REMEDIAL ACTION PLAN

PROPOSED RSL CLUB REDEVELOPMENT
20 - 22 MELWOOD AVENUE, FORESTVILLE NSW

PREPARED FOR THE FORESTVILLE RSL CLUB LIMITED
REPORT ID: E24016FOR-R04F

Date: 20th June 2025
Revision No. 0

Client:
Forestville RSL Club Limited
20 Melwood Avenue
Forestville NSW

Author: S. McCormack (B.E – civil, hons) – CEnvP (#928), MIEAust, NER (geotechnical & environmental)
(Contaminated Land Specialist No. SC40929)
Field Engineer/Scientist: --

TABLE OF CONTENTS

1	**PROJECT INFORMATION**	**6**
1.1	INTRODUCTION	6
1.2	OBJECTIVES	7
1.3	PROPOSED DEVELOPMENT	7
1.4	SCOPE OF WORKS	8
2	**SITE IDENTIFICATION**	**10**
3	**PREVIOUS INVESTIGATIONS**	**11**
3.1.1	*PSI*	*11*
3.1.2	*DSI*	*12*
4	**SITE HISTORY**	**14**
4.1.1	*The Site*	*14*
4.1.2	*Surrounding Land*	*15*
5	**SITE CONDITION AND SURROUNDING ENVIRONMENT**	**16**
5.1	SITE DESCRIPTION	16
5.2	SURROUNDING LAND USES AND ACTIVITIES	25
5.3	TOPOGRAPHY	25
5.4	GEOLOGY AND SOILS	25
5.4.1	*Regional*	*25*
5.4.2	*Site Specific*	*25*
5.5	REGIONAL HYDROGEOLOGY / GROUNDWATER	26
5.5.1	*Regional*	*26*
5.5.2	*Site Specific*	*27*
5.6	AREAS AND TYPE OF CONTAMINATION	27
5.7	WASTE CLASSIFICATION	28
5.7.1	*Waste Classification Process*	*29*
5.7.2	*Chemical Assessment of the Waste*	*30*
5.7.3	*Final Waste Classification*	*36*
6	**CONCEPTUAL SITE MODEL**	**37**
6.1	KNOWN CONTAMINANTS OF CONCERN	37
6.2	CONTAMINANT SOURCE(S)	37
6.3	POTENTIAL OR KNOWN CONTAMINATED MEDIA	37
6.4	CONTAMINANT RECEPTORS	38
6.5	POTENTIAL AND COMPLETE EXPOSURE PATHWAYS	38

7 REMEDIATION STRATEGY 39
7.1 REMEDIATION GOAL 39
7.2 EXTENT OF REMEDIATION 39
7.3 REGULATORY POLICY OF REMEDIATION 39
7.4 ASSESSMENT OF REMEDIATION OPTIONS 40
7.5 PREFERRED REMEDIATION OPTION 41
8 REMEDIATION METHODOLOGY 42
8.1 REMEDIATION SCOPE OF WORK 42
8.2 REMEDIATION METHODOLOGY 42
8.2.1 Task 1 - Obtain Council Approval 42
8.2.2 Task 2 – Complete a Hazardous Materials Audit (HMA) of the existing structures 43
8.2.3 Task 3 – Demolish existing structures and pavements (Stage 2 Development Works) 43
8.2.4 Task 4 - Organise an appropriate contractor 44
8.2.5 Task 5 – Delineate the extent of asbestos impacted soils 44
8.2.6 Task 6 - Controlled excavation and landfill disposal of the contaminated fill 44
8.2.7 Task 7 - Validation sampling and analysis 45
8.2.8 Task 8 - Validation reporting 45
9 REMEDIATION WORKS CONTINGENCY PLAN 46
9.1 UNEXPECTED FINDS PROTOCOL 46
9.1.1 Volatile Contaminants 47
9.1.2 Buried Tanks / Drums 47
10 VALIDATION PLAN 48
10.1 SCOPE OF THE VALIDATION WORKS 48
10.2 SAMPLING PLAN 48
10.2.1 Sampling Locations, Frequency and Methodology 48
10.2.2 Handling, Containment and Transport of Samples 49
10.2.3 Decontamination of Sampling Equipment 49
10.3 ANALYTICAL PLAN 49
10.4 QUALITY ASSURANCE 49
10.4.1 Quality Control 50
10.5 INSPECTION AND CLEARANCE CERTIFICATE 50
10.6 VALIDATION REPORT 50
11 REMEDIATION ASSESSMENT CRITERIA 51
12 INTERIM SITE MANAGEMENT PLAN (SITE PREPARATION) 52
12.1 SERVICES AND UTILITIES 52

12.2 Site Security, Restricted Access and Signage 52
12.3 Stormwater Control Measures 52
12.4 Occupational Health & Safety Plan 52
12.5 Licences and Approvals 52
12.6 Community Relations Plan / Consultation 52
13 Site Management Plan (Operational Phase) 53
13.1 Stormwater Management 53
13.2 Control of Dust and Odour 53
13.3 Noise Control 54
13.4 Vibration Control 54
13.5 Traffic and Transport 54
13.6 Underground Services 55
13.7 Restricted Access 55
14 Workplace Health and Safety Plan 56
14.1 Personnel and Responsibility 56
14.2 Identification of Potential Hazards 56
14.2.1 Chemical Hazards 56
14.2.2 Physical Hazards 56
14.3 Medical Surveillance 57
14.4 Site Work Practices 57
14.4.1 Personal hygiene 57
14.4.2 Decontamination 57
14.4.3 Restricted Access 57
14.4.4 Personal protection 57
14.5 Emergency Response Plan 58
14.5.1 Resources 58
14.5.2 Responsibilities 59
15 References 60

FIGURES

Figure 1: Site Location Map
Figure 2: Site Plan (Survey)
Figure 3: Site Plan (Aerial)
Figure 4: Inferred Remediation Area

TABLES

Table 1: Summary of Subsurface Conditions and Geological Model
Table 2: Six Step Waste Classification Procedure
Table 3: Chemical Waste Classification Criteria
Table 4: Waste Classification Results
Table 5: Summary of the Soil Remedial Options
Table 6: Remediation Contingencies
Table 7: Soil Remediation Assessment Criteria (RAC)

APPENDICES

Appendix A: Survey and Architectural Plans
Appendix B: Former Borehole Logs
Appendix C: Laboratory Reports
Appendix D: Data Quality Objectives – Validation Program

1 PROJECT INFORMATION

1.1 INTRODUCTION

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by the Forestville RSL Club to prepare this Remedial Action Plan (RAP) for the site located at 20–22 Melwood Avenue, Forestville NSW 2087 (herein referred to as 'the site'). The site encompasses an area of approximately 8,970 m² (by calculation) and comprises the following legal allotments:

- Lot 31 in Deposited Plan (DP) 366454 (No. 20 Melwood Avenue)
- Lot 2589 in DP 752038 (No. 22 Melwood Avenue)

A site location map is provided in **Figure 1**.

This RAP supplements an earlier Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI), both completed by GEE in 2025 (References 1 and 2), which collectively support the proposed redevelopment of the Forestville RSL Club, including the construction of a seniors' living development. Architectural and survey plans are included in **Appendix A**.

At the time of reporting, the site was developed with:

- An existing RSL Club building and memorial garden centrally located,
- An on-grade asphalt carpark to the north, and
- Two disused bowling greens to the south.

This RAP specifically addresses the presence of asbestos-impacted soil identified beneath the asphalt pavement in the northern carpark and outlines the remediation and validation measures required to render the site suitable for the proposed residential use.

The adopted remediation strategy involves:

- Off-site removal and disposal of asbestos-impacted soil, followed by
- Validation of surface soils, and
- Issuance of an asbestos clearance certificate by a qualified Occupational Hygienist or licensed Asbestos Assessor.

This RAP has been prepared in accordance with applicable guidelines endorsed by the NSW Environment Protection Authority (EPA).

1.2 OBJECTIVES

The objectives of this RAP are to:

- ◊ Define the remediation goals to ensure the site will be suitable for ongoing residential land use,
- ◊ Document the remediation strategy and procedures to reduce contamination risk to acceptable levels, including requirements for validation,
- ◊ Establish appropriate environmental management procedures to be implemented during the remediation works, and
- ◊ Identify any regulatory approvals or licences required to undertake the proposed works.

1.3 PROPOSED DEVELOPMENT

Based on the architectural plans provided in **Appendix A**, it is proposed to construct the proposed development in two stages.

The first stage of the development (Stage 1) will comprise:

- ◊ The construction of a new RSL Club and seniors living apartments at the southern end of the site where the existing Bowling Greens are located. The new development will comprise three levels above ground with the RSL Club at ground level and the seniors living apartments occupying the upper two levels. There will also be three basement levels for parking and general storage. During this stage of works the existing Club and the open-air parking area to the north will be retained and remain operational.

The second stage of the development (Stage 2) will comprise:

- ◊ The demolition of the existing Club and associated carparking area in the northern part of the site, followed by the construction of a seniors living apartment building which will comprise three, three-level buildings over a two-level basement for parking that will ultimately integrate with the upper two basement levels from the Stage 1 works.

The approximate outline of each stage of the basements are indicated on the attached **Figure 2** which includes an extract of the survey plan, and **Figure 3**, which includes a recent aerial photograph.

The southern basement is proposed to extend up to the western boundary and will be within proximity (~1 metre) of the existing Club building to the north and the southern boundary. It will also be setback approximately 9.0 metres from the eastern boundary, although there will be an access ramp in the south-eastern corner that will extend up to the eastern boundary and beyond to connect with Melwood Avenue. The lowest of the southern basement levels is proposed to have a Finished Floor Level of between 117.7 metres AHD. Based on existing surface elevations, GEE expects that excavation of between approximately 8.5 to 9.5 metres depth will be required with deeper excavations are also expected to be required locally to accommodate the proposed lift shafts.

The northern, two-level basement is proposed to be setback approximately 8.0 metres from the western boundary, 9.0 metres from the eastern boundary and at least 7m from the northern boundary. The lowest basement level will have a FFL of 120.7 metres above Australian Height Datum (AHD) and therefore GEE expects that excavation of between approximately 7.0 to 7.5 metres depth will be required.

GEE understands that both basements, where possible, will be 'drained' basement meaning that groundwater will be allowed to seep into the basement before being directed to a sump and then pumped out to the regional stormwater system.

1.4 SCOPE OF WORKS

The scope of this RAP is as follows:

- ◊ Identification of the extent and nature of contamination requiring remediation,
- ◊ Definition of remediation goals and Remediation Acceptance Criteria (RAC),
- ◊ Evaluation of feasible remediation strategies and options,
- ◊ Description of the preferred remediation option,
- ◊ Preparation of a Validation Plan to demonstrate achievement of the RAC,
- ◊ Preparation of a Workplace Health & Safety (WHS) Plan to mitigate risks to personnel during remediation, and

◊ Preparation of an Environmental Management Plan (EMP) to minimise off-site impacts during remediation.

Following the execution of the remediation process, a validation report will be prepared. The objective of the validation report is to describe the completed remedial works and determine whether the site has been remediated to a standard that is suitable for the proposed land-use.

2 SITE IDENTIFICATION

A summary of the site location details is provided below while a site location map is provided as **Figure 1**:

Street Address:	20 - 22 Melwood Avenue, Forestville NSW 2087
Legal Description:	No. 20: Lot 2589 in Deposited Plan DP 752038
	No. 22: Lot 31 in Deposited Plan DP 366454
Coordinates (MGA 56):	-33.762765 Lat., 151.210648 Long
Local Government Area:	Northern Beaches Council
Site Area:	8,790m^2 (approximately)
Current Zoning:	R2 – Low Density Residential[1]
Current Use:	Commercial / Retail
Proposed Zoning:	R2 – Low Density Residential
Proposed Use:	Mixed (Commercial/Retail and Residential)

[1] Warringah Local Environmental Plan 2011

3 PREVIOUS INVESTIGATIONS

3.1.1 PSI

In May 2025, GEE completed a PSI for the site (reference 1) with the aim of identifying past and present contaminating activities, potential contamination types and to assess the need for further investigation. The scope of works for the PSI included:

- A review of the history of the site using available records including historical land titles and historical aerial photographs,
- A review of the site condition and environmental setting,
- A detailed site inspection for potential sources of contamination,
- Preparation of an initial Conceptual Site Model (CSM) to address potential areas of environmental concern (AEC), associated contaminants of potential concern (CoPC), transport mechanisms/pathways and potential receptors.
- A preliminary field investigation including:
  - The drilling of two boreholes (BH101 and BH102) across the southern portion of the site which was also undertaken as part of the concurrent geotechnical investigation (reference),
  - The installation of a groundwater well in both boreholes, which complements the previous well (BH1) installed as part of a former geotechnical investigation by JK Geotechnics (reference 5),
  - Sampling of soil from the two boreholes, and
  - The collection of a groundwater sample from the newly installed wells and the pre-existing well.
- Laboratory analysis of selected soil samples for a broad suite of potential contaminants of concern (CoPC), and
- Laboratory analysis of the groundwater samples for CoPC.

A summary of the site's history is provided in Section 4, while the summary of the site condition and surrounding environmental is reiterated in Section 5. A copy of the borehole logs are provided for reference in **Appendix B**, while the location of the boreholes are shown on **Figure 2** along with an extract of the survey plan, and **Figure 3** along with a recent aerial photograph.

In summary, the PSI identified the potential for contamination from shallow, surface-based sources, particularly in fill and natural soils. Groundwater and soil vapour were considered unlikely to be impacted but were assessed as part of the investigation. No significant contamination was detected in soil or groundwater; however, not all AECs were addressed. As a result, GEE recommended a DSI be undertaken in accordance with NSW EPA and NEPM (2013) guidelines.

3.1.2 DSI

In June 2025, GEE completed a DSI of the site (reference 2) with the aim of identifying past and present contaminating activities, potential contamination types, and determining the suitability of the site for the proposed land-use and possible constraints on the proposed development.

The scope of works for this investigation included:

- Review of the previous PSI report,
- A detailed site inspection for potential sources of contamination,
- Preparation of an initial Conceptual Site Model (CSM),
- Field investigations including:
    - The drilling and logging of nineteen boreholes (BH201 and BH219) across the site which complement the previous two boreholes (BH101 and BH102), and
    - Sampling of soil from the boreholes.
- Laboratory analysis of selected soil samples for Chemicals of Potential Concern (CoPC), and

A copy of the borehole logs is provided for reference in **Appendix B**, while the location of the boreholes is shown on **Figure 2**.

Based on:

- Field observations made during site works,
- The results of the sampling and laboratory analysis,
- The proposed land use, and
- Applicable statutory guidelines,

GEE concludes that the site is not currently suitable for the proposed development due to the detection of asbestos fibres bonded to matted material in one location (BH215) within the northern carpark. This material poses a potential health risk to construction workers, particularly during earthworks associated with the proposed Stage 2 redevelopment.

4 SITE HISTORY

The site's history was researched by GEE as part of the PSI (reference 1). A summary of the site's history and the history of the surrounding lands is provided below:

4.1.1 The Site

The site was originally part of a larger parcel of land that was originally Crown Land, comprising bushland / scrubland.

Initial development of the site occurred between 1943 and 1951 when the northern allotment (Lot 31) was cleared of vegetation and a house was constructed at the eastern end of this allotment.

In 1957 the Forestville RSL Sub- branch acquired the southern allotment (Lot 2589) via a long-term lease before clearing the bushland and soon thereafter they constructed the first RSL Club building in the centre of this allotment. The two bowling greens at the southern end of the site were also constructed at this time along with the existing memorial garden in the front (east) of the Club building. The northern part of this allotment was converted into a carpark.

Between 1961 and 1965, a tennis court was constructed between the Club building and the western boundary.

Between 1965 and 1970, the main club building was either replaced or significantly renovated, with several more alterations and additions to the Club building occurring up until 2005, including the removal of the tennis court and upgrade of the northern parking are into the existing asphalt paved car park.

Between 1994 and 2005, the RSL Club acquired the northern allotment (Lot 31) and subsequently demolished the former house and expanded their carpark across this allotment.

From 2005, there were no significant changes to the site and its layout.

In summary, the historical site activities are considered to be relatively benign from a land contamination perspective. However, the age of the original house in the northern part of the site, and the original RSL Club building, suggests that Asbestos Containing Material (ACM) and lead based paints may have been used. Therefore,

any renovations, maintenance, or the demolition of these structures, may have resulted in near surface soils being impacted with lead and/or ACM.

4.1.2 Surrounding Land

The surrounding land within 150m of the site was tree covered bushland / scrubland, with some agricultural land further to the east, until 1951 when the early stages of development of Forestville began. Between 1951 and 1961 the surrounding area quickly transitioned into low density residential dwellings with recreational parkland and a school nearby, as returned soldiers started to populate the area and assisted with construction of the houses.

The historical business directories noted some former businesses within proximity of the site which are often related to site contamination and have the potential to cause chemical contamination beyond their boundaries via groundwater or vapour migration. This included a number of service stations and dry cleaners within 400m of the site. However, the location of these businesses and distances relative to the site suggest that any contamination from these properties are unlikely to have impacted the site.

5 SITE CONDITION AND SURROUNDING ENVIRONMENT

This section provides a summary of the site features and surrounding environment and has been extracted from the PSI and DSI reports (references 1 and 2).

5.1 SITE DESCRIPTION

The site is bounded by Melwood Avenue to the east (beyond which is a low-density residential development), a low to medium density residential development to the north, and to the west is Forestville Dog Park, Forestville Community Hall and Forestville Scouts Hall. To the south the site is bounded by Forestville War Memorial Playing Fields, which comprise the ANZAC Memorial Pathway, Poppy Park Memorial playground and BBQ area, Forest Rugby Club, Forest Killarney Football Club (Melwood Oval), the associated carparks and several sports fields / courts.

The two-storey Forestville RSL Club building is located centrally to the site and is bounded by an open-air, asphalt paved carpark to the north, two bowling greens to the south (making up the entire southern portion of the site), and a war memorial garden to the east (between the club building and Melwood Avenue). The lower level of the club building interior comprised the gaming room, dining areas, kitchen, bars in the main area (accessible to customers), various staff rooms and storage rooms (some utilised for minor storage of cleaning/industrial chemicals), the loading dock and the cooler room in the back area. On the upper level were mixed-use rooms, including a board room, function rooms, a snooker room and offices. Neither of the bowling greens were being utilised (or maintained) for lawn bowling, and half of the bowling green on the western side had been converted into an alfresco dining area.

Near the bowling greens, and attached to the rear south-western corner of the RSL Club building, was the green keepers shed. The shed was being utilised for storage of maintenance equipment, outdoor furniture/décor and minor storage of chemicals (including paint/lacquer and turpentine). Adjacent to the eastern border (between the main entrance driveway and the memorial garden) was a small shed containing pumps relating to fire response systems. This fire response pump shed was concurrently being utilised for minor storage of fertiliser (dynamic lifter) and fuel in jerry cans (which presented a moderate hydrocarbon odour).

Based on the regional topography and the site inspection there is potential for fill material to have been introduced to site to raise the site surface or create a level platform for the existing buildings and the bowling greens in the southern portion of

the site. This is supported by the fact that the former geotechnical boreholes by JK Geotechnics Pty Ltd (reference 3), adjacent to the bowling greens, did encounter some fill material ranging in depth from 0.7m to 1.65m (**Appendix B**).

Aside from the moderate hydrocarbon odour noted within the fire response pump shed, there were no other unusual odours or surface staining that could be potentially associated with contamination. There was no evidence of under-ground or above-ground, fuel or chemical, storage tanks observed across the site. Building demolition was observed within the garden bed adjacent to the back fence at the southern end of the site (which presents potential asbestos contamination), otherwise, there was no obvious evidence of Asbestos Containing Materials (ACM) on the surface of the site.

Photographs of the site are provided for reference in Plates 1 to 15.

Plate 1 – View towards the west showing the front entrance of the RSL Club (the central portion of the site).

Plate 2 – View towards the south-west showing the bowling greens (the southern portion of the site).

Plate 3 – View towards the north-east showing the back of the RSL Club.

Plate 4 – View to the north-west showing the memorial garden and fire response pump shed to the right.

Plate 5 – View to the south-west showing the alfresco area within the former bowling green.

Plate 6 – View to the north-east, showing the garden bed and fill batter at the southern end of the site.

Plate 7 – Fill containing building demolition observed in the garden bed at the southern end of the site.

Plate 8 – View of the interior of the green keeper shed attached to the rear, south-western corner of the Club building. Location of Borehole BH210.

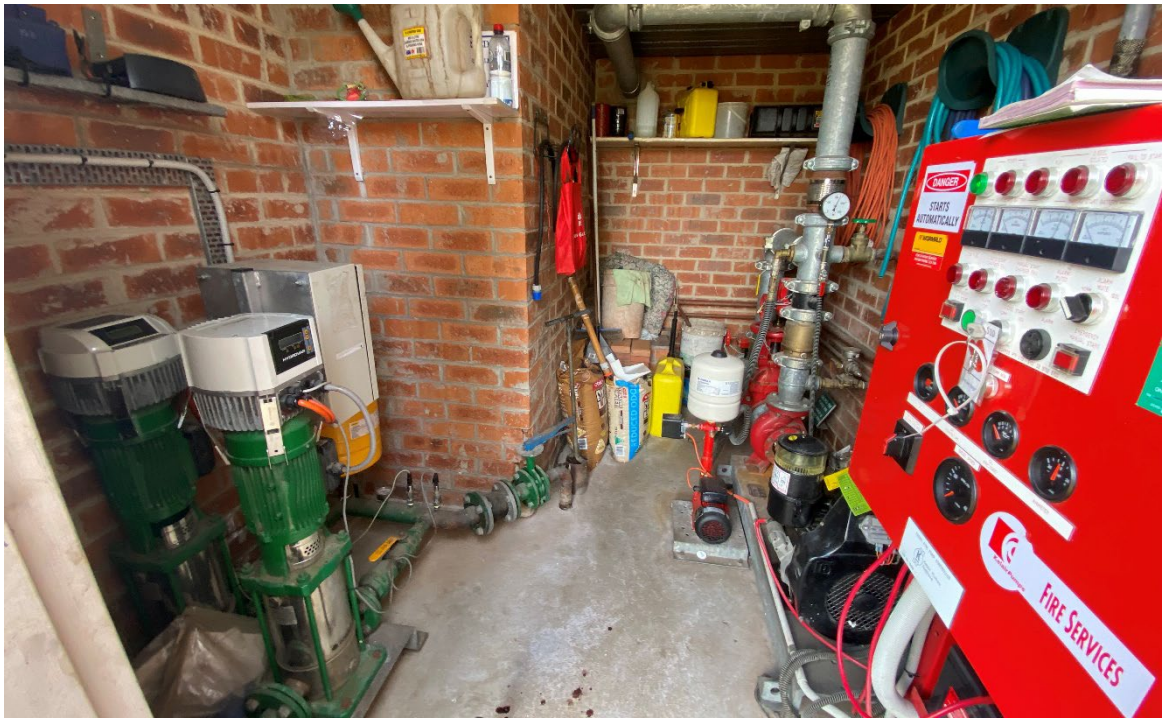


Plate 9 – View of the interior of the fire services pump shed.

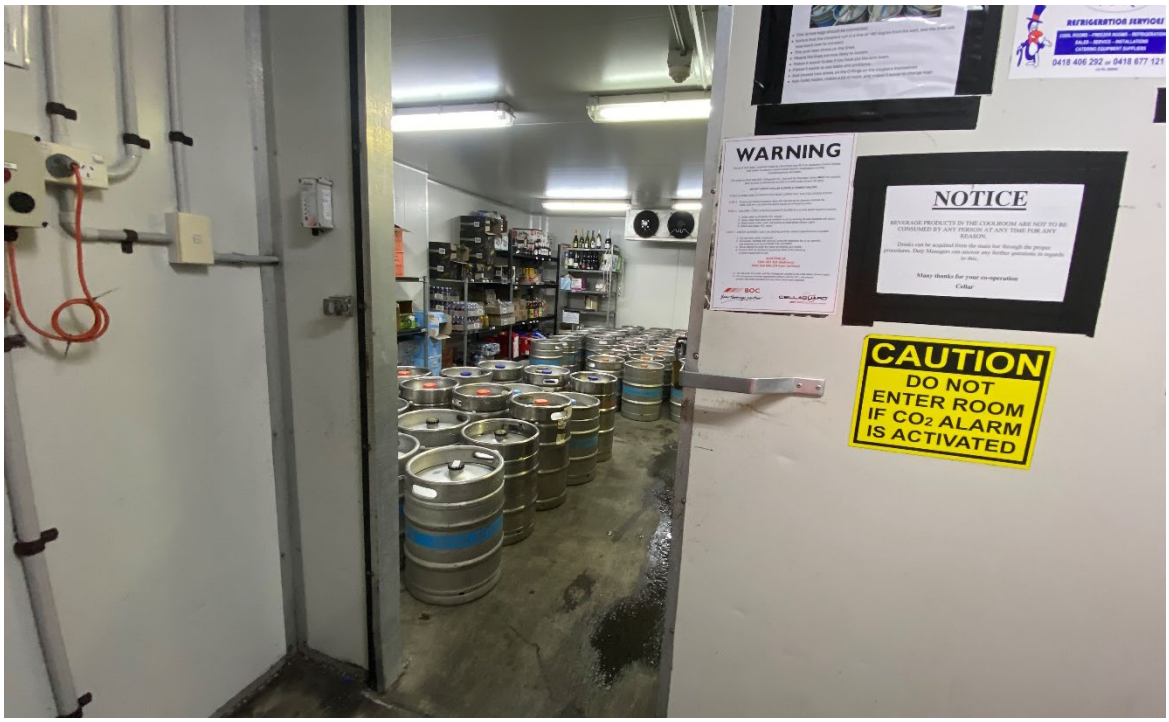


Plate 10 – View of the cooler room.

Plate 11 – View of a staff access corridor at the rear of the RSL and near the loading dock. Location of Borehole BH202.

Plate 12 – Historical image on display within the upper level of the RSL Club Building (c1960), showing the former RSL Club building (known at the time as Forestville RSL Sub- Branch Club) shortly after the establishment of the Forestville RSL Club.

Plate 13 – View to the south, showing the low cut into the natural hillslope supported by a mortared brick retaining wall.

Plate 14 – Location of Borehole BH215 in the carpark.

Plate 15 – Location of Borehole BH203 inside the staff service room of the RSL club. The concrete was directly underlain by sandstone bedrock.

5.2 Surrounding Land Uses and Activities

Surrounding land uses observed from the aerial photographs and our site inspection are predominately low-density and medium-density residential dwellings, open-space and community engagement.

5.3 Topography

Our site inspection revealed that the site is located on a hilltop and has an overall fall of about 1° to 2° down to the south-east. A review of the survey plan (**Appendix A**) indicates that the site surface elevation is approximately 127.8m AHD at the northern end of the site and falls to approximately 126m AHD in the south-eastern corner.

5.4 Geology and Soils

5.4.1 Regional

The regional geological map (reference 3) indicates that the site is underlain by the Hawkesbury Sandstone formation, which typically consists of "*…medium to coarse-grained quartz sandstone, very minor shale and laminite lenses*".

A review of the regional soils map (reference 4) indicates the site is located within the Lucas Heights Soil Landscape Group, which is associated with gently undulating crests and ridges on plateau surfaces. Local reliefs are generally up to 30m, slopes typically less than 10% in gradient. Soils of the Lucas Heights Group typically comprise residual sands and clays, are often stony and have low soil fertility.

5.4.2 Site Specific

The subsurface conditions, as observed in the boreholes, typically comprised a layer of fill material over natural sand and clayey sand soil which then graded into sandstone bedrock. Detailed descriptions of the subsurface conditions on site are provided in the GEE borehole logs provided in **Appendix D** and the JK borehole logs provided in **Appendix B**, while a summary of the subsurface conditions across the site are provided in **Table 1**.

Table 1: Summary of Subsurface Conditions and Geological Model

Layer / Unit	Description	Depth to Base of Layer (m)[1]	Soil Consistency / Relative Density[1] / Rock Strength
1 - FILL	ASPHALT / CONCRETE PAVEMENTS	0.1 to ≥2.20	--
	Silty SAND / Clayey SAND / Gravelly SAND / Sandy GRAVEL: orange, red, brown, grey, fine to coarse sand and gravel with trace anthropogenic inclusions (brick) in BH3, BH214, moist.		Variable
2 - NATURAL SOIL	SAND / Silty SAND with Clay and Clayey SAND: red, orange, brown, grey fine to medium grained, bands of highly weathered sandstone, moist.	1.5 – 3.1	Medium Dense to Dense
3 - BEDROCK	SANDSTONE: red, orange, grey and dark grey, fine to coarse grained, highly to moderately weathered.	4.8 – 5.5	Very Low to Low Strength
	SANDSTONE: orange, grey, red, fine to coarse, moderately to slightly weathered and fresh.	>10.23	Medium to High Strength

5.5 REGIONAL HYDROGEOLOGY / GROUNDWATER

5.5.1 Regional

Based on the geological information it was anticipated that the regional and permanent groundwater in the vicinity of the site is likely to be confined, or partly confined, within discrete water-bearing zones within the bedrock formation. However, intermittent 'perched' water seepage is likely to occur at the soil-bedrock interface following heavy and prolonged rainfall events.

A search of registered groundwater bores within 2km of the site was completed as part of the PSI and there are 31 registered bores within 2km of the site. The closest bore (GW109140) located 299m to the south-west of the site. This bore is a 210m deep unknown bore drilled on the 4th of August 2008, with a measured standing water level of 108 m below ground level, a salinity of 340 mg/L (indicating this groundwater bore produces fresh water), and a yield of 0.3 L/s.

A review of the bore information does not provide any useful information about specific groundwater levels beneath the site.

5.5.2 Site Specific

Groundwater conditions beneath the site were assessed as part of the previous PSI using water collected from three (3) monitoring wells installed across the site by GEE (BH101, BH102) and JK (BH1). The location of the wells is shown on **Figure 2** and **Figure 3**.

Stabilised groundwater levels and field parameters were recorded during sampling. Depth to groundwater ranged from 2.19 m to 3.23 m below ground surface, with inferred flow direction towards the south-east, aligning with the local topography and Bates Creek (~500 m away). Groundwater was slightly acidic and of low electrical conductivity, with low dissolved oxygen, typical of groundwater conditions.

To assess the presence of contamination within the groundwater beneath the site, water from the wells was tested for:

- Dissolved metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg).
- TRH, PAHs, VOCs (including BTEXN).
- Hardness.

Results were compared against Groundwater Acceptance Criteria (GACs) appropriate for the site's environmental setting.

5.6 AREAS AND TYPE OF CONTAMINATION

As detailed in the DSI report (Reference 2) asbestos fibres (Chrysotile, Amosite & Crocidolite) were founded to be bonded to some matted material in the fill layer beneath the asphalt pavement at BH215 - refer to **Figure 4** and **Plate 16** below. The estimated concentration of asbestos fibres in the sample was 1.37 g/kg, or 0.137% w/w, in a 34.78 g soil sample. This value exceeds both:

- The method reporting limit of 0.1 g/kg, and
- The NEPM (2013) HSL-B criterion of 0.04% w/w for bonded asbestos in soil.

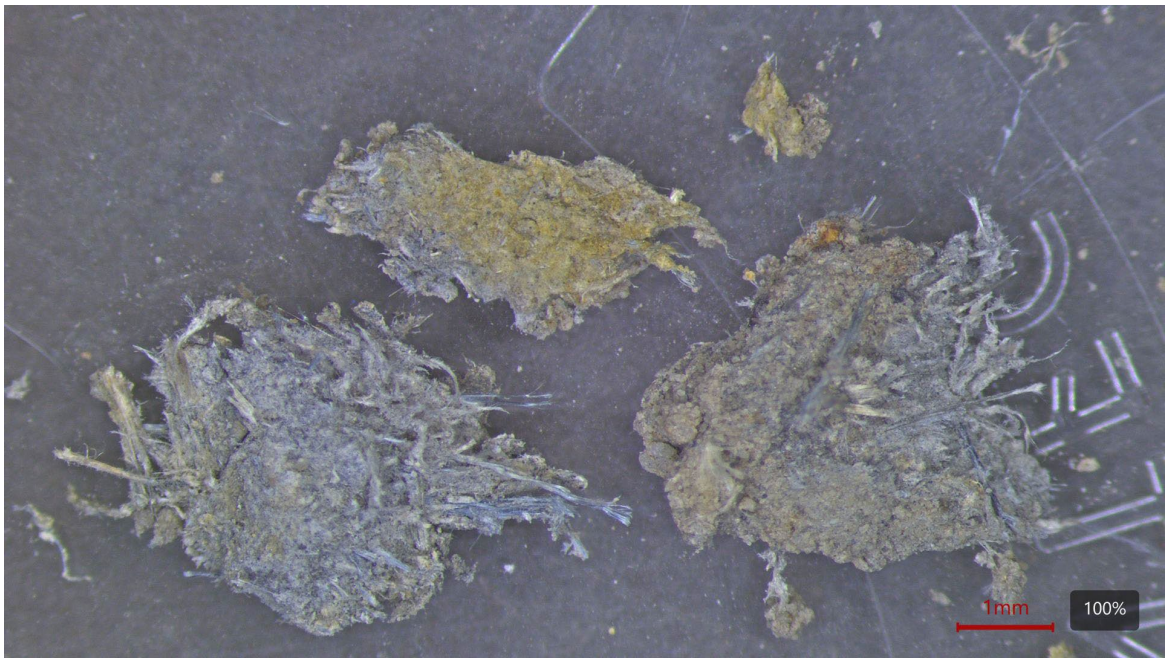


Plate 16 – Close-up photo of the matted material from the fill at BH215 that contained asbestos fibres.

The full horizontal and vertical extent of this asbestos-impacted fill is currently not known and should be delineated following the removal of the surface pavement during remedial works.

If the remediation area is conservatively estimated to extend half the distance to the nearest adjacent 'clean' boreholes (i.e. ~ 200m^2 as approximated in Figure 4), and the entire fill layer (~0.6 m thick) is assumed to be contaminated, the total soil volume requiring removal would be in the order of 120 m^3. Based on a typical bulk soil density of 1.8 t/m^3, this corresponds to approximately 220 tonnes of asbestos-impacted material.

GEE also notes that no friable (free) asbestos was detected in any of the soil samples analysed during the previous investigations.

5.7 WASTE CLASSIFICATION

A waste classification of the contaminated fill material has been completed in accordance with the NSW EPA waste guidelines (reference 5) by using the analytical results from the PSI and DSI investigations and supplemented with analysis of some samples using the additional Toxicity Leaching Characteristic Procedure (TCLP) which allows for optimisation of the waste classification.

5.7.1 Waste Classification Process

Under *the waste guidelines*, non-liquid waste may be classified in the following groups:

(i) General Solid Waste (Putrescibles),

(ii) General Solid Waste (Non-putrescibles),

(iii) Restricted Solid waste,

(iv) Hazardous Waste, and

(v) Special Waste (including asbestos waste).

The procedure for determining the type of waste and the classification is a six-step process as outlined in **Table 2** below.

Table 2: Six Step Waste Classification Procedure

Step	Comments	Rationale
1. Is the waste special waste?	YES & NO	Asbestos Containing Material (ACM) was found in the near-surface fill layer at one location - BH215 positioned in the northern carpark. Preliminary delineation of the ACM impacted fill material is provided in Figure 4 with further delineation to occur during remediation works. No clinical or related waste, or waste tyres were observed during the field assessment conducted as part of this assessment or during the earlier site contamination investigation. Asbestos was not found in the underlying natural (undisturbed) soil profile, and this was supported by lab testing.
2. Is the waste liquid waste	No	The waste predominately comprises soil.
3. Is the waste pre-classified?	No	The soil is not pre-classified.
4. Does the waste possess hazardous waste characteristics?	No	The waste had no obvious hazardous waste characteristics such as explosives, gases, flammable solids, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.
5. Determining a wastes classification using chemical assessment.	Conducted	Refer to Section 5.7.2 below

6. Is the waste putrescible or non-putrescible?	Non-putrescible	The waste predominately comprises silty sand soil with some anthropogenic material, all of which is non-putrescible.

5.7.2 Chemical Assessment of the Waste

The chemical waste classification criteria have been adopted from *the NSW EPA waste guidelines* (reference 5).

Part of the procedure includes the comparison of analytical data against contaminant threshold (CT) values specific to a waste category. The CT values are highly conservative and are based on the assumption that all the contaminants present in a sample are leachable and would leach completely.

Alternatively, the analytical data can be compared against specific contaminant concentration (SCC) thresholds when used in conjunction with toxicity characteristic leaching procedure (TCLP) thresholds. The relevant CT thresholds and SCC/TCLP thresholds from the waste guidelines are presented in **Table 3**.

A summary of the analytical results for the contaminated fill layer is provided in **Table 4**, while a full copy of the relevant laboratory reports is provided for reference in **Appendix C**.

In summary, the analytical results for all the fill samples were below the general solid waste CT1 threshold levels or the SCC1/TCLP1 threshold levels.

Table 3: Chemical Waste Classification Criteria [1]

Parameter	Maximum Values of Specific Contaminant concentrations for classification without TCLP		Maximum Values for Leachable (TCLP) Concentration and Specific Contaminant Concentration (SCC)			
	General Solid Waste	Restricted Solid Waste	General Solid Waste		Restricted Solid Waste	
	CT1 mg/kg	CT2 mg/kg	SCC1 mg/kg	TCLP1 mg/L	SCC2 mg/kg	TCLP2 mg/L
Metals						
Arsenic	100	400	500	5	2000	20
Cadmium	20	80	100	1	400	4
Chromium (VI)	100	400	1900	5	7600	20
Lead	100	400	1500	5	6000	20
Mercury	4	16	50	0.2	200	0.8
Nickel	40	160	1050	2	4200	8
TPH						
TPH C_6-C_9	650	2,600	650	N/A [2]	N/A [2]	N/A [2]
TPH C_{10}-C_{36}	10,000	40,000	10,000	N/A [2]	N/A [2]	N/A [2]
BTEX						
Benzene	10	40	18	0.5	72	2
Toluene	288	1,152	518	14.4	2073	57.6
Ethylbenzene	600	2,400	1,080	30	4320	120
Total Xylenes	1,000	4,000	1,800	50	7200	200
PAHs						
Benzo(a)pyrene	0.8	3.2	10	0.04	23	0.16
Total PAHs	200	800	200	N/A [2]	800	N/A [2]
Pesticides						
Chlorpyrifos	4	16	7.5	0.2	30	0.8
Moderately Harmful Pesticides	250	1,000	250	N/A [2]	1,000	N/A [2]
VOCs						
Tetrachloroethene (PCE)	14	56	25.2	0.7	100.8	2.8
Tetrachloroethene (TCE)	10	40	18	0.5	72	2

1,1,1-trichloroethane	600	2,400	1,080	30	4,320	120
1,1,2-trichloroethane	24	96	43.2	1.2	172.8	4.8
Vinyl chloride	4	16	7.2	0.2	28.8	0.8
Carbon Tetrachloride	10	40	18	0.5	72	2
Chlorobenzene	2,000	8,000	3,600	100	14.400	400
Chloroform	120	480	216	6	864	24
1,2-Dichlorobenzene	86	344	155	4.3	620	17.2
1,4-Dichlorobenzene	150	600	270	7.5	1,080	30
1,2-Dichloroethane	10	40	18	0.5	72	2
1,1-Dichloroethene	14	56	25	0.7	100	2.8
Styrene	60	240	108	3	432	12
1,1,1,2-Tetrachloroethane	200	800	300	10	1,440	40
1,1,2,2-Tetrachloroethane	26	104	46.8	1.3	187.2	5.2
Non-Halogenated Phenol						
Phenol	288	1,152	518	14.4	2,073	57.6
2,4,5-Trichlorophenol	8,000	32,000	14,400	400	57,600	1,600
2,4,6-Trichlorophenol	40	160	72	2	288	6
Other Chemicals						
Scheduled Chemicals [3]	<50	<50	<50	N/A [2]	<50	N/A [2]

Notes

Note 1: NSW EPA (2014) Waste Classification Guidelines (Part 1 - Tables 1, 2 and 3)

Note 2: TPH, Total PAHs and scheduled chemicals are evaluated based on total contaminant concentrations (CT or SCC) only. No TCLP required

Note 3: Scheduled chemicals include some organochlorine pesticides. The sum of the SCC for all of the scheduled chemicals must not exceed the criteria

TABLE 4 - Summary of the Soil (Fill Layer) Waste Classification Results

Analyte	Units	Limit Of Reporting (LOR)	Sample ID	SM030625-69	SM030625-105	SM030625-50	SM030625-100	SM030625-01	SM030625-03	SM030625-04	SM030625-05	SM030625-06	SM030625-08	SM030625-103	SM030625-09	MAXIMUM RESULT
			Location	BH201	Split	BH202	Blind	BH204	BH204	BH204	BH204	BH205	BH205	Split	BH205	
			Depth	0.15 – 0.25	Duplicate of	0.15 – 0.30	Replicate of	0.05 – 0.15	0.50 – 0.50	0.90 – 1.00	2.00 – 2.20	0.05 – 0.20	0.40 – 0.50	Duplicate of	0.80 – 0.90	
			Type	FILL - Sandy GRAVEL	SM030625-69	FILL - Gravelly SAND	SM030625-50	FILL – Silty SAND	FILL – SAND	FILL – Clayey SAND	FILL - GRAVEL	FILL – Silty SAND	FILL –SAND	SM030625-08	FILL – Clayey SAND	
Asbestos ID Soil																
Asbestos ID	g/kg	0.1		<0.1	-	<0.1	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1
Trace Analysis [2]	Yes/No	-		No	-	No	-	No	No	-	-	No	-	-	-	No
Lab Comment [3]	-	-		Nil	-	Nil	-	Nil	Nil	-	-	Nil	-	-	-	Nil
Metals																
Arsenic	mg/kg	4		<4	<4	21	30	<4	<4	10	27	<4	<4	<4	<4	30
Cadmium	mg/kg	0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium[1]	mg/kg	1		13	32	11	11	8	1	21	37	8	<1	1.2	5	37
Copper	mg/kg	1		29	22	5	8	7	<1	1	<1	8	<1	<1	1	29
Lead	mg/kg	1		5	4.6	12	15	8	2	12	7	7	2	1.2	8	15
Mercury	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	1	0.2	<0.1	0.1	0.9	<0.1	<0.1	<0.1	1
Nickel	mg/kg	1		12	21	2	5	4	<1	<1	2	4	<1	<1	<1	21
Nickel - TCLP	mg/L	0.01		-	-	-	-	-	-	-	-	-	-	-	-	0.1
Zinc	mg/kg	1		21	24	35	76	13	4	4	2	13	7	6.1	7	76
BTEXN																
Benzene	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2	-	-	-	-	<0.2	-	-	-	<0.2
Toluene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-	-	-	<0.5
Ethylbenzene	mg/kg	1		<1	<1	<1	<1	-	-	-	-	<1	-	-	-	<1
Total Xylenes	mg/kg	1		<1	<1	<1	<1	-	-	-	-	<1	-	-	-	<1
Naphthalene	mg/kg	1		<1	<1	<1	<1	-	-	-	-	<1	-	-	-	<1
TRH																
TRH C_6 - C_{10} (F1)	mg/kg	25		<25	<25	<25	<25	-	-	-	-	<25	-	-	-	<25
TRH >C_{10}-C_{40}	mg/kg	50		<50	<50	<50	<50	-	-	-	-	<50	-	-	-	0
PAHs																
Benzo(a)pyrene	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	-	-	-	<0.05
Total PAHs	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	-	-	-	0
Scheduled Chemicals[2]																
Heptachlor	mg/kg	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
Aldrin	mg/kg	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
Dieldrin	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	0.3	0.6	-	<0.1	0.2	0.3	0.31	<0.1	0.6
Endrin	mg/kg	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
Chlordane - Total	mg/kg	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
DDE + DDD + DDT	mg/kg	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
HCB	mg/kg	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
Endrin Aldehyde	mg/kg	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
a-BHC	mg/kg	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
b-BHC	mg/kg	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
d-BHC	mg/kg	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
g-BHC	mg/kg	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
Heptachlor Epoxide	mg/kg	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
Moderately HarmfullPesticides																
Chlorpyrifos	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
Other Pesticides																
Chlorpyrifos	mg/kg	0.1		-	-	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
VOCs																
Tetrachloroethene (PCE)	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Tetrachloroethene (TCE)	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,1-trichloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,2-trichloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Vinyl chloride	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Carbon Tetrachloride	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Chlorobenzene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Chloroform	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,2-Dichlorobenzene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,4-Dichlorobenzene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,2-Dichloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1-Dichloroethene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Styrene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,1,2-Tetrachloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,2,2-Tetrachloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Phenolics																
Total Phenolics	mg/kg	0.1		<5	-	-	-	-	-	-	-	-	-	-	-	<5
PCBs																
Total PCBs	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	-	-	-	-	<0.1	-	-	-	<0.1

TABLE NOTES:

BOLD Results Exceeding the GSW Criteria

1 – Total Chromium analytical result includes chromium (III) and (VI).

2 - Scheduled chemical include some organochlorine pesticides, phenolics and SVOCs. The sum of the SCC for all scheduled chemicals must not exceed the criteria. Some scheduled chemicals were not analysed but they were not chemicals of concern for the site.

3 - Moderately Harmful Pesticides (MHP) include some other pesticides which were not analysed but pesticides are not a primary contaminant of concern at the site. The sum of the MHP must not exceed the criteria.

4 – This is the lowest CT1 criteria for the various phenolic compounds (2,4,6-Trichlorophenol

TABLE 4 - Summary of the Soil (Fill Layer) Waste Classification Results

Analyte	Units	Limit Of Reporting (LOR)	Sample ID	SM030625-10	SM030625-11	SM030625-12	SM030625-104	SM030625-14	SM030625-15	SM030625-16	SM030625-17	SM030625-22	SM030625-23	SM030625-19	SM030625-20	MAXIMUM RESULT
			Location	BH205	BH206	BH206	Blind	BH207	BH207	BH207	BH207	BH208	BH208	BH209	BH209	
			Depth	1.30 – 1.40	0.05 – 0.20	0.40 – 0.50	Replicate of	0.05 – 0.20	0.40 – 0.50	0.55 – 0.65	1.20 – 1.30	0.05 – 0.20	0.30 – 0.40	0.05 – 0.20	0.40 – 0.50	
			Type	FILL - GRAVEL	FILL – Silty SAND	FILL –SAND	SM030625-12	FILL – Silty SAND	FILL – SAND	FILL – Clayey SAND	FILL – Clayey SAND	FILL – Silty SAND	FILL – Clayey SAND	FILL – Silty SAND	FILL –SAND	
Asbestos ID Soil																
Asbestos ID	g/kg	0.1		-	<0.1	-	-	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1
Trace Analysis [2]	Yes/No	-		-	No	-	-	No	-	-	-	No	-	No	-	No
Lab Comment [3]	-	-		-	Nil	-	-	Nil	-	-	-	Nil	-	Nil	-	Nil
Metals																
Arsenic	mg/kg	4		7	<4	<4	<4	<4	<4	6	<4	13	<4	<4	<4	13
Cadmium	mg/kg	0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium[1]	mg/kg	1		13	7	<1	1	6	1	9	6	9	12	8	1	13
Copper	mg/kg	1		<1	8	<1	<1	9	<1	1	<1	9	<1	9	<1	9
Lead	mg/kg	1		10	6	<1	<1	5	1	16	3	16	4	7	1	16
Mercury	mg/kg	0.1		<0.1	0.5	<0.1	<0.1	0.1	0.2	<0.1	<0.1	0.5	<0.1	0.9	0.2	0.9
Nickel	mg/kg	1		<1	4	<1	<1	3	<1	<1	2	5	<1	5	<1	5
Nickel - TCLP	mg/L	0.01		-	-	-	-	-	-	-	-	-	-	-	-	0.1
Zinc	mg/kg	1		7	14	6	6	13	6	10	3	33	<1	20	6	33
BTEXN																
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
Total Xylenes	mg/kg	1		-	-	-	-	<1	-	-	<1	<1	-	-	-	<1
Naphthalene	mg/kg	1		-	-	-	-	<1	-	-	<1	<1	-	-	-	<1
TRH																
TRH C_6 - C_{10} (F1)	mg/kg	25		-	-	-	-	<25	-	-	<25	<25	-	-	-	<25
TRH $>C_{10}$-C_{40}	mg/kg	50		-	-	-	-	360	-	-	<50	<50	-	-	-	360
PAHs																
Benzo(a)pyrene	mg/kg	0.05		-	-	-	-	<0.05	-	-	<0.05	<0.05	-	<0.05	-	<0.05
Total PAHs	mg/kg	0.05		-	-	-	-	<0.05	-	-	<0.05	<0.05	-	<0.05	-	0
Scheduled Chemicals[2]																
Heptachlor	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1		-	<0.1	0.2	0.3	<0.1	0.5	<0.1	-	<0.1	<0.1	0.2	0.6	0.6
Endrin	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane - Total	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
DDE + DDD + DDT	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
a-BHC	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
b-BHC	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
g-BHC	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Moderately HarmfullPesticides																
Chlorpyrifos	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
Other Pesticides																
Chlorpyrifos	mg/kg	0.1		-	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
VOCs																
Tetrachloroethene (PCE)	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Tetrachloroethene (TCE)	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,1-trichloroethane	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,2-trichloroethane	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Vinyl chloride	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Carbon Tetrachloride	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Chlorobenzene	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Chloroform	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,2-Dichlorobenzene	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,4-Dichlorobenzene	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,2-Dichloroethane	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,1-Dichloroethene	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Styrene	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,1,2-Tetrachloroethane	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,2,2-Tetrachloroethane	mg/kg	1		-	-	-	-	-	-	-	-	-	-	-	-	<1
Phenolics																
Total Phenolics	mg/kg	0.1		-	-	-	-	-	-	-	-	-	-	-	-	<5
PCBs																
Total PCBs	mg/kg	0.1		-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1

TABLE NOTES:

BOLD Results Exceeding the GSW Criteria

1 – Total Chromium analytical result includes chromium (III) and (VI).

2 - Scheduled chemical include some organochlorine pesticides, phenolics and SVOCs. The sum of the SCC for all scheduled chemicals must not exceed the criteria. Some scheduled chemicals were not analysed but they were not chemicals of concern for the site.

3 - Moderately Harmful Pesticides (MHP) include some other pesticides which were not analysed but pesticides are not a primary contaminant of concern at the site. The sum of the MHP must not exceed the criteria.

4 – This is the lowest CT1 criteria for the various phenolic compounds

TABLE 4 - Summary of the Soil (Fill Layer) Waste Classification Results

Analyte	Units	Limit Of Reporting (LOR)	Sample ID	SM030625-18	SM030625-28	SM030625-66	SM030625-59	SM030625-57	SM030625-52	SM030625-55	SM030625-60	SM030625-25	SM030625-26	BH102	BH102	MAXIMUM RESULT
			Location	BH210	BH211	BH212	BH213	BH214	BH215	BH216	BH218	BH219	BH219	0.1 – 0.2	0.1 – 0.2	
			Depth	0.14 – 0.30	0.05 – 0.20	0.10 – 0.30	0.10 – 0.30	0.10 – 0.30	0.10 – 0.30	0.10 – 0.30	0.10 – 0.30	0.05 – 0.20	0.40 – 0.50	ZZ250724-02	ZZ250724-100	
			Type	FILL – Gravelly SAND	FILL – Silty SAND	FILL - Sandy GRAVEL	FILL – Gravelly SAND	FILL – Sandy GRAVEL	FILL – Silty SAND	FILL – Gravelly SAND	FILL – Gravelly SAND	FILL – Silty SAND	FILL – SAND	Fill – Gravelly SAND	Blind Replicate of ZZ250724-02	
Asbestos ID Soil																
Asbestos ID	g/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	**>0.1**	<0.1	<0.1	<0.1	-	<0.1	-	**YES**
Trace Analysis [2]	Yes/No	-		No	No	No	No	No	No	No	No	No	-	No	-	No
Lab Comment [3]	-	-		Nil	Nil	Nil	Nil	Nil	**YES**	Nil	Nil	Nil	-	Nil	-	**Yes**
Metals																
Arsenic	mg/kg	4		5	<4	<4	13	5	<4	<4	6	<4	<4	12	8	13
Cadmium	mg/kg	0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium[1]	mg/kg	1		16	6	78	39	20	5	24	14	7	2	16	17	78
Copper	mg/kg	1		35	8	27	5	47	2	53	11	7	<1	7	13	53
Lead	mg/kg	1		7	13	6	11	7	8	5	13	6	1	24	19	24
Mercury	mg/kg	0.1		0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.1	<0.1	<0.1	0.8
Nickel	mg/kg	1		20	4	76	7	59	1	120	3	4	<1	7	24	120
Nickel - TCLP	mg/L	0.01		-	-	0.1	-	0.06	-	0.08	-	-	-	-	-	0.1
Zinc	mg/kg	1		20	31	36	10	27	8	39	12	12	6	35	35	39
BTEXN																
Benzene	mg/kg	0.2		<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5		<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	1		<1	-	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Total Xylenes	mg/kg	1		<1	-	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Naphthalene	mg/kg	1		<1	-	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1
TRH																
TRH C_6 - C_{10} (F1)	mg/kg	25		<25	-	<25	<25	<25	<25	<25	<25	-	-	<25	<25	<25
TRH $>C_{10}$-C_{40}	mg/kg	50		<50	-	<50	110	<50	<50	<50	<50	-	-	<50	<50	110
PAHs																
Benzo(a)pyrene	mg/kg	0.05		<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	<0.05
Total PAHs	mg/kg	0.05		<0.05	-	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	0.4
Scheduled Chemicals[2]																
Heptachlor	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	0.2	-	<0.1	<0.1	0.2
Endrin	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Chlordane - Total	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
DDE + DDD + DDT	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
HCB	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
a-BHC	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
b-BHC	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
g-BHC	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Moderately HarmfullPesticides																
Chlorpyrifos	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
Ethion	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
Malathion	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
Fenitrothion	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
Dimethoate	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
Dichlorvos	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
Other Pesticides																
Chlorpyrifos	mg/kg	0.1		-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	<0.1
VOCs																
Tetrachloroethene (PCE)	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Tetrachloroethene (TCE)	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,1-trichloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,2-trichloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Vinyl chloride	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Carbon Tetrachloride	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Chlorobenzene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Chloroform	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,2-Dichlorobenzene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,4-Dichlorobenzene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,2-Dichloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1-Dichloroethene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Styrene	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,1,2-Tetrachloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
1,1,2,2-Tetrachloroethane	mg/kg	1		<1	-	-	-	-	-	-	-	-	-	-	-	<1
Phenolics																
Total Phenolics	mg/kg	0.1		<5	-	-	-	-	-	-	-	-	-	-	-	<5
PCBs																
Total PCBs	mg/kg	0.1		<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1

TABLE NOTES:

BOLD Results Exceeding the GSW Criteria

1 – Total Chromium analytical result includes chromium (III) and (VI).

2 - Scheduled chemical include some organochlorine pesticides, phenolics and SVOCs. The sum of the SCC for all scheduled chemicals must not exceed the criteria. Some scheduled chemicals were not analysed but they were not chemicals of concern for the site.

3 - Moderately Harmful Pesticides (MHP) include some other pesticides which were not analysed but pesticides are not a primary contaminant of concern at the site. The sum of the MHP must not exceed the criteria.

4 – This is the lowest CT1 criteria for the various phenolic compounds

5.7.3 Final Waste Classification

The contaminated fill layer which is the subject of this RAP is classified as:

◊ Special Waste Asbestos, while the chemical assessment confirmed that the waste may be disposed at a General Solid Waste Landfill which is also licenced to accept asbestos. This is applicable to areas shown in a 'hatched' pattern on Figure 4 around BH215. However, supervision by a licenced asbestos assessor is recommended during excavation phase to confirm that these are the only areas of ACM impacted soil. The estimated volume of ACM-impacted fill material is approximately 120 m^3 (or ~220 tonnes).

All remaining fill layer across the site that is not impacted by asbestos is classified as:

◊ General Solid Waste (non-putrescible).

6 CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) provides a summary of the current understanding of site contamination conditions, including the source(s), contaminants of concern, potentially affected media, receptors, and exposure pathways. It informs the development of remediation and risk management strategies.

The key elements of this CSM include:

- ◊ Known or potential sources of contamination and contaminants of concern, including contamination mechanisms (e.g. top-down surface spills, or sub-surface releases from buried infrastructure)
- ◊ Identification of contaminated or potentially affected media (e.g. soil, groundwater, vapour, surface water)
- ◊ Relevant human and ecological receptors
- ◊ Evaluation of potential and complete exposure pathways between sources and receptors

GEE notes that this CSM is based on existing information and the CSM should be revised if additional site contamination is encountered during remediation works.

6.1 KNOWN CONTAMINANTS OF CONCERN

The primary contaminant of concern identified at the site is:

- ◊ Bonded asbestos-containing material (ACM) in the form of matted material, detected within fill material at BH215, located in the northern carpark.

6.2 CONTAMINANT SOURCE(S)

The specific source of the asbestos-impacted material is unknown. However, it is possible that the contaminated fill was imported to the site during construction works associated with the northern carpark, which aerial imagery from the PSI suggests was completed during the late 1960s.

6.3 POTENTIAL OR KNOWN CONTAMINATED MEDIA

The known contaminated media is:

- ◊ Near-surface fill material in the vicinity of BH215, beneath the asphalt pavement (refer to **Figure 4** and **Plate 14**).

No impacts have been identified in natural soils, groundwater, or vapour.

6.4 CONTAMINANT RECEPTORS

If remediation does not proceed, potential human receptors may include:

◊ Workers engaged in demolition, pavement removal, excavation, or remediation activities in the affected area.

At this stage, residents, site users, and the broader environment are not considered at risk due to the current encapsulation beneath hardstand.

6.5 POTENTIAL AND COMPLETE EXPOSURE PATHWAYS

Currently, the asbestos-impacted material is located beneath intact asphalt pavement, and no complete exposure pathway exists under existing site conditions. However, the exposure pathway will become complete once:

◊ The asphalt is removed during site redevelopment, allowing the release of airborne fibres through disturbance of asbestos-containing fill.

Therefore, asbestos exposure risk will become significant during intrusive works and must be addressed via the remediation and validation strategy outlined in this RAP.

7 REMEDIATION STRATEGY

This section provides the remediation goal, the extent of remediation required and discusses the remedial options to determine the preferred remedial option.

7.1 REMEDIATION GOAL

The goal of the remediation activities is to render the site suitable for the proposed development which comprises a new RSL club and seniors living apartments (**Appendix A**). This land-use scenario broadly equates to residential land-use with minimal access to soil.

7.2 EXTENT OF REMEDIATION

As summarised in Section 5.6 asbestos impacted fill was encountered at BH215 which was positioned in the northern car park and is part of the Stage 2 redevelopment works. The full horizontal and vertical extent of this asbestos-impacted fill is currently not known and should be delineated following the removal of the surface pavement during remedial works.

If the remediation area is conservatively estimated to extend half the distance to the nearest adjacent 'clean' boreholes (as approximated in **Figure 4**), and the entire fill layer (~0.6 m thick) is assumed to be contaminated, the total soil volume requiring removal would be in the order of 120 m³. Based on a typical bulk soil density of 1.8 t/m³, this corresponds to approximately 220 tonnes of asbestos-impacted material.

7.3 REGULATORY POLICY OF REMEDIATION

According to the National Environment Protection (Assessment of Site Contamination) Measure (amended 2013) (Reference 6 and herein referred to as '*ASC NEPM*'), which is endorsed by the NSW EPA and compatible with the CRC Care National Remediation Framework (reference 7), the preferred hierarchy of options for site remediation and management of soil contamination is:

i) On-site remediation of soil contamination, so that the risk associated with the contaminant is reduced to an acceptable level.

ii) Off-site remediation of excavated soil, so that the risk associated with the contaminant is reduced to an acceptable level, after which it is returned to the site.

If it is not possible for either of the above options to be implemented, then other options for consideration can include, for example:

i) Containment of the contamination on-site either in-situ with appropriate controls that reduce the risk to an acceptable level, or in an appropriately designed and managed containment facility.

ii) Removal of contaminated soil to an approved site or facility, and replacement with clean fill where necessary.

iii) Adoption of a less sensitive land use or controls on site activities that will reduce the need for remedial works.

As part of the identification and selection of remediation options, consideration should be given to the hierarchy above so that remedial options are selected that provide a permanent solution without the need for ongoing control, where feasible.

7.4 Assessment of Remediation Options

A summary of the soil remediation options and assessment of the suitability of each is provided in **Table 5**.

Table 5: Summary of the Soil Remedial Options

Remediation Option	Assessment	Conclusion
1. On-site treatment of the soil	Not applicable for Asbestos	Unfeasible
2. Off-site treatment of excavated soil.	Not applicable for Asbestos	Unfeasible
3. Removal of contaminated soil to an approved site or facility.	There are currently suitably licensed waste facilities in the Sydney region capable of accepting the asbestos found at the site. This option generates additional truck movements and associated fuel/emissions over option 4. This option also generates the highest quantity of waste, since the materials are disposed to landfill rather than retained on Site. Finally, it is also an uncomplicated strategy that is time effective and excavation in this part of the site is already proposed as part of the proposed development basement.	Preferred option, given the relatively small quantity involved and lack of reliable and cost-effective treatment processes
4. Consolidation and isolation of the soil on-site.	Asbestos is considered suitable for consolidation and isolation within an on-site containment structure, given that they are relatively immobile and not	Suitable but would require significant

	volatile. This strategy would require approval from the consent authority, a long-term management plan and long-term design integrity monitoring program. It is also not considered cost effective or appropriate given the relatively small volumes of soil that requires remediation	earthworks to bury the Asbestos

7.5 PREFERRED REMEDIATION OPTION

In consideration of the hierarchy for soil remediation options outlined above, the specific contaminants identified on the site, the small quantities involved and the fact that a significant volume of fill and natural soil will require excavation and removal from site as part of the proposed development, the preferred remediation option is removal of the asbestos impacted fill and off-site disposal to a facility licensed to receive the waste. The above option is also consistent with the recommended approach outlined in the WorkCover NSW 2014 Guidance document entitled "*Managing asbestos in or on soil*" (reference 8).

8 REMEDIATION METHODOLOGY

This section outlines the scope of the remediation works and provides detail of the proposed methodology of each of the required remediation tasks.

8.1 REMEDIATION SCOPE OF WORK

The scope of remediation works that is required to be undertaken on the site under this RAP comprises the following:

1. Obtain necessary approval from Council,
2. Complete a Hazardous Material Audit (HMA) of the existing structures,
3. Demolish the existing RSL Club and surface pavements (stage 2 redevelopment works),
4. Organise an appropriate contractor to undertake the remediation work,
5. Delineate the extent of ACM impacted soils,
6. Controlled excavation and landfill disposal of the contaminated fill,
7. Validation of remediation works, and
8. Preparation of a validation report.

8.2 REMEDIATION METHODOLOGY

The methodologies to be undertaken on the site for the various components of the remediation works are presented in detail in the sections below.

8.2.1 Task 1 - Obtain Council Approval

Chapter 4 of the SEPP (Resilience and Hazards) 2021 specifies when development consent is required and when it is not required. Category 1 work requires a separate development consent and requires advertisement of the remediation work for 30 days pursuant to Clause 13 of SEPP 55. Category 2 remediation work does not require development consent; however, Council is required to be notified 30 days prior to commencement of the remediation work.

It is the opinion of GEE that the remediation works described in the RAP would fall under Category 2 remediation work for the following reasons:

◊ The work is not designated development under schedule 3 of the *Environmental Planning and Assessment Act 1979* (NSW) as the treatment of contaminated soil

originating exclusively from the site on which the development is located will not exceed 30,000 m^3 of soil and disturb an aggregate area greater than 3 Ha,

- ◊ The land is not identified as critical habitat under the Threatened Species Conservation Act 1995 (NSW),
- ◊ Remediation is not being conducted in an area that requires consideration under s. 5A of the Environmental Planning and & Assessment Act 1979 (NSW), and
- ◊ Remediation is not being performed in an area of environmental significance or which requires consent under another State Environment Planning Policy (SEPP) or a regional environmental plan.

In this regard, and in accordance with Chapter 4.13 of SEPP (Resilience and Hazards) 2021, Council notification is required 30 days prior to commencing work.

8.2.2 Task 2 – Complete a Hazardous Materials Audit (HMA) of the existing structures

Under the Work Health and Safety Regulations 2017, all asbestos containing materials present in a building must be identified and removed prior to demolition works commencing. Other hazardous building materials must also be identified to ensure safety and correct disposal is undertaken.

As a minimum, the Hazardous Building Materials Audit will determine the presence of:

- ◊ Asbestos Containing Materials (ACMs).
- ◊ Lead paint.
- ◊ Polychlorinated Biphenyls (PCBs).

8.2.3 Task 3 – Demolish existing structures and pavements (Stage 2 Development Works)

This is necessary to be able to inspect the upper fill layer across the entire site for the presence of ACM. This would ensure that any residual contamination from the demolition works is also managed during the remediation works described herein.

All demolition work must comply with the Australian Standard AS2601 – 1991 – *The Demolition of Structures* and the *Work Health and Safety Regulation 2017.* Furthermore, care should be taken by the demolition contractor to minimise soil disturbance which may result in spreading any ACM across the site.

8.2.4 Task 4 - Organise an appropriate contractor

According to SafeWork NSW (reference 9), a contractor that holds a Class A and B asbestos removal licence can remove any amount of non-friable asbestos or ACM.

All asbestos removal work must be undertaken safely in accordance with the work health and safety legislation. Additionally, all workers must be suitably trained in asbestos removal techniques that include identification, safe handling and suitable control measures and they must hold current certification showing that they have successfully completed the approved non-friable removal course.

8.2.5 Task 5 – Delineate the extent of asbestos impacted soils

Following the demolition works, it is considered to be prudent to perform an inspection of the surface in an attempt to visually delineate the extent of asbestos. Some shallow excavations across the rear of No. 24 Melwood Avenue may also be useful.

At each excavation a sample should be collected in a 10L bucket before screening the sample through a ≤7mm sieve, with any retained material then spread out on a blue tarpaulin for more detailed inspection of ACM.

This can also be undertaken at the same time as Task 6 below.

8.2.6 Task 6 - Controlled excavation and landfill disposal of the contaminated fill

The work required to remove the asbestos impacted fill in each of the remediation areas (**Figure 4**) is summarised below:

1. Identify and establish the areas of ACM impacted soils.
2. Wet down the area,
3. In the presence of a licenced asbestos assessor or occupational hygienist, excavate the ACM impacted fill material and load waste onto approved transporters.
4. Transport and dispose of waste to an approved waste facility using the NSW EPA's Integrated Waste Tracking Solution (IWTS).
5. Complete multi-directional raking across the exposed surface and hand pick any ACM present. The collected material should be securely wrapped in plastic sheeting and taken to a suitably licenced landfill facility.

GEE notes that landfill receipt dockets will need to be kept for inclusion within the validations report as a record of the disposal of the material.

If the quantity of asbestos exceeds 10 square metres, then the asbestos waste will also be tracked using the NSW EPA's IWTS. Landfill receipt dockets will need to be kept for inclusion within the validations report as a record of the disposal of the material.

8.2.7 Task 7 - Validation sampling and analysis

Following removal of the fill layer and waste debris, a programme of soil validation will be implemented as described in Section 10. The validation programme will include the sampling and analysis of soil from across the entire site.

Additionally, an independent occupational hygienist or licenced asbestos assessor will need to be engaged to undertake a clearance inspection at the completion of the removal work and issue an asbestos clearance certificate which states that the site is safe for the proposed land-use.

Should there remain ACM on the surface of the site or in the validation samples then task 5 should be repeated followed by additional validation sampling and analysis.

8.2.8 Task 8 - Validation reporting

At the completion of the remediation works, a validation report will be prepared which outlines the results of the remediation works undertaken at the site and an assessment of the suitability of the site for the proposed use. The report will serve to document the remediation works for future reference and should be necessary for issue of the Occupation Certificate (OC).

9 REMEDIATION WORKS CONTINGENCY PLAN

GEE anticipates that remediation methodology described in Section 8 above will ensure that the site is suitable for the proposed land-use. However, the following potential contingencies and proposed actions will be taken:

Table 6: Contingencies

Issue	Action
1. Failure of the validation testing, indicating a greater amount of contamination than anticipated.	Further stripping of surficial soils and any asbestos and validation sampling.
2. Generation of unacceptable odours from the remediation works.	Refer to section 13.2
3. The generation of unacceptable levels of dust during remediation works.	Refer to section 13.2
4. Generation of unacceptable noise during site works.	Refer to section 13.3
6. Unexpected find of volatile contamination	Refer to section 9.1

9.1 UNEXPECTED FINDS PROTOCOL

During the remediation work an experienced contaminated land consultant should be present to ensure that there is no evidence of other contaminants i.e. discolouration, staining, detectable organic odours, residues, or evidence of underground storage tanks.

If evidence of contamination is observed, the following procedure should be adopted:

- ◊ Cease disturbance of the material.
- ◊ Contact the Site Foreman or appropriate Manager.
- ◊ Contact Council.
- ◊ If the tank/drum or volatile odour are suspected, then adopt the protocols in the following sub-sections. Otherwise, conduct a visual assessment of the potential contamination in the presence of the site foreman / sit manager and collected samples as necessary for analysis by a NATA accredited laboratory. This should include appropriate waste classification if removed from site,
- ◊ Define the location using a GPS or measurements from the boundaries or existing structures which are likely to remain in the long term.
- ◊ While waiting for the results of the assessment, arrange for the area to be barricaded to provide a ten (10) metre exclusion zone. Work can recommence in adjacent areas outside the exclusion zone.

- ◊ Once the results of the assessment are known then the waste material should be removed to a landfill facility licenced to accept the waste.

9.1.1 Volatile Contaminants

Based on the findings of the previous assessments and noting the nature of the filling and soil encountered at the site the potential for the site being impacted by volatile contaminants would be extremely low.

In the highly unlikely event that significant quantities of volatile compounds are detected, then appropriate gas mitigation strategies may be required as per ANZECC (1999) Guidelines for the Assessment of On-site Containment of Contaminated Soil.

If impacts due to volatile contaminants are detected across the site, the nature and extent of the impacts of the volatile contaminants should be established as a first step before an appropriate remedial strategy is to be established. If feasible the source material should be removed for off-site disposal.

9.1.2 Buried Tanks / Drums

In the unlikely event that buried structures such as Underground Storage Tanks (USTs) are encountered during site works, the structure(s) and any associated pipe-work should be managed / removed as per the NSW EPA, 2014: *Technical Note: Investigation of Service Station Sites* (reference 9).

10 VALIDATION PLAN

A validation plan will be implemented on the site to ensure that the RAP has been followed and that the remediation goal has been achieved. The purpose of the validation plan is to develop a framework for the validation of the site to verify the suitability of the site for the proposed use.

Requirements for the sampling and analytical plan, sampling methodology and quality control/quality assurance procedures to be adopted for the validation works are presented below. Additionally, in accordance with NSW EPA *Contaminated Sites: Guidelines for NSW Site Auditor Scheme* (reference 10) and Appendix B of Schedule B2 of the NEPM (reference 11), the Data Quality Objectives (DQOs) process was used to define the type, quantity and quality of the data needed to support decisions relating to the contamination status of the site. Details of the DQO process adopted for the soil sampling and analysis program is provided in **Appendix C**.

10.1 SCOPE OF THE VALIDATION WORKS

The scope of work that is required to be undertaken during the validation on the site comprises the following:

- ◊ Validation sampling of the surface soil following removal of the asbestos impacted fill. The purpose of this is to check if there is friable asbestos remaining,
- ◊ Inspection of the remaining surface across the footprint of the ACM impacted fill by an independent occupational hygienist or licenced asbestos assessor, and
- ◊ Preparation of a Validation Report.

10.2 SAMPLING PLAN

10.2.1 Sampling Locations, Frequency and Methodology

GEE proposes to collect a total of 8 samples from across the remediation area which is assumed to be a maximum area of approximately 100m^2. This equates to approximately 400 sampling points per hectare and a sampling grid of 5m which meets the minimum number of samples recommended from the NSW EPA Sampling Design Guidelines (reference 12). The samples will be collected with the assistance of a shovel taking care to sample soil which has not been in contact with the shovel.

If the extent of asbestos impacted fill is greater than inferred herein then additional samples will be collected with the total number being equivalent to the minimum number of samples recommended from the NSW EPA Sampling Design Guidelines.

10.2.2 Handling, Containment and Transport of Samples

The soil samples will be collected in a plastic, zip-lock bag, and filled with at least 500g of soil. The samples will then be sealed, labelled with the job number, date, unique sampling point identification and depth.

The samples will then be transported directly to the laboratory through chain-of-custody (COC) procedures. The COC form (provided by the laboratory) will demonstrate that the samples are properly received, documented, processed and stored.

10.2.3 Decontamination of Sampling Equipment

Considering that samples will be collected by hand using a new set of disposable nitrile gloves, decontamination will not be necessary as no re-useable equipment will be used. Additionally, when sampling using a shovel, care will be taken to ensure that the soil sampled did not contact the shovel.

However, if the assistance of a trowel is required to collect samples, in situations of hard or well compacted ground) then the trowel will be decontaminated by washing with a laboratory grade, biodegradable and phosphate-free detergent followed by rinsing with potable water.

10.3 Analytical Plan

Each validation sample collected will be analysed for the contaminant of concern which is asbestos. The samples will be analysed in accordance with the WA DoH guidelines (reference 13), which have been adopted nationally (reference 14).

10.4 Quality Assurance

Quality Assurance (QA) involves all the actions, procedures, checks and decisions undertaken to ensure the representativeness and integrity of samples and accuracy and reliability of analysis results (reference 10).

In accordance with AS4482.1 (reference 15) and NEPM (reference 10), a series of QA procedures will be integrated within the sampling and analysis plan and include:

- ◊ The use of standardised field sampling forms developed by GEE.
- ◊ Documentation of calibration and use of field instruments.

To ensure QA in the field, samples will be collected by experienced and trained personnel using appropriate methods detailed herein, including appropriate sample handling, containment and transport, and calibrated equipment.

To ensure QA in the laboratory, GEE intend to use laboratories that are NATA accredited for the analytical tests carried out, therefore it is reasonable for GEE to rely on the laboratories to be proficient in all tests conducted. This encompasses all actions, procedures, checks and decisions undertaken, to ensure the accuracy and reliability of the analysis results.

10.4.1 Quality Control

QC involves those parts of QA which serve to monitor and measure the effectiveness of QA procedures. QC samples assess sample integrity, accuracy and precision and can be separated into field and laboratory QC. For asbestos sampling QC samples are not considered to be necessary because of the nature of the contaminant.

10.5 Inspection and Clearance Certificate

To check that all the surface ACM has been removed, an independent occupational hygienist will be engaged to undertake a clearance inspection at the completion of the removal work and issue an asbestos clearance certificate which states that the site is safe for the proposed land-use.

10.6 Validation Report

Consistent with NSW EPA requirements, a validation report will be prepared at the conclusion of remediation works. The validation report, prepared in accordance with the requirements of EPA guidelines (reference 16), will outline the results of the remediation works undertaken at the site and an assessment of the suitability of the site for the proposed use.

11 REMEDIATION ASSESSMENT CRITERIA

To determine the success of the proposed remediation plan it is necessary to define appropriate Remediation Assessment Criteria (RAC).

For asbestos in soil, GEE has adopted the Health Screening Levels (HSLs) developed by the WA DoH (reference 13) and which have been adopted in Schedule B(1) of NEPM (2013 – reference 14). The HSL asbestos in soil screening levels are based on scenario-specific likely exposure levels associated with land-use. Considering the proposed land-use, GEE has adopted criteria for high density residential sites (i.e. HSL-B).

A summary of the relevant RAC is provided in **Table 7**.

Table 7: Soil Remediation Assessment Criteria (RAC)

Analyte	**Health Screening Levels (HSLs)** (mg/kg)	
	HSL - B	Reference
Surface Soil	No visible Asbestos	Table 7 – Reference 14
Buried Bonded	0.04%	Table 7 – Reference 14
Buried Friable	0.001%	Table 7 – Reference 14

12 INTERIM SITE MANAGEMENT PLAN (SITE PREPARATION)

12.1 SERVICES AND UTILITIES

The only underground service on the site is a sewer pipe, the location of which is known and will be avoided.

12.2 SITE SECURITY, RESTRICTED ACCESS AND SIGNAGE

Access to site will be restricted during site redevelopment works as required by Council Development Application conditions.

12.3 STORMWATER CONTROL MEASURES

No stormwater control measures are proposed during the site preparation phase since the remediation works relate to surficial ACM.

12.4 OCCUPATIONAL HEALTH & SAFETY PLAN

All work associated with the decommissioning and remediation of the site would conform at a minimum, to the requirements of the NSW Occupational Health and Safety Act.

12.5 LICENCES AND APPROVALS

No specific licences are required for the remediation work proposed. However, approval for the work should be granted by Council depending on the category of the remediation work. For Category 1 works, which requires development consent, the proposed remediation work must be advertised for 30 days pursuant to Clause 13 of SEPP 55. For Category 2 works Council should be notified 30 days prior to commencing work. As mentioned in Section 8.2.1, GEE considers that the remediation work is Category 2.

12.6 COMMUNITY RELATIONS PLAN / CONSULTATION

A community relations plan is not considered necessary for the site.

13 SITE MANAGEMENT PLAN (OPERATIONAL PHASE)

Remediation works shall be conducted in a manner that minimises environmental impacts and that meets statutory requirements. Site works should comply with the following legislation:

- ◊ Contaminated Land Management Act (1997);
- ◊ Contaminated Land Management Amendment Act (2008);
- ◊ Protection of the Environment Operations Act (1997);
- ◊ Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation (2008);
- ◊ Environmentally Hazardous Chemicals Act (1985);
- ◊ Dangerous Goods Act (1975);
- ◊ Waste Avoidance and Resource Recovery Act (2001);
- ◊ Clean Air (Plant and Equipment) Regulation (1997);
- ◊ Occupational Health and Safety Act (2001); and
- ◊ Local Government Act (1993).

The contractor shall endeavour to:

1. Minimise fugitive dust emissions;
2. Minimise the volume of water containing suspended sediment leaving the site;
3. Prevent vehicles from tracking mud on local roads; and
4. Ensure that noise and vibration levels conform to legislative requirements.

A preliminary site management plan is provided below.

13.1 STORMWATER MANAGEMENT

Stormwater management is not expected to be required as no significant excavation is proposed as part of the remediation works.

13.2 CONTROL OF DUST AND ODOUR

The remediation work will be undertaken in a manner that minimises fugitive dust and odour emissions.

Measures to control dust and odour will include:

- ◊ Careful handling of material in a manner that minimises dust emissions;
- ◊ Placement of screening material (*e.g.*, hessian) on perimeter fences;
- ◊ Water spraying across dusty areas of the site;
- ◊ The use of tarpaulins or similar to cover loads (incoming and outgoing); and
- ◊ The restriction of stockpile heights to less than 2 m.

Where visual inspection indicates that dust levels may be unacceptable, work will cease until measures are taken to reduce emissions or until weather conditions improve. The site supervisor will be responsible for dust management.

Local Government requirements state that no odours shall be detected at the site boundary during remedial works by an authorised Council officer relying solely on the sense of smell. The following procedures may be engaged in order to minimise odours:

- ◊ Covering of stockpiles (where practical);
- ◊ Use of fine mist sprays and hydrocarbon mitigating agent on impacted areas and materials; and
- ◊ Adequate maintenance of equipment and machinery to minimise exhaust emissions.

13.3 NOISE CONTROL

Minor increased noise levels may result from the use of machines on site during the course of the project, which is expected to take less than 1 week day. To mitigate any noise which may arise as a result of site works, all works would be carried out in accordance the EPA NSW *Interim Construction Noise Guideline* (reference 17).

Working hours will be restricted to those specified in the DA consent conditions for the proposed development.

13.4 VIBRATION CONTROL

No significant excavation is proposed as part of the remediation works and therefore vibration is not expected to be an issue for adjoining structures.

13.5 TRAFFIC AND TRANSPORT

Traffic disruptions may potentially be an issue as a result of site remediation works mostly associated with the any truck movements when demolition occurs. Methods such as using

a skip or transporting materials to and from site using a barge should be considered in order to alleviate traffic impact.

All machinery will be transported to the site in accordance with regulatory requirements.

All haulage routes for trucks transporting soil, materials, equipment or machinery to and from the site are to be selected to meet the following requirements:

- ◊ Comply with all road traffic rules,
- ◊ Minimise noise, vibration and odour to adjacent properties, and
- ◊ Utilise State Roads and minimise the use of local roads.

The site supervisor shall ensure that all vehicles:

- ◊ Conduct deliveries of soil, materials, equipment of machinery during the allowed hours of remediation work,
- ◊ Securely cover all loads to prevent/minimise any dust or odour emissions during transport, and
- ◊ Do not track soil, mud or sediment onto the roads and footpaths.

13.6 UNDERGROUND SERVICES

All underground services are to be located and either removed or avoided.

13.7 RESTRICTED ACCESS

Contractors only will be allowed on site during demolition works. No members of the public will be allowed on site during this time.

During remediation works, the site will be designated as a construction area. Consequently, access will be restricted to authorised staff and contractors equipped with appropriate Personal Protective Equipment (PPE). The site supervisor will control site access. All visitors will report to the site supervisor to be inducted into the site safety programme and environmental protection programme prior to entering the site.

14 WORKPLACE HEALTH AND SAFETY PLAN

The purpose of Workplace Health and Safety (WHS) is to ensure that the RAP is conducted in a controlled and safe manner with due regard for potential hazards and safe work practices. The WHS plan will be implemented and enforced by the appointed site supervisor following a brief induction by GEE. The following preliminary plan contains minimum WHS requirements at the site. Contractors must be required to produce their own project-specific Project Safety Plans prior to the commencement of any works at the site, under which their employees are to operate at all times whilst at the site.

14.1 PERSONNEL AND RESPONSIBILITY

All personnel will be made aware of the person responsible for implementing health and safety procedures. All personnel should read and understand the WHS plan prior to commencing work and have signed a statement to verify this understanding. Contractors shall be responsible for ensuring that their employees are aware of and comply with the Project Safety Plans developed for each task and with all relevant statutes and regulations.

14.2 IDENTIFICATION OF POTENTIAL HAZARDS

14.2.1 Chemical Hazards

Contaminants that may be present at the site include, but are not limited to:

◊ Asbestos

Potential risks to personnel associated with these compounds, if present at the site, include inhalation of dust containing the contaminants.

14.2.2 Physical Hazards

The following physical hazards may exist at the site:

◊ Heavy equipment (mobile and stationary).

◊ Light vehicles with associated traffic and vehicle hazards.

◊ Heat exposure.

◊ Buried Services.

◊ Noise.

◊ Dust.

◊ Electrical equipment.

Personnel should also be aware of the necessary precautions with respect to hoisting of people, smoking, drugs and alcohol, first aid, privacy of information, environmental considerations, health surveillance, working alone, incident reporting, WHS consultation, discrimination and sexual harassment.

14.3 MEDICAL SURVEILLANCE

It is expected that all personnel on the site have undergone specific training for working on contaminated sites. A site-specific medical surveillance scheme is not considered necessary for this project.

14.4 SITE WORK PRACTICES

14.4.1 Personal hygiene

No smoking, eating or drinking will be permitted on site in areas where the possibility of contamination exists. In particular, smoking will be prohibited in areas were volatile hydrocarbons or other inflammable materials have accumulated. In these areas, a designated clean location should be allocated for smoking and the consumption of food or drink. These areas should be equipped with hand washing facilities which must be used prior to engaging in these activities. Personnel should be made aware of the location of these facilities.

14.4.2 Decontamination

Contaminated equipment should not be removed from the work area to avoid contaminating other parts of the site.

14.4.3 Restricted Access

A perimeter fence exists and will remain during the remediation work. Signs should be erected to notify personnel of the presence of asbestos removal in progress. Site visitors must report to the site office prior to entering the site.

14.4.4 Personal protection

Personnel will take measures to avoid coming into direct contact with contaminated material. Workers are to ensure that soil, surface water or groundwater are not ingested or swallowed and that direct contact with skin is avoided. Personnel should wear the following Personal Protective Equipment (PPE):

- ◊ Steel-capped boots meeting AS2210.3 requirements (reference 18);
- ◊ Fluorescent safety vest or other high visibility clothing conforming to AS/NZS 4602:1999 (reference 19).

- ◊ Hard hat meeting AS1801-1981 (reference 20) requirements when working within close proximity to any heavy machinery.
- ◊ Safety glasses or goggles with side shields meeting AS1337.6-2007 (reference 21) requirements as necessary.
- ◊ Disposable latex gloves for personnel involved in soil or groundwater sampling.

In the unlikely event that personnel are required to work in areas with highly-contaminated soil or other hazardous materials, the following additional protection will be required:

- ◊ Disposable coveralls (if necessary) to prevent contact with splashed soil or materials.
- ◊ Nitrile gloves meeting AS2161-2000 (reference 22) requirements or heavy-duty gauntlet gloves.

14.5 EMERGENCY RESPONSE PLAN

14.5.1 Resources

The following emergency numbers can be called in the event that medical or other emergency services are required:

Hospital: Northern Beaches Hospital
105 Frenchs Forest Road West, Frenchs Forest NSW 2086
(02) 9105 5000

Police, fire, ambulance: 000

Electrical: Energy Australia
13 13 18

Council: Northern Beaches Council
1 Belgrave Street, Manly NSW 2095
1300 434 434

Water: Sydney Water
132 090

Gas: Jemena Gas
131 909

Utilities: Telstra
1800 653 935

14.5.2 Responsibilities

The site supervisor will be responsible for ensuring that site personnel are aware of emergency services available. A site safety officer must be available during remedial works.

15 REFERENCES

1. Geo-Environmental Engineering Pty Ltd, 2025: Preliminary Site Contamination Investigation, Proposed RSL Club Redevelopment, 20-22 Melwood Avenue, Forestville NSW. Prepared for the Forestville RSL Club Limited. Report ID: E24016FOR-R02F Rev 1 Dated 13th May 2025.
2. Geo-Environmental Engineering Pty Ltd, 2025: Detailed Site Contamination Investigation, Proposed RSL Club Redevelopment, 20-22 Melwood Avenue, Forestville NSW. Prepared for the Forestville RSL Club Limited. Report ID: E24016FOR-R03F Dated 17th June 2025.
3. Department of Mineral Resources, 1983: Sydney 1:100,000 Geological Series Map Sheet 9130 (Edition 1).
4. Department of Land and Water Conservation (DLWC), 2004: Sydney 1:100 000 Soil Landscape Series Sheet 9130 (second edition).
5. New South Wales Environment Protection Authority (NSW EPA) 2014: Waste classification guidelines - Part 1 classifying waste. November 2014.
6. ASC NEPM 1999: National Environment Protection (Assessment of Site Contamination) Measure 1999, as varied, National Environment Protection Council, Australia.
7. CRC CARE National Remediation Framework, 2019: Guideline on Performing Remediation Options Assessment, August 2019.
8. WorkCover NSW, 2014: Managing asbestos in or on soil. March 2014.
9. NSW EPA, 2014: Technical Note: Investigation of Service Station Sites. April 2014.
10. NSW EPA, 2017: NSW Environment Protection Authority (2017): Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd edition).
11. NEPM, 2013: National Environment Protection (Assessment of Site Contamination) Measure 1999 - Schedule B(2) Guideline of Site Characterisation. As amended 16 May 2013.
12. NSW EPA, 2022: Environment Protection Authority NSW, 2022: Contaminated Land Guidelines: Sampling Design – Part 1. August 2022.
13. Western Australian Department of Health, 2009: Guidelines for the Assessment, Remediation and Management of Asbestos – Contaminated Sites in Western Australia, May 2009.

14. NEPC, 2013: National Environment Protection Council (1999). National Environment Protection (Assessment of Site Contamination) Measure. Schedule B(1) Guideline on the Investigation Levels for Soil and Groundwater.

15. Australian Standard AS4482.1 – 2005 Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds.

16. NSW EPA, 2020: Environment Protection Authority 2020: Contaminated Land Guidelines: Consultants Reporting on Contaminated Land. EPA NSW. April 2020.

17. DECC, 2009: Department of Environment and Climate Change (DECC), 2009: Interim Construction Noise Guideline.

18. Australian / New Zealand Standard (AS/NZS) 4602 (2009): Occupational protective footwear Part 3: Specification for safety footwear (ISO 20345:2004, MOD).

19. Australian / New Zealand Standard (AS/NZS) 4602 (1999): High visibility safety garments.

20. Australian / New Zealand Standard (AS/NZS) 1801 (1997): Occupational protective helmets.

21. Australian / New Zealand Standard (AS/NZS) 1337.6 (2007): Personal eye protection Part 6: Prescription eye protectors against low and medium impact.

22. Australian / New Zealand Standard (AS/NZS) 2161.1 (2000): Occupational protective gloves - Selection, use and maintenance.

FIGURES

1 – SITE LOCATION MAP
2 - SITE PLAN (SURVEY)
3 – SITE PLAN (AERIAL)
4 – INFERRED REMEDIATION AREA

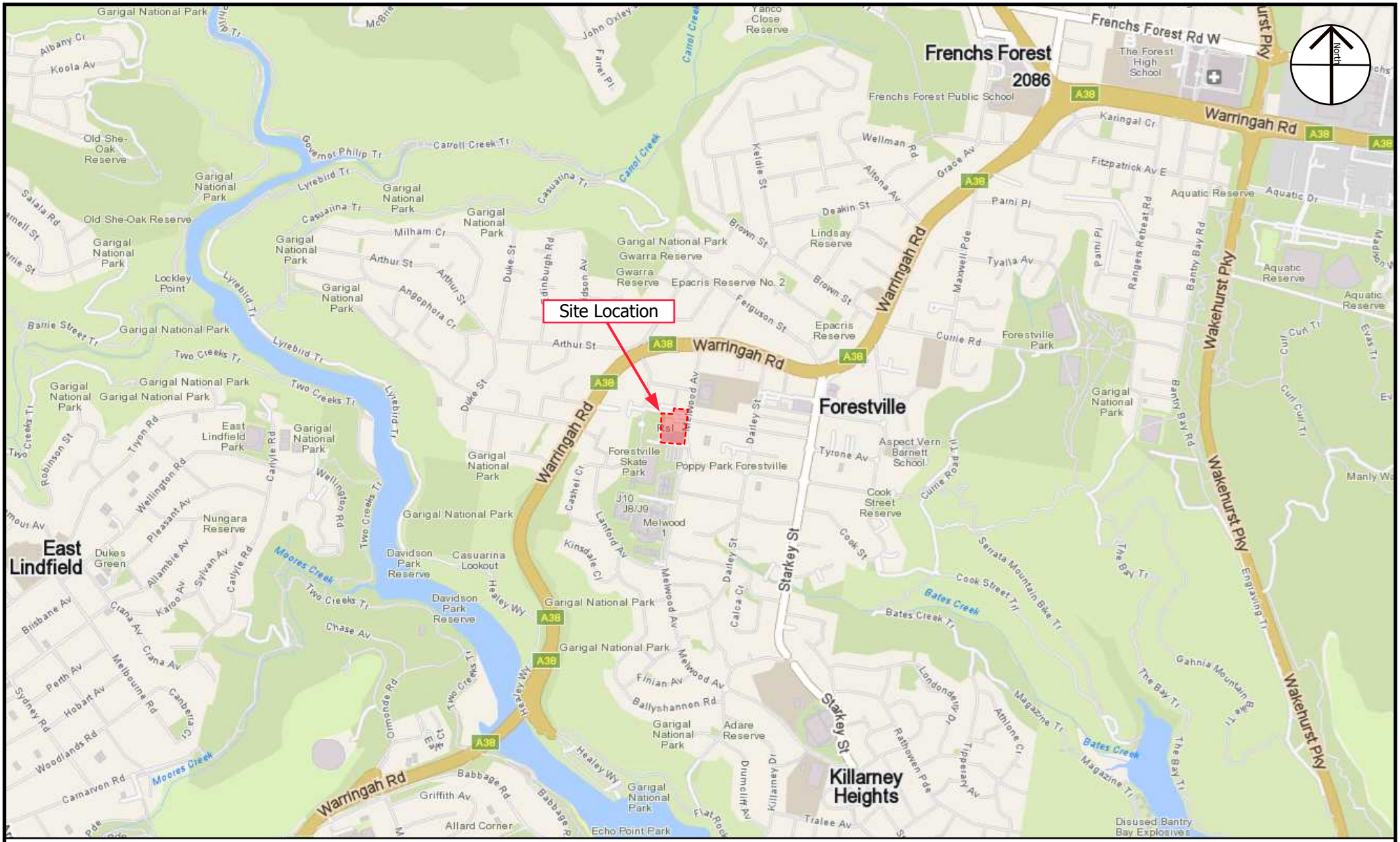
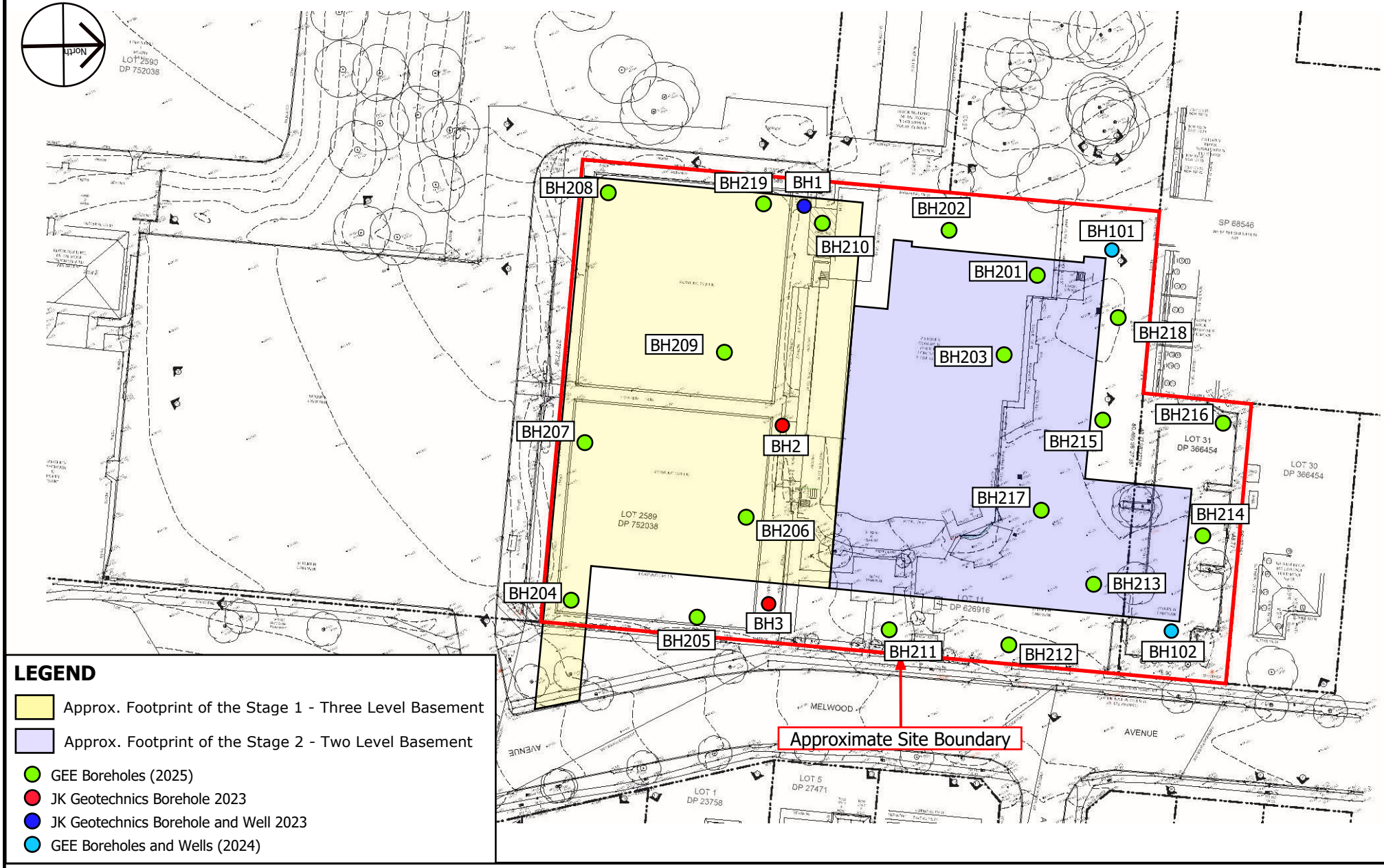


Image Source: www.whereis.com Map data © OpenStreetMap contributors

geo-environmental ENGINEERING
Unit 2 / 5 - 7 Malta Street
FAIRFIELD EAST NSW 2165
P - 0431480980
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE: SITE LOCATION MAP 20 - 22 Melwood Ave, Forestville NSW	SCALE: **N.T.S**	DATE: **2 June 2025**	FIGURE No.: **1**
	DRAWN: **S. McC**	JOB No.: **E24016FOR**	REVISION: **A**



LEGEND

- Approx. Footprint of the Stage 1 - Three Level Basement
- Approx. Footprint of the Stage 2 - Two Level Basement
- GEE Boreholes (2025)
- JK Geotechnics Borehole 2023
- JK Geotechnics Borehole and Well 2023
- GEE Boreholes and Wells (2024)

Survey Image Provide by Quattro Architecture - Dated 20th April 2023

geo-environmental ENGINEERING
Unit 2 / 5 - 7 Malta Street
FAIRFIELD EAST NSW 2165
P - 0431480980
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE:	SCALE:	DATE:	FIGURE No.:
Site Plan (SURVEY) 20-22 Melwood Ave, Forestville NSW	**N.T.S**	**13 June 2025**	**2**
	DRAWN: **S. Gao**	JOB No.: **E24016FOR**	REVISION: A

Image Provide by Nearmap (http://maps.au.nearmap.com.au) - Image Date: 9 January 2023

geo-environmental ENGINEERING
Unit 2 / 5 - 7 Malta Street
FAIRFIELD EAST NSW 2165
P - 0431480980
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE: **SITE PLAN (AERIAL)** 20-22 Melwood Ave, Forestville NSW	SCALE: **N.T.S**	DATE: **2 June 2025**	FIGURE No.: **3**
	DRAWN: **S. McC**	JOB No.: **E24016FOR**	REVISION: **A**

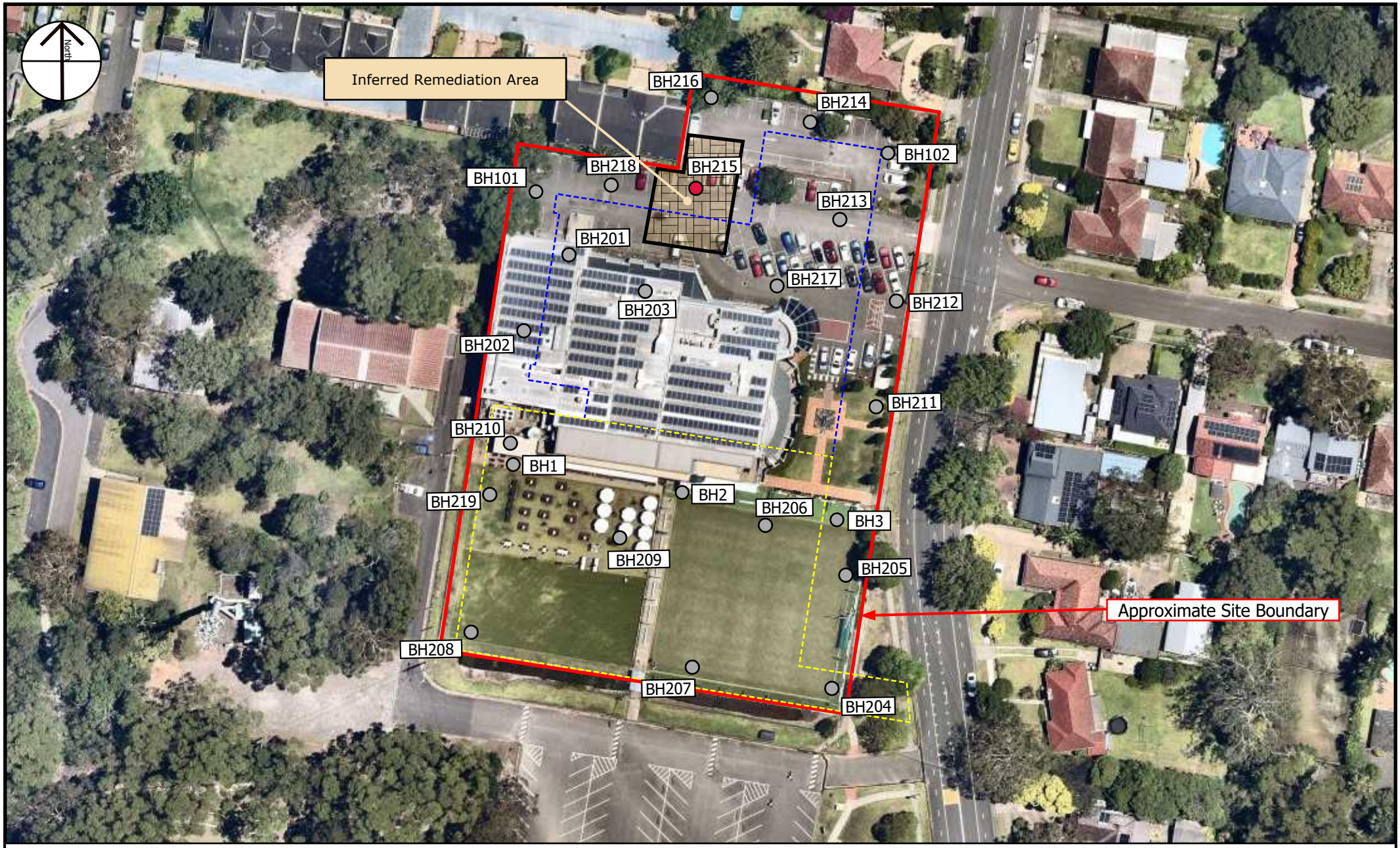


Image Provide by Nearmap (http://maps.au.nearmap.com.au) - Image Date: 9 January 2023

geo-environmental ENGINEERING
Unit 2 / 5 - 7 Malta Street
FAIRFIELD EAST NSW 2165
P - 0431480980
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

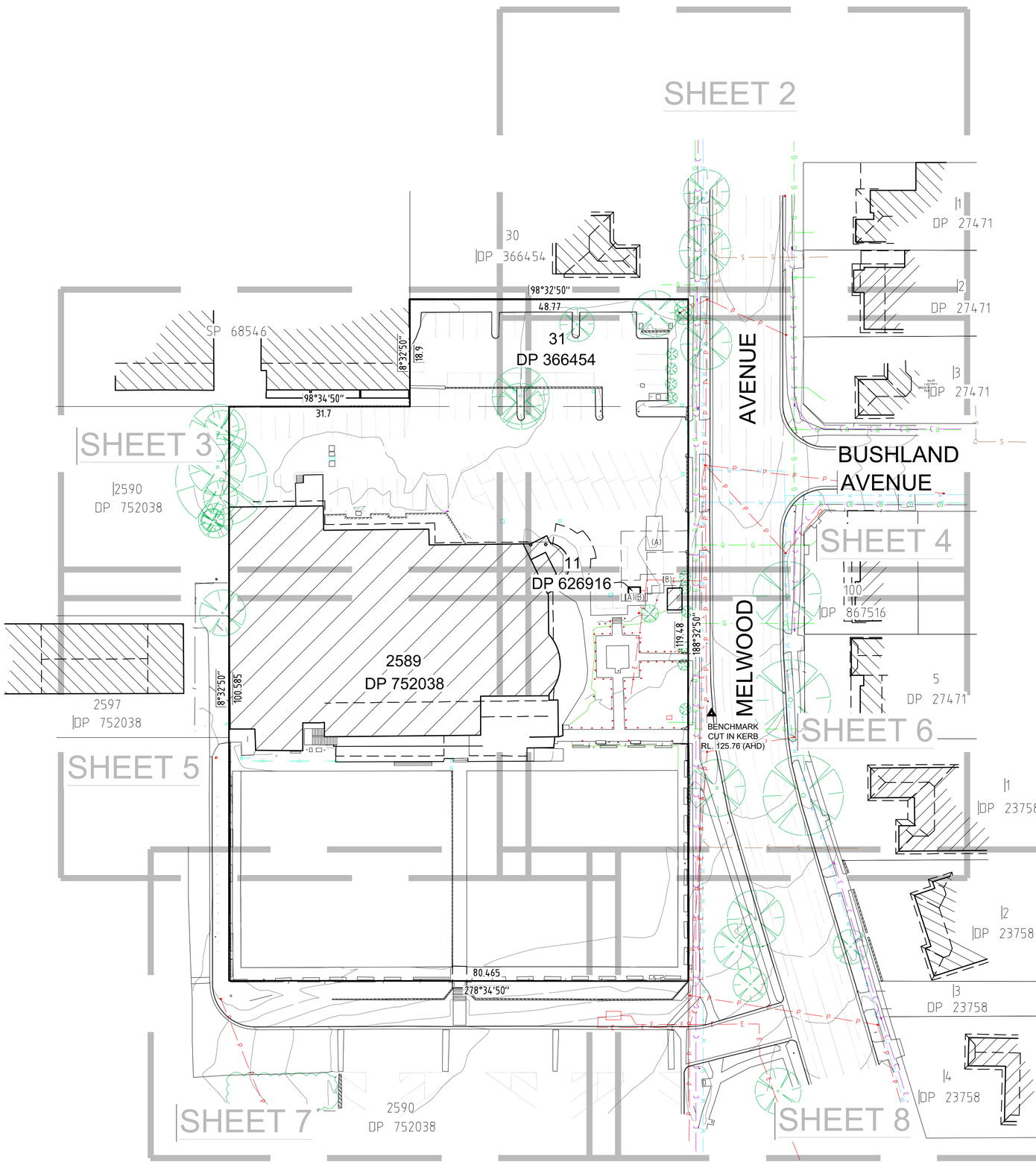
TITLE:	SCALE:	DATE:	FIGURE No.:
INFERRED REMEDIATION AREA	**N.T.S**	**12 June 2025**	**4**
	DRAWN: **S. McC**	JOB No.: **E24016FOR**	REVISION: **A**

APPENDIX A

Survey and Architectural Plans

LEGEND

BENCH MARK	▲
TELSTRA PIT	TEL
ELECTRIC LIGHT POLE	ELP
ELECTRIC LIGHT BOLLARD	LB
ELECTRICITY PIT	EPIT
ELECTRICITY BOX	EL
POWER POLE	PP
POWER POLE WITH LIGHT	PPL
GRATED INLET PIT	GIP
DRAIN	DRN
SEWER MANHOLE	SMH
SEWER INSPECTION POINT	SIP
STOP VALVE	SV
HYDRANT	HYD
WATER METER	WM
WATER TAP	TAP
PIT WITH CONCRETE LID	CLID
PIT WITH METAL LID	MLID
STREET SIGN	SS
BOLLARD	BOL
PLAQUE	PLQ
VEHICLE CROSSING	(VC)
PRAM CROSSING	(PC)
WINDOW	W
DOOR	D
HEAD/SILL	H/S
COMMUNICATIONS (DBYD)	C
ELECTRICITY (U'GROUND DBYD)	E
ELECTRICITY (OVERHEAD)	P
SEWER (DBYD)	S
WATER (DBYD)	W
GAS (DBYD)	G
STORMWATER PIPE	SW



NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED ON GROUND
2. THE BOUNDARY SURVEY (DIMENSIONS AND AREA) HAVE BEEN SURVEYED IN ACCORDANCE WITH SURVEYING AND SPATIAL INFORMATION REGULATION 2017 CLAUSE 10 "IDENTIFICATION SURVEYS" AND ARE SUBJECT TO FINAL SURVEY
3. ADJOINING BOUNDARIES WITHIN THIS FILE HAVE BEEN ADDED FROM DCDB DATA OBTAINED FROM NSW LAND REGISTRY SERVICES AND ARE APPROXIMATE ONLY
4. ORIGIN OF **MGA2020** COORDINATES IS TAKEN FROM **SSM 489** - E.**334242.546**, N.**6262662.240** IN MELWOOD AVENUE
5. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **SSM 489** R.L. **126.683** (A.H.D.) IN MELWOOD AVENUE
6. CONTOUR INTERVAL **0.5m**
7. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
8. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
9. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
10. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
11. 8/4.7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m
12. SHOWS APPROXIMATE POSITION OF ROAD LINEMARKING AND IS INDICATIVE ONLY
13. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH

EASEMENTS & RESTRICTIONS

(A) RIGHT OF WAY (GOV GAZ DATED 24-6-1983 FOL 2925 & DP626916)
(B) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE (GOV GAZ DATED 24-6-1983 FOL 292 & DP626916)

COVENANTS AFFECTING WHOLE OF LOT 31 IN DP366454
- POSITIVE COVENANT (3933586)
- POSITIVE COVENANT (6795670)

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 8 16 24 32 40

SCALE 1: 400 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum	AHD	reference number	52165 002DT
site Area	9015m² (CALC)	scale	1: 400 @A1
		date of survey	17/07/2024
LGA	NORTHERN BEACHES	SHEET OF	1 / 11

MGA

TN

APPROX 1°00'

No.18
1 STOREY
BRICK RESIDENCE
TILE ROOF

RIDGE 133.47

30
DP 366454

No.18 MELWOOD AVENUE - SOUTH ELEVATION

No.18 MELWOOD AVENUE - EAST ELEVATION

98°32'50"
48.77

BRICK
WALL
GARDEN
TOP
DF
KERB

AVENUE
MELWOOD

1
DP 27471

No.23
2 STOREY
BRICK RESIDENCE
TILE ROOF

RIDGE 133.77

2
DP 27471

No.25
1 STOREY
BRICK RESIDENCE
TILE ROOF

RIDGE 130.98

SEE SHEET 1 FOR LEGEND & NOTES

ADJOINS

SHEET 4

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10
SCALE 1:100 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00

Revision	Date	Description	Reference
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum	AHD	reference number	52165 002DT
site Area	9015m² (CALC)	scale	1:100 @A1
LGA	NORTHERN BEACHES	date of survey	17/07/2024
		SHEET OF	2 11

MGA

TN

APPROX 1°00'

No.17
2 STOREY
BRICK RESIDENCE
TILE ROOF

RIDGE 136.18

SP 68546

No.17
2 STOREY
BRICK RESIDENCE
TILE ROOF

RIDGE 136.32

30
DP 366454

BRICK WALL

GARDEN

KERB

BITUMEN CARPARK

31
DP 366454

8°32'50"
18.9

SPEED HUMP

BRICK WALL

PALING FENCE

98°34'50"
31.7

BRICK WALL

ELEVATION 1 - No.17 FORESTVILLE AVENUE

ELEVATION 2 - No.17 FORESTVILLE AVENUE

SHEET 4

GATE FENCE WIRE GATE CHAIN

GRASS

POST

2590
DP 752038

2589
DP 752038

BITUMEN CARPARK

CONCRETE LOADING DOCK

CONCRETE PANEL WALL

PARAPET 136.50

2 STOREY
BRICK & RENDERED
BUILDING
"FORESTVILLE RSL"

GATE

BIN

ADJOINS

SEE SHEET 1 FOR LEGEND & NOTES

ADJOINS

SHEET 5

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10

SCALE 1:100 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00

Revision	Date	Description	Reference
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD
reference number 52165 002DT
site Area 9015m² (CALC)
scale 1:100 @A1
date of survey 17/07/2024
LGA NORTHERN BEACHES
SHEET 3 OF 11

ADJOINS

SHEET 2

SHEET 3

ADJOINS

SHEET 6

98°32'50"
48.77

BRICK

GARDEN

TOP

DF

KERB

WALL

BITUMEN CARPARK

31
DP 366454

BRICK

GARDEN

KERB

GRASS

FOOTPATH

CONCRETE

GARDEN

TOP OF KERB

GARDEN

TOP OF KERB

GARDEN

AVENUE

2
DP 27471

No.25
1 STORY
BRICK RESIDENCE
TILE ROOF

RIDGE 130.98

MGA

TN

100
APPROX

3
DP 27471

No.27
1 STORY
BRICK RESIDENCE
TILE ROOF

RIDGE 130.93

KERB

TOP

GRASS

FOOTPATH

CONCRETE

OF

PALING

GRASS

FENCE

CONCRETE

FOOTPATH

TOP

KERB

OF

KERB

(VC)

GRASS

CONCRETE DRIVEWAY

2589
DP 752038

BITUMEN CARPARK

ADJOINS

WALL

GRASS

CONCRETE

GRASS

TOP

RENDERED

CONCRETE DRIVEWAY

(VC)

GRATED DRAIN

SPEED HUMP

(A)

RAMMING

11
DP 626916

BITUMEN CARPARK

(A)(B)

(B)

PAVED

REND

MELWOOD

BUSHLAND

AVENUE

FENCE

KERB

(VC)

GRASS

CONCRETE DRIVEWAY

FOOTPATH

PALING

GRASS

CONCRETE

TOP

GATE

100
DP 867516

No.31
1 STORY
BRICK RESIDENCE
METAL ROOF

PARAPET 129.96

SEE SHEET 1 FOR LEGEND & NOTES

ADJOINS

SHEET 6

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10
SCALE 1:100 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00

Revision	Date	Description	Reference
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD
reference number 52165 002DT
site Area 9015m² (CALC)
scale 1:100 @A1
date of survey 17/07/2024
LGA NORTHERN BEACHES
SHEET 4 OF 11

ADJOINS SHEET 3

MGA

TN

100 APPROX

2590
DP 752038

"FORESTVILLE COMMUNITY HALL"
2 STOREY
BRICK STRUCTURE
TILE ROOF
RIDGE 133.67

2597
DP 752038

2590
DP 752038

2 STOREY
BRICK & RENDERED
BUILDING
"FORESTVILLE RSL"

2589
DP 752038

8°32'50" 100.585

RIDGE 136.49

GUTTER 135.06

SHEET 6

ADJOINS

GATE
FENCE
GRASS
CONCRETE DRIVEWAY
METAL
GATE
RAMP
WALL
FENCE
DRIVEWAY
KERB
GRASS
BITUMEN
TOP
GRASS
METAL
BRICK
CONCRETE
BENCH
BENCH
BENCH
BENCH
EDGE
BALCONY
BALCONY
AWNING
AWNING
CONCRETE
PATH
EDGE
GRATED DRAIN
WALL
PATH
EDGE
RETAINING
CONCRETE
CONCRETE
CONCRETE
LAWN BOWL GREEN
LAWN BOWL GREEN

SEE SHEET 1 FOR LEGEND & NOTES

ADJOINS SHEET 7

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10
SCALE 1:100 @ A1

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD
reference number 52165 002DT
site Area 9015m² (CALC)
scale 1:100 @A1
date of survey 17/07/2024
LGA NORTHERN BEACHES
SHEET 5 OF 11

ADJOINS

SHEET 4

SHEET 5

ADJOINS

SHEET 8

11
DP 626916

2589
DP 752038

100
DP 867516

5
DP 27471

1
DP 23758

2 STOREY
BRICK & RENDERED
BUILDING
"FORESTVILLE RSL"

No.31
1 STOREY
BRICK RESIDENCE
METAL ROOF

No.33
2 STOREY
BRICK RESIDENCE
TILE ROOF

No.35
1 STOREY
BRICK RESIDENCE
TILE ROOF

REND SERVICE HUT

ANZAC MONUMENT

BENCHMARK
CUT IN KERB
RL. 125.76 (AHD)

AVENUE

MELWOOD

LAWN BOWL GREEN

SYNTHETIC GRASS

BITUMEN CARPARK

BALCONY

AWNING

RAMP

GUTTER 135.06

PARAPET 136.58

PARAPET 129.96

RIDGE 131.65

RIDGE 129.48

119.48
188°32'50"

MGA

TN

100 APPROX

SEE SHEET 1 FOR LEGEND & NOTES

GDA2020

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

0 2 4 6 8 10
SCALE 1:100 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum	AHD
site Area	9015m² (CALC)
LGA	NORTHERN BEACHES
reference number	52165 002DT
scale	1:100 @A1
date of survey	17/07/2024
SHEET OF	6 OF 11

ADJOINS

SHEET 5

MGA

TN

APPROX 1:00

2589
DP 752038

LAWN BOWL GREEN

LAWN BOWL GREEN

DRIVEWAY

BITUMEN

SPEED HUMP

KERB

TOP OF BANK

FENCE

WALL

BENCH

BRICK

CONCRETE

EDGE

GRASS

METAL

RET WALL

RETAINING WALL

CONCRETE PATH

PATH

AWNING

80.465 CONCRETE

278°34'50"

GARDEN

BLOCK

SUBSTATION

KERB

BITUMEN CARPARK

GROUP OF SMALL TREES

2590
DP 752038

SHEET 8

ADJOINS

SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

0 2 4 6 8 10

SCALE 1:100 @ A1

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

LTS CONFIDENCE TOGETHER

www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title

PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD

reference number 52165 002DT

site Area 9015m² (CALC)

scale 1:100 @A1

date of survey 17/07/2024

LGA NORTHERN BEACHES

SHEET 7 OF 11

ADJOINS

SHEET 6

SHEET 7

ADJOINS

MELWOOD AVENUE

2589
DP 752038

2590
DP 752038

2
DP 23758

3
DP 23758

4
DP 23758

No.37
1 STOREY
BRICK RESIDENCE
TILE ROOF

No.41
1 STOREY
BRICK RESIDENCE
TILE ROOF

MGA

TN

APPROX 1:00

SEE SHEET 1 FOR LEGEND & NOTES

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10
SCALE 1:100 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

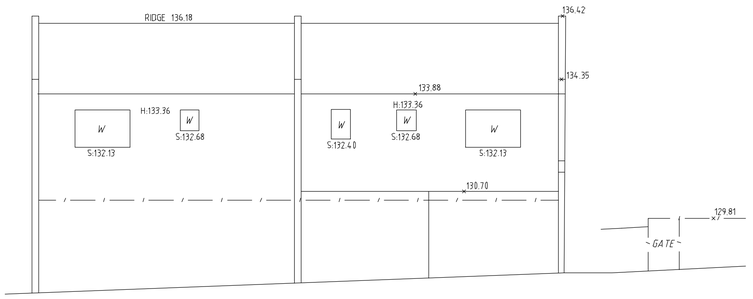
THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

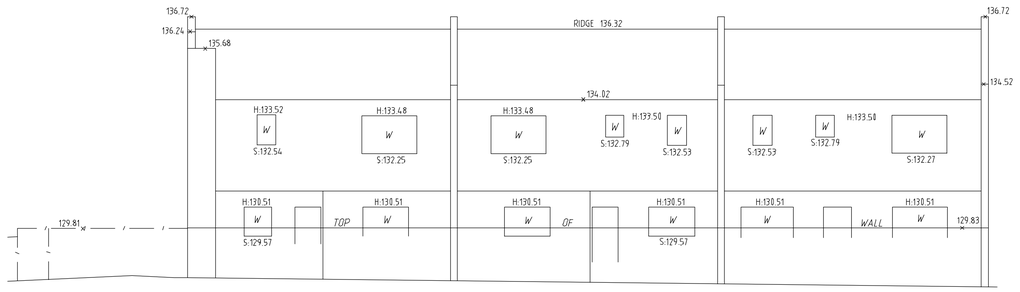
Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

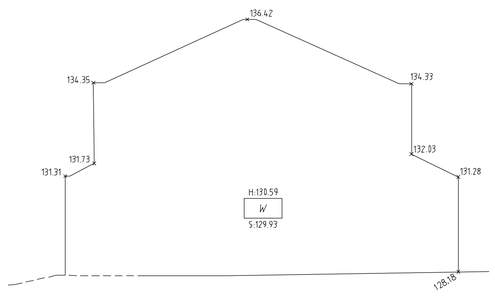
datum	AHD	reference number	52165 002DT
site Area	9015m² (CALC)	scale	1:100 @A1
LGA	NORTHERN BEACHES	date of survey	17/07/2024
		SHEET OF	8 / 11



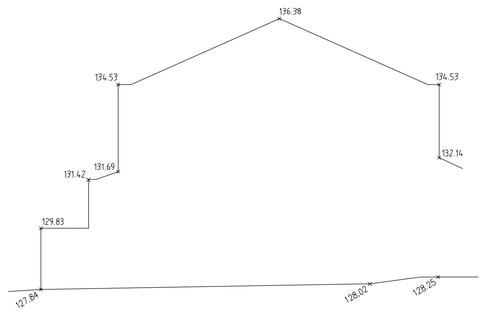
ELEVATION No.1 - 17 FORESTVILLE AVENUE



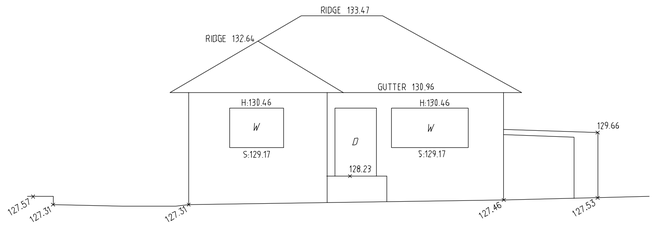
ELEVATION No.2 - 17 FORESTVILLE AVENUE



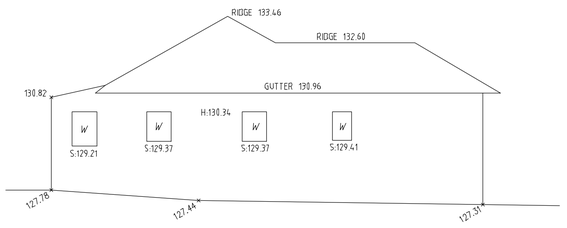
EAST ELEVATION - No.17 FORESTVILLE AVENUE LOT A



EAST ELEVATION - No.17 FORESTVILLE AVENUE LOT B



EAST ELEVATION - No.18 MELWOOD AVENUE



SOUTH ELEVATION - No.18 MELWOOD AVENUE

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

SEE SHEET 1 FOR LEGEND & NOTES

0 2 4 6 8 10

SCALE 1:100 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

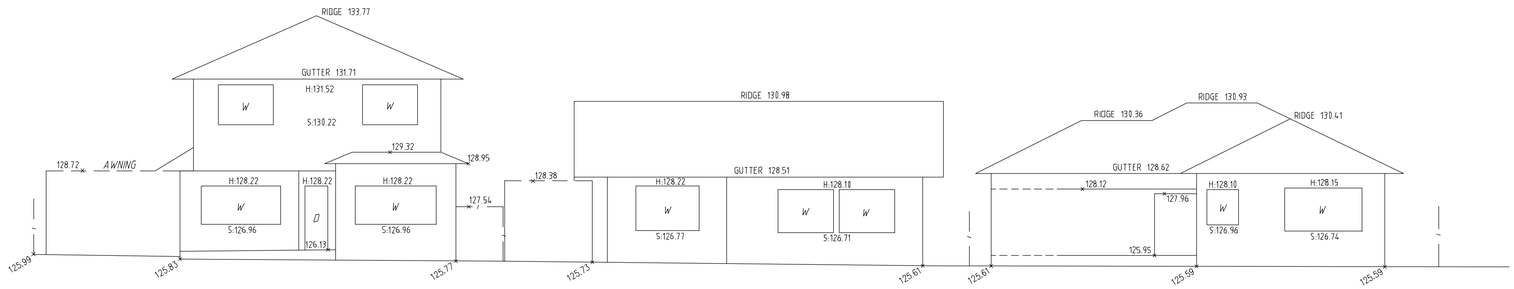
THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

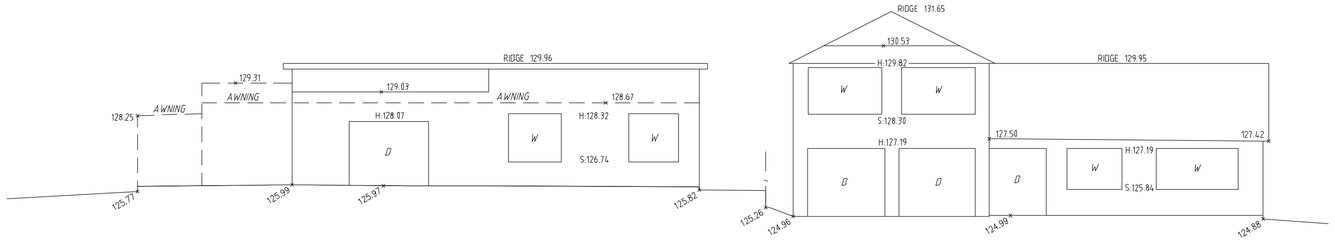
Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD
reference number 52165 002DT
site Area 9015m² (CALC)
scale 1:100 @A1
date of survey 17/07/2024
LGA NORTHERN BEACHES
SHEET 9 OF 11



WEST ELEVATION - No.23-27 MELWOOD AVENUE



WEST ELEVATION - No.31-33 MELWOOD AVENUE

SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00

Revision	Date	Description	Reference
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10

SCALE 1:100 @ A1

LTS CONFIDENCE TOGETHER

www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title

PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD

reference number 52165 002DT

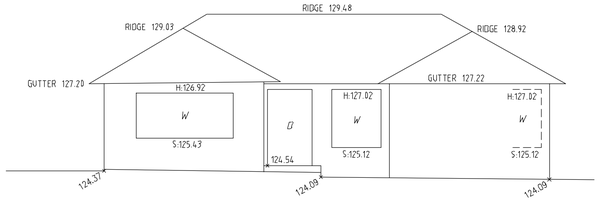
site Area 9015m² (CALC)

scale 1:100 @A1

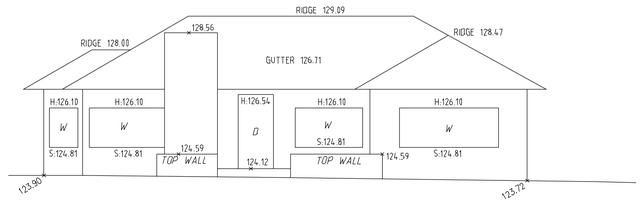
date of survey 17/07/2024

LGA NORTHERN BEACHES

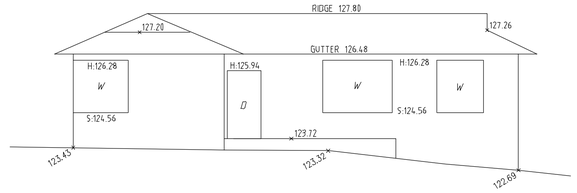
SHEET 10 OF 11



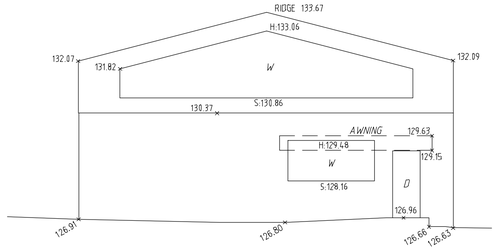
WEST ELEVATION - No.35 MELWOOD AVENUE



WEST ELEVATION - No.37 MELWOOD AVENUE



WEST ELEVATION - No.41 MELWOOD AVENUE



EAST ELEVATION - FORESTVILLE COMMUNITY HALL

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 2 4 6 8 10

SCALE 1:100 @ A1

SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00

Revision	Date	Description	Reference
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	00/00/00	–	00

LTS CONFIDENCE TOGETHER

www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client CONSTRUCTION MANAGEMENT SERVICES

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2589 IN DP 752038 & LOT 31 IN DP 366454, KNOWN AS FORESTVILLE RSL, No.22 MELWOOD AVENUE, FORESTVILLE

datum AHD

reference number 52165 002DT

site Area 9015m² (CALC)

scale 1:100 @A1

date of survey 17/07/2024

LGA NORTHERN BEACHES

SHEET 11 OF 11

N

FORESTVILLE RSL REDEVELOPMENT

LOT 2589 & LOT 31
DP752038 & DP 366454
22 MELWOOD AVE, FORESTVILLE NSW 2087

1. MASTERPLAN SET - SITE ANALYSIS

2. CLUB AND SENIORS LIVING - ADG / SHDG ANALYSIS
3. SENIORS LIVING - 3 X BUILDINGS - ADG / SHDG ANALYSIS
4. ADG SOLAR STUDY
5. SENIORS LIVING APARTMENT LAYOUTS

01 EASTERN BUILDING ELEVATION - MELWOOD AVENUE
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

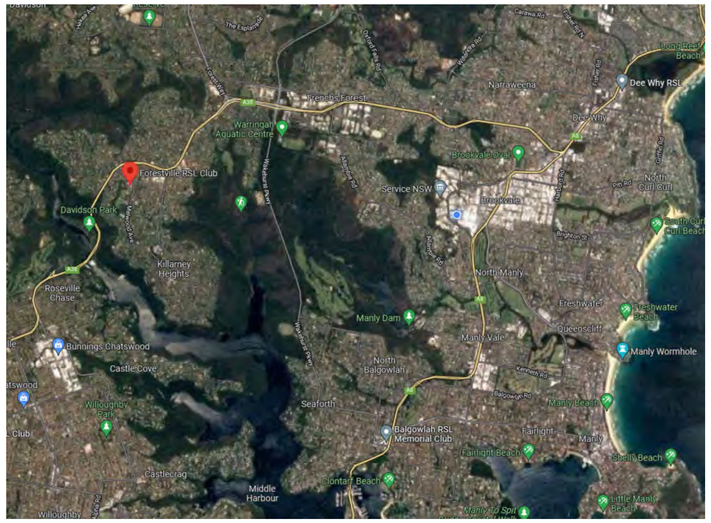
FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
COVER SHEET

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_000	G

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.



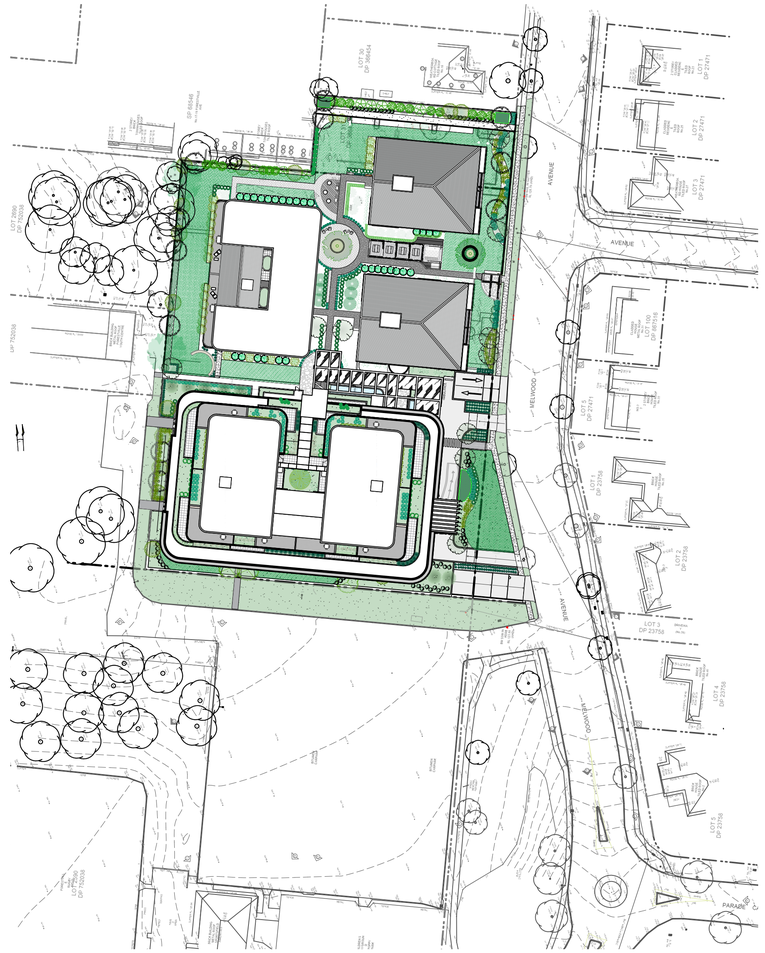
01 REGIONAL MAP
scale 1:NTS

03 LOCAL MAP
scale 1:NTS

Documentation	Required information	Provided	
		Yes (✓)	No (x)
Site location	Broad map or aerial photo showing site location in relation to surrounding centres, shops, civic/community facilities and transport	✓	
Aerial photograph	Colour aerial photographs of site in its context	✓	
Local context plan	Plan(s) of the existing features of the wider context including adjoining properties and the other side of the street, that show:	✓	
	• pattern of buildings, proposed building envelopes, setbacks and subdivision pattern	✓	
	• land use and building typologies of adjacent and opposite buildings in the street	✓	
	• movement and access for vehicles, servicing, pedestrians and cyclists	✓	
	• topography, landscape, open spaces and vegetation	✓	
	• significant views to and from the site	✓	
	• significant noise sources in the vicinity of the site, particularly vehicular traffic, train, aircraft and industrial noise	✓	

02 PRE-DA REQUIREMENTS
scale 1:-

04 SITE PLAN PHOTO EXISTING
scale 1:750



05 PROPOSED SITE PLAN
scale 1:750

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE
ACN 150 198 842 W: www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
REGIONAL SITE PLAN

Scale at A1 1:750
Scale at A3 1:1500
0m 5 10 25 50 60

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_047	G

Documentation	Required information	Provided	
		Yes (✓)	No (x)
Site context and survey plan	Plan(s) of the existing site based on a survey drawing showing the features of the immediate site including:	✓	
	• boundaries, site dimensions, site area, north point	✓	
	• topography, showing relative levels and contours at 0.5 metre intervals for the site and across site boundaries where level changes exist, any unique natural features such as rock outcrops, watercourses, existing cut or fill, adjacent streets and sites	✓	
	• location and size of major trees on site and relative levels where relevant, on adjacent properties and street trees	✓	
	• location and use of existing buildings or built features on the site	✓	
	• location and important characteristics of adjacent public, communal and private open spaces	✓	
	• location and height of existing windows, balconies, walls and fences on adjacent properties facing the site, as well as parapet and ridge lines	✓	
	• pedestrian and vehicular access points, driveways and features such as service poles, bus stops, fire hydrants etc.	✓	
	• location of utility services, including easements and drainage	✓	
	• location of any other relevant features	✓	

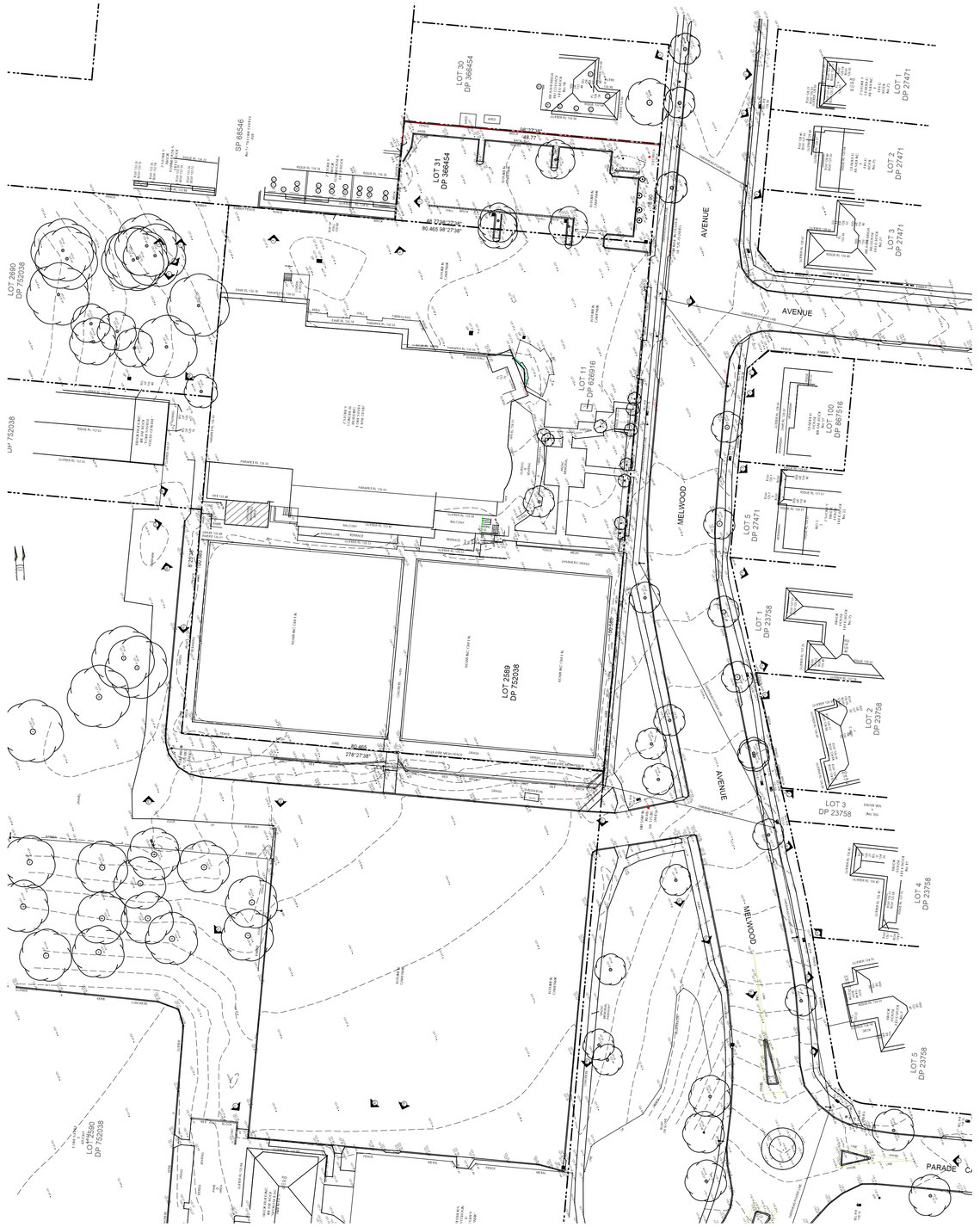
01 PRE-DA REQUIREMENTS
scale 1:-

02 EXISTING RSL CLUB PHOTO
scale 1:-

03 FORESTVILLE YOUTH CENTRE PHOTO
scale 1:-

04 EXISTING RSL CLUB ENTRY PHOTO
scale 1:-

05 MELWOOD AVENUE PHOTO
scale 1:-



01 SITE SURVEY
scale 1:500

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

ACN 150 198 842 **W:** www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SURVEY & SURROUNDINGS

Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_048**	**G**

N

PHOTOGRAPH LOCATION 1
17-19 FORESTVILLE AVE

PHOTOGRAPH LOCATION 2
17-19 FORESTVILLE AVE

PHOTOGRAPH LOCATION 3
17-19 FORESTVILLE AVE

PHOTOGRAPH LOCATION 4
17-19 FORESTVILLE AVE

PHOTOGRAPH LOCATION 5
17-19 FORESTVILLE AVE

PHOTOGRAPH LOCATION 6
No.18 MELWOOD AVE

PHOTOGRAPH LOCATION 7
No.23 MELWOOD AVE

PHOTOGRAPH LOCATION 8

PHOTOGRAPH LOCATION 9
No.27 MELWOOD AVE

PHOTOGRAPH LOCATION 10
INTERSECTION BUSHLAND AVE

PHOTOGRAPH LOCATION 11
No.31 MELWOOD AVE

PHOTOGRAPH LOCATION 12
No.31 MELWOOD AVE

PHOTOGRAPH LOCATION 13
No.33 MELWOOD AVE

PHOTOGRAPH LOCATION 14
No.35 MELWOOD AVE

PHOTOGRAPH LOCATION 15
No.35 MELWOOD AVE

PHOTOGRAPH LOCATION 16
No.37 MELWOOD AVE

PHOTOGRAPH LOCATION 17
No.37 MELWOOD AVE

PHOTOGRAPH LOCATION 18
No.41 MELWOOD AVE

PHOTOGRAPH LOCATION 19
No.41 MELWOOD AVE

PHOTOGRAPH LOCATION 20
No.2 CANNONS PARADE

PHOTOGRAPH LOCATION 21
No.2 CANNONS PARADE

PHOTOGRAPH LOCATION 22

PHOTOGRAPH LOCATION 23

PHOTOGRAPH LOCATION 24

PHOTOGRAPH LOCATION 25

PHOTOGRAPH LOCATION 26

PHOTOGRAPH LOCATION 27

PHOTOGRAPH LOCATION 28

PHOTOGRAPH LOCATION 29

PHOTOGRAPH LOCATION 30

PHOTOGRAPH LOCATION 31

PHOTOGRAPH LOCATION 32

PHOTOGRAPH LOCATION 33

PHOTOGRAPH LOCATION 34

PHOTOGRAPH LOCATION 35

PHOTOGRAPH LOCATION 36

PHOTOGRAPH LOCATION 37

PHOTOGRAPH LOCATION 38

PHOTOGRAPH LOCATION 39

PHOTOGRAPH LOCATION 40

PHOTOGRAPH LOCATION 41
FORESTVILLE YOUTH CENTRE

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SURVEY PHOTOS

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_049**	**G**

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

SITE ANALYSIS

SENIORS HOUSING

RESIDENTIAL FLAT BUILDING
APARTMENT DESIGN GUIDE
SENIORS HOUSING GUIDE 2023

3.1 FLOOR TO FLOOR HEIGHT
BOUNDARY SETBACKS 9 mtrs
BUILDING SEPARATION 12mtrs
BUILDING MAX SIZE 20m X 40m

EXISTING CLUB TO MAINTAIN TRADING WHILST NEW CLUB CONSTRUCTED

EXISTING BUILDING LINE RESIDENTIAL NEIGHBOURS

MAINTAIN ACCESS FOR NEIGHBOURS

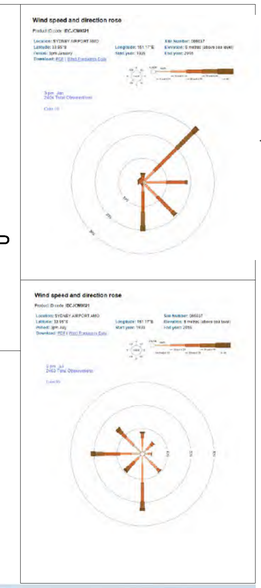
SPACE AVAILABLE FOR 3 X SENIORS BUILDINGS

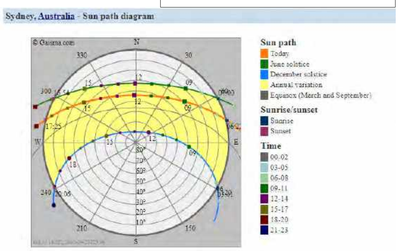
PLANNING

R 2 ZONE
HOUSING SEPP
9.5 MTR HEIGHT LIMIT WITH 11.5MTR MAX ALLOWED FOR SERVICING EQUIPMENTS

8.5 MTR HEIGHT LIMIT
FOR THE CLUB FROM THE LEP

SITE AREA = 9,014m^2





Documentation	Required information	Provided	
		Yes (✓)	No (x)
Streetscape elevations and sections	Photographs or drawings of the site in relation to the streetscape and along both sides of any street that the development fronts, that show:		
	• overall height (storeys, metres) and important parapet/datum lines of adjacent buildings		
	• patterns of building frontage, street setbacks and side setbacks		
	• planned heights		
Analysis	Plan that synthesises and interprets the context, streetscape and site documentation into opportunities and constraints that generate design parameters, including the following information:		
	• orientation and any overshadowing of the site and adjoining properties by neighbouring structures (excludes vegetation). The winter sun path should also be shown between 9 am and 3 pm on 21 June		
	• identification of prevailing wind	✓	
	• the geotechnical characteristics of the site and suitability of the proposed development	✓	
	• the public domain interface and street setback	✓	
	• relationship to and interface with adjacent properties, including side and rear setbacks	✓	
	• ventilation for the subject site and immediate neighbours	✓	
	• proposed building footprint location		
	• retained and proposed significant trees and deep soil zones		
	• proposed communal open space		
	• proposed car park footprint and depth		
	• proposed building entries		
	• supporting written material - this should include technical advice from specialists involved in the development process including landscape architects, arborists, geotechnical engineers and/or contamination specialists where applicable	✓	

01 SITE ANALYSIS
scale 1:500

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

DRAWING
SITE ANALYSIS

Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

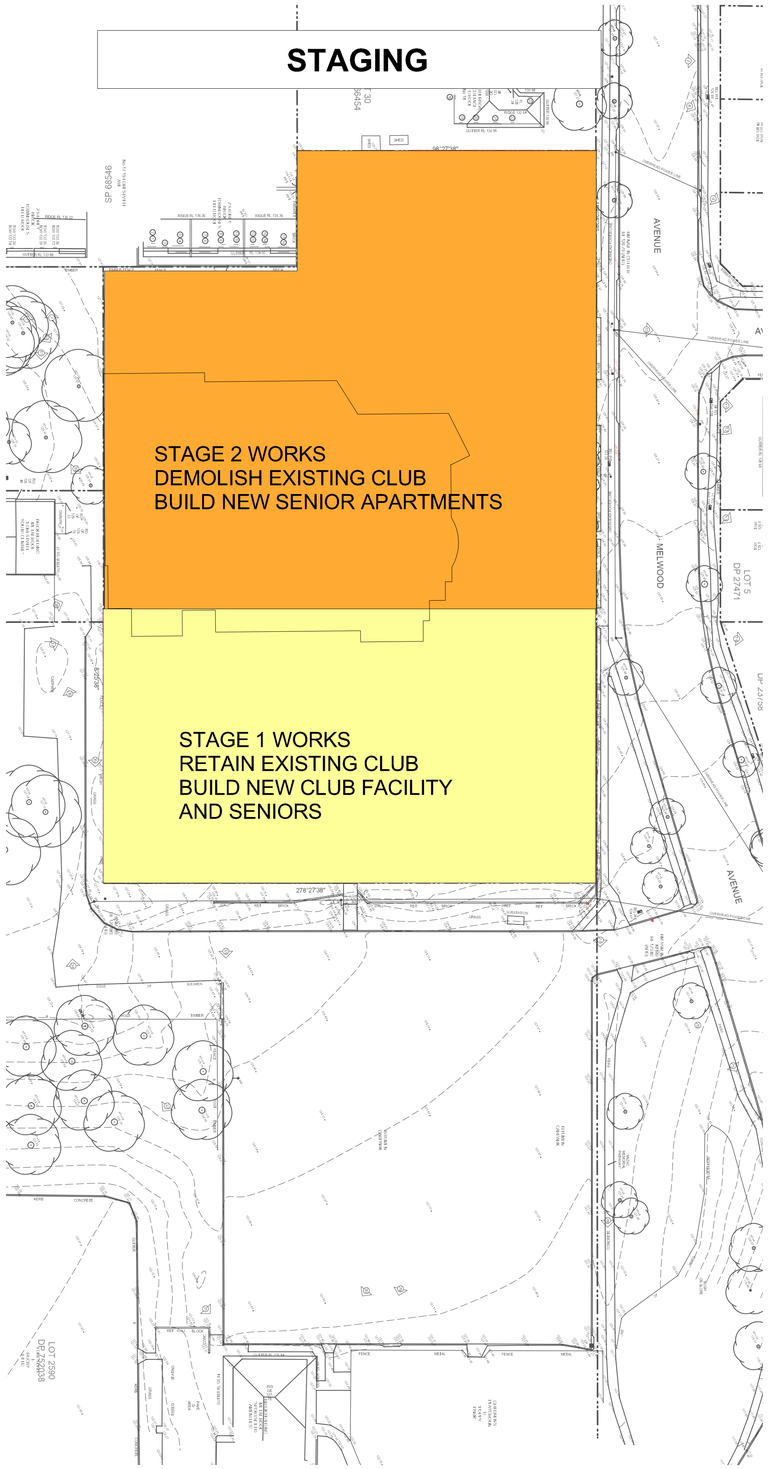
Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

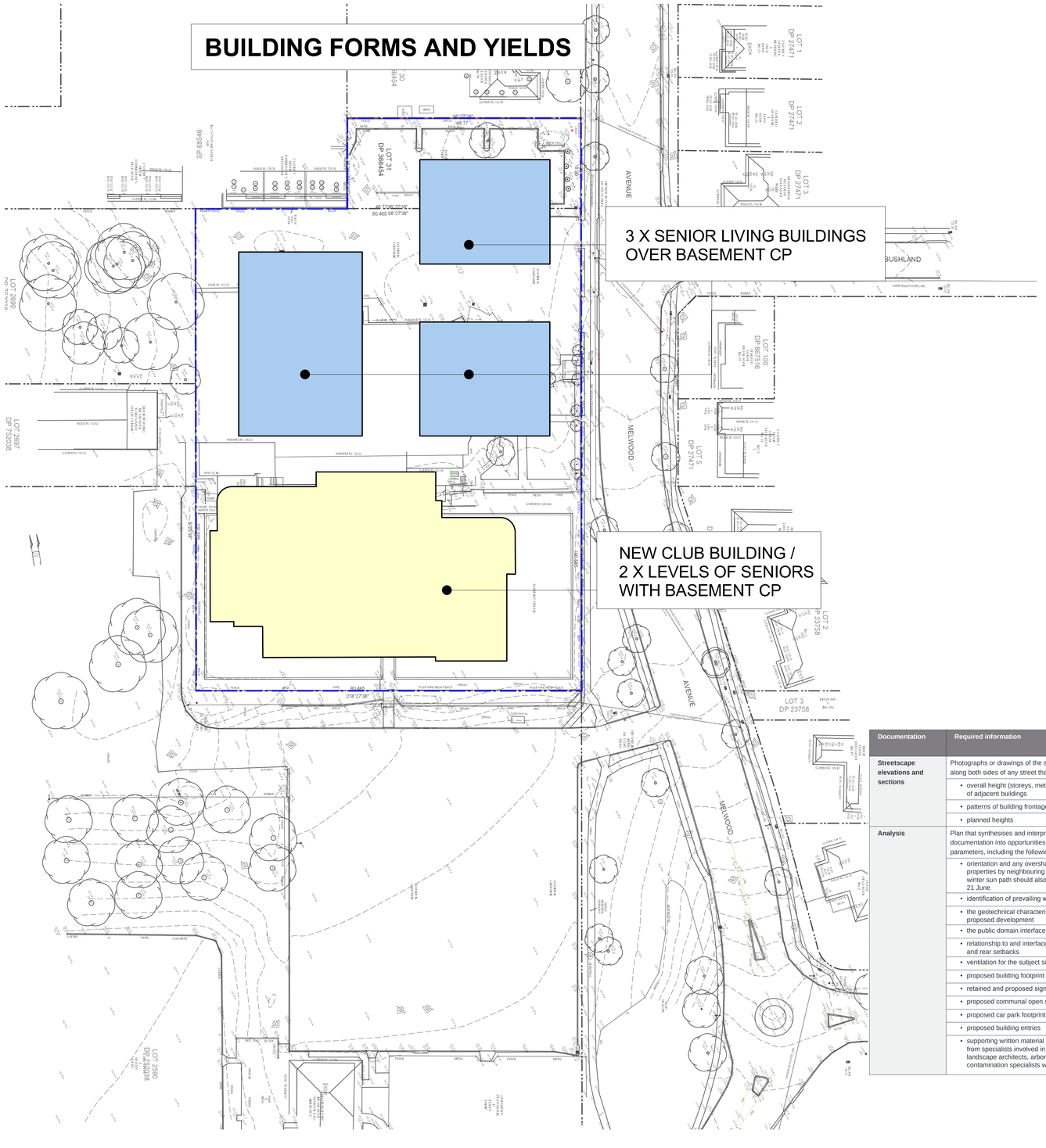
DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_050	G

N

STAGING



BUILDING FORMS AND YIELDS



Documentation	Required information	Provided	
		Yes (✓)	No (x)
Streetscape elevations and sections	Photographs or drawings of the site in relation to the streetscape and along both sides of any street that the development fronts, that show:		
	• overall height (storeys, metres) and important parapet/datum lines of adjacent buildings		
	• patterns of building frontage, street setbacks and side setbacks		
	• planned heights		
Analysis	Plan that synthesises and interprets the context, streetscape and site documentation into opportunities and constraints that generate design parameters, including the following information:		
	• orientation and any overshadowing of the site and adjoining properties by neighbouring structures (excludes vegetation). The winter sun path should also be shown between 9 am and 3 pm on 21 June		
	• identification of prevailing wind		
	• the geotechnical characteristics of the site and suitability of the proposed development		
	• the public domain interface and street setback	✓	
	• relationship to and interface with adjacent properties, including side and rear setbacks	✓	
	• ventilation for the subject site and immediate neighbours	✓	
	• proposed building footprint location	✓	
	• retained and proposed significant trees and deep soil zones		
	• proposed communal open space		
	• proposed car park footprint and depth		
	• proposed building entries		
	• supporting written material - this should include technical advice from specialists involved in the development process including landscape architects, arborists, geotechnical engineers and/or contamination specialists where applicable		

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SITE ANALYSIS

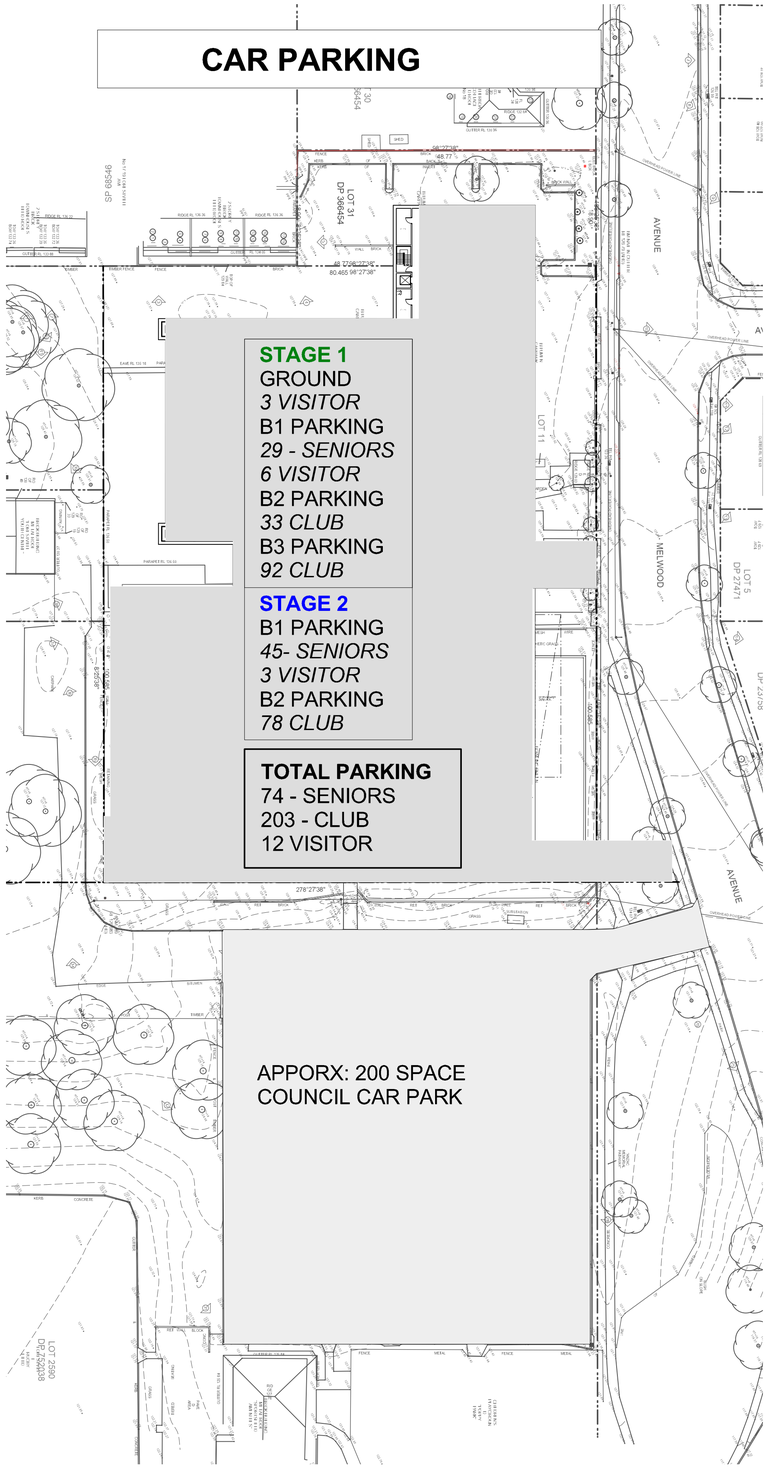
Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

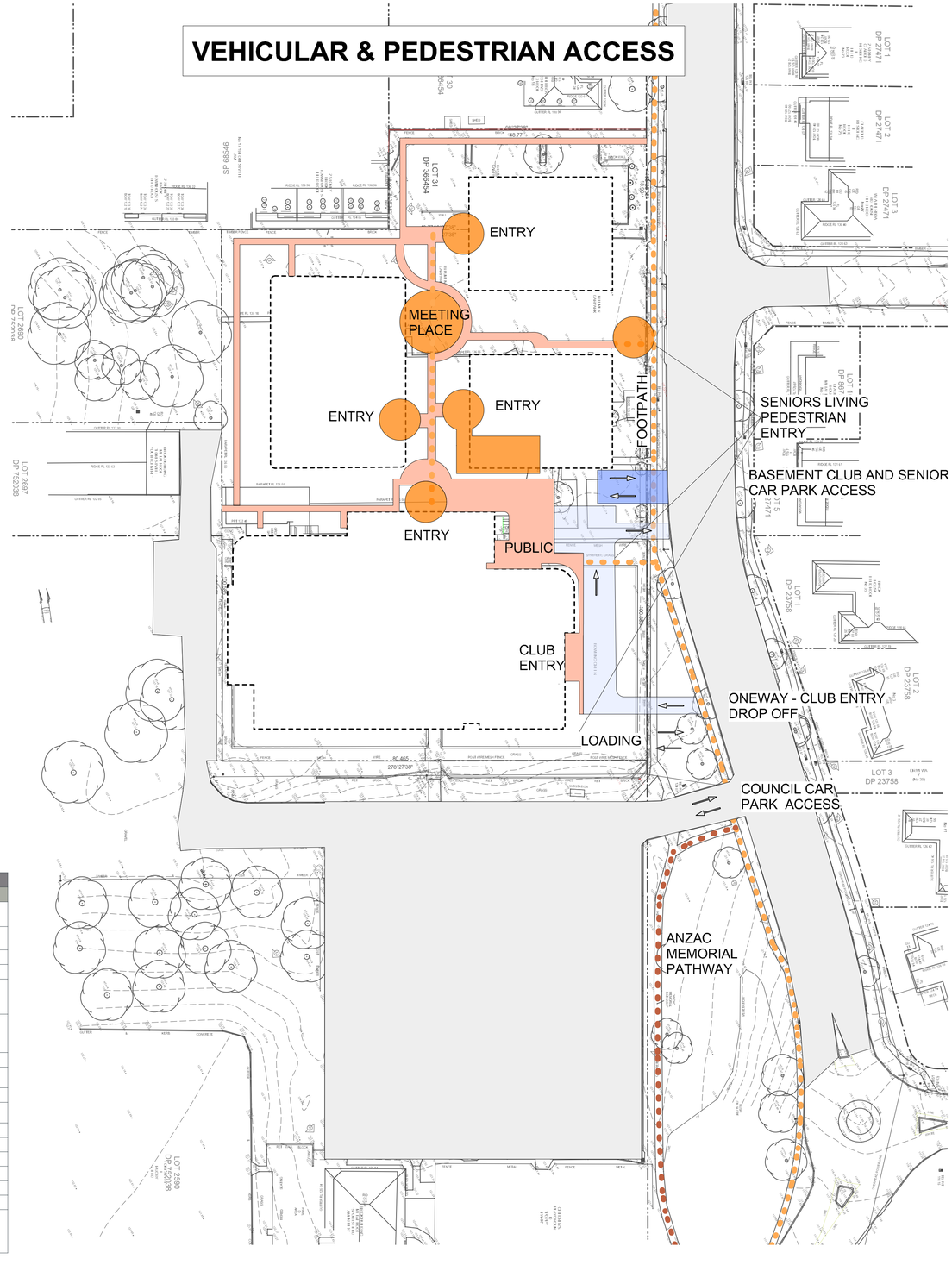
MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_051**	**G**

CAR PARKING



VEHICULAR & PEDESTRIAN ACCESS



Documentation	Required information	Provided	
		Yes (✓)	No (x)
Streetscape elevations and sections	Photographs or drawings of the site in relation to the streetscape and along both sides of any street that the development fronts, that show:		
	• overall height (storeys, metres) and important parapet/datum lines of adjacent buildings		
	• patterns of building frontage, street setbacks and side setbacks		
	• planned heights		
Analysis	Plan that synthesises and interprets the context, streetscape and site documentation into opportunities and constraints that generate design parameters, including the following information:		
	• orientation and any overshadowing of the site and adjoining properties by neighbouring structures (excludes vegetation). The winter sun path should also be shown between 9 am and 3 pm on 21 June		
	• identification of prevailing wind		
	• the geotechnical characteristics of the site and suitability of the proposed development		
	• the public domain interface and street setback		
	• relationship to and interface with adjacent properties, including side and rear setbacks		
	• ventilation for the subject site and immediate neighbours		
	• proposed building footprint location		
	• retained and proposed significant trees and deep soil zones		
	• proposed communal open space		
	• proposed car park footprint and depth	✓	
	• proposed building entries	✓	
	• supporting written material - this should include technical advice from specialists involved in the development process including landscape architects, arborists, geotechnical engineers and/or contamination specialists where applicable		

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SITE ANALYSIS - CAR PARKING

MASTERPLAN SET

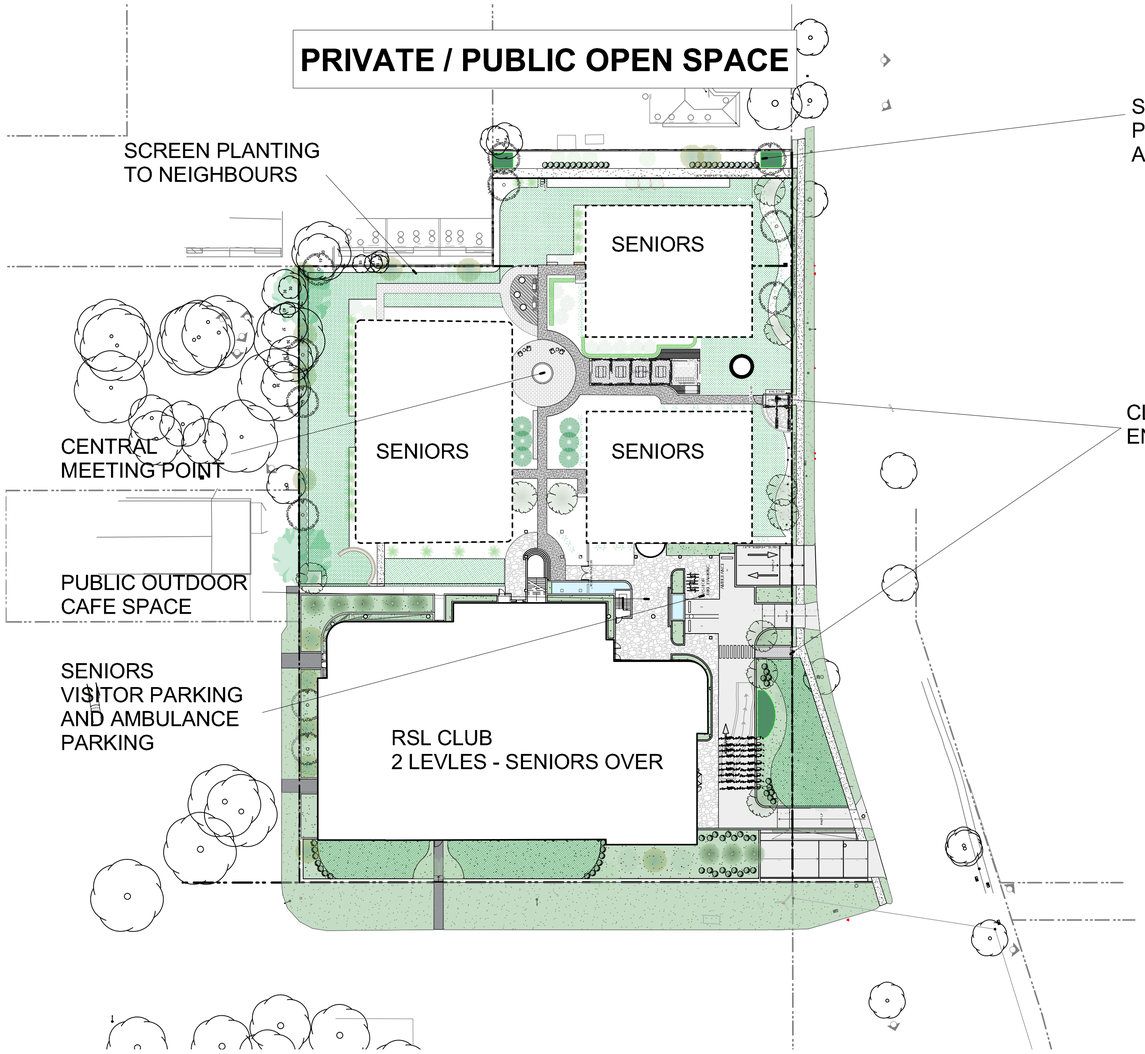
Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

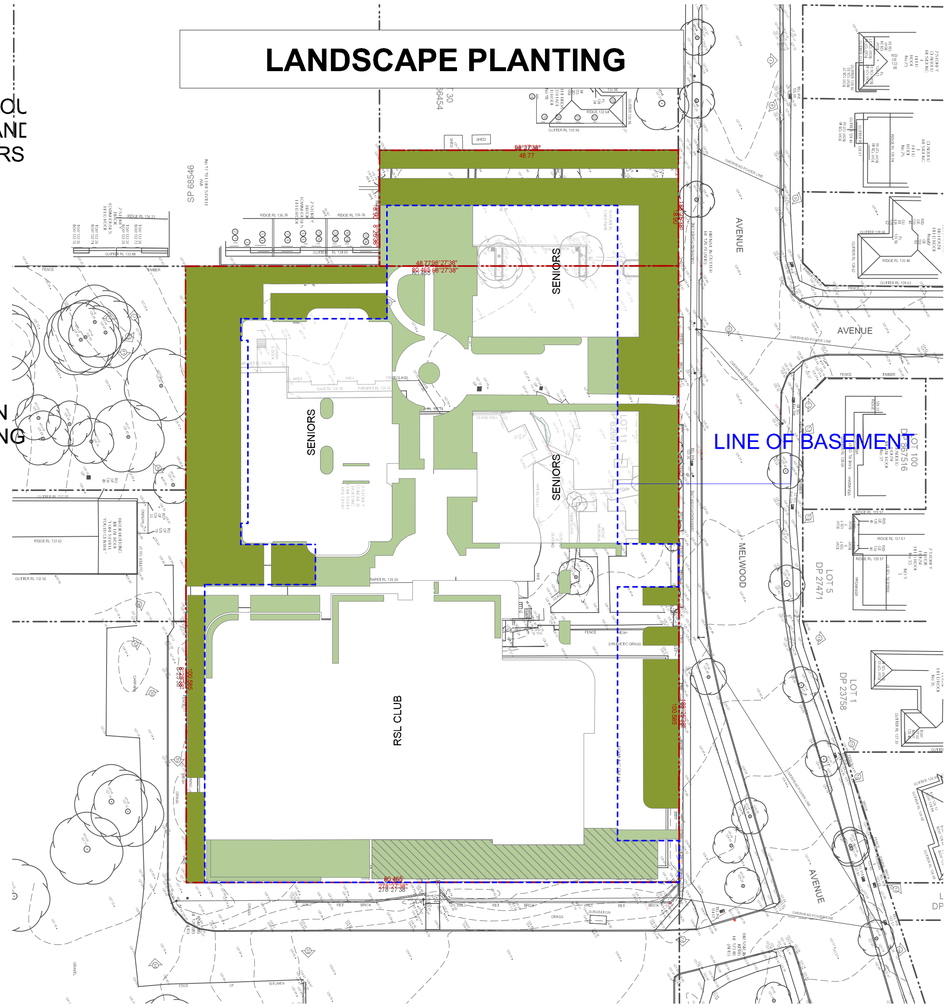
DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_052	G

N

PRIVATE / PUBLIC OPEN SPACE



LANDSCAPE PLANTING



Documentation	Required information	Provided	
		Yes (✓)	No (x)
Analysis	Plan that synthesises and interprets the context, streetscape and site documentation into opportunities and constraints that generate design parameters, including the following information:		
	• orientation and any overshadowing of the site and adjoining properties by neighbouring structures (excludes vegetation). The winter sun path should also be shown between 9 am and 3 pm on 21 June		
	• identification of prevailing wind		
	• the geotechnical characteristics of the site and suitability of the proposed development		
	• the public domain interface and street setback		
	• relationship to and interface with adjacent properties, including side and rear setbacks		
	• ventilation for the subject site and immediate neighbours		
	• proposed building footprint location		
	• retained and proposed significant trees and deep soil zones	✓	
	• proposed communal open space	✓	
	• proposed car park footprint and depth		
	• proposed building entries		
	• supporting written material - this should include technical advice from specialists involved in the development process including landscape architects, arborists, geotechnical engineers and/or contamination specialists where applicable		

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

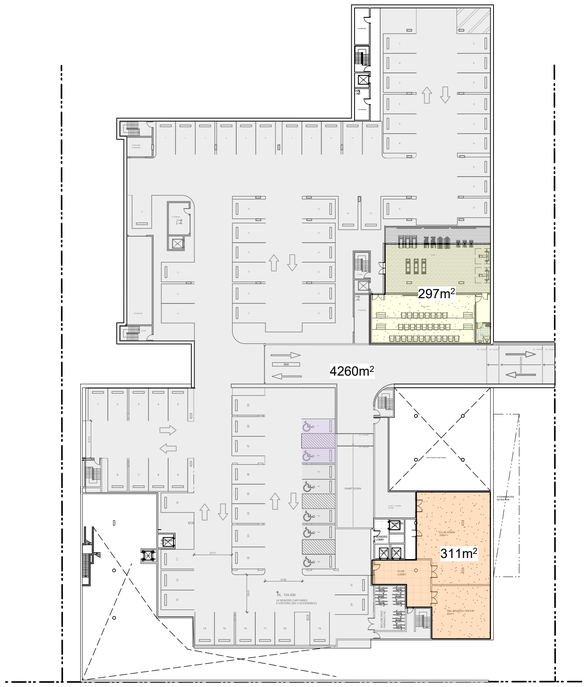
DRAWING
SITE ANALYSIS - OPEN SPACE

Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

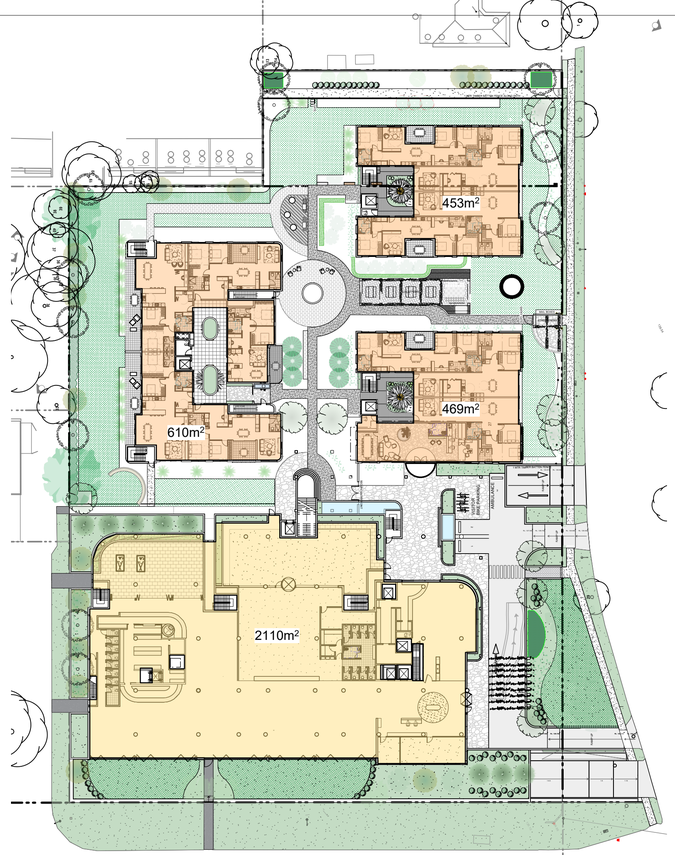
Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_053	G

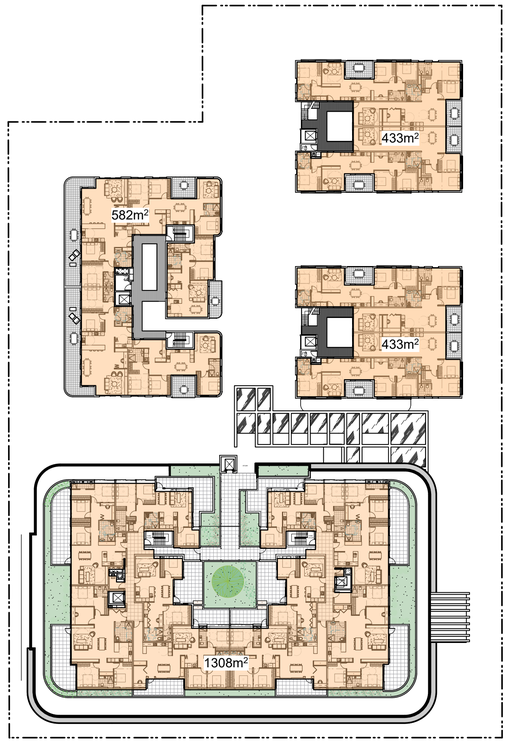


02 AREA CALCULATIONS - BASEMENT 1
scale 1:500

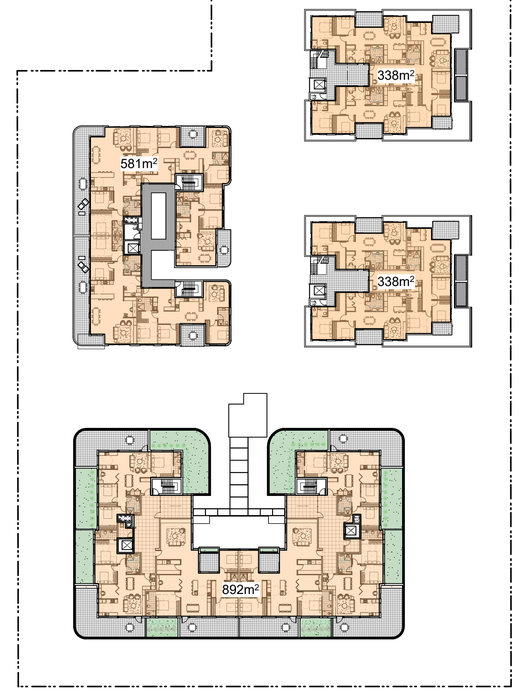


2084 m²

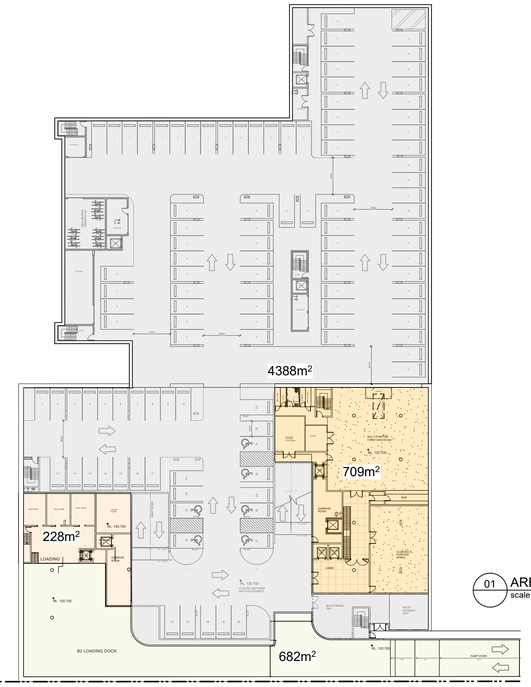
03 AREA CALCULATIONS - GROUND FLOOR
scale 1:500



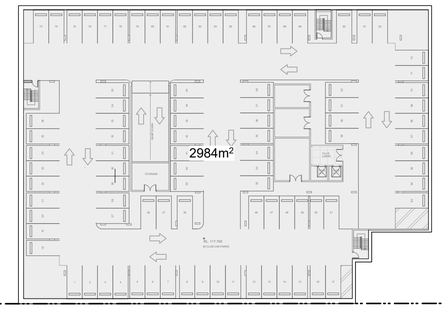
04 AREA CALCULATIONS - LEVEL 1
scale 1:500



05 AREA CALCULATIONS - LEVEL 2
scale 1:500



01 AREA CALCULATIONS - BASEMENT 2
scale 1:500



06 AREA CALCULATIONS - BASEMENT 3
scale 1:500

Forestville RSL - Building AREAS	GFA	
	m2	FSR
SITE AREA	9014	
SENIOR TOTAL GFA	6669	0.753:1
CLUB AREA GFA	3358	0.31:1
TOTAL	10027	1:07
Club Building		
	GFA	
B 2	937	
B1	311	
G	2110	
	3358	
Retirement Living - Club	GFA	
1	1308	
2	892	
	2200	
Retirement Living - Building 1 - GFA	GFA	
B1	232	
G	453	
1	433	
2	338	
	1456	
Retirement Living - Building 2	GFA	
G	469	
1	433	
2	338	
	1240	
Retirement Living - Building 3	GFA	
G	610	
1	582	
2	581	
	1773	

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SITE ANALYSIS - AREA CALCS

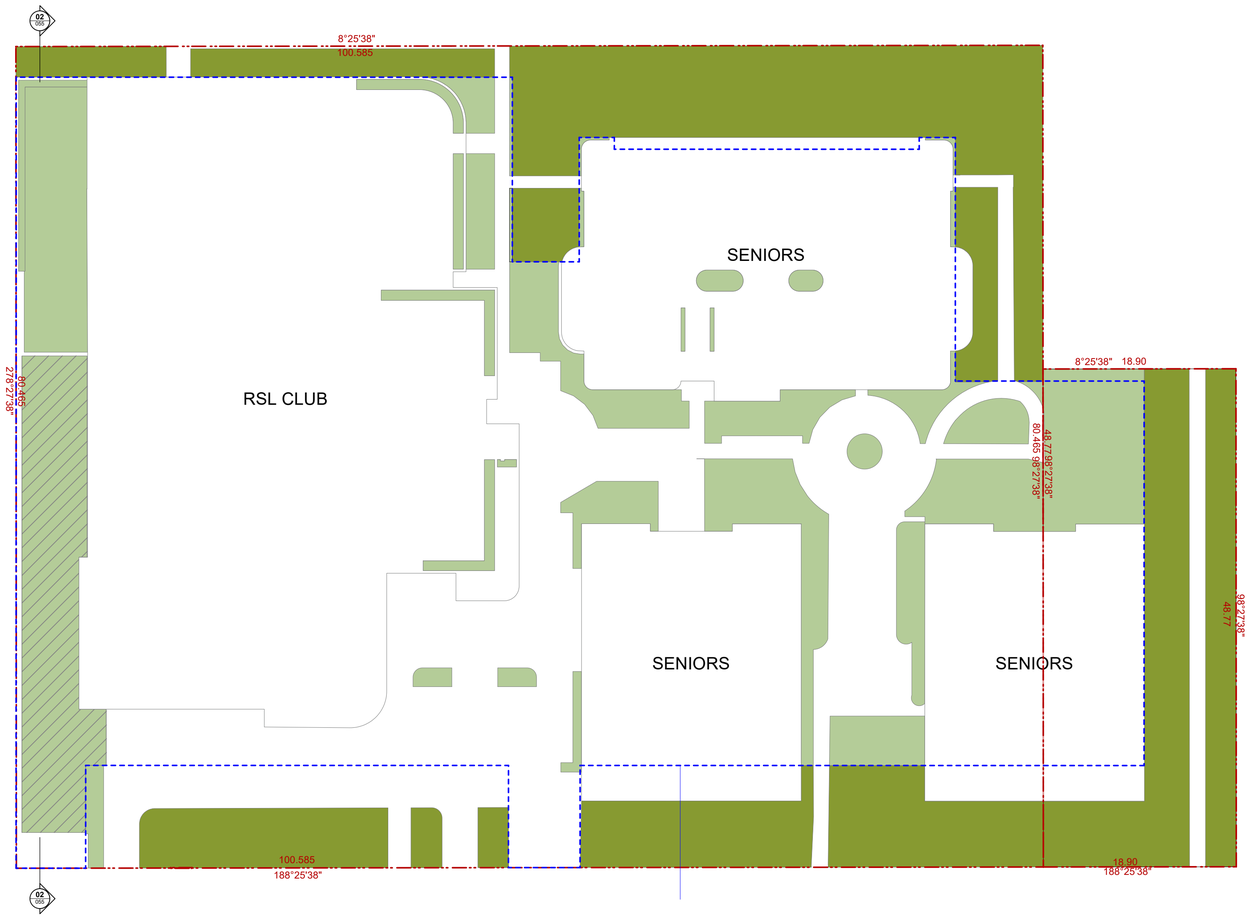
MASTERPLAN SET

Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_054	G

N



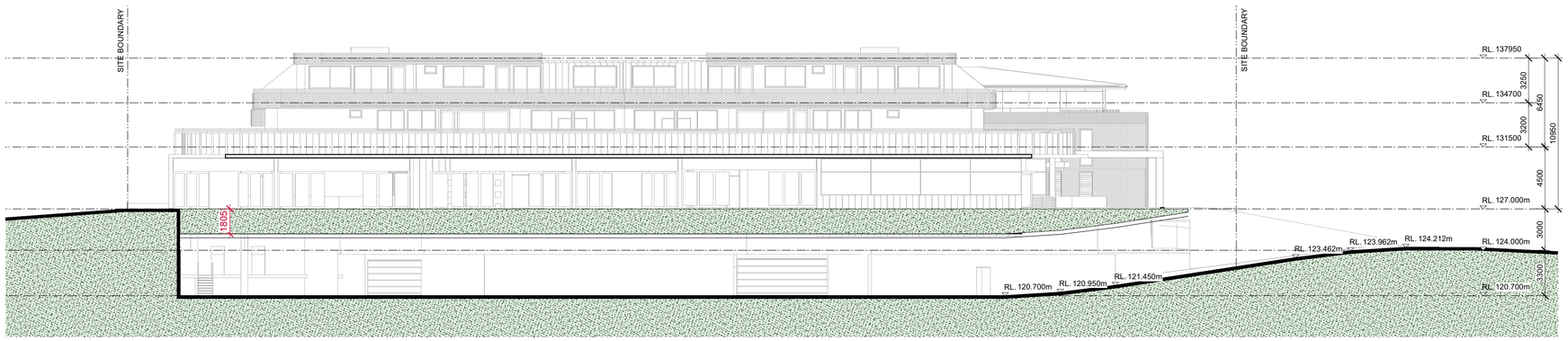
01 SITE PLAN - LANDSCAPING
scale 1:300

SITE AREA
9014sqm

DEEP SOIL
(3m) 1740sqm

PLANTING
1617sqm

TOTAL
3357sqm



02 CLUB SECTION - LANDSCAPING
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

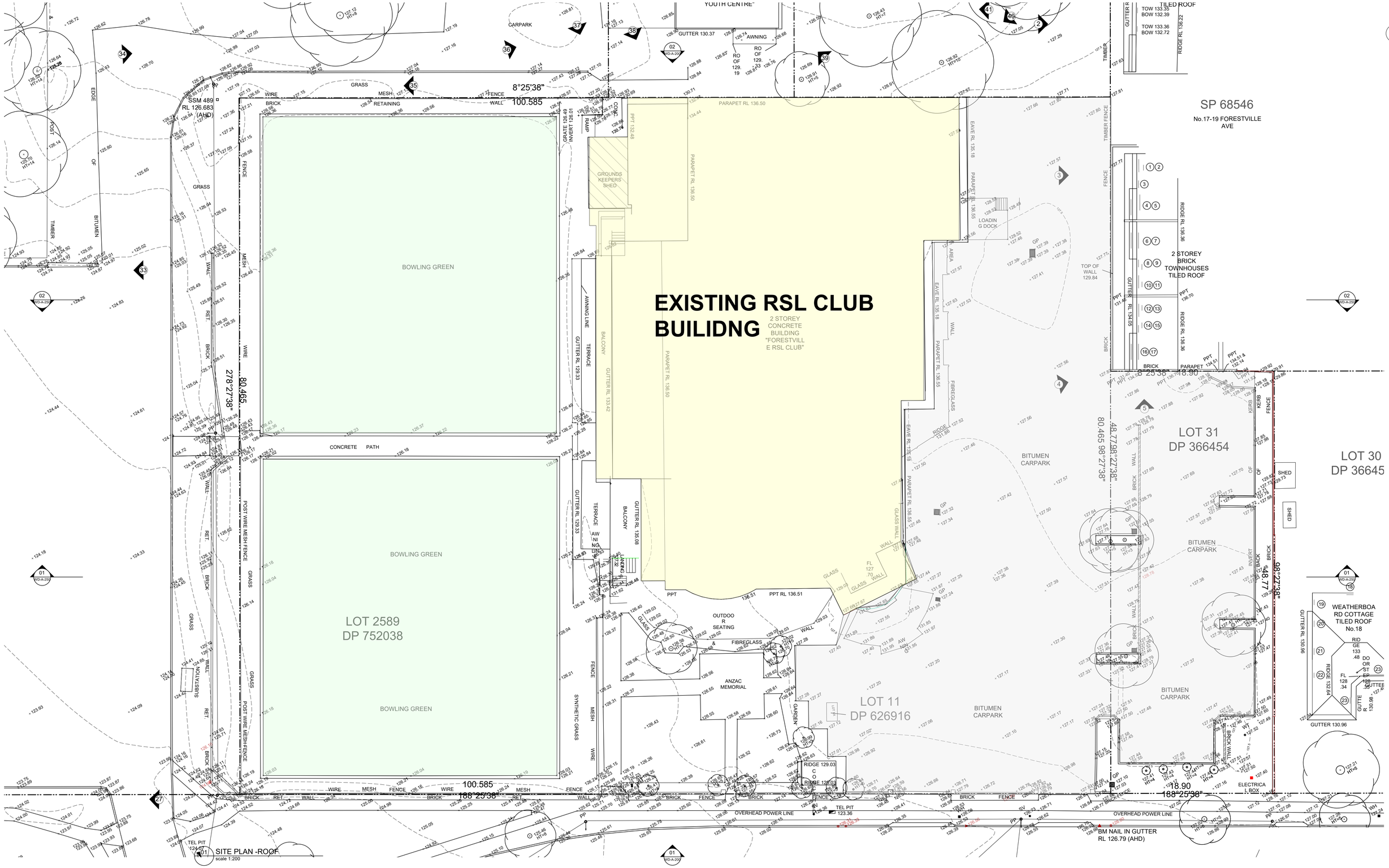
DRAWING
SITE ANALYSIS - LANDSCAPING

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_055	G



DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

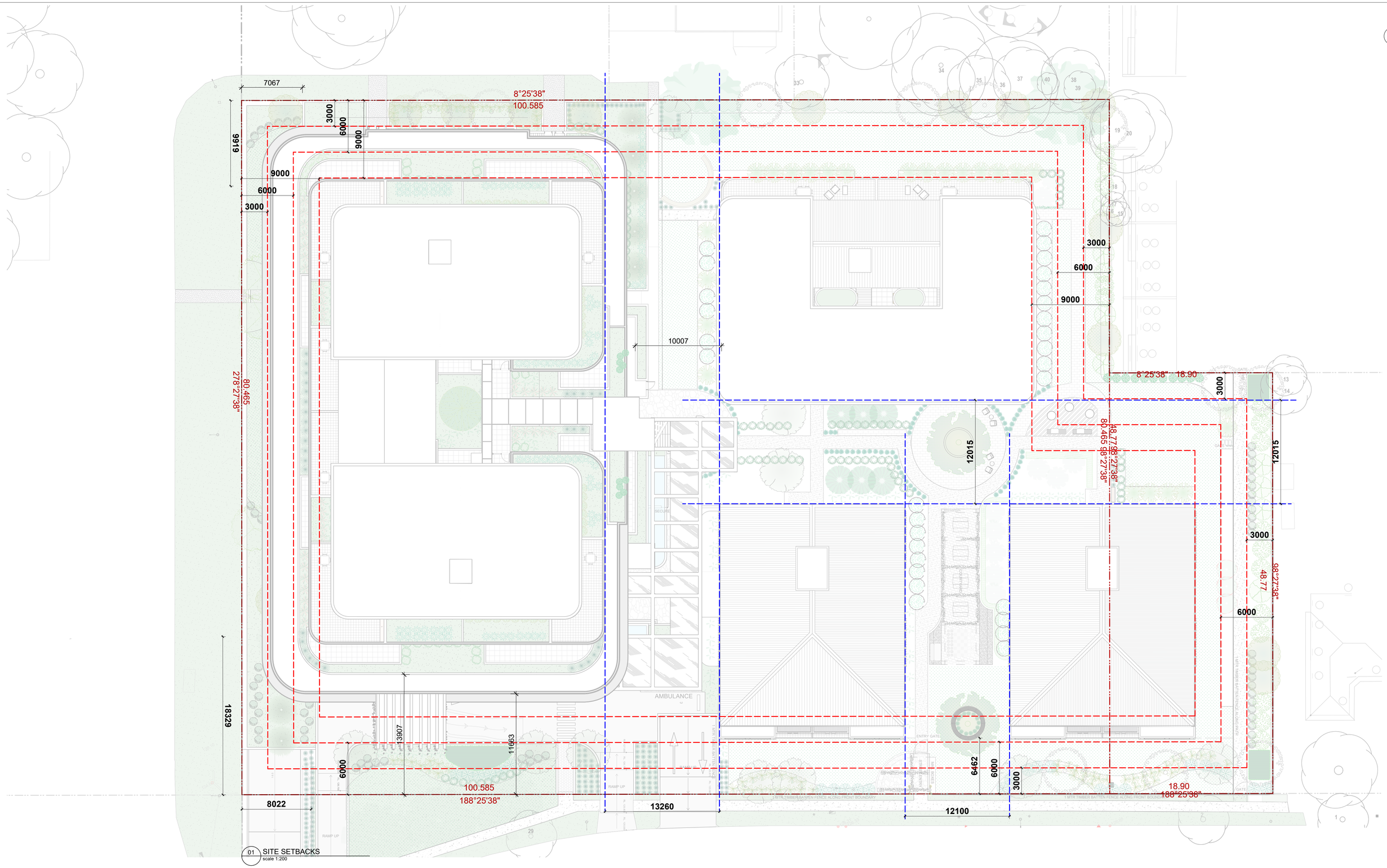
DRAWING
SITE PLAN - EXISTING

MASTERPLAN SET

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_056	G



DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

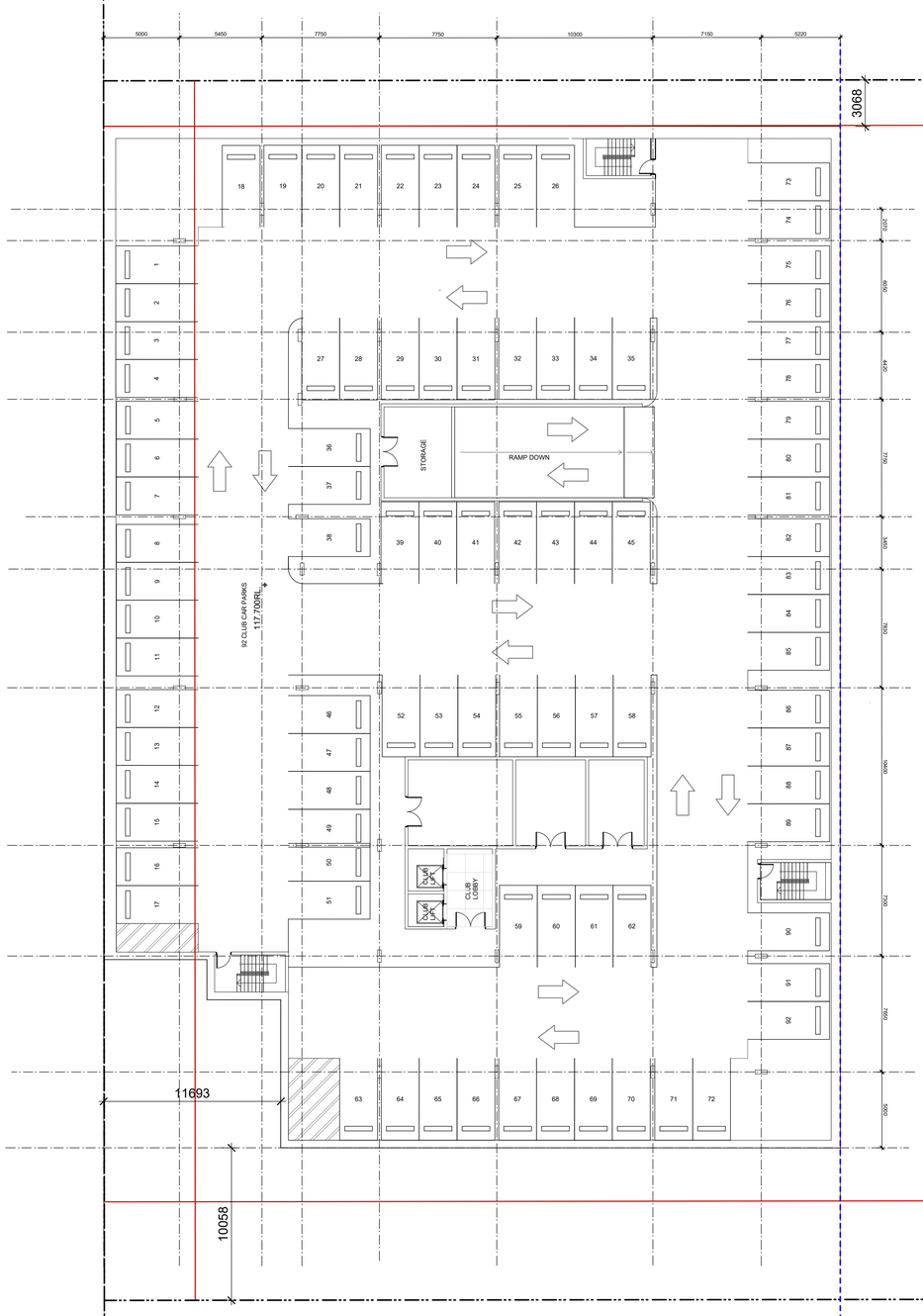
DRAWING
SITE PLAN - SETBACKS

MASTERPLAN SET

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_057	G



01 SITE PLAN - BASEMENT 3
scale 1:200

N

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

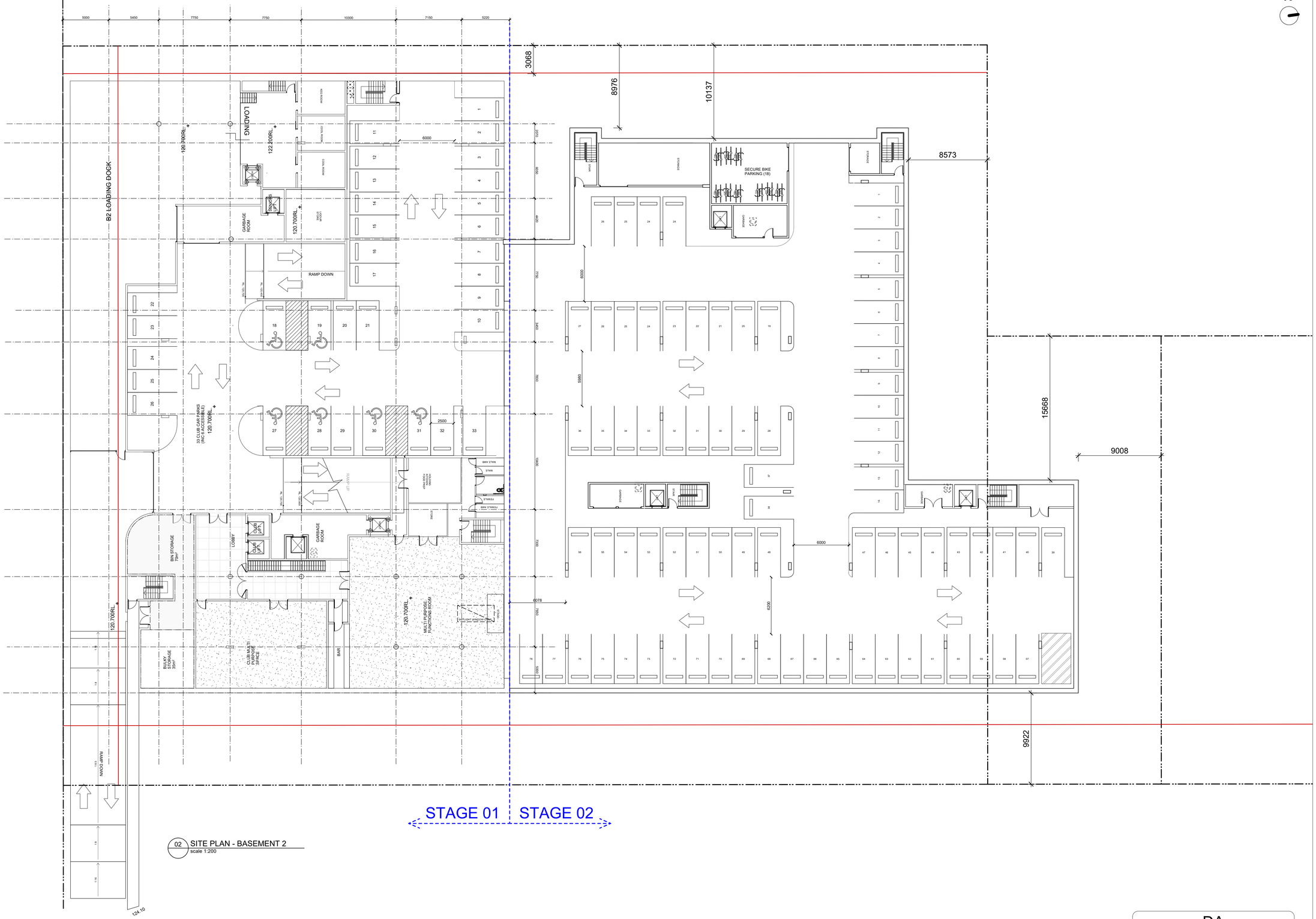
DRAWING
SITE PLAN - BASEMENT 3

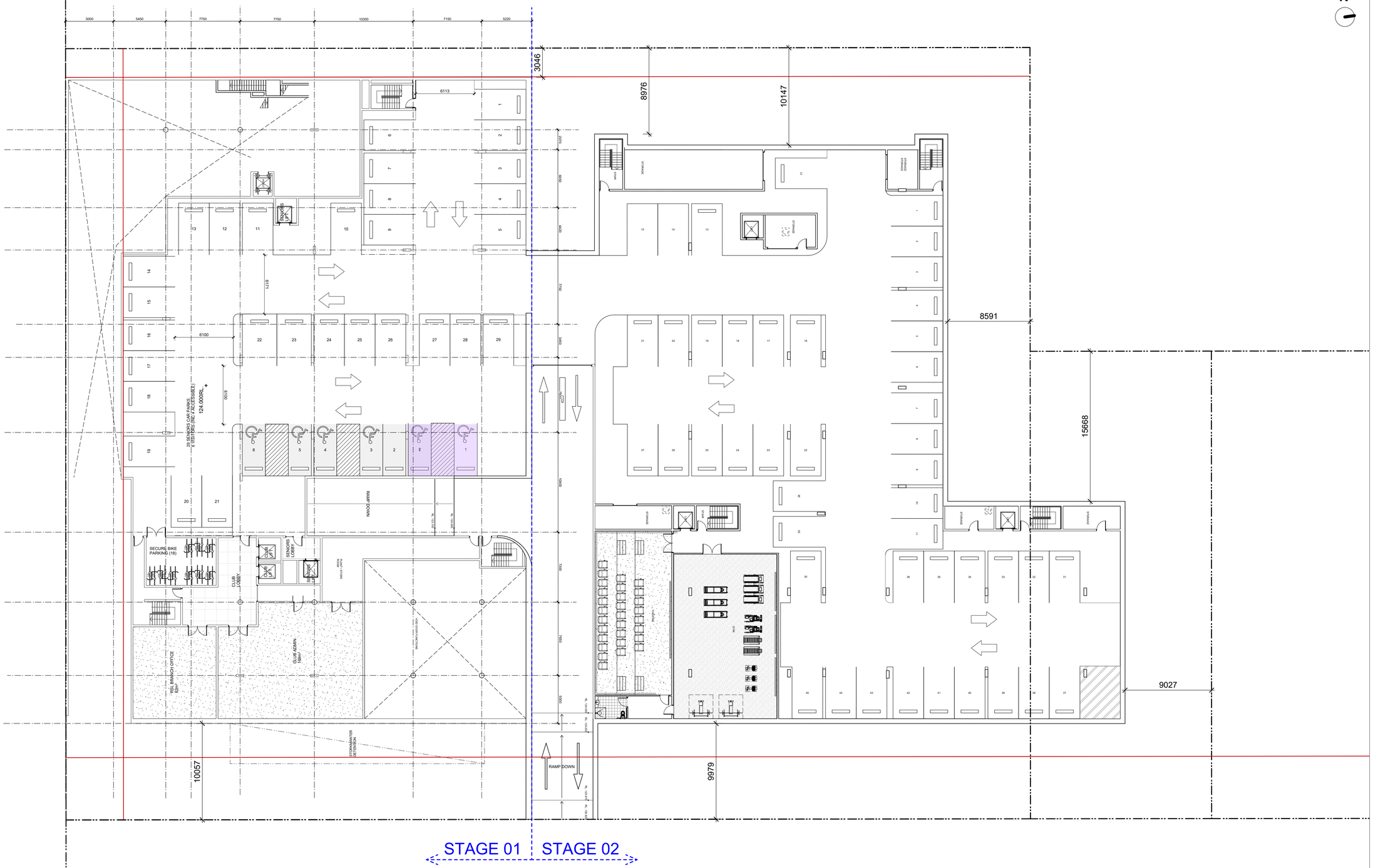
MASTERPLAN SET

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_97	G


N
5000
5450
7750
7750
10300
7150
5220
3068
8976
10137
8573
15668
9008
9922
6000
6000
6000
6078
6200
5980
2500
3075
6500
4400
3400
7700
7900
5900
7900
7900
5900
LOADING
120.700RL
122.200RL
120.700RL
120.700RL
120.700RL
120.700RL
B2 LOADING DOCK
RAMP DOWN
RAMP DOWN
RAMP DOWN
GARBAGE ROOM
GARBAGE ROOM
GARBAGE ROOM
COOK ROOM
COOK ROOM
COOK ROOM
KEG ROOM
SERVERY
SERVERY
SERVERY



02 SITE PLAN - BASEMENT 1
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

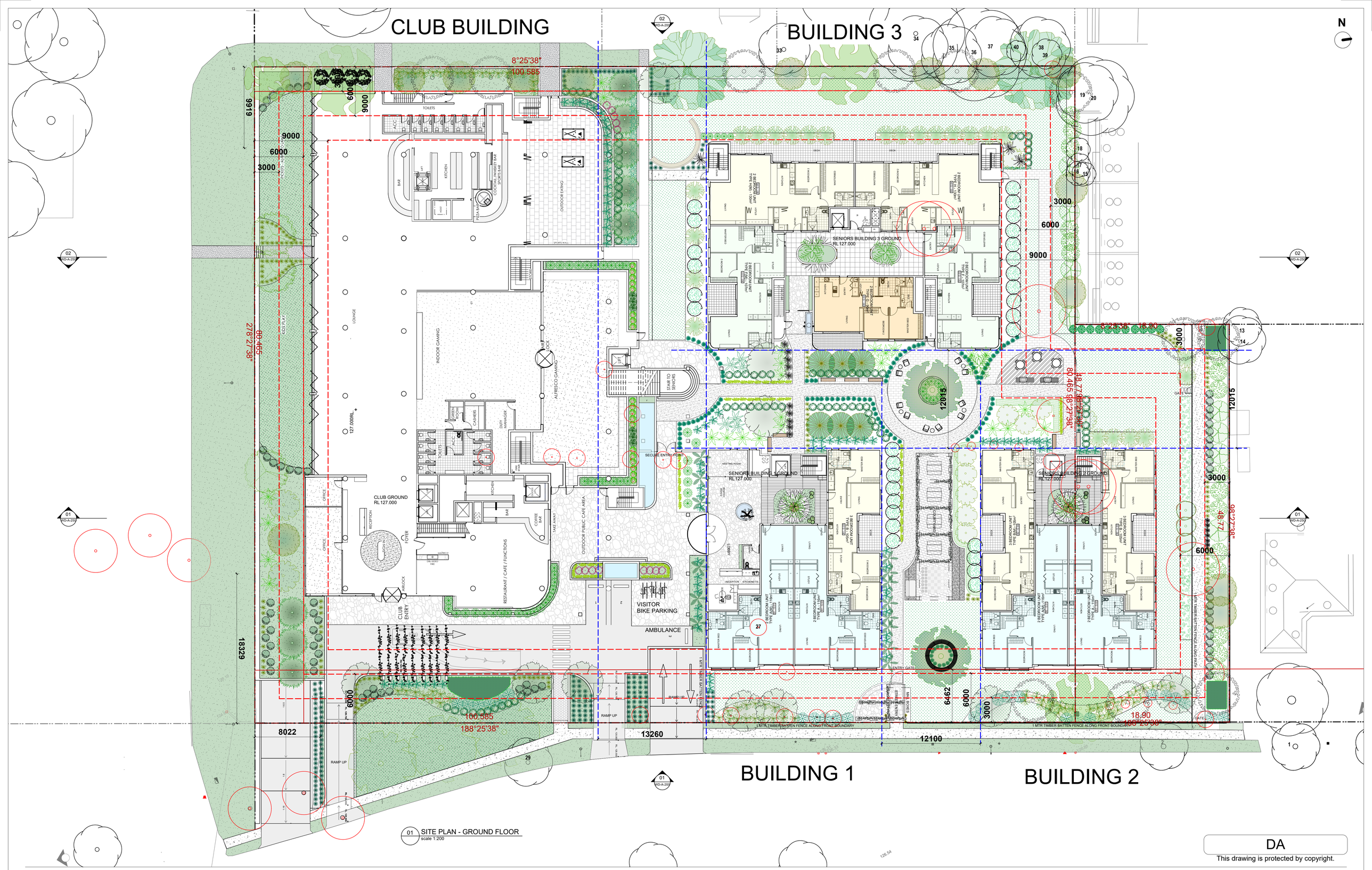
DRAWING
SITE PLAN - BASEMENT 1

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_099**	**G**



01 SITE PLAN - GROUND FLOOR
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SITE PLAN - GROUND

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_100	G

N

02 WD-A-200

CLUB BUILDING

BUILDING 3

BUILDING 1

BUILDING 2

8°25'38"
100.585

3000
6000
9000
9916

9000
6000
3000

80.465
278°27'38"

13500

11724

3000
6000
9000

8°25'38"
18.90

3000

12015

80.465 98°27'38"

15179

12015

CLUB RESI - LEVEL 1
RL131.500

SENIORS BUILDING 3 LEVEL 1
RL 130.100

SENIORS BUILDING 1 LEVEL 1
RL 130.100

SENIORS BUILDING 2 LEVEL 1
RL 130.100

8053
9709

3000
48.77
98°27'38"
6000
9000

18329

18288

6000

6462
6000
3000

100.585
188°25'38"

18.90
188°25'38"

8022

13260

12100

01 SITE PLAN - LEVEL 1
scale 1:200

01 WD-A-200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SITE PLAN - LEVEL 1

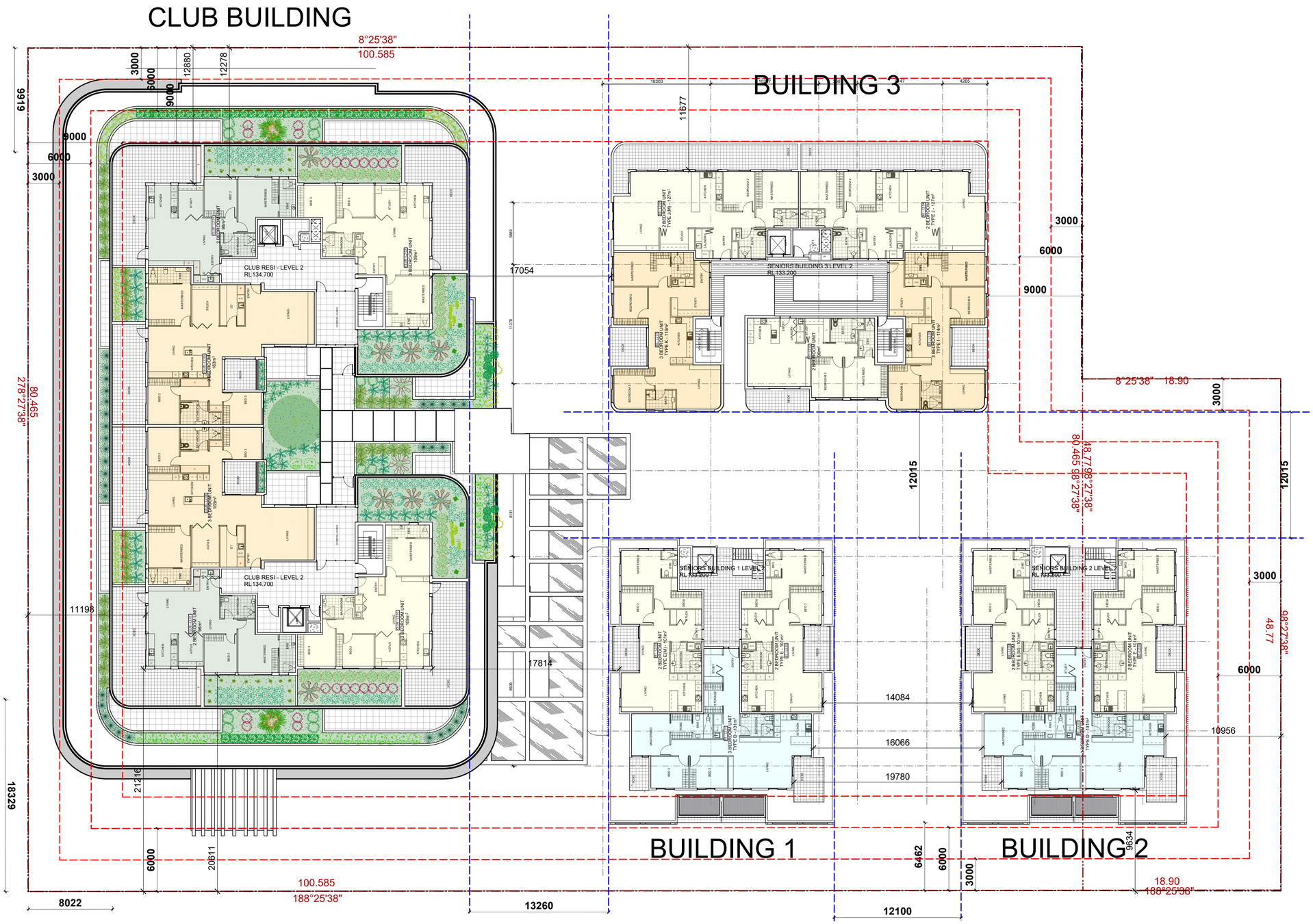
Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_101	G

N



01 SITE PLAN - LEVEL 2
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SITE PLAN - LEVEL 2

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_102	G

N

CLUB BUILDING

BUILDING 3

BUILDING 1

BUILDING 2

8°25'38"
100.585

3000
6000
9000
9919

9000
6000
3000

PARAPET
RL. 138.300

LEVEL 2 BALLUSTRADE
RL. 135.700

LIFT OVERRUN
RL. 138.700

CLUB ROOF
RL. 137.950

RIDGE
RL. 138.134

4° SLOPE

4° SLOPE

PARAPET
RL. 138.300

CLUB ROOF
RL. 137.950

LIFT OVERRUN
RL. 138.700

LEVEL 2 TERRACE
RL. 134.700

80.465
278°27'38"

18329

6000

8022

100.585
188°25'38"

13260

PARAPET
RL.136.900

PARAPET
RL.136.900

ROOF
RL136.600

ROOF
RL136.600

3000
6000
9000

8°25'38" 18.90

3000

12015

80.465 98°27'38"

48.77 98°27'38"

12015

3000

48.77
98°27'38"

6000

RIDGE
RL. 137.320

RIDGE
RL. 137.320

6462
6000
3000

100.585
188°25'38"

18.90
188°25'38"

8022

13260

12100

01 SITE PLAN -ROOF
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

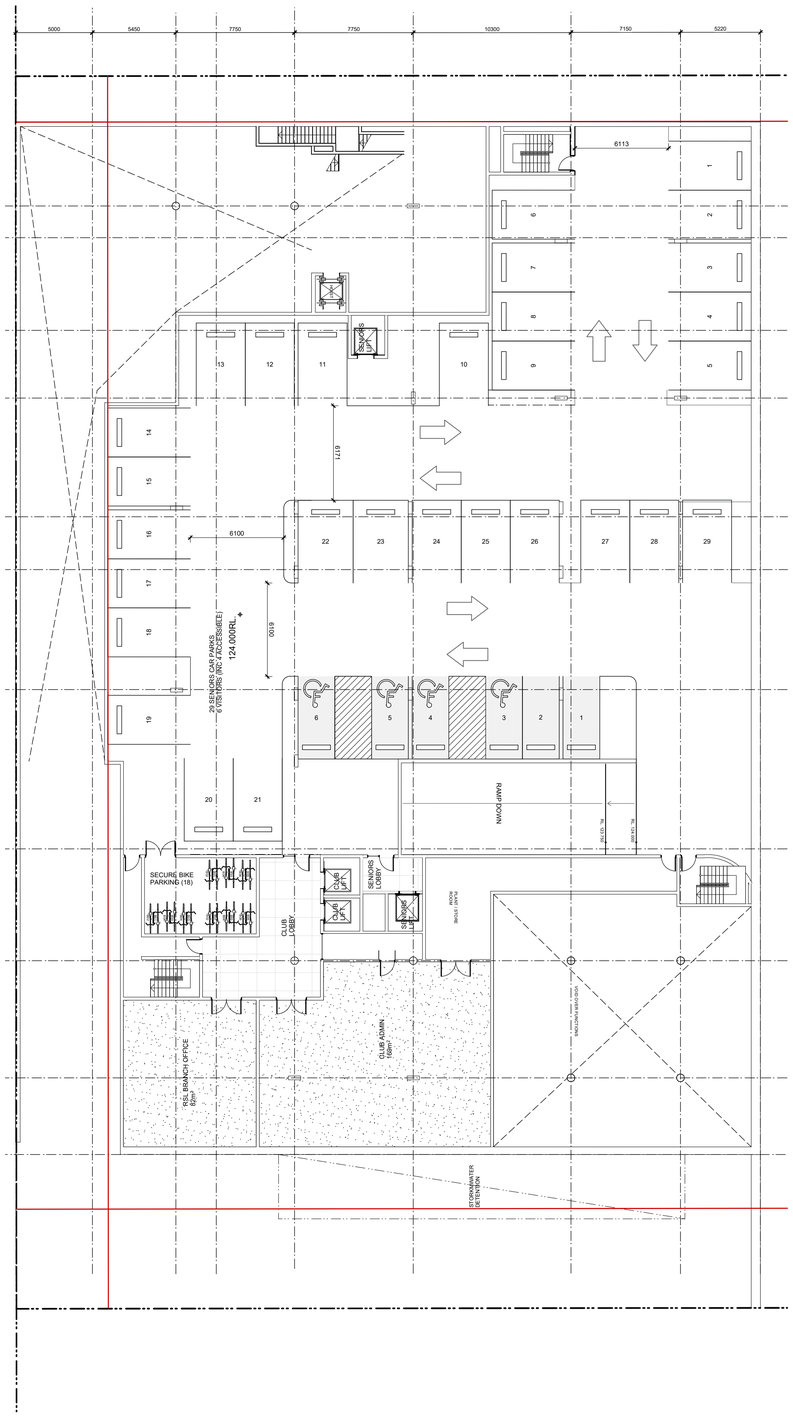
DRAWING
SITE PLAN - ROOF

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

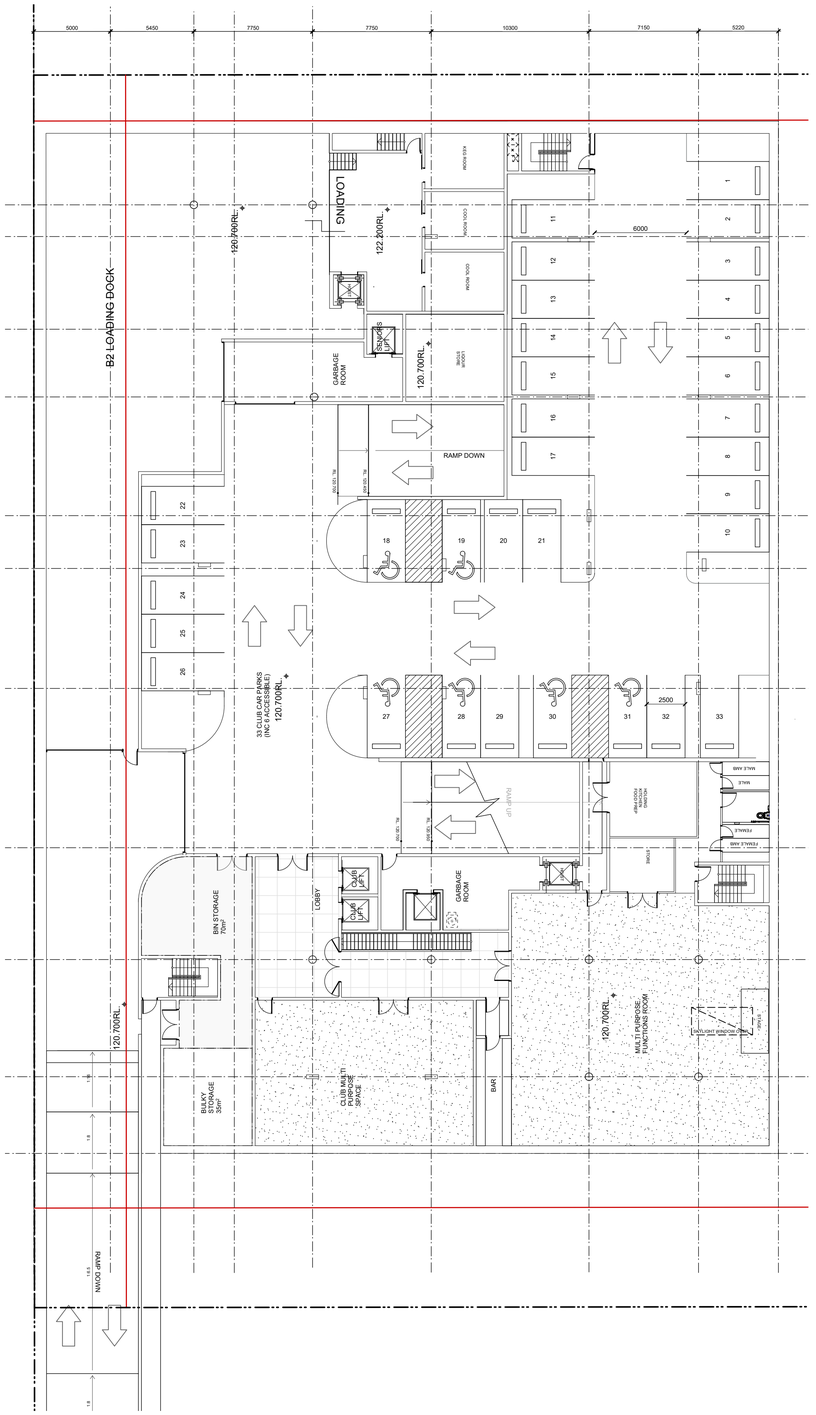
Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

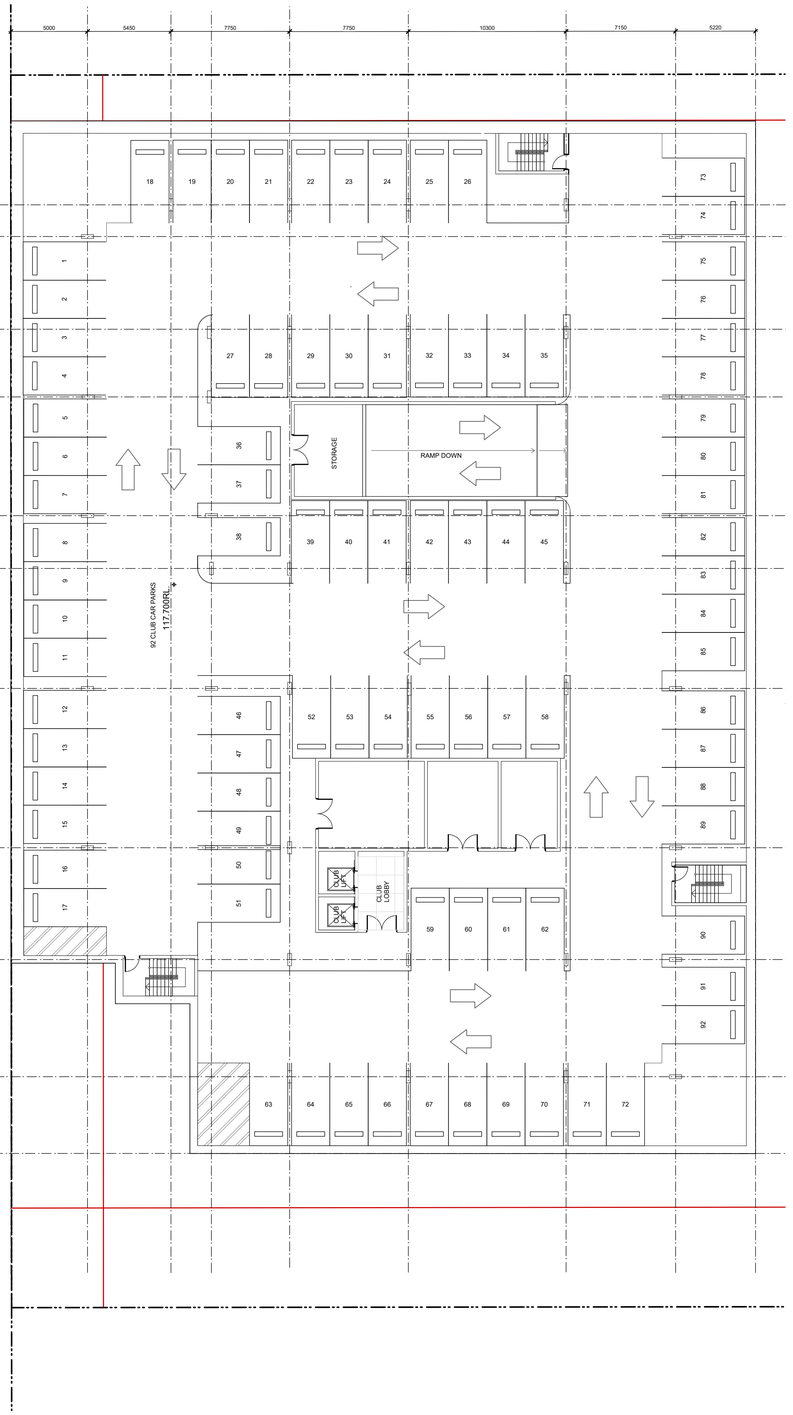
DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_103	G



01 STAGE 1 - BASEMENT 1 - SENIORS PARKING
scale 1:200



02 STAGE 1 - BASEMENT 2 - CLUB PARKING
scale 1:200



02 STAGE 1 - BASEMENT 3 - CLUB PARKING
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
STAGE 1 CAR PARKING

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

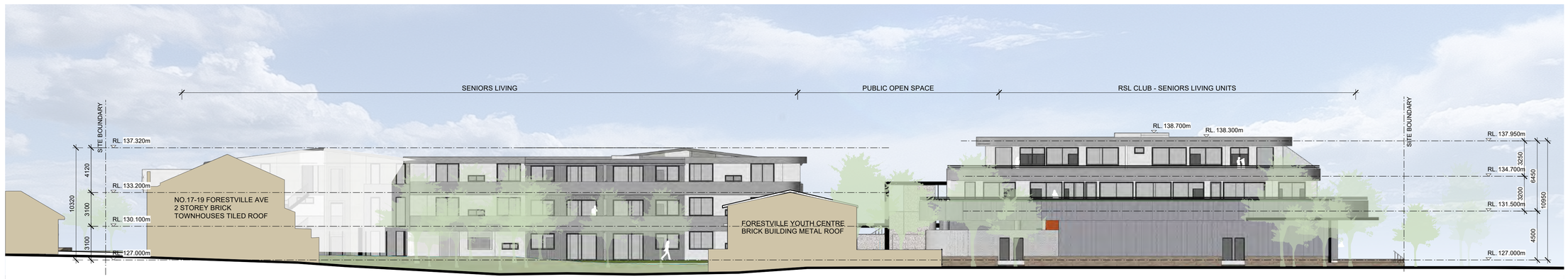
Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_104**	**G**

N

01 EASTERN BUILDING ELEVATION - MELWOOD AVENUE
scale 1:200



03 WESTERN BUILDING ELEVATION - BACK
scale 1:200

05 PRE-DA CHECKLIST
scale 1:-

Documentation	Required information	Provided	
		Yes (✓)	No (x)
Streetscape elevations and sections	Photographs or drawings of the site in relation to the streetscape and along both sides of any street that the development fronts, that show:		
	• overall height (storeys, metres) and important parapet/datum lines of adjacent buildings	✓	
	• patterns of building frontage, street setbacks and side setbacks	✓	
	• planned heights	✓	

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
ELEVATIONS

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_200	G

N

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

ACN 150 198 842 **W:** www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
3D MONTAGE

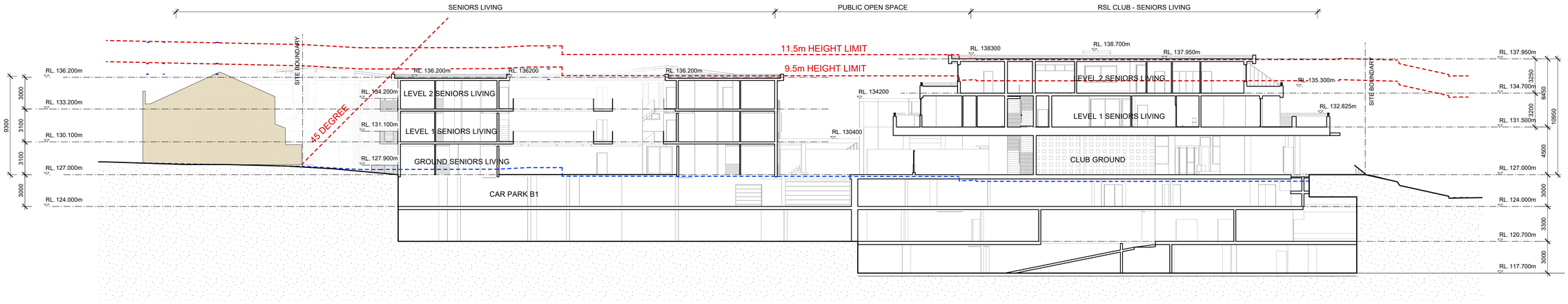
Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

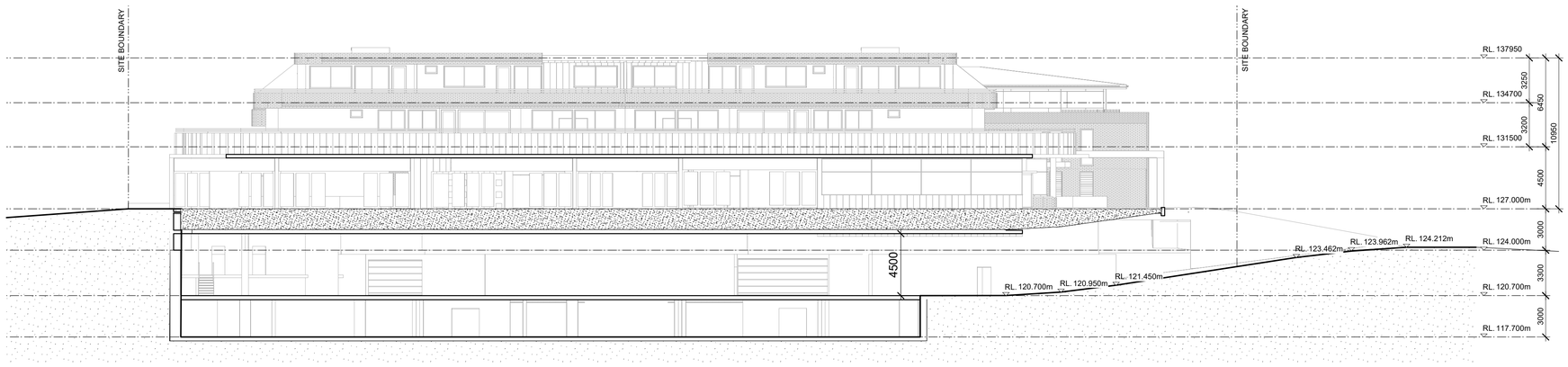
MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_201	G

N



01 SITE SECTION
scale 1:200



02 SITE SECTION
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SECTIONS

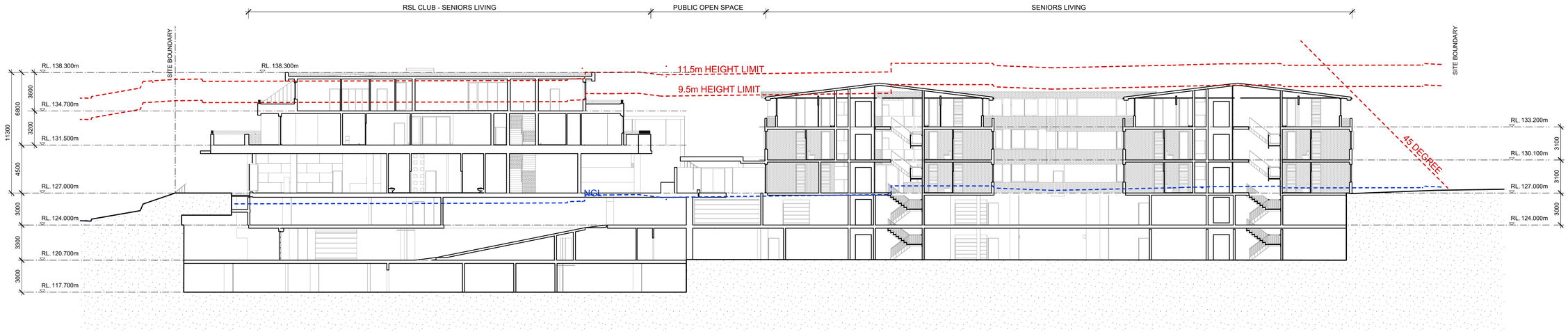
Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

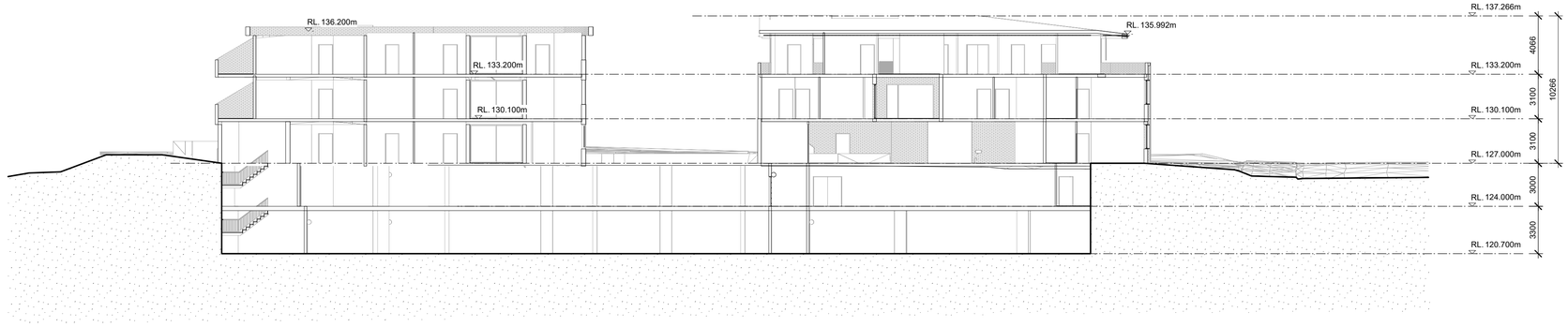
MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_250	G

N



01 SITE SECTION
scale 1:200



02 SITE SECTION
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

ACN 150 198 842 **W:** www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SECTIONS

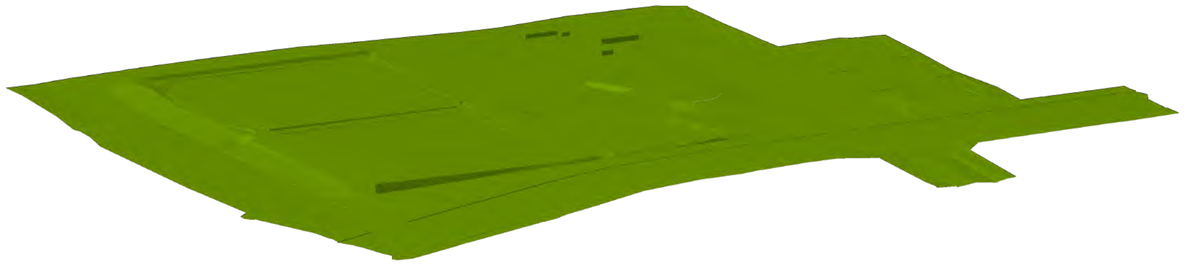
Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

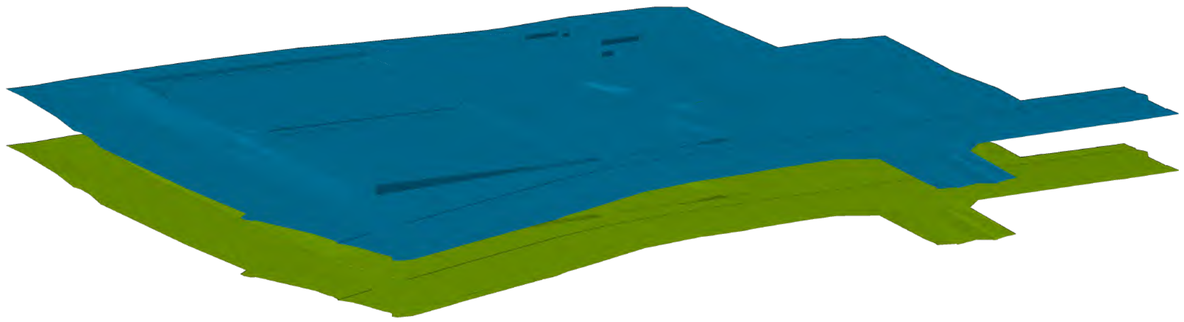
DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_251**	**G**

N

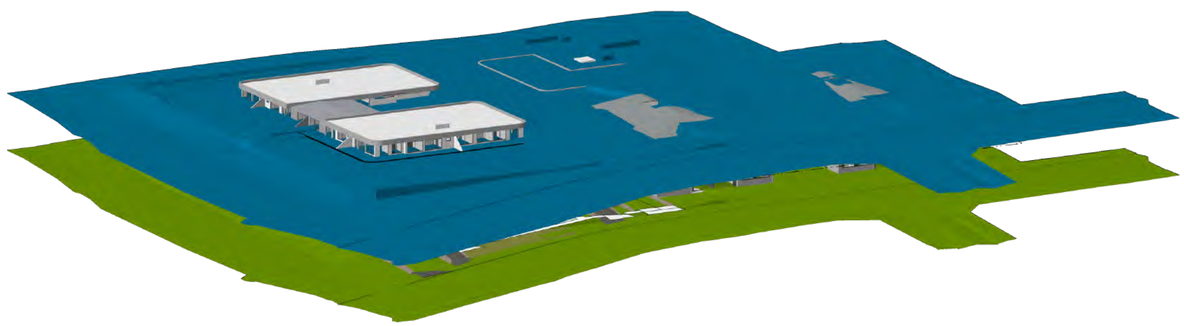


3D SITE SURVEY -REFERENCE LTS SURVEY: 52165002DT (GREEN)

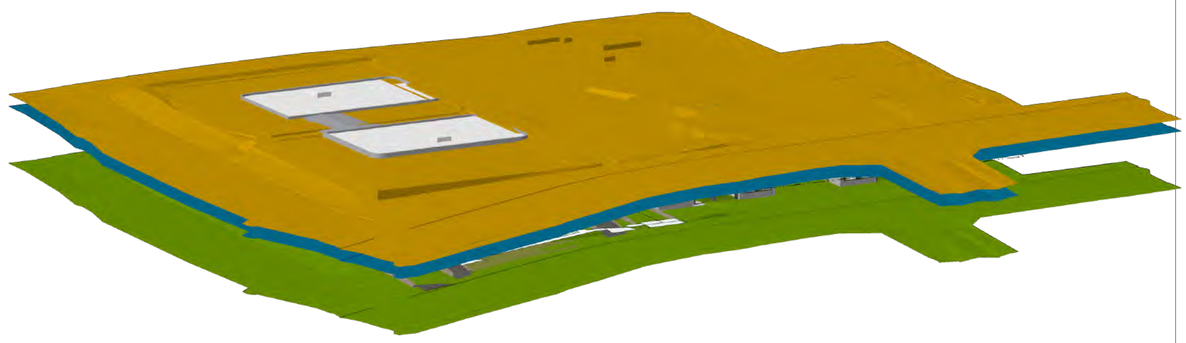
PROJECT OVERLAY - 3D SITE SURVEY -REFERENCE LTS SURVEY: 52165002DT



SENIORS HEIGHT LIMIT (9.5) - 3D SITE SURVEY -REFERENCE LTS SURVEY: 52165002DT



PROJECT OVERLAY WITH 9.5MTR HEIGHT PLANE



PROJECT OVERLAY WITH 11.5MTR HEIGHT PLANE

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

ACN 150 198 842 **W:** www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
HEIGHT ENVELOPE STUDY

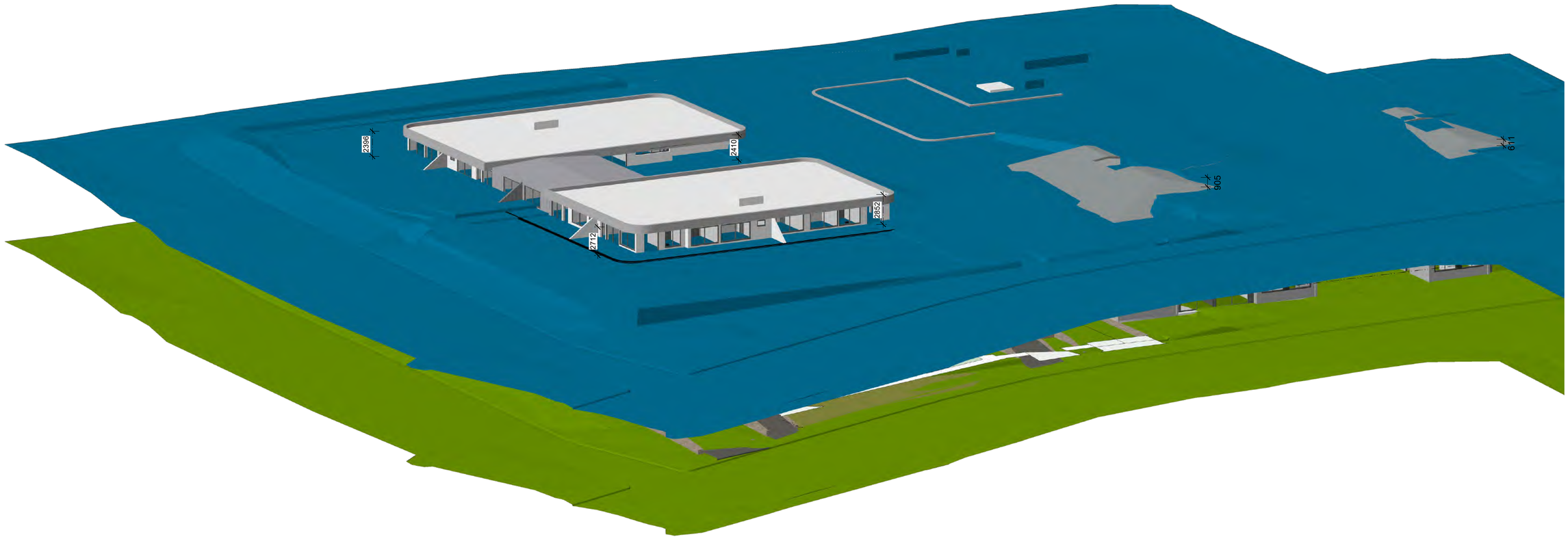
Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_300**	**G**

N



PROJECT OVERLAY WITH 9.5MTR HEIGHT PLANE

01 9.5 mtr HEIGHT LIMIT
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
HEIGHT ENVELOPE STUDY 9.5m

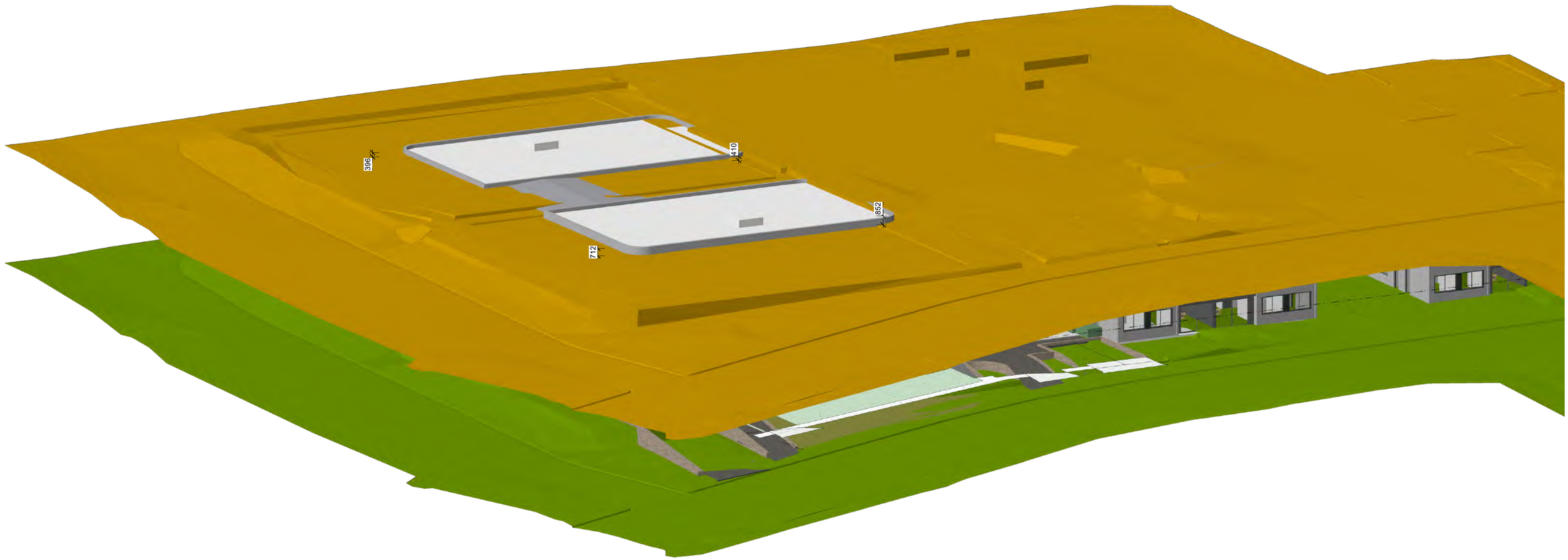
MASTERPLAN SET

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_301	G

N



PROJECT OVERLAY WITH 11.5MTR HEIGHT PLANE

01 11.5 mtr HEIGHT LIMIT
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

ACN 150 198 842 **W:** www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
HEIGHT ENVELOPE STUDY 11.5m

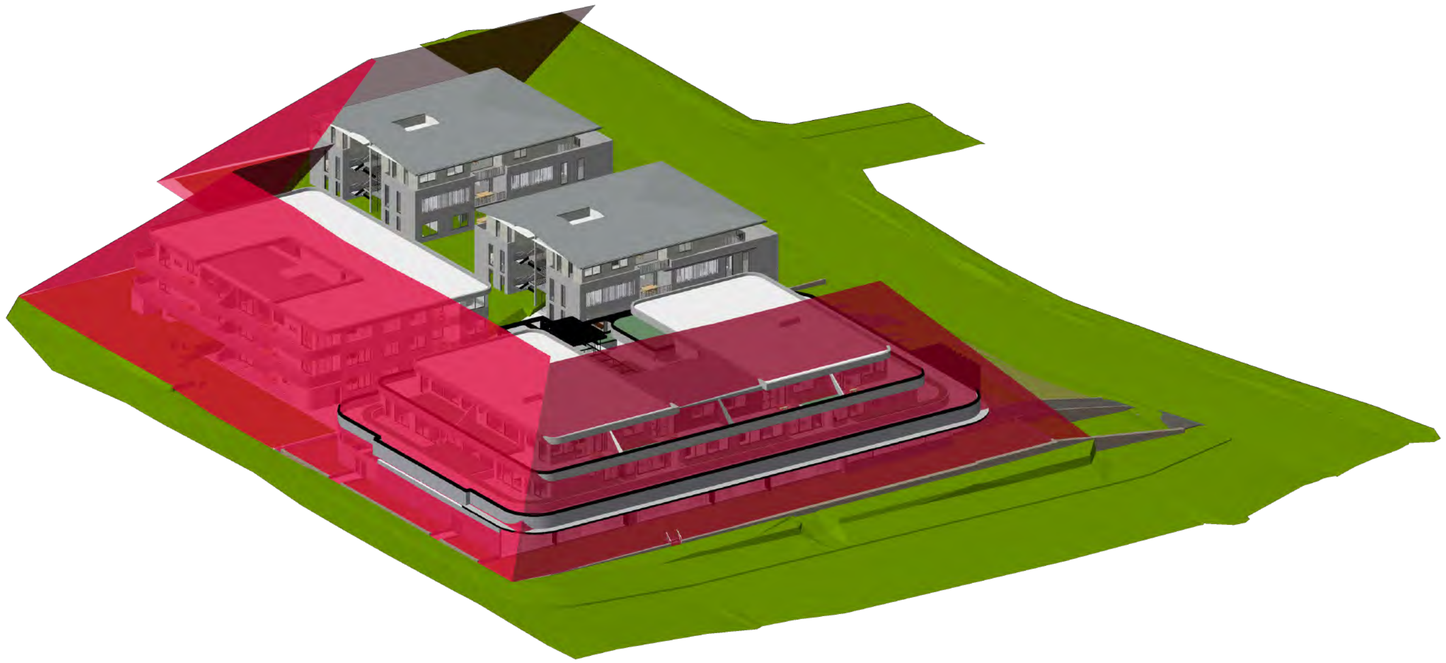
Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

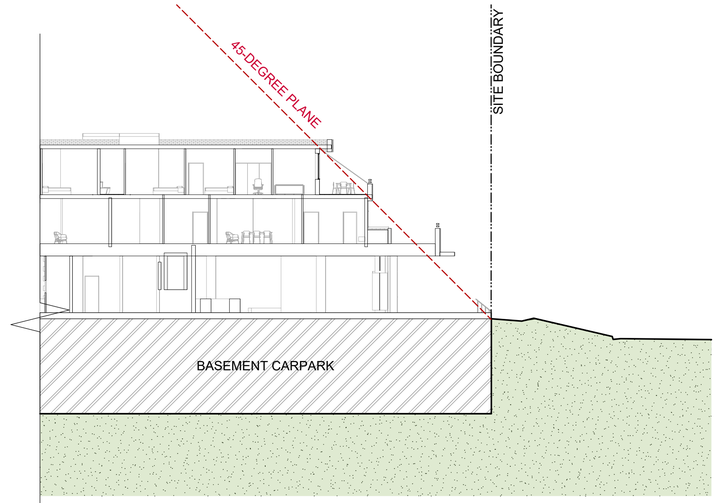
MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	DA_A_302	G

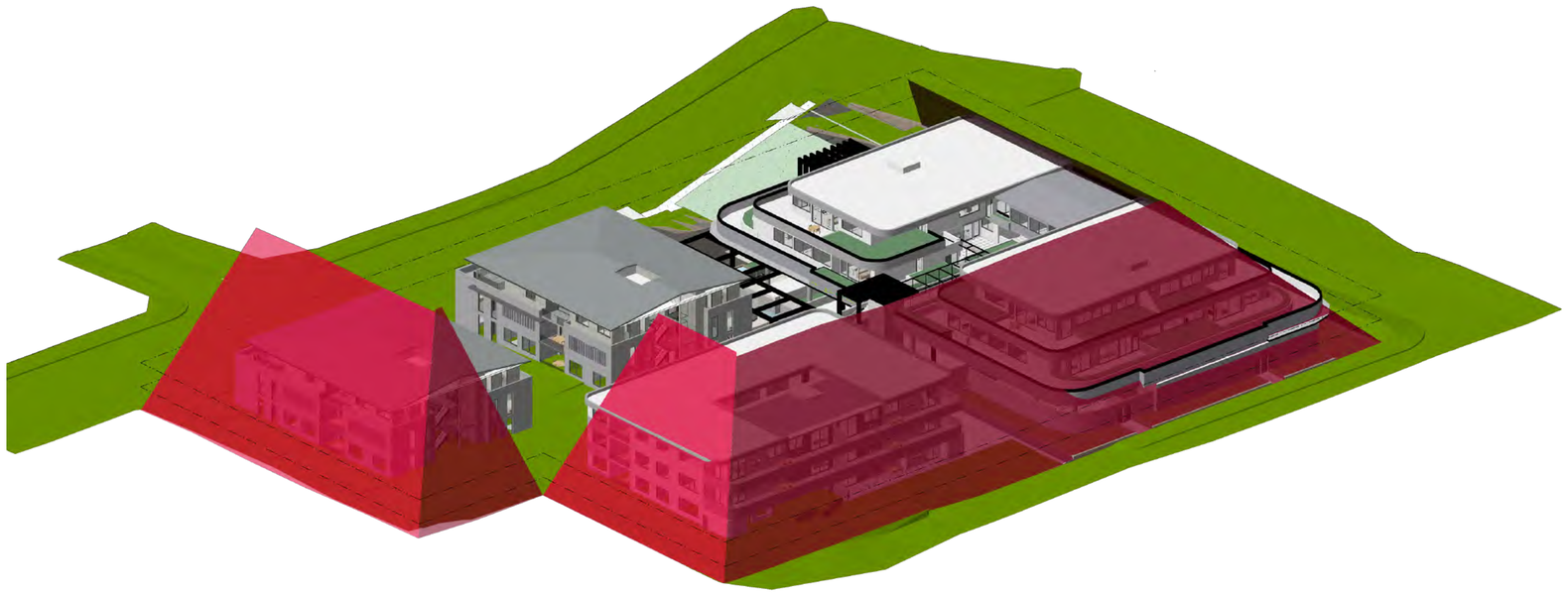
N



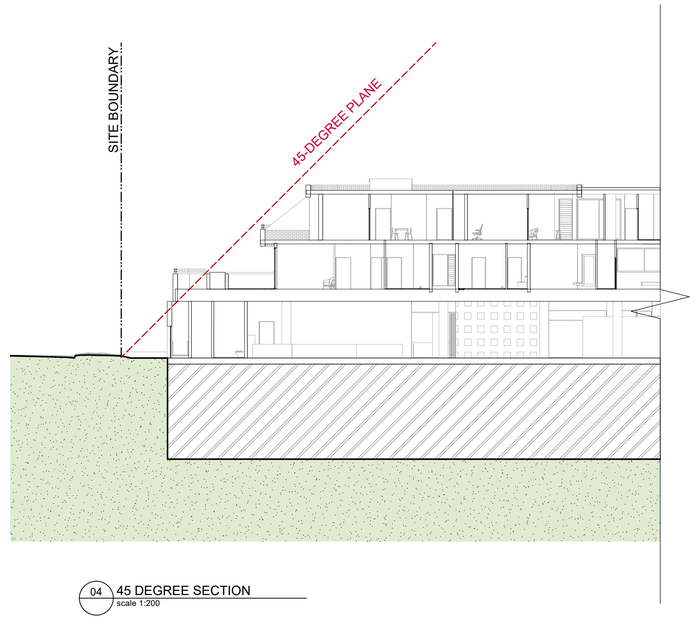
01 45 DEGREE STUDY
scale 1:350



03 45 DEGREE SECTION
scale 1:200



02 45 DEGREE STUDY
scale 1:350



04 45 DEGREE SECTION
scale 1:200

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

ACN 150 198 842 W: www.qarch.com.au

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
3D 45-DEGREE PLANE STUDY

Scale at A1 1:200
Scale at A3 1:400
0m 2.5 5 10 15 16

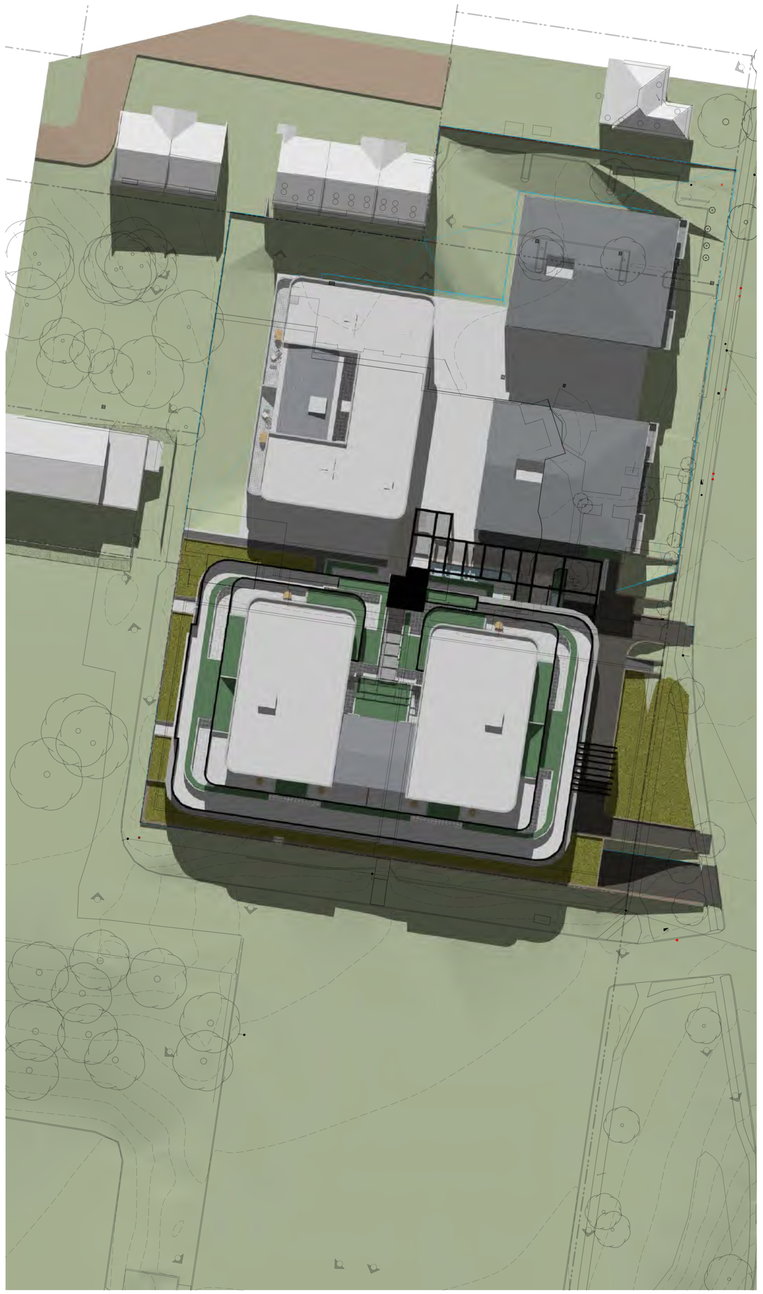
Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_303**	**G**

N

01 SHADOWS - JUNE 21 - 9AM
scale 1:500



02 SHADOWS - JUNE 21 - 12PM
scale 1:500

03 SHADOWS - JUNE 21 - 3PM
scale 1:500

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
A	16/11/2022	CLIENT MEETING	PJH
B	01/12/2023	CONCEPT UPDATE	PJH
C	12/04/2024	B5 ADDED	PJH
D	30/08/2024	DA	PH
E	14/02/2025	DA UPDATE	PH
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
SHADOW DIAGRAMS

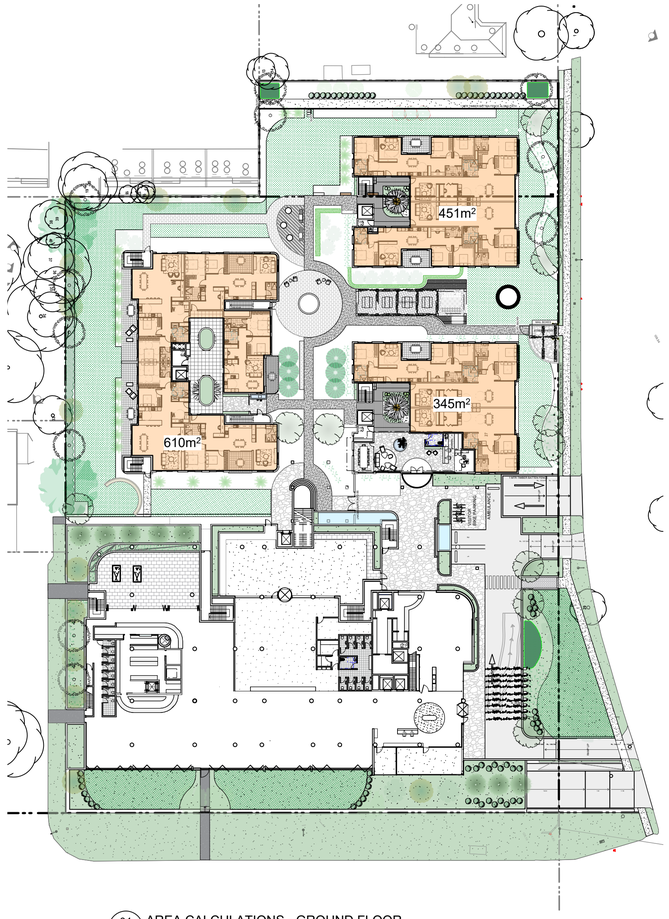
Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

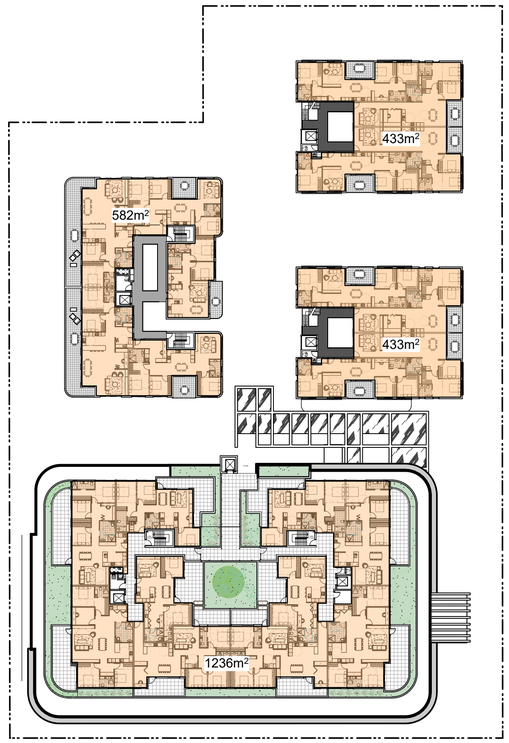
MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_400**	**G**

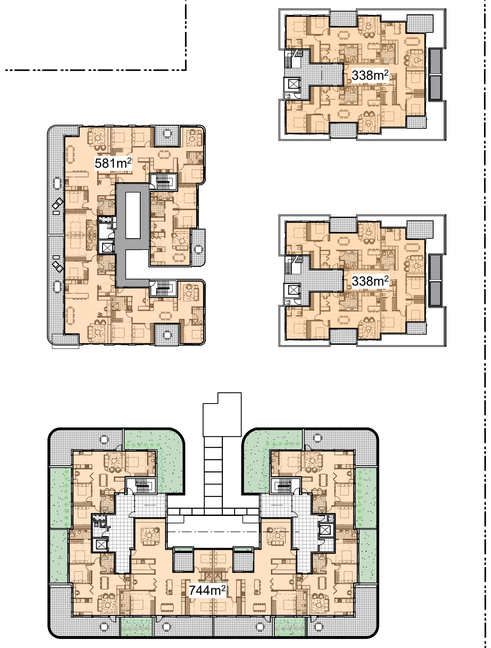
N



04 AREA CALCULATIONS - GROUND FLOOR
scale 1:500



05 AREA CALCULATIONS - LEVEL 1
scale 1:500



06 AREA CALCULATIONS - LEVEL 2
scale 1:500

Retirement Living - Club Building	
1	1236
2	744
	1980
Retirement Living - Building 1	
G	345
1	433
2	338
	1116
Retirement Living - Building 2	
G	451
1	433
2	338
	1222
Retirement Living - Building 3	
G	610
1	582
2	581
	1773
SENIOR TOTAL NSA	6091

DA

This drawing is protected by copyright.

Quattro ARCHITECTURE

Sydney F: 61 2 9091 0190
Suite 129, 117 Old Pittwater Road
Brookvale NSW 2100
Peter Hosking (Director) Registered Architect - 6854

Canberra F: 61 2 6239 4044
Unit 5, 71 Leichhardt Street
Kingston ACT 2604
Tim Zuber Registered Architect - 2384

ACN 150 198 842 **W:** www.qarch.com.au

Rev. No.	Date	Revision	By
F	11/04/2025	ISSUE TO CONSULTANTS	PJH
G	5/05/2025	DA RESUBMISSION	pjh

CLIENT
FORESTVILLE RSL

PROJECT
CLUB REDEVELOPMENT
22 MELWOOD AVE
LOT 2589 & LOT 31
DP752038 & DP 366454

FROM OUR FAMILY TO YOURS · SINCE 1959 ·

DRAWING
AREA CALCS - NET SALEALBE AREA

Scale at A1 1:500
Scale at A3 1:1000
0m 5 10 25 40

Figured dimensions shall take precedence over scale. Contractors must verify all dimensions on job before commencing any work or making shop drawings.

MASTERPLAN SET

DRAWN	DATE	CHKD
AL	20/04/2023	PH
PROJECT #	SHEET #	REVISION #
22-0716	**DA_A_800**	

APPENDIX B

Former Borehole Logs

Borehole Log Report

Geo Environmental Engineering
2 / 5-7 Malta Street
Fairfield East NSW 2165
T +61 2 9420 3361

Hole ID. **BH101**
Hole Depth: **10.23 m**
Sheet: **1 of**

Project Name: **PSI / Geotechnical Investigation** Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW** Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering** Date Started: **25/07/2024** Ground Level: **RL127.6m** (approx)
Drill Method: **SFA / NMLC** Date Completed: **25/07/2024** Easting: ----------
Equipment: **Hanjin D&B 8D** Northing: ----------

Method	Depth (m)	RL (m)	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests: ID No.	Samples / Tests: SPT	Observations / Comments	Well Details	Well Construction
SFA	0	127.5	SC	Fill	**ASPHALT (80mm).**						0.00 0.05 0.15	
					FILL / DISTURBED- Clayey Sand, orange/red/brown, with Silt.	medium dense to dense	m	ZZ250724-01 0.2 -0.3m				
	1	127.0	SP	Residual Soil	**SAND (extremely weathered sandstone)**- red/orange/grey, fine to medium grained, trace clay, with bands of highly weathered sandstone.			BH101-0.5 0.5 -0.6m	5 30 Ref. blows 30+		1.00 Bentonite	
		126.5										
		126.0										
	2	125.5			*BH101 continued as cored hole from 1.72m*							
		125.0										
	3	124.5										
		124.0										
	4	123.5										
		123.0										
	5	122.5										
		122.0										
	6											

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Zachary Ziesel** Date: **25/07/2024** Checked By: **Stephen McCormack** Date: **19/08/2024**

drawn by: laurie.white@reumad.com.au
GEE BH LOG 2 E24016FOR.GPJ GEE.GDT 20/8/24 7:19:09 PM

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
T +61 2 9420 3361

Hole ID. **BH101**
Hole Depth: **10.23 m**
Sheet: **3 of 4**

Project Name: **PSI / Geotechnical Investigation**
Project Number: **E24016FOR**
Location / Site: **22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL**

Drilling Company: **Geo Environmental Engineering**
Date Started: **25/07/2024**
Ground Level: **RL127.6m** approx
Drill Method: **SFA / NMLC**
Date Completed: **25/07/2024**
Easting: ----------
Equipment: **Hanjin D&B 8D**
Northing: ----------

Method	Depth (m)	RL (m)	Material Description	Weathering	Estimated Strength (MPa)	$Is_{(50)}$ MPa	U.C.S. (Mpa)	Rock Mass Defects: RQD %	Core Photo	Defect Spacing (mm)	Defect Description (type, inclination, thickness, shape, roughness, coating)	Well Details	Depth (m)	Casing & Core Lifts
	0.5	127.5											0.5	
	1.0	127.0											1.0	
	1.5	126.5											1.5	
	2.0	126.0											2.0	
	2.5	125.5											2.5	
	3.0	125.0											3.0	
	3.5	124.5											3.5	
	4.0	124.0											4.0	
	4.5	123.5											4.5	
	5.0	123.0											5.0	
	5.5	122.5											5.5	
	6.0	122.0											6.0	
NMLC			**SANDSTONE** - red/orange/grey, fine to coarse grained.	HW-MW		A=0.29 D=0.2		92			DB; SM, CLAY; SM, CLAY; SM, CLAY			2.7
						A=0.12 D=0.05					DB; JT, 35, RG, FE; BD, 1, RG, FE; SM, CLAY; BD, 3, RG, FE; SM, CLAY; SM, CLAY; BD, 4, RG, FE; BD, 2, RG, FE; SM, CLAY; HB			
				FR		A=0.34 D=0.21		90			DB			
Bedrock			**SHALE** - dark grey.			A=0.1 D=0.03					BD, 1, SMTH			
			SANDSTONE - grey, fine to coarse grained.					100			BD/SM (2-5mm spacing, clay infill); BD, 2, RG; SM, CLAY			5.83

Additional Comments

Logged By: **Zachary Ziesel** Date: **25/07/2024**
Checked By: **Stephen McCormack** Date: **19/08/2024**

drawn by: laurie.white@reumad.com.au
GEE CORE LOG E24016FOR.GPJ GEE.GDT 19/8/24 9:01:32 PM

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
T +61 2 9420 3361

Hole ID. **BH101**
Hole Depth: **10.23 m**
Sheet: **4 of 4**

Project Name: **PSI / Geotechnical Investigation**
Project Number: **E24016FOR**
Location / Site: **22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL**

Drilling Company: **Geo Environmental Engineering**
Date Started: **25/07/2024**
Ground Level: **RL127.6m** approx
Drill Method: **SFA / NMLC**
Date Completed: **25/07/2024**
Easting: ----------
Equipment: **Hanjin D&B 8D**
Northing: ----------

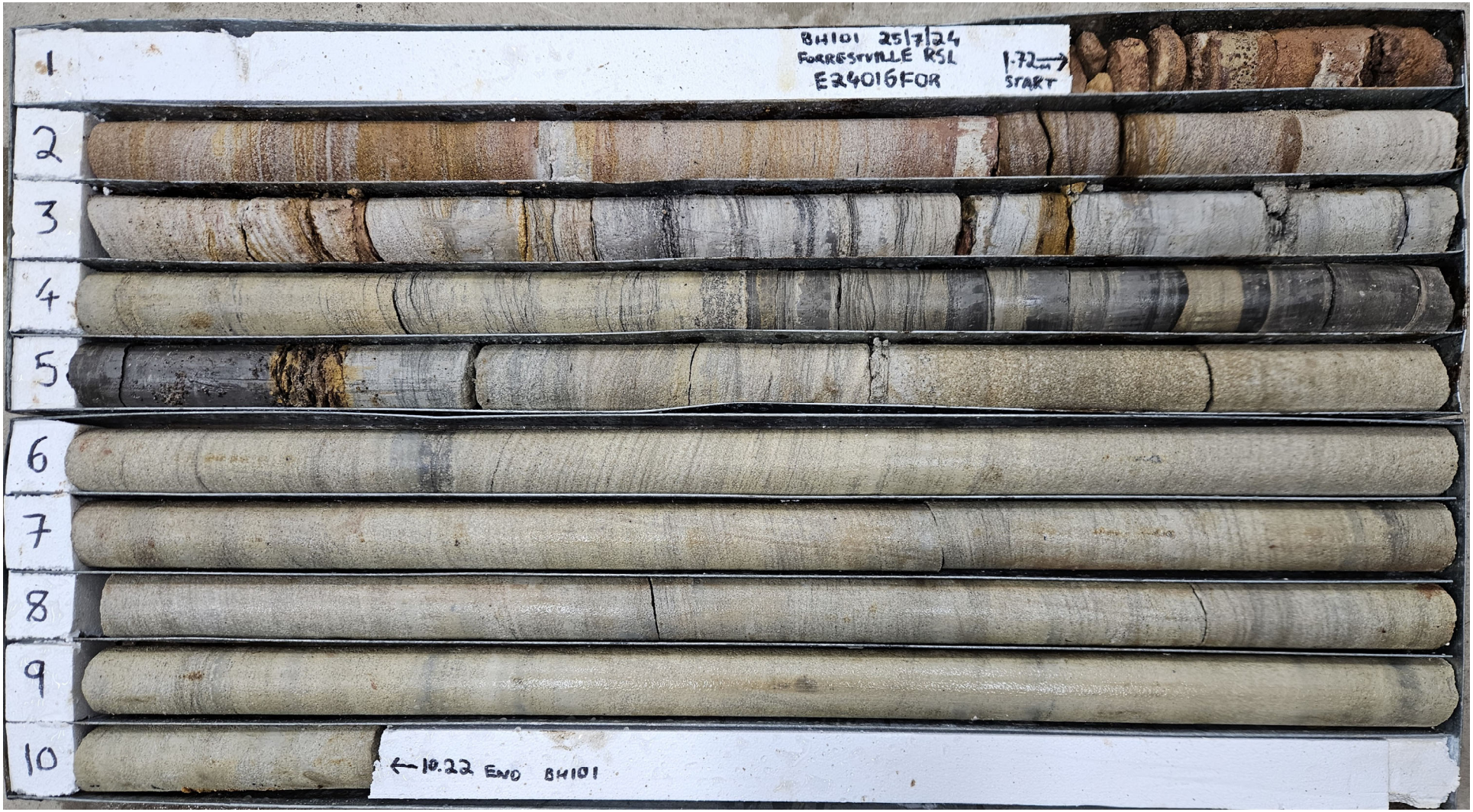
Method	Depth (m)	RL (m)	Material Type	Material Description	Weathering	Estimated Strength (MPa)	$Is_{(50)}$ MPa	U.C.S. (Mpa)	RQD %	Core Photo	Defect Spacing (mm)	Defect Description (type, inclination, thickness, shape, roughness, coating)	Well Details	Depth (m)	Casing & Core Lifts
NMLC	6.5	121.5	Bedrock	**SANDSTONE** - grey, fine to coarse grained.	FR		A=1.05 D=0.67		100					6.5	
	7.0	121.0					A=1.19 D=1.37							7.0	
	7.5	120.5										BD, 10, RG		7.5	
	8.0	120.0					A=1.11 D=1.26							8.0	
	8.5	119.5										BD, 10, RG		8.5	
	9.0	119.0					A=1.22 D=0.91		100					9.0	8.8
	9.5	118.5												9.5	
	10.0	118.0					A=1.08 D=0.87							10.0	10.23
	10.5	117.5		**Hole Terminated at 10.23 m** target depth reached										10.5	
	11.0	117.0												11.0	
	11.5	116.5												11.5	
	12.0	116.0												12.0	

Estimated Strength (MPa): EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH
$Is_{(50)}$ MPa: D=diametral A=axial
Rock Mass Defects
Defect Spacing (mm): 20, 60, 200, 600, 2000
Defect Description: Specific / General

Additional Comments

Logged By: **Zachary Ziesel** Date: **25/07/2024**
Checked By: **Stephen McCormack** Date: **19/08/2024**

drawn by: laurie.white@reumad.com.au
GEE CORE LOG E24016FOR.GPJ GEE.GDT 19/8/24 9:01:32 PM


BH101 25/7/24
FORRESTVILLE RSL
E24016FOR
1.72m
START
1
2
3
4
5
6
7
8
9
10
←10.22 END BH101

Borehole Log Report

Geo Environmental Engineering
2 / 5-7 Malta Street
Fairfield East NSW 2165
T +61 2 9420 3361

Hole ID. **BH102**
Hole Depth: **5.70 m**
Sheet: **1 of**

Project Name: **PSI / Geotechnical Investigation** Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW** Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering** Date Started: **25/07/2024** Ground Level: **RL127.5m** (approx)
Drill Method: **SFA / NMLC** Date Completed: **25/07/2024** Easting: ----------
Equipment: **Hanjin D&B 8D** Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Samples / Tests SPT	Observations / Comments	Well Details	Well Construction
Solid Flight Auger		0	127.5		SP	Fill	**ASPHALT (80mm).**						0.00 0.05 0.15	
							FILL- Gravelly Sand, dark grey/grey, fine to coarse grained, fine to coarse sand and gravel, with silt.	loose	m	ZZ250724-02/ 100 0.1 -0.2m			
			127.0					medium dense to dense	m	ZZ250724-03 0.4 -0.5m	6 5 15 N=20			
		1	126.5		SP		**SAND**- red/grey, fine to medium grained, trace clay/silt. bands of extremely weathered to highly weathered sandstone with depth. predominately grey from 1.0m.			BH102-0.5 0.5 -0.6m			
										ZZ250724-04 1.0 -1.1m			1.00	Bentonite
			126.0				**SANDSTONE**- grey/red, fine to coarse grained, extremely to highly weathered.							
		2	125.5											
			125.0											
		3	124.5			Natural	*BH102 continued as cored hole from 2.58m*							
			124.0											
		4	123.5											
			123.0											
		5	122.5											
			122.0											
		6	121.5											

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Zachary Ziesel** Date: **25/07/2024** Checked By: **Stephen McCormack** Date: **19/08/2024**

drawn by: laurie.white@reumad.com.au
GEE BH LOG 2 E24016FOR.GPJ GEE.GDT 20/8/24 7:19:09 PM

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
T +61 2 9420 3361

Hole ID. **BH102**
Hole Depth: **5.70 m**
Sheet: **3 of 3**

Project Name: **PSI / Geotechnical Investigation**
Project Number: **E24016FOR**
Location / Site: **22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL**

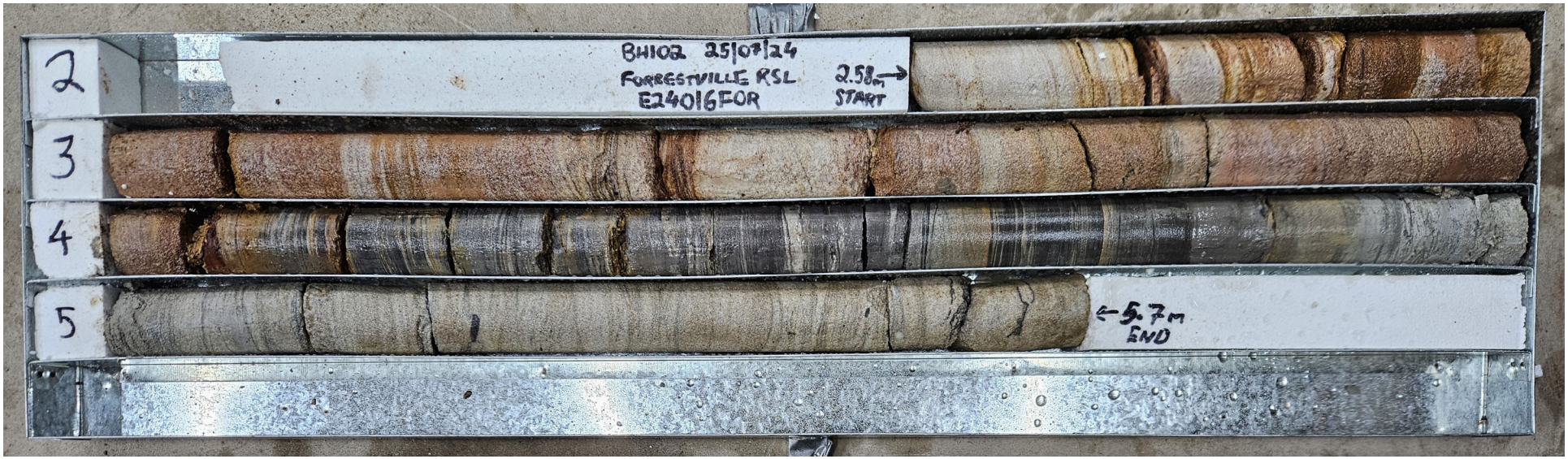
Drilling Company: **Geo Environmental Engineering**
Date Started: **25/07/2024**
Ground Level: **RL127.5m** approx
Drill Method: **SFA / NMLC**
Date Completed: **25/07/2024**
Easting: ----------
Equipment: **Hanjin D&B 8D**
Northing: ----------

Method	Depth (m)	RL (m)	Material Description	Weathering	Estimated Strength (MPa)	$Is_{(50)}$ MPa	U.C.S. (Mpa)	RQD %	Defect Spacing (mm)	Defect Description (type, inclination, thickness, shape, roughness, coating)	Well Details	Depth (m)	Casing & Core Lifts
NMLC	0.5	127.0										0.5	
	1.0	126.5										1.0	
	1.5	126.0										1.5	
	2.0	125.5										2.0	
	2.5	125.0										2.5	
	3.0	124.5	**SANDSTONE** - grey some red, orange, fine to coarse grained.	HW-MW		A=0.08 D=0.04		83		BD, 10, RG SM, CLAY BD, 10, RG, FE JT, 20, RG, FE		3.0	
	3.5	124.0				A=0.13 D=0.03				SM, CLAY		3.5	
	4.0	123.5								SM, CLAY BD, 3, RG, FE		4.0	
	4.5	123.0	**SHALE** - dark grey, grey, with interbedded sandstone.	FR		A=0.17				SM, CLAY BD, 15, RG, FE BD, 1, RG		4.5	
	5.0	122.5				A=0.54 D=0.14				SM, CLAY BD, 1,SMTH BD, 1,SMTH BD, 1,SMTH BD, 1,SMTH DB BD, 3, SMTH		5.0	
	5.5	122.0	**SANDSTONE** - grey, fine to coarse grained.			A=0.71 D=0.57				BD, 1, SMTH SM, CLAY SM, CLAY BD, 3, RG BD, 3, RG		5.5	
	6.0	121.5	**Hole Terminated at 5.70 m** target depth reached			A=2.3 D=0.92				BD, 10. RG		6.0	5.7

Additional Comments

Logged By: **Zachary Ziesel** Date: **25/07/2024**
Checked By: **Stephen McCormack** Date: **19/08/2024**

drawn by: laurie.white@reumad.com.au
GEE CORE LOG E24016FOR.GPJ GEE.GDT 19/8/24 9:01:33 PM


2
3
4
5
BH102 25/07/24
FORRESTVILLE RSL
E24016FOR
2.58m
START
5.7m
END

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH201**
Hole Depth: **0.25 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Samples / Tests ID No.	Observations / Comments
DT						Fill	**CONCRETE**- 120mm.		
HA						Fill	**FILL**- Sandy GRAVEL, blue-grey and brown, fine to coarse grained, fine to coarse sand.	SM030625-69 / 105 0.15-0.25m	
		0.5					**Refusal at 0.25m** on sandstone bedrock		
		1.0							
		1.5							
		2.0							

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:34 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH202**
Hole Depth: **0.90 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
DT							**CONCRETE**- 150mm.			
Hand Auger		0.5				Fill	**FILL**- Gravelly SAND, brown, fine to coarse grained, with fine to coarse gravel, some fines (silt & clay) and trace sandstone cobbles.	m	SM030625-50 / 100 0.15-0.30m	
						Natural	**SAND**- grey / orange / red, fine to medium grained, with trace clay and gravel (extremely weathered sandstone).		SM030625-51 0.80-0.90m	
		1.0					**Refusal at 0.90m** on sandstone bedrock			
		1.5								
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:34 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH203**
Hole Depth: **0.14 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Observations / Comments
DT						Fill	**CONCRETE**- 140mm.	
							Refusal at 0.14m on sandstone bedrock	

0.5
1.0
1.5
2.0

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:34 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH204**
Hole Depth: **2.20 m**
Sheet: **1 of 2**

Project Name: **Site Contamination Investigation** Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW** Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering** Date Started: **3/06/2025** Ground Level: ----------
Drill Method: **Hand Auger** Date Completed: **3/06/2025** Easting: ----------
Equipment: **Manual** Northing: ----------

Method	Depth (m)	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger	0.5	**FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-01 0.05-0.15m SM030625-02 0.30-0.40m	
	1.0	**FILL**- SAND, brown, fine to medium grained.	sm	SM030625-03 0.50-0.60m	
	1.5	**FILL**- Clayey SAND, grey, light brown & mottled brown, fine to coarse grained, with basalt / blue metal gravel and cobbles and trace brick fragments.	sm	SM030625-04 0.90-1.00m	
	2.0	**FILL**- GRAVEL, dark grey, medium to coarse gravel (blue metal) with some fine to coarse sand.	m		

Graphic Log: Fill
USCS Symbol:
Material Type: Fill

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025** Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:35 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH204**
Hole Depth: **2.20 m**
Sheet: **2 of 2**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger						Fill	**FILL**- GRAVEL, dark grey, medium to coarse gravel (blue metal) with some fine to coarse sand.*(continued)* becoming wet from 2.0m.	m	SM030625-05 2.00-2.20m	
		2.5					**Hole Terminated at 2.20m** Caused by the collapse of the gravel layer			
		3.0								
		3.5								
		4.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:35 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH205**
Hole Depth: **1.40 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.5				Fill	**FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-06 0.05-0.20m SM030625-07 0.30-0.40m	
							FILL- SAND, brown, fine to medium grained.	sm	SM030625-08 / 103 0.40-0.50m	
		1.0					**FILL**- Clayey SAND, grey mottled orange brown, fine to coarse grained, with some fine to coarse gravel.	m	SM030625-09 0.80-0.90m	
							FILL- GRAVEL, dark grey, medium to coarse gravel (blue metal) with some fine to coarse sand.	m	SM030625-10 1.30-1.40m	
		1.5					**Hole Terminated at 1.40m** Caused by the collapse of the gravel layer			
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:36 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH206**
Hole Depth: **0.70 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.5				Fill	**FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-11 0.05-0.20m	
							FILL- SAND, brown, fine to medium grained.	m	SM030625-12 / 104 0.40-0.50m	
						Natural	**Clayey SAND**- light brown - yellow, low to medium plasticity.	m	SM030625-13 0.55-0.65m	
		1.0 / 1.5 / 2.0					**Refusal at 0.70m** on sandstone bedrock			

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:36 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH207**
Hole Depth: **1.30 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.5				Fill	**FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-14 0.05-0.20m	
							FILL- SAND, brown, fine to medium grained.	sm	SM030625-15 0.40-0.50m	
		1.0					**FILL**- Clayey SAND, grey, fine to coarse grained, with low to medium plasticity clay, trace blue metals and having an organic smell. borehole is wet from 1.1m with presence of black rotten woodchips.	m	SM030625-16 0.70-0.80m SM030625-17 1.20-1.30m	
		1.5					**Refusal at 1.30m** on the inferred surface of the sandstone bedrock			
		2.0								

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:37 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH208**
Hole Depth: **0.90 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.0				Fill	**FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-22 0.05-0.20m	
		0.5				Fill	**FILL**- Clayey SAND, light brown and yellow, fine to coarse grained, with some gravel and cobbles.	sm	SM030625-23 0.30-0.40m	
		0.8				Natural	**SAND**- pale grey, white, fine to coarse grained, with trace gravel. becoming orange red from 0.8m (ew sandstone).	sm	SM030625-24 0.70-0.80m	
		1.0					**Refusal at 0.90m** on sandstone bedrock			
		1.5								
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:37 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH209**
Hole Depth: **0.75 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.5				Fill	**FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-19 0.05-0.20m	
							FILL- SAND, brown, fine to medium grained, trace rootlets.	m	SM030625-20 0.40-0.50m	
						Natural	**Clayey SAND**- light brown / orange brown, fine to medium grained.	sm	SM030625-21 0.60-0.70m	
		1.0 / 1.5 / 2.0					**Hole Terminated at 0.75m** target depth reached			

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:38 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH210**
Hole Depth: **0.40 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
DT						Fill	**CONCRETE**- 140mm.			
Hand Auger						Fill	**FILL**- Gravelly SAND, light grey, fine to coarse grained, with some cobbles.	m	SM030625-18 0.14-0.30m	
		0.5					**Refusal at 0.40m** on sandstone bedrock			
		1.0								
		1.5								
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:38 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH211**
Hole Depth: **1.00 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.0				Fill	**FILL**- Silty SAND, dark brown, trace rootlets.	sm	SM030625-28 0.05-0.20m	
		0.5				Natural	**Clayey SAND**- brown becoming pale brown mottled orange, fine to medium grained.	m	SM030625-29 0.40-0.50m SM030625-30 0.80-1.00m	
		1.0					**Hole Terminated at 1.00m** target depth reached			
		1.5								
		2.0								

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:38 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH212**
Hole Depth: **2.60 m**
Sheet: **1 of 2**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger		0.0				Fill	**ASPHALT**- 100mm.			
							FILL- Sandy GRAVEL, grey, fine to coarse sand and gravel (road base layer).	m	SM030625-66 0.10-0.30m	
		0.5				Natural	**Clayey SAND**- grey orange red, fine to medium grained.	m	SM030625-67 / 102 0.50-0.70m	
		1.0					becoming pale grey (ew-hw sandstone) from 1.0m.			
		1.5							SM030625-68 1.50-1.70m	
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:39 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH212**
Hole Depth: **2.60 m**
Sheet: **2 of 2**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger		2.5				Natural	**Clayey SAND**- grey orange red, fine to medium grained.*(continued)*	m		
		3.0					**Refusal at 2.60m** on sandstone bedrock			
		3.5								
		4.0								

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:39 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH213**
Hole Depth: **0.50 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger		0.5				Fill	**ASPHALT**- 100mm.		
						Natural	**FILL**- Gravelly SAND, brown and red, fine to coarse sand and gravel.	SM030625-59 0.10-0.30m	
		1.0					**Refusal at 0.50m** on sandstone bedrock		
		1.5							
		2.0							

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:40 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH214**
Hole Depth: **0.90 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger		0.5				Fill	**ASPHALT**- 100mm.		
							FILL- Sandy GRAVEL, trace brick.	SM030625-57 0.10-0.30m	
						Natural	**SAND**- red / orange grey, trace clay (EW sandstone).	SM030625-58 0.60-0.70m	
		1.0					**Refusal at 0.90m** on sandstone bedrock		
		1.5							
		2.0							

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:40 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH215**
Hole Depth: **1.50 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger		0.5				Fill	**ASPHALT**- 100mm.			
							FILL- Silty SAND, grey brown, fine to medium grained, trace gravel.	m	SM030625-52 0.10-0.30m	
		1.0				Natural	**Clayey SAND**- orange / red, fine to medium grained, (extremely weathered sandstone).	m	SM030625-53 0.70-0.90m	
		1.5							SM030625-54 1.30-1.50m	
		2.0					**Refusal at 1.50m** on sandstone bedrock			

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:41 PM

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH216**
Hole Depth: **1.00 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger						Fill	**ASPHALT**- 100mm.			
							FILL- Gravelly SAND, grey brown, fine to coarse grained, with fine to coarse gravel.	m	SM030625-55 0.10-0.30m	
		0.5				Natural	**SAND**- fine to medium grained, with trace clay (extremely weathered sandstone).	m	SM030625-56 0.60-0.80m	
		1.0								
							Refusal at 1.00m on sandstone bedrock			
		1.5								
		2.0								

Moisture	
D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:41 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH217**
Hole Depth: **1.10 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger		0.5				Fill	**ASPHALT**- 100mm.			
						Natural	**Silty SAND**- pale brown, fine to medium grained.	m	SM030625-62 0.10-0.30m	
		1.0					**SAND**- with orange / red clay turning grey / red / orange with depth (EW sandstone).	m	SM030625-63 0.60-0.80m SM030625-64 0.90-1.00m	
		1.5					**Refusal at 1.10m** on sandstone bedrock			
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:41 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

geo-environmental ENGINEERING

Hole ID. **BH218**
Hole Depth: **0.90 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **FICO Group**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Solid Flight Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **4WD Utility Rig**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Solid Flight Auger						Fill	**ASPHALT**- 100mm.			
							FILL- Gravelly SAND, brown / grey.	m	SM030625-60 0.10-0.30m	
		0.5				Natural	**Clayey SAND**- grey / red / orange, (extremely weathered sandstone).	m	SM030625-61 / 101 0.50-0.60m	
		1.0					**Refusal at 0.90m** on sandstone bedrock			
		1.5								
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Stephen McCormack** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:42 PM

Borehole Log Report

Geo Environmental Engineering
Unit 2 / 5 - 7 Malta Street
Fairfield East NSW 2165
T 02 9420 3361

Hole ID. **BH219**
Hole Depth: **0.80 m**
Sheet: **1 of 1**

Project Name: **Site Contamination Investigation**
Project Number: **E24016FOR**
Location / Site: **20 - 22 Melwood Avenue, Forestville NSW**
Client: **Forestville RSL Club Ltd**

Drilling Company: **Geo Environmental Engineering**
Date Started: **3/06/2025**
Ground Level: ----------
Drill Method: **Hand Auger**
Date Completed: **3/06/2025**
Easting: ----------
Equipment: **Manual**
Northing: ----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger		0.0				Fill	**TOPSOIL / FILL**- Silty SAND, dark brown, fine to medium grained, trace rootlets.	sm	SM030625-25 0.05-0.20m	
		0.5				Fill	**FILL**- SAND, brown, fine to medium grained.	m	SM030625-26 0.40-0.50m	
						Natural	**Clayey SAND**- light brown mottled red brown, fine to coarse grained, with trace gravel. becoming wet from 0.7m.	w	SM030625-27 0.70-0.80m	
		1.0					**Hole Terminated at 0.80m** target depth reached			
		1.5								
		2.0								

Moisture

D	Dry
Dp	Damp
SM	Slightly Moist
M	Moist
VM	Very Moist
W	Wet
Sd	Saturated

Additional Comments

Logged By: **Sean Gao** Date: **3/06/2025**
Checked By: **Stephen McCormack** Date: **12/06/2025**

GEE DAVIES BH LOG E24016FOR.GPJ GEE.GDT 15/6/25 2:52:42 PM

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
E info@geoenvironmental.com.au

Log Report Legend

MATERIAL SYMBOL

FILL

CONCRETE

ASPHALT

TOPSOIL

ORGANICS

ESTUARINE MUD

CLAY

SAND

SILT

GRAVEL

Sandy CLAY

Clayey SAND

Clayey SILT

Clayey GRAVEL

Silty CLAY

Silty SAND

Sandy SILT

Sandy GRAVEL

Gravelly CLAY

Gravelly SAND

Gravelly SILT

Silty GRAVEL

CLAY & SAND

SAND & CLAY

SILT & CLAY

GRAVEL & CLAY

CLAY & SILT

SAND & SILT

SILT & SAND

GRAVEL & SAND

CLAY & GRAVEL

SAND & GRAVEL

SILT & GRAVEL

GRAVEL & SILT

Sandy Silty CLAY

Clayey Silty SAND

Sandy Clayey SILT

Sandy Clayey GRAVEL

Silty Sandy CLAY

Silty Clayey SAND

Clayey Sandy SILT

Clayey Sandy GRAVEL

Sandy Gravelly CLAY

Clayey Gravelly SAND

Sandy Gravelly SILT

Silty Clayey GRAVEL

Silty Gravelly CLAY

Silty Gravelly SAND

Clayey Gravelly SILT

Clayey Silty GRAVEL

Gravelly Silty CLAY

Gravelly Silty SAND

Gravelly Clayey SILT

Sandy Silty GRAVEL

Gravelly Sandy CLAY

Gravelly Clayey SAND

Gravelly Sandy SILT

Silty Sandy GRAVEL

SANDSTONE

SHALE

GRANITE

BASALT

SHALE / SANDSTONE

PORCELLANITE

GNEISS

SHALE / CLAYSTONE

MUDSTONE

CLAYSTONE

MUDSTONE / CLAYSTONE

SHALE / SILTSTONE

IRONSTONE

WATER LEVELS

Encountered Water

Standing Water

ABBREVIATIONS

PT	Pushtube
SFA	Solid Flight Auger
PWS	Percussion Window Sampler
HA	Hand Auger
HFA	Hollow Flight Auger

WELL GRAPHICS

Cuttings

Bentonite

Screen

Gravel Pack

Grout

Cave-in

GEE LEGEND * * 29/10/09 5:04:07 PM

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 1
1 / 2

BOREHOLE LOG

Client: FORESTVILLE RSL CLUB LTD
Project: PROPOSED PRIVATE MEDICAL CENTRE
Location: 22 MELWOOD AVENUE, FORESTVILLE, NSW

Job No.: 31993BM **Method:** SPIRAL AUGER **R.L. Surface:** ~126.5 m
Date: 16/11/18 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** J.B.J/M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										CONCRETE: 100mm.t				5mm.t DIAMETER REINFORCMENT 50mm TOP COVER
									-	FILL: Silty sand, fine to medium grained, dark brown.	M			APPEARS POORLY COMPACTED
					N > 0 2,0/ 150mm REFUSAL	126								
							1		-	Extremely Weathered sandstone: silty SAND, fine to medium grained, purple grey, trace of ironstone gravel and clay.	XW	VD		HAWKESBURY SANDSTONE
						125								
										SANDSTONE: fine to medium grained, light grey with dark grey bands.	DW	VL		VERY LOW 'TC' BIT RESISTANCE
							2					VL - L		VERY LOW TO LOW RESISTANCE
						124						L		LOW RESISTANCE
										REFER TO CORED BOREHOLE LOG				Groundwater monitoring well installed to 9.0m. Class 18 machine slotted PVC standpipe 9.0m to 3.0m. Casing 3.0m to 0.15m. 2mm sand filter pack 9.0m to 1.4m. Bentonite seal 1.4m to 0.1m. Completed with a concreted gatic cover
							3							
						123								
							4							
						122								
							5							
						121								
							6							
						120								

JK 9.01.2 LIB:GLB Log JK AUGERHOLE - MASTER 31993BM FORESTVILLE.GPJ <<DrawingFile>> 30/11/2018 15:55 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

COPYRIGHT

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 1 2 / 2

CORED BOREHOLE LOG

Client: FORESTVILLE RSL CLUB LTD
Project: PROPOSED PRIVATE MEDICAL CENTRE
Location: 22 MELWOOD AVENUE, FORESTVILLE, NSW

Job No.: 31993BM | **Core Size:** NMLC | **R.L. Surface:** ~126.5 m
Date: 16/11/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** J.B.J/M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		124			START CORING AT 2.88m						
100% RETURN		123	3		SANDSTONE: fine to medium grained, light grey with dark grey banding, orange and purple staining, bedding at 5-15°.	HW	L - M	0.40		(2.95m) XWS, 0°, 50 mm.t (3.08m) J, 15°, St, R, Fe Sn (3.36m) Be, 0°, P, Fe Sn	
					NO CORE 0.10m						
		122	4		SANDSTONE: fine to medium grained, light grey with orange and purple staining, and a very high strength iron indurated band.	HW	L - M	0.30 0.20		(3.78m) Be, 10°, P, R, Fe Sn (3.82m) J, 30°, P, R, Fe Sn, 1cm IN FILL (4.44m) CS, 100 mm.t (4.51m) XWS, 150 mm.t	
						MW	VH	3.0			
		121	5		as above, but light grey with dark grey bands, bedding at 5-15°.	FR	M	1.9 6.8 0.30 0.50		(4.90m) J, 0°, Ir, R, Fe Sn (5.56m) Be, 2°, C, R, XWS 1mm.t	Hawkesbury Sandstone
		120	6				M - H	0.90 1.2		(6.78m) CS, 1 mm.t	
		119	7					1.0 0.90		(7.09m) CS, 1 mm.t	
		118	8					1.0 1.2		(7.95m) Be, 0°, Ir, R, Cb, 1 mm.t (8.88m) Be, 0°, P, R, Qz Vn	

END OF BOREHOLE AT 9.00 m

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

COPYRIGHT

JK 9.01.2 LIB:GLB Log JK CORED BOREHOLE - MASTER 31993BM FORESTVILLE.GPJ <<DrawingFile>> 30/11/2018 15:55 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 2
1 / 2

BOREHOLE LOG

Client: FORESTVILLE RSL CLUB LTD
Project: PROPOSED PRIVATE MEDICAL CENTRE
Location: 22 MELWOOD AVENUE, FORESTVILLE, NSW

Job No.: 31993BM **Method:** SPIRAL AUGER **R.L. Surface:** ~126.2 m
Date: 12/11/18 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** J.B.J/M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION										CONCRETE: 140mm.t.				REINFORCEMENT 10mm.t. TOP COVER 100mm.t
						126			-	FILL: Silty sand, fine to medium grained, dark brown.	M			
					N = 5 2,2,3		1			FILL: Silty sand, fine to medium grained, light brown.				APPEARS POORLY COMPACTED
						125								
					N=SPT 18/ 150mm REFUSAL									
1HR AFTER CORING						124	2		-	Extremely Weathered sandstone: Silty SAND, fine to medium grained, light grey mottled pink, trace of clay bands.	XW	VD		HAWKESBURY SANDSTONE
							3							
						123				SANDSTONE: fine to medium grained, light orange grey.	DW	L		LOW 'TC' BIT RESISTANCE
										REFER TO CORED BOREHOLE LOG				
						122	4							
							5							
						121								
							6							
						120								

JK 9.01.2 LIB:GLB Log JK AUGERHOLE - MASTER 31993BM FORESTVILLE.GPJ <<DrawingFile>> 30/11/2018 15:55 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

COPYRIGHT

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 2
2 / 2

CORED BOREHOLE LOG

Client: FORESTVILLE RSL CLUB LTD
Project: PROPOSED PRIVATE MEDICAL CENTRE
Location: 22 MELWOOD AVENUE, FORESTVILLE, NSW

Job No.: 31993BM | **Core Size:** NMLC | **R.L. Surface:** ~126.2 m
Date: 12/11/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** J.B.J/M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		123			START CORING AT 3.55m						
100% RETURN					NO CORE 0.24m						
		122	4		SANDSTONE: fine to medium grained, light grey with dark grey banding, bedding at 0°, trace of iron indurated bands.	HW	VL - L	0.050 0.060 0.30 0.20		(3.79m) XWS, 0°, 5 mm.t (3.88m) CS, 0°, 10 mm.t (4.22m) XWS, 0°, 90 mm.t (4.44m) CS, 0°, 10 mm.t (4.56m) Be, 0°, C, R, Fe Sn, 1 mm.t (4.92m) J, 5°, C, R, Cn	
		121	5			SW	M	0.70		(5.67m) CS, 0°, 10 mm.t	
		120	6		SANDSTONE: fine to medium grained, light grey with dark grey, bedding at 5-30°, trace of fine to coarse grained bands.			0.90		(6.27m) CS, 0°, 10 mm.t	Hawkesbury Sandstone
							H	1.8		(6.76m) J, 10°, P, S, Cn	
		119	7			FR		1.2		(7.10m) Be, 0°, P, Cb Cn, 1 mm.t	
		118	8					0.80 1.2 1.1		(8.09m) Be, 1°, St, R, Cn	
		117	9		END OF BOREHOLE AT 8.92 m						

JK 9.01.2 LIB:GLB Log, JK CORED BOREHOLE - MASTER 31993BM FORESTVILLE.GPJ <<DrawingFile>> 30/11/2018 15:56 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

COPYRIGHT
FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 3
1 / 2

BOREHOLE LOG

Client: FORESTVILLE RSL CLUB LTD
Project: PROPOSED PRIVATE MEDICAL CENTRE
Location: 22 MELWOOD AVENUE, FORESTVILLE, NSW

Job No.: 31993BM **Method:** SPIRAL AUGER **R.L. Surface:** ~126.2 m
Date: 12/11/18 **Datum:** AHD
Plant Type: JK205 **Logged/Checked By:** J.B.J/M.P.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										CONCRETE: 140mm.t				REINFORCEMENT: 10mm.t TOP COVER 100mm.t
						126			-	FILL: Silty sand, fine to medium grained, dark brown, trace clay and brick fragments.	M			APPEARS POORLY COMPACTED
					N = 12 2,2,10					FILL: Silty sand, fine to medium grained, light brown.				
							1		-	Extremely Weathered sandstone: Silty SAND, fine to medium grained, light grey.	XW	VD		HAWKESBURY SANDSTONE
						125								
							2			SANDSTONE: fine to medium grained, light grey with extremely weathered bands.	DW	VL		VERY LOW 'TC' BIT RESISTANCE
						124								
							3			SANDSTONE: fine to medium grained. light grey with dark grey bands, trace o fextremely weathered bands.		VL - L		VERY LOW RESISTANCE WITH LOW BANDS
						123								
										REFER TO CORED BOREHOLE LOG				
							4							
						122								
							5							
						121								
							6							
						120								

JK 9.01.2 LIB:GLB Log JK AUGERHOLE - MASTER 31993BM FORESTVILLE.GPJ <<DrawingFile>> 30/11/2018 15:56 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

COPYRIGHT

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 3
2 / 2

CORED BOREHOLE LOG

Client: FORESTVILLE RSL CLUB LTD
Project: PROPOSED PRIVATE MEDICAL CENTRE
Location: 22 MELWOOD AVENUE, FORESTVILLE, NSW

Job No.: 31993BM | **Core Size:** NMLC | **R.L. Surface:** ~126.2 m
Date: 12/11/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK205 | **Bearing:** N/A | **Logged/Checked By:** J.B.J/M.P.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		123			START CORING AT 3.72m						
100% RETURN		122	4		NO CORE 0.07m SANDSTONE: fine to medium grained, light grey mottled pink/orange, bedding at 1-3°.	HW MW	VL L - M	0.10 0.10 0.60		(3.79m) XWS, 0°, 140 mm.t (4.13m) Be, 3°, Ir, R, Clay, 1 mm.t (4.18m) Be, 3°, Ir, R, Cn	
		121	5					0.060 0.40		(4.45m) CS, 0°, 10 mm.t (5.24m) XWS, 0°, 5 mm.t (5.48m) Be, 5°, P, R, Fe Sn (5.60m) XWS, 0°, 10 mm.t	
		120	6		SANDSTONE: fine to medium grained, light grey with dark grey banding, bedding at 5-10°.	FR	M - H	0.70 1.6		(5.92m) Be, 0°, P, R, Cn	Hawkesbury Sandstone
		119	7					0.60 1.1			
		118	8					0.70		(7.85m) Be, 2°, P, R, Cb Vn (8.07m) Be, 0°, P, R, Cb Cn, 1 mm.t	
			9					0.50		(8.92m) Be, 2°, P, R, Cb Cn, 1 mm.t	
		117			END OF BOREHOLE AT 8.98 m						

JK 9.01.2 LIB:GLB Log, JK CORED BOREHOLE - MASTER 31993BM FORESTVILLE.GPJ <<DrawingFile>> 30/11/2018 15:56 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

COPYRIGHT
FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

APPENDIX C

Laboratory Report

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 382376

Client Details

Client	Geo-Environmental Engineering
Attention	Stephen McCormack
Address	82 Bridge St, Lane Cove, NSW, 2066

Sample Details

Your Reference	**E24016FOR**
Number of Samples	54 Soil, 1 Water
Date samples received	03/06/2025
Date completed instructions received	03/06/2025

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	11/06/2025
Date of Issue	11/06/2025

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: Nyovan Moonean
Authorised by Asbestos Approved Signatory: Nyovan Moonean

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Liam Timmins, Organics Supervisor
Nyovan Moonean, Asbestos Approved Identifier/Counter
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in soil			
Our Reference		382376-1	382376-27
Your Reference	UNITS	SM030625-69	SM030625-18
Date Sampled		03/06/2025	03/06/2025
Type of sample		Soil	Soil
Date Extracted	-	05/06/2025	05/06/2025
Date Analysed	-	11/06/2025	11/06/2025
Dichlorodifluoromethane	mg/kg	<1	<1
Chloromethane	mg/kg	<1	<1
Vinyl Chloride	mg/kg	<1	<1
Bromomethane	mg/kg	<1	<1
Chloroethane	mg/kg	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1
trans-1,2-Dichloroethene	mg/kg	<1	<1
1,1-Dichloroethane	mg/kg	<1	<1
cis-1,2-Dichloroethene	mg/kg	<1	<1
Bromochloromethane	mg/kg	<1	<1
Chloroform	mg/kg	<1	<1
2,2-Dichloropropane	mg/kg	<1	<1
1,2-Dichloroethane	mg/kg	<1	<1
1,1,1-Trichloroethane	mg/kg	<1	<1
1,1-Dichloropropene	mg/kg	<1	<1
Cyclohexane	mg/kg	<1	<1
Carbon Tetrachloride	mg/kg	<1	<1
Benzene	mg/kg	<0.2	<0.2
Dibromomethane	mg/kg	<1	<1
1,2-Dichloropropane	mg/kg	<1	<1
Trichloroethene	mg/kg	<1	<1
Bromodichloromethane	mg/kg	<1	<1
trans-1,3-Dichloropropene	mg/kg	<1	<1
cis-1,3-Dichloropropene	mg/kg	<1	<1
1,1,2-Trichloroethane	mg/kg	<1	<1
Toluene	mg/kg	<0.5	<0.5
1,3-Dichloropropane	mg/kg	<1	<1
Dibromochloromethane	mg/kg	<1	<1
1,2-Dibromoethane	mg/kg	<1	<1
Tetrachloroethene	mg/kg	<1	<1
1,1,1,2-Tetrachloroethane	mg/kg	<1	<1
Chlorobenzene	mg/kg	<1	<1
Ethylbenzene	mg/kg	<1	<1

VOCs in soil			
Our Reference	UNITS	382376-1	382376-27
Your Reference		SM030625-69	SM030625-18
Date Sampled		03/06/2025	03/06/2025
Type of sample		Soil	Soil
Bromoform	mg/kg	<1	<1
m+p-Xylene	mg/kg	<2	<2
Styrene	mg/kg	<1	<1
1,1,2,2-Tetrachloroethane	mg/kg	<1	<1
o-Xylene	mg/kg	<1	<1
1,2,3-Trichloropropane	mg/kg	<1	<1
Isopropylbenzene	mg/kg	<1	<1
Bromobenzene	mg/kg	<1	<1
n-Propylbenzene	mg/kg	<1	<1
2-Chlorotoluene	mg/kg	<1	<1
4-Chlorotoluene	mg/kg	<1	<1
1,3,5-Trimethylbenzene	mg/kg	<1	<1
tert-Butylbenzene	mg/kg	<1	<1
1,2,4-Trimethylbenzene	mg/kg	<1	<1
1,3-Dichlorobenzene	mg/kg	<1	<1
sec-Butylbenzene	mg/kg	<1	<1
1,4-Dichlorobenzene	mg/kg	<1	<1
4-Isopropyltoluene	mg/kg	<1	<1
1,2-Dichlorobenzene	mg/kg	<1	<1
n-Butylbenzene	mg/kg	<1	<1
1,2-Dibromo-3-chloropropane	mg/kg	<1	<1
1,2,4-Trichlorobenzene	mg/kg	<1	<1
Hexachlorobutadiene	mg/kg	<1	<1
1,2,3-Trichlorobenzene	mg/kg	<1	<1
Surrogate Dibromofluoromethane	%	94	99
Surrogate aaa-Trifluorotoluene	%	105	90
Surrogate Toluene-d_8	%	98	99
Surrogate 4-Bromofluorobenzene	%	106	105

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		382376-1	382376-2	382376-9	382376-16	382376-17
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-06	SM030625-13	SM030625-14
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	%	105	101	97	100	102

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		382376-20	382376-21	382376-27	382376-31	382376-32
Your Reference	UNITS	SM030625-17	SM030625-22	SM030625-18	SM030625-66	SM030625-67
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	%	101	92	90	102	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		382376-34	382376-35	382376-37	382376-40	382376-42
Your Reference	UNITS	SM030625-59	SM030625-57	SM030625-52	SM030625-55	SM030625-62
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	%	103	106	100	100	104

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		382376-43	382376-45	382376-46	382376-50	382376-51
Your Reference	UNITS	SM030625-63	SM030625-60	SM030625-61	SM030625-100	SM030625-102
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	%	73	79	77	73	74

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		382376-54	382376-55
Your Reference	UNITS	Trip Blank	Trip Spike
Date Sampled		03/06/2025	03/06/2025
Type of sample		Soil	Soil
Date extracted	-	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025
TRH C_6 - C_9	mg/kg	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	[NA]
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	[NA]
Benzene	mg/kg	<0.2	97%
Toluene	mg/kg	<0.5	97%
Ethylbenzene	mg/kg	<1	97%
m+p-xylene	mg/kg	<2	98%
o-Xylene	mg/kg	<1	98%
Naphthalene	mg/kg	<1	[NA]
Total +ve Xylenes	mg/kg	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	78	98

svTRH (C10-C40) in Soil						
Our Reference		382376-1	382376-2	382376-9	382376-16	382376-17
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-06	SM030625-13	SM030625-14
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
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	200
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	200
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	120
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	240
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	360
Surrogate o-Terphenyl	%	96	94	105	99	93

svTRH (C10-C40) in Soil						
Our Reference		382376-20	382376-21	382376-27	382376-31	382376-32
Your Reference	UNITS	SM030625-17	SM030625-22	SM030625-18	SM030625-66	SM030625-67
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	93	95	95	93	92

svTRH (C10-C40) in Soil						
Our Reference		382376-34	382376-35	382376-37	382376-40	382376-42
Your Reference	UNITS	SM030625-59	SM030625-57	SM030625-52	SM030625-55	SM030625-62
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
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	110	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	110	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	220	<50	<50	<50	<50
Surrogate o-Terphenyl	%	90	91	93	92	90

svTRH (C10-C40) in Soil						
Our Reference		382376-43	382376-45	382376-46	382376-50	382376-51
Your Reference	UNITS	SM030625-63	SM030625-60	SM030625-61	SM030625-100	SM030625-102
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	90	88	90	89	90

PAHs in Soil						
Our Reference		382376-1	382376-2	382376-4	382376-9	382376-16
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-01	SM030625-06	SM030625-13
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	115	104	106	104	117

PAHs in Soil						
Our Reference		382376-17	382376-20	382376-21	382376-24	382376-27
Your Reference	UNITS	SM030625-14	SM030625-17	SM030625-22	SM030625-19	SM030625-18
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	10/06/2025	10/06/2025	10/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	115	131	138	131	131

PAHs in Soil						
Our Reference		382376-31	382376-32	382376-34	382376-35	382376-36
Your Reference	UNITS	SM030625-66	SM030625-67	SM030625-59	SM030625-57	SM030625-58
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	10/06/2025	10/06/2025	06/06/2025
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	0.2	<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	0.4	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	139	131	123	138	133

PAHs in Soil						
Our Reference		382376-37	382376-38	382376-40	382376-41	382376-42
Your Reference	UNITS	SM030625-52	SM030625-53	SM030625-55	SM030625-56	SM030625-62
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	06/06/2025	10/06/2025	06/06/2025	10/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	132	129	128	113	129

PAHs in Soil						
Our Reference		382376-43	382376-45	382376-46	382376-50	382376-51
Your Reference	UNITS	SM030625-63	SM030625-60	SM030625-61	SM030625-100	SM030625-102
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	06/06/2025	10/06/2025	10/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	124	126	109	117	113

Organochlorine Pesticides in soil						
Our Reference		382376-1	382376-2	382376-4	382376-6	382376-8
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-01	SM030625-03	SM030625-05
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
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	0.3	0.6	<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	0.3	0.6	<0.1
Surrogate 4-Chloro-3-NBTF	%	109	109	105	107	99

Organochlorine Pesticides in soil						
Our Reference		382376-9	382376-11	382376-12	382376-14	382376-15
Your Reference	UNITS	SM030625-06	SM030625-08	SM030625-09	SM030625-11	SM030625-12
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
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	0.2	0.3	<0.1	<0.1	0.2
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	0.2	0.3	<0.1	<0.1	0.2
Surrogate 4-Chloro-3-NBTF	%	109	106	105	107	103

Organochlorine Pesticides in soil						
Our Reference		382376-17	382376-18	382376-19	382376-21	382376-22
Your Reference	UNITS	SM030625-14	SM030625-15	SM030625-16	SM030625-22	SM030625-23
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	10/06/2025	10/06/2025	10/06/2025
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	0.5	<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	0.5	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	107	102	118	123	120

Organochlorine Pesticides in soil						
Our Reference		382376-24	382376-25	382376-27	382376-28	382376-34
Your Reference	UNITS	SM030625-19	SM030625-20	SM030625-18	SM030625-28	SM030625-59
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	0.2	0.6	<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	0.2	0.6	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	117	118	115	119	111

Organochlorine Pesticides in soil						
Our Reference		382376-35	382376-40	382376-45	382376-47	382376-50
Your Reference	UNITS	SM030625-57	SM030625-55	SM030625-60	SM030625-25	SM030625-100
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	0.2	<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	0.2	<0.1
Surrogate 4-Chloro-3-NBTF	%	125	114	107	97	104

Organochlorine Pesticides in soil		
Our Reference		382376-52
Your Reference	UNITS	SM030625-104
Date Sampled		03/06/2025
Type of sample		Soil
Date extracted	-	05/06/2025
Date analysed	-	10/06/2025
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	0.3
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	0.3
Surrogate 4-Chloro-3-NBTF	%	88

Organophosphorus Pesticides in Soil						
Our Reference		382376-4	382376-6	382376-8	382376-11	382376-12
Your Reference	UNITS	SM030625-01	SM030625-03	SM030625-05	SM030625-08	SM030625-09
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
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	%	105	107	99	106	105

Organophosphorus Pesticides in Soil						
Our Reference		382376-14	382376-15	382376-18	382376-19	382376-22
Your Reference	UNITS	SM030625-11	SM030625-12	SM030625-15	SM030625-16	SM030625-23
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	10/06/2025	10/06/2025
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	%	107	103	102	118	120

Organophosphorus Pesticides in Soil						
Our Reference		382376-24	382376-25	382376-28	382376-47	382376-52
Your Reference	UNITS	SM030625-19	SM030625-20	SM030625-28	SM030625-25	SM030625-104
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	%	117	118	119	97	88

PCBs in Soil						
Our Reference		382376-1	382376-2	382376-9	382376-17	382376-21
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-06	SM030625-14	SM030625-22
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	10/06/2025
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	%	110	107	106	110	123

PCBs in Soil						
Our Reference		382376-27	382376-34	382376-35	382376-40	382376-45
Your Reference	UNITS	SM030625-18	SM030625-59	SM030625-57	SM030625-55	SM030625-60
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
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	%	118	112	124	115	107

PCBs in Soil		
Our Reference		382376-50
Your Reference	UNITS	SM030625-100
Date Sampled		03/06/2025
Type of sample		Soil
Date extracted	-	05/06/2025
Date analysed	-	10/06/2025
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	105

Misc Soil - Inorg			
Our Reference		382376-1	382376-27
Your Reference	UNITS	SM030625-69	SM030625-18
Date Sampled		03/06/2025	03/06/2025
Type of sample		Soil	Soil
Date prepared	-	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025
Total Phenolics (as Phenol)	mg/kg	<5	<5

Acid Extractable metals in soil						
Our Reference		382376-1	382376-2	382376-3	382376-4	382376-6
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-51	SM030625-01	SM030625-03
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	<4	21	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	11	30	8	1
Copper	mg/kg	29	5	<1	7	<1
Lead	mg/kg	5	12	11	8	2
Mercury	mg/kg	<0.1	<0.1	<0.1	1.0	0.2
Nickel	mg/kg	12	2	1	4	<1
Zinc	mg/kg	21	35	<1	13	4

Acid Extractable metals in soil						
Our Reference		382376-7	382376-8	382376-9	382376-11	382376-12
Your Reference	UNITS	SM030625-04	SM030625-05	SM030625-06	SM030625-08	SM030625-09
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	10	27	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	21	37	8	<1	5
Copper	mg/kg	1	<1	8	<1	1
Lead	mg/kg	12	7	7	2	8
Mercury	mg/kg	<0.1	0.1	0.9	<0.1	<0.1
Nickel	mg/kg	<1	2	4	<1	<1
Zinc	mg/kg	4	2	13	7	7

Acid Extractable metals in soil						
Our Reference		382376-13	382376-14	382376-15	382376-16	382376-17
Your Reference	UNITS	SM030625-10	SM030625-11	SM030625-12	SM030625-13	SM030625-14
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	7	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	7	<1	10	6
Copper	mg/kg	<1	8	<1	<1	9
Lead	mg/kg	10	6	<1	9	5
Mercury	mg/kg	<0.1	0.5	<0.1	<0.1	0.1
Nickel	mg/kg	<1	4	<1	<1	3
Zinc	mg/kg	7	14	6	1	13

Acid Extractable metals in soil						
Our Reference		382376-18	382376-19	382376-20	382376-21	382376-22
Your Reference	UNITS	SM030625-15	SM030625-16	SM030625-17	SM030625-22	SM030625-23
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	<4	6	<4	13	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	9	6	9	12
Copper	mg/kg	<1	1	<1	9	<1
Lead	mg/kg	1	16	3	16	4
Mercury	mg/kg	0.2	<0.1	<0.1	0.5	<0.1
Nickel	mg/kg	<1	<1	2	5	<1
Zinc	mg/kg	6	10	3	33	<1

Acid Extractable metals in soil						
Our Reference		382376-23	382376-24	382376-25	382376-26	382376-27
Your Reference	UNITS	SM030625-24	SM030625-19	SM030625-20	SM030625-21	SM030625-18
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	8	1	12	16
Copper	mg/kg	<1	9	<1	<1	35
Lead	mg/kg	3	7	1	5	7
Mercury	mg/kg	<0.1	0.9	0.2	<0.1	0.2
Nickel	mg/kg	4	5	<1	<1	20
Zinc	mg/kg	1	20	6	<1	20

Acid Extractable metals in soil						
Our Reference		382376-28	382376-29	382376-31	382376-32	382376-34
Your Reference	UNITS	SM030625-28	SM030625-29	SM030625-66	SM030625-67	SM030625-59
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	<4	<4	<4	5	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	11	78	26	39
Copper	mg/kg	8	<1	27	<1	5
Lead	mg/kg	13	10	6	24	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	1	76	<1	7
Zinc	mg/kg	31	<1	36	2	10

Acid Extractable metals in soil						
Our Reference		382376-35	382376-36	382376-37	382376-38	382376-40
Your Reference	UNITS	SM030625-57	SM030625-58	SM030625-52	SM030625-53	SM030625-55
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	5	<4	<4	13	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	6	5	31	24
Copper	mg/kg	47	2	2	<1	53
Lead	mg/kg	7	10	8	15	5
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	59	1	1	<1	120
Zinc	mg/kg	27	1	8	<1	39

Acid Extractable metals in soil						
Our Reference		382376-41	382376-42	382376-43	382376-45	382376-46
Your Reference	UNITS	SM030625-56	SM030625-62	SM030625-63	SM030625-60	SM030625-61
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	<4	<4	<4	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	6	7	14	11
Copper	mg/kg	2	1	<1	11	2
Lead	mg/kg	8	5	12	13	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	<1	<1	3	<1
Zinc	mg/kg	2	1	<1	12	2

Acid Extractable metals in soil						
Our Reference		382376-47	382376-48	382376-50	382376-51	382376-52
Your Reference	UNITS	SM030625-25	SM030625-26	SM030625-100	SM030625-102	SM030625-104
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Arsenic	mg/kg	<4	<4	30	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	2	11	10	1
Copper	mg/kg	7	<1	8	<1	<1
Lead	mg/kg	6	1	15	17	<1
Mercury	mg/kg	0.8	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	<1	5	<1	<1
Zinc	mg/kg	12	6	76	1	6

Acid Extractable metals in soil		
Our Reference		382376-56
Your Reference	UNITS	SM030625-69 - [TRIPLICATE]
Date Sampled		03/06/2025
Type of sample		Soil
Date prepared	-	05/06/2025
Date analysed	-	06/06/2025
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	21
Copper	mg/kg	22
Lead	mg/kg	6
Mercury	mg/kg	<0.1
Nickel	mg/kg	22
Zinc	mg/kg	20

Moisture						
Our Reference		382376-1	382376-2	382376-3	382376-4	382376-6
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-51	SM030625-01	SM030625-03
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	18	9.4	13	11	7.1

Moisture						
Our Reference		382376-7	382376-8	382376-9	382376-11	382376-12
Your Reference	UNITS	SM030625-04	SM030625-05	SM030625-06	SM030625-08	SM030625-09
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	18	14	14	9.7	23

Moisture						
Our Reference		382376-13	382376-14	382376-15	382376-16	382376-17
Your Reference	UNITS	SM030625-10	SM030625-11	SM030625-12	SM030625-13	SM030625-14
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	19	13	17	16	12

Moisture						
Our Reference		382376-18	382376-19	382376-20	382376-21	382376-22
Your Reference	UNITS	SM030625-15	SM030625-16	SM030625-17	SM030625-22	SM030625-23
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	11	17	19	22	14

Moisture						
Our Reference		382376-23	382376-24	382376-25	382376-26	382376-27
Your Reference	UNITS	SM030625-24	SM030625-19	SM030625-20	SM030625-21	SM030625-18
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	11	14	11	15	16

Moisture						
Our Reference		382376-28	382376-29	382376-31	382376-32	382376-34
Your Reference	UNITS	SM030625-28	SM030625-29	SM030625-66	SM030625-67	SM030625-59
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	15	15	7.7	18	8.0

Moisture						
Our Reference		382376-35	382376-36	382376-37	382376-38	382376-40
Your Reference	UNITS	SM030625-57	SM030625-58	SM030625-52	SM030625-53	SM030625-55
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	9.3	11	14	17	11

Moisture						
Our Reference		382376-41	382376-42	382376-43	382376-45	382376-46
Your Reference	UNITS	SM030625-56	SM030625-62	SM030625-63	SM030625-60	SM030625-61
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	10	11	17	11	14

Moisture						
Our Reference		382376-47	382376-48	382376-50	382376-51	382376-52
Your Reference	UNITS	SM030625-25	SM030625-26	SM030625-100	SM030625-102	SM030625-104
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Moisture	%	11	19	11	17	17

Asbestos ID - soils						
Our Reference		382376-1	382376-2	382376-4	382376-6	382376-9
Your Reference	UNITS	SM030625-69	SM030625-50	SM030625-01	SM030625-03	SM030625-06
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	Approx. 25g	Approx. 30g	Approx. 30g	Approx. 30g	Approx. 25g
Sample Description	-	Grey 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		382376-14	382376-17	382376-21	382376-24	382376-27
Your Reference	UNITS	SM030625-11	SM030625-14	SM030625-22	SM030625-19	SM030625-18
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	Approx. 25g	Approx. 30g	Approx. 20g	Approx. 20g	Approx. 25g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey sandy 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		382376-28	382376-31	382376-34	382376-35	382376-37
Your Reference	UNITS	SM030625-28	SM030625-66	SM030625-59	SM030625-57	SM030625-52
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	Approx. 25g	Approx. 30g	Approx. 20g	Approx. 20g	34.78g
Sample Description	-	Brown coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey sandy 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	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected Organic fibres detected
Asbestos comments	-	Nil	Nil	Nil	Nil	YES
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils					
Our Reference		382376-40	382376-42	382376-45	382376-47
Your Reference	UNITS	SM030625-55	SM030625-62	SM030625-60	SM030625-25
Date Sampled		03/06/2025	03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	Approx. 30g	Approx. 30g	Approx. 25g	Approx. 30g
Sample Description	-	Grey coarse-grained soil & rocks	Beige clayey soil & rocks	Brown clayey 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
Asbestos comments	-	Nil	Nil	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

vTRH(C6-C10)/BTEXN in Water		
Our Reference	UNITS	382376-53
Your Reference		SM030625-R
Date Sampled		03/06/2025
Type of sample		Water
Date extracted	-	06/06/2025
Date analysed	-	10/06/2025
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	102
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	95

svTRH (C10-C40) in Water		
Our Reference	UNITS	382376-53
Your Reference		SM030625-R
Date Sampled		03/06/2025
Type of sample		Water
Date extracted	-	05/06/2025
Date analysed	-	05/06/2025
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	115

Metals in Waters - Acid extractable		
Our Reference		382376-53
Your Reference	UNITS	SM030625-R
Date Sampled		03/06/2025
Type of sample		Water
Date prepared	-	05/06/2025
Date analysed	-	05/06/2025
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	<0.01
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-27
Date Extracted	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date Analysed	-			11/06/2025	1	11/06/2025	11/06/2025		11/06/2025	11/06/2025
Dichlorodifluoromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
trans-1,2-Dichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-Dichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	127	95
cis-1,2-Dichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	mg/kg	1	Org-023	<1	1	<1	<1	0	134	107
2,2-Dichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	117	91
1,1,1-Trichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	113	86
1,1-Dichloropropene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon Tetrachloride	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	125	96
Dibromomethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	124	95
Bromodichloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	114	86
trans-1,3-Dichloropropene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-Dichloropropene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-Trichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	119	91
1,3-Dichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	105	80
1,2-Dibromoethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	124	96
1,1,1,2-Tetrachloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	125	96
Bromoform	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-Xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	122	95
Styrene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-27
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	124	96
1,2,3-Trichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-Propylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-Chlorotoluene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-Chlorotoluene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-Trimethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
tert-Butylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-Trimethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-Dichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
sec-Butylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-Dichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-Isopropyltoluene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-Butylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dibromo-3-chloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-Trichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-Trichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	1	94	92	2	97	99
Surrogate aaa-Trifluorotoluene	%		Org-023	102	1	105	95	10	111	86
Surrogate Toluene-d_8	%		Org-023	98	1	98	97	1	102	103
Surrogate 4-Bromofluorobenzene	%		Org-023	105	1	106	105	1	107	108

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-9
Date extracted	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			10/06/2025	1	10/06/2025	10/06/2025		10/06/2025	10/06/2025
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	110	107
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	110	107
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	116	115
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	85	111
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	119	103
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	116	103
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	122	105
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	102	1	105	95	10	98	99

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-27
Date extracted	-			[NT]	17	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	17	10/06/2025	10/06/2025		10/06/2025	10/06/2025
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	17	<25	<25	0	123	95
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	17	<25	<25	0	123	95
Benzene	mg/kg	0.2	Org-023	[NT]	17	<0.2	<0.2	0	125	96
Toluene	mg/kg	0.5	Org-023	[NT]	17	<0.5	<0.5	0	119	91
Ethylbenzene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	125	96
m+p-xylene	mg/kg	2	Org-023	[NT]	17	<2	<2	0	122	95
o-Xylene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	124	96
Naphthalene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	17	102	99	3	111	86

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]	40	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	40	10/06/2025	10/06/2025		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	40	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	40	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	40	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	40	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	40	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	40	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	40	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	40	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	40	100	112	11	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-9
Date extracted	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			06/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	93
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	87	85
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	129	100
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	93
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	87	85
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	129	100
Surrogate o-Terphenyl	%		Org-020	93	1	96	95	1	81	83

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-27
Date extracted	-			[NT]	17	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	17	05/06/2025	05/06/2025		06/06/2025	06/06/2025
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	17	<50	<50	0	107	92
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	17	<100	110	10	94	82
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	17	200	170	16	100	93
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	17	<50	<50	0	107	92
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	17	120	140	15	94	82
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	17	240	200	18	100	93
Surrogate o-Terphenyl	%		Org-020	[NT]	17	93	94	1	88	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]	40	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	40	06/06/2025	06/06/2025		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	40	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	40	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	40	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	40	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	40	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	40	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	40	92	91	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-9
Date extracted	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			06/06/2025	1	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	88
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	74	78
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	84
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	88
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	78	84
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	86
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	76	80
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	80	82
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	128	1	115	107	7	88	99

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-27
Date extracted	-			[NT]	4	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	4	06/06/2025	06/06/2025		10/06/2025	10/06/2025
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	96	98
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	72	70
Fluorene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	94	94
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	100	102
Anthracene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	102	102
Pyrene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	106	108
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	90	88
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	4	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	4	<0.05	<0.05	0	90	88
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	4	106	112	6	104	107

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	17	06/06/2025	06/06/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	17	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	17	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	17	115	101	13	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	40	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	40	10/06/2025	10/06/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	40	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	40	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	40	128	137	7	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-9
Date extracted	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			06/06/2025	1	06/06/2025	06/06/2025		06/06/2025	06/06/2025
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	90
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	88
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	66	70
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	86	92
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	98
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	84
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	95
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	80
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	94
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	66	72
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	112	1	109	107	2	90	93

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-14
Date extracted	-			[NT]	4	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	4	06/06/2025	06/06/2025		10/06/2025	06/06/2025
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	100	88
HCB	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	96	84
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	92	66
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	110	88
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	110	94
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	96	82
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	4	0.3	0.3	0	108	94
Endrin	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	100	80
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	86	90
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	98	68
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	4	105	107	2	106	92

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	382376-27
Date extracted	-			[NT]	17	05/06/2025	05/06/2025		[NT]	05/06/2025
Date analysed	-			[NT]	17	06/06/2025	06/06/2025		[NT]	10/06/2025
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	96
HCB	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	96
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	92
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	114
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	116
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	98
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	114
Endrin	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	96
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	92
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	120
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	17	107	105	2	[NT]	105

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	22	10/06/2025	10/06/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	22	120	116	3	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	40	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	40	10/06/2025	10/06/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	40	114	117	3	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-14
Date extracted	-			05/06/2025	4	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			06/06/2025	4	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	88	88
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	82	84
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	72	74
Malathion	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	84	86
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	84	88
Fenthion	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	66	66
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	82	86
Phosalone	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	112	4	105	107	2	90	92

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			[NT]	22	05/06/2025	05/06/2025		05/06/2025	[NT]
Date analysed	-			[NT]	22	10/06/2025	10/06/2025		10/06/2025	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	104	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	102	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	92	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	110	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	106	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	82	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	92	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	22	120	116	3	106	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-9
Date extracted	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			06/06/2025	1	06/06/2025	06/06/2025		06/06/2025	06/06/2025
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	96	80
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	114	1	110	107	3	87	93

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-27
Date extracted	-			[NT]	17	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	17	06/06/2025	06/06/2025		10/06/2025	10/06/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	112	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	17	110	107	3	103	105

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	40	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	40	10/06/2025	10/06/2025		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	40	115	118	3	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			05/06/2025	[NT]	[NT]	[NT]	[NT]	05/06/2025	[NT]
Date analysed	-			06/06/2025	[NT]	[NT]	[NT]	[NT]	06/06/2025	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	382376-9
Date prepared	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			06/06/2025	1	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	108	101
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	96	91
Chromium	mg/kg	1	Metals-020	<1	1	13	21	47	100	96
Copper	mg/kg	1	Metals-020	<1	1	29	25	15	103	101
Lead	mg/kg	1	Metals-020	<1	1	5	6	18	95	91
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	81	96
Nickel	mg/kg	1	Metals-020	<1	1	12	19	45	99	96
Zinc	mg/kg	1	Metals-020	<1	1	21	24	13	89	84

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	382376-14
Date prepared	-			[NT]	3	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	3	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Arsenic	mg/kg	4	Metals-020	[NT]	3	<4	<4	0	115	97
Cadmium	mg/kg	0.4	Metals-020	[NT]	3	<0.4	<0.4	0	111	88
Chromium	mg/kg	1	Metals-020	[NT]	3	30	22	31	105	92
Copper	mg/kg	1	Metals-020	[NT]	3	<1	<1	0	93	97
Lead	mg/kg	1	Metals-020	[NT]	3	11	13	17	106	87
Mercury	mg/kg	0.1	Metals-021	[NT]	3	<0.1	<0.1	0	127	77
Nickel	mg/kg	1	Metals-020	[NT]	3	1	<1	0	107	92
Zinc	mg/kg	1	Metals-020	[NT]	3	<1	<1	0	106	80

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	382376-27
Date prepared	-			[NT]	17	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Date analysed	-			[NT]	17	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Arsenic	mg/kg	4	Metals-020	[NT]	17	<4	<4	0	100	95
Cadmium	mg/kg	0.4	Metals-020	[NT]	17	<0.4	<0.4	0	89	78
Chromium	mg/kg	1	Metals-020	[NT]	17	6	6	0	92	93
Copper	mg/kg	1	Metals-020	[NT]	17	9	10	11	95	87
Lead	mg/kg	1	Metals-020	[NT]	17	5	6	18	88	81
Mercury	mg/kg	0.1	Metals-021	[NT]	17	0.1	0.1	0	108	115
Nickel	mg/kg	1	Metals-020	[NT]	17	3	3	0	92	79
Zinc	mg/kg	1	Metals-020	[NT]	17	13	14	7	82	70

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	22	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	22	06/06/2025	06/06/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	22	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	22	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	22	12	13	8	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	22	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	22	4	5	22	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	22	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	22	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	40	05/06/2025	05/06/2025		[NT]	[NT]
Date analysed	-			[NT]	40	06/06/2025	06/06/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	40	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	40	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	40	24	19	23	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	40	53	61	14	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	40	5	6	18	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	40	120	120	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	40	39	35	11	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			06/06/2025	[NT]	[NT]	[NT]	[NT]	06/06/2025	[NT]
Date analysed	-			10/06/2025	[NT]	[NT]	[NT]	[NT]	10/06/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	96	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	92	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/06/2025	[NT]	[NT]	[NT]	[NT]	05/06/2025	[NT]
Date analysed	-			05/06/2025	[NT]	[NT]	[NT]	[NT]	05/06/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	93	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			05/06/2025	[NT]	[NT]	[NT]	[NT]	05/06/2025	[NT]
Date analysed	-			05/06/2025	[NT]	[NT]	[NT]	[NT]	05/06/2025	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	93	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	102	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	96	[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.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 382376-1 for Cr & Ni. Therefore a triplicate result has been issued as laboratory sample number 382376-56.

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 testing were sub-sampled from jars provided by the client.

Sample 382376-37 ; Chrysotile, Amosite & Crocidolite asbestos identified in matted material, it is estimated to be 1.37g/kg in 34.78g of soil (i.e. > reporting limit for the method of 0.1g/kg).

COC 3/6/25, 1835

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:**	**Envirolab Services**
Project Mgr:	Stephen McCormack	E24016FOR	12 Ashley St, Chatswood, NSW, 2067
Sampler:	Stephen Mccormack	**PO No.:**	Phone: 02 9910 6200
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	Fax: 02 9910 6201
Email:	stephen@geoenvironmental.com.au	**Date results required:**	E-mail: sydney@envirolab.com.au
		Or choose: standard / 1 day / 2 day / 3 day / 5 day **4 days if possible**	
Phone:	0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Sample information				Tests Required														Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	Metals (S8)	OCP/OPPs	Asbestos ID	VOCs	Combination 7a	TRH (vol)/BTEXN	BTEXN	Combo 1m			Provide as much information about the sample as you can
1	SM030625-69	3/06/2025	Soil									1	1						
2	SM030625-50	3/06/2025	Soil				1												
3	SM030625-51	3/06/2025	Soil						1										
4	SM030625-01	3/06/2025	Soil					1	1	1	1								
5	SM030625-02	3/06/2025	Soil																
6	SM030625-03	3/06/2025	Soil						1	1	1								
7	SM030625-04	3/06/2025	Soil						1										
8	SM030625-05	3/06/2025	Soil						1	1									
9	SM030625-06	3/06/2025	Soil				1												
10	SM030625-07	3/06/2025	Soil																
11	SM030625-08	3/06/2025	Soil						1	1									
12	SM030625-09	3/06/2025	Soil						1	1									
13	SM030625-10	3/06/2025	Soil						1										
14	SM030625-11	3/06/2025	Soil						1	1	1								
15	SM030625-12	3/06/2025	Soil						1	1									
16	SM030625-13	3/06/2025	Soil	1															

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

ENVIROLAB

Job No: 382376
Date Received: 3/6/25
Time Received: 1630
Received By: OL
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	ES SYD
Print Name:	Stephen McCormack	**Print Name:**	Pallavun Ved
Date & Time:	03-Jun-25	**Date & Time:**	3/6/25 1630
Signature:		**Signature:**	

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: 2 (if applicable)
Transported by: Hand delivered / courier

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:**	**Envirolab Services**
Project Mgr:	Stephen McCormack	E24016FOR	12 Ashley St, Chatswood, NSW, 2067
Sampler:	Stephen Mccormack	**PO No.:**	Phone: 02 9910 6200
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	Fax: 02 9910 6201
Email:	stephen@geoenvironmental.com.au	**Date results required:** Or choose: standard / 1 day / 2 day / 3 day / 5 day	E-mail: sydney@envirolab.com.au
Phone:	0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Sample information				Tests Required													Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combinatiion 3	Combination 3a	Combination 5	Combination 5a	PAHs	Metals (S8)	OCP/OPPs	Asbestos ID	VOCs	Combination 7a	TRH (vol)/BTEXN	BTEXN	Combo 1m			Provide as much information about the sample as you can
17	SM030625-14	3/06/2025	Soil				1												
18	SM030625-15	3/06/2025	Soil						1	1									
19	SM030625-16	3/06/2025	Soil						1	1									
20	SM030625-17	3/06/2025	Soil	1															
21	SM030625-22	3/06/2025	Soil				1												
22	SM030625-23	3/06/2025	Soil						1	1									
23	SM030625-24	3/06/2025	Soil						1										
24	SM030625-19	3/06/2025	Soil					1	1	1	1								
25	SM030625-20	3/06/2025	Soil						1	1									
26	SM030625-21	3/06/2025	Soil						1										
27	SM030625-18	3/06/2025	Soil									1	1						
28	SM030625-28	3/06/2025	Soil						1	1	1								
29	SM030625-29	3/06/2025	Soil						1										
30	SM030625-30	3/06/2025	Soil																
31	SM030625-66	3/06/2025	Soil		1														
32	SM030625-67	3/06/2025	Soil	1															
33	SM030625-68	3/06/2025	Soil																

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	ALS	Samples Received: Cool or Ambient (circle one)
Print Name:	Stephen McCormack	**Print Name:**	PA Hwun Lee	Temperature Recieved at: 2 (if applicable)
Date & Time:	03-Jun-25	**Date & Time:**	3/6/25 16:30	Transported by: Hand delivered / courier
Signature:		**Signature:**		#382376 02 Page No: 2 of 4

#382376

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:**	**Envirolab Services**
Project Mgr:	Stephen McCormack	E24016FOR	12 Ashley St, Chatswood, NSW, 2067
Sampler:	Stephen Mccormack	**PO No.:**	Phone: 02 9910 6200
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	Fax: 02 9910 6201
Email:	stephen@geoenvironmental.com.au	**Date results required:** Or choose: standard / 1 day / 2 day / 3 day / 5 day	E-mail: sydney@envirolab.com.au
Phone:	0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Sample information				Tests Required														Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combinatiion 3	Combination 3a	Combination 5	Combination 5a	PAHs	Metals (S8)	OCP/OPPs	Asbestos ID	VOCs	Combination 7a	TRH (vol)/BTEXN	BTEXN	Combo 1m			Provide as much information about the sample as you can
34	SM030625-59	3/06/2025	Soil				1												
35	SM030625-57	3/06/2025	Soil				1												
36	SM030625-58	3/06/2025	Soil					1	1										
37	SM030625-52	3/06/2025	Soil		1														
38	SM030625-53	3/06/2025	Soil					1	1										
39	SM030625-54	3/06/2025	Soil																
40	SM030625-55	3/06/2025	Soil				1												
41	SM030625-56	3/06/2025	Soil					1	1										
42	SM030625-62	3/06/2025	Soil		1														
43	SM030625-63	3/06/2025	Soil	1															
44	SM030625-64	3/06/2025	Soil																
45	SM030625-60	3/06/2025	Soil				1												
46	SM030625-61	3/06/2025	Soil	1															
47	SM030625-25	3/06/2025	Soil						1	1	1								
48	SM030625-26	3/06/2025	Soil						1										
49	SM030625-27	3/06/2025	Soil																

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	EWSMD
Print Name:	Stephen McCormack	**Print Name:**	Da Hyun Lee
Date & Time:	03-Jun-25	**Date & Time:**	3/6/25, 1650
Signature:		**Signature:**	

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: 2 (if applicable)
Transported by: Hand delivered / courier
#382376

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:** E24016FOR	**Envirolab Services** 12 Ashley St, Chatswood, NSW, 2067 Phone: 02 9910 6200 Fax: 02 9910 6201 E-mail: sydney@envirolab.com.au
Project Mgr:	Stephen McCormack		
Sampler:	Stephen Mccormack	**PO No.:**	
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	
Email:	stephen@geoenvironmental.com.au	**Date results required:** Or choose: standard / 1 day / 2 day / 3 day / 5 day	
Phone:	0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Sample information				Tests Required														Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combinatiion 3	Combination 3a	Combination 5	Combination 5a	PAHs	Metals (S8)	OCP/OPPs	Asbestos ID	VOCs	Combination 7a	TRH (vol)/BTEXN	BTEXN	Combo 1m			Provide as much information about the sample as you can
50	SM030625-100	3/06/2025	Soil			1												
51	SM030625-102	3/06/2025	Soil	1														
52	SM030625-104	3/06/2025	Soil						1	1								
53	SM030625-R	3/06/2025	water													1		
54	Trip Blank	3/06/2025	Soil											1				
55	Trip Spike	3/06/2025	Soil												1			

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	ES (SYD)
Print Name:	Stephen McCormack	**Print Name:**	Da Hyun Lee
Date & Time:	03-Jun-25	**Date & Time:**	3/6/25. 1630
Signature:		**Signature:**	

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: 2 (if applicable)
Transported by: Hand delivered / courier
382376

#382376
3/6/25

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:**	**Envirolab Services**
Project Mgr:	Stephen McCormack	E24016FOR	5 Research Dr, Croydon South VIC 3136
Sampler:	Stephen Mccormack	**PO No.:**	Phone: 03 9763 2500
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	
Email:	stephen@geoenvironmental.com.au	**Date results required:**	E-mail: melbourne@envirolab.com.au
		Or choose: standard / 1 day / 2 day / 3 day / 5 day **4 days if possible**	
Phone:	0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Sample information				Tests Required															Comments
Envirolab Sample ID	**Client Sample ID**	**Date sampled**	**Type of sample**	**Combination 3**	**Combination 3a**	**Combination 5**	**Combination 5a**	**PAHs**	**Metals (S8)**	**OCP/OPPs**				**TRH (vol)/BTEXN**	**BTEXN**	**Combo 1m**		**Hold**	**Provide as much information about the sample as you can**
	SM030625-105	3/06/2025	Soil			1													
	SM030625-101	3/06/2025	Soil	1															
	SM030625-103	3/06/2025	Soil						1	1									

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	**Samples Received: Cool or Ambient (circle one)**
Print Name:	Stephen McCormack	**Print Name:**	**Temperature Recieved at:** **(if applicable)**
Date & Time:	03-Jun-25	**Date & Time:**	**Transported by: Hand delivered / courier**
Signature:		**Signature:**	**Page No: 1 of 1**

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Certificate of Analysis MGF0098

Client Details

Client	Geo-Environmental Engineering Pty Ltd
Contact	Stephen McCormack
Address	82 Bridge Street, LANE COVE, NSW, 2066

Sample Details

Your Reference	E24016FOR
Number of Samples	3 Soil
Date Samples Received	05/06/2025
Date Instructions Received	05/06/2025

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 soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	12/06/2025
Date of Issue	11/06/2025

NATA Accreditation Number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Chris De Luca, Lab Manager Maggie Hu, Organics Supervisor Tara White, Metals Supervisor
Laboratory Manager	Chris De Luca

Certificate of Analysis MGF0098

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MGF0098-01	SM030625-105	Soil	03/06/2025	05/06/2025
MGF0098-02	SM030625-101	Soil	03/06/2025	05/06/2025
MGF0098-03	SM030625-103	Soil	03/06/2025	05/06/2025

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	MGF0098-01	MGF0098-02
Your Reference			SM030625-105	SM030625-101
Date Sampled			03/06/2025	03/06/2025
TRH C6-C9	mg/kg	25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		*70.7*	*74.8*

Semi-volatile TRH (Soil)

Envirolab ID	Units	PQL	MGF0098-01	MGF0098-02
Your Reference			SM030625-105	SM030625-101
Date Sampled			03/06/2025	03/06/2025
TRH C10-C14	mg/kg	50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50
Surrogate o-Terphenyl	%		*73.9*	*74.0*

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID	Units	PQL	MGF0098-01	MGF0098-02
Your Reference			SM030625-105	SM030625-101
Date Sampled			03/06/2025	03/06/2025
Naphthalene	mg/kg	0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		*105*	*104*

Organochlorine Pesticides (Soil)

Envirolab ID	Units	PQL	MGF0098-01	MGF0098-03
Your Reference			SM030625-105	SM030625-103
Date Sampled			03/06/2025	03/06/2025
alpha-BHC	mg/kg	0.10	<0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10	<0.10
Aldrin	mg/kg	0.10	<0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10	0.31
Endrin	mg/kg	0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10	<0.10
Mirex	mg/kg	0.10	<0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10	0.31
Total +ve OCP	mg/kg	0.10	<0.10	0.31
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*109*	*109*

Organophosphorus Pesticides (Soil)

Envirolab ID	Units	PQL	MGF0098-03
Your Reference			SM030625-103
Date Sampled			03/06/2025
Dichlorvos	mg/kg	0.10	<0.10
Dimethoate	mg/kg	0.10	<0.10
Diazinon	mg/kg	0.10	<0.10
Chlorpyrifos-methyl	mg/kg	0.10	<0.10
Ronnel	mg/kg	0.10	<0.10
Fenitrothion	mg/kg	0.10	<0.10
Malathion	mg/kg	0.10	<0.10
Chlorpyrifos	mg/kg	0.10	<0.10
Parathion	mg/kg	0.10	<0.10
Bromophos-ethyl	mg/kg	0.10	<0.10
Ethion	mg/kg	0.10	<0.10
Coumaphos	mg/kg	0.10	<0.10
Disulfoton	mg/kg	0.10	<0.10
Fenamiphos	mg/kg	0.10	<0.10
Fenthion	mg/kg	0.10	<0.10
Methidathion	mg/kg	0.10	<0.10
Mevinphos	mg/kg	0.10	<0.10
Parathion-methyl	mg/kg	0.10	<0.10
Phorate	mg/kg	0.10	<0.10
Phosalone	mg/kg	0.10	<0.10
Azinphos-methyl	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*109*

Polychlorinated Biphenyls (Soil)

Envirolab ID	Units	PQL	MGF0098-01
Your Reference			SM030625-105
Date Sampled			03/06/2025
Aroclor 1016	mg/kg	0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		*102*

Certificate of Analysis MGF0098

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MGF0098-01	MGF0098-02	MGF0098-03
Your Reference			SM030625-105	SM030625-101	SM030625-103
Date Sampled			03/06/2025	03/06/2025	03/06/2025
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	32	15	1.2
Copper	mg/kg	1.0	22	1.5	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	21	<1.0	<1.0
Lead	mg/kg	1.0	4.6	16	1.2
Zinc	mg/kg	1.0	24	1.5	6.1

Certificate of Analysis MGF0098

Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MGF0098-01	MGF0098-02	MGF0098-03
Your Reference			SM030625-105	SM030625-101	SM030625-103
Date Sampled			03/06/2025	03/06/2025	03/06/2025
Moisture	%	0.10	14	12	9.6

Method Summary

Method ID	Methodology Summary
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-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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. 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_PCB	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
ORG-022	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_OC	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ 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. 'TEQ 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. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

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.

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.

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.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

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.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

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 QAQC tables for details (available on request); <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; 60-140% for organics (+/-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 typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

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. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

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 or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGF0098

Client Details

Client	Geo-Environmental Engineering Pty Ltd
Your Reference	E24016FOR
Date Issued	11/06/2025

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	Yes	No Outliers
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MGF0098

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN | Soil	1-2	03/06/2025	10/06/2025	10/06/2025	Yes
sTRH | Soil	1-2	03/06/2025	10/06/2025	10/06/2025	Yes
PAH | Soil	1-2	03/06/2025	10/06/2025	10/06/2025	Yes
OCP | Soil	1, 3	03/06/2025	10/06/2025	10/06/2025	Yes
OPP (21 list) | Soil	3	03/06/2025	10/06/2025	10/06/2025	Yes
PCB | Soil	1	03/06/2025	10/06/2025	10/06/2025	Yes
Metals | Soil	1-3	03/06/2025	10/06/2025	10/06/2025	Yes
Metals-Hg | Soil	1-3	03/06/2025	10/06/2025	10/06/2025	Yes
Moisture | Soil	1-3	03/06/2025	10/06/2025	11/06/2025	Yes

Quality Control MGF0098

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGF1278

Analyte	Units	PQL	Blank	DUP1 BGF1278-DUP1# Samp | QC | RPD %	DUP2 BGF1278-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
TRH C6-C9	mg/kg	25	<25	<25 | <25 | [NA]	<25 | <25 | [NA]	114	94.8
TRH C6-C10	mg/kg	25	<25	<25 | <25 | [NA]	<25 | <25 | [NA]	114	95.2
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	<0.50 | <0.50 | [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]	<0.20 | <0.20 | [NA]	101	82.7
Toluene	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	<0.50 | <0.50 | [NA]	104	88.7
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	<1.0 | <1.0 | [NA]	93.5	79.6
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]	<2.0 | <2.0 | [NA]	97.1	82.8
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	<1.0 | <1.0 | [NA]	95.6	80.6
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	<1.0 | <1.0 | [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	*%*		*71.8*	*76.8 | 74.2*	*92.0 | 80.8*	*98.4*	*89.0*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020|Semi-volatile TRH (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1 BGF1279-DUP1# Samp | QC | RPD %	DUP2 BGF1279-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
TRH C10-C14	mg/kg	50	<50	<50 | <50 | [NA]		102	105
TRH C15-C28	mg/kg	100	<100	<100 | <100 | [NA]		85.0	88.0
TRH C29-C36	mg/kg	100	<100	<100 | <100 | [NA]		95.7	89.5
TRH >C10-C16	mg/kg	50	<50	<50 | <50 | [NA]		80.4	82.7
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 | <100 | [NA]		87.3	90.1
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 | <100 | [NA]		91.8	88.2
Surrogate o-Terphenyl	*%*		*73.6*	*73.9 | 75.4*		*88.3*	*87.7*

Analyte	Units	PQL	Blank	DUP3 BGF1279-DUP3# Samp | QC | RPD %	DUP4 BGF1279-DUP4# Samp | QC | RPD %	LCS %
TRH C10-C14	mg/kg	50		<50 | <50 | [NA]		[NA]
TRH C15-C28	mg/kg	100		<100 | <100 | [NA]		[NA]
TRH C29-C36	mg/kg	100		<100 | <100 | [NA]		[NA]
TRH >C10-C16	mg/kg	50		<50 | <50 | [NA]		[NA]
TRH >C16-C34 (F3)	mg/kg	100		<100 | 104 | [NA]		[NA]
TRH >C34-C40 (F4)	mg/kg	100		<100 | <100 | [NA]		[NA]
Surrogate o-Terphenyl	*%*			*78.9 | 79.2*		*[NA]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0098

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1 BGF1279-DUP1# Samp | QC | RPD %	DUP2 BGF1279-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
Naphthalene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		102	114
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		107	115
Fluorene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		104	112
Phenanthrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		105	112
Anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		107	115
Pyrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		110	118
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		106	114
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050 | <0.050 | [NA]		101	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate p-Terphenyl-D14	*%*		*101*	*107 / 107*		*102*	*102*

Analyte	Units	PQL	Blank	DUP3 BGF1279-DUP3# Samp | QC | RPD %	DUP4 BGF1279-DUP4# Samp | QC | RPD %	LCS %
Naphthalene	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Acenaphthylene	mg/kg	0.1		0.200 | 0.258 | [NA]		[NA]
Acenaphthene	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Fluorene	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Phenanthrene	mg/kg	0.1		0.402 | 0.631 | 44.3		[NA]
Anthracene	mg/kg	0.1		0.149 | 0.228 | [NA]		[NA]
Fluoranthene	mg/kg	0.1		1.84 | 2.53 | 31.6		[NA]
Pyrene	mg/kg	0.1		1.98 | 2.74 | 32.4		[NA]
Benzo(a)anthracene	mg/kg	0.1		0.859 | 1.21 | 33.6		[NA]
Chrysene	mg/kg	0.1		1.07 | 1.41 | 28.0		[NA]
Benzo(b,j,k)fluoranthene	mg/kg	0.2		2.41 | 3.04 | 23.0		[NA]
Benzo(a)pyrene	mg/kg	0.05		1.51 | 1.96 | 25.9		[NA]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		1.13 | 1.39 | 20.9		[NA]
Dibenzo(a,h)anthracene	mg/kg	0.1		0.199 | 0.253 | [NA]		[NA]
Benzo(g,h,i)perylene	mg/kg	0.1		1.11 | 1.39 | 22.1		[NA]
Surrogate p-Terphenyl-D14	*%*			*108 / 108*		*[NA]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0098

ORG-022_OC|Organochlorine Pesticides (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1 BGF1279-DUP1# Samp | QC | RPD %	DUP2 BGF1279-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
alpha-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		103	109
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		97.6	108
gamma-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		90.5	94.8
Aldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		95.8	101
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		116	125
trans-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		107	115
Dieldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		104	112
Endrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		106	110
4,4'-DDD	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		112	120
Endosulfan II	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		98.8	109
Endrin ketone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*114*	*113 / 111*		*110*	*110*

Analyte	Units	PQL	Blank	DUP3 BGF1279-DUP3# Samp | QC | RPD %	DUP4 BGF1279-DUP4# Samp | QC | RPD %	LCS %
alpha-BHC	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Hexachlorobenzene	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
beta-BHC	mg/kg	0.1		<0.20 | <0.20 | [NA] [1]		[NA]
gamma-BHC	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
delta-BHC	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Heptachlor	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aldrin	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Heptachlor epoxide	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
trans-Chlordane	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
cis-Chlordane	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Endosulfan I	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
4,4'-DDE	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Dieldrin	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Endrin	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
4,4'-DDD	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Endosulfan II	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Endrin aldehyde	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
4,4'-DDT	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Endosulfan sulfate	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Endrin ketone	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Methoxychlor	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Mirex	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*			*109 / 111*		*[NA]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0098

ORG-022|Organophosphorus Pesticides (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1 BGF1279-DUP1# Samp | QC | RPD %	DUP2 BGF1279-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
Dichlorvos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		101	111
Dimethoate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Diazinon	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		104	114
Ronnel	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		108	116
Fenitrothion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		109	123
Malathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		102	112
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		108	115
Parathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		99.5	108
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Ethion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		105	116
Coumaphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Disulfoton	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fenamiphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fenthion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methidathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mevinphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Parathion-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Phorate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Phosalone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*114*	*113 | 111*		*110*	*110*

Analyte	Units	PQL	Blank	DUP3 BGF1279-DUP3# Samp | QC | RPD %	DUP4 BGF1279-DUP4# Samp | QC | RPD %	LCS %
Dichlorvos	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Dimethoate	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Diazinon	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Chlorpyrifos-methyl	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Ronnel	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Fenitrothion	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Malathion	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Chlorpyrifos	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Parathion	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Bromophos-ethyl	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Ethion	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Coumaphos	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Disulfoton	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Fenamiphos	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Fenthion	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Methidathion	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Mevinphos	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Parathion-methyl	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Phorate	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Phosalone	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Azinphos-methyl	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*			*109 | 111*		*[NA]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0098

ORG-021/022/025_PCB|Polychlorinated Biphenyls (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1 BGF1279-DUP1# Samp | QC | RPD %	DUP2 BGF1279-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA]		107	115
Surrogate 2-Fluorobiphenyl	*%*		*105*	*104 | 104*		*103*	*104*

Analyte	Units	PQL	Blank	DUP3 BGF1279-DUP3# Samp | QC | RPD %	DUP4 BGF1279-DUP4# Samp | QC | RPD %	LCS %
Aroclor 1016	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aroclor 1221	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aroclor 1232	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aroclor 1242	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aroclor 1248	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aroclor 1254	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Aroclor 1260	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA]		[NA]
Surrogate 2-Fluorobiphenyl	*%*			*102 | 106*		*[NA]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020|Acid Extractable Metals (Soil) | Batch BGF1277

Analyte	Units	PQL	Blank	DUP1 BGF1277-DUP1# Samp | QC | RPD %	DUP2 BGF1277-DUP2# Samp | QC | RPD %	LCS %	Spike % MGF0098-02
Arsenic	mg/kg	4.0	<4.0	<4.0 | <4.0 | [NA]		103	98.2
Cadmium	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		103	89.3
Chromium	mg/kg	1.0	<1.0	15.8 | 15.4 | 2.73		101	100
Copper	mg/kg	1.0	<1.0	13.1 | 11.9 | 8.84		104	96.2
Lead	mg/kg	1.0	<1.0	9.12 | 8.87 | 2.81		96.6	89.0
Mercury	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		106	107
Nickel	mg/kg	1.0	<1.0	14.6 | 15.0 | 3.08		98.7	87.8
Zinc	mg/kg	1.0	<1.0	52.8 | 53.7 | 1.70		99.2	85.8

Analyte	Units	PQL	Blank	DUP3 BGF1277-DUP3# Samp | QC | RPD %	DUP4 BGF1277-DUP4# Samp | QC | RPD %	LCS %
Arsenic	mg/kg	4		4.13 | <4.0 | [NA]		[NA]
Cadmium	mg/kg	0.4		<0.40 | <0.40 | [NA]		[NA]
Chromium	mg/kg	1		16.1 | 14.3 | 11.4		[NA]
Copper	mg/kg	1		21.4 | 18.6 | 13.9		[NA]
Lead	mg/kg	1		35.6 | 30.9 | 14.2		[NA]
Mercury	mg/kg	0.1		<0.10 | 0.407 | [NA]		[NA]
Nickel	mg/kg	1		8.99 | 7.61 | 16.6		[NA]
Zinc	mg/kg	1		67.8 | 58.1 | 15.3		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008|Inorganics - Moisture (Soil) | Batch BGF1274

Analyte	Units	PQL	Blank	DUP1 BGF1274-DUP1# Samp | QC | RPD %	DUP2 BGF1274-DUP2# Samp | QC | RPD %	LCS %
Moisture	%	0.1		15.1 | 14.8 | 1.61	5.98 | 7.19 | 18.4	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0098

QC Comments

Identifier	Description
[1]	PQL(s) has/have been raised due to matrix interference.

#382376
3/6/25

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd
Project Mgr:	Stephen McCormack
Sampler:	Stephen Mccormack
Address:	Unit 2, 5-7 Malta Street, Fairfield East
Email:	stephen@geoenvironmental.com.au
Phone:	0431 480 980 (Stephen)

Client Project Name and Number:	E24016FOR
PO No.:	
Envirolab Services Quote No. :	
Date results required:	Or choose: standard / 1 day / 2 day / 3 day / 5 day — 4 days if possible
	Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
5 Research Dr, Croydon South VIC 3136
Phone: 03 9763 2500

E-mail: melbourne@envirolab.com.au

Sample information				Tests Required														Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	Metals (S8)	OCP/OPPs				TRH (vol)/BTEXN	BTEXN	Combo 1m		Hold	Provide as much information about the sample as you can
1	SM030625-105	3/06/2025	Soil			1													
2	SM030625-101	3/06/2025	Soil	1															
3	SM030625-103	3/06/2025	Soil						1	1									

Relinquished by (company):	Geo-Environmental Engineering	Received by (company):	ELS Melb
Print Name:	Stephen McCormack	Print Name:	JJ
Date & Time:	03-Jun-25	Date & Time:	5/06/25 2:05
Signature:		Signature:	

Samples Received: Cool or Ambient (circle one) Iced/Ice Pack
Temperature Recieved at: 12.5 °C (if applicable)
Transported by: Hand delivered / courier
MGF00098

Page No: 1 of 1

Relinquished by: ELS SYD
Katherine Chavez
4/6/25 1120
KC

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 357493

Client Details

Client	Geo-Environmental Engineering
Attention	Stephen McCormack
Address	82 Bridge St, Lane Cove, NSW, 2066

Sample Details

Your Reference	**E24016FOR**
Number of Samples	5 Soil, 3 Water
Date samples received	25/07/2024
Date completed instructions received	25/07/2024

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	01/08/2024
Date of Issue	01/08/2024

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: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Lucy Zhu, Asbestos Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		357493-1	357493-2	357493-3	357493-5	357493-6
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-03	ZZ250724-100	Trip Blank
Date Sampled		25/07/2024	25/07/2024	25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil	Soil	Water
Date extracted	-	29/07/2024	29/07/2024	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024	30/07/2024	01/08/2024
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	%	63	72	67	77	98

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		357493-7
Your Reference	UNITS	Trip Spike
Date Sampled		25/07/2024
Type of sample		Water
Date extracted	-	29/07/2024
Date analysed	-	01/08/2024
Benzene	mg/kg	82%
Toluene	mg/kg	81%
Ethylbenzene	mg/kg	81%
m+p-xylene	mg/kg	82%
o-Xylene	mg/kg	82%
Surrogate aaa-Trifluorotoluene	%	90

svTRH (C10-C40) in Soil					
Our Reference		357493-1	357493-2	357493-3	357493-5
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-03	ZZ250724-100
Date Sampled		25/07/2024	25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/07/2024	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024	30/07/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	77	78	77

PAHs in Soil					
Our Reference		357493-1	357493-2	357493-3	357493-5
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-03	ZZ250724-100
Date Sampled		25/07/2024	25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/07/2024	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024	30/07/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<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
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	97	95	76	99

Organochlorine Pesticides in soil				
Our Reference		357493-1	357493-2	357493-5
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-100
Date Sampled		25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	92	100

PCBs in Soil				
Our Reference		357493-1	357493-2	357493-5
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-100
Date Sampled		25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	92	92	98

Acid Extractable metals in soil					
Our Reference		357493-1	357493-2	357493-3	357493-5
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-03	ZZ250724-100
Date Sampled		25/07/2024	25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	29/07/2024	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024	30/07/2024
Arsenic	mg/kg	14	12	6	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	34	16	29	17
Copper	mg/kg	2	7	<1	13
Lead	mg/kg	13	24	9	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	7	1	24
Zinc	mg/kg	7	35	6	35

Moisture					
Our Reference		357493-1	357493-2	357493-3	357493-5
Your Reference	UNITS	ZZ250724-01	ZZ250724-02	ZZ250724-03	ZZ250724-100
Date Sampled		25/07/2024	25/07/2024	25/07/2024	25/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	29/07/2024	29/07/2024	29/07/2024	29/07/2024
Date analysed	-	30/07/2024	30/07/2024	30/07/2024	30/07/2024
Moisture	%	6.1	9.9	7.9	4.7

Asbestos ID - soils			
Our Reference		357493-1	357493-2
Your Reference	UNITS	ZZ250724-01	ZZ250724-02
Date Sampled		25/07/2024	25/07/2024
Type of sample		Soil	Soil
Date analysed	-	31/07/2024	31/07/2024
Sample mass tested	g	Approx. 30g	Approx. 30g
Sample Description	-	Orange 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
Asbestos comments	-	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected

vTRH(C6-C10)/BTEXN in Water		
Our Reference	UNITS	357493-8
Your Reference		ZZ250724-R
Date Sampled		25/07/2024
Type of sample		Water
Date extracted	-	29/07/2024
Date analysed	-	30/07/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	102
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	94

svTRH (C10-C40) in Water		
Our Reference		357493-8
Your Reference	UNITS	ZZ250724-R
Date Sampled		25/07/2024
Type of sample		Water
Date extracted	-	29/07/2024
Date analysed	-	30/07/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	78

Metals in Waters - Acid extractable		
Our Reference		357493-8
Your Reference	UNITS	ZZ250724-R
Date Sampled		25/07/2024
Type of sample		Water
Date prepared	-	29/07/2024
Date analysed	-	29/07/2024
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	<0.01
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
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	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			29/07/2024	1	29/07/2024	29/07/2024		29/07/2024	[NT]
Date analysed	-			30/07/2024	1	30/07/2024	30/07/2024		30/07/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	104	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	104	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	107	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	103	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	102	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	105	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	104	[NT]
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	115	1	63	105	50	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			29/07/2024	1	29/07/2024	29/07/2024		29/07/2024	[NT]
Date analysed	-			30/07/2024	1	30/07/2024	30/07/2024		30/07/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	90	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	86	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	86	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	90	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	86	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	86	[NT]
Surrogate o-Terphenyl	%		Org-020	79	1	81	79	2	105	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			29/07/2024	1	29/07/2024	29/07/2024		29/07/2024	[NT]
Date analysed	-			30/07/2024	1	30/07/2024	30/07/2024		30/07/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	[NT]
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	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	[NT]
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	70	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	[NT]
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	76	[NT]
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	70	[NT]
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	84	1	97	100	3	87	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			29/07/2024	1	29/07/2024	29/07/2024		29/07/2024	[NT]
Date analysed	-			30/07/2024	1	30/07/2024	30/07/2024		30/07/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	[NT]
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	82	[NT]
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	88	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	[NT]
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	84	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	[NT]
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	92	[NT]
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	98	[NT]
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	108	1	97	101	4	101	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date extracted	-			29/07/2024	1	29/07/2024	29/07/2024		29/07/2024	[NT]
Date analysed	-			30/07/2024	1	30/07/2024	30/07/2024		30/07/2024	[NT]
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	102	[NT]
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	105	1	92	99	7	96	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date prepared	-			29/07/2024	1	29/07/2024	29/07/2024		29/07/2024	[NT]
Date analysed	-			30/07/2024	1	30/07/2024	30/07/2024		30/07/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	14	15	7	101	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	94	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	34	36	6	92	[NT]
Copper	mg/kg	1	Metals-020	<1	1	2	1	67	89	[NT]
Lead	mg/kg	1	Metals-020	<1	1	13	12	8	94	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	98	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	2	2	0	94	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	7	8	13	97	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			29/07/2024	[NT]	[NT]	[NT]	[NT]	29/07/2024	[NT]
Date analysed	-			30/07/2024	[NT]	[NT]	[NT]	[NT]	30/07/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	87	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/07/2024	[NT]	[NT]	[NT]	[NT]	29/07/2024	[NT]
Date analysed	-			29/07/2024	[NT]	[NT]	[NT]	[NT]	29/07/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	93	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			29/07/2024	[NT]	[NT]	[NT]	[NT]	29/07/2024	[NT]
Date analysed	-			29/07/2024	[NT]	[NT]	[NT]	[NT]	29/07/2024	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	96	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	111	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	94	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	99	[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

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 357493-1 & 2 were sub-sampled from jars provided by the client.

Updated COC 25/7/24. 1624.

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:**	**Envirolab Services**
Project Mgr:	Stephen McCormack	E24016FOR	12 Ashley St, Chatswood, NSW, 2067
Sampler:	Stephen Mccormack	**PO No.:**	
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	Phone: 02 9910 6200
Email:	stephen@geoenvironmental.com.au, zachary@geoenvironmental.com.au, chase@geoenvironmental.com.au, sally@geoenvironmental.com.au	**Date results required:**	Fax: 02 9910 6201
		Or choose: standard / 1 day / 2 day / 3 day / 5 day **Standard**	E-mail: ahie@envirolabservices.com.au
Phone:	0458 550 257 (Sally) / 0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	Contact: Aileen Hie / Simon Song

Sample information				Tests Required														Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combination 5a	Combination 5	Combination 3	TRH (vol)/BTEXN	BTEXN	Combo 1m								Hold	Provide as much information about the sample as you can
1	ZZ250724-01	25/07/2024	Soil	x														
2	ZZ250724-02	25/07/2024	Soil	x														
3	ZZ250724-03	25/07/2024	Soil			x												
4	ZZ250724-04	25/07/2024	Soil														x	
5	ZZ250724-100	25/07/2024	Soil		x													
6	Trip Blank	25/07/2024	Water				x											
7	Trip Spike	25/07/2024	Water					x										
8	ZZ250724-R	25/07/2024	Water						x									

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	ENVSYD
Print Name:	Sally Gartland	**Print Name:**	D.WU
Date & Time:	25-Jul-24	**Date & Time:**	25/7/24, 1300
Signature:		**Signature:**	DW

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: 2 (if applicable)
Transported by: Hand delivered / courier
#357493.

COC 25/7/24, 1547

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:**	**Envirolab Services**
Project Mgr:	Stephen McCormack	E24016FOR	12 Ashley St, Chatswood, NSW, 2067
Sampler:	Stephen Mccormack	**PO No.:**	Phone: 02 9910 6200
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Envirolab Services Quote No. :**	Fax: 02 9910 6201
Email:	stephen@geoenvironmental.com.au, zachary@geoenvironmental.com.au, chase@geoenvironmental.com.au, sally@geoenvironmental.com.au	**Date results required:**	E-mail: ahie@envirolabservices.com.au
		Or choose: standard / 1 day / 2 day / 3 day / 5 day **Standard**	Contact: Aileen Hie / Simon Song
Phone:	0458 550 257 (Sally) / 0431 480 980 (Stephen)	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Sample information				Tests Required														Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combination 5a	Combination 5	Combination 3	TRH (vol)/BTEXN	BTEXN	8 Metals								Hold	Provide as much information about the sample as you can
1	ZZ250724-01	25/07/2024	Soil	x														
2	ZZ250724-02	25/07/2024	Soil	x														
3	ZZ250724-03	25/07/2024	Soil			x												
4	ZZ250724-04	25/07/2024	Soil														x	
5	ZZ250724-100	25/07/2024	Soil		x													
6	Trip Blank	25/07/2024	Water			x												
7	Trip Spike	25/07/2024	Water				x											
8	ZZ250724-R	25/07/2024	Water			x	x	x										

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):** EJ SYD	**Samples Received:** Cool or Ambient (circle one)
Print Name:	Sally Gartland	**Print Name:** O. Wilcox.	**Temperature Recieved at:** 2 . (if applicable)
Date & Time:	25-Jul-24	**Date & Time:** 25/7/24 1300	**Transported by:** Hand delivered / courier
Signature:		**Signature:**	#357493 **Page No: 1 of 1**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 358508

Client Details

Client	Geo-Environmental Engineering
Attention	Stephen McCormack
Address	82 Bridge St, Lane Cove, NSW, 2066

Sample Details

Your Reference	**E24016FOR**
Number of Samples	6 Water
Date samples received	06/08/2024
Date completed instructions received	06/08/2024

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.

Report Details

Date results requested by	13/08/2024
Date of Issue	12/08/2024

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 ***

Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water					
Our Reference		358508-1	358508-2	358508-3	358508-4
Your Reference	UNITS	ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water
Date Extracted	-	08/08/2024	08/08/2024	08/08/2024	08/08/2024
Date Analysed	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	4	2	<1	4
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	1	<1	<1	1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1

VOCs in water					
Our Reference		358508-1	358508-2	358508-3	358508-4
Your Reference	UNITS	ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	2	<2	<2	2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	2	<1	<1	2
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	10	<1	<1	11
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	19	<1	<1	21
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	100	80	97
Surrogate Toluene-d8	%	120	103	101	105
Surrogate 4-Bromofluorobenzene	%	99	99	92	112

vTRH(C6-C10)/BTEXN in Water						
Our Reference		358508-1	358508-2	358508-3	358508-4	358508-5
Your Reference	UNITS	ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101	Trip Blank
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	08/08/2024	08/08/2024	08/08/2024	08/08/2024	08/08/2024
Date analysed	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
TRH C_6 - C_9	µg/L	15	<10	<10	13	<10
TRH C_6 - C_{10}	µg/L	70	<10	<10	61	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	65	<10	<10	55	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	1	<1	<1	1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	2	<2	<2	2	<2
o-xylene	µg/L	2	<1	<1	2	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	100	80	97	96
Surrogate Toluene-d8	%	120	103	101	105	106
Surrogate 4-Bromofluorobenzene	%	99	99	92	112	97

vTRH(C6-C10)/BTEXN in Water		
Our Reference		358508-6
Your Reference	UNITS	Trip Spike
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	08/08/2024
Date analysed	-	09/08/2024
Benzene	µg/L	93%
Toluene	µg/L	105%
Ethylbenzene	µg/L	100%
m+p-xylene	µg/L	101%
o-xylene	µg/L	102%
Surrogate Dibromofluoromethane	%	96
Surrogate Toluene-d8	%	104
Surrogate 4-Bromofluorobenzene	%	100

svTRH (C10-C40) in Water					
Our Reference		358508-1	358508-2	358508-3	358508-4
Your Reference	UNITS	ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	07/08/2024	07/08/2024	07/08/2024	07/08/2024
Date analysed	-	08/08/2024	08/08/2024	08/08/2024	08/08/2024
TRH C_{10} - C_{14}	µg/L	120	<50	<50	130
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	120	<50	<50	130
TRH >C_{10} - C_{16}	µg/L	92	<50	<50	95
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	92	<50	<50	95
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	90	<50	<50	100
Surrogate o-Terphenyl	%	80	75	88	83

PAHs in Water					
Our Reference		358508-1	358508-2	358508-3	358508-4
Your Reference	UNITS	ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	07/08/2024	07/08/2024	07/08/2024	07/08/2024
Date analysed	-	08/08/2024	08/08/2024	08/08/2024	08/08/2024
Naphthalene	µg/L	0.1	<0.1	<0.1	0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	0.1	<0.1	<0.1	0.12
Surrogate p-Terphenyl-d14	%	68	64	86	76

HM in water - dissolved					
Our Reference	UNITS	358508-1	358508-2	358508-3	358508-4
Your Reference		ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	07/08/2024	07/08/2024	07/08/2024	07/08/2024
Date analysed	-	07/08/2024	07/08/2024	07/08/2024	07/08/2024
Arsenic-Dissolved	µg/L	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	3	2	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	20	8	2	19
Zinc-Dissolved	µg/L	37	31	7	36

Cations in water Dissolved					
Our Reference		358508-1	358508-2	358508-3	358508-4
Your Reference	UNITS	ZZ060824-01	ZZ060824-02	ZZ060824-03	ZZ060824-101
Date Sampled		06/08/2024	06/08/2024	06/08/2024	06/08/2024
Type of sample		Water	Water	Water	Water
Date digested	-	07/08/2024	07/08/2024	07/08/2024	07/08/2024
Date analysed	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Magnesium - Dissolved	mg/L	12	5	5.3	13
Calcium - Dissolved	mg/L	11	1	3	11
Hardness (calc) equivalent $CaCO_3$	mg/L	79	22	29	80

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
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-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. 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.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			08/08/2024	1	08/08/2024	09/08/2024		08/08/2024	[NT]
Date Analysed	-			09/08/2024	1	09/08/2024	09/08/2024		09/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	105	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	4	4	0	108	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	110	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	1	1	0	118	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	80	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	82	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	2	2	0	111	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-023	<1	1	2	2	0	110	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	10	9	11	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	19	19	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	92	1	97	107	10	102	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	120	97	21	108	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	86	1	99	101	2	106	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			08/08/2024	1	08/08/2024	09/08/2024		08/08/2024	[NT]
Date analysed	-			09/08/2024	1	09/08/2024	09/08/2024		09/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	15	14	7	111	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	70	67	4	111	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
Toluene	µg/L	1	Org-023	<1	1	1	1	0	118	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	2	2	0	111	[NT]
o-xylene	µg/L	1	Org-023	<1	1	2	2	0	110	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	92	1	97	107	10	102	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	120	97	21	108	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	86	1	99	101	2	106	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	358508-2
Date extracted	-			07/08/2024	1	07/08/2024	07/08/2024		07/08/2024	07/08/2024
Date analysed	-			07/08/2024	1	08/08/2024	08/08/2024		07/08/2024	08/08/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	120	110	9	110	110
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	104	102
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	102
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	92	81	13	110	110
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	104	102
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	102
Surrogate o-Terphenyl	%		Org-020	106	1	80	67	18	106	117

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	358508-2
Date extracted	-			07/08/2024	1	07/08/2024	07/08/2024		07/08/2024	07/08/2024
Date analysed	-			08/08/2024	1	08/08/2024	08/08/2024		08/08/2024	08/08/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	0.1	0.1	0	85	72
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	72
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	73
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	71
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	69
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	71
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	72
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	62
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	85	1	68	68	0	85	78

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W7	[NT]
Date prepared	-			07/08/2024	2	07/08/2024	07/08/2024		07/08/2024	[NT]
Date analysed	-			07/08/2024	2	07/08/2024	07/08/2024		07/08/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	109	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	2	3	4	29	107	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	107	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	2	<0.05	[NT]		116	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	2	8	9	12	108	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	2	31	33	6	107	[NT]

QUALITY CONTROL: Cations in water Dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			07/08/2024	[NT]	[NT]	[NT]	[NT]	07/08/2024	[NT]
Date analysed	-			09/08/2024	[NT]	[NT]	[NT]	[NT]	09/08/2024	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	89	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	92	[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.

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client:	Geo-Environmental Engineering Pty Ltd	**Client Project Name and Number:** E24016FOR	**Envirolab Services** 12 Ashley St, Chatswood, NSW, 2067
Project Mgr:	Stephen McCormack	**PO No.:**	
Sampler:	Stephen Mccormack	**Envirolab Services Quote No. :**	**Phone: 02 9910 6200**
Address:	Unit 2, 5-7 Malta Street, Fairfield East	**Date results required:**	**Fax: 02 9910 6201**
Email:	stephen@geoenvironmental.com.au, zachary@geoenvironmental.com.au, chase@geoenvironmental.com.au, sally@geoenvironmental.com.au	Or choose: standard / 1 day / 2 day / 3 day / 5 day **Standard** *Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	**E-mail: ahie@envirolabservices.com.au**
Phone:	0458 550 257 (Sally) / 0431 480 930 (Stephen)		**Contact: Aileen Hie / Simon Song**

Sample Information				Tests Required															Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	CW003_D	VOC's	Hardness		TRH (vol) / BTEXN	BTEXN								Hold	Provide as much information about the sample as you can
1	ZZ060824-01	6/08/2024	Water	X	X	X												
2	ZZ060824-02	6/08/2024	Water	X	X	X												
3	ZZ060824-03	6/08/2024	Water	X	X	X												
4	ZZ060824-101	6/08/2024	Water	X	X	X												
5	Trip Blank	6/08/2024	Water					X										
6	Trip Spike	6/08/2024	Water						X									

Relinquished by (company):	Geo-Environmental Engineering	**Received by (company):**	ELS
Print Name:	Sally Gartland	**Print Name:**	Tony Trinh
Date & Time:	05-Aug-24	**Date & Time:**	6-08-24 1430
Signature:		**Signature:**	T. Trinh

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: 4°C (if applicable)
Transported by: Hand delivered / courier
#358508

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 382376-A

Client Details

Client	Geo-Environmental Engineering
Attention	Stephen McCormack
Address	82 Bridge St, Lane Cove, NSW, 2066

Sample Details

Your Reference	**E24016FOR**
Number of Samples	Additional analysis 3 samples
Date samples received	03/06/2025
Date completed instructions received	17/06/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	19/06/2025
Date of Issue	19/06/2025

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 ***

Results Approved By
Giovanni Agosti, Group Technical Manager

Authorised By
Nancy Zhang, Laboratory Manager

Metals from Leaching Fluid pH 2.9 or 5				
Our Reference		382376-A-31	382376-A-35	382376-A-40
Your Reference	UNITS	SM030625-66	SM030625-57	SM030625-55
Date Sampled		03/06/2025	03/06/2025	03/06/2025
Type of sample		Soil	Soil	Soil
Date extracted	-	19/06/2025	19/06/2025	19/06/2025
Date analysed	-	19/06/2025	19/06/2025	19/06/2025
pH of soil for fluid# determ.	pH units	7.9	10.6	9.8
pH of soil TCLP (after HCl)	pH units	2.0	2.0	2.0
Extraction fluid used		1	1	1
pH of final Leachate	pH units	5.4	5.8	5.2
Nickel	mg/L	0.1	0.06	0.08

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/06/2025	[NT]	[NT]	[NT]	[NT]	19/06/2025	[NT]
Date analysed	-			19/06/2025	[NT]	[NT]	[NT]	[NT]	19/06/2025	[NT]
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	98	[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.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Anna Bui

From: Stephen McCormack <stephen@geoenvironmental.com.au>
Sent: Tuesday, 17 June 2025 2:38 PM
To: Nam Dinh; Simon Song; Envirolab Sydney Sample Receipt
Subject: Batch 382376

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Can I please have the following samples analysed for TCLP Nickel:

31 SM030625-66
35 SM030625-57
40 SM030625-55

ELS REF: 382376-A

TAT: 2 DAY

DUE: 19/6/25

AB

Can I get these results Late Thursday afternoon / night?

Stephen McCormack B. Eng (Civil) – MIEAust, CPEng, NER, CEnvP
Director
Geo-Environmental Engineering
Unit 2 / 5-7 Malta Street
Fairfield East NSW 2165
M 0431 480 980

www.geoenvironmental.com.au

From: Nam Dinh <NDinh@envirolab.com.au>
Sent: Tuesday, 17 June 2025 12:15 PM
To: Stephen McCormack <stephen@geoenvironmental.com.au>
Subject: 382376 sample 37

Hi Stephen, see attached a photo for the asbestos sample.

Kind Regards,

Nam Dinh | Client Services Officer | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E NDinh@envirolab.com.au | W www.envirolab.com.au

ENVIROLAB SERVICES

Related Parties mpl LABTUC

Contaminated Land ● Trade Waste ● OHS ● Drinking Water ● Air Quality ● Asbestos
Methamphetamines & Other Drug Residue ● Acid Sulphate So
Emerging Contaminants ● Forer

JAS-ANZ

AU: 1300 424 344 Sydney | Perth | Melbourne | Adelaide | Brisbane | Darwin

Follow us on: LinkedIn | Facebook | Twitter

APPENDIX D

Data Quality Objectives – Validation Program

INTRODUCTION

The Data Quality Objectives (DQOs) process was used to define the type, quantity, and quality of data required to support decision-making about the environmental condition of the site (Reference 1). The DQO process consists of seven structured steps, with each step guiding subsequent decisions in the sampling and assessment process.

According to the USEPA (Reference 2), DQOs are qualitative and quantitative statements developed from the first six steps of the process, used to:

- ◊ Clarify the study objectives.
- ◊ Define the most appropriate types of data to collect.
- ◊ Determine suitable sampling conditions.
- ◊ Specify tolerable limits on decision errors, which guide the amount and quality of data required to support reliable decisions.

The DQOs are then used to inform a scientifically defensible and resource-effective data collection design.

STEP 1 - STATE THE PROBLEM

The fill layer located at the rear (northern end) of the carpark, in the vicinity of BH215, has been found to be impacted with asbestos fibres bonded to matted material. The asbestos poses a potential health risk to workers, particularly earthworks contractors, and must therefore be remediated appropriately.

The lateral extent of the contaminated fill (the remediation area) is currently estimated at 200 m^2, with a volume of 120 m^3 (or ~220 tonnes, assuming a bulk density of 1.8 t/m^3). This may be revised following site inspection and delineation.

The proposed remediation involves excavation and removal of the asbestos-impacted fill, followed by validation sampling to confirm that the remaining and any imported soils are uncontaminated.

STEP 2 - IDENTIFY THE DECISION STATEMENT

Key decisions to be resolved include:

- ◊ Do contaminant concentrations in the post-remediation soil profile exceed acceptable levels for the proposed land use?
- ◊ Is any visible asbestos-containing material (ACM) still present at the site?

STEP 3 - IDENTIFY INPUTS TO THE DECISION

Inputs required to resolve these decisions include:

- ◊ Visual inspection of the remediation area following excavation, supported by photographic documentation.
- ◊ Collection of validation soil samples from the surface of the remaining natural soil profile within the remediation footprint, using appropriate sampling methods. Based on a 200 m² area, the minimum number of samples recommended by Table 2 of the NSW EPA 2022 Contaminated Land Guidelines: Sampling Design – Part 1 Application is eight.
- ◊ Laboratory analysis of validation samples for asbestos.
- ◊ Comparison of results against relevant Remediation Acceptance Criteria (RAC) defined in the RAP.
- ◊ Accurate recording of sample locations to support spatial analysis and mapping of residual contamination, if present.

STEP 4 - DEFINE THE BOUNDARIES OF THE STUDY

The overall site covers 8,970 m² and comprises:

- ◊ Lot 31 DP 366454 (No. 20 Melwood Avenue).
- ◊ Lot 2589 DP 752038 (No. 22 Melwood Avenue).

The remediation area (asbestos-impacted fill) is restricted to an estimated 200 m².

Horizontal sampling coverage will focus on the footprint of the impacted fill, while vertical sampling depth will target the top 0.2 m of the underlying natural soils. If residual contamination is detected, further excavation and validation sampling will be undertaken until clean boundaries are confirmed.

STEP 5 - DEVELOP A DECISION RULE

The decision rules for this investigation are as follows:

- ◊ If it is determined that the data generated through this investigation are reliable and adequately characterise soil conditions at the site, the data will be compared against the adopted Remediation Assessment Criteria (RAC),
- ◊ If all the data meets the adopted RAC, then the site will be considered suitable for the proposed development,
- ◊ If the data do not meet the adopted RAC, then further remediation and validation work will be recommended as a basis for making the site suitable for the proposed development. Further investigations may include:
  - Additional soil excavation and validation sampling to delineate contaminants,
  - Analysis of validation samples for the contaminants of concern,
  - Undertaking a human health and/or ecological risk assessment to assess site suitability and, if not suitable, assess the requirement for remediation and/or management.

If it is determined that the data generated through this investigation are not reliable and/or do not suitably characterise the site, then further investigations may be recommended prior to comparison against the RAC.

STEP 6 - SPECIFY ACCEPTABLE LIMITS ON DECISION ERRORS

Acceptable limits on decision errors must be applied based on the Data Quality Indicators (DQIs) pertaining to precision, accuracy, representativeness, comparability and completeness. The null hypothesis is that the material is contaminated and exceeds the adopted criteria. The alternative hypothesis is that the material is not contaminated above the adopted criteria.

Possible decision errors include:

- ◊ the material being accepted as suitable for the proposed land use when it is not, thereby potentially risking human health or environmental impacts.
- ◊ unnecessary disposal of the material offsite, imposing needless financial and resource burdens on the development project and resulting in an inappropriate waste classification.

Stated hypotheses:

- ◊ null hypothesis (H_0): the 95% UCL, and other requirements, are > the action level.
- ◊ alternate hypothesis (H_A): the 95% UCL, and other requirements, are ≤ the action level.

Potential outcomes include Type I and Type II errors:

- ◊ Type I error of determining the material is acceptable for the proposed land use when it is not (wrongly rejects true H0).
- ◊ Type II error of determining the material is unacceptable for the proposed land use when it is acceptable (wrongly accepts false H0).

The more severe consequences are with decision error (1) since the risk of jeopardising human health outweighs the consequences of paying more for remediation.

For performance criteria, the acceptable limits on the likelihood of making decision errors to be applied are:

- ◊ alpha risk (Type I error) of $\alpha = 0.05$
- ◊ beta risk (Type II error) of $\beta = 0.2$.

No previously collected data are available for use, therefore acceptance criteria are not required.

STEP 7 - OPTIMISING THE DESIGN FOR OBTAINING DATA

The purpose of this step is to identify a resource-effective data collection design for generating data that are expected to satisfy the DQOs.

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 10 of the RAP. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control Plan will be implemented.

References

1. NSW EPA (2017) *Contaminated Land Management: Guidelines for NSW Site Auditor Scheme (3rd Edition).*

2. USEPA, 2000: *Guidance for Data Quality Objectives Process*. EPA QA/G-4.