

Combined Preliminary and Detailed Site Investigation

2-30 Tempus Street, Rouse Hill, NSW

Final Report

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Prepared for Freecity Rouse Hill Development Pty Ltd

environmental science & engineering

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Executive Summary

This Combined Preliminary and Detailed Site Investigation has been prepared by Martens and Associates Pty Ltd to accompany a detailed State Significant Development Application (**SSDA**) for the mixed use development at 2-30 Tempus Street, Rouse Hill. The Site is made up of one lot, being Lot 19 in DP 280013.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (**SEARs**) issued for the project (SSD-76190964).

The findings of this investigation indicate:

- Historical aerials indicate that the Site was vacant cleared land prior to 1955 and up until sometime between 2005 and 2006 where significant development of land surrounding the Site commenced (Rouse Hill Town Centre).
- Based on google street images from this time period (and aerial images) it appears that fill material was placed across much of the Site during this development time period.
- To assess potential contamination risks, a soil sampling program was undertaken which included the excavation of 13 test pits, soil sampling and laboratory analysis for a range of contaminants of potential concern (COPC).
- Concentrations of COPC for all soil samples reported values either below the limit of reporting for below the adopted assessment criteria for the proposed land use.

This report concludes that the proposed mixed use development is suitable and warrants approval subject to the implementation of the following:

- Preparation and implementation of a Construction Environmental Management Plan (**CEMP**) for the construction phase of the project. The CEMP is to include protocols to address any unexpected finds which may be encountered during potential targeted minor excavations as part of the proposed development.
- Completion of a formal waste classification assessment to ensure that spoil generated during basement excavation works is classified and disposed of in accordance with NSW EPA (2014) *Waste Classification Guidelines*.

Following the implementation of the above, the remaining impacts are considered appropriate.

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Glossary of Terms

ABC	Ambient background concentrations
ACM	Asbestos containing material
AEC	Area of environmental concern
AF	Asbestos fines
ASC NEPM	National Environmental Protection (Assessment of Site Contamination) Measure (2013)
ASS	Acid sulfate soil
AST	Above ground storage tank
BGL	Below ground level
BH	Borehole
BTEXN	Benzene, toluene, ethylbenzene, xylene, naphthalene
COC	Chain of custody
COPC	Contaminants of potential concern
DA	Development application
DP	Deposited Plan
DQI	Data quality indicators
DQO	Data quality objectives
DSI	Detailed Site Investigation
EIL	Ecological investigation level
EPA	NSW Environmental Protection Authority
EQL	Estimated quantitation limit (interchangeable with PQL and LOR)
ESL	Ecological screening level
FA	Fibrous asbestos
HM	Heavy metals
HSL	Health screening level
IA	Investigation area
LGA	Local government area
LOR	Limit of reporting (interchangeable with EQL and PQL)
MA	Martens & Associates Pty Ltd
mAHD	Metres, Australian Height Datum
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP / OPP	Organochloride pesticides / Organophosphorus pesticides
PACM	Potential asbestos containing material
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PQL	Practical quantitative limit (interchangeable with EQL and LOR)
PSI	Preliminary Site Investigation
QA/QC	Quality assurance / quality control
RAP	Reclaimed asphalt pavement
SAQP	Sampling and Analysis Quality Plan
SEPP	State Environmental Planning Policy
SOP	Standard operating procedure
TB	Trip blank
TEQ	Toxic equivalency factor
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
UST	Underground storage tank
VOC	Volatile organic compounds

1 Introduction

1.1 Overview and Background

Martens and Associates (**MA**) have been engaged by Freecity Rouse Hill Development Pty Ltd (the **Client**) to undertake a Preliminary Site Investigation (**PSI**) and Detailed Site Investigation (**DSI**) at 2-30 Tempus Street, Rouse Hill, NSW (the **Site**).

The purpose of this report is to evaluate the current contamination status at the Site to support a State Significant Development Application (**SSDA**) for a proposed mixed use development with two level basement.

The Site location is outlined in Maps 01 in Appendix A.

1.2 SEARs

The project is to facilitate the delivery of high-quality, diverse housing and commercial floor space at a strategically located site. The proposal seeks to deliver a built form outcome that responds appropriately to its location at the edge of Rouse Hill Town Centre and adjacent to Rouse Hill Metro Station and that is consistent with the desired future character of Rouse Hill.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (**SEARs**) dated 30th September 2024 and issued for SSD-76190964. Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Table 1: Contamination SEARs Requirements.

Item	Description of Requirement
16. Contamination and Remediation	In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the Site is suitable (or will be suitable, after remediation for the development).

1.3 Proposed Development

The application seeks development consent for the development of an 11, 18 and 23 storey mixed use development at 2-30 Tempus Street, Rouse Hill. The SSDA seeks development consent for:

Site preparation works including removal of temporary planting, bulk excavation and earthworks

Construction and operation of an 11, 18 and 23 storey mixed use development, comprising:

- Consolidated podium comprising ground level lobby, retail and wellness tenancies, and two levels of commercial floor space above

- 216 co-living units within the 11-storey tower
- 332 build-to-rent units across the 18 and 23-storey towers, including 227 dual key units
- Rooftop internal and external amenity spaces on each tower to service the build-to-rent and co-living residents

Landscaping and public domain works, including:

- Retaining existing street trees
- Provision of a deep soil landscaped buffer zone along the rear boundary
- On-structure landscaping on each rooftop.

Construction and use of two basement levels, accessed from White Hart Drive, to accommodate:

- Approximately 120 car spaces
- Motorcycle and bicycle parking
- Loading dock facilities

Extension and augmentation of services and infrastructure as required.

A copy of the proposed development plans is provided in Appendix B.

1.4 Objectives

The objectives of the PSI / DSI are:

- Identification of historical and current potentially contaminating site activities.
- Evaluation of areas of environmental concern (**AEC**) and associated contaminants of potential concern (**COPC**) within the Site.
- Quantify potential risk from contamination within the Site by undertaking a program of intrusive soil investigations, sampling and laboratory analysis.
- Provide comment on the suitability of the Site for the future use, and where required, provide recommendations for additional investigations and or remediation or management requirements.

1.5 Project Scope

To address the objectives of the project, the following scope of works was completed:

- Review of historical aerial photographs and available records relating to current and historical Site use.

- Walkover inspection to review current land use, potential contaminating activities and neighbouring land use.
- Review of various government databases relating to potentially contaminating land uses.
- Review of NSW EPA notices under the Contaminated Land Management Act (1997).
- Completion of a soil sampling program within the Site to assess soil conditions and complete laboratory analysis of COPC.
- Preparation of a PSI / DSI report, accordance with DUAP (1998), ASC NEPM (2013), NSW EPA (2020) and Council guidelines.

1.6 Regulatory Guidelines

The following regulatory guidance documents have been considered for the preparation of this report:

- DUAP (1998) Managing Land Contamination Guidelines
- NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure. Referred to as ASC NEPM (2013).
- NSW EPA (2017) Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.
- NSW EPA (2020) Contaminated Land Guidelines: Consultants Reporting on Contaminated Land.
- NSW EPA (2022) Contaminated Land Guidelines.
- State Environmental Planning Policy (Resilience and Hazards) 2021.
- The Hills Local Environmental Plan 2019
- The Hills Development Control Plan 2012

2 Site Description

2.1 Overview

The site is located on the southern edge of Rouse Hill Town Centre and to the east of Rouse Hill Metro Station.

To the east of the site across White Hart Drive is a large residential area comprising single dwellings and town houses.

To the south of the site across White Hart Drive is new residential flat development of approximately 6 to 12 storeys.

Open spaces are located in proximity to the site including Castlebrook Memorial Park to the south-west of the site across Windsor Road, Caddies Creek Park and Reserve to the south of the site and Iron Bark Ridge Reserve to the west of the site at Caddies Creek.

The site is identified as a 'sleeve' site in the Rouse Hill Town Centre Precinct Plan approval (DA 1581/2005/HB) where the intent is for future development to screen the existing big box retail and car parking structures behind. As the retail and car parking structures have already been constructed and are in operation, the site was temporarily treated with earth berms, landscaping and tree planting until the site is developed.

No other structures exist on the site.

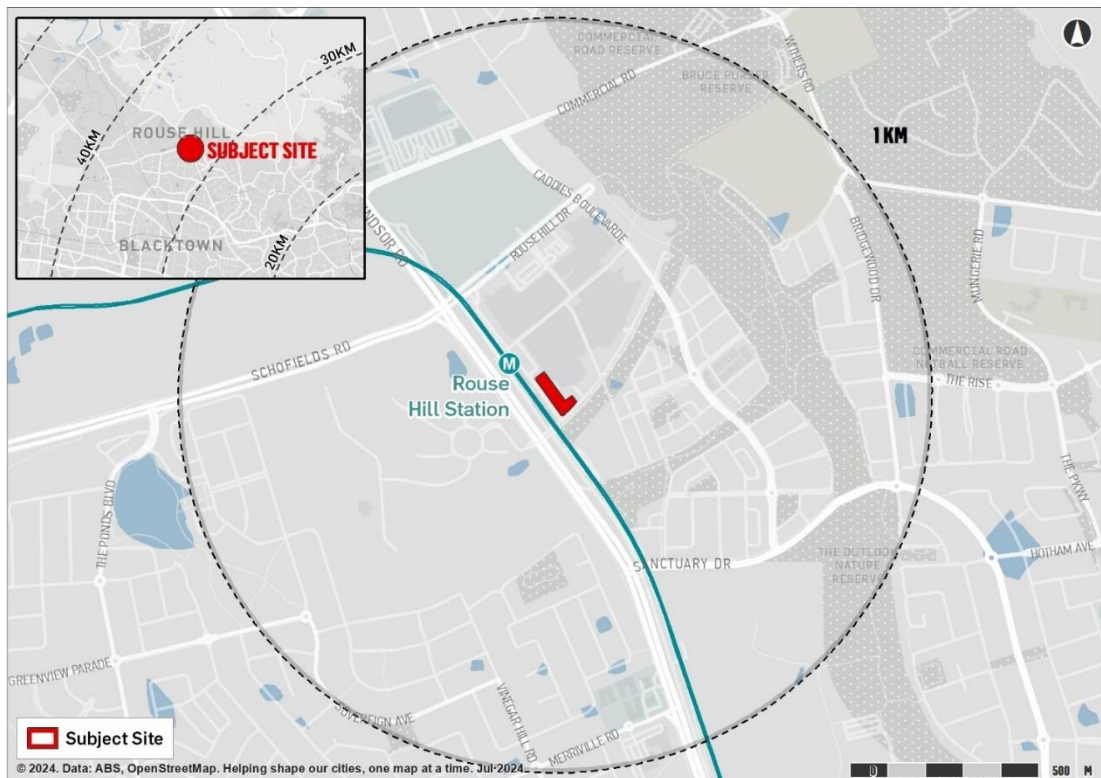


Figure 1: Regional Context (Source: Ubris)

2.2 Site Details

Site information is summarised in Table 2.

Table 2: IA Background Information.

Item	Description / Detail
Site address	2-30 Tempus Street, Rouse Hill, NSW
Legal Identifier	Lot 19 in DP 280013
Geographic coordinates	Coordinates (datum GDA2020 – MGA56) of northern corner of the Site: Easting: 307687 Northing: 6270058 (Source: Six Maps)
Site Area	The Site is approximately 4,385 m ² (LTS, 2024)
Local Government Area	The Hills Shire Council
Zoning	MU1: Mixed use. (Source: NSW Spatial Viewer)
Current land use	Vacant.
Proposed land use	It is proposed that the Site will be used for mixed use purposes including, rental housing and commercial use.
Surrounding land uses	The Site is directly adjacent the Rouse Hill Metro station to the east with mixed use in all other directions.

2.3 Environmental Setting

Table 3: Environmental Setting Information.

Item	Detail
Geology	The NSW seamless geology indicates the Site is underlain by Ashfield shale of the Wianamatta Group consisting of black to light grey shale and laminate. (Source: MinView)
Soil Landscape	Soil mapping information present on the eSPADE spatial viewer indicates the Site soils belong to the Blacktown Landscape. Soils typically comprise of shallow to moderately deep (<100cm) hard setting mottled texture contrast soils, Red Brown Podzolic Soil on crests grading to Yellow Podzolic Soils on lower slopes and in drainage lines. (Source: eSPADE).
Topography	Topography of the surrounding landscape is generally characterised by gently undulating rises on Wianamatta Group shales. Local relief to 30 m slopes usually >5%. Broad and rounded with convex upper slopes grading into concave slopes (eSPADE). The Site is located within slightly undulating terrain, on the mid slope of an east / northeast facing slope. An inferred fill mound located within the central portion of the Site.

Item	Detail
Acid Sulfate Soils	Review of NSW Government SEED mapping tool indicates the Site and surroundings are not mapped on the acid sulphate soil risk. (NSW, SEED).
Nearest surface waterbody	An unnamed tributary of Caddies Creek is located approximately 45 m to the south of the Site.

2.4 Hydrogeology and Groundwater Use

Review of the WaterNSW real-time Water Database identified no groundwater bores within 500 m of the Site.

As part of recent geotechnical investigations (completed in conjunction with this assessment) one groundwater monitoring well (**MW**) was installed in BH101 (MW01). A summary of the construction details of the monitoring well is present in Table 4. Monitoring log is provided in Appendix C

Table 4: Summary of monitoring well construction details

Location	Screen Material	Surface Level (mAHD) ¹	Slotted Screen Length (m)
MW01	Shale	48.5	8.0

Notes:

¹ Surface level estimated from LTS (2024).

Data loggers (pressure transducers) were installed in MW01 on 19 September 2024 with a dipped (manual recording) of standing groundwater measured at approximately 9.7 mbgl (38.80 mAHD).

3 Site Information Review

3.1 Aerial Photograph Review

Aerial photographs taken of the Site between 1955 and 2024, were reviewed to investigate historical land uses (Table 5). Copies of aerial photographs are provided in Appendix A.

The aerials indicate that the Site generally consisted of vacant land prior to 1955. Development of the Site appears to have occurred sometime between 2005 and 2006 with current Site conditions established sometime between 2007 and 2009. During Site development it appears the Site was used as a carpark and later filled. The surrounding area has undergone significant development since 2005.

Table 5: Aerial photograph observations from 1955 to 2024.

Year (Source)	Site Land Use	Surrounding Land Use
1955 (HAPE) ¹	The Site is vacant rural cleared land.	The surrounding land use generally consists of rural use with a road located to the west. A drainage line south of the Site flows into a dam to the east.
1960 (HAPE)	Little to no change from previous image.	Little to no change from previous.
1970 (HAPE) ¹	Little to no change from previous image.	To the west, Castlebrook Memorial Park (a cemetery) has commenced development with sealed roads visible. A large farm dam has been constructed to the east of the Site with evidence of earthworks.
1984 (HAPE)	Little to no change from previous image.	A dam has been constructed to the west within Castlebrook Memorial Park. Otherwise, little to no change from previous image.
1994 (HAPE)	Little to no change from previous image.	The large farm dam to the east of Site (visible in the 1970 image) appears to have been filled. Otherwise, little to no change from previous image.
2005 (HAPE) ¹	Little to no change from previous image.	Windsor Road (to the west of the Site) has been expanded. Otherwise, little to no change from previous image.
2006 (Google Satellite)	The Site appears to be in use as a carpark associated with the adjacent large scale construction project. The site has been stripped of all vegetation and it appears likely that fill material has been import as part of the conversion of the Site for use as a carparking area.	The surrounding area (primarily to the North of Site) is undergoing significant development as part of the construction of Rouse Hill Town Centre.

Year (Source)	Site Land Use	Surrounding Land Use
2007 (Google Satellite)	Continued use of the Site as a carparking area and construction laydown area. The Site contains both vehicles and what appears to be construction equipment.	Rouse Hill Town Centre development is continuing. Residential development is commencing to the south east of Site with a large scale earthworks program visible.
2009 (Nearmap)	The adjacent construction works appear to have ceased and the Site is no longer being used as a carparking / laydown area. The Site has been landscaped with grass and mature trees. Google street view from this time period shows a slightly raised Site surface compared to surrounding land indicating that further importation of fill material may have been conducted to achieve the final Site levels.	The Rouse Hill Town Centre development appears to be mostly complete. While Hart Drive has been completed and runs adjacent to the southern boundary of the Site. The earthworks program to the south of the Site is still in progress.
2016 (Nearmap) ¹	Vegetation growth has increased, otherwise little to no change from previous image.	Construction of Sydney Metro has occurred to the east. The residential development to the south and south east has continued to progress with a number of residential dwelling now present.
2024 (Nearmap)	Vegetation growth has increased, otherwise little to no change from previous image.	All surrounding development works visible in 2006 – 2016 images appears to be complete with no major development / construction works evident.

3.2 NSW EPA Records and Department of Defence Records

A review of NSW EPA and Department of Defence records was completed including the following database:

- Records relating to contaminated land under Section 58 of the Contaminated Land Management (CLM) Act 1997.
- Records relating to sites notified in accordance with the NSW EPA (2015) Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997.
- Records relating to licensed activities under the Protection of the Environment Operation (POEO) Act 1997.
- Records relating to sites listed under the NSW EPA per- and polyfluoroalkyl substances (PFAS) investigation program.
- Records relating to the sites being investigated and or managed by the Department of Defence for PFAS contamination.

A summary of information is provided in Table 6 below.

Table 6: NSW EPA and Department of Defence Records.

Records	Site	Offsite
Section 58 of the CLM Act 1997	None on Site	None within 500 m of Site
Duty to Report Contamination under Section 60 of the CLM Act 1997	None on Site	None within 500 m of Site
Licences under the POEO Act 1997	None on Site	Licence No: 20388 issued to Obrascon Huarte Lain S.A York Civil Pty Ltd. Licence No: 21247 issued to Metro Trains Sydney Pty Ltd.
NSW EPA PFAS investigation program	None on Site	None within 500 m of Site
Department of Defence PFAS management and investigation program	None on Site	None within 500 m of Site

The now surrendered Licence No. 20388 issued to Obrascon Huarte Lain S.A York Civil Pty Ltd was associated with the upgrade of Schofields Road. The currently active Licence No: 21247 issued to Metro Trains Sydney Pty Ltd is associated with Railway operations. It is considered unlikely that any works conducted under these EPL's would have introduced potential contamination to the Site.

3.3 External Potentially Contaminating Activities

Neighbouring service stations, mechanics and dry cleaners have the potential to contaminate the Site. A list of potential contaminating activities within 500 m of the Site are summarised in Table 7

Table 7: Potential Contaminating activities.

Business Activity	Address	Approximate Distance from IA Boundary
Dry Cleaner	Rouse Hill Town Centre, Rouse Hill NSW 2155	150 m northeast
Dry Cleaner	Centre, Shop GR168/14 Market Ln, Rouse Hill NSW 2155	335 m northeast.

Due to the distance and generally down gradient position of the dry cleans in respect to the Site, it is unlikely that potential contamination risk associated with dry cleaners would have impacted the Site.

3.4 Council Records

The DA or building records that are publicly available for the Site on the Hills Shire Council application search website (The Hills Shire Council, 2024) are summarised in Table 8

Table 8: The Hills Shire Council DA records.

Application Number	Lodgement Date	Status	Description
DA 1604/2004/HB	19/11/2003	Approved	Masterplan for the Rouse Hill Regional Centre
DA 1581/2005/HB	5/01/2005	Approved	Town Centre Core Precinct Plan
DA 1824/2006/HB	12/04/2006	Approved	Development of the Town Centre for Rouse Hill Regional Centre
DA 1099/2006/HA	30/11/2005	Approved	Roadworks and basement carpark for Rouse Hill Town Centre
DA 2238/2007/HA	22/06/2007	Approved	Shade Structure within Market Square at Rouse Hill Regional Centre
DA 946/2008/HA	22/11/2007	Approved	Proposed Monthly Markets

3.5 Site Walkover Inspection

An inspection of the Site was conducted by an experienced MA Consultant on 20 September 2024. Observations made during the inspection of the Site are provided below in Table 9.

Table 9: Summary of Site inspection observations

Item	Comment
Buildings and structures	The Site was vacant at the time of inspection with no visible buildings or structures observed.
Ground surfaces and pavements	The ground surface was covered with a mixture of shrubs and mulch. Mature vegetation was also present across most of the Site area.
Fill material and soil stockpiles	The Site levels appeared to be approximately 1.5 – 2 m above the surrounding ground levels of adjacent land suggesting potential importation of fill material. No stockpiles were observed.
Historic structures	No evidence of historical structures or demolition waste were observed during the inspection.
Chemical storage	No evidence of chemical storage was noted at the Site.
UPSS, USTs and ASTs ¹	No evidence of onsite UPSS, USTs, or ASTs were observed during the inspection.
Waste materials	Minor anthropogenic material (plastic and metal) was observed at the ground surface.
Odours and staining	No significant odours or staining were reported or observed during the inspection.
Hazardous building materials	No evidence of hazardous building material was reported or observed during the inspection. No surficial PACM fragments were observed.

Item	Comment
Electrical substation	No electrical substations observed near the Site.
Vegetation and phytotoxicity	Site vegetation appeared to be health with no signs of phytotoxicity was observed.

Notes:

1. Underground petroleum storage systems (UPSS), underground storage tanks (USTs), and above ground storage tanks (ASTs).

4 Conceptual Site Model

4.1 Areas of Environmental Concern

Our assessment of potential contamination sources / AECs and associated COPC for the Site was made based on available Site history, aerial photograph interpretation and observations made during the Site walkover. Table 10 presents potential contamination sources and contaminants of potential concern for the Site.

Table 10: Potential contamination sources and contaminants of potential concern.

AEC	Potential for Contamination	COPC
AEC A Potential Fill Material	Based on aerial image review and walkover of the Site, it appears likely that fill material was imported to the Site to establish current levels. Material (or fill) imported to Site from unknown origins presents a potential contamination risk. This is of particular significance if any fill material was sourced from locations of heavy industry or contains wastes and byproducts of industrial processes.	Heavy Metals (HM), petroleum hydrocarbons (as total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCPs) / organophosphorus pesticides (OPP) polychlorinated biphenyls (PCBs), and asbestos
AEC B Former use as carpark / construction laydown area	During development of the Rouse Hill Town Centre, aerial images show the Site was used for a number of years as a carpark and construction laydown area. The prolonged use of vehicles and possible construction equipment may have led to possible contamination of near surface soil from leaks and spill of oils and or fuels.	TRH, BTEX, PAH and HM.

4.2 Potential Exposure Pathways and Receptors

A conceptual site model (**CSM**), based on the AEC and COPC identified in Table 10, and the associated exposure pathways to potential receptors are summarised in Table 11.

Table 11: Conceptual site model.

Item	Description
Affected Media and Mechanism of Contamination	<p>Soil is considered to be a media of interest at the Site. Potential contamination mechanisms included 'top down' impacts to near surface soils uncontrolled filling and carpark use during development of the Site and surrounding area.</p> <p>Based on the expected depth of groundwater (as discussed in Section 2.3) and the nature of the identified AECs assessment of Site groundwater is not considered necessary as part of this investigation.</p> <p>While further monitoring of groundwater levels is ongoing, preliminary results suggest that the proposed basement excavation is not expected to intercept groundwater and dewatering works are not expected to be required as part of future construction.</p>
Potential Receptors	<p>Potential human receptors within the Site include construction workers during development and future site workers (utilising the commercial space) and residence of the Site post development.</p> <p>Potential ecological receptors include flora and fauna that may inhabit the Site however given the significant extent of the proposed basement excavation potential ecological receptors are considered limited and not a viable receptor for assessment.</p>
Potential Exposure Pathways	<p>Potential exposure pathways include ingestion, dermal absorption, and inhalation of dust (all COPC) and vapour inhalation from volatile COPC.</p>

4.3 CSM Discussion

The CSM has identified fill material and former carpark / construction laydown use of the Site as AECs which present a potential contamination risk to Site soil.

4.4 Review of Data Gaps

Table 12 summarises potential data sources which were not included in the PSI / desktop component of this report and discusses, what if any impact this may have on the CSM and conclusions of this report.

Table 12: Review of data gaps.

Data Gap	Comment on Data Gap
SafeWork NSW	Based on historical aerial photography, it is considered unlikely that long term storage of dangerous goods has occurred at the Site given the absence of visible infrastructure. Therefore, SafeWork NSW records were not obtained for the Site.
Section 10.7 Certificate	The Site's Section 10.7 planning certificate was not obtained for review as part of this investigation. Given the surrounding land use, coupled with available information obtained from available record sources, we consider that information provided in planning certificate is unlikely to change the conclusions or recommendations of this report.
Land title records	Land title records were not reviewed as part of this assessment. We considered this data gap is unlikely to change the outcome or recommendations of this report given that there have been minimal changes in land use throughout known Site history.

5 Sampling Analytical and Quality Plan

A Sampling Analytical and Quality Plan (**SAQP**) was developed to ensure that data collected for this investigation is representative and provides a robust basis for preliminary site assessment decisions. Preparation of the SAQP was completed in general accordance with ASC NEPM (2013) methodology and includes:

- Data quality objectives (**DQO**).
- Data quality indicators (**DQI**).
- Sampling methodologies and storage procedures.
- Quality assurance (**QA**) and quality control (**QC**).

The SAQP is summarised in the following sections.

5.1 Data Quality Objectives

DQO were prepared as statements specifying qualitative and quantitative data required to support project decisions. DQO were prepared in general accordance with ASC NEPM (2013), NSW EPA (2017) and NSW EPA (2020) guidelines, and are presented in Table 13.

Table 13: Data quality objectives.

Item	Description
Step 1 Stating the problem	This assessment has been conducted to provide characterisation of potential contamination within the Site that may be accessible to sensitive receptors, prior to construction of the proposed development.
Step 2 Identifying the decision(s)	To assess the contamination risk of the Site, decisions are to be made based on the following questions: <ul style="list-style-type: none"> • What is the contaminant exposure pathway? • Has previous or current Site use impacted the Site that may pose a risk to humans or the environment for future land use? • Does the Site require remediation or management measures to be undertaken?
Step 3 Identifying inputs to the decision	The inputs to the assessment include: <ul style="list-style-type: none"> • Soil sampling at nominated location across the Site. • Laboratory analytical results for relevant COPC. • Assessment of analytical results against Site suitable guidelines.
Step 4 Defining study boundaries	Study boundaries are as follows: <ul style="list-style-type: none"> • Lateral – Lateral boundary of the assessment is defined by the Site boundary. • Vertical – Vertical boundary is governed by the maximum depth reached during subsurface investigations. • Temporal – Two sampling events were completed as part of this investigation.
Step 5	The decision rule for this investigation is as follows:

Item	Description
Developing decision rules	<ul style="list-style-type: none"> If the concentration of contaminants exceeds the adopted assessment criteria, a risk assessment will be required. If the risk is deemed unacceptable, further investigations to remediate and / or manage onsite impacts will be undertaken.
Step 6 Specifying limits on decision errors	Guidance found in ASC NEPM (2013) Schedule B2 regarding 95% upper confidence limit (UCL) states that the 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than or equal to this value. Therefore, a decision can be made based on a probability that 95% of the data collected will satisfy assessment criteria. A limit on decision error will be 5% that a conclusive statement may be incorrect.
Step 7 Optimising sampling design	<p>A pattern of systematic sampling has been selected to screen soils for COPCs across the Site due to the likelihood of diffuse contamination.</p> <p>Grid based sampling requirements of NSW EPA (2022) for the Site area (approximately 4,385 m²) will be adopted, requiring a minimum of 13 sampling locations. The investigation will include:</p> <ul style="list-style-type: none"> Soil investigation by the methods discussed in Section 5.3 Field samples will consist of an upper soil profile sample (including fill soils) at each sampling location, with additional field samples collected from (including natural soil) layers. Analytical sample selection for laboratory testing will be based on soil units encountered at sampling locations and field observations made (including visual and olfactory evidence). Analytical samples will be tested for COPC identified by the CSM (Section 4) to assess the environmental condition of soils associated with the recognised AECs.

5.2 Data Quality Indicators

In accordance with NSW EPA (2017), the investigation data set has been compared with DQI outlined in Table 14 to ensure that collected data meets the project needs and that DQO have been met.

Table 14: Data quality indicators.

Assessment Measure (DQI)	Comment
Precision – A measure of the variability (or reproducibility) of data.	<p>Precision was assessed by reviewing a blind field duplicated sample set through the calculation of the relative percent difference (RPD).</p> <p>Data precision was deemed acceptable where results are 0 - 10 x EQL or where RPD was <50% (for 10 - 30 x EQL) or <30% (for >30 x EQL).</p> <p>Exceedance of this range may still be considered acceptable where heterogeneous materials were sampled.</p>
Accuracy – A measure of the closeness of reported data to the “true value”.	<p>Data accuracy was assessed by:</p> <ul style="list-style-type: none"> Field spike and blank. Laboratory duplicate samples.
Representativeness – Confidence that data is	To ensure data representativeness the following field and laboratory procedures were followed:

Assessment Measure (DQI)	Comment
representative of each media present on the Site.	<ul style="list-style-type: none"> Design and implementation of the sampling program completed in accordance with MA standard operating procedures (SOP). Trip blank and trip spike samples used for volatiles during field sampling to ensure no cross contamination or laboratory artefacts. Laboratory hold times met, and sample handling and transportation completed in accordance with MA SOP.
Completeness – A measure of the amount of usable data from a data collection activity.	<p>To ensure data set completeness, the following is required:</p> <ul style="list-style-type: none"> Confirmation that all sampling methodology was completed in general accordance with the MA SOP. Provision of COC and receipt forms. Provision of results from all laboratory QA/QC samples (lab blanks, trip blank and trip spike, lab duplicates). NATA accreditation stamp on all laboratory reports.
Comparability - Confidence that data may be considered to be equivalent for each sampling and analytical event.	<p>Data comparability was maintained by ensuring that:</p> <ul style="list-style-type: none"> All Site sampling events undertaken following methodologies outlined in MA SOP and published guidelines. NATA accredited laboratory methodologies followed for all laboratory analysis.

5.3 Investigation and Sampling Methodology

Site investigation and soil sampling was completed to meet the project DQO, and is summarised in Table 15.

Table 15: Investigation and sampling methodology.

Item	Description
Fieldwork summary	<p>Intrusive investigations were completed on 9 October 2024 fieldworks involved:</p> <ul style="list-style-type: none"> Excavation of 13 test pits (TP101-TP113) using 5 tonne excavator to a maximum investigation depth of 2.9 mbgl. Collection of representative soil samples for laboratory analysis. Collection of duplicate soil sample for QA / QC purposes. <p>Test pit locations are shown in Appendix A, and test pit logs are provided in Appendix C.</p>
Soil sampling	<p>The sampling density adopted for the soil investigation program included sampling at 13 locations (TP101-TP113) which meets the minimum sampling density for hotspot detection as outlined in the NSW EPA (2022) <i>Sampling Design Guidelines Part 1 – Application</i>.</p> <p>Sample locations were established on a general systemic grid across the Site. Systematic sampling is considered suitable to identify hotspots to a 95% confidence level and to calculate UCLs for specific data populations.</p>
QA / QC sampling	<p>QA / QC samples were collected for the initial investigation as follows:</p> <ul style="list-style-type: none"> Two duplicate sample for soil was collected for intra-laboratory analysis during investigations. One Trip blank and trip spikes samples were used during soil sampling.

Item	Description
Sample handling and transport	<p>Sample collection, storage and transport was conducted according to MA SOP.</p> <p>Collected soil samples were placed immediately into an ice chilled cooler-box.</p> <p>Samples were dispatched to a NATA accredited laboratory (Envirolab Pty Ltd) under chain of custody documentation within holding times.</p>

5.4 Laboratory Analytical Suite

A summary of laboratory analyses for soil samples completed as part of this DSI is provided in Table 16.

Table 16: Summary of soil laboratory analyses.

COPC	Primary Samples Analysed	Duplicate Samples Analysed
BTEXN	10	1 trip spikes
TRH	10	1 trip blanks
PAH	10	-
Heavy metals ^	10	2 duplicates
OCP / OPP	10	-
PCB	10	-
Asbestos in soil	10	-

^ Arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

6 Site Assessment Criteria (SAC)

SAC derived from ASC NEPM (2013) were adopted for this DSI, and are summarised in Table 17. Assessment criteria has been adopted for residential with limited access to soil based on the ground floor of the proposed development will be for commercial use. We consider this sufficiently conservative for the proposed development.

Ecological receptors were not assessed as part of this DSI since the Site will have limited access to soil due to proposed basement requiring bulk excavation likely extending to Site boundaries and expected hardstand.

Table 17: Site assessment criteria.

Media	Adopted Guidelines	Applicability
Soil	ASC NEPM (2013)	<p><u>Health investigation levels (HIL)</u> HIL B – Residential with limited access to soil</p> <p><u>Health screening levels (HSL)</u> HSL A/B – in accordance with NEPM (2013) guidance, residential with limited access to soil HSLs have been adopted to assess potential vapour risks as the proposed development is understood to include basement excavation for the construction of a carpark. As a conservative approach guideline for sand has been used.</p> <p><u>Management Limits</u> Residential / public open space (coarse soils).</p> <p><u>Asbestos</u> Assessed on a detect / non-detect basis.</p>

7 Results

7.1 General Field Observations

Initial field investigations and detailed Site walkover were undertaken on 9 October 2024. All locations were examined for signs of contamination (odours and staining, etc.) The following observations were made:

- The Site was generally consistent with observations made during initial PSI walkover.

7.2 Soil Conditions

Field investigations of 13 test pits was undertaken on 9 October 2024. Subsurface conditions encountered during field investigations generally consisted of a brown silty gravelly clay fill layer with anthropogenic inclusions (plastic) underlain by rock to a maximum investigation depth of 2.9 mbgl. Fill material was preset at all testing locations at varying depths with many of the test pit locations terminating in fill material due to the extent of the excavator arm being reached (around 2.9 metre below ground level).

Two test pits (TP108 and TP113) were underlain by residual pale grey clay, found between 1.1 to 2.3 mbgl.

Test pit locations are shown on the sampling plan in Appendix A and test pit logs are provided in Appendix C

7.3 Soil Analytical Results

Laboratory analytical results (Envirolab report no. 363608) for soil samples collected as part of this DSI are summarised in Table 18. A summary of laboratory results is provided in Appendix D and laboratory documentations area provided in Appendix F.

Table 18: Soil analytical results.

Analyte	Category
Heavy metals	<u>HIL</u> All results below SAC.
TRH/BTEXN	<u>HSL</u> All results below SAC. <u>Management Limits</u> All results below SAC.
OCP / OPP	<u>HIL</u> All results below SAC.
PAH	<u>HIL</u> All results below SAC. <u>HSL</u> All results below SAC.

Analyte	Category
PCB	<u>HIL</u> All results below SAC.
Asbestos in soil	No asbestos detected.

7.4 Preliminary Waste Classification

Analytical results were compared to specific contaminant concentrations (**SCC**) guidelines adopted from NSW EPA (2014) *Waste Classification Guidelines, Part 1 Classifying Waste*. All laboratory results were found to be below the CT1 values for General Solid Waste (**GSW**) from NSW EPA (2014).

Fill material encountered during Site inspection on 9 October 2024 is unlikely to meet the classification of Excavated Natural Material (**ENM**) due to presence of building waste (plastic) noted in all test pits.

A formal waste classification will be required prior to offsite disposal.

7.5 Data QA / QC

Field QA / QC data was collected as per the SAQP. A review of QA / QC procedure has been completed and is presented in the data validation report in Appendix E. The report concludes that data collected is suitable for the purposes of this preliminary assessment.

8 Discussion and Conclusion

This combined PSI and DSI assessment has been completed by MA to evaluate potential land contamination risks at 2-30 Tempus Street, Rouse Hill, NSW to support a SSDA for a proposed mixed use development with two level basement.

Historical aerials indicate that the Site was vacant cleared land prior to 1955 and up until sometime between 2005 and 2006 where significant development of land surrounding the Site commenced (Rouse Hill Town Centre). During this development time, aerial images indicate the Site was used as both a carparking area and construction laydown area. Based on google street images from this time period (and aerial images) it appears that fill material was placed across much of the Site during this development time period. At the completion of the Rouse Hill Town Centre development works, the Site was vegetated and has remained as undeveloped open space.

A desktop information review found that the Site is not listed on any available contaminated land registers and there are no easily identifiable, nearby surrounding land uses which are considered to potentially present a contamination risk to the Site.

The findings of the desktop investigation and Site walkover informed the development of a CSM for the Site, including the identification of AECs and associated COPCs. Identified AECs are associated with the presence of fill material and carpark / Construction Laydown area use which may present a contamination risk to future Site receptors.

To assess potential contamination risks a soil sampling program was undertaken which included the excavation of 13 test pits, soil sampling and laboratory analysis. Soil sampling locations were selected using a systematic approach where access was available to ensure appropriate Site coverage in accordance with NSW EPA (2022) *Sampling Design Guidelines*.

Subsurface conditions encountered during test pit excavation confirmed the presence of fill material which was identified at all testing locations. Fill was encountered at varying depth with observation of anthropogenic inclusions (plastic) and gravels. The encountered fill layer was generally found between surface and 2.9 mbgl. Residual soil was only encountered in TP108 and TP113 and consisted of pale grey silty clay. No soil odour and / or staining were observed during intrusive investigations.

Soil analytical results were assessed using residential with limited access to soil as a conservative approach based on the proposed basement and ground level commercial use. All soil results were found to be either below the SAC or Limit of Reporting (**LOR**). Asbestos presence / absence in soil was not detected by the laboratory in analysed fill soil samples.

9 Conclusion and Recommendations

Based on the findings of this investigation and subject to limitation in Section 10, risks posed by potential contamination sources outlined in the CSM are considered to be low and we consider that the Site is suitable for the proposed development in accordance with S4.6 of *State Environmental Planning Policy (Resilience and Hazards) 2021*.

We recommend that the following works are completed so that contamination risks remain low and acceptable during and post construction works:

- Preparation and implementation of a Construction Environmental Management Plan (**CEMP**) for the construction phase of the project. The CEMP is to include protocols to address any unexpected finds which may be encountered during potential targeted minor excavations as part of the proposed development.
- Completion of a formal waste classification assessment to ensure that spoil generated during basement excavation works is classified and disposed of in accordance with NSW EPA (2014) *Waste Classification Guidelines*.

10 Limitations Statement

This combined PSI and DSI was undertaken in line with current industry standards.

It is important, however, to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land uses. Therefore, this report should not be read as a guarantee that no contamination shall be found on the site. Should material be exposed in future which appears to be contaminated or inconsistent with natural site soils, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of the current development proposal. No reliance on this report should be made for any other investigation or proposal. Martens & Associates Pty Ltd accepts no responsibility and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

11 References

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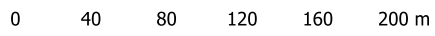
Appendix A – Maps



Legend

- Site Boundary
- Cadastre
- Viewports

Map	Title
Map 01	Overview
Map 02	Topography
Map 03	Geology
Map 04	Soil Landscape
Map 05	Historical Aerial: 1955
Map 06	Historical Aerial: 1960
Map 07	Historical Aerial: 1970
Map 08	Historical Aerial: 1984
Map 09	Historical Aerial: 1994
Map 10	Historical Aerial: 2005
Map 11	Historical Aerial: 2006
Map 12	Historical Aerial: 2007
Map 13	Historical Aerial: 2009
Map 14	Historical Aerial: 2016
Map 15	Historical Aerial: 2024
Map 16	AEC Map
Map 17	Test Pit Locations



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Viewport

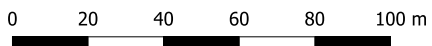
Notes:
 - Aerial from Neamap (2024).
 - Cadastre and site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:

Overview

Map 01
 2 Tempus Street, Rouse Hill NSW
 Geotechnical Assessment
 Preliminary Site Investigation
 Freecity Rouse Hill Development Pty Ltd
 13/03/2025

Map
 Site
 Project
 Sub-Project
 Client
 Date



1:2000 @ A3

Viewport A

- Notes:
- Aerial from Neemap (2024).
 - Cadastre and site boundary from NSW Spatial Services Clip & Ship (2024).
 - Contours from Elvis LIDAR (2019).

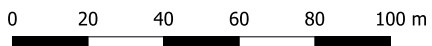
Map Title / Figure:

Topography

Map 02	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date

Legend

- Site Boundary
- Cadastre
- Geology**
- Hawkesbury Sandstone (Rh)
- Brigelly Shale (Rwl)



1:2000 @ A3

Viewport A

Notes:
 - Aerial from Neamap (2024).
 - Cadastre and site boundary from NSW Spatial Services Clip & Ship (2024).
 - Geology from Bryan J.H., 1966, Sydney 1:250 000 Geological Sheet S1/56-05, 3rd edition, Geological Survey of New South Wales, Sydney, accessed via NSW Geoscience website (2024).

Map Title / Figure:

Geology

Map 03	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date



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Viewport A

- Notes:
- Aerial from Neamap (2024).
 - Cadastre and site boundary from NSW Spatial Services Clip & Ship (2024).
 - Soil landscape from NSW SEED (2024).

Map Title / Figure:

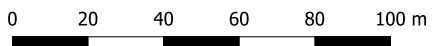
Soil Landscape

Map 04
 2 Tempus Street, Rouse Hill NSW
 Geotechnical Assessment
 Preliminary Site Investigation
 Freecity Rouse Hill Development Pty Ltd
 13/03/2025

Map
 Site
 Project
 Sub-Project
 Client
 Date

Legend

 Site Boundary



1:2000 @ A3

Viewport A

- Notes:
- Aerial from NSW Spatial Services HAPE (1955).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 1955

Map 05	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date



Legend
 Site Boundary

0 20 40 60 80 100 m

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Viewport A

Notes:
 - Aerial from NSW Spatial Services HAPE (1960).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:

Historical Aerial: 1960

Legend
Site Boundary



0 20 40 60 80 100 m

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Viewport A

Notes:
- Aerial from NSW Spatial Services HAPE (1970).
- Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 1970

Map 07	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date

Legend

 Site Boundary



0 20 40 60 80 100 m

1:2000 @ A3

Viewport A

Notes:
 - Aerial from NSW Spatial Services HAPE (1984).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 1984

Map 08	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date

Legend
Site Boundary



0 20 40 60 80 100 m

1:2000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services HAPE (1994).
- Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 1994

Map 09	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date

Legend
Site Boundary



0 20 40 60 80 100 m

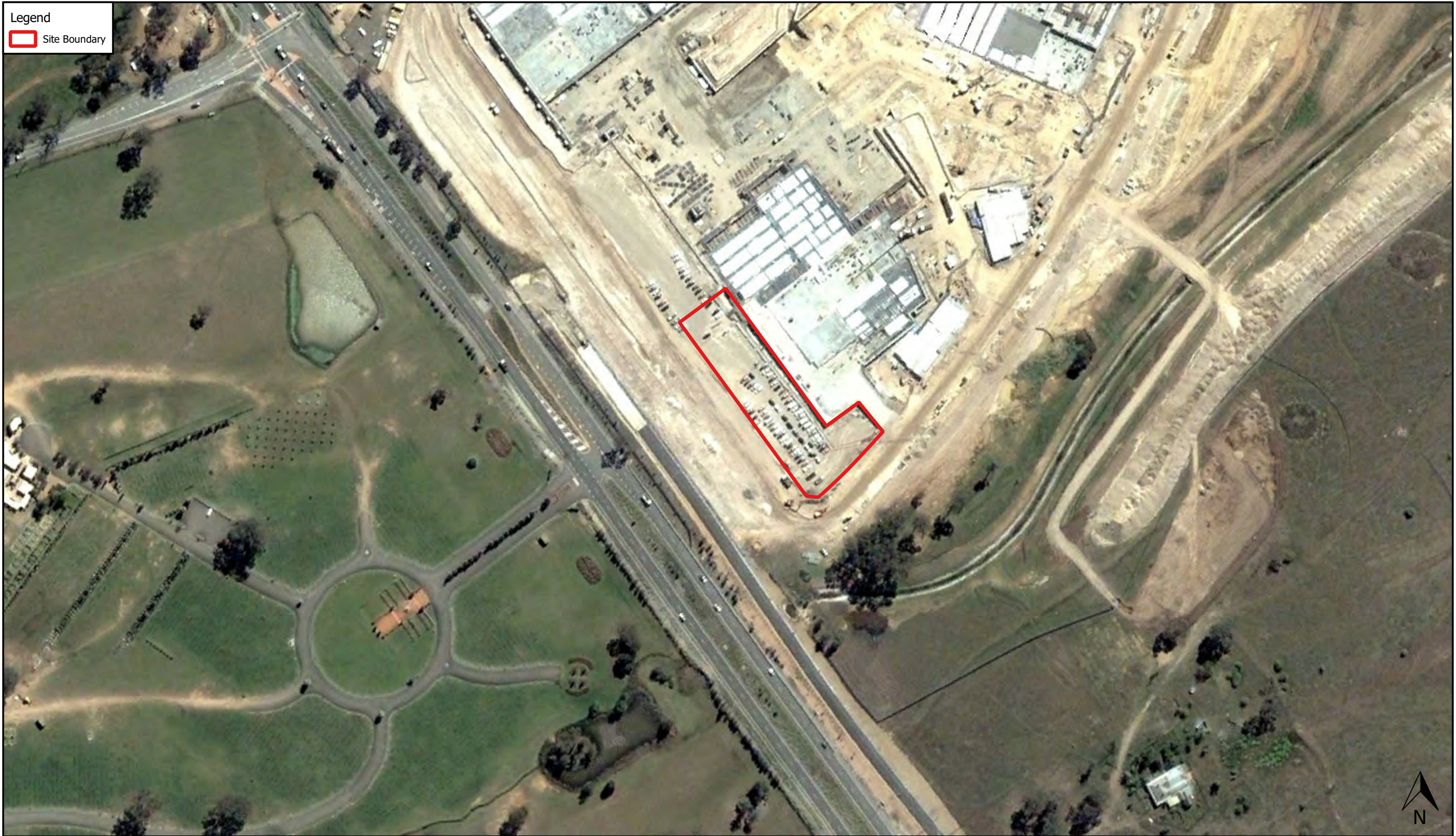
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Viewport A

Notes:
- Aerial from NSW Spatial Services HAPE (2005).
- Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 2005

Map	Map 10
Site	2 Tempus Street, Rouse Hill NSW
Project	Geotechnical Assessment
Sub-Project	Preliminary Site Investigation
Client	Freecity Rouse Hill Development Pty Ltd
Date	13/03/2025



Legend
 Site Boundary

0 20 40 60 80 100 m

1:2000 @ A3

Viewport A

Notes:
 - Aerial from Google Satellite (2006).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).



Map Title / Figure:
Historical Aerial: 2006

Map 11
 2 Tempus Street, Rouse Hill NSW
 Geotechnical Assessment
 Preliminary Site Investigation
 Freecity Rouse Hill Development Pty Ltd
 13/03/2025

Map
 Site
 Project
 Sub-Project
 Client
 Date



Legend

Site Boundary

0 20 40 60 80 100 m

1:2000 @ A3

Viewport A

Notes:
 - Aerial from Google Satelite (2007).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 2007

Map 12	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date



0 20 40 60 80 100 m

1:2000 @ A3

Viewport A

Notes:
 - Aerial from Nearmap (2009).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 2009

Map 13	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date



0 20 40 60 80 100 m

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Viewport A

Notes:
 - Aerial from Nearmap (2016).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 2016

Map 14	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date



0 20 40 60 80 100 m

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Viewport A

Notes:
 - Aerial from Nearmap (2024).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Historical Aerial: 2024

Map 15	Map
2 Tempus Street, Rouse Hill NSW	Site
Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Freecity Rouse Hill Development Pty Ltd	Client
13/03/2025	Date

Legend

- Site Boundary
- AECs**
- Fill Material
- Former Carpark / Construction Laydown area



0 20 40 60 80 100 m





1:2000 @ A3
 Viewport A
 Notes:
 - Aerial from Nearmap (2024).
 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
AEC Map

Map 16
 2 Tempus Street, Rouse Hill NSW
 Geotechnical Assessment
 Preliminary Site Investigation
 Freecity Rouse Hill Development Pty Ltd
 13/03/2025

Map
 Site
 Project
 Sub-Project
 Client
 Date

Legend

-  Test Pit Locations
-  Site Boundary
- AECs**
-  Fill Material
-  Former Carpark / Construction Laydown area



0 20 40 60 80 100 m

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Viewport A

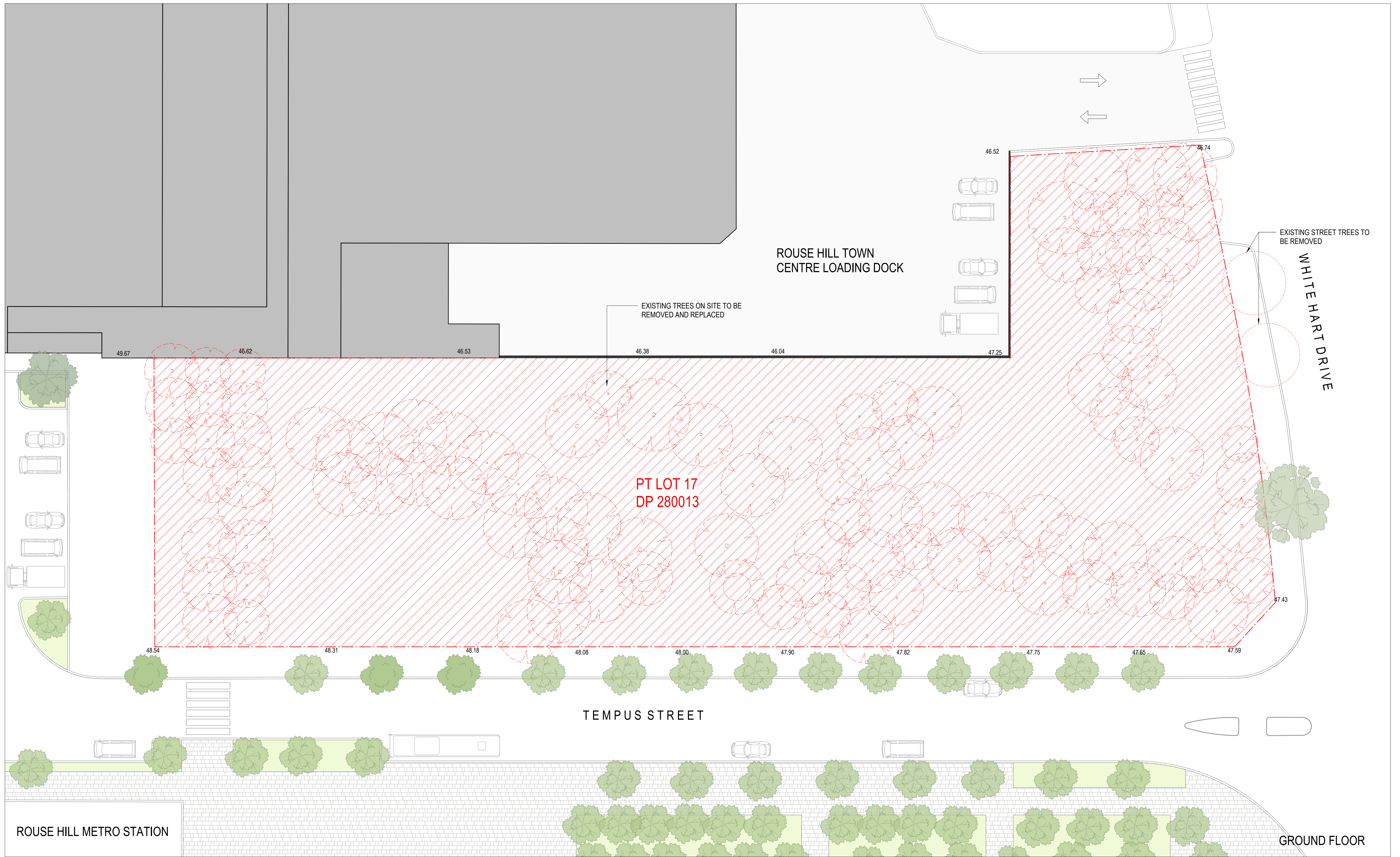
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 - Site boundary from NSW Spatial Services Clip & Ship (2024).

Map Title / Figure:
Test Pit Locations

Map 17
 2 Tempus Street, Rouse Hill NSW
 Geotechnical Assessment
 Preliminary Site Investigation
 Freecity Rouse Hill Development Pty Ltd
 13/03/2025

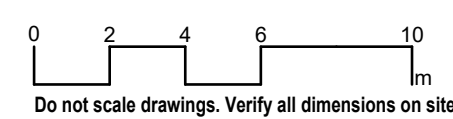
Map
 Site
 Project
 Sub-Project
 Client
 Date

Appendix B –Development Plans

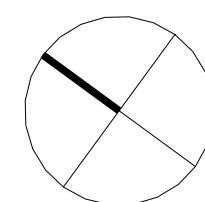


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revision	purpose of issue	checked	date
P.00	DRAFT SSDA		15.11.24
P.01	DRAFT ISSUE		12.03.25
P.02	SSDA ISSUE		07.04.25
P.03	SDRP 2 COMMENTS		16.05.25
P.04	SDRP 2 + BASIX COMMENTS		05.06.25



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project TEMPUS STREET ROUSE HILL

Tempus Street, Rouse Hill, NSW

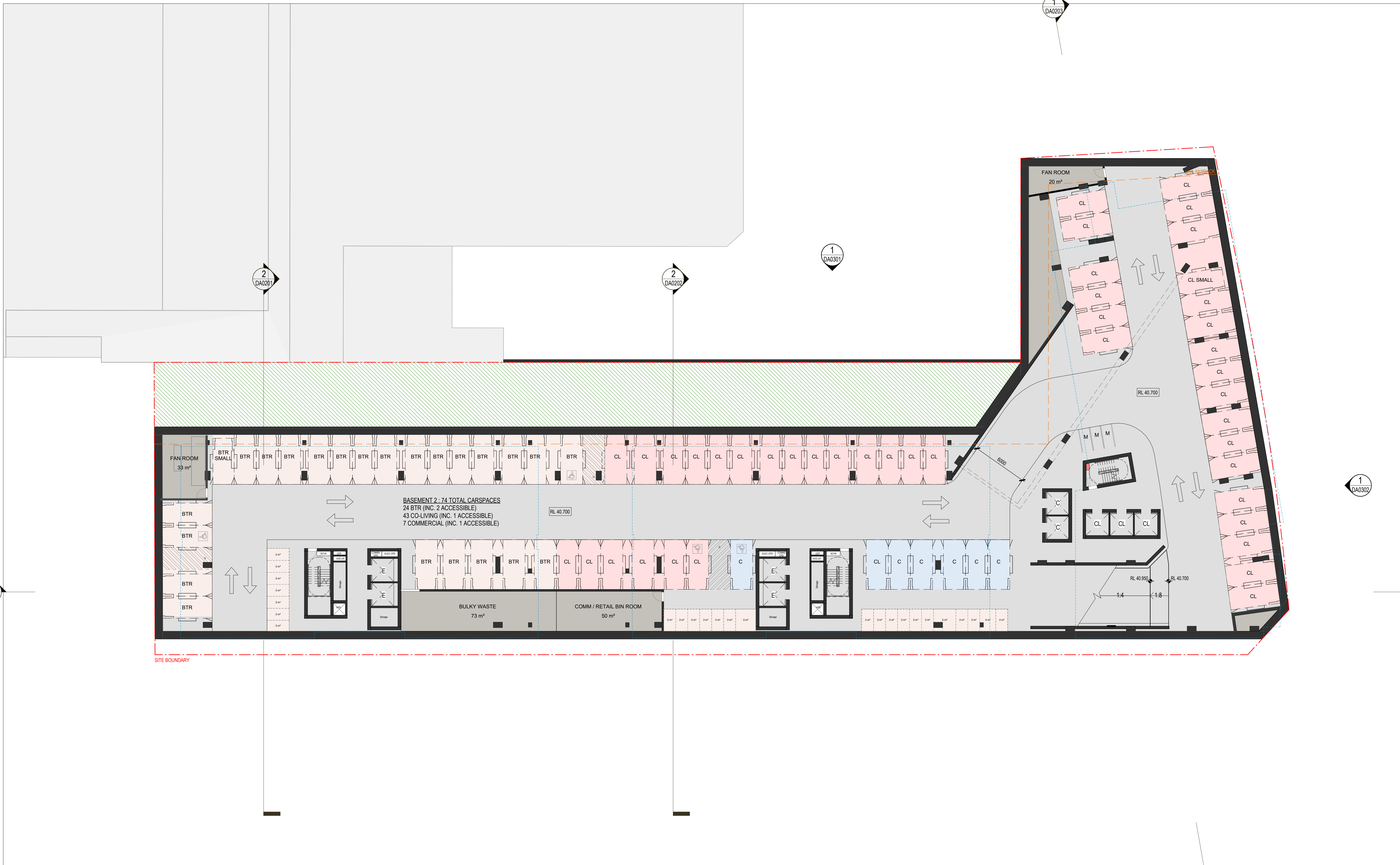
drawing

Demolition Plan

drawing no. revision

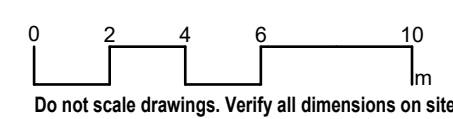
DA0004 P.04

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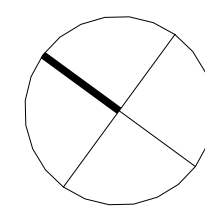


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revision	purpose of issue	checked	date
P.00	DRAFT SSDA		15.11.24
P.01	DRAFT ISSUE		07.03.25
P.02	DRAFT ISSUE		12.03.25
P.03	SSDA ISSUE		07.04.25
P.04	SDRP 2 COMMENTS		16.05.25
P.05	SDRP 2 + BASIX COMMENTS		05.06.25



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approved MD scale 1:200 @A1
prepared KL, MK, SD, VJ project no 240130

project TEMPUS STREET ROUSE HILL

Tempus Street, Rouse Hill, NSW

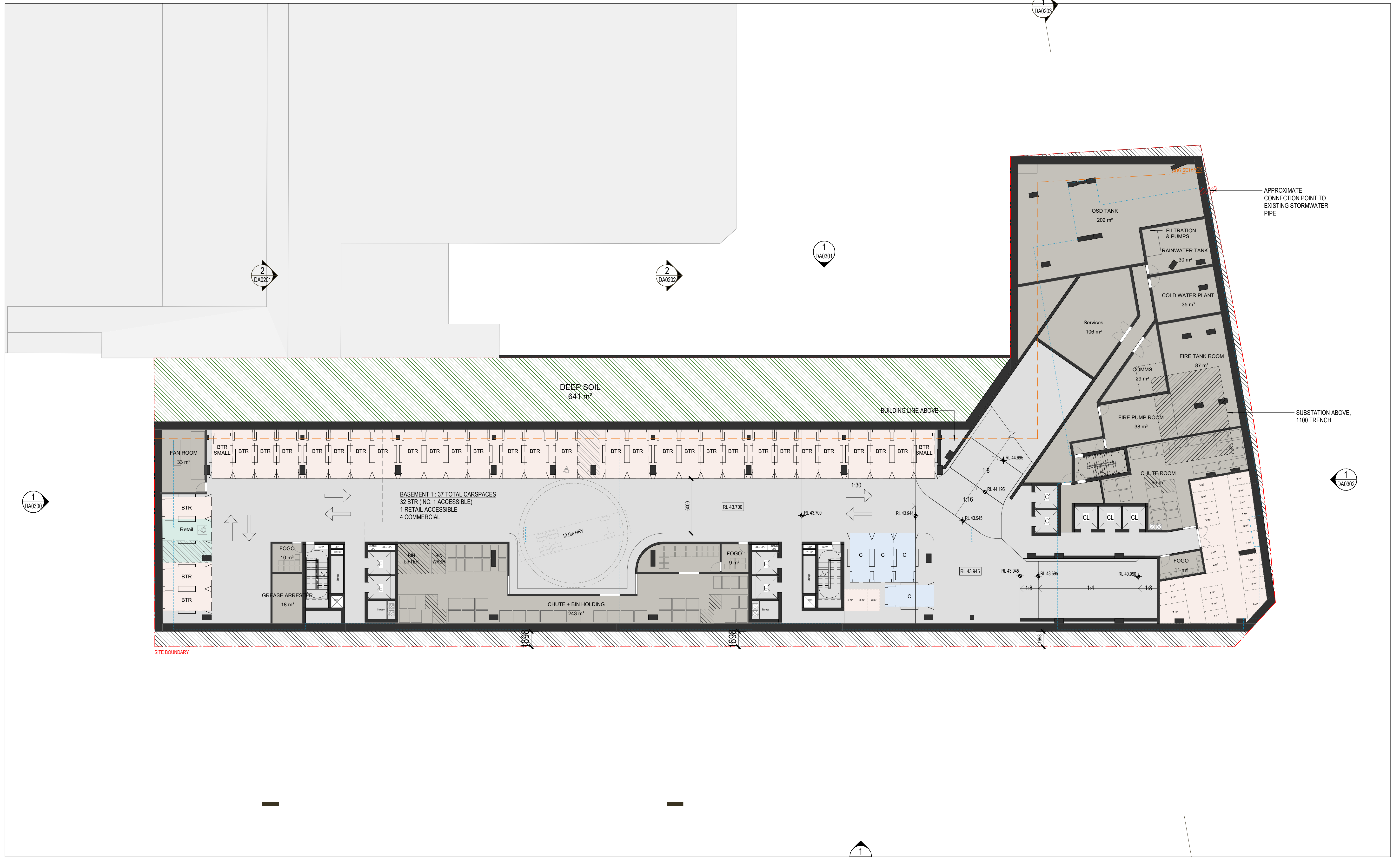
drawing

Basement 2 Plan

drawing no. revision

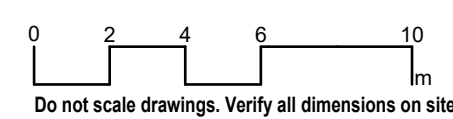
DA0091 P.05

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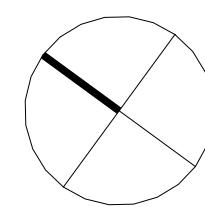


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P.05	SDRP 2 + BASIX COMMENTS		05.06.25



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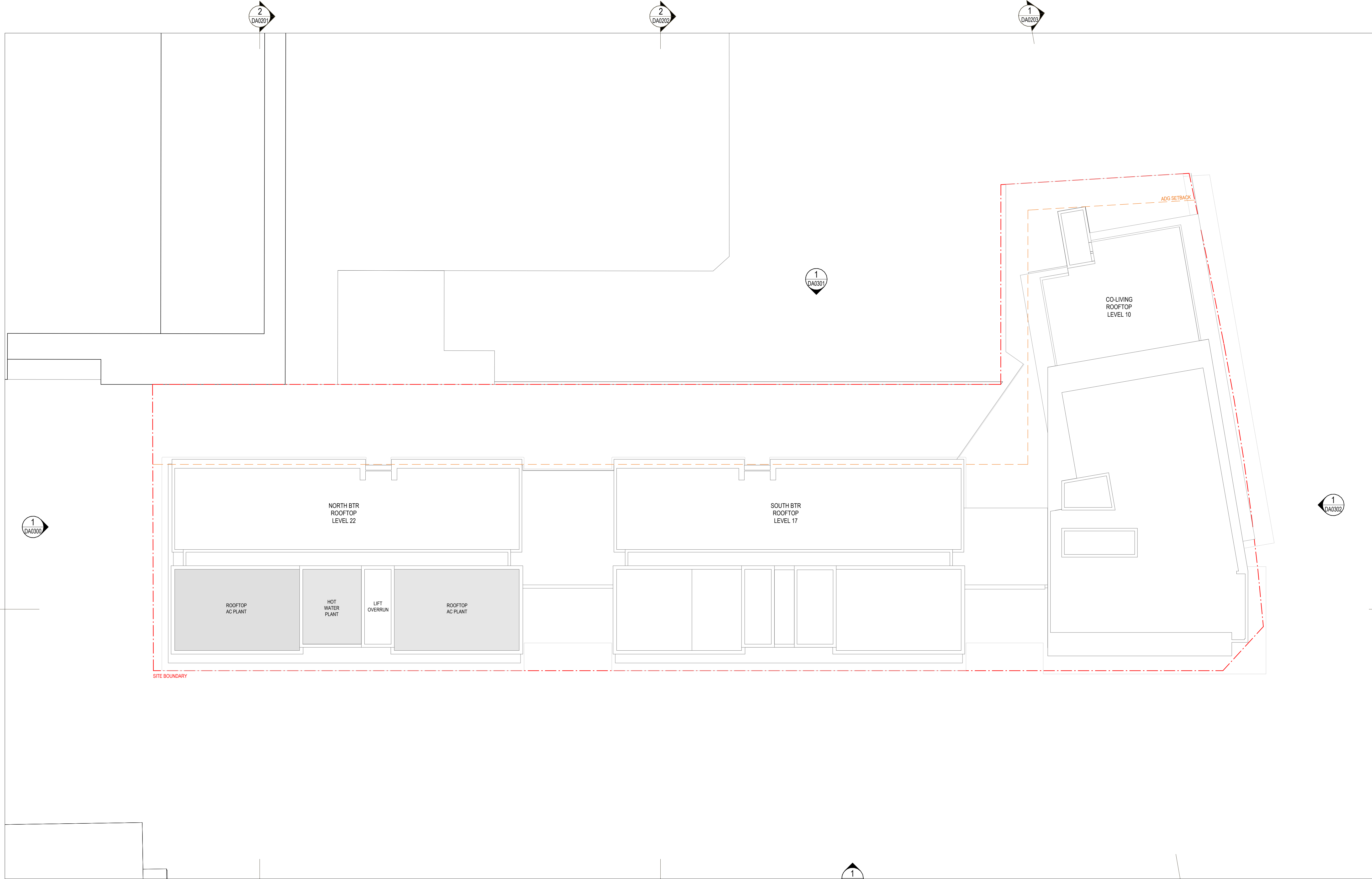
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approved MD scale 1:200 @A1
 prepared KL, MK, SD, VJ project no 240130

project
TEMPUS STREET ROUSE HILL
 Tempus Street, Rouse Hill, NSW

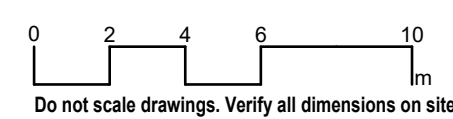
drawing
Basement 1 Plan

drawing no. **DA0092** revision **P.05**

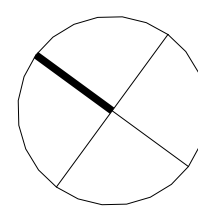


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P.01	DRAFT ISSUE		12.03.25
P.02	SSDA ISSUE		07.04.25
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project
TEMPUS STREET ROUSE HILL
 Tempus Street, Rouse Hill, NSW

drawing
Roof Plan
 drawing no. **DA0123** revision **P.04**

Appendix C – Test Pit and Monitoring Well Logs

CLIENT	Freecity Macpark Developments Pty Ltd		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP101		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION	Nil			PROJECT NO. P2410429
EQUIPMENT				LONGITUDE	150.9253010	RL SURFACE	51.28	DATUM	56H
OPERATOR		JB		LATITUDE	-33.6924538	ASPECT	SW	SLOPE	>20%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations	Samples		
							Jar Sample		
						FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel, with plastic	TP101/0.1-0.2		
							TP101/0.5-0.6		
							TP101/0.9-1.0		
							TP101/1.5-1.6		
							TP101/2.0-2.1		
							TP101/2.5-2.6		
						TP101 Terminated at 2.9m			

EXCAVATION LOG TO BE READ IN CONJUNCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS



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**Engineering Log -
TESTPIT**

CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP104		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9250197	RL SURFACE	52.15	DATUM	56H	
OPERATOR		JB		LATITUDE	-33.6922624	ASPECT	SW	SLOPE	>20%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
						FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel, with plastic.		Jar Sample	
			52					TP104/0.1-0.2	
								TP104/0.5-0.6	
			1					TP104/0.9-1.0	
			51					TP104/1.9-2.0	
						TP104 refusal at 2m (possible rock)			
			50						

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**Engineering Log -
TESTPIT**

CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP105		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9251681	RL SURFACE	53.01	DATUM	56H	
OPERATOR		JB		LATITUDE	-33.6921847	ASPECT	NE	SLOPE	>20%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
						FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel, with plastic.		Jar Sample	
			53					TP105/0.1-0.2	
								TP105/0.5-0.6	
			1					TP105/0.9-1.0	
			52					TP105/1.4-1.5	
						TP105 refusal at 1.5m (rock)			
			2						
			51						

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**Engineering Log -
 TESTPIT**


CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP107		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9253863	RL SURFACE	50.99	DATUM	56H	
OPERATOR			JB	LATITUDE	-33.6926351	ASPECT	SW	SLOPE	>20%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
						FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel, with plastic.		Jar Sample	
								TP107/0.1-0.2	
								TP107/0.5-0.6	
								TP107/0.9-1.0	
								TP107/1.5-1.6	
						TP107 refusal at 1.8m (rock)			

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**Engineering Log -
TESTPIT**

CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP108		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9255526	RL SURFACE	50.40	DATUM	56H	
OPERATOR		JB		LATITUDE	-33.6926650	ASPECT	NE	SLOPE	>20%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
								Jar Sample	
						FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel with plastic.			
								TP108/0.1-0.2	
								TP108/0.5-0.6	
								TP108/0.9-1.0	
								TP108/1.5-1.6	
					CI	CLAY: pale grey.		TP108/2.0-2.1	
						TP108 Terminated-Target Depth Reached at 2.3m			
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CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP109		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9255127	RL SURFACE	50.61	DATUM	56H	
OPERATOR		JB		LATITUDE	-33.6927807	ASPECT	SW	SLOPE	>20%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
						FILL: Silty to gravelly CLAY, dark brown and grey, medium to coarse sized gravel with plastic.		Jar Sample	
								TP109/0.1-0.2	
								TP109/0.5-0.6	
								TP109/0.9-1.0	
								TP109/1.5-1.6	
						TP109 refusal at 2m (possible rock)			

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**Engineering Log -
TESTPIT**


CLIENT	Freecity Macpark Developments Pty Ltd		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP110	
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM		
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION			
EQUIPMENT			LONGITUDE	150.9256237	RL SURFACE	50.06	DATUM	56H
OPERATOR		JB	LATITUDE	-33.6928952	ASPECT	SW	SLOPE	<2%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples
						FILL: Sandy to silty CLAY, dark brown, with plastic		Jar Sample
		50						TP110/0.1-0.2
								TP110/0.5-0.6
		1	49					TP110/0.9-1.0
								TP110/1.5-1.6
		2	48					TP110/2.0-2.1
						TP110 Terminated at 2.6m		





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**Engineering Log -
TESTPIT**

CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP111		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9256462	RL SURFACE	50.24	DATUM	56H	
OPERATOR			JB	LATITUDE	-33.6927791	ASPECT	W	SLOPE	<10%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
						FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel, with plastic.		Jar Sample	
		50						TP111/0.1-0.2	
								TP111/0.5-0.6	
		1						TP111/0.9-1.0	
						TP111 refusal at 1.1m (rock)			
		49							
		2							
		48							
EXCAVATION LOG TO BE READ IN CONJUNCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS									
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CLIENT	Freecity Macpark Developments Pty LTD		COMMENCED	09/10/2024	COMPLETED	09/10/2024	REF TP113		
PROJECT	2 Tempus St, Rouse Hill, NSW		LOGGED	TR	CHECKED	BM			
SITE	2 Tempus Street, Rouse Hill NSW		GEOLOGY	Ashfield Shale	VEGETATION				PROJECT NO. P2410429
EQUIPMENT			LONGITUDE	150.9258319	RL SURFACE	50.12	DATUM	56H	
OPERATOR		JB		LATITUDE	-33.6926892	ASPECT	NW	SLOPE	<10%
Drilling Method	Water	Depth (mBGL)	Elevation (mAHD)	Graphic Log	Classification Code	Material Description & Observations		Samples	
								Jar Sample	
			50			FILL: Silty to gravelly CLAY, dark brown, medium to coarse sized gravel, with plastic.		TP113/0.1-0.2	
						FILL: Silty CLAY, red, yellow.		TP113/0.5-0.6	
			1			FILL: Silty CLAY, red, yellow.		TP113/0.9-1.0	
			49				CI	CLAY: grey with red,, yellow.	
			2	TP113 Terminated-Target Depth Reached at 1.5m					
			48						
EXCAVATION LOG TO BE READ IN CONJUNCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS									
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Appendix D – Laboratory Summary Tables

	Asbestos	BTEX							TRH							Other	Halogenated Benzenes
	Asbestos fibres	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Phosalone	Hexachlorobenzene
		Detect	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		1	0.2	0.5	1	2	1	1	25	25	50	50	100	100	50	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil									800		1,000		3,500	10,000			
NSW 2014 General Solid Waste CT1 (No Leaching)			10	288	600			1,000									
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand		3	0.5 0.5 0.5	160 220 310 540	55			40 60 95 170		45 70 110 200		110 240 440					
NEPM 2013 Table 1A(1) HILs Res B Soil																	15

Field ID	Location Code	Date	Asbestos	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Phosalone	Hexachlorobenzene
TP101	TP101	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP102	TP102	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP103	TP103	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	100	100	<0.1	<0.1
TP104	TP104	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP106	TP106	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP107	TP107	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP108	TP108	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP110	TP110	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP111	TP111	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.1
TP112	TP112	09 Oct 2024	0	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	140	140	280	<0.1	<0.1

Statistics																			
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Number of Detects	10	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0	
Minimum Concentration	0	<1	<0.2	<0.5	<1	<2	<1	<1	<1	<1	<25	<25	<50	<50	<100	100	<50	<0.1	<0.1
Minimum Detect	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	100	100	ND	ND
Maximum Concentration	0	<1	<0.2	<0.5	<1	<2	<1	<1	<1	<1	<25	<25	<50	<50	140	140	280	<0.1	<0.1
Maximum Detect	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	140	280	ND	ND

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
 NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
 2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(1) HILs Res B Soil

	Inorganics		Metals									Organ							
	Moisture Content	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT
EQL	0.1	4	0.4	1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																			
NSW 2014 General Solid Waste CT1 (No Leaching)		100	20			100	4	40											
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Table 1A(1) HILs Res B Soil		500	150		30,000	1,200	120	1,200	60,000			10							

Field ID	Location Code	Date	Moisture Content	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	
TP101	TP101	09 Oct 2024	8.9	8	<0.4	23	9	23	0.1	8	35	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP102	TP102	09 Oct 2024	11	7	<0.4	16	5	15	<0.1	4	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP103	TP103	09 Oct 2024	12	9	<0.4	27	11	18	<0.1	6	28	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP104	TP104	09 Oct 2024	9.1	7	<0.4	18	8	22	<0.1	5	24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP106	TP106	09 Oct 2024	9.4	8	<0.4	18	12	21	<0.1	5	29	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP107	TP107	09 Oct 2024	11	8	<0.4	15	7	16	<0.1	5	23	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP108	TP108	09 Oct 2024	12	7	<0.4	19	12	19	<0.1	6	36	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP110	TP110	09 Oct 2024	11	6	<0.4	13	18	21	<0.1	10	37	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP111	TP111	09 Oct 2024	10	6	<0.4	12	15	17	<0.1	8	27	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP112	TP112	09 Oct 2024	9.0	9	<0.4	19	11	19	<0.1	6	30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics																					
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Number of Detects	10	10	0	10	10	10	1	10	10	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	8.9	6	<0.4	12	5	15	0.1	4	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	8.9	6	ND	12	5	15	0.1	4	16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	12	9	<0.4	27	18	23	0.1	10	37	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	12	9	ND	27	18	23	0.1	10	37	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
 NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
 2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(1) HILs Res B Soil

	Polychlorine Pesticides											Organophosphorus Pesticides							
	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Diazinon	Dichlorvos	Dimethoate
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																			
NSW 2014 General Solid Waste CT1 (No Leaching)														4					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Table 1A(1) HILs Res B Soil	600					20			10		500			340					

Field ID	Location Code	Date	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Diazinon	Dichlorvos	Dimethoate
TP101	TP101	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP102	TP102	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP103	TP103	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP104	TP104	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP106	TP106	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP107	TP107	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP108	TP108	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP110	TP110	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP111	TP111	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP112	TP112	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics																					
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Environmental Standards
 NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
 NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
 2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(1) HILs Res B Soil

	Organophosphorous Pesticides										Polycyclic Aromatic Hydrocarbons (PAHs)								
	Disulfoton	Ethion	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Phorate	Ronnel	Benzo(b,j,k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																			
NSW 2014 General Solid Waste CT1 (No Leaching)																0.8			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Table 1A(1) HILs Res B Soil																			

Field ID	Location Code	Date	Disulfoton	Ethion	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Phorate	Ronnel	Benzo(b,j,k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene
TP101	TP101	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP102	TP102	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP103	TP103	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.1	0.3	<0.1	<0.1
TP104	TP104	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP106	TP106	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP107	TP107	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP108	TP108	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP110	TP110	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP111	TP111	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
TP112	TP112	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1

Statistics																					
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	0.1	0.3	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.1	0.3	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	0.1	0.3	ND	ND

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
 NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
 2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(1) HILs Res B Soil

	PAH										PCBs								Fenamiphos
	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of positives)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																			
NSW 2014 General Solid Waste CT1 (No Leaching)																		50	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand				3															
NEPM 2013 Table 1A(1) HILs Res B Soil							4	4	4									1	

Field ID	Location Code	Date	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of positives)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Fenamiphos
TP101	TP101	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP102	TP102	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP103	TP103	09 Oct 2024	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	0.79	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP104	TP104	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP106	TP106	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP107	TP107	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP108	TP108	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP110	TP110	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP111	TP111	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP112	TP112	09 Oct 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics																					
Number of Results	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Number of Detects	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Minimum Detect	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND	0.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	0.79	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Maximum Detect	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND	0.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
 NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
 2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(1) HILs Res B Soil

	Pesticides		TPH				
	Mirex	Parathion	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	25	50	100	100	50
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil							
NSW 2014 General Solid Waste CT1 (No Leaching)			650				10,000
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand							
NEPM 2013 Table 1A(1) HILs Res B Soil	20						

Field ID	Location Code	Date	Mirex	Parathion	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
TP101	TP101	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP102	TP102	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP103	TP103	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP104	TP104	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP106	TP106	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP107	TP107	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP108	TP108	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP110	TP110	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP111	TP111	09 Oct 2024	<0.1	<0.1	<25	<50	<100	<100	<50
TP112	TP112	09 Oct 2024	<0.1	<0.1	<25	<50	<100	120	120

Statistics

Number of Results	10	10	10	10	10	10	10
Number of Detects	0	0	0	0	0	1	1
Minimum Concentration	<0.1	<0.1	<25	<50	<100	<100	<50
Minimum Detect	ND	ND	ND	ND	ND	120	120
Maximum Concentration	<0.1	<0.1	<25	<50	<100	120	120
Maximum Detect	ND	ND	ND	ND	ND	120	120

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(1) HILs Res B Soil

Appendix E –Validation Report

Sample Handling

Lab Report	Sample Chain of Custody (COC) Procedures	Sample Preservation	Sample Receipt Notification Matches COC	Samples Analysed Within Holding Time
363608	Pass	Pass	Pass	Pass

Precision / Accuracy

Lab Report	Analysed by NATA Laboratory	Trip Spike and Blank Used	Adequate Duplicates Analysed	Field Rinsate Analysed
363608	Pass	Pass	Pass	NA

Trip spikes and blank were reported within the acceptable recovery range.

Trip blanks reported less than LOR for volatile analysis.

As dedicated sampling equipment were used during the investigation, no rinsate was required.

Duplicates and Laboratory QA / QC

Lab Report	Field RPD	Laboratory Surrogate Recovery	Laboratory Duplicate RPD	Lab Blank and Matrix Spike Recovery	Laboratory Control Sample
349327	Fail	Pass	Pass	Pass	Pass

RPD control limits were exceeded zinc in TP101/0.1-0.2 and DUP01. Considering the heterogeneity nature of the fill material and zinc being below the SAC the data is considered useable for this report.

			Lab Report Number					
			363608	363608		363608	363608	
			Field ID	DUP01		TP107	DUP02	
			Date	09 Oct 2024		09 Oct 2024	09 Oct 2024	
			Matrix Type	Soil	RPD	Soil	Soil	RPD
	Unit	EQL						
Metals								
Arsenic	mg/kg	4	8	8	0	8	8	0
Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0
Chromium (III+VI)	mg/kg	1	23	19	19	15	14	7
Copper	mg/kg	1	9	8	12	7	7	0
Lead	mg/kg	1	23	21	9	16	15	6
Mercury	mg/kg	0.1	0.1	<0.1	0	<0.1	<0.1	0
Nickel	mg/kg	1	8	5	46	5	5	0
Zinc	mg/kg	1	35	25	33	23	23	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix F - Laboratory Documentation

SAMPLE RECEIPT ADVICE

Client Details

Client	Martens & Associates Pty Ltd
Attention	Trystan Richards

Sample Login Details

Your reference	P2410429 - 2 Tempus Street, Rouse Hill NSW
Envirolab Reference	363608
Date Sample Received	10/10/2024
Date Instructions Received	10/10/2024
Date Results Expected to be Reported	17/10/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	14 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	5
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



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	Acid Extractable metals in soil	Asbestos ID - soils
TP101-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP102-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP103-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP104-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP106-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP107-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP108-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP110-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP111-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
TP112-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓
DUP01-0.1-0.2							✓	
DUP02-0.1-0.2							✓	
TS01-0.1-0.2	✓							
TB01-0.1-0.2	✓							

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.

WATER ANALYSIS CHAIN OF CUSTODY FORM

Detail Site Investigation												
Name	P2410429 – 2 Tempus Street, Rouse Hill NSW											
Martens Contact Officer	Trystan Richards					Contact Email	trichards@martens.com.au					
Sampling and Shipping	Sample Date	09/10/24			Dispatch Date	10/10/24		Turnaround Time			standard	
	Our Reference	P2410429COC02V01				Shipping Method (X)	Hand		Post		Courier	X
	On Ice (X)	X	No Ice (X)		Other (X)							
Laboratory												
Name	EnviroLab											
Sample Delivery Address	12 Ashley Street, Chatswood											
Delivery Contact	Name				Phone	9910 6200		Fax			Email	samplerreceipt@envirolabservices.com.au
Please Send Report By (X)	Post		Fax		Email	X	Reporting Email Address					trichards@martens.com.au
												mail@martens.com.au
												gtaylor@martens.com.au

Number	Item	Depth	Matrix	Combo 6a	8 Heavy metals	TRH	BTEX	HOLD
①	TP101	0.1 - 0.2 m	Soil	X				
②	TP102	0.1 - 0.2 m	Soil	X				
③	TP103	0.1 - 0.2 m	Soil	X				
④	TP104	0.1 - 0.2 m	Soil	X				
⑤	TP106	0.1 - 0.2 m	Soil	X				



EnviroLab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 363608

Date Received: 10/10/24
Time Received: 14:00

Received By: CH

Temp: Cool/Ambient 5°C

Cooling: Ice/Icepack

Security: Intact/Broken/None

SOIL ANALYSIS CHAIN OF CUSTODY

Number	Item	Depth	Matrix	Combo 6a	8 Heavy metals	TRH	BTEX	HOLD
6	TP107	0.1 - 0.2 m	Soil	X				
7	TP108	0.1 - 0.2 m	Soil	X				
8	TP110	0.1 - 0.2 m	Soil	X				
9	TP111	0.1 - 0.2 m	Soil	X				
10	TP112	0.1 - 0.2 m	Soil	X				
11	DUP01		Soil		X			
12	DUP02		Soil		X			
13	TS01						X	
14	TB01					X		

#363608
 CH
 10/10/24

CERTIFICATE OF ANALYSIS 363608

Client Details

Client	Martens & Associates Pty Ltd
Attention	Trystan Richards
Address	Suite 201, 20 George St, Hornsby, NSW, 2077

Sample Details

Your Reference	<u>P2410429 - 2 Tempus Street, Rouse Hill NSW</u>
Number of Samples	14 Soil
Date samples received	10/10/2024
Date completed instructions received	10/10/2024

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	17/10/2024
Date of Issue	17/10/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Analyst: Stuart Chen
 Authorised by Asbestos Approved Signatory: Stuart Chen

Results Approved By

Dragana Tomas, Senior Chemist
 Loren Bardwell, Development Chemist
 Stuart Chen, Asbestos Approved Identifier/Report coordinator
 Tabitha Roberts, Senior Chemist
 Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024	14/10/2024	14/10/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH 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	90	92

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024	14/10/2024	14/10/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH 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	%	92	85	85	83	87

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		363608-13	363608-14
Your Reference	UNITS	TS01	TB01
Depth		0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024
Type of sample		Soil	Soil
Date extracted	-	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024
TRH C ₆ - C ₉	mg/kg	[NA]	<25
TRH C ₆ - C ₁₀	mg/kg	[NA]	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	[NA]	<25
Benzene	mg/kg	104%	<0.2
Toluene	mg/kg	104%	<0.5
Ethylbenzene	mg/kg	105%	<1
m+p-xylene	mg/kg	105%	<2
o-Xylene	mg/kg	104%	<1
Naphthalene	mg/kg	[NA]	<1
Total +ve Xylenes	mg/kg	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	85	92

svTRH (C10-C40) in Soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	12/10/2024	12/10/2024	12/10/2024	12/10/2024	12/10/2024
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	100	<50	<50
Surrogate o-Terphenyl	%	88	82	83	83	83

svTRH (C10-C40) in Soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	12/10/2024	12/10/2024	12/10/2024	12/10/2024	12/10/2024
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	120
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	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	140
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	140
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	280
Surrogate o-Terphenyl	%	82	82	82	83	84

PAHs in Soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
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	0.1	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.3	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.79	<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	%	105	101	94	108	107

PAHs in Soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
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 <i>p</i> -Terphenyl-d14	%	99	100	99	101	104

Organochlorine Pesticides in soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
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
Mirex	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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	89	96	104	108

Organochlorine Pesticides in soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
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
Mirex	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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	111	100	94	98

Organophosphorus Pesticides in Soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	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
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-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
Fenthion	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
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	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
Phosalone	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
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	89	96	104	108

Organophosphorus Pesticides in Soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	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
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-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
Fenthion	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
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	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
Phosalone	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
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	111	100	94	98

PCBs in Soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
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 2-Fluorobiphenyl	%	94	98	98	101	107

PCBs in Soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
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 2-Fluorobiphenyl	%	102	103	103	102	100

Acid Extractable metals in soil						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Arsenic	mg/kg	8	7	9	7	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	23	16	27	18	18
Copper	mg/kg	9	5	11	8	12
Lead	mg/kg	23	15	18	22	21
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	4	6	5	5
Zinc	mg/kg	35	16	28	24	29

Acid Extractable metals in soil						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Arsenic	mg/kg	8	7	6	6	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	19	13	12	19
Copper	mg/kg	7	12	18	15	11
Lead	mg/kg	16	19	21	17	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	6	10	8	6
Zinc	mg/kg	23	36	37	27	30

Acid Extractable metals in soil				
Our Reference		363608-11	363608-12	363608-15
Your Reference	UNITS	DUP01	DUP02	TP101 - [TRIPLICATE]
Depth		0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	11/10/2024	11/10/2024	11/10/2024
Arsenic	mg/kg	8	8	7
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	19	14	17
Copper	mg/kg	8	7	8
Lead	mg/kg	21	15	19
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	5	5	5
Zinc	mg/kg	25	23	21

Moisture						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024	14/10/2024	14/10/2024
Moisture	%	8.9	11	12	9.1	9.4

Moisture						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024	14/10/2024	14/10/2024
Moisture	%	11	12	11	10	9.0

Moisture			
Our Reference		363608-11	363608-12
Your Reference	UNITS	DUP01	DUP02
Depth		0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024
Type of sample		Soil	Soil
Date prepared	-	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024
Moisture	%	9.0	12

Asbestos ID - soils						
Our Reference		363608-1	363608-2	363608-3	363608-4	363608-5
Your Reference	UNITS	TP101	TP102	TP103	TP104	TP106
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	16/10/2024	16/10/2024	16/10/2024	16/10/2024	16/10/2024
Sample mass tested	g	Approx. 30g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		363608-6	363608-7	363608-8	363608-9	363608-10
Your Reference	UNITS	TP107	TP108	TP110	TP111	TP112
Depth		0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	16/10/2024	16/10/2024	16/10/2024	16/10/2024	16/10/2024
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 40g	Approx. 30g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

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.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
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.
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-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. 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-022/025	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.

Method ID	Methodology Summary
Org-022/025	<p>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.</p> <p>For soil results:-</p> <ol style="list-style-type: none"> 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. <p>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.</p>
Org-023	<p>Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.</p>
Org-023	<p>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.</p>
Org-023	<p>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.</p> <p>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.</p>

Client Reference: P2410429 - 2 Tempus Street, Rouse Hill NSW

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date extracted	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			14/10/2024	1	14/10/2024	14/10/2024		14/10/2024	14/10/2024
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	89	81
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	89	81
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	86	77
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	82	73
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	90	82
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	93	86
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	89	81
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	95	1	83	90	8	87	80

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]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	14/10/2024	14/10/2024		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	10	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	10	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	10	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	10	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	10	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	10	87	85	2	[NT]	[NT]

Client Reference: P2410429 - 2 Tempus Street, Rouse Hill NSW

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date extracted	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			12/10/2024	1	12/10/2024	12/10/2024		12/10/2024	12/10/2024
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<50	<50	0	89	83
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	<100	<100	0	87	86
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	<100	<100	0	100	116
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<50	<50	0	89	83
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	<100	<100	0	87	86
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	<100	<100	0	100	116
Surrogate o-Terphenyl	%		Org-020	83	1	88	85	3	85	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]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	12/10/2024	12/10/2024		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	10	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	10	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	10	120	<100	18	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	10	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	10	140	<100	33	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	10	140	<100	33	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	10	84	83	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date extracted	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			15/10/2024	1	15/10/2024	15/10/2024		15/10/2024	15/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	98
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	82	90
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	102
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	106
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	94	106
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	104
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	108	118
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	92	102
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	101	1	105	106	1	92	94

QUALITY CONTROL: PAHs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	15/10/2024	15/10/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	10	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	10	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	10	104	110	6	[NT]	[NT]

Client Reference: P2410429 - 2 Tempus Street, Rouse Hill NSW

QUALITY CONTROL: Organochlorine Pesticides in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date extracted	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			15/10/2024	1	15/10/2024	15/10/2024		15/10/2024	15/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	104
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	96	106
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	94	104
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	98	110
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	116
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	92	106
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	112
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	124
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	120
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	102
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	1	89	97	9	86	97

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QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	15/10/2024	15/10/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	10	98	95	3	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date extracted	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			15/10/2024	1	15/10/2024	15/10/2024		15/10/2024	15/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	110
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
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]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-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	82	92
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	106
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	104
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	94
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	98
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<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	96	116
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	1	89	97	9	86	97

QUALITY CONTROL: Organophosphorus Pesticides in Soil				Duplicate			Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	15/10/2024	15/10/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	10	98	95	3	[NT]	[NT]

Client Reference: P2410429 - 2 Tempus Street, Rouse Hill NSW

QUALITY CONTROL: PCBs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date extracted	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			15/10/2024	1	15/10/2024	15/10/2024		15/10/2024	15/10/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	113	120
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	97	1	94	96	2	93	103

QUALITY CONTROL: PCBs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	15/10/2024	15/10/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	10	100	103	3	[NT]	[NT]

Client Reference: P2410429 - 2 Tempus Street, Rouse Hill NSW

QUALITY CONTROL: Acid Extractable metals in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	363608-2
Date prepared	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Date analysed	-			11/10/2024	1	11/10/2024	11/10/2024		11/10/2024	11/10/2024
Arsenic	mg/kg	4	Metals-020	<4	1	8	8	0	100	88
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	93	81
Chromium	mg/kg	1	Metals-020	<1	1	23	23	0	95	89
Copper	mg/kg	1	Metals-020	<1	1	9	6	40	94	90
Lead	mg/kg	1	Metals-020	<1	1	23	20	14	96	86
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.1	<0.1	0	122	127
Nickel	mg/kg	1	Metals-020	<1	1	8	4	67	97	87
Zinc	mg/kg	1	Metals-020	<1	1	35	18	64	101	88

QUALITY CONTROL: Acid Extractable metals in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	11/10/2024	11/10/2024		[NT]	[NT]
Date analysed	-			[NT]	10	11/10/2024	11/10/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	10	9	7	25	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	10	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	10	19	15	24	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	10	11	12	9	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	10	19	19	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	10	6	6	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	10	30	32	6	[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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

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

Acid Extractable Metals in Soil:

- The laboratory RPD acceptance criteria has been exceeded for 363608-1 for Ni & Zn. Therefore a triplicate result has been issued as laboratory sample number 363608-15.

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: Samples requested for asbestos testing were sub-sampled from jars provided by the client.