		x										
27	TP1007	0	0.2	13-04-22	S	G/P		x		x								
28	TP1007	0.5	0.6	13-04-22	S	G		x										
29	TP1007	1	1.1	13-04-22	S	G						x						
30	TP1008	0	0.2	13-04-22	S	G/P	x			x								
31	TP1008	0.5	0.6	13-04-22	S	G/P					x							
32	TP1008	1	1.1	13-04-22	S	G/P					x							

293616

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden			**Dispatch date:**	14.4.22

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Combo 8	Combo 3	Combo 3a	AF/FA	ASS Screen	Hold						
33	TP1008	1.5	1.6	13-04-22	S	P					x							
34	TP1008	2	2.1	13-04-22	S	P					x							
35	TP1008	2.5	2.6	13-04-22	S	P					x							
36	BH1009	0.025	0.1	14-04-21	S	P				x								
37	BH1009	0.1	0.5	14-04-21	S	P				x								
38	BH1009	0.2	0.3	14-04-21	S	G	x											
39	BH1009	0.7	0.8	14-04-21	S	G/P		x			x							
40	BH1009	1.2	1.3	14-04-21	S	G/P					x							
41	BH1009	1.8	1.9	14-04-21	S	P					x							
42	BH1010	0.1	0.5	14-04-21	S	P				x								
43	BH1010	0.2	0.3	14-04-21	S	G		x										
44	BH1010	0.7	0.8	14-04-21	S	G		x										
45	BH1010	1.2	1.3	14-04-21	S	G						x						
46	BH1013	0.03	0.2	14-04-21	S	P				x								
47	BH1013	0.1	0.2	14-04-21	S	G	x											
48	BH1013	0.3	0.4	14-04-21	S	G						x						
49	BH1013	0.9	1	14-04-21	S	G						x						
50	BH1014	0.05	0.15	14-04-21	S	G/P		x		x								
51	BH1014	0.4	0.5	14-04-21	S	G		x										

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:** Narrabeen	**To:** *Envirolab Services*
Project Manager:	David Holden		**Dispatch date:** 14.4.22

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Combo 8	Combo 3	Combo 3a	AF/FA	ASS Screen	Hold						
52	BH1014	0.9	1	14-04-22	S	G						x						
53	BH1015	0	0.2	14-04-22	S	G		x										
54	BH1015	0	0.4	14-04-22	S	P				x								
55	BH1015	0.6	0.7	14-04-22	S	G		x										
56	BH1015	1.1	1.2	14-04-22	S	G						x						
57	BH1016	0	0.2	14-04-22	S	G/P	x			x								
58	BH1016	0.5	0.6	14-04-22	S	G		x										
59	BH1016	1	1.1	14-04-22	S	G						x						
60	TP1017	0	0.2	14-04-22	S	G/P	x			x								
61	TP1017	0.2	0.6	14-04-22	S	P				x								
62	TP1017	0.4	0.5	14-04-22	S	G		x										
63	TP1017	0.9	1	14-04-22	S	G		x										
64	TP1017	1.4	1.5	14-04-22	S	G						x						
65	TP1018	0	0.2	14-04-22	S	G		x										
66	TP1018	0	0.3	14-04-22	S	P				x								
67	TP1018	0.5	0.6	14-04-22	S	G/P					x							
68	TP1018	1	1.1	14-04-22	S	G/P					x							
69	TP1018	1.5	1.6	14-04-22	S	P					x							

293616

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden			**Dispatch date:**	14.4.22

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Combo 8	Combo 3	Combo 3a	AF/FA	ASS Screen	Hold						
70	TP1018	2	2.1	14-04-22	S	P					x							
71	BH1023	0.1	0.2	14-04-22	S	G						x						
72	BH1023	0.1	0.3	14-04-22	S	P				x								
73	BH1023	0.4	0.5	14-04-22	S	G		x										
74	BH1023	0.9	1	14-04-22	S	G		x										
75	BH1023	1.4	1.5	14-04-22	S	G						x						
76	BD1/20220413			13-04-22	S	G		x										Please forward for interlab analysis
77	BD2/20220413			13-04-22	S	G		x										
78	BD3/20220414			14-04-22	S	G						x						
79	BD4/20220414			14-04-22	S	G		x										
80	BD5/20220414			14-04-22	S	G						x						
81	BD6/20220414			14-04-22	S	G						x						
82	BD7/20220414			14-04-22	S	G		x										Please forward for interlab analysis
83	BD8/20220414			14-04-22	S	G						x						
84	BD9/20220414			14-04-22	S	G						x						
85	SS1			14-04-22	S	G/B	x			x								
86	SS2			14-04-22	S	G/B	x			x								
87	SS3			14-04-22	S	G/B	x			x								

293616

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CERTIFICATE OF ANALYSIS 293616-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	additional analysis
Date samples received	14/04/2022
Date completed instructions received	27/04/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	04/05/2022
Date of Issue	04/05/2022

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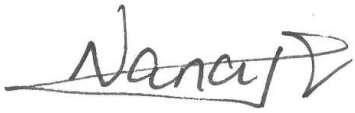
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Liam Timmins, Organic Instruments Team Leader

Authorised By



Nancy Zhang, Laboratory Manager

Organochlorine Pesticides in soil			
Our Reference		293616-A-53	293616-A-58
Your Reference	UNITS	BH1015	BH1016
Depth		0-0.2	0.5-0.6
Date Sampled		14/04/2022	14/04/2022
Type of sample		Soil	Soil
Date extracted	-	27/04/2022	27/04/2022
Date analysed	-	02/05/2022	02/05/2022
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	87	86

Organophosphorus Pesticides in Soil			
Our Reference		293616-A-53	293616-A-58
Your Reference	UNITS	BH1015	BH1016
Depth		0-0.2	0.5-0.6
Date Sampled		14/04/2022	14/04/2022
Type of sample		Soil	Soil
Date extracted	-	27/04/2022	27/04/2022
Date analysed	-	02/05/2022	02/05/2022
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	87	86

PCBs in Soil			
Our Reference		293616-A-53	293616-A-58
Your Reference	UNITS	BH1015	BH1016
Depth		0-0.2	0.5-0.6
Date Sampled		14/04/2022	14/04/2022
Type of sample		Soil	Soil
Date extracted	-	27/04/2022	27/04/2022
Date analysed	-	02/05/2022	02/05/2022
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	87	86

sTPH in Soil (C10-C40)-Silica					
Our Reference		293616-A-27	293616-A-30	293616-A-53	293616-A-87
Your Reference	UNITS	TP1007	TP1008	BH1015	SS3
Depth		0-0.2	0-0.2	0-0.2	.
Date Sampled		13/04/2022	13/04/2022	14/04/2022	.
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	27/04/2022	27/04/2022	27/04/2022	27/04/2022
Date analysed	-	03/05/2022	03/05/2022	03/05/2022	03/05/2022
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
TPH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TPH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TPH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	115	77	102	114

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			27/04/2022	53	27/04/2022	27/04/2022		27/04/2022	[NT]
Date analysed	-			02/05/2022	53	02/05/2022	02/05/2022		02/05/2022	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	79	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	87	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	79	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	84	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	85	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	82	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	87	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	100	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	86	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	71	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	92	53	87	83	5	125	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			27/04/2022	53	27/04/2022	27/04/2022		27/04/2022	[NT]
Date analysed	-			02/05/2022	53	02/05/2022	02/05/2022		02/05/2022	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	121	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	80	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	91	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	111	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	90	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	87	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	88	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	92	53	87	83	5	125	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			27/04/2022	53	27/04/2022	27/04/2022		27/04/2022	[NT]
Date analysed	-			02/05/2022	53	02/05/2022	02/05/2022		02/05/2022	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	78	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	92	53	87	83	5	125	[NT]

QUALITY CONTROL: sTPH in Soil (C10-C40)-Silica						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			27/04/2022	53	27/04/2022	27/04/2022		27/04/2022	[NT]
Date analysed	-			03/05/2022	53	03/05/2022	03/05/2022		03/05/2022	[NT]
TPH C_{10} - C_{14}	mg/kg	50	Org-020	<50	53	<50	<50	0	92	[NT]
TPH C_{15} - C_{28}	mg/kg	100	Org-020	<100	53	<100	<100	0	81	[NT]
TPH C_{29} - C_{36}	mg/kg	100	Org-020	<100	53	<100	<100	0	94	[NT]
TPH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	53	<50	<50	0	92	[NT]
TPH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	53	<100	<100	0	81	[NT]
TPH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	53	<100	<100	0	94	[NT]
Surrogate o-Terphenyl	%		Org-020	96	53	102	103	1	129	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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customerservice@envirolab.com.au
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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	293616-A
Date Sample Received	14/04/2022
Date Instructions Received	27/04/2022
Date Results Expected to be Reported	04/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
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Sample ID	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	sTPH in Soil (C10-C40)-Silica	On Hold
TP1001-0-0.2					✓
TP1001-0-0.3					✓
BH1002-0.1-0.2					✓
BH1002-0.1-0.4					✓
BH1002-0.5-0.6					✓
BH1002-1-1.1					✓
TP1003-0-0.2					✓
TP1003-0.3-0.4					✓
TP1003-0-0.5					✓
TP1003-0.7-0.8					✓
TP1003-1.1-1.2					✓
BH1004-0.1-0.5					✓
BH1004-0.2-0.3					✓
BH1004-0.8-0.9					✓
BH1004-1.3-1.4					✓
BH1004-1.8-1.9					✓
BH1004-2.3-2.4					✓
TP1005-0-0.2					✓
TP1005-0.5-0.6					✓
TP1005-1-1.1					✓
TP1005-1.5-1.6					✓
TP1005-2-2.1					✓
BH1006-0.1-0.2					✓
BH1006-0.1-0.4					✓
BH1006-0.6-0.7					✓
BH1006-1.1-1.2					✓
TP1007-0-0.2				✓	
TP1007-0.5-0.6					✓
TP1007-1-1.1					✓
TP1008-0-0.2				✓	
TP1008-0.5-0.6					✓
TP1008-1-1.1					✓

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Sample ID	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	sTPH in Soil (C10-C40)-Silica	On Hold
TP1008-1.5-1.6					✓
TP1008-2-2.1					✓
TP1008-2.5-2.6					✓
BH1009-0.025-0.1					✓
BH1009-0.1-0.5					✓
BH1009-0.2-0.3					✓
BH1009-0.7-0.8					✓
BH1009-1.2-1.3					✓
BH1009-1.8-1.9					✓
BH1010-0.1-0.5					✓
BH1010-0.2-0.3					✓
BH1010-0.7-0.8					✓
BH1010-1.2-1.3					✓
BH1013-0.03-0.2					✓
BH1013-0.1-0.2					✓
BH1013-0.3-0.4					✓
BH1013-0.9-1					✓
BH1014-0.05-0.15					✓
BH1014-0.4-0.5					✓
BH1014-0.9-1					✓
BH1015-0-0.2	✓	✓	✓	✓	
BH1015-0-0.4					✓
BH1015-0.6-0.7					✓
BH1015-1.1-1.2					✓
BH1016-0-0.2					✓
BH1016-0.5-0.6	✓	✓	✓		
BH1016-1-1.1					✓
TP1017-0-0.2					✓
TP1017-0.2-0.6					✓
TP1017-0.4-0.5					✓
TP1017-0.9-1					✓
TP1017-1.4-1.5					✓

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Sample ID	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	sTPH in Soil (C10-C40)-Silica	On Hold
TP1018-0-0.2					✓
TP1018-0-0.3					✓
TP1018-0.5-0.6					✓
TP1018-1-1.1					✓
TP1018-1.5-1.6					✓
TP1018-2-2.1					✓
BH1023-0.1-0.2					✓
BH1023-0.1-0.3					✓
BH1023-0.4-0.5					✓
BH1023-0.9-1					✓
BH1023-1.4-1.5					✓
BD1/20220413-.					✓
BD2/20220413-.					✓
BD3/20220414-.					✓
BD4/20220414-.					✓
BD5/20220414-.					✓
BD6/20220414-.					✓
BD7/20220414-.					✓
BD8/20220414-.					✓
BD9/20220414-.					✓
SS1-.					✓
SS2-.					✓
SS3-.				✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 293616-B

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	additional analysis
Date samples received	14/04/2022
Date completed instructions received	04/05/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	11/05/2022
Date of Issue	11/05/2022

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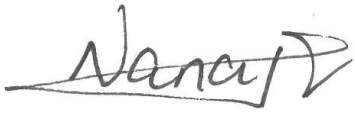
Results Approved By
Giovanni Agosti, Group Technical Manager
Jenny He, Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Chromium Suite			
Our Reference		293616-B-41	293616-B-70
Your Reference	UNITS	BH1009	TP1018
Depth		1.8-1.9	2-2.1
Type of sample		Soil	Soil
Date Sampled		14/04/2022	14/04/2022
Date prepared	-	11/05/2022	11/05/2022
Date analysed	-	11/05/2022	11/05/2022
pH $_{kcl}$	pH units	6.0	5.0
s-TAA pH 6.5	%w/w S	<0.01	0.01
TAA pH 6.5	moles H^+ /t	<5	9
Chromium Reducible Sulfur	%w/w	0.006	0.005
a-Chromium Reducible Sulfur	moles H^+ /t	4	3
S_{HCl}	%w/w S	[NT]	[NT]
S_{KCl}	%w/w S	[NT]	[NT]
S_{NAS}	%w/w S	[NT]	[NT]
ANC_{BT}	% $CaCO_3$	[NT]	[NT]
s-ANC_{BT}	%w/w S	[NT]	[NT]
s-Net Acidity	%w/w S	0.0060	0.020
a-Net Acidity	moles H^+ /t	<5	12
Liming rate	kg $CaCO_3$ /t	<0.75	0.9
a-Net Acidity without ANCE	moles H^+ /t	<5	12
Liming rate without ANCE	kg $CaCO_3$ /t	<0.75	0.92
s-Net Acidity without ANCE	%w/w S	0.0060	0.020

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		293616-B-47
Your Reference	UNITS	BH1013
Depth		0.1-0.2
Type of sample		Soil
Date Sampled		14/04/2022
Date extracted	-	06/05/2022
Date analysed	-	09/05/2022
pH of soil for fluid# determ.	pH units	8.9
pH of soil TCLP (after HCl)	pH units	1.6
Extraction fluid used		1
pH of final Leachate	pH units	5.3
Nickel	mg/L	0.03

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Net acidity including ANC has a safety factor of 1.5 applied. Neutralising value (NV) of 100% is assumed for liming rate. Based on National acid sulfate soils identification and laboratory methods manual June 2018. The recommendation that the SHCL concentration be multiplied by a factor of 2 to ensure retained acidity is not underestimated, has not been applied in the SHCL results reported.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.

QUALITY CONTROL: Chromium Suite						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			11/05/2022	[NT]	[NT]	[NT]	[NT]	11/05/2022	[NT]
Date analysed	-			11/05/2022	[NT]	[NT]	[NT]	[NT]	11/05/2022	[NT]
pH $_{kcl}$	pH units		Inorg-068	[NT]	[NT]	[NT]	[NT]	[NT]	95	[NT]
TAA pH 6.5	moles H^+ /t	5	Inorg-068	[NT]	[NT]	[NT]	[NT]	[NT]	85	[NT]
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	[NT]	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			06/05/2022	[NT]	[NT]	[NT]	[NT]	06/05/2022	[NT]
Date analysed	-			09/05/2022	[NT]	[NT]	[NT]	[NT]	09/05/2022	[NT]
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	293616-B
Date Sample Received	14/04/2022
Date Instructions Received	04/05/2022
Date Results Expected to be Reported	11/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP1001-0-0.2							✓
TP1001-0-0.3							✓
BH1002-0.1-0.2							✓
BH1002-0.1-0.4							✓
BH1002-0.5-0.6							✓
BH1002-1-1.1							✓
TP1003-0-0.2							✓
TP1003-0.3-0.4							✓
TP1003-0-0.5							✓
TP1003-0.7-0.8							✓
TP1003-1.1-1.2							✓
BH1004-0.1-0.5							✓
BH1004-0.2-0.3							✓
BH1004-0.8-0.9							✓
BH1004-1.3-1.4							✓
BH1004-1.8-1.9							✓
BH1004-2.3-2.4							✓
TP1005-0-0.2							✓
TP1005-0.5-0.6							✓
TP1005-1-1.1							✓
TP1005-1.5-1.6							✓
TP1005-2-2.1							✓
BH1006-0.1-0.2							✓
BH1006-0.1-0.4							✓
BH1006-0.6-0.7							✓
BH1006-1.1-1.2							✓
TP1007-0-0.2							✓
TP1007-0.5-0.6							✓
TP1007-1-1.1							✓
TP1008-0-0.2							✓
TP1008-0.5-0.6							✓
TP1008-1-1.1							✓

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Sample ID	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP1008-1.5-1.6							✓
TP1008-2-2.1							✓
TP1008-2.5-2.6							✓
BH1009-0.025-0.1							✓
BH1009-0.1-0.5							✓
BH1009-0.2-0.3							✓
BH1009-0.7-0.8							✓
BH1009-1.2-1.3							✓
BH1009-1.8-1.9	✓						
BH1010-0.1-0.5							✓
BH1010-0.2-0.3							✓
BH1010-0.7-0.8							✓
BH1010-1.2-1.3							✓
BH1013-0.03-0.2							✓
BH1013-0.1-0.2		✓	✓	✓	✓	✓	
BH1013-0.3-0.4							✓
BH1013-0.9-1							✓
BH1014-0.05-0.15							✓
BH1014-0.4-0.5							✓
BH1014-0.9-1							✓
BH1015-0-0.2							✓
BH1015-0-0.4							✓
BH1015-0.6-0.7							✓
BH1015-1.1-1.2							✓
BH1016-0-0.2							✓
BH1016-0.5-0.6							✓
BH1016-1-1.1							✓
TP1017-0-0.2							✓
TP1017-0.2-0.6							✓
TP1017-0.4-0.5							✓
TP1017-0.9-1							✓
TP1017-1.4-1.5							✓

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Sample ID	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP1018-0-0.2							✓
TP1018-0-0.3							✓
TP1018-0.5-0.6							✓
TP1018-1-1.1							✓
TP1018-1.5-1.6							✓
TP1018-2-2.1	✓						
BH1023-0.1-0.2							✓
BH1023-0.1-0.3							✓
BH1023-0.4-0.5							✓
BH1023-0.9-1							✓
BH1023-1.4-1.5							✓
BD1/20220413-.							✓
BD2/20220413-.							✓
BD3/20220414-.							✓
BD4/20220414-.							✓
BD5/20220414-.							✓
BD6/20220414-.							✓
BD7/20220414-.							✓
BD8/20220414-.							✓
BD9/20220414-.							✓
SS1-.							✓
SS2-.							✓
SS3-.							✓
TP1008 - [TRIPLICATE]-0-0.3							✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 294092

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	148 Soil, 2 Material, 1 Water
Date samples received	20/04/2022
Date completed instructions received	22/04/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	02/05/2022
Date of Issue	02/05/2022

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Panika Wongchanda, Nyovan Moonean
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Liam Timmins, Chemist
Lucy Zhu, Asbestos Supervisor
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-1	294092-2	294092-7	294092-10	294092-12
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	BH1011	BH1011
Depth		0-0.2	0.2-0.3	1.3-1.4	0-0.1	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	71	92	86	81	89

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-13	294092-15	294092-18	294092-20	294092-24
Your Reference	UNITS	BH1012	TP1019	TP1020	TP1020	BH1021
Depth		0-0.1	0-0.2	0-0.2	0.4-0.5	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	88	80	87	99

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		294092-26	294092-136
Your Reference	UNITS	BH1022	BD10/20220419
Depth		0.1-0.2	.
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	79

svTRH (C10-C40) in Soil						
Our Reference		294092-1	294092-2	294092-7	294092-10	294092-12
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	BH1011	BH1011
Depth		0-0.2	0.2-0.3	1.3-1.4	0-0.1	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	270	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	290	<100	<100	130	<100
TRH >C_{10} -C_{16}	mg/kg	50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	480	<100	<100	170	<100
TRH >C_{34} -C_{40}	mg/kg	190	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	710	<50	<50	170	<50
Surrogate o-Terphenyl	%	119	89	86	91	84

svTRH (C10-C40) in Soil						
Our Reference		294092-13	294092-15	294092-18	294092-20	294092-24
Your Reference	UNITS	BH1012	TP1019	TP1020	TP1020	BH1021
Depth		0-0.1	0-0.2	0-0.2	0.4-0.5	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	270	<50	<50
TRH C_{15} - C_{28}	mg/kg	150	<100	280	<100	<100
TRH C_{29} - C_{36}	mg/kg	160	150	430	170	210
TRH >C_{10} -C_{16}	mg/kg	<50	<50	170	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	170	<50	<50
TRH >C_{16} -C_{34}	mg/kg	250	190	540	180	240
TRH >C_{34} -C_{40}	mg/kg	<100	<100	410	110	160
Total +ve TRH (>C10-C40)	mg/kg	250	190	1,100	290	400
Surrogate o-Terphenyl	%	87	95	115	87	89

svTRH (C10-C40) in Soil			
Our Reference		294092-26	294092-136
Your Reference	UNITS	BH1022	BD10/20220419
Depth		0.1-0.2	.
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	180
TRH C_{29} - C_{36}	mg/kg	120	540
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	130	540
TRH >C_{34} -C_{40}	mg/kg	<100	490
Total +ve TRH (>C10-C40)	mg/kg	130	1,000
Surrogate o-Terphenyl	%	87	86

PAHs in Soil						
Our Reference		294092-1	294092-2	294092-7	294092-10	294092-12
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	BH1011	BH1011
Depth		0-0.2	0.2-0.3	1.3-1.4	0-0.1	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	121	102	99	132	97

PAHs in Soil						
Our Reference		294092-13	294092-15	294092-18	294092-20	294092-24
Your Reference	UNITS	BH1012	TP1019	TP1020	TP1020	BH1021
Depth		0-0.1	0-0.2	0-0.2	0.4-0.5	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.08	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.4	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	94	105	114	99	130

PAHs in Soil			
Our Reference		294092-26	294092-136
Your Reference	UNITS	BH1022	BD10/20220419
Depth		0.1-0.2	.
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	100

Organochlorine Pesticides in soil			
Our Reference		294092-10	294092-24
Your Reference	UNITS	BH1011	BH1021
Depth		0-0.1	0.1-0.2
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	120	118

Organophosphorus Pesticides in Soil			
Our Reference		294092-10	294092-24
Your Reference	UNITS	BH1011	BH1021
Depth		0-0.1	0.1-0.2
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	120	118

PCBs in Soil			
Our Reference		294092-10	294092-24
Your Reference	UNITS	BH1011	BH1021
Depth		0-0.1	0.1-0.2
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	120	118

Acid Extractable metals in soil						
Our Reference		294092-1	294092-2	294092-7	294092-10	294092-12
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	BH1011	BH1011
Depth		0-0.2	0.2-0.3	1.3-1.4	0-0.1	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	3	5	1	<1
Copper	mg/kg	5	11	<1	5	<1
Lead	mg/kg	2	23	2	10	<1
Mercury	mg/kg	<0.1	1.0	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	2	<1	<1	<1
Zinc	mg/kg	30	60	1	14	<1

Acid Extractable metals in soil						
Our Reference		294092-13	294092-15	294092-18	294092-20	294092-24
Your Reference	UNITS	BH1012	TP1019	TP1020	TP1020	BH1021
Depth		0-0.1	0-0.2	0-0.2	0.4-0.5	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	0.9	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	7	1	3	2
Copper	mg/kg	<1	57	9	9	42
Lead	mg/kg	4	130	6	32	5
Mercury	mg/kg	<0.1	0.3	<0.1	0.1	<0.1
Nickel	mg/kg	<1	3	1	2	2
Zinc	mg/kg	9	240	78	81	19

Acid Extractable metals in soil				
Our Reference		294092-26	294092-136	294092-152
Your Reference	UNITS	BH1022	BD10/20220419	BH1022 - [TRIPLICATE]
Depth		0.1-0.2	.	0.1-0.2
Type of sample		Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	4	2	2
Copper	mg/kg	14	8	27
Lead	mg/kg	7	6	6
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	3	<1	3
Zinc	mg/kg	42	46	24

Misc Soil - Inorg			
Our Reference		294092-10	294092-24
Your Reference	UNITS	BH1011	BH1021
Depth		0-0.1	0.1-0.2
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture						
Our Reference		294092-1	294092-2	294092-7	294092-10	294092-12
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	BH1011	BH1011
Depth		0-0.2	0.2-0.3	1.3-1.4	0-0.1	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	44	21	16	18	14

Moisture						
Our Reference		294092-13	294092-15	294092-18	294092-20	294092-24
Your Reference	UNITS	BH1012	TP1019	TP1020	TP1020	BH1021
Depth		0-0.1	0-0.2	0-0.2	0.4-0.5	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	18	17	30	19	15

Moisture			
Our Reference		294092-26	294092-136
Your Reference	UNITS	BH1022	BD10/20220419
Depth		0.1-0.2	.
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022
Moisture	%	16	34

Asbestos ID - soils NEPM						
Our Reference		294092-1	294092-3	294092-5	294092-11	294092-15
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	BH1011	TP1019
Depth		0-0.2	0.2-0.4	0.7-0.9	0-0.4	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	285.38	888.41	931.48	738.51	484.99
Sample Description	-	Brown sandy soil & debris	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM					
Our Reference		294092-18	294092-19	294092-23	294092-25
Your Reference	UNITS	TP1020	TP1020	BH1021	BH1022
Depth		0-0.2	0.2-0.7	0-0.25	0-0.7
Type of sample		Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	242.36	837.95	955.75	1,019.45
Sample Description	-	Brown sandy soil & debris	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–
FA and AF Estimation*	g	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001

sPOCAS field test					
Our Reference		294092-6	294092-7	294092-8	294092-9
Your Reference	UNITS	TP1001A	TP1001A	TP1001A	TP1001A
Depth		0.8-0.9	1.3-1.4	1.8-1.9	2.2-2.3
Type of sample		Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	7.5	6.7	6.3	6.2
pH_{FOX} (field peroxide test)*	pH Units	4.9	5.4	4.8	4.7
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction

Misc Inorg - Soil				
Our Reference		294092-1	294092-13	294092-14
Your Reference	UNITS	TP1001A	BH1012	BH1012
Depth		0-0.2	0-0.1	0.6-0.7
Type of sample		Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022
Date prepared	-	29/04/2022	29/04/2022	29/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022
pH 1:5 soil:water	pH Units	4.5	4.5	4.9

CEC						
Our Reference		294092-1	294092-7	294092-13	294092-14	294092-26
Your Reference	UNITS	TP1001A	TP1001A	BH1012	BH1012	BH1022
Depth		0-0.2	1.3-1.4	0-0.1	0.6-0.7	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Exchangeable Ca	meq/100g	22	0.7	4.3	<0.1	9.2
Exchangeable K	meq/100g	0.3	<0.1	<0.1	<0.1	<0.1
Exchangeable Mg	meq/100g	4.0	0.2	1.3	<0.1	0.6
Exchangeable Na	meq/100g	0.1	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	27	<1	5.8	<1	9.9

Asbestos ID - soils		
Our Reference		294092-151
Your Reference	UNITS	BH1012
Depth		0-0.5
Type of sample		Soil
Date Sampled		19/04/2022
Date analysed	-	02/05/2022
Sample mass tested	g	Approx. 20g
Sample Description	-	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO
Trace Analysis	-	No asbestos detected

Asbestos ID - materials		
Our Reference		294092-4
Your Reference	UNITS	TP1001A
Depth		0.2-0.4
Type of sample		Material
Date Sampled		19/04/2022
Date analysed	-	28/04/2022
Mass / Dimension of Sample	-	65x60x5mm
Sample Description	-	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected
Trace Analysis	-	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-063	pH- measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide or extracted with water. Based on section H, Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004. To ensure accurate results these tests are recommended to be done in the field as pH may change with time thus these results may not be representative of true field conditions.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-2
Date extracted	-			28/04/2022	1	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			29/04/2022	1	29/04/2022	29/04/2022		29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	106	92
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	106	92
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	98	85
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	108	93
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	104	91
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	110	96
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	105	93
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	92	1	71	73	3	103	91

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	26	29/04/2022	29/04/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	26	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	26	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	26	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	26	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	26	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	26	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	26	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	26	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	26	90	94	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-2
Date extracted	-			28/04/2022	1	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			28/04/2022	1	28/04/2022	28/04/2022		28/04/2022	28/04/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	50	0	129	118
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	270	320	17	96	100
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	290	370	24	117	130
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	50	55	10	129	118
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	480	580	19	96	100
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	190	240	23	117	130
Surrogate o-Terphenyl	%		Org-020	81	1	119	128	7	130	89

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	26	28/04/2022	28/04/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	26	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	26	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	26	120	140	15	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	26	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	26	130	190	38	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	26	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	26	87	98	12	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-2
Date extracted	-			28/04/2022	1	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			29/04/2022	1	29/04/2022	29/04/2022		29/04/2022	29/04/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	113
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	103
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	107
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	135	114
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	139
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	109
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	103
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	110	124
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	90	1	121	125	3	98	100

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	26	29/04/2022	29/04/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	26	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	26	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	26	99	115	15	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	121	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	130	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	130	[NT]	[NT]	[NT]	[NT]	63	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	130	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-2
Date prepared	-			28/04/2022	1	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			29/04/2022	1	29/04/2022	29/04/2022		29/04/2022	29/04/2022
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	92	89
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	92	85
Chromium	mg/kg	1	Metals-020	<1	1	<1	<1	0	92	91
Copper	mg/kg	1	Metals-020	<1	1	5	5	0	91	92
Lead	mg/kg	1	Metals-020	<1	1	2	2	0	92	92
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	110	98
Nickel	mg/kg	1	Metals-020	<1	1	<1	<1	0	93	89
Zinc	mg/kg	1	Metals-020	<1	1	30	32	6	88	83

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	26	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	26	29/04/2022	29/04/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	26	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	26	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	26	4	3	29	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	26	14	18	25	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	26	7	6	15	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	26	3	2	40	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	26	42	28	40	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	294092-24
Date prepared	-			28/04/2022	10	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			28/04/2022	10	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	10	<5	<5	0	102	106

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	294092-7
Date prepared	-			02/05/2022	1	02/05/2022	02/05/2022		02/05/2022	02/05/2022
Date analysed	-			02/05/2022	1	02/05/2022	02/05/2022		02/05/2022	02/05/2022
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	1	22	26	17	92	100
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	1	0.3	0.4	29	107	103
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	1	4.0	4.8	18	86	93
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	1	0.1	0.1	0	108	101

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.
Note: Sample 294092-151 was sub-sampled from a bag provided by the client.

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 294092-26 for Zn. Therefore a triplicate result has been issued as laboratory sample number 294092-152.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	294092
Date Sample Received	20/04/2022
Date Instructions Received	22/04/2022
Date Results Expected to be Reported	02/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	147 Soil, 2 Material, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
TP1001A-0-0.2	✓	✓	✓				✓		✓		✓	✓		
TP1001A-0.2-0.3	✓	✓	✓				✓							
TP1001A-0.2-0.4									✓					
TP1001A-0.2-0.4													✓	
TP1001A-0.7-0.9									✓					
TP1001A-0.8-0.9										✓				
TP1001A-1.3-1.4	✓	✓	✓				✓			✓		✓		
TP1001A-1.8-1.9										✓				
TP1001A-2.2-2.3										✓				
BH1011-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
BH1011-0-0.4									✓					
BH1011-0.6-0.7	✓	✓	✓				✓							
BH1012-0-0.1	✓	✓	✓				✓				✓	✓		
BH1012-0.6-0.7											✓	✓		
TP1019-0-0.2	✓	✓	✓				✓		✓					
TP1019-0.3-0.4														✓
TP1019-0.9-1														✓
TP1020-0-0.2	✓	✓	✓				✓		✓					
TP1020-0.2-0.7									✓					
TP1020-0.4-0.5	✓	✓	✓				✓							
TP1020-0.9-1														✓
TP1020-1.4-1.5														✓
BH1021-0-0.25									✓					
BH1021-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
BH1022-0-0.7									✓					
BH1022-0.1-0.2	✓	✓	✓				✓					✓		
BH1022-0.6-0.7														✓
BH201-0-0.2														✓
BH201-0.2-0.5														✓
BH201-0.4-0.5														✓
BH201-0.9-1														✓
BH201-1.4-1.5														✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
BH201-1.9-2														✓
BH201-2.4-2.5														✓
BH202-0.1-0.2														✓
BH202-0.1-0.4														✓
BH202-0.4-0.5														✓
BH202-0.9-1														✓
BH203-0.2-0.3														✓
BH203-0.5-0.7														✓
BH203-0.6-0.7														✓
BH203-0.9-1														✓
BH203-1.4-1.5														✓
BH204-0-0.1														✓
BH204-0.2-0.5														✓
BH204-0.3-0.4														✓
BH204-0.8-0.9														✓
BH204-1.3-1.4														✓
BH204-1.8-1.9														✓
BH205-0-0.1														✓
BH205-0.2-0.5														✓
BH205-0.3-0.4														✓
BH205-0.8-0.9														✓
BH205-1.3-1.4														✓
BH205-1.8-1.9														✓
BH205-2.3-2.4														✓
BH206-0.2-0.3														✓
BH206-0.2-0.5														✓
BH206-0.7-0.8														✓
BH206-1.2-1.3														✓
TP207-0-0.2														✓
TP207-0.2-0.5														✓
TP207-0.4-0.5														✓
TP207-0.9-1														✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
TP207-1.4-1.5														✓
TP207-1.9-2														✓
TP207-2.4-2.5														✓
TP208-0-0.2														✓
TP208-0.2-0.5														✓
TP208-0.4-0.5														✓
TP208-0.9-1														✓
TP208-1.4-1.5														✓
BH209-0.05-0.15														✓
BH209-0.2-1.5														✓
BH209-0.7-0.8														✓
BH209-1.4-1.5														✓
BH210-0.03-0.2														✓
BH210-0.1-0.2														✓
BH210-0.2-0.9														✓
BH210-0.5-0.6														✓
BH210-1-1.1														✓
TP211-0-0.2														✓
TP211-0.2-0.6														✓
TP211-0.4-0.5														✓
TP211-0.9-1														✓
TP211-1.4-1.5														✓
TP211-1.9-2														✓
TP212-0-0.2														✓
TP212-0-0.4														✓
TP212-0.4-0.7														✓
TP212-0.5-0.6														✓
TP212-0.7-1														✓
TP212-0.9-1														✓
TP212-1.4-1.5														✓
TP213-0-0.2														✓
TP213-0-0.3														✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
TP213-0.3-1														✓
TP213-0.4-0.5														✓
TP213-0.9-1														✓
TP213-1.4-1.5														✓
TP213-1.9-2														✓
TP214-0-0.1														✓
TP214-0.1-1														✓
TP214-0.4-0.5														✓
TP214-0.9-1														✓
TP214-1.4-1.5														✓
TP215-0-0.1														✓
TP215-0.1-0.9														✓
TP215-0.4-0.5														✓
TP215-1-1.1														✓
TP216-0-0.2														✓
TP216-0.2-0.9														✓
TP216-0.5-0.6														✓
TP216-1-1.1														✓
TP217-0-0.2														✓
TP217-0-0.2														✓
TP217-0.2-0.5														✓
TP217-0.4-0.5														✓
TP217-0.9-1														✓
TP217-1.4-1.5														✓
TP218-0-0.2														✓
TP218-0-0.4														✓
TP218-0.4-1														✓
TP218-0.6-0.7														✓
TP218-1.2-1.3														✓
TP218-1.8-1.9														✓
TP219-0-0.2														✓
TP219-0-0.3														✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
TP219-0.3-1														✓
TP219-0.5-0.6														✓
TP219-1.2-1.3														✓
TP219-1.7-1.8														✓
TP220-0-0.2														✓
TP220-0.2-0.9														✓
TP220-0.5-0.6														✓
BD10/20220419-.	✓	✓	✓				✓							
BD11/20220419-.														✓
BD12/20220419-.														✓
BD13/20220419-.														✓
BD15/20220420-.														✓
BD17/20220421-.														✓
BD18/20220421-.														✓
BD20/20220421-.														✓
BD21/20220421-.														✓
TB1/20220421-.														✓
TS1/20220421-.														✓
RB1/20220421-.														✓
TP211-0.6-1														✓
TP203-1.9-2														✓
BH206-0.5-0.9														✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**	-	**Sampler:**	HD	*12 Ashley St, Chatswood NSW 2067*
Email:	David.Holden@douglaspartners.com.au; henri.dubourdieu			**Attn:**	*Sample Receipt*
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			**Contact:**	*(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage:	☑ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☑ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
1	TP1001A	0	0.2	19/04/22	S	G/P		x				x	x	x				294092
2	TP1001A	0.2	0.3	19/04/22	S	G	x					x						
3	TP1001A	0.2	0.4	19/04/22	S	P		x										
4	TP1001A	0.2	0.4	19/04/22	M	P			x									
5	TP1001A	0.7	0.9	19/04/22	S	P		x										
6	TP1001A	0.8	0.9	19/04/22	S	G/P				x								
7	TP1001A	1.3	1.4	19/04/22	S	G/P				x		x		x				
8	TP1001A	1.8	1.9	19/04/22	S	G/P				x								
9	TP1001A	2.2	2.3	19/04/22	S	P				x								
10	BH1011	0	0.1	19/04/22	S	G					x							
11	BH1011	0	0.4	19/04/22	S	P		x										
12	BH1011	0.6	0.7	19/04/22	S	G						x						
13	BH1012	0	0.1	19/04/22	S	G						x	x	x				
NR	BH1012	0	0.5	19/04/22	S	P		x										

Metals to analyse:	HM8 (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)			**LAB RECEIPT**	
Number of samples in container:	153	**Transported to laboratory by:**	HD	**Lab Ref. No:**	294092
Send results to:	Douglas Partners Pty Ltd			**Received by:**	
Address:	96 Hermitage Road, West Ryde NSW 2114	**Phone:**	(02) 9809 0666	**Date & Time:**	22/4/22
Relinquished by:	HD	**Date:**	22/04/2022 **Signed:** HD	**Signed:**	22/4

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**		**Dispatch date:**	22/04/2022
					12 Ashley St, Chatswood NSW 2067

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				
14	BH1012	0.6	0.7	19/04/22	S	G	x						x	x				
15	TP1019	0	0.2	19/04/22	S	G/P		x				x						
16	TP1019	0.3	0.4	19/04/22	S	G	x											
17	TP1019	0.9	1	19/04/22	S	G	x											
18	TP1020	0	0.2	19/04/22	S	G/P		x				x						
19	TP1020	0.2	0.7	19/04/22	S	P		x										
20	TP1020	0.4	0.5	19/04/22	S	G						x						
21	TP1020	0.9	1	19/04/22	S	G	x											
22	TP1020	1.4	1.5	19/04/22	S	G	x											
23	BH1021	0	0.25	19/04/22	S	P		x										
24	BH1021	0.1	0.2	19/04/22	S	G					x							
25	BH1022	0	0.7	19/04/22	S	P		x										
26	BH1022	0.1	0.2	19/04/22	S	G						x		x				
27	BH1022	0.6	0.7	19/04/22	S	G	x											
28	BH201	0	0.2	19/04/22	S	G/P	x											
29	BH201	0.2	0.5	19/04/22	S	P	x											
30	BH201	0.4	0.5	19/04/22	S	G/P	x											
31	BH201	0.9	1	19/04/22	S	G/P	x											

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:** Narrabeen	**To:** *Envirolab Services*
Project Manager:	96 Hermitage Road, West Ryde NSW 2114		**Dispatch date:**

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				
32	BH201	1.4	1.5	19/04/22	S	G/P	x											
33	BH201	1.9	2	19/04/22	S	P	x											
34	BH201	2.4	2.5	19/04/22	S	P	x											
35	BH202	0.1	0.2	19/04/22	S	G	x											
36	BH202	0.1	0.4	19/04/22	S	P	x											
37	BH202	0.4	0.5	19/04/22	S	G	x											
38	BH202	0.9	1	19/04/22	S	G	x											
39	BH203	0.2	0.3	19/04/22	S	G	x											
NR	BH203	0.2	0.5	19/04/22	S	P	x											
40	BH203	0.5	0.7	19/04/22	S	P	x											
41	BH203	0.6	0.7	19/04/22	S	G	x											
42	BH203	0.9	1	19/04/22	S	G	x											
43	BH203	1.4	1.5	19/04/22	S	G	x											
44	BH204	0	0.1	20/04/22	S	G/P	x											
45	BH204	0.2	0.5	20/04/22	S	P	x											
46	BH204	0.3	0.4	20/04/22	S	G	x											
47	BH204	0.8	0.9	20/04/22	S	G	x											
48	BH204	1.3	1.4	20/04/22	S	G	x											
49	BH204	1.8	1.9	20/04/22	S	G	x											

Project Manager:			**Dispatch date:** x

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04			Suburb:	Narrabeen												To:	Envirolab Services
Lab ID	Sample ID		Date Sampled	Sample Type	Container Type	Analytes												Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC		✓			
50	BH205	0	0.1	20/04/22	S	G/P	x											
51	BH205	0.2	0.5	20/04/22	S	P	x											
52	BH205	0.3	0.4	20/04/22	S	G/P	x											
53	BH205	0.8	0.9	20/04/22	S	G/P	x											
54	BH205	1.3	1.4	20/04/22	S	G/P	x											
55	BH205	1.8	1.9	20/04/22	S	G/P	x											
56	BH205	2.3	2.4	20/04/22	S	P	x											
57	BH206	0.2	0.3	20/04/22	S	G	x											
58	BH206	0.2	0.5	20/04/22	S	P	x											
59	BH206	0.7	0.8	20/04/22	S	G	x											
60	BH206	1.2	1.3	20/04/22	S	G	x											
61	TP207	0	0.2	20/04/22	S	G/P	x											
62	TP207	0.2	0.5	20/04/22	S	P	x											
63	TP207	0.4	0.5	20/04/22	S	G/P	x											
64	TP207	0.9	1	20/04/22	S	G/P	x											
65	TP207	1.4	1.5	20/04/22	S	G/P	x											
66	TP207	1.9	2	20/04/22	S	G/P	x											
67	TP207	2.4	2.5	20/04/22	S	P	x											
68	TP208	0	0.2	20/04/22	S	G/P	x											

Project Manager:	1.3		Dispatch date:	x

	Sample ID	oled	Sample Type	Container Type	Analytes

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen								To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
69	TP208	0.2	0.5	20/04/22	S	P	x											
70	TP208	0.4	0.5	20/04/22	S	G/P	x											
71	TP208	0.9	1	20/04/22	S	G/P	x											
72	TP208	1.4	1.5	20/04/22	S	G/P	x											
NR	TP208	1.9	2	20/04/22	S	P	x											
73	BH209	0.05	0.15	20/04/22	S	G/P	x											
74	BH209	0.2	1.5	20/04/22	S	P	x											
75	BH209	0.7	0.8	20/04/22	S	G	x											
76	BH209	1.4	1.5	20/04/22	S	G	x											
77	BH210	0.03	0.2	20/04/22	S	P	x											
78	BH210	0.1	0.2	20/04/22	S	G	x											
79	BH210	0.2	0.9	20/04/22	S	P	x											
80	BH210	0.5	0.6	20/04/22	S	G	x											
81	BH210	1	1.1	20/04/22	S	G	x											
82	TP211	0	0.2	21/04/22	S	G/P	x											
83	TP211	0.2	0.6	21/04/22	S	P	x											
84	TP211	0.4	0.5	21/04/22	S	G	x											
85	TP211	0.9	1	21/04/22	S	G	x											
86	TP211	1.4	1.5	21/04/22	S	G	x											

Project Manager: 2.4

Dispatch date: x

	Sample ID	oled	Sample Type	Container Type	Analytes

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen									To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
87	TP211	1.9	2	21/04/22	S	G	x											
88	TP212	0	0.2	21/04/22	S	G	x											
89	TP212	0	0.4	21/04/22	S	P	x											
90	TP212	0.4	0.7	21/04/22	S	P	x											
91	TP212	0.5	0.6	21/04/22	S	G	x											
92	TP212	0.7	1	21/04/22	S	P	x											
93	TP212	0.9	1	21/04/22	S	G	x											
94	TP212	1.4	1.5	21/04/22	S	G	x											
95	TP213	0	0.2	21/04/22	S	G	x											
96	TP213	0	0.3	21/04/22	S	P	x											
97	TP213	0.3	1	21/04/22	S	P	x											
98	TP213	0.4	0.5	21/04/22	S	G/P	x											
99	TP213	0.9	1	21/04/22	S	G/P	x											
100	TP213	1.4	1.5	21/04/22	S	G/P	x											
101	TP213	1.9	2	21/04/22	S	G/P	x											
102	TP214	0	0.1	21/04/22	S	G/P	x											
103	TP214	0.1	1	21/04/22	S	P	x											
104	TP214	0.4	0.5	21/04/22	S	G	x											
105	TP214	0.9	1	21/04/22	S	G	x											

Project Manager:	1.4					Dispatch date:	x
	Sample ID	oled	Sample Type	Container Type	Analytes		

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen								To:	Envirolab Services			
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
106	TP214	1.4	1.5	21/04/22	S	G	x											
107	TP215	0	0.1	21/04/22	S	G/P	x											
108	TP215	0.1	0.9	21/04/22	S	P	x											
109	TP215	0.4	0.5	21/04/22	S	G	x											
110	TP215	1	1.1	21/04/22	S	G	x											
111	TP216	0	0.2	21/04/22	S	G/P	x											
112	TP216	0.2	0.9	21/04/22	S	P	x											
113	TP216	0.5	0.6	21/04/22	S	G	x											
114	TP216	1	1.1	21/04/22	S	G	x											
115	TP217	0	0.2	21/04/22	S	G/P	x											
116	TP217	0	0.2	21/04/22	M	P	x											
117	TP217	0.2	0.5	21/04/22	S	P	x											
118	TP217	0.4	0.5	21/04/22	S	G/P	x											
119	TP217	0.9	1	21/04/22	S	G/P	x											
120	TP217	1.4	1.5	21/04/22	S	G/P	x											
121	TP218	0	0.2	21/04/22	S	G	x											
122	TP218	0	0.4	21/04/22	S	P	x											
123	TP218	0.4	1	21/04/22	S	P	x											
124	TP218	0.6	0.7	21/04/22	S	G/P	x											

Project Manager:	0.9					Dispatch date:	x
	Sample ID	oled	Sample Type	Container Type	Analytes		

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen								To:	Envirolab Services			
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
125	TP218	1.2	1.3	21/04/22	S	G/P	x											
126	TP218	1.8	1.9	21/04/22	S	G/P	x											
127	TP219	0	0.2	21/04/22	S	G	x											
128	TP219	0	0.3	21/04/22	S	P	x											
129	TP219	0.3	1	21/04/22	S	P	x											
130	TP219	0.5	0.6	21/04/22	S	G/P	x											
131	TP219	1.2	1.3	21/04/22	S	G/P	x											
132	TP219	1.7	1.8	21/04/22	S	G/P	x											
133	TP220	0	0.2	21/04/22	S	G/P	x											
134	TP220	0.2	0.9	21/04/22	S	P	x											
135	TP220	0.5	0.6	21/04/22	S	G	x											
136	BD10/20220419			19/04/22	S	G						x						
137	BD11/20220419			19/04/22	S	G	x											
138	BD12/20220419			19/04/22	S	G	x											
139	BD13/20220419			19/04/22	S	G	x											
ALS	BD14/20220420			20/04/22	S	G	x											
140	BD15/20220420			20/04/22	S	G	x											
ALS	BD16/20220420			20/04/22	S	G	x											
141	BD17/20220421			21/04/22	S	G	x											

Project Manager:	0.6					Dispatch date:	x
	Sample ID	pled	Sample Type	Container Type	Analytes		

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen									To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
142	BD18/20220421			21/04/22	S	G	x											
ALS	BD19/20220421			21/04/22	S	G	x											
143	BD20/20220421			21/04/22	S	G	x											
144	BD21/20220421			21/04/22	S	G	x											
145	TB1/20220421			21/04/22	S	G	x											
146	TS1/20220421			21/04/22	S	G	x											
147	RB1/20220421			21/04/22	W	G	x											
148	TP211	0.6	1	21/04/22	S	P	x											
149	TP203	1.9	2	20/04/22	S	P												
150	BH206	0.5	0.9	20/04/22	S	P												

Project Manager:		Dispatch date:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 294092-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	148 Soil, 2 Material, 1 Water
Date samples received	20/04/2022
Date completed instructions received	22/04/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	02/05/2022
Date of Issue	02/05/2022

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Panika Wongchanda, Nyovan Moonean
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Liam Timmins, Chemist
Lucy Zhu, Asbestos Supervisor
Priya Samarawickrama, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-28	294092-A-30	294092-A-35	294092-A-38	294092-A-39
Your Reference	UNITS	BH201	BH201	BH202	BH202	BH203
Depth		0-0.2	0.4-0.5	0.1-0.2	0.9-1	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	82	85	91	79	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-44	294092-A-46	294092-A-50	294092-A-55	294092-A-57
Your Reference	UNITS	BH204	BH204	BH205	BH205	BH206
Depth		0-0.1	0.3-0.4	0-0.1	1.8-1.9	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	77	73	71	74

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-59	294092-A-61	294092-A-65	294092-A-68	294092-A-72
Your Reference	UNITS	BH206	TP207	TP207	TP208	TP208
Depth		0.7-0.8	0-0.2	1.4-1.5	0-0.2	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	76	74	71	70	68

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-73	294092-A-75	294092-A-78	294092-A-80	294092-A-82
Your Reference	UNITS	BH209	BH209	BH210	BH210	TP211
Depth		0.05-0.15	0.7-0.8	0.1-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	02/05/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	74	71	82	73	72

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-84	294092-A-88	294092-A-94	294092-A-95	294092-A-98
Your Reference	UNITS	TP211	TP212	TP212	TP213	TP213
Depth		0.4-0.5	0-0.2	1.4-1.5	0-0.2	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	75	71	75	77	91

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-102	294092-A-106	294092-A-107	294092-A-110	294092-A-111
Your Reference	UNITS	TP214	TP214	TP215	TP215	TP216
Depth		0-0.1	1.4-1.5	0-0.1	1-1.1	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	97	90	89	84	88

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-113	294092-A-115	294092-A-120	294092-A-121	294092-A-124
Your Reference	UNITS	TP216	TP217	TP217	TP218	TP218
Depth		0.5-0.6	0-0.2	1.4-1.5	0-0.2	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	85	84	85	80

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		294092-A-127	294092-A-131	294092-A-133	294092-A-135	294092-A-138
Your Reference	UNITS	TP219	TP219	TP220	TP220	BD12/20220419
Depth		0-0.2	1.2-1.3	0-0.2	0.5-0.6	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	90	84	90	86

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		294092-A-139	294092-A-145	294092-A-146
Your Reference	UNITS	BD13/20220419	TB1/20220421	TS1/20220421
Depth		.	.	.
Type of sample		Soil	Soil	Soil
Date Sampled		19/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	98%
Toluene	mg/kg	<0.5	<0.5	104%
Ethylbenzene	mg/kg	<1	<1	100%
m+p-xylene	mg/kg	<2	<2	102%
o-Xylene	mg/kg	<1	<1	101%
Naphthalene	mg/kg	<1	<1	[NT]
Total +ve Xylenes	mg/kg	<1	<1	[NT]
Surrogate aaa-Trifluorotoluene	%	85	95	99

svTRH (C10-C40) in Soil						
Our Reference		294092-A-28	294092-A-30	294092-A-35	294092-A-38	294092-A-39
Your Reference	UNITS	BH201	BH201	BH202	BH202	BH203
Depth		0-0.2	0.4-0.5	0.1-0.2	0.9-1	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	120	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	120	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	84	84	90	81

svTRH (C10-C40) in Soil						
Our Reference		294092-A-44	294092-A-46	294092-A-50	294092-A-55	294092-A-57
Your Reference	UNITS	BH204	BH204	BH205	BH205	BH206
Depth		0-0.1	0.3-0.4	0-0.1	1.8-1.9	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	70	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	150	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	180	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	270	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	270	<50	<50
Surrogate o-Terphenyl	%	100	87	99	88	96

svTRH (C10-C40) in Soil						
Our Reference		294092-A-59	294092-A-61	294092-A-65	294092-A-68	294092-A-72
Your Reference	UNITS	BH206	TP207	TP207	TP208	TP208
Depth		0.7-0.8	0-0.2	1.4-1.5	0-0.2	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	86	92	94	94	95

svTRH (C10-C40) in Soil						
Our Reference		294092-A-73	294092-A-75	294092-A-78	294092-A-80	294092-A-82
Your Reference	UNITS	BH209	BH209	BH210	BH210	TP211
Depth		0.05-0.15	0.7-0.8	0.1-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	93	87	88	90	101

svTRH (C10-C40) in Soil						
Our Reference		294092-A-84	294092-A-88	294092-A-94	294092-A-95	294092-A-98
Your Reference	UNITS	TP211	TP212	TP212	TP213	TP213
Depth		0.4-0.5	0-0.2	1.4-1.5	0-0.2	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	120	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	150	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	150	<50	<50	<50
Surrogate o-Terphenyl	%	93	100	98	101	102

svTRH (C10-C40) in Soil						
Our Reference		294092-A-102	294092-A-106	294092-A-107	294092-A-110	294092-A-111
Your Reference	UNITS	TP214	TP214	TP215	TP215	TP216
Depth		0-0.1	1.4-1.5	0-0.1	1-1.1	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	170	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	200	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	200	<50	<50	<50	<50
Surrogate o-Terphenyl	%	107	105	102	100	98

svTRH (C10-C40) in Soil						
Our Reference		294092-A-113	294092-A-115	294092-A-120	294092-A-121	294092-A-124
Your Reference	UNITS	TP216	TP217	TP217	TP218	TP218
Depth		0.5-0.6	0-0.2	1.4-1.5	0-0.2	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	98	104	94	94	96

svTRH (C10-C40) in Soil						
Our Reference		294092-A-127	294092-A-131	294092-A-133	294092-A-135	294092-A-138
Your Reference	UNITS	TP219	TP219	TP220	TP220	BD12/20220419
Depth		0-0.2	1.2-1.3	0-0.2	0.5-0.6	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	130	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	270	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	340	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	69	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	69	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	520	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	130	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	720	<50	<50
Surrogate o-Terphenyl	%	94	94	116	98	79

svTRH (C10-C40) in Soil		
Our Reference		294092-A-139
Your Reference	UNITS	BD13/20220419
Depth		.
Type of sample		Soil
Date Sampled		19/04/2022
Date extracted	-	28/04/2022
Date analysed	-	29/04/2022
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	75

PAHs in Soil						
Our Reference		294092-A-28	294092-A-30	294092-A-35	294092-A-38	294092-A-39
Your Reference	UNITS	BH201	BH201	BH202	BH202	BH203
Depth		0-0.2	0.4-0.5	0.1-0.2	0.9-1	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	128	100	98	97	94

PAHs in Soil						
Our Reference		294092-A-44	294092-A-46	294092-A-50	294092-A-55	294092-A-57
Your Reference	UNITS	BH204	BH204	BH205	BH205	BH206
Depth		0-0.1	0.3-0.4	0-0.1	1.8-1.9	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	142	103	103	104	135

PAHs in Soil						
Our Reference		294092-A-59	294092-A-61	294092-A-65	294092-A-68	294092-A-72
Your Reference	UNITS	BH206	TP207	TP207	TP208	TP208
Depth		0.7-0.8	0-0.2	1.4-1.5	0-0.2	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	102	102	103	104	102

PAHs in Soil						
Our Reference		294092-A-73	294092-A-75	294092-A-78	294092-A-80	294092-A-82
Your Reference	UNITS	BH209	BH209	BH210	BH210	TP211
Depth		0.05-0.15	0.7-0.8	0.1-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	129	101	129	103	126

PAHs in Soil						
Our Reference		294092-A-84	294092-A-88	294092-A-94	294092-A-95	294092-A-98
Your Reference	UNITS	TP211	TP212	TP212	TP213	TP213
Depth		0.4-0.5	0-0.2	1.4-1.5	0-0.2	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	29/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	103	113	105	113	114

PAHs in Soil						
Our Reference		294092-A-102	294092-A-106	294092-A-107	294092-A-110	294092-A-111
Your Reference	UNITS	TP214	TP214	TP215	TP215	TP216
Depth		0-0.1	1.4-1.5	0-0.1	1-1.1	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	108	110	108	106	103

PAHs in Soil						
Our Reference		294092-A-113	294092-A-115	294092-A-120	294092-A-121	294092-A-124
Your Reference	UNITS	TP216	TP217	TP217	TP218	TP218
Depth		0.5-0.6	0-0.2	1.4-1.5	0-0.2	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	108	109	103	131	105

PAHs in Soil						
Our Reference		294092-A-127	294092-A-131	294092-A-133	294092-A-135	294092-A-138
Your Reference	UNITS	TP219	TP219	TP220	TP220	BD12/20220419
Depth		0-0.2	1.2-1.3	0-0.2	0.5-0.6	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	19/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	29/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	134	99	109	108	88

PAHs in Soil		
Our Reference		294092-A-139
Your Reference	UNITS	BD13/20220419
Depth		.
Type of sample		Soil
Date Sampled		19/04/2022
Date extracted	-	28/04/2022
Date analysed	-	29/04/2022
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	87

Organochlorine Pesticides in soil						
Our Reference		294092-A-28	294092-A-44	294092-A-57	294092-A-73	294092-A-78
Your Reference	UNITS	BH201	BH204	BH206	BH209	BH210
Depth		0-0.2	0-0.1	0.2-0.3	0.05-0.15	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	114	124	125	130	130

Organochlorine Pesticides in soil				
Our Reference		294092-A-82	294092-A-121	294092-A-127
Your Reference	UNITS	TP211	TP218	TP219
Depth		0-0.2	0-0.2	0-0.2
Type of sample		Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	0.6	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	116	122	124

Organophosphorus Pesticides in Soil						
Our Reference		294092-A-28	294092-A-44	294092-A-57	294092-A-73	294092-A-78
Your Reference	UNITS	BH201	BH204	BH206	BH209	BH210
Depth		0-0.2	0-0.1	0.2-0.3	0.05-0.15	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	114	124	125	130	130

Organophosphorus Pesticides in Soil				
Our Reference		294092-A-82	294092-A-121	294092-A-127
Your Reference	UNITS	TP211	TP218	TP219
Depth		0-0.2	0-0.2	0-0.2
Type of sample		Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	116	122	124

PCBs in Soil						
Our Reference		294092-A-28	294092-A-44	294092-A-57	294092-A-73	294092-A-78
Your Reference	UNITS	BH201	BH204	BH206	BH209	BH210
Depth		0-0.2	0-0.1	0.2-0.3	0.05-0.15	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	114	124	125	130	130

PCBs in Soil				
Our Reference		294092-A-82	294092-A-121	294092-A-127
Your Reference	UNITS	TP211	TP218	TP219
Depth		0-0.2	0-0.2	0-0.2
Type of sample		Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022
Date extracted	-	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	116	122	124

Acid Extractable metals in soil						
Our Reference		294092-A-28	294092-A-30	294092-A-35	294092-A-38	294092-A-39
Your Reference	UNITS	BH201	BH201	BH202	BH202	BH203
Depth		0-0.2	0.4-0.5	0.1-0.2	0.9-1	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	5	14	<1	21
Copper	mg/kg	8	6	<1	<1	<1
Lead	mg/kg	18	23	2	<1	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	4	<1	<1	<1
Zinc	mg/kg	29	58	1	<1	<1

Acid Extractable metals in soil						
Our Reference		294092-A-44	294092-A-46	294092-A-50	294092-A-55	294092-A-57
Your Reference	UNITS	BH204	BH204	BH205	BH205	BH206
Depth		0-0.1	0.3-0.4	0-0.1	1.8-1.9	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	9	4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	4	6	1	32
Copper	mg/kg	5	2	6	<1	14
Lead	mg/kg	9	2	10	1	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	1	3	<1	33
Zinc	mg/kg	21	5	26	2	24

Acid Extractable metals in soil						
Our Reference		294092-A-59	294092-A-61	294092-A-65	294092-A-68	294092-A-72
Your Reference	UNITS	BH206	TP207	TP207	TP208	TP208
Depth		0.7-0.8	0-0.2	1.4-1.5	0-0.2	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	6	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	5	<1	<1	3
Copper	mg/kg	4	7	<1	<1	2
Lead	mg/kg	3	14	<1	<1	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	2	<1	<1	<1
Zinc	mg/kg	7	22	3	<1	7

Acid Extractable metals in soil						
Our Reference		294092-A-73	294092-A-75	294092-A-78	294092-A-80	294092-A-82
Your Reference	UNITS	BH209	BH209	BH210	BH210	TP211
Depth		0.05-0.15	0.7-0.8	0.1-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	5	<4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	4	3	6	2	6
Copper	mg/kg	52	9	110	<1	5
Lead	mg/kg	1	7	2	1	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	81	9	120	<1	4
Zinc	mg/kg	26	38	39	4	26

Acid Extractable metals in soil						
Our Reference		294092-A-84	294092-A-88	294092-A-94	294092-A-95	294092-A-98
Your Reference	UNITS	TP211	TP212	TP212	TP213	TP213
Depth		0.4-0.5	0-0.2	1.4-1.5	0-0.2	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	7	4	<4	<4	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	5	<1	8	4
Copper	mg/kg	6	8	<1	7	3
Lead	mg/kg	10	12	<1	8	2
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	4	<1	8	1
Zinc	mg/kg	23	35	<1	23	6

Acid Extractable metals in soil						
Our Reference		294092-A-102	294092-A-106	294092-A-107	294092-A-110	294092-A-111
Your Reference	UNITS	TP214	TP214	TP215	TP215	TP216
Depth		0-0.1	1.4-1.5	0-0.1	1-1.1	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	<4	7	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	<1	6	1	7
Copper	mg/kg	7	<1	4	<1	7
Lead	mg/kg	5	<1	9	2	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	<1	4	<1	7
Zinc	mg/kg	29	<1	18	1	26

Acid Extractable metals in soil						
Our Reference		294092-A-113	294092-A-115	294092-A-120	294092-A-121	294092-A-124
Your Reference	UNITS	TP216	TP217	TP217	TP218	TP218
Depth		0.5-0.6	0-0.2	1.4-1.5	0-0.2	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	10	5	<4	<4	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	8	<1	7	4
Copper	mg/kg	2	7	<1	12	3
Lead	mg/kg	5	11	<1	30	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	5	<1	5	1
Zinc	mg/kg	16	26	<1	81	14

Acid Extractable metals in soil						
Our Reference		294092-A-127	294092-A-131	294092-A-133	294092-A-135	294092-A-138
Your Reference	UNITS	TP219	TP219	TP220	TP220	BD12/20220419
Depth		0-0.2	1.2-1.3	0-0.2	0.5-0.6	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Arsenic	mg/kg	<4	<4	<4	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	2	8	3	5
Copper	mg/kg	11	<1	8	3	5
Lead	mg/kg	9	<1	14	4	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	<1	8	2	3
Zinc	mg/kg	27	<1	35	9	18

Acid Extractable metals in soil		
Our Reference		294092-A-139
Your Reference	UNITS	BD13/20220419
Depth		.
Type of sample		Soil
Date Sampled		19/04/2022
Date prepared	-	28/04/2022
Date analysed	-	29/04/2022
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	<1
Copper	mg/kg	<1
Lead	mg/kg	<1
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	<1

Moisture						
Our Reference		294092-A-28	294092-A-30	294092-A-35	294092-A-38	294092-A-39
Your Reference	UNITS	BH201	BH201	BH202	BH202	BH203
Depth		0-0.2	0.4-0.5	0.1-0.2	0.9-1	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	16	17	21	14	13

Moisture						
Our Reference		294092-A-44	294092-A-46	294092-A-50	294092-A-55	294092-A-57
Your Reference	UNITS	BH204	BH204	BH205	BH205	BH206
Depth		0-0.1	0.3-0.4	0-0.1	1.8-1.9	0.2-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	15	15	25	28	16

Moisture						
Our Reference		294092-A-59	294092-A-61	294092-A-65	294092-A-68	294092-A-72
Your Reference	UNITS	BH206	TP207	TP207	TP208	TP208
Depth		0.7-0.8	0-0.2	1.4-1.5	0-0.2	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	18	20	19	25	21

Moisture						
Our Reference		294092-A-73	294092-A-75	294092-A-78	294092-A-80	294092-A-82
Your Reference	UNITS	BH209	BH209	BH210	BH210	TP211
Depth		0.05-0.15	0.7-0.8	0.1-0.2	0.5-0.6	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	15	19	14	22	18

Moisture						
Our Reference		294092-A-84	294092-A-88	294092-A-94	294092-A-95	294092-A-98
Your Reference	UNITS	TP211	TP212	TP212	TP213	TP213
Depth		0.4-0.5	0-0.2	1.4-1.5	0-0.2	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	15	28	27	19	13

Moisture						
Our Reference		294092-A-102	294092-A-106	294092-A-107	294092-A-110	294092-A-111
Your Reference	UNITS	TP214	TP214	TP215	TP215	TP216
Depth		0-0.1	1.4-1.5	0-0.1	1-1.1	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	18	20	23	18	20

Moisture						
Our Reference		294092-A-113	294092-A-115	294092-A-120	294092-A-121	294092-A-124
Your Reference	UNITS	TP216	TP217	TP217	TP218	TP218
Depth		0.5-0.6	0-0.2	1.4-1.5	0-0.2	0.6-0.7
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	14	18	27	19	17

Moisture						
Our Reference		294092-A-127	294092-A-131	294092-A-133	294092-A-135	294092-A-138
Your Reference	UNITS	TP219	TP219	TP220	TP220	BD12/20220419
Depth		0-0.2	1.2-1.3	0-0.2	0.5-0.6	.
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
Moisture	%	23	19	16	12	16

Moisture		
Our Reference		294092-A-139
Your Reference	UNITS	BD13/20220419
Depth		.
Type of sample		Soil
Date Sampled		19/04/2022
Date prepared	-	28/04/2022
Date analysed	-	29/04/2022
Moisture	%	20

Misc Soil - Inorg						
Our Reference		294092-A-28	294092-A-44	294092-A-57	294092-A-73	294092-A-78
Your Reference	UNITS	BH201	BH204	BH206	BH209	BH210
Depth		0-0.2	0-0.1	0.2-0.3	0.05-0.15	0.1-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg				
Our Reference		294092-A-82	294092-A-121	294092-A-127
Your Reference	UNITS	TP211	TP218	TP219
Depth		0-0.2	0-0.2	0-0.2
Type of sample		Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5

Asbestos ID - soils NEPM						
Our Reference		294092-A-28	294092-A-29	294092-A-36	294092-A-40	294092-A-44
Your Reference	UNITS	BH201	BH201	BH202	BH203	BH204
Depth		0-0.2	0.2-0.5	0.1-0.4	0.5-0.7	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	20/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	705.55	998.42	1,018.34	1,241.19	640.03
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-45	294092-A-50	294092-A-51	294092-A-58	294092-A-61
Your Reference	UNITS	BH204	BH205	BH205	BH206	TP207
Depth		0.2-0.5	0-0.1	0.2-0.5	0.2-0.5	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	982.31	624.87	980.3	1,037.89	688.35
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-62	294092-A-68	294092-A-69	294092-A-73	294092-A-74
Your Reference	UNITS	TP207	TP208	TP208	BH209	BH209
Depth		0.2-0.5	0-0.2	0.2-0.5	0.05-0.15	0.2-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	1,044.32	655.68	994.89	1,118.06	1,140.69
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Grey sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-77	294092-A-79	294092-A-82	294092-A-83	294092-A-89
Your Reference	UNITS	BH210	BH210	TP211	TP211	TP212
Depth		0.03-0.2	0.2-0.9	0-0.2	0.2-0.6	0-0.4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	1,146.57	1,086.86	328.19	1,029.35	504.26
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown fine-grained soil & debris	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-90	294092-A-92	294092-A-96	294092-A-97	294092-A-102
Your Reference	UNITS	TP212	TP212	TP213	TP213	TP214
Depth		0.4-0.7	0.7-1	0-0.3	0.3-1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	1,062.96	980.2	832.23	1,046.37	677.96
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-103	294092-A-107	294092-A-108	294092-A-111	294092-A-112
Your Reference	UNITS	TP214	TP215	TP215	TP216	TP216
Depth		0.1-1	0-0.1	0.1-0.9	0-0.2	0.2-0.9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	1,005.75	979.45	1,101.16	1,265.24	1,062.41
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-115	294092-A-117	294092-A-122	294092-A-123	294092-A-128
Your Reference	UNITS	TP217	TP217	TP218	TP218	TP219
Depth		0-0.2	0.2-0.5	0-0.4	0.4-1	0-0.3
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	911.21	822.27	898.84	995.88	794.08
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	0.7454	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	Chrysotile Amosite	No visible asbestos detected	See Above	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	0.6700	–	–
FA and AF Estimation*	g	0.0014	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM						
Our Reference		294092-A-129	294092-A-133	294092-A-134	294092-A-148	294092-A-150
Your Reference	UNITS	TP219	TP220	TP220	TP211	BH206
Depth		0.3-1	0-0.2	0.2-0.9	0.6-1	0.5-0.9
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	20/04/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Sample mass tested	g	718.88	602.19	1,177.67	1,018.77	1,031.54
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

sPOCAS field test						
Our Reference		294092-A-30	294092-A-31	294092-A-32	294092-A-33	294092-A-34
Your Reference	UNITS	BH201	BH201	BH201	BH201	BH201
Depth		0.4-0.5	0.9-1	1.4-1.5	1.9-2	2.4-2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	19/04/2022	19/04/2022	19/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	7.2	8.0	7.8	6.3	6.0
pH_{FOX} (field peroxide test)*	pH Units	5.6	5.2	5.7	1.0	1.4
Reaction Rate*	-	Medium reaction	Low reaction	Low reaction	Volcanic reaction	Volcanic reaction

sPOCAS field test						
Our Reference		294092-A-52	294092-A-53	294092-A-54	294092-A-55	294092-A-56
Your Reference	UNITS	BH205	BH205	BH205	BH205	BH205
Depth		0.3-0.4	0.8-0.9	1.3-1.4	1.8-1.9	2.3-2.4
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	6.3	8.8	8.0	7.6	7.2
pH_{FOX} (field peroxide test)*	pH Units	5.7	6.1	6.3	5.7	1.5
Reaction Rate*	-	High reaction	Medium reaction	Low reaction	Low reaction	Volcanic reaction

sPOCAS field test						
Our Reference		294092-A-63	294092-A-64	294092-A-65	294092-A-66	294092-A-67
Your Reference	UNITS	TP207	TP207	TP207	TP207	TP207
Depth		0.4-0.5	0.9-1	1.4-1.5	1.9-2	2.4-2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	8.0	8.4	8.4	7.1	6.8
pH_{FOX} (field peroxide test)*	pH Units	6.1	6.2	6.2	1.2	2.5
Reaction Rate*	-	Medium reaction	Medium reaction	Medium reaction	Volcanic reaction	Volcanic reaction

sPOCAS field test						
Our Reference		294092-A-70	294092-A-71	294092-A-72	294092-A-98	294092-A-99
Your Reference	UNITS	TP208	TP208	TP208	TP213	TP213
Depth		0.4-0.5	0.9-1	1.4-1.5	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	9.1	9.2	7.1	8.8	6.5
pH_{FOX} (field peroxide test)*	pH Units	6.7	6.7	6.0	6.8	6.7
Reaction Rate*	-	Medium reaction	Low reaction	Low reaction	Medium reaction	Low reaction

sPOCAS field test						
Our Reference		294092-A-100	294092-A-101	294092-A-114	294092-A-118	294092-A-119
Your Reference	UNITS	TP213	TP213	TP216	TP217	TP217
Depth		1.4-1.5	1.9-2	1-1.1	0.4-0.5	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	7.1	7.1	7.3	8.8	9.1
pH_{FOX} (field peroxide test)*	pH Units	6.0	6.3	6.2	8.2	8.0
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Medium reaction	Medium reaction

sPOCAS field test						
Our Reference		294092-A-120	294092-A-124	294092-A-125	294092-A-126	294092-A-130
Your Reference	UNITS	TP217	TP218	TP218	TP218	TP219
Depth		1.4-1.5	0.6-0.7	1.2-1.3	1.8-1.9	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	8.2	8.8	8.2	8.0	8.7
pH_{FOX} (field peroxide test)*	pH Units	6.8	6.9	6.8	6.2	6.8
Reaction Rate*	-	Low reaction	Medium reaction	Medium reaction	Low reaction	Medium reaction

sPOCAS field test			
Our Reference		294092-A-131	294092-A-132
Your Reference	UNITS	TP219	TP219
Depth		1.2-1.3	1.7-1.8
Type of sample		Soil	Soil
Date Sampled		21/04/2022	21/04/2022
Date prepared	-	28/04/2022	28/04/2022
Date analysed	-	28/04/2022	28/04/2022
pH_F (field pH test)*	pH Units	8.0	7.8
pH_{FOX} (field peroxide test)*	pH Units	6.1	6.3
Reaction Rate*	-	Low reaction	Low reaction

Misc Inorg - Soil			
Our Reference		294092-A-61	294092-A-95
Your Reference	UNITS	TP207	TP213
Depth		0-0.2	0-0.2
Type of sample		Soil	Soil
Date Sampled		20/04/2022	21/04/2022
Date prepared	-	29/04/2022	29/04/2022
Date analysed	-	29/04/2022	29/04/2022
pH 1:5 soil:water	pH Units	7.3	6.6

CEC						
Our Reference		294092-A-50	294092-A-61	294092-A-63	294092-A-65	294092-A-95
Your Reference	UNITS	BH205	TP207	TP207	TP207	TP213
Depth		0-0.1	0-0.2	0.4-0.5	1.4-1.5	0-0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	20/04/2022	20/04/2022	21/04/2022
Date prepared	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Date analysed	-	02/05/2022	02/05/2022	02/05/2022	02/05/2022	02/05/2022
Exchangeable Ca	meq/100g	13	17	19	4.8	6.6
Exchangeable K	meq/100g	0.1	0.1	<0.1	<0.1	<0.1
Exchangeable Mg	meq/100g	1.3	1.0	1.3	0.3	1
Exchangeable Na	meq/100g	<0.1	<0.1	0.2	<0.1	<0.1
Cation Exchange Capacity	meq/100g	15	18	21	5.2	7.7

CEC			
Our Reference		294092-A-98	294092-A-100
Your Reference	UNITS	TP213	TP213
Depth		0.4-0.5	1.4-1.5
Type of sample		Soil	Soil
Date Sampled		21/04/2022	21/04/2022
Date prepared	-	02/05/2022	02/05/2022
Date analysed	-	02/05/2022	02/05/2022
Exchangeable Ca	meq/100g	22	2.2
Exchangeable K	meq/100g	<0.1	<0.1
Exchangeable Mg	meq/100g	2.0	0.3
Exchangeable Na	meq/100g	0.2	<0.1
Cation Exchange Capacity	meq/100g	24	2.5

Asbestos ID - materials		
Our Reference		294092-A-116
Your Reference	UNITS	TP217
Depth		0-0.2
Type of sample		Material
Date Sampled		21/04/2022
Date analysed	-	28/04/2022
Mass / Dimension of Sample	-	20x10x2mm
Sample Description	-	Beige putty
Asbestos ID in materials	-	No asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected

Asbestos ID - soils		
Our Reference		294092-A-151
Your Reference	UNITS	BH203
Depth		0.2-0.5
Type of sample		Soil
Date Sampled		19/04/2022
Date analysed	-	02/05/2022
Sample mass tested	g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO
Trace Analysis	-	No asbestos detected

vTRH(C6-C10)/BTEXN in Water		
Our Reference		294092-A-147
Your Reference	UNITS	RB1/20220421
Depth		.
Type of sample		Water
Date Sampled		21/04/2022
Date extracted	-	27/04/2022
Date analysed	-	28/04/2022
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	95
Surrogate toluene-d8	%	97
Surrogate 4-BFB	%	100

svTRH (C10-C40) in Water		
Our Reference		294092-A-147
Your Reference	UNITS	RB1/20220421
Depth		.
Type of sample		Water
Date Sampled		21/04/2022
Date extracted	-	28/04/2022
Date analysed	-	29/04/2022
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	86

Metals in Waters - Acid extractable		
Our Reference		294092-A-147
Your Reference	UNITS	RB1/20220421
Depth		.
Type of sample		Water
Date Sampled		21/04/2022
Date prepared	-	28/04/2022
Date analysed	-	28/04/2022
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	<0.01
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-063	pH- measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide or extracted with water. Based on section H, Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004. To ensure accurate results these tests are recommended to be done in the field as pH may change with time thus these results may not be representative of true field conditions.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-A-57
Date extracted	-			28/04/2022	55	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			29/04/2022	55	29/04/2022	29/04/2022		29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	55	<25	<25	0	106	92
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	55	<25	<25	0	106	92
Benzene	mg/kg	0.2	Org-023	<0.2	55	<0.2	<0.2	0	98	73
Toluene	mg/kg	0.5	Org-023	<0.5	55	<0.5	<0.5	0	108	79
Ethylbenzene	mg/kg	1	Org-023	<1	55	<1	<1	0	104	97
m+p-xylene	mg/kg	2	Org-023	<2	55	<2	<2	0	110	106
o-Xylene	mg/kg	1	Org-023	<1	55	<1	<1	0	105	100
Naphthalene	mg/kg	1	Org-023	<1	55	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	76	55	71	65	9	103	77

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	294092-A-111
Date extracted	-			[NT]	80	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			[NT]	80	29/04/2022	29/04/2022		29/04/2022	29/04/2022
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	80	<25	<25	0	93	94
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	80	<25	<25	0	93	94
Benzene	mg/kg	0.2	Org-023	[NT]	80	<0.2	<0.2	0	75	93
Toluene	mg/kg	0.5	Org-023	[NT]	80	<0.5	<0.5	0	80	83
Ethylbenzene	mg/kg	1	Org-023	[NT]	80	<1	<1	0	100	89
m+p-xylene	mg/kg	2	Org-023	[NT]	80	<2	<2	0	106	102
o-Xylene	mg/kg	1	Org-023	[NT]	80	<1	<1	0	102	79
Naphthalene	mg/kg	1	Org-023	[NT]	80	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	80	73	77	5	78	81

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			[NT]	110	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	110	29/04/2022	29/04/2022		29/04/2022	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	110	<25	<25	0	105	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	110	<25	<25	0	105	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	110	<0.2	<0.2	0	99	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	110	<0.5	<0.5	0	89	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	110	<1	<1	0	99	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	110	<2	<2	0	119	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	110	<1	<1	0	91	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	110	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	110	84	85	1	94	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	135	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	135	29/04/2022	29/04/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	135	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	135	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	135	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	135	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	135	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	135	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	135	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	135	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	135	90	103	13	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-A-57
Date extracted	-			28/04/2022	55	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			29/04/2022	55	28/04/2022	29/04/2022		28/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	55	<50	<50	0	129	125
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	55	<100	<100	0	96	105
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	55	<100	<100	0	117	83
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	55	<50	<50	0	129	125
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	55	<100	<100	0	96	105
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	55	<100	<100	0	117	83
Surrogate o-Terphenyl	%		Org-020	78	55	88	96	9	130	96

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	294092-A-111
Date extracted	-			[NT]	80	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			[NT]	80	29/04/2022	29/04/2022		28/04/2022	29/04/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	80	<50	<50	0	116	128
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	80	<100	<100	0	102	102
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	80	<100	<100	0	100	116
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	80	<50	<50	0	116	128
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	80	<100	<100	0	102	102
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	80	<100	<100	0	100	116
Surrogate o-Terphenyl	%		Org-020	[NT]	80	90	90	0	130	126

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			[NT]	110	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	110	29/04/2022	29/04/2022		29/04/2022	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	110	<50	<50	0	128	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	110	<100	<100	0	97	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	110	<100	<100	0	100	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	110	<50	<50	0	128	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	110	<100	<100	0	97	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	110	<100	<100	0	100	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	110	100	98	2	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	135	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	135	29/04/2022	29/04/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	135	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	135	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	135	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	135	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	135	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	135	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	135	98	91	7	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-A-57
Date extracted	-			28/04/2022	55	28/04/2022	28/04/2022		28/04/2022	29/04/2022
Date analysed	-			29/04/2022	55	29/04/2022	29/04/2022		29/04/2022	29/04/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	103	103
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	103	101
Fluorene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	103	102
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	135	107
Anthracene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	112	102
Pyrene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	115	102
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	93	100
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	55	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	55	<0.05	<0.05	0	110	97
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	55	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	93	55	104	110	6	98	123

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	294092-A-111
Date extracted	-			[NT]	80	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			[NT]	80	29/04/2022	29/04/2022		29/04/2022	29/04/2022
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	111	99
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	107	97
Fluorene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	111	97
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	137	128
Anthracene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	118	108
Pyrene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	121	113
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	95	87
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	80	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	80	<0.05	<0.05	0	126	128
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	80	103	103	0	99	101

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			[NT]	110	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	110	29/04/2022	29/04/2022		29/04/2022	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	108	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	112	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	109	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	107	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	110	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	113	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	105	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	110	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	110	<0.05	<0.05	0	98	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	110	106	107	1	69	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	135	29/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	135	29/04/2022	29/04/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	135	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	135	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	135	108	105	3	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	294092-A-57
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	29/04/2022
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	29/04/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	115	105
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	111	102
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	114	105
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	98
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	105
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	101
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	100
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	106
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	103
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	117	125
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	130	[NT]	[NT]	[NT]	[NT]	63	118

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	294092-A-57
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	29/04/2022
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	29/04/2022
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	120	107
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	104
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	112
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	113
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	102
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	110
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	107
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	130	[NT]	[NT]	[NT]	[NT]	63	118

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	294092-A-57
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	29/04/2022
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	29/04/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	113	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	130	[NT]	[NT]	[NT]	[NT]	63	118

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	294092-A-57
Date prepared	-			28/04/2022	55	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			29/04/2022	55	29/04/2022	29/04/2022		29/04/2022	29/04/2022
Arsenic	mg/kg	4	Metals-020	<4	55	<4	<4	0	92	82
Cadmium	mg/kg	0.4	Metals-020	<0.4	55	<0.4	<0.4	0	92	84
Chromium	mg/kg	1	Metals-020	<1	55	1	1	0	92	#
Copper	mg/kg	1	Metals-020	<1	55	<1	1	0	91	78
Lead	mg/kg	1	Metals-020	<1	55	1	1	0	92	74
Mercury	mg/kg	0.1	Metals-021	<0.1	55	<0.1	<0.1	0	110	117
Nickel	mg/kg	1	Metals-020	<1	55	<1	<1	0	93	#
Zinc	mg/kg	1	Metals-020	<1	55	2	2	0	88	#

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	294092-A-111
Date prepared	-			[NT]	80	28/04/2022	28/04/2022		28/04/2022	28/04/2022
Date analysed	-			[NT]	80	29/04/2022	29/04/2022		29/04/2022	29/04/2022
Arsenic	mg/kg	4	Metals-020	[NT]	80	<4	10	86	90	85
Cadmium	mg/kg	0.4	Metals-020	[NT]	80	<0.4	<0.4	0	91	79
Chromium	mg/kg	1	Metals-020	[NT]	80	2	7	111	90	90
Copper	mg/kg	1	Metals-020	[NT]	80	<1	3	100	90	101
Lead	mg/kg	1	Metals-020	[NT]	80	1	2	67	91	87
Mercury	mg/kg	0.1	Metals-021	[NT]	80	<0.1	<0.1	0	114	114
Nickel	mg/kg	1	Metals-020	[NT]	80	<1	1	0	91	87
Zinc	mg/kg	1	Metals-020	[NT]	80	4	6	40	86	85

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			[NT]	110	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	110	29/04/2022	29/04/2022		29/04/2022	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	110	<4	<4	0	89	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	110	<0.4	<0.4	0	87	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	110	1	2	67	89	[NT]
Copper	mg/kg	1	Metals-020	[NT]	110	<1	1	0	91	[NT]
Lead	mg/kg	1	Metals-020	[NT]	110	2	2	0	89	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	110	<0.1	<0.1	0	112	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	110	<1	<1	0	90	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	110	1	2	67	84	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	135	28/04/2022	28/04/2022		[NT]	[NT]
Date analysed	-			[NT]	135	29/04/2022	29/04/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	135	6	8	29	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	135	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	135	3	4	29	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	135	3	4	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	135	4	4	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	135	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	135	2	2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	135	9	10	11	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			28/04/2022	28	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			28/04/2022	28	28/04/2022	28/04/2022		28/04/2022	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	28	<5	<5	0	102	[NT]

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			28/04/2022	31	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			28/04/2022	31	28/04/2022	28/04/2022		28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	31	8.0	7.8	3	97	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	31	5.2	5.3	2	97	[NT]

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			[NT]	55	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	55	28/04/2022	28/04/2022		28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	55	7.6	7.4	3	98	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	55	5.7	5.8	2	98	[NT]

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			[NT]	99	28/04/2022	28/04/2022		28/04/2022	[NT]
Date analysed	-			[NT]	99	28/04/2022	28/04/2022		28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	99	6.5	6.5	0	98	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	99	6.7	6.6	2	98	[NT]

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			[NT]	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
pH_F (field pH test)*	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	97	[NT]
pH_{FOX} (field peroxide test)*	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			02/05/2022	[NT]	[NT]	[NT]	[NT]	02/05/2022	[NT]
Date analysed	-			02/05/2022	[NT]	[NT]	[NT]	[NT]	02/05/2022	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			27/04/2022	[NT]	[NT]	[NT]	[NT]	27/04/2022	[NT]
Date analysed	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-023	103	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
Surrogate o-Terphenyl	%		Org-020	94	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	98	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	113	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	101	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.
Note: Sample 294092-A-151 was sub-sampled from a bag provided by the client.

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Factual description of asbestos identified in the soil samples: NEPM
Sample 294092-A-115; Chrysotile and Amosite asbestos identified in 0.0018g of fibrous matted material

Sample 294092-A-122; Chrysotile and Amosite asbestos identified in 4.4669g of fibre cement material >7mm

8 metals in soil - # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	294092-A
Date Sample Received	20/04/2022
Date Instructions Received	22/04/2022
Date Results Expected to be Reported	02/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	147 Soil, 2 Material, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	Metals in Waters -Acid extractable	On Hold
TP1001A-0-0.2																	✓
TP1001A-0.2-0.3																	✓
TP1001A-0.2-0.4																	✓
TP1001A-0.2-0.4																	✓
TP1001A-0.7-0.9																	✓
TP1001A-0.8-0.9																	✓
TP1001A-1.3-1.4																	✓
TP1001A-1.8-1.9																	✓
TP1001A-2.2-2.3																	✓
BH1011-0-0.1																	✓
BH1011-0-0.4																	✓
BH1011-0.6-0.7																	✓
BH1012-0-0.1																	✓
BH1012-0.6-0.7																	✓
TP1019-0-0.2																	✓
TP1019-0.3-0.4																	✓
TP1019-0.9-1																	✓
TP1020-0-0.2																	✓
TP1020-0.2-0.7																	✓
TP1020-0.4-0.5																	✓
TP1020-0.9-1																	✓
TP1020-1.4-1.5																	✓
BH1021-0-0.25																	✓
BH1021-0.1-0.2																	✓
BH1022-0-0.7																	✓
BH1022-0.1-0.2																	✓
BH1022-0.6-0.7																	✓
BH201-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓								
BH201-0.2-0.5									✓								
BH201-0.4-0.5	✓	✓	✓				✓			✓							
BH201-0.9-1										✓							
BH201-1.4-1.5										✓							

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	Metals in Waters -Acid extractable	On Hold
BH201-1.9-2										✓							
BH201-2.4-2.5										✓							
BH202-0.1-0.2	✓	✓	✓				✓										
BH202-0.1-0.4									✓								
BH202-0.4-0.5																	✓
BH202-0.9-1	✓	✓	✓				✓										
BH203-0.2-0.3	✓	✓	✓				✓										
BH203-0.5-0.7									✓								
BH203-0.6-0.7																	✓
BH203-0.9-1																	✓
BH203-1.4-1.5																	✓
BH204-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓								
BH204-0.2-0.5									✓								
BH204-0.3-0.4	✓	✓	✓				✓										
BH204-0.8-0.9																	✓
BH204-1.3-1.4																	✓
BH204-1.8-1.9																	✓
BH205-0-0.1	✓	✓	✓				✓		✓			✓					
BH205-0.2-0.5									✓								
BH205-0.3-0.4										✓							
BH205-0.8-0.9										✓							
BH205-1.3-1.4										✓							
BH205-1.8-1.9	✓	✓	✓				✓			✓							
BH205-2.3-2.4										✓							
BH206-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓									
BH206-0.2-0.5									✓								
BH206-0.7-0.8	✓	✓	✓				✓										
BH206-1.2-1.3																	✓
TP207-0-0.2	✓	✓	✓				✓		✓		✓	✓					
TP207-0.2-0.5									✓								
TP207-0.4-0.5										✓		✓					
TP207-0.9-1										✓							

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	Metals in Waters -Acid extractable	On Hold
TP207-1.4-1.5	✓	✓	✓				✓			✓		✓					
TP207-1.9-2										✓							
TP207-2.4-2.5										✓							
TP208-0-0.2	✓	✓	✓				✓		✓								
TP208-0.2-0.5									✓								
TP208-0.4-0.5										✓							
TP208-0.9-1										✓							
TP208-1.4-1.5	✓	✓	✓				✓			✓							
BH209-0.05-0.15	✓	✓	✓	✓	✓	✓	✓	✓	✓								
BH209-0.2-1.5									✓								
BH209-0.7-0.8	✓	✓	✓				✓										
BH209-1.4-1.5																	✓
BH210-0.03-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓								
BH210-0.1-0.2																	✓
BH210-0.2-0.9									✓								
BH210-0.5-0.6	✓	✓	✓				✓										
BH210-1-1.1																	✓
TP211-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓								
TP211-0.2-0.6									✓								
TP211-0.4-0.5	✓	✓	✓				✓										
TP211-0.9-1																	✓
TP211-1.4-1.5																	✓
TP211-1.9-2																	✓
TP212-0-0.2	✓	✓	✓				✓										
TP212-0-0.4									✓								
TP212-0.4-0.7									✓								
TP212-0.5-0.6																	✓
TP212-0.7-1									✓								
TP212-0.9-1																	✓
TP212-1.4-1.5	✓	✓	✓				✓										
TP213-0-0.2	✓	✓	✓				✓				✓	✓					
TP213-0-0.3									✓								

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	Metals in Waters -Acid extractable	On Hold
TP213-0.3-1									✓								
TP213-0.4-0.5	✓	✓	✓				✓			✓		✓					
TP213-0.9-1										✓							
TP213-1.4-1.5										✓		✓					
TP213-1.9-2										✓							
TP214-0-0.1	✓	✓	✓				✓		✓								
TP214-0.1-1									✓								
TP214-0.4-0.5																	✓
TP214-0.9-1																	✓
TP214-1.4-1.5	✓	✓	✓				✓										
TP215-0-0.1	✓	✓	✓				✓		✓								
TP215-0.1-0.9									✓								
TP215-0.4-0.5																	✓
TP215-1-1.1	✓	✓	✓				✓										
TP216-0-0.2	✓	✓	✓				✓		✓								
TP216-0.2-0.9									✓								
TP216-0.5-0.6	✓	✓	✓				✓										
TP216-1-1.1										✓							
TP217-0-0.2	✓	✓	✓				✓		✓								
TP217-0-0.2													✓				
TP217-0.2-0.5									✓								
TP217-0.4-0.5										✓							
TP217-0.9-1										✓							
TP217-1.4-1.5	✓	✓	✓				✓			✓							
TP218-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓									
TP218-0-0.4									✓								
TP218-0.4-1									✓								
TP218-0.6-0.7	✓	✓	✓				✓			✓							
TP218-1.2-1.3										✓							
TP218-1.8-1.9										✓							
TP219-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓									
TP219-0-0.3									✓								

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ABN 37 112 535 645
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ph 02 9910 6200 fax 02 9910 6201
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	sPOCAS field test	Misc Inorg - Soil	CEC	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	Metals in Waters -Acid extractable	On Hold
TP219-0.3-1									✓								
TP219-0.5-0.6										✓							
TP219-1.2-1.3	✓	✓	✓				✓			✓							
TP219-1.7-1.8										✓							
TP220-0-0.2	✓	✓	✓				✓		✓								
TP220-0.2-0.9									✓								
TP220-0.5-0.6	✓	✓	✓				✓										
BD10/20220419-.																	✓
BD11/20220419-.																	✓
BD12/20220419-.	✓	✓	✓				✓										
BD13/20220419-.	✓	✓	✓				✓										
BD15/20220420-.																	✓
BD17/20220421-.																	✓
BD18/20220421-.																	✓
BD20/20220421-.																	✓
BD21/20220421-.																	✓
TB1/20220421-.	✓																
TS1/20220421-.	✓																
RB1/20220421-.														✓	✓	✓	
TP211-0.6-1									✓								
TP203-1.9-2																	✓
BH206-0.5-0.9																	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**	-	**Sampler:**	HD	*12 Ashley St, Chatswood NSW 2067*
Email:	David.Holden@douglaspartners.com.au; henri.dubourdieu			**Attn:**	*Sample Receipt*
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			**Contact:**	*(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage:	☑ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☑ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		Notes/ Preservation/ Additional Requirements
1	TP1001A	0	0.2	19/04/22	S	G/P	x											294092
2	TP1001A	0.2	0.3	19/04/22	S	G	x											
3	TP1001A	0.2	0.4	19/04/22	S	P	x											
4	TP1001A	0.2	0.4	19/04/22	M	P	x											
5	TP1001A	0.7	0.9	19/04/22	S	P	x											
6	TP1001A	0.8	0.9	19/04/22	S	G/P	x											
7	TP1001A	1.3	1.4	19/04/22	S	G/P	x											
8	TP1001A	1.8	1.9	19/04/22	S	G/P	x											
9	TP1001A	2.2	2.3	19/04/22	S	P	x											
10	BH1011	0	0.1	19/04/22	S	G	x											
11	BH1011	0	0.4	19/04/22	S	P	x											
12	BH1011	0.6	0.7	19/04/22	S	G	x											
13	BH1012	0	0.1	19/04/22	S	G	x											
NR	BH1012	0	0.5	19/04/22	S	P	x											

Metals to analyse:			**LAB RECEIPT**
Number of samples in container:	**Transported to laboratory by:**		**Lab Ref. No:** 294092
Send results to:	Douglas Partners Pty Ltd		**Received by:**
Address:	96 Hermitage Road, West Ryde NSW 2114	**Phone:** (02) 9809 0666	**Date & Time:** 20/4/22
Relinquished by:	**Date:**	**Signed:**	**Signed:**

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**		**Dispatch date:**	*12 Ashley St, Chatswood NSW 2067*

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		
14	BH1012	0.6	0.7	19/04/22	S	G	x											
15	TP1019	0	0.2	19/04/22	S	G/P	x											
16	TP1019	0.3	0.4	19/04/22	S	G	x											
17	TP1019	0.9	1	19/04/22	S	G	x											
18	TP1020	0	0.2	19/04/22	S	G/P	x											
19	TP1020	0.2	0.7	19/04/22	S	P	x											
20	TP1020	0.4	0.5	19/04/22	S	G	x											
21	TP1020	0.9	1	19/04/22	S	G	x											
22	TP1020	1.4	1.5	19/04/22	S	G	x											
23	BH1021	0	0.25	19/04/22	S	P	x											
24	BH1021	0.1	0.2	19/04/22	S	G	x											
25	BH1022	0	0.7	19/04/22	S	P	x											
26	BH1022	0.1	0.2	19/04/22	S	G	x											
27	BH1022	0.6	0.7	19/04/22	S	G	x											
28	BH201	0	0.2	19/04/22	S	G/P		x			x							
29	BH201	0.2	0.5	19/04/22	S	P		x										
30	BH201	0.4	0.5	19/04/22	S	G/P				x		x						
31	BH201	0.9	1	19/04/22	S	G/P				x								

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:** Narrabeen	**To:** *Envirolab Services*
Project Manager:	96 Hermitage Road, West Ryde NSW		**Dispatch date:**

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		
32	BH201	1.4	1.5	19/04/22	S	G/P				x								
33	BH201	1.9	2	19/04/22	S	P				x								
34	BH201	2.4	2.5	19/04/22	S	P				x								
35	BH202	0.1	0.2	19/04/22	S	G						x						
36	BH202	0.1	0.4	19/04/22	S	P		x										
37	BH202	0.4	0.5	19/04/22	S	G	x											
38	BH202	0.9	1	19/04/22	S	G						x						
39	BH203	0.2	0.3	19/04/22	S	G						x						
NR	BH203	0.2	0.5	19/04/22	S	P		x										
40	BH203	0.5	0.7	19/04/22	S	P		x										
41	BH203	0.6	0.7	19/04/22	S	G	x											
42	BH203	0.9	1	19/04/22	S	G	x											
43	BH203	1.4	1.5	19/04/22	S	G	x											
44	BH204	0	0.1	20/04/22	S	G/P		x			x							
45	BH204	0.2	0.5	20/04/22	S	P		x										
46	BH204	0.3	0.4	20/04/22	S	G						x						
47	BH204	0.8	0.9	20/04/22	S	G	x											
48	BH204	1.3	1.4	20/04/22	S	G	x											
49	BH204	1.8	1.9	20/04/22	S	G	x											

Project Manager:		**Dispatch date:**	x

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04			Suburb:	Narrabeen											To:	Envirolab Services
Lab ID	Sample ID		Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		
50	BH205	0	0.1	20/04/22	S	G/P		x				x		x			
51	BH205	0.2	0.5	20/04/22	S	P		x									
52	BH205	0.3	0.4	20/04/22	S	G/P				x							
53	BH205	0.8	0.9	20/04/22	S	G/P				x							
54	BH205	1.3	1.4	20/04/22	S	G/P				x							
55	BH205	1.8	1.9	20/04/22	S	G/P				x		x					
56	BH205	2.3	2.4	20/04/22	S	P				x							
57	BH206	0.2	0.3	20/04/22	S	G					x						
58	BH206	0.2	0.5	20/04/22	S	P		x									
59	BH206	0.7	0.8	20/04/22	S	G						x					
60	BH206	1.2	1.3	20/04/22	S	G	x										
61	TP207	0	0.2	20/04/22	S	G/P		x				x	x	x			
62	TP207	0.2	0.5	20/04/22	S	P		x									
63	TP207	0.4	0.5	20/04/22	S	G/P				x				x			
64	TP207	0.9	1	20/04/22	S	G/P				x							
65	TP207	1.4	1.5	20/04/22	S	G/P				x		x		x			
66	TP207	1.9	2	20/04/22	S	G/P				x							
67	TP207	2.4	2.5	20/04/22	S	P				x							
68	TP208	0	0.2	20/04/22	S	G/P		x				x					

Project Manager:	1.3						Dispatch date:
	Sample ID	pled	Sample Type	Container Type	Analytes		

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen								To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		Notes/ Preservation/ Additional Requirements
69	TP208	0.2	0.5	20/04/22	S	P		x										
70	TP208	0.4	0.5	20/04/22	S	G/P				x								
71	TP208	0.9	1	20/04/22	S	G/P				x								
72	TP208	1.4	1.5	20/04/22	S	G/P				x		x						
NR	TP208	1.9	2	20/04/22	S	P				x								
73	BH209	0.05	0.15	20/04/22	S	G/P		x			x							
74	BH209	0.2	1.5	20/04/22	S	P		x										
75	BH209	0.7	0.8	20/04/22	S	G						x						
76	BH209	1.4	1.5	20/04/22	S	G	x											
77	BH210	0.03	0.2	20/04/22	S	P		x			x							
78	BH210	0.1	0.2	20/04/22	S	G	x											
79	BH210	0.2	0.9	20/04/22	S	P		x										
80	BH210	0.5	0.6	20/04/22	S	G						x						
81	BH210	1	1.1	20/04/22	S	G	x											
82	TP211	0	0.2	21/04/22	S	G/P		x			x							
83	TP211	0.2	0.6	21/04/22	S	P		x										
84	TP211	0.4	0.5	21/04/22	S	G						x						
85	TP211	0.9	1	21/04/22	S	G	x											
86	TP211	1.4	1.5	21/04/22	S	G	x											

Project Manager: 2.4

Dispatch date: x

	Sample ID	pled	Sample Type	Container Type	Analytes

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen								To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		Notes/ Preservation/ Additional Requirements
87	TP211	1.9	2	21/04/22	S	G	x											
88	TP212	0	0.2	21/04/22	S	G						x						
89	TP212	0	0.4	21/04/22	S	P		x										
90	TP212	0.4	0.7	21/04/22	S	P		x										
91	TP212	0.5	0.6	21/04/22	S	G	x											
92	TP212	0.7	1	21/04/22	S	P		x										
93	TP212	0.9	1	21/04/22	S	G	x											
94	TP212	1.4	1.5	21/04/22	S	G						x						
95	TP213	0	0.2	21/04/22	S	G						x	x	x				
96	TP213	0	0.3	21/04/22	S	P		x										
97	TP213	0.3	1	21/04/22	S	P		x										
98	TP213	0.4	0.5	21/04/22	S	G/P				x		x		x				
99	TP213	0.9	1	21/04/22	S	G/P				x								
100	TP213	1.4	1.5	21/04/22	S	G/P				x				x				
101	TP213	1.9	2	21/04/22	S	G/P				x								
102	TP214	0	0.1	21/04/22	S	G/P		x				x						
103	TP214	0.1	1	21/04/22	S	P		x										
104	TP214	0.4	0.5	21/04/22	S	G	x											
105	TP214	0.9	1	21/04/22	S	G	x											

Project Manager:	1.4					Dispatch date:	x
	Sample ID	pled	Sample Type	Container Type	Analytes		

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen									To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		Notes/ Preservation/ Additional Requirements
106	TP214	1.4	1.5	21/04/22	S	G						x						
107	TP215	0	0.1	21/04/22	S	G/P		x				x						
108	TP215	0.1	0.9	21/04/22	S	P		x										
109	TP215	0.4	0.5	21/04/22	S	G	x											
110	TP215	1	1.1	21/04/22	S	G						x						
111	TP216	0	0.2	21/04/22	S	G/P		x				x						
112	TP216	0.2	0.9	21/04/22	S	P		x										
113	TP216	0.5	0.6	21/04/22	S	G						x						
114	TP216	1	1.1	21/04/22	S	G				x								
115	TP217	0	0.2	21/04/22	S	G/P		x				x						
116	TP217	0	0.2	21/04/22	M	P			x									
117	TP217	0.2	0.5	21/04/22	S	P		x										
118	TP217	0.4	0.5	21/04/22	S	G/P				x								
119	TP217	0.9	1	21/04/22	S	G/P				x								
120	TP217	1.4	1.5	21/04/22	S	G/P				x		x						
121	TP218	0	0.2	21/04/22	S	G					x							
122	TP218	0	0.4	21/04/22	S	P		x										
123	TP218	0.4	1	21/04/22	S	P		x										
124	TP218	0.6	0.7	21/04/22	S	G/P				x		x						

Project Manager:	0.9				Dispatch date:
	Sample ID	pled	Sample Type	Container Type	Analytes

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen									To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		Notes/ Preservation/ Additional Requirements
125	TP218	1.2	1.3	21/04/22	S	G/P				x								
126	TP218	1.8	1.9	21/04/22	S	G/P				x								
127	TP219	0	0.2	21/04/22	S	G					x							
128	TP219	0	0.3	21/04/22	S	P		x										
129	TP219	0.3	1	21/04/22	S	P		x										
130	TP219	0.5	0.6	21/04/22	S	G/P				x								
131	TP219	1.2	1.3	21/04/22	S	G/P				x		x						
132	TP219	1.7	1.8	21/04/22	S	G/P				x								
133	TP220	0	0.2	21/04/22	S	G/P		x				x						
134	TP220	0.2	0.9	21/04/22	S	P		x										
135	TP220	0.5	0.6	21/04/22	S	G						x						
136	BD10/20220419			19/04/22	S	G	x											
137	BD11/20220419			19/04/22	S	G	x											
138	BD12/20220419			19/04/22	S	G						x						
139	BD13/20220419			19/04/22	S	G						x						
ALS	BD14/20220420			20/04/22	S	G	x											
140	BD15/20220420			20/04/22	S	G	x											
ALS	BD16/20220420			20/04/22	S	G	x											
141	BD17/20220421			21/04/22	S	G	x											

Project Manager:	0.6					Dispatch date:	x
	Sample ID	pled	Sample Type	Container Type	Analytes		

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen									To:	Envirolab Services		
Lab ID	Location / Other ID	Depth From	Depth To	Date Sam	S - soil W - water	G - glass P - plastic	Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC	TRH/BTEX	Total Metals		Notes/ Preservation/ Additional Requirements
142	BD18/20220421			21/04/22	S	G	x											
ALS	BD19/20220421			21/04/22	S	G	x											
143	BD20/20220421			21/04/22	S	G	x											
144	BD21/20220421			21/04/22	S	G	x											
145	TB1/20220421			21/04/22	S	G									x			
146	TS1/20220421			21/04/22	S	G									x			
147	RB1/20220421			21/04/22	W	G									x	x		
148	TP211	0.6	1	21/04/22	S	P		x										
Extra 149	TP203	1.9	2	19/04/22	S	P												
150	BH206	0.5	0.9	20/04/22	S	P												

Project Manager:		Dispatch date:

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CERTIFICATE OF ANALYSIS 294092-B

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	additional analysis
Date samples received	20/04/2022
Date completed instructions received	03/05/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	10/05/2022
Date of Issue	10/05/2022

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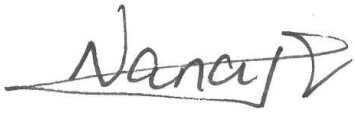
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Jenny He, Chemist

Authorised By



Nancy Zhang, Laboratory Manager

sTPH in Soil (C10-C40)-Silica		
Our Reference		294092-B-18
Your Reference	UNITS	TP1020
Depth		0-0.2
Type of sample		Soil
Date Sampled		19/04/2022
Date extracted	-	06/05/2022
Date analysed	-	06/05/2022
TPH C_{10} - C_{14}	mg/kg	<50
TPH C_{15} - C_{28}	mg/kg	<100
TPH C_{29} - C_{36}	mg/kg	<100
TPH >C_{10} -C_{16}	mg/kg	<50
TPH >C_{16} -C_{34}	mg/kg	<100
TPH >C_{34} -C_{40}	mg/kg	<100
Surrogate o-Terphenyl	%	101

Chromium Suite			
Our Reference		294092-B-8	294092-B-9
Your Reference	UNITS	TP1001A	TP1001A
Depth		1.8-1.9	2.2-2.3
Type of sample		Soil	Soil
Date Sampled		19/04/2022	19/04/2022
Date prepared	-	10/05/2022	10/05/2022
Date analysed	-	10/05/2022	10/05/2022
pH $_{kcl}$	pH units	5.3	5.3
s-TAA pH 6.5	%w/w S	0.02	<0.01
TAA pH 6.5	moles H^+ /t	10	<5
Chromium Reducible Sulfur	%w/w	0.005	0.008
a-Chromium Reducible Sulfur	moles H^+ /t	3	5
S_{HCl}	%w/w S	[NT]	[NT]
S_{KCl}	%w/w S	[NT]	[NT]
S_{NAS}	%w/w S	[NT]	[NT]
ANC_{BT}	% $CaCO_3$	[NT]	[NT]
s-ANC_{BT}	%w/w S	[NT]	[NT]
s-Net Acidity	%w/w S	0.020	0.015
a-Net Acidity	moles H^+ /t	13	9.2
Liming rate	kg $CaCO_3$ /t	1	<0.75
a-Net Acidity without ANCE	moles H^+ /t	13	9.2
Liming rate without ANCE	kg $CaCO_3$ /t	0.96	<0.75
s-Net Acidity without ANCE	%w/w S	0.020	0.015

TCLP Preparation - Acid		
Our Reference		294092-B-15
Your Reference	UNITS	TP1019
Depth		0-0.2
Type of sample		Soil
Date Sampled		19/04/2022
pH of soil for fluid# determ.	pH units	7.6
pH of soil TCLP (after HCl)	pH units	1.6
Extraction fluid used		1
pH of final Leachate	pH units	5.0

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		294092-B-15
Your Reference	UNITS	TP1019
Depth		0-0.2
Type of sample		Soil
Date Sampled		19/04/2022
Date extracted	-	05/05/2022
Date analysed	-	05/05/2022
Lead	mg/L	<0.03

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Net acidity including ANC has a safety factor of 1.5 applied. Neutralising value (NV) of 100% is assumed for liming rate. Based on National acid sulfate soils identification and laboratory methods manual June 2018. The recommendation that the SHCL concentration be multiplied by a factor of 2 to ensure retained acidity is not underestimated, has not been applied in the SHCL results reported.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

QUALITY CONTROL: sTPH in Soil (C10-C40)-Silica						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/05/2022	18	06/05/2022	06/05/2022		06/05/2022	[NT]
Date analysed	-			06/05/2022	18	06/05/2022	06/05/2022		06/05/2022	[NT]
TPH C_{10} - C_{14}	mg/kg	50	Org-020	<50	18	<50	<50	0	86	[NT]
TPH C_{15} - C_{28}	mg/kg	100	Org-020	<100	18	<100	<100	0	80	[NT]
TPH C_{29} - C_{36}	mg/kg	100	Org-020	<100	18	<100	<100	0	78	[NT]
TPH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	18	<50	<50	0	86	[NT]
TPH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	18	<100	<100	0	80	[NT]
TPH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	18	<100	<100	0	78	[NT]
Surrogate o-Terphenyl	%		Org-020	109	18	101	109	8	130	[NT]

QUALITY CONTROL: Chromium Suite						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			10/05/2022	[NT]	[NT]	[NT]	[NT]	10/05/2022	[NT]
Date analysed	-			10/05/2022	[NT]	[NT]	[NT]	[NT]	10/05/2022	[NT]
pH $_{kcl}$	pH units		Inorg-068	[NT]	[NT]	[NT]	[NT]	[NT]	94	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-068	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
TAA pH 6.5	moles H^+ /t	5	Inorg-068	<5	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	111	[NT]
a-Chromium Reducible Sulfur	moles H^+ /t	3	Inorg-068	<3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S_{HCl}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S_{KCl}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S_{NAS}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
ANC_{BT}	% $CaCO_3$	0.05	Inorg-068	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-ANC_{BT}	%w/w S	0.05	Inorg-068	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-Net Acidity	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-Net Acidity	moles H^+ /t	5	Inorg-068	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Liming rate	kg $CaCO_3$ /t	0.75	Inorg-068	<0.75	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-Net Acidity without ANCE	moles H^+ /t	5	Inorg-068	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Liming rate without ANCE	kg $CaCO_3$ /t	0.75	Inorg-068	<0.75	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-Net Acidity without ANCE	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/05/2022	[NT]	[NT]	[NT]	[NT]	05/05/2022	[NT]
Date analysed	-			05/05/2022	[NT]	[NT]	[NT]	[NT]	05/05/2022	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	89	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	294092-B
Date Sample Received	20/04/2022
Date Instructions Received	03/05/2022
Date Results Expected to be Reported	10/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Holding time exceedance: TPH

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	TCLP Preparation - Acid	Lead	On Hold
TP1001A-0-0.2	✓				
TP1001A-0.2-0.3					✓
TP1001A-0.2-0.4					✓
TP1001A-0.2-0.4					✓
TP1001A-0.7-0.9					✓
TP1001A-0.8-0.9					✓
TP1001A-1.3-1.4					✓
TP1001A-1.8-1.9		✓			
TP1001A-2.2-2.3		✓			
BH1011-0-0.1					✓
BH1011-0-0.4					✓
BH1011-0.6-0.7					✓
BH1012-0-0.1					✓
BH1012-0.6-0.7					✓
TP1019-0-0.2			✓	✓	
TP1019-0.3-0.4					✓
TP1019-0.9-1					✓
TP1020-0-0.2	✓				
TP1020-0.2-0.7					✓
TP1020-0.4-0.5					✓
TP1020-0.9-1					✓
TP1020-1.4-1.5					✓
BH1021-0-0.25					✓
BH1021-0.1-0.2					✓
BH1022-0-0.7					✓
BH1022-0.1-0.2					✓
BH1022-0.6-0.7					✓
BH201-0-0.2					✓
BH201-0.2-0.5					✓
BH201-0.4-0.5					✓
BH201-0.9-1					✓
BH201-1.4-1.5					✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	TCLP Preparation - Acid	Lead	On Hold
BH201-1.9-2					✓
BH201-2.4-2.5					✓
BH202-0.1-0.2					✓
BH202-0.1-0.4					✓
BH202-0.4-0.5					✓
BH202-0.9-1					✓
BH203-0.2-0.3					✓
BH203-0.5-0.7					✓
BH203-0.6-0.7					✓
BH203-0.9-1					✓
BH203-1.4-1.5					✓
BH204-0-0.1					✓
BH204-0.2-0.5					✓
BH204-0.3-0.4					✓
BH204-0.8-0.9					✓
BH204-1.3-1.4					✓
BH204-1.8-1.9					✓
BH205-0-0.1					✓
BH205-0.2-0.5					✓
BH205-0.3-0.4					✓
BH205-0.8-0.9					✓
BH205-1.3-1.4					✓
BH205-1.8-1.9					✓
BH205-2.3-2.4					✓
BH206-0.2-0.3					✓
BH206-0.2-0.5					✓
BH206-0.7-0.8					✓
BH206-1.2-1.3					✓
TP207-0-0.2					✓
TP207-0.2-0.5					✓
TP207-0.4-0.5					✓
TP207-0.9-1					✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	TCLP Preparation - Acid	Lead	On Hold
TP207-1.4-1.5					✓
TP207-1.9-2					✓
TP207-2.4-2.5					✓
TP208-0-0.2					✓
TP208-0.2-0.5					✓
TP208-0.4-0.5					✓
TP208-0.9-1					✓
TP208-1.4-1.5					✓
BH209-0.05-0.15					✓
BH209-0.2-1.5					✓
BH209-0.7-0.8					✓
BH209-1.4-1.5					✓
BH210-0.03-0.2					✓
BH210-0.1-0.2					✓
BH210-0.2-0.9					✓
BH210-0.5-0.6					✓
BH210-1-1.1					✓
TP211-0-0.2					✓
TP211-0.2-0.6					✓
TP211-0.4-0.5					✓
TP211-0.9-1					✓
TP211-1.4-1.5					✓
TP211-1.9-2					✓
TP212-0-0.2					✓
TP212-0-0.4					✓
TP212-0.4-0.7					✓
TP212-0.5-0.6					✓
TP212-0.7-1					✓
TP212-0.9-1					✓
TP212-1.4-1.5					✓
TP213-0-0.2					✓
TP213-0-0.3					✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	TCLP Preparation - Acid	Lead	On Hold
TP213-0.3-1					✓
TP213-0.4-0.5					✓
TP213-0.9-1					✓
TP213-1.4-1.5					✓
TP213-1.9-2					✓
TP214-0-0.1					✓
TP214-0.1-1					✓
TP214-0.4-0.5					✓
TP214-0.9-1					✓
TP214-1.4-1.5					✓
TP215-0-0.1					✓
TP215-0.1-0.9					✓
TP215-0.4-0.5					✓
TP215-1-1.1					✓
TP216-0-0.2					✓
TP216-0.2-0.9					✓
TP216-0.5-0.6					✓
TP216-1-1.1					✓
TP217-0-0.2					✓
TP217-0-0.2					✓
TP217-0.2-0.5					✓
TP217-0.4-0.5					✓
TP217-0.9-1					✓
TP217-1.4-1.5					✓
TP218-0-0.2					✓
TP218-0-0.4					✓
TP218-0.4-1					✓
TP218-0.6-0.7					✓
TP218-1.2-1.3					✓
TP218-1.8-1.9					✓
TP219-0-0.2					✓
TP219-0-0.3					✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	TCLP Preparation - Acid	Lead	On Hold
TP219-0.3-1					✓
TP219-0.5-0.6					✓
TP219-1.2-1.3					✓
TP219-1.7-1.8					✓
TP220-0-0.2					✓
TP220-0.2-0.9					✓
TP220-0.5-0.6					✓
BD10/20220419-.					✓
BD11/20220419-.					✓
BD12/20220419-.					✓
BD13/20220419-.					✓
BD15/20220420-.					✓
BD17/20220421-.					✓
BD18/20220421-.					✓
BD20/20220421-.					✓
BD21/20220421-.					✓
TB1/20220421-.					✓
TS1/20220421-.					✓
RB1/20220421-.					✓
TP211-0.6-1					✓
TP203-1.9-2					✓
BH206-0.5-0.9					✓
BH1012-0-0.5					✓
BH1022 - [TRIPLICATE]-0.1-0.2					✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 294092-C

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	additional analysis
Date samples received	20/04/2022
Date completed instructions received	03/05/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	10/05/2022
Date of Issue	10/05/2022

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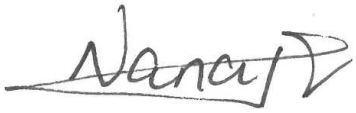
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Jenny He, Chemist

Authorised By



Nancy Zhang, Laboratory Manager

sTPH in Soil (C10-C40)-Silica		
Our Reference		294092-C-133
Your Reference	UNITS	TP220
Depth		0-0.2
Type of sample		Soil
Date Sampled		21/04/2022
Date extracted	-	06/05/2022
Date analysed	-	06/05/2022
TPH C_{10} - C_{14}	mg/kg	61
TPH C_{15} - C_{28}	mg/kg	<100
TPH C_{29} - C_{36}	mg/kg	<100
TPH >C_{10} -C_{16}	mg/kg	<50
TPH >C_{16} -C_{34}	mg/kg	<100
TPH >C_{34} -C_{40}	mg/kg	<100
Surrogate o-Terphenyl	%	106

Chromium Suite						
Our Reference		294092-C-32	294092-C-33	294092-C-55	294092-C-56	294092-C-65
Your Reference	UNITS	BH201	BH201	BH205	BH205	TP207
Depth		1.4-1.5	1.9-2	1.8-1.9	2.3-2.4	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		19/04/2022	19/04/2022	20/04/2022	20/04/2022	20/04/2022
Date prepared	-	10/05/2022	10/05/2022	10/05/2022	10/05/2022	10/05/2022
Date analysed	-	10/05/2022	10/05/2022	10/05/2022	10/05/2022	10/05/2022
pH $_{kcl}$	pH units	7.5	4.3	9.3	8.0	9.8
s-TAA pH 6.5	%w/w S	<0.01	0.1	<0.01	<0.01	<0.01
TAA pH 6.5	moles H^+ /t	<5	60	<5	<5	<5
Chromium Reducible Sulfur	%w/w	<0.005	0.16	0.59	0.97	0.009
a-Chromium Reducible Sulfur	moles H^+ /t	<3	100	370	610	6
S_{HCl}	%w/w S	[NT]	0.22	[NT]	[NT]	[NT]
S_{KCl}	%w/w S	[NT]	0.29	[NT]	[NT]	[NT]
S_{NAS}	%w/w S	[NT]	<0.005	[NT]	[NT]	[NT]
ANC_{BT}	% $CaCO_3$	0.75	[NT]	0.95	1.6	0.50
s-ANC_{BT}	%w/w S	0.24	[NT]	0.30	0.51	0.16
s-Net Acidity	%w/w S	<0.005	0.26	0.39	0.63	<0.005
a-Net Acidity	moles H^+ /t	<5	160	240	390	<5
Liming rate	kg $CaCO_3$ /t	<0.75	12	18	30	<0.75
a-Net Acidity without ANCE	moles H^+ /t	<5	160	370	610	5.8
Liming rate without ANCE	kg $CaCO_3$ /t	<0.75	12	28	46	<0.75
s-Net Acidity without ANCE	%w/w S	<0.005	0.26	0.59	0.97	0.0090

Chromium Suite						
Our Reference		294092-C-66	294092-C-72	294092-C-101	294092-C-120	294092-C-132
Your Reference	UNITS	TP207	TP208	TP213	TP217	TP219
Depth		1.9-2	1.4-1.5	1.9-2	1.4-1.5	1.7-1.8
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		20/04/2022	20/04/2022	21/04/2022	21/04/2022	21/04/2022
Date prepared	-	10/05/2022	10/05/2022	10/05/2022	10/05/2022	10/05/2022
Date analysed	-	10/05/2022	10/05/2022	10/05/2022	10/05/2022	10/05/2022
pH $_{kcl}$	pH units	4.7	9.4	9.7	9.5	7.9
s-TAA pH 6.5	%w/w S	0.02	<0.01	<0.01	<0.01	<0.01
TAA pH 6.5	moles H^+ /t	14	<5	<5	<5	<5
Chromium Reducible Sulfur	%w/w	0.15	0.01	<0.005	<0.005	<0.005
a-Chromium Reducible Sulfur	moles H^+ /t	96	8	<3	<3	<3
S_{HCl}	%w/w S	[NT]	[NT]	[NT]	[NT]	[NT]
S_{KCl}	%w/w S	[NT]	[NT]	[NT]	[NT]	[NT]
S_{NAS}	%w/w S	[NT]	[NT]	[NT]	[NT]	[NT]
ANC_{BT}	% $CaCO_3$	[NT]	4.3	1.5	0.80	0.30
s-ANC_{BT}	%w/w S	[NT]	1.4	0.48	0.26	0.1
s-Net Acidity	%w/w S	0.18	<0.005	<0.005	<0.005	<0.005
a-Net Acidity	moles H^+ /t	110	<5	<5	<5	<5
Liming rate	kg $CaCO_3$ /t	8.3	<0.75	<0.75	<0.75	<0.75
a-Net Acidity without ANCE	moles H^+ /t	110	8.5	<5	<5	<5
Liming rate without ANCE	kg $CaCO_3$ /t	8.3	<0.75	<0.75	<0.75	<0.75
s-Net Acidity without ANCE	%w/w S	0.18	0.014	<0.005	<0.005	<0.005

Metals from Leaching Fluid pH 2.9 or 5			
Our Reference	UNITS	294092-C-73	294092-C-78
Your Reference		BH209	BH210
Depth		0.05-0.15	0.1-0.2
Type of sample		Soil	Soil
Date Sampled		20/04/2022	20/04/2022
Date extracted	-	05/05/2022	05/05/2022
Date analysed	-	05/05/2022	05/05/2022
pH of soil for fluid# determ.	pH units	8.5	8.5
pH of soil TCLP (after HCl)	pH units	1.6	1.6
Extraction fluid used		1	1
pH of final Leachate	pH units	5.0	5.0
Nickel	mg/L	0.2	0.2

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Net acidity including ANC has a safety factor of 1.5 applied. Neutralising value (NV) of 100% is assumed for liming rate. Based on National acid sulfate soils identification and laboratory methods manual June 2018. The recommendation that the SHCL concentration be multiplied by a factor of 2 to ensure retained acidity is not underestimated, has not been applied in the SHCL results reported.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

QUALITY CONTROL: sTPH in Soil (C10-C40)-Silica						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/05/2022	133	06/05/2022	06/05/2022		06/05/2022	[NT]
Date analysed	-			06/05/2022	133	06/05/2022	06/05/2022		06/05/2022	[NT]
TPH C_{10} - C_{14}	mg/kg	50	Org-020	<50	133	61	55	10	86	[NT]
TPH C_{15} - C_{28}	mg/kg	100	Org-020	<100	133	<100	<100	0	80	[NT]
TPH C_{29} - C_{36}	mg/kg	100	Org-020	<100	133	<100	<100	0	78	[NT]
TPH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	133	<50	<50	0	86	[NT]
TPH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	133	<100	<100	0	80	[NT]
TPH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	133	<100	<100	0	78	[NT]
Surrogate o-Terphenyl	%		Org-020	109	133	106	103	3	130	[NT]

QUALITY CONTROL: Chromium Suite						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			10/05/2022	32	10/05/2022	10/05/2022		10/05/2022	[NT]
Date analysed	-			10/05/2022	32	10/05/2022	10/05/2022		10/05/2022	[NT]
pH $_{kcl}$	pH units		Inorg-068	[NT]	32	7.5	7.4	1	94	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-068	<0.01	32	<0.01	<0.01	0	[NT]	[NT]
TAA pH 6.5	moles H^+ /t	5	Inorg-068	<5	32	<5	<5	0	105	[NT]
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	<0.005	32	<0.005	<0.005	0	111	[NT]
a-Chromium Reducible Sulfur	moles H^+ /t	3	Inorg-068	<3	32	<3	<3	0	[NT]	[NT]
S_{HCl}	%w/w S	0.005	Inorg-068	<0.005	32	[NT]	[NT]		[NT]	[NT]
S_{KCl}	%w/w S	0.005	Inorg-068	<0.005	32	[NT]	[NT]		[NT]	[NT]
S_{NAS}	%w/w S	0.005	Inorg-068	<0.005	32	[NT]	[NT]		[NT]	[NT]
ANC_{BT}	% $CaCO_3$	0.05	Inorg-068	<0.05	32	0.75	0.90	18	[NT]	[NT]
s-ANC_{BT}	%w/w S	0.05	Inorg-068	<0.05	32	0.24	0.29	19	[NT]	[NT]
s-Net Acidity	%w/w S	0.005	Inorg-068	<0.005	32	<0.005	<0.005	0	[NT]	[NT]
a-Net Acidity	moles H^+ /t	5	Inorg-068	<5	32	<5	<5	0	[NT]	[NT]
Liming rate	kg $CaCO_3$ /t	0.75	Inorg-068	<0.75	32	<0.75	<0.75	0	[NT]	[NT]
a-Net Acidity without ANCE	moles H^+ /t	5	Inorg-068	<5	32	<5	<5	0	[NT]	[NT]
Liming rate without ANCE	kg $CaCO_3$ /t	0.75	Inorg-068	<0.75	32	<0.75	<0.75	0	[NT]	[NT]
s-Net Acidity without ANCE	%w/w S	0.005	Inorg-068	<0.005	32	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/05/2022	[NT]	[NT]	[NT]	[NT]	05/05/2022	[NT]
Date analysed	-			05/05/2022	[NT]	[NT]	[NT]	[NT]	05/05/2022	[NT]
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	90	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	294092-C
Date Sample Received	20/04/2022
Date Instructions Received	03/05/2022
Date Results Expected to be Reported	10/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP1001A-0-0.2								✓
TP1001A-0.2-0.3								✓
TP1001A-0.2-0.4								✓
TP1001A-0.2-0.4								✓
TP1001A-0.7-0.9								✓
TP1001A-0.8-0.9								✓
TP1001A-1.3-1.4								✓
TP1001A-1.8-1.9								✓
TP1001A-2.2-2.3								✓
BH1011-0-0.1								✓
BH1011-0-0.4								✓
BH1011-0.6-0.7								✓
BH1012-0-0.1								✓
BH1012-0.6-0.7								✓
TP1019-0-0.2								✓
TP1019-0.3-0.4								✓
TP1019-0.9-1								✓
TP1020-0-0.2								✓
TP1020-0.2-0.7								✓
TP1020-0.4-0.5								✓
TP1020-0.9-1								✓
TP1020-1.4-1.5								✓
BH1021-0-0.25								✓
BH1021-0.1-0.2								✓
BH1022-0-0.7								✓
BH1022-0.1-0.2								✓
BH1022-0.6-0.7								✓
BH201-0-0.2								✓
BH201-0.2-0.5								✓
BH201-0.4-0.5								✓
BH201-0.9-1								✓
BH201-1.4-1.5		✓						

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
BH201-1.9-2		✓						
BH201-2.4-2.5								✓
BH202-0.1-0.2								✓
BH202-0.1-0.4								✓
BH202-0.4-0.5								✓
BH202-0.9-1								✓
BH203-0.2-0.3								✓
BH203-0.5-0.7								✓
BH203-0.6-0.7								✓
BH203-0.9-1								✓
BH203-1.4-1.5								✓
BH204-0-0.1								✓
BH204-0.2-0.5								✓
BH204-0.3-0.4								✓
BH204-0.8-0.9								✓
BH204-1.3-1.4								✓
BH204-1.8-1.9								✓
BH205-0-0.1								✓
BH205-0.2-0.5								✓
BH205-0.3-0.4								✓
BH205-0.8-0.9								✓
BH205-1.3-1.4								✓
BH205-1.8-1.9		✓						
BH205-2.3-2.4		✓						
BH206-0.2-0.3								✓
BH206-0.2-0.5								✓
BH206-0.7-0.8								✓
BH206-1.2-1.3								✓
TP207-0-0.2								✓
TP207-0.2-0.5								✓
TP207-0.4-0.5								✓
TP207-0.9-1								✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP207-1.4-1.5		✓						
TP207-1.9-2		✓						
TP207-2.4-2.5								✓
TP208-0-0.2								✓
TP208-0.2-0.5								✓
TP208-0.4-0.5								✓
TP208-0.9-1								✓
TP208-1.4-1.5		✓						
BH209-0.05-0.15			✓	✓	✓	✓	✓	
BH209-0.2-1.5								✓
BH209-0.7-0.8								✓
BH209-1.4-1.5								✓
BH210-0.03-0.2								✓
BH210-0.1-0.2			✓	✓	✓	✓	✓	
BH210-0.2-0.9								✓
BH210-0.5-0.6								✓
BH210-1-1.1								✓
TP211-0-0.2								✓
TP211-0.2-0.6								✓
TP211-0.4-0.5								✓
TP211-0.9-1								✓
TP211-1.4-1.5								✓
TP211-1.9-2								✓
TP212-0-0.2								✓
TP212-0-0.4								✓
TP212-0.4-0.7								✓
TP212-0.5-0.6								✓
TP212-0.7-1								✓
TP212-0.9-1								✓
TP212-1.4-1.5								✓
TP213-0-0.2								✓
TP213-0-0.3								✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP213-0.3-1								✓
TP213-0.4-0.5								✓
TP213-0.9-1								✓
TP213-1.4-1.5								✓
TP213-1.9-2		✓						
TP214-0-0.1								✓
TP214-0.1-1								✓
TP214-0.4-0.5								✓
TP214-0.9-1								✓
TP214-1.4-1.5								✓
TP215-0-0.1								✓
TP215-0.1-0.9								✓
TP215-0.4-0.5								✓
TP215-1-1.1								✓
TP216-0-0.2								✓
TP216-0.2-0.9								✓
TP216-0.5-0.6								✓
TP216-1-1.1								✓
TP217-0-0.2								✓
TP217-0-0.2								✓
TP217-0.2-0.5								✓
TP217-0.4-0.5								✓
TP217-0.9-1								✓
TP217-1.4-1.5		✓						
TP218-0-0.2								✓
TP218-0-0.4								✓
TP218-0.4-1								✓
TP218-0.6-0.7								✓
TP218-1.2-1.3								✓
TP218-1.8-1.9								✓
TP219-0-0.2								✓
TP219-0-0.3								✓

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Sample ID	sTPH in Soil (C10-C40)-Silica	Chromium Suite	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel	On Hold
TP219-0.3-1								✓
TP219-0.5-0.6								✓
TP219-1.2-1.3								✓
TP219-1.7-1.8		✓						
TP220-0-0.2	✓							
TP220-0.2-0.9								✓
TP220-0.5-0.6								✓
BD10/20220419-.								✓
BD11/20220419-.								✓
BD12/20220419-.								✓
BD13/20220419-.								✓
BD15/20220420-.								✓
BD17/20220421-.								✓
BD18/20220421-.								✓
BD20/20220421-.								✓
BD21/20220421-.								✓
TB1/20220421-.								✓
TS1/20220421-.								✓
RB1/20220421-.								✓
TP211-0.6-1								✓
TP203-1.9-2								✓
BH206-0.5-0.9								✓
BH203-0.2-0.5								✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 294092-D

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	additional analysis
Date samples received	20/04/2022
Date completed instructions received	12/05/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	23/05/2022
Date of Issue	23/05/2022

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Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

Chromium Suite		
Our Reference		294092-D-54
Your Reference	UNITS	BH205
Depth		1.3-1.4
Type of sample		Soil
Date Sampled		20/04/2022
Date prepared	-	23/05/2022
Date analysed	-	23/05/2022
pH $_{kcl}$	pH units	9.9
s-TAA pH 6.5	%w/w S	<0.01
TAA pH 6.5	moles H^+ /t	<5
Chromium Reducible Sulfur	%w/w	<0.005
a-Chromium Reducible Sulfur	moles H^+ /t	<3
S_{HCl}	%w/w S	[NT]
S_{KCl}	%w/w S	[NT]
S_{NAS}	%w/w S	[NT]
ANC_{BT}	% $CaCO_3$	5.8
s-ANC_{BT}	%w/w S	1.8
s-Net Acidity	%w/w S	<0.005
a-Net Acidity	moles H^+ /t	<5
Liming rate	kg $CaCO_3$ /t	<0.75
a-Net Acidity without ANCE	moles H^+ /t	<5
Liming rate without ANCE	kg $CaCO_3$ /t	<0.75
s-Net Acidity without ANCE	%w/w S	<0.005

Method ID	Methodology Summary
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Net acidity including ANC has a safety factor of 1.5 applied. Neutralising value (NV) of 100% is assumed for liming rate. Based on National acid sulfate soils identification and laboratory methods manual June 2018. The recommendation that the SHCL concentration be multiplied by a factor of 2 to ensure retained acidity is not underestimated, has not been applied in the SHCL results reported.

QUALITY CONTROL: Chromium Suite						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			23/05/2022	[NT]	[NT]	[NT]	[NT]	23/05/2022	[NT]
Date analysed	-			23/05/2022	[NT]	[NT]	[NT]	[NT]	23/05/2022	[NT]
pH $_{kcl}$	pH units		Inorg-068	[NT]	[NT]	[NT]	[NT]	[NT]	96	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-068	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
TAA pH 6.5	moles H^+ /t	5	Inorg-068	<5	[NT]	[NT]	[NT]	[NT]	115	[NT]
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	118	[NT]
a-Chromium Reducible Sulfur	moles H^+ /t	3	Inorg-068	<3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S_{HCl}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S_{KCl}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S_{NAS}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
ANC_{BT}	% $CaCO_3$	0.05	Inorg-068	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-ANC_{BT}	%w/w S	0.05	Inorg-068	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-Net Acidity	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-Net Acidity	moles H^+ /t	5	Inorg-068	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Liming rate	kg $CaCO_3$ /t	0.75	Inorg-068	<0.75	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-Net Acidity without ANCE	moles H^+ /t	5	Inorg-068	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Liming rate without ANCE	kg $CaCO_3$ /t	0.75	Inorg-068	<0.75	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-Net Acidity without ANCE	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	294092-D
Date Sample Received	20/04/2022
Date Instructions Received	12/05/2022
Date Results Expected to be Reported	23/05/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	Chromium Suite	On Hold
TP1001A-0-0.2		✓
TP1001A-0.2-0.3		✓
TP1001A-0.2-0.4		✓
TP1001A-0.2-0.4		✓
TP1001A-0.7-0.9		✓
TP1001A-0.8-0.9		✓
TP1001A-1.3-1.4		✓
TP1001A-1.8-1.9		✓
TP1001A-2.2-2.3		✓
BH1011-0-0.1		✓
BH1011-0-0.4		✓
BH1011-0.6-0.7		✓
BH1012-0-0.1		✓
BH1012-0.6-0.7		✓
TP1019-0-0.2		✓
TP1019-0.3-0.4		✓
TP1019-0.9-1		✓
TP1020-0-0.2		✓
TP1020-0.2-0.7		✓
TP1020-0.4-0.5		✓
TP1020-0.9-1		✓
TP1020-1.4-1.5		✓
BH1021-0-0.25		✓
BH1021-0.1-0.2		✓
BH1022-0-0.7		✓
BH1022-0.1-0.2		✓
BH1022-0.6-0.7		✓
BH201-0-0.2		✓
BH201-0.2-0.5		✓
BH201-0.4-0.5		✓
BH201-0.9-1		✓
BH201-1.4-1.5		✓

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Sample ID	Chromium Suite	On Hold
BH201-1.9-2		✓
BH201-2.4-2.5		✓
BH202-0.1-0.2		✓
BH202-0.1-0.4		✓
BH202-0.4-0.5		✓
BH202-0.9-1		✓
BH203-0.2-0.3		✓
BH203-0.5-0.7		✓
BH203-0.6-0.7		✓
BH203-0.9-1		✓
BH203-1.4-1.5		✓
BH204-0-0.1		✓
BH204-0.2-0.5		✓
BH204-0.3-0.4		✓
BH204-0.8-0.9		✓
BH204-1.3-1.4		✓
BH204-1.8-1.9		✓
BH205-0-0.1		✓
BH205-0.2-0.5		✓
BH205-0.3-0.4		✓
BH205-0.8-0.9		✓
BH205-1.3-1.4	✓	
BH205-1.8-1.9		✓
BH205-2.3-2.4		✓
BH206-0.2-0.3		✓
BH206-0.2-0.5		✓
BH206-0.7-0.8		✓
BH206-1.2-1.3		✓
TP207-0-0.2		✓
TP207-0.2-0.5		✓
TP207-0.4-0.5		✓
TP207-0.9-1		✓

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Sample ID	Chromium Suite	On Hold
TP207-1.4-1.5		✓
TP207-1.9-2		✓
TP207-2.4-2.5		✓
TP208-0-0.2		✓
TP208-0.2-0.5		✓
TP208-0.4-0.5		✓
TP208-0.9-1		✓
TP208-1.4-1.5		✓
BH209-0.05-0.15		✓
BH209-0.2-1.5		✓
BH209-0.7-0.8		✓
BH209-1.4-1.5		✓
BH210-0.03-0.2		✓
BH210-0.1-0.2		✓
BH210-0.2-0.9		✓
BH210-0.5-0.6		✓
BH210-1-1.1		✓
TP211-0-0.2		✓
TP211-0.2-0.6		✓
TP211-0.4-0.5		✓
TP211-0.9-1		✓
TP211-1.4-1.5		✓
TP211-1.9-2		✓
TP212-0-0.2		✓
TP212-0-0.4		✓
TP212-0.4-0.7		✓
TP212-0.5-0.6		✓
TP212-0.7-1		✓
TP212-0.9-1		✓
TP212-1.4-1.5		✓
TP213-0-0.2		✓
TP213-0-0.3		✓

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Sample ID	Chromium Suite	On Hold
TP213-0.3-1		✓
TP213-0.4-0.5		✓
TP213-0.9-1		✓
TP213-1.4-1.5		✓
TP213-1.9-2		✓
TP214-0-0.1		✓
TP214-0.1-1		✓
TP214-0.4-0.5		✓
TP214-0.9-1		✓
TP214-1.4-1.5		✓
TP215-0-0.1		✓
TP215-0.1-0.9		✓
TP215-0.4-0.5		✓
TP215-1-1.1		✓
TP216-0-0.2		✓
TP216-0.2-0.9		✓
TP216-0.5-0.6		✓
TP216-1-1.1		✓
TP217-0-0.2		✓
TP217-0-0.2		✓
TP217-0.2-0.5		✓
TP217-0.4-0.5		✓
TP217-0.9-1		✓
TP217-1.4-1.5		✓
TP218-0-0.2		✓
TP218-0-0.4		✓
TP218-0.4-1		✓
TP218-0.6-0.7		✓
TP218-1.2-1.3		✓
TP218-1.8-1.9		✓
TP219-0-0.2		✓
TP219-0-0.3		✓

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Sample ID	Chromium Suite	On Hold
TP219-0.3-1		✓
TP219-0.5-0.6		✓
TP219-1.2-1.3		✓
TP219-1.7-1.8		✓
TP220-0-0.2		✓
TP220-0.2-0.9		✓
TP220-0.5-0.6		✓
BD10/20220419-.		✓
BD11/20220419-.		✓
BD12/20220419-.		✓
BD13/20220419-.		✓
BD15/20220420-.		✓
BD17/20220421-.		✓
BD18/20220421-.		✓
BD20/20220421-.		✓
BD21/20220421-.		✓
TB1/20220421-.		✓
TS1/20220421-.		✓
RB1/20220421-.		✓
TP211-0.6-1		✓
TP203-1.9-2		✓
BH206-0.5-0.9		✓
BH1012-0-0.5		✓
BH1022 - [TRIPLICATE]-0.1-0.2		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**	-	**Sampler:**	HD		*12 Ashley St, Chatswood NSW 2067*
Email:	David.Holden@douglaspartners.com.au; henri.dubourdieu					**Attn:**	*Sample Receipt*
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day					**Contact:**	*(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage:	☑ Fridge ☐ Freezer ☑ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☑ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)				

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Hold	AFFA	Combo 8	Combo 3								Notes/ Preservation/ Additional Requirements
1	BH1024	0	0.2	14/07/2022	S	G/P			x									
2	BH1024	0	0.3	14/07/2022	S	P		x										
3	BH1024	0.4	0.6	14/07/2022	S	G/P				x								
4	BH1024	0.9	1.1	14/07/2022	S	G/P	x											
5	BH1025	0	0.2	14/07/2022	S	G/P				x								
6	BH1025	0	0.8	14/07/2022	S	P		x										
7	BH1025	0.5	0.7	14/07/2022	S	G/P	x											
8	BH1025	0.8	1.1	14/07/2022	S	P		x										
9	BH1025	0.9	1.1	14/07/2022	S	G/P				x								
10	BH1025	1.2	1.4	14/07/2022	S	G/P	x											
11	BH1026	0	0.2	14/07/2022	S	G/P				x								
12	BH1026	0	0.6	14/07/2022	S	P		x										
13	BH1026	0.9	1.1	14/07/2022	S	G/P				x								
14	BH1026	1.2	1.4	14/07/2022	S	G/P	x											

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 300564
Date Received: 15/7/22
Time Received: 1320
Received by:
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Metals to analyse: HM8

Number of samples in container:

Transported to laboratory by: Courier

Send results to: Douglas Partners Pty Ltd

Address: 96 Hermitage Road, West Ryde NSW 2114

Phone: (02) 9809 0666

Relinquished by: HD

Date: 15/07/2022

Signed:

LAB RECEIPT

Lab Ref. No: 300564

Received by: 15/7/22

Date & Time: 1320

Signed:

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**		**Dispatch date:**	15/07/2022
					12 Ashley St, Chatswood NSW 2067

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Hold	AFFA	Combo 8	Combo 3	TRH/BTEX	Asbestos ID						
15	BH1027	0	0.2	14/07/2022	S	G/P			x									
16	BH1027	0	0.5	14/07/2022	S	P		x										
17	BH1027	0.6	0.8	14/07/2022	S	G/P				x								
18	BH1027	1.2	1.4	14/07/2022	S	G/P	x											
19	SS4	0	0.1	14/07/2022	S	G/P		x		x								
20	A01	-	-	14/07/2022	S	P	x											
21	A02	-	-	14/07/2022	S	P						x						
22	A03	-	-	14/07/2022	S	P	x											
23	A04	-	-	14/07/2022	S	P						x						
24	BD22/20220714		-	14/07/2022	S	G	x											
25	BD23/20220714		-	14/07/2022	S	G				x								
26	TB2/20220714		-	14/07/2022	S	G					x							
27	TS2/20220714		-	14/07/2022	S	G					x							

300564
15/7/22

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	300564
Date Sample Received	15/07/2022
Date Instructions Received	15/07/2022
Date Results Expected to be Reported	22/07/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	23 Soil, 4 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Misc Soil - Inorg	Acid Extractable metalsin soil	Asbestos ID - soils NEPM	Asbestos ID - materials	On Hold
BH1024-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
BH1024-0-0.3									✓		
BH1024-0.4-0.6	✓	✓	✓					✓			
BH1024-0.9-1.1											✓
BH1025-0-0.2	✓	✓	✓					✓			
BH1025-0-0.8									✓		
BH1025-0.5-0.7											✓
BH1025-0.8-1.1									✓		
BH1025-0.9-1.1	✓	✓	✓					✓			
BH1025-1.2-1.4											✓
BH1026-0-0.2	✓	✓	✓					✓			
BH1026-0-0.6									✓		
BH1026-0.9-1.1	✓	✓	✓					✓			
BH1026-1.2-1.4											✓
BH1027-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
BH1027-0-0.5									✓		
BH1027-0.6-0.8	✓	✓	✓					✓			
BH1027-1.2-1.4											✓
SS4-0-0.1	✓	✓	✓					✓	✓		
A01											✓
A02										✓	
A03											✓
A04										✓	
BD22/20220714											✓
BD23/20220714	✓	✓	✓					✓			
TB2/20220714	✓										
TS2/20220714	✓										

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Envirolab Services Pty Ltd
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customerservice@envirolab.com.au
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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 300564

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Holden
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	23 Soil, 4 Material
Date samples received	15/07/2022
Date completed instructions received	15/07/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	22/07/2022
Date of Issue	22/07/2022

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Wonnie Condos,Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Diego Bigolin, Inorganics Supervisor
Giovanni Agosti, Group Technical Manager
Josh Williams, Organics and LC Supervisor
Kyle Gavrily, Senior Chemist
Lucy Zhu, Asbestos Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300564-1	300564-3	300564-5	300564-9	300564-11
Your Reference	UNITS	BH1024	BH1024	BH1025	BH1025	BH1026
Depth		0-0.2	0.4-0.6	0-0.2	0.9-1.1	0-0.2
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	88	83	73	91

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300564-13	300564-15	300564-17	300564-19	300564-25
Your Reference	UNITS	BH1026	BH1027	BH1027	SS4	BD23/20220714
Depth		0.9-1.1	0-0.2	0.6-0.8	0-0.1	-
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	96	92	99	92

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		300564-26	300564-27
Your Reference	UNITS	TB2/20220714	TS2/20220714
Depth		-	-
Date Sampled		14/07/2022	14/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
TRH C_6 - C_9	mg/kg	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	[NA]
Benzene	mg/kg	<0.2	96%
Toluene	mg/kg	<0.5	97%
Ethylbenzene	mg/kg	<1	100%
m+p-xylene	mg/kg	<2	100%
o-Xylene	mg/kg	<1	99%
Naphthalene	mg/kg	<1	[NT]
Total +ve Xylenes	mg/kg	<1	[NT]
Surrogate aaa-Trifluorotoluene	%	112	99

svTRH (C10-C40) in Soil						
Our Reference		300564-1	300564-3	300564-5	300564-9	300564-11
Your Reference	UNITS	BH1024	BH1024	BH1025	BH1025	BH1026
Depth		0-0.2	0.4-0.6	0-0.2	0.9-1.1	0-0.2
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	83	81	76	75

svTRH (C10-C40) in Soil						
Our Reference		300564-13	300564-15	300564-17	300564-19	300564-25
Your Reference	UNITS	BH1026	BH1027	BH1027	SS4	BD23/20220714
Depth		0.9-1.1	0-0.2	0.6-0.8	0-0.1	-
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	88	93	107	94

PAHs in Soil						
Our Reference		300564-1	300564-3	300564-5	300564-9	300564-11
Your Reference	UNITS	BH1024	BH1024	BH1025	BH1025	BH1026
Depth		0-0.2	0.4-0.6	0-0.2	0.9-1.1	0-0.2
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	68	100	99	107	96

PAHs in Soil						
Our Reference		300564-13	300564-15	300564-17	300564-19	300564-25
Your Reference	UNITS	BH1026	BH1027	BH1027	SS4	BD23/20220714
Depth		0.9-1.1	0-0.2	0.6-0.8	0-0.1	-
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	94	68	103	103	96

Organochlorine Pesticides in soil			
Our Reference		300564-1	300564-15
Your Reference	UNITS	BH1024	BH1027
Depth		0-0.2	0-0.2
Date Sampled		14/07/2022	14/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	60	66

Organophosphorus Pesticides in Soil			
Our Reference		300564-1	300564-15
Your Reference	UNITS	BH1024	BH1027
Depth		0-0.2	0-0.2
Date Sampled		14/07/2022	14/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	60	66

PCBs in Soil			
Our Reference		300564-1	300564-15
Your Reference	UNITS	BH1024	BH1027
Depth		0-0.2	0-0.2
Date Sampled		14/07/2022	14/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	60	66

Misc Soil - Inorg			
Our Reference		300564-1	300564-15
Your Reference	UNITS	BH1024	BH1027
Depth		0-0.2	0-0.2
Date Sampled		14/07/2022	14/07/2022
Type of sample		Soil	Soil
Date prepared	-	20/07/2022	20/07/2022
Date analysed	-	20/07/2022	20/07/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5

Acid Extractable metals in soil						
Our Reference		300564-1	300564-3	300564-5	300564-9	300564-11
Your Reference	UNITS	BH1024	BH1024	BH1025	BH1025	BH1026
Depth		0-0.2	0.4-0.6	0-0.2	0.9-1.1	0-0.2
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	7	<4	8	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.4	<0.4
Chromium	mg/kg	26	<1	17	16	7
Copper	mg/kg	3	<1	31	9	6
Lead	mg/kg	14	2	110	34	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	<1	7	2	5
Zinc	mg/kg	19	2	81	48	18

Acid Extractable metals in soil						
Our Reference		300564-13	300564-15	300564-17	300564-19	300564-25
Your Reference	UNITS	BH1026	BH1027	BH1027	SS4	BD23/20220714
Depth		0.9-1.1	0-0.2	0.6-0.8	0-0.1	-
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	6	<1	4	5
Copper	mg/kg	<1	15	<1	5	4
Lead	mg/kg	2	20	<1	12	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	6	<1	<1	2
Zinc	mg/kg	2	55	<1	20	21

Moisture						
Our Reference		300564-1	300564-3	300564-5	300564-9	300564-11
Your Reference	UNITS	BH1024	BH1024	BH1025	BH1025	BH1026
Depth		0-0.2	0.4-0.6	0-0.2	0.9-1.1	0-0.2
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Moisture	%	24	19	19	20	13

Moisture						
Our Reference		300564-13	300564-15	300564-17	300564-19	300564-25
Your Reference	UNITS	BH1026	BH1027	BH1027	SS4	BD23/20220714
Depth		0.9-1.1	0-0.2	0.6-0.8	0-0.1	-
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Moisture	%	19	11	5.5	2.1	14

Asbestos ID - soils NEPM						
Our Reference		300564-2	300564-6	300564-8	300564-12	300564-16
Your Reference	UNITS	BH1024	BH1025	BH1025	BH1026	BH1027
Depth		0-0.3	0-0.8	0.8-1.1	0-0.6	0-0.5
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
Sample mass tested	g	615.22	975.27	879.29	726.95	523.99
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	7.6629
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	See Above
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	4.0153
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	0.7663

Asbestos ID - soils NEPM		
Our Reference		300564-19
Your Reference	UNITS	SS4
Depth		0-0.1
Date Sampled		14/07/2022
Type of sample		Soil
Date analysed	-	21/07/2022
Sample mass tested	g	652.38
Sample Description	-	Tan fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	–
FA and AF Estimation*	g	–
FA and AF Estimation*#2	%(w/w)	<0.001

Asbestos ID - materials			
Our Reference		300564-21	300564-23
Your Reference	UNITS	A02	A04
Depth		-	-
Date Sampled		14/07/2022	14/07/2022
Type of sample		Material	Material
Date analysed	-	19/07/2022	19/07/2022
Mass / Dimension of Sample	-	50x35x5mm	40x30x5mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected
Trace Analysis	-	[NT]	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	92	92
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	92	92
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	90	87
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	80	86
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	96	95
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	98	97
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	98	99
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	93	1	87	91	4	86	93

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	99
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	82	103
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	82
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	99
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	82	103
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	82
Surrogate o-Terphenyl	%		Org-020	95	1	77	78	1	101	94

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	19/07/2022	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	20/07/2022	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	71	73
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	73
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	69	75
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	71
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	71	77
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	72
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	71
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	110	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	110	1	68	70	3	70	67

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	19/07/2022	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	20/07/2022	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	109	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	111	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	111	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	128	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	108	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	113	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	107	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	82	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	66
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	78
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	65	61
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	69
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	68
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	70
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	71
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	74
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	67
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	68	68
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	68	1	60	61	2	65	65

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	96
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	67	63
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	75
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	105	101
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	74
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	66	62
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	90
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	68	1	60	61	2	65	65

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	104	80
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	68	1	60	61	2	65	65

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date prepared	-			20/07/2022	[NT]	[NT]	[NT]	[NT]	20/07/2022	[NT]
Date analysed	-			20/07/2022	[NT]	[NT]	[NT]	[NT]	20/07/2022	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	300564-15
Date prepared	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Arsenic	mg/kg	4	Metals-020	<4	1	7	7	0	101	101
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	105	91
Chromium	mg/kg	1	Metals-020	<1	1	26	26	0	114	91
Copper	mg/kg	1	Metals-020	<1	1	3	3	0	107	96
Lead	mg/kg	1	Metals-020	<1	1	14	13	7	110	89
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	83	76
Nickel	mg/kg	1	Metals-020	<1	1	3	3	0	108	89
Zinc	mg/kg	1	Metals-020	<1	1	19	16	17	113	101

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Factual description of asbestos identified in the soil samples: NEPM
Sample 300564-16; Chrysotile, Amosite and Crocidolite asbestos identified in 5.0191g of fibrous matted material.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu

Sample Login Details

Your reference	86973.04, Narrabeen
Envirolab Reference	300564-A
Date Sample Received	15/07/2022
Date Instructions Received	25/07/2022
Date Results Expected to be Reported	28/07/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	3 days
Temperature on Receipt (°C)	4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
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Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead	On Hold
BH1024-0-0.2						✓
BH1024-0-0.3						✓
BH1024-0.4-0.6						✓
BH1024-0.9-1.1						✓
BH1025-0-0.2	✓	✓	✓	✓	✓	
BH1025-0-0.8						✓
BH1025-0.5-0.7						✓
BH1025-0.8-1.1						✓
BH1025-0.9-1.1						✓
BH1025-1.2-1.4						✓
BH1026-0-0.2						✓
BH1026-0-0.6						✓
BH1026-0.9-1.1						✓
BH1026-1.2-1.4						✓
BH1027-0-0.2						✓
BH1027-0-0.5						✓
BH1027-0.6-0.8						✓
BH1027-1.2-1.4						✓
SS4-0-0.1						✓
A01						✓
A02						✓
A03						✓
A04						✓
BD22/20220714						✓
BD23/20220714						✓
TB2/20220714						✓
TS2/20220714						✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 300564-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Henri Dubourdieu
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86973.04, Narrabeen**
Number of Samples	additional analysis
Date samples received	15/07/2022
Date completed instructions received	25/07/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/07/2022
Date of Issue	28/07/2022

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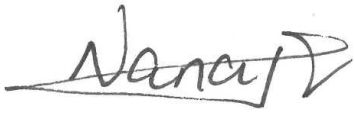
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Giovanni Agosti, Group Technical Manager

Authorised By



Nancy Zhang, Laboratory Manager

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		300564-A-5
Your Reference	UNITS	BH1025
Depth		0-0.2
Date Sampled		14/07/2022
Type of sample		Soil
Date extracted	-	28/07/2022
Date analysed	-	28/07/2022
pH of soil for fluid# determ.	pH units	8.8
pH of soil TCLP (after HCl)	pH units	1.8
Extraction fluid used		1
pH of final Leachate	pH units	4.9
Lead	mg/L	<0.03

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			28/07/2022	[NT]	[NT]	[NT]	[NT]	28/07/2022	[NT]
Date analysed	-			28/07/2022	[NT]	[NT]	[NT]	[NT]	28/07/2022	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	110	[NT]

Result Definitions

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PQL	Practical Quantitation Limit
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>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
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Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

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Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2213811**	Page	: 1 of 6
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Contact	: Sepan Mahamad
Address	: 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 2114	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9809 0666	Telephone	: +61 2 8784 8555
Project	: 86973.04	Date Samples Received	: 21-Apr-2022 17:15
Order number	: ----	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 29-Apr-2022 15:18
Sampler	: HD		
Site	: Narrabeen		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BD1/20220413	BD7/20220414	----	----	----
			Sampling date / time	13-Apr-2022 00:00	13-Apr-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2213811-001	ES2213811-002	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.1**	**7.0**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	<2	<2	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BD1/20220413	BD7/20220414	----	----	----
			Sampling date / time	13-Apr-2022 00:00	13-Apr-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2213811-001	ES2213811-002	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**83.8**	**88.6**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**91.0**	**95.2**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**83.2**	**85.9**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**88.2**	**92.0**	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**89.5**	**91.0**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**85.1**	**87.8**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**98.1**	**102**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**83.7**	**85.2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BD1/20220413	BD7/20220414	----	----	----
				Sampling date / time	13-Apr-2022 00:00	13-Apr-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2213811-001	ES2213811-002	--------	--------	--------
					Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**88.5**	**92.0**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2213811**	Page	: 1 of 7
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Contact	: Sepan Mahamad
Address	: 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 2114	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9809 0666	Telephone	: +61 2 8784 8555
Project	: 86973.04	Date Samples Received	: 21-Apr-2022
Order number	: ----	Date Analysis Commenced	: 26-Apr-2022
C-O-C number	: ----	Issue Date	: 29-Apr-2022
Sampler	: HD		
Site	: Narrabeen		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4304203)									
ES2208553-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	25	10.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	18	16	15.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	49	38	26.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	70	57	20.8	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	119	104	14.0	0% - 20%
EW2201919-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	17	10.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	11	57.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	9	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	172	169	1.5	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	69	55	22.8	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4304217)									
ES2213714-001	Anonymous	EA055: Moisture Content	----	0.1	%	4.6	2.7	50.9	No Limit
ES2214102-002	Anonymous	EA055: Moisture Content	----	0.1	%	15.2	15.0	1.2	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4304204)									
ES2208553-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.4	0.3	0.0	No Limit
EW2201919-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4300608)									
ES2213711-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4300608) - continued									
ES2213711-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2213711-018	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4300609)									
ES2213711-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	150	<100	38.8	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4300609) - continued									
ES2213711-001	Anonymous	EP071: C29 - C36 Fraction	----	100	mg/kg	310	340	9.3	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2213711-018	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4302129)									
ES2213811-001	BD1/20220413	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EW2201919-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4300609)									
ES2213711-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	320	270	17.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	480	480	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2213711-018	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4302129)									
ES2213811-001	BD1/20220413	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EW2201919-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4302129)									
ES2213811-001	BD1/20220413	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EW2201919-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4304203)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	96.6	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	99.6	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	112	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	102	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	98.7	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	103	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4304204)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	113	70.0	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4300608)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	115	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	112	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	115	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	113	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	115	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	113	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	111	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	111	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	98.2	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	96.1	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	107	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	102	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	103	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	98.8	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4300609)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	108	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	102	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4302129)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	92.6	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4300609)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4300609) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	103	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	117	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	97.8	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4302129)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.9	68.4	128
EP080: BTEXN (QCLot: 4302129)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	100	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	101	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.7	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	96.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	101	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	99.7	63.0	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4304203)							
ES2208553-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	106	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	101	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4304204)							
ES2208553-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	98.9	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4300608)							
ES2213711-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	123	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	122	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4300609)							
ES2213711-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	93.8	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	95.5	53.0	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4300609) - continued							
ES2213711-001	Anonymous	EP071: C29 - C36 Fraction	----	2060 mg/kg	107	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4302129)							
ES2213811-001	BD1/20220413	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4300609)							
ES2213711-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	85.4	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	97.7	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	89.1	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4302129)							
ES2213811-001	BD1/20220413	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	90.0	70.0	130
EP080: BTEXN (QCLot: 4302129)							
ES2213811-001	BD1/20220413	EP080: Benzene	71-43-2	2.5 mg/kg	78.5	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.3	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	85.8	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	91.0	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.4	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2213811**	Page	: 1 of 4
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Telephone	: +61 2 8784 8555
Project	: 86973.04	Date Samples Received	: 21-Apr-2022
Site	: Narrabeen	Issue Date	: 29-Apr-2022
Sampler	: HD	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**----**	----	----	**26-Apr-2022**	27-Apr-2022	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**27-Apr-2022**	10-Oct-2022	✓	**28-Apr-2022**	10-Oct-2022	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**27-Apr-2022**	11-May-2022	✓	**28-Apr-2022**	11-May-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**27-Apr-2022**	27-Apr-2022	✓	**28-Apr-2022**	06-Jun-2022	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**26-Apr-2022**	27-Apr-2022	✓	**26-Apr-2022**	27-Apr-2022	✓
Soil Glass Jar - Unpreserved (EP071)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**27-Apr-2022**	27-Apr-2022	✓	**28-Apr-2022**	06-Jun-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**26-Apr-2022**	27-Apr-2022	✓	**26-Apr-2022**	27-Apr-2022	✓
Soil Glass Jar - Unpreserved (EP071)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**27-Apr-2022**	27-Apr-2022	✓	**28-Apr-2022**	06-Jun-2022	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BD1/20220413,	BD7/20220414	**13-Apr-2022**	**26-Apr-2022**	27-Apr-2022	✓	**26-Apr-2022**	27-Apr-2022	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2213811**

Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Contact	: Sepan Mahamad
Address	: 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 2114	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: david.holden@douglaspartners.com.au	E-mail	: Sepan.Mahamad@ALSGlobal.com
Telephone	: +61 02 9809 0666	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 9809 4095	Facsimile	: +61-2-8784 8500
Project	: 86973.04	Page	: 1 of 3
Order number	: ----	Quote number	: EM2017DOUPAR0002 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Narrabeen		
Sampler	: HD		

Dates

Date Samples Received	: 21-Apr-2022 17:15	Issue Date	: 22-Apr-2022
Client Requested Due Date	: 29-Apr-2022	Scheduled Reporting Date	: **29-Apr-2022**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 8.8 - Ice Bricks present
Receipt Detail	: Foam	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2213811-001	13-Apr-2022 00:00	BD1/20220413	✓	✓
ES2213811-002	13-Apr-2022 00:00	BD7/20220414	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@douglaspartners.com.au

DAVID HOLDEN

- *AU Certificate of Analysis - NATA (COA)	Email	david.holden@douglaspartners.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	david.holden@douglaspartners.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	david.holden@douglaspartners.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	david.holden@douglaspartners.com.au
- A4 - AU Tax Invoice (INV)	Email	david.holden@douglaspartners.com.au
- Chain of Custody (CoC) (COC)	Email	david.holden@douglaspartners.com.au
- EDI Format - ESDAT (ESDAT)	Email	david.holden@douglaspartners.com.au
- EDI Format - XTab (XTAB)	Email	david.holden@douglaspartners.com.au

HENRI DUBOURDIEU

- *AU Certificate of Analysis - NATA (COA)	Email	henri.dubourdieu@douglaspartners.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	henri.dubourdieu@douglaspartners.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	henri.dubourdieu@douglaspartners.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	henri.dubourdieu@douglaspartners.com.au
- Chain of Custody (CoC) (COC)	Email	henri.dubourdieu@douglaspartners.com.au
- EDI Format - ESDAT (ESDAT)	Email	henri.dubourdieu@douglaspartners.com.au
- EDI Format - XTab (XTAB)	Email	henri.dubourdieu@douglaspartners.com.au

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	*Envirolab Services*
Project Manager:	David Holden	**Order Number:**	-	**Sampler:**	HD		*12 Ashley St, Chatswood NSW 2067*
Email:	David.Holden@douglaspartners.com.au; henri.dubourdieu					**Attn:**	*Aileen Hie*
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day					**Contact:**	*(02) 9910 6200*
Prior Storage:	☑ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☑ Yes	(If YES, then handle, transport and store in accordance with FPM HAZID)			

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Combo 3										Notes/ Preservation/ Additional Requirements
1 76	BD1/20220413			13-04-22	S	G	x										Please forward for interlab analysis
2 82	BD7/20220414			14-04-22	S	G	x										Please forward for interlab analysis
																	Combo 3 = metals, PAH, TRH, BTEX

Environmental Division
Sydney
Work Order Reference
ES2213811

Telephone : +61-2-8784 8555

Metals to analyse:				**LAB RECEIPT**	
Number of samples in container:		**Transported to laboratory by:**	DP	**Lab Ref. No:**	
Send results to:	Douglas Partners Pty Ltd			**Received by:**	
Address:	96 Hermitage Road, West Ryde NSW 2114	**Phone:**	(02) 9809 0666	**Date & Time:**	
Relinquished by:	HD	**Date:**	14.4.22	**Signed:**	**Signed:**

Relinquished by Christine EWSYD
21/04/22 1150

Rec. Scott Stephens
21/4/22 17:15 8.8c

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2214294**	Page	: 1 of 6
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Contact	: Sepan Mahamad
Address	: UNIT 1/22 WALTHAM STREET ARTARMON 2064	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9809 0666	Telephone	: +61 2 8784 8555
Project	: 86973.04	Date Samples Received	: 27-Apr-2022 15:30
Order number	: ----	Date Analysis Commenced	: 02-May-2022
C-O-C number	: ----	Issue Date	: 05-May-2022 18:02
Sampler	: HD		
Site	: Narrabeen		
Quote number	: EN/222		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BD14/20220420	BD16/20220420	BD19/20220421	----	----
			Sampling date / time	20-Apr-2022 00:00	20-Apr-2022 00:00	20-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2214294-001	ES2214294-002	ES2214294-003	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.1	8.2	15.8	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	8	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	21	8	<2	----	----
Copper	7440-50-8	5	mg/kg	7	13	<5	----	----
Lead	7439-92-1	5	mg/kg	6	8	<5	----	----
Nickel	7440-02-0	2	mg/kg	17	25	<2	----	----
Zinc	7440-66-6	5	mg/kg	22	80	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BD14/20220420	BD16/20220420	BD19/20220421	----	----
				Sampling date / time	20-Apr-2022 00:00	20-Apr-2022 00:00	20-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2214294-001	ES2214294-002	ES2214294-003	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**80.3**	**79.4**	**79.0**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**86.8**	**86.2**	**86.5**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**71.5**	**68.5**	**67.7**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**95.2**	**95.8**	**96.2**	----	----
Anthracene-d10	1719-06-8	0.5	%		**104**	**103**	**104**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**91.8**	**91.6**	**91.6**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**83.9**	**85.5**	**79.9**	----	----
Toluene-D8	2037-26-5	0.2	%		**112**	**108**	**107**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BD14/20220420	BD16/20220420	BD19/20220421	----	----
				Sampling date / time	20-Apr-2022 00:00	20-Apr-2022 00:00	20-Apr-2022 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2214294-001	ES2214294-002	ES2214294-003	--------	--------
					Result	Result	Result	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**102**	**99.4**	**96.0**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2214294**	Page	: 1 of 7
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Contact	: Sepan Mahamad
Address	: UNIT 1/22 WALTHAM STREET ARTARMON 2064	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9809 0666	Telephone	: +61 2 8784 8555
Project	: 86973.04	Date Samples Received	: 27-Apr-2022
Order number	: ----	Date Analysis Commenced	: 02-May-2022
C-O-C number	: ----	Issue Date	: 05-May-2022
Sampler	: HD		
Site	: Narrabeen		
Quote number	: EN/222		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4316519)									
ES2214545-019	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	14	8.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	13	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	15	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	22	0.0	No Limit
ES2214284-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	22	13.6	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	18	13	35.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	11	20.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	32	27	15.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	18	6.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	69	46	39.5	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4316525)									
ES2214294-002	BD16/20220420	EA055: Moisture Content	----	0.1	%	8.2	7.5	9.3	No Limit
ES2214545-022	Anonymous	EA055: Moisture Content	----	0.1	%	15.1	14.9	1.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4316520)									
ES2214284-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2214776-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4313912)									
ES2214284-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4313912) - continued									
ES2214284-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4313447)									
ES2214284-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2214545-019	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4313913)									
ES2214545-021	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2214284-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4313447)									
ES2214284-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2214545-019	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4313913)									
ES2214545-021	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2214284-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 4313447)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 4313447) - continued									
ES2214284-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2214545-019	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4316519)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	110	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	86.9	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	130	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	109	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	109	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	112	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	101	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4316520)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	116	70.0	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4313912)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.0	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.9	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	99.3	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	91.5	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	105	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	98.3	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.1	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.6	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	99.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	98.4	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	94.9	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4313447)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	111	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4313913)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	101	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	102	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	102	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4313447)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4313447) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	113	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4313913)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	103	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	100	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	103	63.0	131
EP080: BTEXN (QCLot: 4313447)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	116	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	109	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	111	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	109	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	110	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.0	63.0	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4316519)							
ES2214284-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.2	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	104	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	107	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	99.7	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4316520)							
ES2214284-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	79.6	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4313912)							
ES2214284-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.0	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4313447)							
ES2214284-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4313913)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4313913) - continued							
ES2214284-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	108	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	108	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	116	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4313447)							
ES2214284-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4313913)							
ES2214284-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	102	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	110	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	130	52.0	132
EP080: BTEXN (QCLot: 4313447)							
ES2214284-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	98.9	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	96.1	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.7	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.3	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	96.9	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.9	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2214294**	Page	: 1 of 5
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Telephone	: +61 2 8784 8555
Project	: 86973.04	Date Samples Received	: 27-Apr-2022
Site	: Narrabeen	Issue Date	: 05-May-2022
Sampler	: HD	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**----**	----	----	**03-May-2022**	04-May-2022	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**04-May-2022**	17-Oct-2022	✓	**04-May-2022**	17-Oct-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**04-May-2022**	18-May-2022	✓	**04-May-2022**	18-May-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**04-May-2022**	04-May-2022	✓	**04-May-2022**	13-Jun-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**02-May-2022**	04-May-2022	✓	**04-May-2022**	04-May-2022	✓
Soil Glass Jar - Unpreserved (EP071)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**04-May-2022**	04-May-2022	✓	**04-May-2022**	13-Jun-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**02-May-2022**	04-May-2022	✓	**04-May-2022**	04-May-2022	✓
Soil Glass Jar - Unpreserved (EP071)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**04-May-2022**	04-May-2022	✓	**04-May-2022**	13-Jun-2022	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BD14/20220420, BD16/20220420, BD19/20220421	**20-Apr-2022**	**02-May-2022**	04-May-2022	✓	**04-May-2022**	04-May-2022	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2214294**

Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DAVID HOLDEN	Contact	: Sepan Mahamad
Address	: UNIT 1/22 WALTHAM STREET ARTARMON 2064	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: david.holden@douglaspartners.com.au	E-mail	: Sepan.Mahamad@ALSGlobal.com
Telephone	: +61 02 9809 0666	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 9809 4095	Facsimile	: +61-2-8784 8500
Project	: 86973.04	Page	: 1 of 2
Order number	: ----	Quote number	: EM2017DOUPAR0002 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Narrabeen		
Sampler	: HD		

Dates

Date Samples Received	: 27-Apr-2022 15:30	Issue Date	: 29-Apr-2022
Client Requested Due Date	: 05-May-2022	Scheduled Reporting Date	: **05-May-2022**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: ----	Temperature	: 10.2'C - Ice Bricks present
Receipt Detail	: 1 FOAM ESKY	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2214294-001	20-Apr-2022 00:00	BD14/20220420	✓	✓
ES2214294-002	20-Apr-2022 00:00	BD16/20220420	✓	✓
ES2214294-003	20-Apr-2022 00:00	BD19/20220421	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@douglaspartners.com.au

DAVID HOLDEN

- *AU Certificate of Analysis - NATA (COA)	Email	david.holden@douglaspartners.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	david.holden@douglaspartners.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	david.holden@douglaspartners.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	david.holden@douglaspartners.com.au
- Chain of Custody (CoC) (COC)	Email	david.holden@douglaspartners.com.au
- EDI Format - ESDAT (ESDAT)	Email	david.holden@douglaspartners.com.au

HENRI DUBOURDIEU

- *AU Certificate of Analysis - NATA (COA)	Email	henri.dubourdieu@douglaspartners.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	henri.dubourdieu@douglaspartners.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	henri.dubourdieu@douglaspartners.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	henri.dubourdieu@douglaspartners.com.au
- Chain of Custody (CoC) (COC)	Email	henri.dubourdieu@douglaspartners.com.au
- EDI Format - ESDAT (ESDAT)	Email	henri.dubourdieu@douglaspartners.com.au

NNPS

COC rec'd 22/4/22 1327

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04	**Suburb:**	Narrabeen	**To:**	Envirolab Services
Project Manager:	David Holden	**Order Number:**	-	**Sampler:**	HD
					12 Ashley St, Chatswood NSW 2067
Email:	David.Holden@douglaspartners.com.au; henri.dubourdieu			**Attn:**	Sample Receipt
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			**Contact:**	(02) 9910 6200 samplereceipt@envirolab.com.au
Prior Storage:	☑ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☑ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Hold	AF/FA	Asbestos ID	ASS Screen	Combo 8	Combo 3	pH	CEC				Notes/ Preservation/ Additional Requirements
1	TP1001A	0	0.2	19/04/22	S	G/P		x				x	x	x				
2	TP1001A	0.2	0.3	19/04/22	S	G	x					x						
3	TP1001A	0.2	0.4	19/04/22	S	P		x										
4	TP1001A	0.2	0.4	19/04/22	M	P			x									
5	TP1001A	0.7	0.9	19/04/22	S	P		x										
6	TP1001A	0.8	0.9	19/04/22	S	G/P				x								Relinquished by Christina
7	TP1001A	1.3	1.4	19/04/22	S	G/P				x		x		x				EOSYP 27/04/22 1130
8	TP1001A	1.8	1.9	19/04/22	S	G/P				x								
9	TP1001A	2.2	2.3	19/04/22	S	P				x								
10	BH1011	0	0.1	19/04/22	S	G					x							
11	BH1011	0	0.4	19/04/22	S	P		x										
12	BH1011	0.6	0.7	19/04/22	S	G						x						
13	BH1012	0	0.1	19/04/22	S	G						x	x	x				
NR. 14	BH1012	0	0.5	19/04/22	S	P		x										

Environmental Division
Sydney
Work Order Reference
ES2214294

Telephone : +61-2-8784 8555

Metals to analyse:	HM8 (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)		
Number of samples in container:	153	**Transported to laboratory by:**	HD
Send results to:	Douglas Partners Pty Ltd		
Address:	96 Hermitage Road, West Ryde NSW 2114	**Phone:**	(02) 9809 0666
Relinquished by:	HD	**Date:**	22/04/2022 **Signed:** HD

LAB RECEIPT

Lab Ref. No:	294092
Received by:	Christina
Date & Time:	27/04/22 1620
Signed:	

Rec: Soffa 27/4/22 27/4/22 1530 10-2C

interlab

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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen											To:	Envirolab Services
	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											
Lab ID	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Hold	Combo 3										Notes/ Preservation/ Additional Requirements
125 128	TP218	1.2	1.3	21/04/22	S	G/P	x											
126 129	TP218	1.8	1.9	21/04/22	S	G/P	x											
127 130	TP219	0	0.2	21/04/22	S	G	x											
128 131	TP219	0	0.3	21/04/22	S	P	x											
129 132	TP219	0.3	1	21/04/22	S	P	x											
130 133	TP219	0.5	0.6	21/04/22	S	G/P	x											
131 134	TP219	1.2	1.3	21/04/22	S	G/P	x											
132 135	TP219	1.7	1.8	21/04/22	S	G/P	x											
133 136	TP220	0	0.2	21/04/22	S	G/P	x											
134 137	TP220	0.2	0.9	21/04/22	S	P	x											
135 138	TP220	0.5	0.6	21/04/22	S	G	x											
136 139	BD10/20220419			19/04/22	S	G	x											
137 140	BD11/20220419			19/04/22	S	G	x											
138 141	BD12/20220419			19/04/22	S	G	x											
139 142	BD13/20220419			19/04/22	S	G	x											
— 143	BD14/20220420 (1)			20/04/22	S	G		x										Interlab
140 144	BD15/20220420			20/04/22	S	G	x											
— 145	BD16/20220420 2			20/04/22	S	G		x										Interlab
141 146	BD17/20220421			21/04/22	S	G	x											299092 on 26/4/22

Project Manager:	0.6		Dispatch date:

Douglas Partners
Geotechnics / Environment / Groundwater

Interlab

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86973.04				Suburb:	Narrabeen											To:	Envirolab Services
	Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Hold										Notes/ Preservation/ Additional Requirements
142	147	BD18/20220421			21/04/22	S	G	x										
–	148	BD19/20220421	3		21/04/22	S	G		x									Interlab
143	149	BD20/20220421			21/04/22	S	G	x										
144	150	BD21/20220421			21/04/22	S	G	x										
145	151	TB1/20220421			21/04/22	S	G	x										
146	152	TS1/20220421			21/04/22	S	G	x										
147	153	RB1/20220421			21/04/22	W	G	x										
148		TP211	0.6	1	21/04/22	S	P	x										
149		TP203	1.9	2.0	] extra													
150		BH206	0.5	0.9	] CH													
																		294092 CH 26/4/22

Project Manager: | Dispatch date: