REPORT TO

ERILYAN PTY LTD

ON

REMEDIATION ACTION PLAN

FOR

PROPOSED NORTHSIDE WEST CLINIC STAGE 2 DEVELOPMENT

AT

23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Date: 20 December 2021
Ref: E27318PHrpt3-RAP-rev1

JKEnvironments
www.jkenvironments.com.au

T: +61 2 9888 5000
JK Environments Pty Ltd
ABN 90 633 911 403

Report prepared by:

Todd Hore
Senior Associate | Environmental Engineer

Report reviewed by:

Brendan Page
Principal Associate | Environmental Scientist

For and on behalf of
JKE
PO BOX 976
NORTH RYDE BC NSW 1670

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Executive Summary

Erilyan ('the client') commissioned JK Environments (JKE) to prepare a Remediation Action Plan (RAP) for the proposed Northside West Clinic Stage 2 development at 23-27 Lytton Street, Wentworthville, NSW ('the site'). The site location is shown on Figure 1 and the RAP applies to the land within the site boundaries as shown on Figures 2 and 3 in Appendix A.

Contamination-related risks at the site are associated with asbestos impacts from historical demolition works. The asbestos is in bonded/non-friable fibre cement fragments (FCF), referred to herein as asbestos containing material (ACM). The distribution of asbestos is likely to be sporadic and extend across the entire site in fill. The PSI/DSI identified fill in all borehole locations, to depths ranging from approximately 0.2m to 1m below ground level (BGL). The asbestos impact is considered to be limited vertically to the depth of fill.

The asbestos presents a potential risk to human receptors due to the surficial nature of the impact. The risk would be expected to increase during excavation (i.e. disturbance of soil containing asbestos) and development works.

The goal of the remediation is to render the site suitable for the proposed development from a contamination viewpoint. The primary aim of the remediation at the site is to reduce the human health risks posed by site contamination to an acceptable level.

The most viable remediation options include:

- In-situ capping and long-term management of the capped areas via a Long Term Environmental Management Plan (LTEMP), which is applicable in all areas where fill will remain; and
- Excavation and off-site disposal of asbestos impacted fill, which applicable to any areas where excavation of all fill will be required to achieve finished levels.

The capping specification is outlined in the following table:

Area	Capping Specification
Continuous hardstand (e.g. pavement/concrete, or beneath permanent fixed features such as steps, retaining walls etc.)	Installation of: • Geotextile (or geogrid) marker[1] layer over the contaminated fill; • Clean imported (validated) basecourse, as required based on the engineering specification; and • Pavement material (i.e. concrete) as per engineering specification, or construction of the above ground feature.
Other areas with non-continuous hardstand (e.g. tiled areas, paving/pavers etc.)	Installation of: • Geotextile (or geogrid) marker over the contaminated fill; • At least 200mm clean imported (validated) capping material; and • Surface finish to required development design.
New planting areas (trees, shrubs, shallow/mass plantings, garden beds etc) and turfed areas This excludes any planting that occurs in planter boxes above pavements	Installation of: • Geotextile (or geogrid) marker layer over the contaminated fill; • At least 500mm clean imported (validated) topsoil/growing medium; and • All plantings to occur within the 500mm clean material (or see below for tree pits). Excavation of a tree pit at least 500mm greater than the outer diameter of the root ball in all directions, and installation of: • Geotextile (or geogrid) marker layer over the contaminated fill. This must be secured to the geotextile/geogrid marker in the area adjoining the tree pit – a

[1] The purpose of the geotextile (or geogrid) marker is to provide visual demarcation to the underlying contaminated fill, should the overlying capping layers be disturbed. The client/project manager, remediation contractor and validation consultant are to agree on appropriate materials based on the project requirements (including but not limited to landscaping and engineering requirements).

Area	Capping Specification
	1,000mm overlap (at least) and use of soil 'U' nails to pin down the geotextile would be acceptable. The geotextile/geogrid marker at the base of the tree pit may need to be perforated with small holes to allow root growth (to be confirmed by the project arborist); • Backfill with clean imported (validated) topsoil/growing medium; and • Surface finish as required (e.g. mulch).
Service trenches	With the exception of sections of the existing services that extend below the proposed depth of excavation (which we have assumed with remain in-situ), all underground services must be installed within clean material, above the geotextile/geogrid marker. In the event that services/service trenches extend deeper than clean capping layer, the minimum clean capping thickness must be increased at that location so that the principle of installing all services within clean material, above the geotextile/geogrid marker, is adhered to.

It is acknowledged that some areas of the site are not being developed as part of Stage 2. In these areas where existing building slabs and pavements remain, no remedial actions are required. For other areas where there are no pavements (e.g. garden beds, unpaved areas/lawns etc), the following is to occur:

- The areas to be inspected by a competent person and any visible FCF is to be removed and disposed of appropriately in accordance with the asbestos management plan (AMP) which is to be prepared for the remediation/construction works;
- A Licenced Asbestos Assessor is to provide a surface clearance certificate for visible asbestos materials; and
- Any existing garden beds are to be topped with clean (validated) mulch cover and this is to be inspected and documented by the validation consultant.

The validation includes a combination of visual inspections/asbestos clearances, inspection and documentation of the capping process, and validation of imported materials.

As the remediation includes capping, remediation will occur concurrently with the development works as the built form of the development and the landscaping forms part of the capping requirements. The client must engage with the consent authority so that the remediation can occur as required concurrently with construction.

JKE is of the opinion that the site can be made suitable for the proposed development via remediation and the implementation of this RAP. A site validation report is to be prepared on completion of remediation activities and submitted to the consent authority to demonstrate that the site is suitable for the proposed development. The site will require management via a LTEMP. The LTEMP will provide a passive management approach which would not impose any onerous constraints on the day-to-day site use under the proposed development scenario.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.

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Attachments

Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Development Application	**DA**
Dial Before You Dig	**DBYD**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
Excavated Natural Material	**ENM**
Environment Protection Authority	**EPA**
Environment Protection Licence	**EPL**
Health Investigation Level	**HILs**
Health Screening Level	**HSL**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
Lab Control Spike	**LCS**
Long-Term Environmental Management Plan	**LTEMP**
Material Tracking Plan	**MTP**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAHs**
Potential ASS	**PASS**
Polychlorinated Biphenyls	**PCBs**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Remedial Works Plan	**RWP**
Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Source, Pathway, Receptor	**SPR**
Standing Water Level	**SWL**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRHs**
Trip Spike	**TS**

Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Validation Assessment Criteria	**VAC**
Virgin Excavated Natural Material	**VENM**
Work Health and Safety	**WHS**

Units

Metres BGL	**mBGL**
Metres	**m**
Millilitres	**ml or mL**
Milligrams per Kilogram	**mg/kg**
Percentage	**%**
Percentage weight for weight	**%w/w**

1 INTRODUCTION

Erilyan ('the client') commissioned JK Environments (JKE) to prepare a Remediation Action Plan (RAP) for the proposed Northside West Clinic Stage 2 development at 23-27 Lytton Street, Wentworthville, NSW ('the site'). The site location is shown on Figure 1 and the RAP applies to the land within the site boundaries as shown on Figures 2 and 3 in Appendix A.

This report has been prepared to support the lodgement of a Development Application (DA) for the proposed commercial development, with regards to State Environmental Planning Policy No.55 – Remediation of Land (1998)[2].

JKE (as EIS, prior to our rebranding) has previously undertaken two contamination screenings at the site (Ref: E27318Klet[3] and E27318Klet2[4]). Following these, a Preliminary Site Investigation (PSI) (ref: E27318PHrpt)[5] was undertaken in conjunction with a Preliminary Salinity Assessment[6]. A detailed Site Investigation (DSI) (ref: E27318PHrpt)[7] was also undertaken to address the recommendations of the PSI. A summary of this information has been included in Section 2.

A geotechnical investigation was undertaken in conjunction with the PSI by JK Geotechnics (JKG). The results of the geotechnical investigation are presented in a separate report (Ref: 33969BTrpt)[8]. This report should be read in conjunction with the JKG 2020 report.

1.1 Proposed Development Details

From the supplied architectural drawings prepared by Team 2 Architects (Job No. 903, dated 14 December 2021), we understand that the Stage 2 Development will comprise:

- Construction of a three-storey ward building in the area of the existing on-grade carpark on the southern side of the Northside West Clinic; and
- Demolition of the existing building in the western portion of the site and construction of a two-storey Day Programme building above an undercroft car park.

The ground floor level of the proposed ward building will occupy the eastern half of the building footprint and will be approximately level with Lytton Street on the eastern side, and due to the slope of the site, will

[2] *State Environmental Planning Policy No. 55 – Remediation of Land 1998* (NSW) (referred to as SEPP55)

[3] EIS (2014). *Report to Erilyan Pty Ltd on Preliminary Soil Contamination Screening & Waste Classification for Proposed Additions to Northside West Clinic at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as EIS 2014)

[4] EIS (2015). *Report to Erilyan Pty Ltd on Preliminary Soil Contamination Screening & Waste Classification for Proposed Additions to Northside West Clinic – Stage 2 Works at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as EIS 2015)

[5] JKE (2021a). *Report to Erilyan Pty Ltd on Preliminary (Stage 1) Site Investigation for Proposed Northside West Clinic Stage 2 Development at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as JKE PSI)

[6] JKE (2021b). *Report to Erilyan Pty Ltd on Preliminary Salinity Assessment for Proposed Northside West Clinic Stage 2 Development at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as Salinity Assessment)

[7] JKE (2021c). *Report to Erilyan Pty Ltd on Detailed (Stage 2) Site Investigation for Proposed Northside West Clinic Stage 2 Development at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as JKE DSI)

[8] JKG, (2020). *Report to Erilyan Pty Ltd on Geotechnical Investigation for Proposed Northside West Stage 2 at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as JKG 2020 report)

be approximately 1.7m above the existing ground level in the north-western corner. This will likely require either placement of fill or suspending the building over the existing ground surface.

The proposed undercroft car park on the western side of the site will be approximately at the existing ground level and we will only require minimal or no excavation or filling. Extensive landscaping is not proposed as part of this development; however, it is noted that existing garden beds and trees are to be retained. Some landscaping is proposed beneath the undercroft in the south-west section of the site, however this will largely be a mixture of paving, hard surfaces and built up garden beds and mounds. Please refer to the development plans attached in the appendices.

1.2 Remediation Goal, Aims and Objectives

The goal of the remediation is to render the site suitable for the proposed development from a contamination viewpoint. The primary aim of the remediation at the site is to reduce the human health risks posed by site contamination to an acceptable level.

The objectives of the RAP are to:

- Provide a methodology to remediate and validate the site;
- Provide a contingency plan for the remediation works;
- Outline site management procedures to be implemented during remediation work; and
- Provide an unexpected finds protocol to be implemented during the development works.

1.3 Scope of Work

The RAP was prepared generally in accordance with a JKE proposal (Ref: EP55494PH) of 16 November 2021 and written acceptance from the client of 16 November 2021. The scope of work included a review of previous reports, review of the Conceptual Site Model (CSM), review of the proposed development details, consultation with the client and preparation of the RAP.

The RAP was prepared with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[9], SEPP55 and other guidelines made under or with regards to the Contaminated Land Management Act (1997)[10], including the Consultants Reporting on Contaminated Land (2020)[11] guidelines.

A list of reference documents/guidelines is included in the appendices.

[9] National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

[10] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

[11] NSW EPA, (2020). *Consultants reporting on contaminated land, Contaminated Land Guidelines.* (referred to as Consultants Reporting Guidelines)

2 SITE INFORMATION

2.1 Summary of Screenings, PSI and DSI

Each of the screenings (EIS 2014 and EIS 2015) included soil sampling from four boreholes. Asbestos was encountered in a surficial fill sample in BH203 and was observed on the ground surface in the south section of the site in the form of fibre cement fragments (FCF).

Two groundwater monitoring wells were installed during the screenings (for geotechnical purposes), however, groundwater was not sampled. A hydrocarbon odour was encountered in the groundwater monitoring well (MW103) installed in BH103 and detections of hydrocarbons were also identified in soil from BH102.

The JKE PSI included a review of historical information and the EIS 2014 and EIS 2015 reports, soil sampling from three borehole locations and groundwater sampling from two monitoring wells.

Historical information indicated that the site has historically been vacant or used for residential purposes prior to the construction and eventual expansion of the community hospital and Wentworthville Clinic from 1961 to the present day.

The JKE DSI included soil sampling from an additional nine boreholes and groundwater sampling from four monitoring wells (two installed previously and two installed for the DSI). All of the soil results were less than the human health based site assessment criteria (SAC). However, it was noted that asbestos was encountered on the ground surface and within the top 100mm of fill in BH304 and this was deemed to be an exceedance of the SAC even though the reported concentrations were relatively low. The source of the asbestos was considered likely to be demolition of a nearby shed. Based on the distribution of asbestos across the site, JKE considered it likely that surface soil and shallow fill across the entire site would be impacted by relatively low concentrations of asbestos associated with demolition of previous structures.

JKE noted that low concentrations of total recoverable hydrocarbons (TRHs) were encountered in surface soils at BH303, BH304, BH306, BH307 and BH309. The source of the TRHs was unknown, however, the detections appeared to be limited to surficial soil. No TRHs were detected in underlying samples at all of these locations.

There were a number of nickel results that exceeded the ecological based SAC in the screenings (EIS 2014 and EIS 2015). The highest result was 80mg/kg. We note that data were compared to the most conservative SAC as no analysis for soil physiochemical properties was undertaken. Subsequent analysis of soil physiochemical properties undertaken for the DSI indicated that the ecological SAC for nickel was much higher (in the order of 460mg/kg). Based on these results the nickel concentrations encountered in fill at the site are not considered to pose an ecological risk.

The copper result in the fill sample from BH304 (obtained during the DSI) exceeded the ecological based SAC. BH304 was located in a small unpaved area, adjacent to a shed. Landscaping in the form of planter boxes and raised garden beds, amongst paved areas and footpaths, is proposed in this area. . Due to the nature of the

proposed landscaping in this area, the risk posed by the elevated copper concentration in this area to ecological receptors was considered to be negligible.

Concentrations of cadmium, nickel and zinc in the majority of the groundwater samples exceeded the ecological based SAC. The results were relatively consistent across each analyte and, therefore, were considered likely to be associated with regional groundwater conditions rather than an on-site source of the heavy metals. Concentrations of TRHs, benzene, toluene, ethylbenzene, and xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs) and volatile organic compound (VOC) in the groundwater samples collected for the DSI were all less than laboratory detections limits.

The JKE DSI recommended that a RAP be prepared for the site to outline measures to reduce the risk to human receptors at the site following completion of the development works. An Asbestos Management Plan (AMP) was also recommended to outline control measures to be implemented during the excavation and construction phases of work.

The data summary tables from the PSI/DSI (plus the screening data) are attached in Appendix C and the contamination data is shown on Figure 3 in Appendix A.

2.2 Site Identification

Table 2-1: Site Identification

Site Owner:	Health Care Corporation Pty Limited
Site Address:	23-27 Lytton Street, Wentworthville, NSW
Lot & Deposited Plan:	Lot 1 in DP787784
Current Land Use:	Westmead Clinic
Proposed Land Use:	Westmead Clinic
Local Government Authority:	Cumberland City Council
Current Zoning:	R4: High Density Residential
RL (AHD in m) (approx.):	6,600m^2 (4,200m^2 excluding the main building footprint that was not investigated)
Site Area (m^2 approximately):	19
Geographical Location in decimal degrees (centre point approx.):	Latitude: -33.810779 Longitude: 150.974627
Site Location Plan	Figure 1

2.3 Site Location, Topography and Regional Setting

The site is located in a predominantly residential area of Wentworthville and is bound by Lytton Street to the east. The site is located immediately (<50m) to the east of Finlayson Creek.

The region consists of undulating topography with the site itself characterised by an overall slope with a gradient of approximately 2° that falls to the west towards Finlayson Creek.

2.4 Summary of Site Inspections

Walkover site inspections were undertaken for the PSI and DSI. In summary:

- At the time of the inspections, the majority of site was occupied by three buildings that made up the Westmead Clinic. The main clinical building was of recent construction while the smaller two buildings appeared of older vintage. Part of the central building was cut into the slope of the site to form a steep ramp accessed from Lytton Street to the east. Potential asbestos containing building materials were noted as fibre cement lined eaves and awnings of the older style buildings;
- The southern and northern portions of the site were occupied by asphaltic concrete (AC) car parks. The southern car park was approximately on-grade with Lytton Street. The northern car park was an undercroft and was below street level. Various large native trees and exotic shrubs were located within landscaped areas around the perimeter of the site. No signs or indicators of former land use were identified at the time of the inspection;
- FCF were observed on the ground surface in the south-west section of the site (in the vicinity of BH304) and were considered likely to be associated with demolition of a former shed. A newer shed had been constructed nearby. No other visible or olfactory indicators of contamination were identified at the time of the inspection; and
- The surrounding land uses included primarily residential areas and public open spaces.

2.5 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the PSI/DSI. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

2.6 Summary of Geology, Soils and Hydrogeology

2.6.1 Regional Geology

Regional geological information reviewed for the PSI/DSI indicated that the site is underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite. The PSI/DSI encountered fill across the entire site that extended to depths of approximately 0.2m to 1m, underlain by silty clay and siltstone bedrock.

2.6.2 Acid Sulfate Soil (ASS) Risk and Planning

The site is not located in an ASS risk area according to the risk maps prepared by the Department of Land and Water Conservation.

2.6.3 Hydrogeology

Hydrogeological information presented in the PSI report indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was a total of 15 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 570m from the site. This was utilised for monitoring purposes;
- The remaining bores were registered for monitoring or testing purposes;
- There were no nearby bores (i.e. within 500m) registered for domestic or irrigation uses; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 1.2-3.5m, underlain by shale or sandstone bedrock. Standing water levels (SWLs) in the bores ranged from 5.0m below ground level (BGL) to 7.0mBGL.

Groundwater monitoring wells were installed in BH302 (MW302) and BH307 (MW307) for the DSI, in addition to BH101 (MW101) and BH103 (MW103) that were installed during previous investigations. The SWLs were measured at depths between 1.53mBGL to 4.47mBGL. Groundwater RLs calculated on these measurements ranged from RL 4.8m to RL 6.12m. A contour plot was prepared for the groundwater levels for the DSI. The contour plot indicated that groundwater generally flows towards west and north-west towards Finlaysons Creek.

2.6.4 Receiving Water Bodies

The site location and regional topography indicates that excess surface water flows have the potential to enter the Finlayson Creek located immediately west of the site. This water body is a potential receptor, although it is noted that the areas of the creek near the site comprise a concrete lined channel and there did not appear to be groundwater connectivity to the channel on this basis.

3 REVIEW OF CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on a review of information and the results from the PSI/DSI. Reference should also be made to the figures attached in the appendices.

3.1 Summary of Contamination (Site Characterisation)

Contamination-related risks at the site are associated with asbestos impacts from historical demolition works. The asbestos is in bonded/non-friable FCF, referred to herein as asbestos containing material (ACM).

The distribution of asbestos is likely to be sporadic and extend across the entire site. The PSI/DSI identified fill in all borehole locations, to depths ranging from approximately 0.2m to 1mBGL. The asbestos impact is considered to be limited vertically to the depth of fill. The fill typically comprised gravelly clay, silty clay, silty sandy clay or silty sand with inclusions of ironstone and igneous gravel, AC fragments, ash, building rubble (brick and porcelain fragments), root fibres and ACM.

The asbestos presents a potential risk to human receptors due to the surficial nature of the impact. The risk would be expected to increase during excavation (i.e. disturbance of soil containing asbestos) and development works.

3.2 Review of CSM

The table below includes a review of the CSM and this CSM has been used to design the remediation strategy. The CSM will require further review as additional site data becomes available.

Table 3-1: CSM Review

Contaminant source(s) and contaminants of concern	The source of the asbestos contamination is the historical demolition activities at the site. The asbestos impact is considered to be limited to fill at the site. The primary contaminant of concern from a remediation standpoint is asbestos in the form of ACM.
Affected media	Soil/fill has been identified as the affected medium for remediation. It is noted that asbestos fibres can mobilise to air.
Receptor identification	Human receptors include site occupants/users (including primarily adults in a commercial land use scenario), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, primarily in a residential land use scenario. Use of the site by children may occur, however is expected to be infrequent.
Exposure pathways	The exposure pathway for asbestos includes inhalation of airborne asbestos fibres.
Evaluation of data gaps	Sampling was limited to boreholes at the site and in some case to the use of hand tools. This methodology is less than ideal when assessing asbestos in fill, however, we have accounted for this with the conservative conclusion that asbestos is likely to be widespread at the site and requires remediation/management.

	Waste classification of natural soil will be required following removal of the overlying fill and can be undertaken as part of the validation works. An Asbestos Management Plan (AMP) will be required to manage the risk posed by the asbestos impacted fill during excavation works until the fill is either removed or capped, and until this process is validated.

3.3 Remediation Extent

For the purpose of the RAP, remediation will extend across the site to the full extent of the cadastral boundaries, with the exception of the existing buildings that are to remain after the Stage 2 development. The existing pavement of these buildings will be considered to be a completed cap. Remediation will be limited vertically to the depth of the fill (to be confirmed via validation).

4 REMEDIATION OPTIONS

4.1 Soil Remediation

The NSW EPA follows the hierarchy set out in NEPM 2013 for the remediation of contaminated sites. The preferred order for soil remediation and management is as follows:

1. On-site treatment of soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
2. Off-site treatment of excavated material so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site;

Or if the above are not practicable:

3. Consolidation and isolation of the soil by on-site containment within a properly designed barrier; and
4. Removal of contaminated material to an approved site or facility, followed where necessary by replacement with clean material; or
5. Where the assessment indicates that remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

For simplicity herein, the above hierarchy are respectively referred to as Option 1, Option 2, Option 3 etc.

The NEPM 2013 and Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)[12] require consideration of the following in assessing remediation options:

1. Minimisation of public risk;
2. Minimisation of contaminated soil disturbance; and
3. Minimisation of contaminated material/soil moved to landfill, including minimisation of risks associated with transportation.

The NSW EPA Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3rd Edition) (2017)[13] provides the following additional requirements to be taken into consideration:

- Remediation should not proceed in the event that it is likely to cause a greater adverse effect than leaving the site undisturbed; and
- Where there are large quantities of soil with low levels of contamination, alternative strategies should be considered or developed.

[12] Western Australian (WA) Department of Health (DoH), (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2021)

[13] NSW EPA, (2017). *Contaminated land Management, Guidelines for the NSW Site Auditor Scheme (3rd ed.).* (referred to as Site Auditor Guidelines 2017)

4.2 Remediation Options Assessment

The table below discusses and assesses a range of remediation options:

Table 4-1: Consideration of Remediation Options

Option	Discussion	Assessment/Applicability
Option 1 **On-site treatment of contaminated soil**	On-site treatment can provide a mechanism to reuse the processed material, and in some instances, avoid the need for large scale earthworks. Treatment options are contaminant-specific and can include bio-remediation, soil washing, air sparging and soil vapour extraction, thermal desorption and physical removal of bonded asbestos containing material (ACM) fragments. Depending on the treatment option, licences may be necessary for specific individual waste streams due to the potential for air pollution and the formation of harmful by-products during incineration processes. Licences for re-use of treated material/waste may also be required.	Treatment of soil by picking/removal of fragments of bonded ACM may be possible. However, this is not considered to be valid considering minimal to no excavation will be required across much of the site, or considering the clayey nature of the soil which would make treatment difficult. Applicable for surficial occurrences of ACM.
Option 2 **Off-site treatment of contaminated soil**	Contaminated soils are excavated, transported to an approved/licensed treatment facility, treated to remove/stabilise the contaminants then returned to the subject site, transported to an alternative site or disposed to an approved landfill facility. This option is also contaminant-specific. The cost per tonne for transport to and from the site and for treatment is considered to be relatively high. The material would also have to be assessed in terms of suitability for reuse as part of the proposed development works under the waste and resource recovery regulatory framework.	Not applicable. Does not align with asbestos remediation hierarchy. This option would also rank low in terms of sustainability due to the increased carbon footprint associated with excavation, transport (both from and back to the site) and the treatment process.
Option 3 **Consolidation and isolation of impacted soil by cap and containment**	This would include the consolidation of contaminated soil within an appropriately designed cell, or capping contaminated soils in-situ beneath appropriate clean capping materials (such as pavement and/or clean soil) to reduce the potential for future exposure. The capping and/or containment must be appropriate for the specific contaminants of concern. A Long-Term Environmental Management Plan (LTEMP) would be required and an LTEMP would need to be publicly notified and made to be legally enforceable (e.g. via listings in the Section 10.7 planning certificate and on the land title).	In-situ capping is applicable for the site, in particular in the areas that will require filling (i.e. areas where excavation is not proposed). Risks associated with asbestos can be adequately mitigated by eliminating contact with the material via physical barriers. Most sustainable option as it eliminates unnecessary excavation and transport of materials and disposal of waste etc.

Option	Discussion	Assessment/Applicability
<u>Option 4</u> Removal of contaminated material to an appropriate facility and reinstatement with clean material	Contaminated soils would be classified in accordance with NSW EPA guidelines for waste disposal, excavated and disposed of off-site to a licensed landfill. The material would have to meet the requirements for landfill disposal. Landfill gate fees (which may be significant) would apply in addition to transport costs.	Applicable for any areas where excavation is required to achieve the required development design levels that will result in removal of the fill. Not considered to be applicable for all areas where fill will remain.
<u>Option 5</u> Implementation of management strategy	Contaminated soils would be managed in such a way to reduce risks to the receptors and monitor the conditions over time so that there is an on-going minimisation of risk. This may occur via the implementation of monitoring programs, potentially also involving capping systems.	Applicable as described for option 3.

4.3 Rationale for the Preferred Option for Remediation

The preferred options for remediation are as follows:

- Option 3/5 (in-situ capping and long-term management of the capped areas via an LTEMP), applicable in all areas where fill will remain. Excavation/removal of all fill is not proposed across the majority of areas of the site, rather filling is required to achieve finished levels across much of the site. This option also aligns with sustainability and safety/risk-based principles by minimising waste disposal to landfill and minimising unnecessary disturbance/excavation of asbestos contaminated soils; and
- Option 4 (excavation and off-site disposal), applicable to any areas where excavation of all fill will be required to achieve finished levels.

As an alternative to in-situ capping, a borrow pit/containment cell for fill may be considered and would require capping and long term management as outlined in Options 3 and 5. This option also aligns with sustainability and safety/risk-based principles by minimising waste disposal to landfill. The borrow pit should be placed in an area to be capped with permanent pavement and without extensive services. Technical details regarding the construction of a borrow pit/cell would require substantial input from the remediation contractor. On this basis, this has not been documented as a preferred option in the RAP, but rather as a contingency as outlined in Section 7.4. Should this contingency be implemented, a Remedial Works Plan (RWP) must first be prepared.

5 REMEDIATION DETAILS

5.1 Roles and Responsibilities

Table 5-1: Roles and Responsibilities

Role	Responsibility
Client/Developer and Project Manager	The client (Erilyan Pty Ltd). The client/project manager is required to appoint the project team for the remediation and must provide all investigation reports including this RAP to the remediation contractor, consent authority and any other relevant parties involved in the project. The project manager is required to review all documents prepared for the project and manage the implementation of the procedures outlined in this RAP. The project manager is to take reasonable steps so that the remediation contractor and others have understood the RAP and will implement it in its totality. The project manager will review the RAP and other documents and will update the parties involved of any changes to the development or remediation sequence (in consultation with the validation consultant). Further details are outlined in the sections below.
Remediation Contractor	To be appointed. The remediation contractor is required to review all documents prepared for the project, apply for any relevant removal licences or permits and implement the remediation requirements outlined in this RAP. The remediation contractor is required to collect all necessary documentation associated with the remediation activities and forward this documentation onto the client and project manager as they become available. Further details are outlined in the sections below.
Validation Consultant	To be appointed The validation consultant[14] provides consulting advice and validation services in relation to the remediation, and prepares the site validation report, LTEMP and any other associated documentation such as the AMP. The validation is required to review any deviation to this RAP or in the event of unexpected finds if and when encountered during the site work. It is recommended that the validation consultant has a Licensed Asbestos Assessor on staff. The validation consultant is required to liaise with the client, project manager and remediation contractor on all matters pertaining to the site contamination, remediation and validation, carry out the required site inspections during capping, and collect validation samples for imported materials.

[14] It is recommended that the consultant be a certified practitioner (specialising in site contamination), under one of the NSW EPA endorsed certification schemes

5.2 Pre-commencement

The project team is to have a pre-commencement meeting to discuss the sequence of remediation, and the remediation and validation tasks. The site management plan for remediation works (see Section 8) should be reviewed by project manager and remediation contractor, and appropriate steps are to be taken to ensure the adequate implementation of the plan.

5.3 Summary of Remediation, Validation and Associated Tasks

The following general sequence of works is anticipated:

- Site establishment;
- Demolition/removal of structures;
- Inspection of the site by the validation consultant to assess unexpected conditions;
- Excavation/fill removal to the extent required for remediation or to reach proposed finished levels; and
- Capping works, including installation of visual marker layers over the areas where fill remains, followed by reinstatement of excavations (where required) using suitable (validated) imported materials, and validation of this process.

5.3.1 Site Establishment

The remediation contractor is to establish on site as required to facilitate the remediation. Consideration must be given to the work sequence and extent of remediation/excavation so that the site establishment (e.g. site sheds, fencing, access points etc) does not inhibit the remediation works.

5.3.2 Demolition/Removal of Structures

A hazardous building materials survey is to be undertaken prior to demolition. The demolition is to occur with regards to the findings of the hazardous building materials survey and must be undertaken in accordance with the relevant codes, standards, guidelines and regulations. All structures and materials are to be removed from the site and clearance certificates are to be provided for the removal of all hazardous materials.

All waste from the demolition is to be disposed to facilities that are licenced by the NSW EPA to accept the waste. The demolition contractor is to maintain adequate records and retain all documentation for such activities including:

- A summary register including details such as waste disposal dates, waste materials descriptions, disposal locations (i.e. facility details) and reconciliation of this information with waste disposal docket numbers; and
- Waste tracking records and transport certificates (where waste is required to be tracked/transported in accordance with the regulations); and
- Disposal dockets for the waste.

The above information is to be supplied to the validation consultant for assessment and inclusion in the site validation report.

5.3.3 Post-Demolition Inspection

Following removal of the buildings and pavement at the site, the validation consultant must undertake an inspection paying particular attention to the potential for odours and/or soil staining that may be indicators of unexpected contamination. This inspection process may need to be staged in the event that the removal of buildings and pavements is staged. The consultant must assess the visual consistency in fill across the site and with that encountered during the DSI. A hold point must be recorded in the remediation contractors programme so that this occurs and any identified issues can be managed accordingly.

In the event of an unexpected find, reference is to be made to the contingency plan outlined in Section 7 of this RAP.

5.3.4 Excavation/Fill Removal

It is anticipated that excavation and fill removal may occur in stages. The project manager, remediation contractor and validation consultant must agree on the sequence of these works prior to the commencement of any excavation. JKE recommends that all fill removal and capping remediation occurs as early in the construction process as possible as this will reduce the potential for cross contamination and may also facilitate the cessation (or scaling back) of asbestos management requirements under the AMP.

The proposed remediation and validation steps for excavation/fill removal are outlined in the following table. Reference is to be made to Section 6 for the detailed validation plan.

Table 5-2: Remediation – Excavation/Fill Removal

Step	Primary Role/ Responsibility	Procedure
1.	Remediation contractor	<u>Site Management and Geotechnical/Stability:</u> The remediation contractor is to take steps to ensure the site management plan in this RAP and the AMP are implemented for the remediation works. Geotechnical advice must be sought regarding the stability of the adjacent structures and/or adjacent areas prior to commencing remediation (as required). Stability issues should be addressed to the satisfaction of a suitably qualified geotechnical engineer. This may require the installation of additional temporary shoring systems. All underground services are to be appropriately disconnected and/or rerouted to facilitate the works.
2.	Remediation contractor	<u>Excavation and off-site Disposal of Fill:</u> A waste classification for the fill is provided in the DSI. Fill is to be excavated to the required depth (including in those areas to be capped), loaded directly into trucks and disposed of to a licensed facility in accordance with the AMP and the assigned waste classification.

Step	Primary Role/ Responsibility	Procedure
		The depth of excavation will be dictated by the proposed final surface levels for the development and the minimum capping requirements outlined in Section 5.3.5 of this RAP.
3.	Validation Consultant Remediation contractor	<u>Validation of remedial excavations:</u> Should any complete excavation of fill occur to the point that natural soil is exposed, the validation consultant is to obtain validation samples in accordance with the validation plan in Section 6 of this RAP. Any necessary asbestos clearances must also be provided in accordance with the validation plan and the AMP. The remediation contractor is to arrange a survey of all areas where fill is removed and where successful validation of fill/asbestos removal occurs. The survey is to include levels as well as boundaries/delineation of the remediated/validated areas. Once an area has been validated and surveyed, the remediation contractor is to ensure these areas are not cross contaminated by site activities associated with works in adjoining areas.

5.3.5 Capping Works

The proposed capping specification is provided in the following table. It is noted that these capping requirements only apply to areas outside the existing building footprint (to remain) and where fill is to remain. These requirements must be reviewed by the project team prior to finalising the design, and the project plans (e.g. landscape plans, design drawings, bulk earthworks plan etc) must be updated include the capping specification details.

Table 5-3: Capping Specification

Area	Capping Specification^
Continuous hardstand (e.g. pavement/concrete, or beneath permanent fixed features such as steps, retaining walls etc.)	Installation of: • Geotextile (or geogrid) marker[15] layer over the contaminated fill; • Clean imported (validated) basecourse, as required based on the engineering specification; and • Pavement material (i.e. concrete) as per engineering specification, or construction of the above ground feature.
Other areas with non-continuous hardstand (e.g. tiled areas, paving/pavers etc.)	Installation of: • Geotextile (or geogrid) marker over the contaminated fill; • At least 200mm clean imported (validated) capping material; and • Surface finish to required development design.
New planting areas (trees, shrubs, shallow/mass plantings, garden beds etc) and turfed areas This excludes any planting that occurs in planter boxes above pavements	Installation of: • Geotextile (or geogrid) marker layer over the contaminated fill; • At least 500mm clean imported (validated) topsoil/growing medium; and • All plantings to occur within the 500mm clean material (or see below for tree pits).

[15] The purpose of the geotextile (or geogrid) marker is to provide visual demarcation to the underlying contaminated fill, should the overlying capping layers be disturbed. The client/project manager, remediation contractor and validation consultant are to agree on appropriate materials based on the project requirements (including but not limited to landscaping and engineering requirements).

Area	Capping Specification^
	Excavation of a tree pit at least 500mm greater than the outer diameter of the root ball in all directions, and installation of: • Geotextile (or geogrid) marker layer over the contaminated fill. This must be secured to the geotextile/geogrid marker in the area adjoining the tree pit – a 1,000mm overlap (at least) and use of soil 'U' nails to pin down the geotextile would be acceptable. The geotextile/geogrid marker at the base of the tree pit may need to be perforated with small holes to allow root growth (to be confirmed by the project arborist); • Backfill with clean imported (validated) topsoil/growing medium; and • Surface finish as required (e.g. mulch).
Service trenches	With the exception of sections of the existing services that extend below the proposed depth of excavation (which we have assumed with remain in-situ), all underground services must be installed within clean material, above the geotextile/geogrid marker. In the event that services/service trenches extend deeper than clean capping layer, the minimum clean capping thickness must be increased at that location so that the principle of installing all services within clean material, above the geotextile/geogrid marker, is adhered to.

^ The capping specification relates to the remediation only and has not considered engineering or landscape design requirements for the site. Engineering and/or landscape design requirements must be assessed by others in the context of the RAP requirements and the validation consultant must be advised if any aspects of the capping are not achievable or require alternative solutions.

The proposed remediation and validation steps associated with the capping works are outlined in the following table. Reference is to be made to Section 6 for the detailed validation plan.

Table 5-4: Remediation – Capping

Step	Primary Role/ Responsibility	Procedure
1.	Remediation contractor	<u>Installation of Marker Layers and Survey of site levels:</u> After the bulk excavation levels are achieved to facilitate the minimum capping requirements, the geotextile (or geogrid) marker is to be installed over the contaminated fill and secured appropriately using 'U' nails, pegs or other means. A pre-capping levels survey is to be completed by the remediation contractor prior to the placement of any overlying clean capping layers. The purpose of the survey is to provide factual information of the site levels, and the horizontal extent of the geotextile marker, prior to installation of the clean capping layers. Survey points must be taken at appropriate frequencies (say every 5m lineal for narrow areas, a 5m grid for broader areas, at the corners/edges of the geotextile, and more frequently for significant change in surface elevation such as service trenches and tree pits etc). The pre-capping levels survey is to be provided to the client/project manager and the validation consultant prior to any further capping works commencing.
2.	Validation consultant and remediation contractor	<u>Importation of Capping Materials:</u> Imported materials are to be validated in accordance with Section 6. Validated materials can then be used to achieve the minimum capping requirements for the project.
3.	Remediation contractor	<u>Post-Capping Survey of site levels:</u>

Step	Primary Role/ Responsibility	Procedure
		After completion of capping, a post-capping levels survey is to be completed by the remediation contractor. The purpose of the survey is to provide factual information regarding the capping thickness and confirm that the minimum capping requirements have been achieved. Survey points must be taken at appropriate frequencies as noted for the pre-capping survey. The post-capping levels survey is to be provided to the client/project manager and the validation consultant.

It is acknowledged that some areas of the site are not being developed as part of Stage 2. In these areas where existing building slabs and pavements remain, no remedial actions are required. For other areas where there are no pavements (e.g. garden beds, unpaved areas/lawns etc), the following is to occur:

- The areas to be inspected by a competent person and any visible FCF is to be removed and disposed of appropriately in accordance with the AMP;
- A Licenced Asbestos Assessor is to provide a surface clearance certificate for visible asbestos materials; and
- Any existing garden beds are to be topped with clean (validated) mulch cover and this is to be inspected and documented by the validation consultant.

5.4 Remediation Documentation

The remediation contractor must retain all documentation associated with the remediation, including but not limited to:

- Waste disposal dockets;
- Asbestos management documentation, including all relevant notifications and monitoring reports, and clearance certificates (additional details in this regard are to be outlined in the AMP);
- Photographs of remediation works;
- Waste tracking documentation (see below and the example waste tracking form in Appendix D);
- Survey information; and
- Imported materials documentation (see below and the example imported material tracking form in Appendix D).

Copies of these documents must be forwarded to the project manager and the validation consultant for assessment and inclusion in the validation report.

5.4.1 Waste

The capping specification and sequence of remediation/construction works must be considered early in the design process in order to minimise the generation of waste.

All waste removed from the site is to be appropriately classified, tracked and managed in accordance with the relevant guidelines and regulations. The remediation contractor (and/or their nominated construction

contractor/asbestos removalist) is to maintain adequate records and retain all documentation for waste disposal activities including:

- A summary register (in Microsoft Excel format) including details such as waste disposal dates, waste materials descriptions, disposal locations (i.e. facility details) and reconciliation of this information with the associated waste classification documentation and the waste disposal docket numbers;
- Waste tracking records and transport certificates (where waste is required to be tracked/transported in accordance with the regulations); and
- Disposal dockets for the waste (i.e. weighbridge dockets for each load).

Any soil waste classification documentation is to be prepared in accordance with the reporting requirements specified by the NSW EPA. Reports are to include:

- The full name, address, Australian Company Number (ACN) or Australian Business Number (ABN) of the organisation and person(s) providing the waste classification;
- Location of the site where the waste was generated, including the source site address;
- History of the material and the processes and activities that have taken place to produce the waste;
- Potential contaminating activities that may have occurred at the site where the waste was generated;
- Description of the waste, including photographs, visible signs of contamination, such as discolouration, staining, odours, etc;
- Quantity of the waste;
- Number of samples collected and analysed;
- Sampling method including pattern, depth, locations, sampling devices, procedures, and photos of the sample locations and samples;
- Contaminants tested;
- Laboratory documentation – chain-of-custody (COC), sample receipt, laboratory report;
- All results regardless of whether they are not used in the classification process;
- Results of sample mean, sample standard deviation and the 95% upper confidence limit (UCL) where relevant;
- Brief summary of findings including discussion of results; and
- A clear statement of the classification of the waste as at the time of the report.

A review of the disposal facility's Environment Protection Licence (EPL) issued under the Protection of the Environment Operations (POEO) Act (1997)[16] is to be undertaken to assess whether the facility is appropriately licensed to receive the waste.

The above information is to be provided to the validation consultant for inclusion in the validation report. The register must be set up at the beginning of the project and provided to the validation consultant regularly so the details can be checked and any rectification of the record keeping process can occur in a timely manner.

[16]NSW Government, (1997)). *Protection of Environment Operations Act.* (referred to as POEO Act 1997)

5.4.2 Imported Materials Register

The remediation contractor (and/or their nominated construction contractor) is to maintain, for the duration of the project, an imported material register. This must include a register (in Microsoft Excel format) with details of each imported material type, supplier details, summary record of where the imported materials were placed on site, and importation docket numbers and a tally of quantities (separated for each import stream). Dockets for imported materials are to be provided electronically so these can be reconciled with the register.

Examples of imported materials for this project may include but would not be limited to: site preparation materials (e.g. DGB, 40/70, material to create the pavement base etc); clean capping material such as Virgin Excavated Natural Material (VENM); and landscaping materials such as topsoil garden mixes, mulches etc.

The above information is to be provided to the validation consultant for inclusion in the validation report. The register be set up at the beginning of the project and provided to the validation consultant regularly so the details can be checked and any rectification of the record keeping process can occur in a timely manner.

6 VALIDATION PLAN

Validation is necessary to demonstrate that remedial measures described in the RAP have been successful and that the site is suitable for the intended land use. The sampling program for the validation is outlined in Section 6.1. This is the minimum requirement based on the remedial strategies provided. Additional validation sampling may be required based on the outcome of the post-demolition investigation and/or observations made during remediation.

6.1 Validation Sampling and Documentation

The following subsections outline the validation requirements for each aspect of the remediation:

6.1.1 Excavation/Fill Removal

In areas where all fill is removed (i.e. any areas where the fill is removed by default because the minimum capping thickness cannot be achieved, or where bulk excavation removes all fill to achieve the design levels), the validation will comprise a visual inspection by the validation consultant to confirm that all fill has been removed. The validation consultant is do document the excavation photographically.

The validation consultant/licensed asbestos assessor must also undertake an asbestos clearance and provide an asbestos clearance certificate for the area.

6.1.2 Waste Classification of Natural Soil/Bedrock

In conjunction with the asbestos validation, a waste classification assessment must be undertaken in areas where natural soil or bedrock is required to be excavated (e.g. where bulk excavation extends deeper for the lower ground floor level). The waste classification must include soil sampling to the proposed depth of excavation and the analysis of samples for heavy metals (arsenic, cadmium, chromium, lead, mercury, nickel), polycyclic aromatic hydrocarbons (PAHs), TRHs and BTEX. The asbestos validation results must also be considered.

The sampling density for the waste classification must be calculated based on the area of excavation and must meet the minimum sampling densities specified in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995)[17] (reduced sampling densities may be considered for localised excavations, following consultation and agreement between the validation consultant and the site auditor). The waste classification report must meet the requirements outlined in Section 5.4.1.

[17] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines.* (referred to as EPA Sampling Design Guidelines 1995)

6.1.3 Capping Works

The table below outlines the validation requirements for the site:

Table 6-1: Validation Requirements

Aspect	Sampling	Analysis	Observations and Documentation
Capping			
Survey of site levels.	NA	NA	**Remediation contractor** to obtain the survey as required in Section 5.3.5. It is also expected that the remediation contractor or their nominated construction contractor will provide as-built drawings for the project which document the capping layers.
Inspections.	NA	NA	**Validation consultant** to carry out inspections to document the installation of the cap. Key hold points for inspections include: - Geotextile/geogrid installation; - During importation of materials used to construct the cap; and - Finished surface levels. A photographic record is to be maintained by the **remediation contractor** and **validation consultant**. The **validation consultant** is also to carry out an inspection following removal of the pavements/slabs, as noted in Section 5.3.3.
Areas Where No Development Works are Proposed for Stage 2			
Inspection and removal of visible FCF	NA	NA	The **remediation contractor** is to engage a competent person to inspect and remove any visible FCF from the remaining areas of the site that are not covered by buildings/hardstand. This process is to be appropriately documented via an inspection report that must clearly define the areas inspected and note the number and locations of any FCF removed from the site. The report must also confirm and include documentation demonstrating that any FCF were disposed of lawfully. The **remediation contractor** is to arrange for the validation and placement of mulch as necessary.
Inspections and clearance certificates.	NA	NA	The **validation consultant** (i.e. the licenced asbestos assessor) is to undertake a surface clearance inspection and prepare an asbestos clearance certificate for all applicable areas.

All imported materials are to be validated in accordance with Section 6.1.4 below.

It is noted that if the borrow pit contingency (see Section 7.4) is implemented, the validation consultant must develop appropriate validation requirements for that aspect of the remediation and integrate these into the RWP.

6.1.4 Imported Materials

The table below outlines the validation requirements for material imported onto the site:

Table 6-2: Validation Requirements

Aspect	Sampling	Analysis	Observations and Documentation
Imported Materials – validation of imported materials is required for any materials imported onto the site during the remediation and to the point in time that the site validation report is prepared (e.g. general fill to raise the site levels, imported materials to create piling platform, gravels for site preparation, material used for capping layers etc).			
Imported VENM backfill (if required)	Minimum of three samples per source	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRHs, BTEX, PAHs, OCPs, PCBs and asbestos (500ml). Additional analysis may be required depending on the site history of the source property. Analysis of mulch can be limited to visual observations to confirm there is limited anthropogenic material and no visible asbestos materials.	**Remediation contractor** to supply existing VENM documentation/report (report to be prepared in accordance with the NSW EPA waste classification reporting requirements). A hold point remains until the **validation consultant** approves the material for importation or advises on the next steps. Material is to be inspected upon importation by the **validation consultant** to confirm it is free of visible/olfactory indicators of contamination and is consistent with documentation. Photographic documentation and an inspection log are to be maintained. Where check sampling occurs by the **validation consultant** due to deficiencies or irregularities in existing VENM documentation, the following is required: - Date of sampling and description of material sampled; - An estimate of the volume of material imported at the time of sampling; - Sample location plan; and - Analytical reports and tabulated results with comparison to the Validation Assessment Criteria (VAC).
Imported engineering materials such as recycled aggregate, road base etc	Minimum of three samples per source/material type.	Heavy metals (as above), TRHs, BTEX, PAHs, OCPs, PCBs and asbestos (500ml quantification).	**Remediation contractor** to provide product specification and documentation to confirm the material has been classified with reference to a relevant Resource Recovery Order/Exemption. A hold point remains until the **validation consultant** approves the material for importation or advises on the next steps.

Aspect	Sampling	Analysis	Observations and Documentation
Excavated Natural Material (ENM)	ENM testing must meet the specification within the ENM Order. If the analysis is not compliant, the validation consultant must carry out an ENM assessment and prepare a report in accordance with the ENM Order/Exemption prior to material being imported.	As required in the ENM Order.	Review of the facility's Environment Protection Licence (EPL), where relevant. Material is to be inspected by the **validation consultant** upon importation to confirm it is free of visible/olfactory indicators of contamination and is consistent with documentation. Where check sampling occurs by the **validation consultant** due to deficiencies or irregularities in existing documentation, the following is required: - Date of sampling and description of material sampled; - An estimate of the volume of material imported at the time of sampling; - Sample location plan; and - Analytical reports and tabulated results with comparison to the VAC.
Imported engineering materials comprising only natural quarried products.	At the validation consultant's discretion based on robustness of supplier documentation.	At the validation consultant's discretion based on robustness of supplier documentation.	**Remediation contractor** to provide documentation from the supplier confirming the material is a product comprising only natural quarried material. A hold point remains until the **validation consultant** approves the material for importation or advises on the next steps. Review of the quarry's EPL. Material is to be inspected by the **validation consultant** upon importation to confirm it is free of anthropogenic materials, visible and olfactory indicators of contamination, and is consistent with documentation. Where check sampling occurs by the **validation consultant** due to deficiencies or irregularities in existing documentation, the following is required: - Date of sampling and description of material sampled; - An estimate of the volume of material imported at the time of sampling; - Sample location plan; and - Analytical reports and tabulated results with comparison to the VAC.
Imported garden mix/topsoil and mulches	Minimum of three samples per source	Heavy metals (as above), TRHs, BTEX, PAHs, OCPs, PCBs	**Remediation contractor** to provide documentation from the supplier confirming the product specification. This must include a description of the Australian

Aspect	Sampling	Analysis	Observations and Documentation
		and asbestos (500ml). Analysis of mulch can be limited to visual observations to confirm there are no anthropogenic materials.	Standard under which the material is produced, and the components. A hold point remains until the **validation consultant** approves the material for importation or advises on the next steps. Material is to be inspected by the **validation consultant** upon importation to confirm it is free of anthropogenic materials, visible and olfactory indicators of contamination, and is consistent with documentation. The validation consultant is to review any existing/available analysis results for the materials. A minimum of one batch for each imported material type (from each individual supplier) must be inspected by the validation consultant. This inspection must be repeated for each material type from each supplier, a minimum of once per month thereafter. Where check sampling occurs by the **validation consultant** due to deficiencies or irregularities in existing documentation, the following is required: - Date of sampling and description of material sampled; - An estimate of the volume of material imported at the time of sampling; - Sample location plan; and - Analytical reports and tabulated results with comparison to the VAC.

6.2 Validation Assessment Criteria and Data Assessment

The VAC to be adopted for the validation assessment are outlined in the table below:

Table 6-3: Validation Assessment Criteria (VAC)

Validation Aspect	VAC
Excavation/Fill Removal	Any areas that will expose natural soil: all fill confirmed to be removed via visual inspection, and no visible FCF/ACM observed at the surface, as demonstrated by an asbestos clearance inspection/certificate.
Natural Soil Waste Classification	Waste: in accordance with the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2014)[18]. Additionally, VENM is defined in the Protection of the Environment Operations Act (1997)[19] as material:

[18] NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

[19] Protection of Environment Operations Act 1997 (NSW) (POEO Act 1997)

Validation Aspect	VAC
	• That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and • Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.
Capping Works	The purpose of the surveys is to provide factual information regarding the capping thickness, delineate the extent of the geotextile marker layers and confirm that the minimum capping requirements have been achieved. Capping thicknesses demonstrated by survey will be compared to minimum capping requirements specified in Section 5.3.5 of this RAP. Validation of capping will occur via a review of survey information, as-built drawings and via the inspection process. The validation report is to include cross-sections documenting the completed capping details for the various areas of the site.
Imported materials	The validation of imported materials is two-fold: the validation is to demonstrate that the imported material will not pose a risk in the context of the proposed land use; and also, that the imported material meets the requirements where applicable under a relevant resource recovery exemption/order under which they are produced Material imported as general fill must only be VENM as defined previously in this table. ENM and recycled materials are to meet the criteria of the relevant exemption/order under which they are produced. Analytical results for VENM and other imported materials will need to be consistent with expectations for those materials. For VENM, it is expected that: - Heavy metal concentrations are to be less than the most conservative Added Contaminant Limit (ACL) concentrations for an URPOS exposure setting presented in Schedule B1 of the NEPM 2013, except for lead which should be less than 163mg/kg; and - Organic compounds are to be less than the laboratory PQLs and asbestos to be absent. The lower lead VAC nominated above is based on the fact that the lead ACL is quite high and is not consistent with expectations for natural material in the Sydney area. The concentration of 163mg/kg was sought from the Ambient Background Concentrations presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[20]. All materials imported onto the site must also be adequately assessed as being appropriate for the final use of the site. A risk-based assessment approach is to be adopted with regards to the tier 1 screening criteria presented in Schedule B1 of NEPM 2013. Aesthetics: all imported materials are to be free of staining and odours.

[20] Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Laboratory data is to be assessed as above or below the VAC. Statistical analysis is not proposed.

6.3 Validation Sampling, Analysis and Quality Plan (SAQP)

Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs) should be clearly outlined and assessed as part of the validation process. A framework for the DQO and DQI process is outlined below and should be reflected in the validation report.

DQOs have been broadly established for the validation with regards to the seven-step process outlined NEPM (2013). The seven steps include the following which are detailed further in the following subsections:

- State the problem;
- Identify the decisions/goal of the study;
- Identify information inputs;
- Define the study boundary;
- Develop the analytical approach/decision rule;
- Specify the performance/acceptance criteria; and
- Optimise the design for obtaining the data.

DQIs are to be assessed based on field and laboratory considerations for precision, accuracy, representativeness, completeness and comparability.

6.3.1 Step 1 - State the Problem

Validation data is required to demonstrate that the remediation is successful and that the site is suitable for the proposed land use described in Section 1.1.

6.3.2 Step 2 - Identify the Decisions of the Study

The remediation goal, aims and objectives are defined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Was the remediation undertaken in accordance with the RAP?
- If there were any deviations, what were these and how do they impact the outcome of the validation?
- Are any of the validation results above the VAC?
- Is the site suitable for the proposed development from a contamination viewpoint?

6.3.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Existing relevant data from previous reports;
- Site information, including site observations, inspections, asbestos clearance certificates, survey information, as-built drawings, waste and imported materials registers;
- Validation sampling of potentially affected media, including imported materials;
- Laboratory analysis of soils; and

- Field and laboratory QA/QC data.

6.3.4 Step 4 - Define the Study Boundary

The remediation and validation will be confined to the site boundaries as shown in Figure 2 in appendix A and will be limited vertically to the depth of fill that is required to be removed to achieve the design level for the proposed development, to achieve the minimum capping thicknesses or to expose natural soil that will not require capping.

6.3.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

6.3.5.1 VAC

The validation data will be assessed in accordance with the requirements outlined in Section 6.1 and 6.2.

6.3.5.2 Field and Laboratory QA/QC

Field QA/QC for validation is required for waste classification assessment and for imported materials validation. This is to include:

- Analysis of inter-laboratory duplicates (5% frequency) and intra-laboratory duplicates (5% frequency), analysed for the same analytical suite as the primary samples;
- Trip blank samples (one per batch), analysed for the same analytical suite as the primary samples excluding asbestos;
- Trip spike samples (one per batch), analysed for BTEX; and
- Rinsate samples (one per batch), analysed for the same analytical suite as the primary samples excluding asbestos, only where re-usable sampling equipment is utilised.

DQIs for field and laboratory QA/QC samples are defined below:

Field Duplicates

Acceptable targets for precision of field duplicates will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Trip Blanks

Acceptable targets for trip blank samples will be less than the PQL.

Trip Spikes

Acceptable targets for trip spike samples will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data will be assessed against the laboratory QA/QC criteria. These criteria are developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the typical limits is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics; and
- 60-140% recovery acceptable for organics.

Surrogate Spikes

- 60-140% recovery acceptable for general organics.

Method Blanks

- All results less than PQL.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence will be reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is to be undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, the validation consultant is to adopt the most conservative concentration reported.

6.3.5.3 Appropriateness of PQLs

The PQLs of the analytical methods are to be considered in relation to the VAC to confirm that the PQLs are less than the VAC. In cases where the PQLs are greater than the VAC, a discussion of this is to be provided.

6.3.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results is to be undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected. Data will be assessed as above or below the VAC. Statistical analysis is not proposed, therefore there have been no limits on decision errors set for validation purposes.

6.3.7 Step 7 - Optimise the Design for Obtaining Data

The design is to be optimised via the collection of validation data to demonstrate the success of the key aspects of the remediation.

6.3.8 Sampling Plan

The proposed sampling plan for the validation is described in Section 6.1.

6.4 Validation Report and LTEMP

As part of the site validation process, a validation report will be prepared by the validation consultant. The report will present the results of the validation assessment and will be prepared in accordance with the Consultants Reporting Guidelines.

A LTEMP will be required to manage the contamination that is to be capped at the site and the LTEMP will be documented as part of the overall validation process. Public notification and enforcement mechanisms for the LTEMP are to be arranged by the client and Parramatta Council is to be provided with a draft copy of the LTEMP for consultation prior to finalisation of the LTEMP. The notification and enforcement mechanisms are likely to include notation on the planning certificate under Section 10.7 of the Environmental Planning and Assessment Act (1979) and a covenant registered on the title to land under Section 88B of the Conveyancing Act (1919).

The LTEMP will include requirements for passive management of the capping system that will focus on maintaining the cap in the areas where fill remains, to minimise the potential of exposure to the underlying fill. The LTEMP will also include contingencies for managing intrusive works in the event that the capping system is breached.

It should also be noted that any material changes to the remediation or validation strategy will require revision of the RAP.

7 CONTINGENCY PLAN

A review of the proposed remediation works has indicated that the greatest risks that may affect the success of the remediation include unexpected finds. A contingency plan for the remediation is provided below:

7.1 Unexpected Finds

Residual hazards that may exist at the site would generally be expected to be detectable through visual or olfactory means. At this site, these types of hazards may include odorous or stained hydrocarbon impacted soils, underground tanks etc. The procedure to be followed in the event of an unexpected find is presented below:

- In the event of an unexpected find, all work in the immediate vicinity should cease and the remediation contractor should contact the validation consultant and the client/project manager;
- Temporary barricades should be erected to isolate the area from access to workers;
- The validation consultant is to attend the site to inspect the find;
- The validation consultant is to adequately characterise the contamination and provide advice in relation to site management and remediation. In the event that remediation differs from that outlined in this RAP, an addendum RAP must be prepared in consultation with the project stakeholders and submitted to the consent authority; and
- Contamination should be remediated and validated in accordance with the advice provided, and the results are to be included in the validation report.

7.2 Importation Failure for VENM or other Imported Materials

Where material to be imported onto the site does not meet the importation VAC, the material should not be imported. Alternative material must be sourced that meets the importation requirements.

7.3 Validation Failure – Excavation to Natural Soil

Considering the contaminant of concern (i.e. asbestos) and the simplicity of the proposed remediation strategy, the potential for the remediation strategy to fail is considered to be negligible. In the event that a surface clearance inspection fails, additional material can either be 'chased out' and disposed off-site, then the area re-validated. Or alternatively, the area can be considered contaminated with asbestos and remediated via implementation of the capping procedure outlined previously in this RAP.

7.4 Construction of a Borrow Pit

If a borrow pit/containment cell is to be constructed at the site to contain contaminated fill, the following contingency should be implemented.

Prior to excavation of the known areas of contamination, the validation consultant, working with the remediation contractor, is to prepare a RWP to the satisfaction of the project manager/client and the site auditor. The RWP is to include, as a minimum:

- Survey plans indicating the nominated area for the cell, including survey coordinates for the horizontal extent of the cell;
- Design details including relative levels (RLs) for the base of the cell, top of the asbestos-impacted soil to be placed within it, RLs to the top of the clean soil cap, and details regarding the site features and surface finishes to be constructed over the cell as part of the proposed development which align with the proposed minimum capping requirements outlined previously in this RAP (e.g. pavements etc);
- Should the borrow pit be likely to intercept groundwater, then additional leachate testing of fill will be required. Limited leachate testing undertaken to date for waste classification purposes has indicated that heavy metals and PAHs are not leaching at significant concentrations;
- Details for the earthworks, including geotechnical requirements (including but not limited to compaction of the cell contents and capping layers, batter requirements, and consideration of root-affected/organic content in root-affected soils to be excavated), locations of access ramps, temporary stockpiling locations for material excavated from the cell area during its construction, and materials management practices to minimise the potential for cross contamination with the remediation areas;
- A process so that some of the virgin excavated material to create the cell is preferably re-used to cap the cell;
- An updated validation plan for this aspect of the works; and
- A contingency plan in the event that additional capacity is required, including the location of secondary cells or areas where the original cell could be expanded.

The borrow pit/containment cell should be placed in areas that will be permanently paved rather than areas of extensive landscaping and/or services.

A quantity surveyor should be engaged to assess the cut/fill requirements of the proposed development to establish the anticipated amount (if any) of fill that will be required to be disposed off-site or be placed in the borrow pit.

7.5 Remediation Strategy Changes

Any material change to the proposed remediation strategy will require revision of the RAP.

7.6 Contingency for Further Investigation

As noted previously, the RAP has taken a conservative approach assuming that the fill contains unacceptable concentrations of ACM that trigger a need for remediation/management. As an alternative to this approach, further characterisation of the fill could occur in an attempt to better assess the risks and the need to remediate/manage ACM.

Further investigation would need to occur in accordance with the NEPM (2013) requirements, including the bulk field screening/assessment of ACM in fill. This would include sampling of the fill via test pits at twice the minimum EPA sampling density. If this contingency is to be implemented, a SAQP is to be prepared by the validation consultant prior to commencement.

8 SITE MANAGEMENT PLAN FOR REMEDIATION WORKS

The information outlined in this section of the RAP is for the remediation work only. The client should make reference to the development consent for specific site management requirements for the overall development of the site.

8.1 Asbestos Management Plan

Prior to the demolition and the removal of the existing pavements/floor slabs, an AMP is to be prepared by the validation consultant (or the remediation contractor, if agreed to by the relevant parties involved) to document the asbestos-related management requirements for the remediation. The AMP is to be implemented by the remediation contractor (and their nominated subcontractors where relevant) throughout the remediation. The AMP must consider that asbestos has been identified as non-friable (ACM), based on the definitions of asbestos forms detailed in NEPM 2013 and relevant codes of practice.

8.2 Interim Site Management

Existing pavements must be maintained at the site until the commencement of remediation. Grass and mulch in unpaved areas should be retained where possible. The current site users should be advised not to disturb the soils across the site.

8.3 Project Contacts

Emergency procedures and contact telephone numbers should be displayed in a prominent position at the site entrance gate and within the main site working areas. The contact details of key project personnel are summarised in the following table:

Table 8-1: Project Contacts

Role	Company	Contact Details
Project Manager	Erilyan	Contact: Mike Ryan Mobile: 0477 477 944 Email: mryan@erilyan.com.au
Remediation Contractor	To be appointed	-
Validation Consultant	To be appointed	-
Certifier	To be appointed	-
NSW EPA	Pollution Line	131 555
Emergency Services	Ambulance, Police, Fire	000

8.4 Security

Appropriate fencing should be installed as required to secure the site and to isolate the remediation areas. Warning signs should be erected, which outline the personal protective equipment (PPE) required for remediation work.

8.5 Timing and Sequencing of Remediation Works

The anticipated sequence of remediation works is outlined in Section 5.3. Remediation will occur concurrently with the development works as the built form of the development and the landscaping forms part of the capping requirements. The client must engage with the consent authority so that the remediation can occur as required concurrently with construction.

8.6 Site Soil and Water Management Plan, and on-site Material Tracking Plan

The remediation contractor should prepare a detailed soil and water management plan prior to the commencement of site works and this should consider the requirements of the AMP. Silt fences should be used to control the surface water runoff at all appropriate locations of the site and appropriate measures are to be implemented to manage soil/water disturbance to the satisfaction of the regulator/consent authority. Reference should be made to the consent conditions for further details.

All stockpiled materials should be placed within an erosion containment boundary with silt fences and sandbags employed to limit sediment movement. The containment area should be located away from drainage lines/low-points, gutters, stormwater pits and inlets and the site boundary. No liquid waste or runoff should be discharged to the stormwater or sewerage system without the approval of the appropriate authorities.

A Material Tracking Plan (MTP) is to be prepared by the validation consultant, in consultation with the remediation contractor (or vice versa). The primary objective of the MTP is to document a procedure for the on-site management and movement of materials, to reduce the potential for cross-contamination. The MTP must include details and procedures regarding the following:

- Documentation requirements for the contractors and the form of such documentation (i.e. searchable excel files, hard copy inspection/check forms etc), including an example material tracking register relevant to on-site movement of materials;
- Identification of hold points and approval requirements for movement of materials, and the documentation that must be completed to track the material movement from source area to destination;
- Implementation of a grid system across the site for the purpose of describing the movement of materials;
- Stockpile management, including signage/storage requirements for clean and contaminated stockpiles, imported materials etc. This must include specific requirements for materials handling during the borrow pit works, should this contingency be implemented; and
- Details of how cross-contamination of clean/capped areas will be prevented.

8.7 Noise and Vibration Control Plan

The guidelines for minimisation of noise on construction sites outlined in AS-2460 (2002)[21] should be adopted. Other measures specified in the consent conditions should also be complied with. Noise producing machinery and equipment should only be operated between the hours approved by the consent authority (refer to consent documents).

All practicable measures should be taken to reduce the generation of noise and vibration to within acceptable limits. In the event that short-term noisy operations are necessary, and where these are likely to affect residences, notifications should be provided to the relevant authorities and the residents by the project manager, specifying the expected duration of the noisy works.

8.8 Dust Control Plan

All practicable measures should be taken to reduce dust emanating from the site. Factors that contribute to dust production are:

- Wind over a cleared surface;
- Wind over stockpiled material; and
- Movement of machinery in unpaved areas.

Visible dust should not be present at the site boundary. Measures to minimise the potential for dust generation include:

- Use of water sprays on unsealed or exposed soil surfaces;
- Covering of stockpiled materials and excavation faces (particularly during periods of site inactivity and/or during windy conditions) or alternatively the erection of hessian fences around stockpiled soil or large exposed areas of soil;
- Establishment of dust screens consisting of a 2m high shade cloth or similar material secured to a chain wire fence;
- Maintenance of dust control measures to keep the facilities in good operating condition;
- Stopping work during strong winds;
- Loading or unloading of dry soil as close as possible to stockpiles to prevent spreading of loose material around the development area; and
- Geofabric could be placed over exposed soils in the event that excavation is staged.

If stockpiles are to remain on-site or soil remains exposed for a period of longer than several days, dust monitoring should be undertaken at the site. If excessive dust is generated all site activities should cease until either wind conditions are more acceptable or a revised method of excavation/remediation is developed.

Dust is also produced during the transfer of material to and from the site. All material should be covered during transport and should be properly disposed of on delivery. No material is to be left in an exposed, un-monitored condition.

[21] Australian Standard, (2002). *AS2460: Acoustics - Measurement of the Reverberation Time in Rooms.*

All equipment and machinery should be brushed or washed down before leaving the site to limit dust and sediment movement off-site. In the event of prolonged rain and lack of paved areas all vehicles should be washed down prior to exit from the site, and any soil or dirt on the wheels of the vehicles removed. Water used to clean the vehicles should be collected and tested prior to appropriate disposal under the relevant waste classification guidelines.

Reference is also to be made to the AMP in this regard.

8.9 Dewatering

Temporary dewatering is not anticipated to be required as part of the remediation works. If a rain event occurs during the construction, this water should be managed appropriately on site in accordance with the remediation contractor's soil and water management plan. This water should not be pumped to stormwater or sewer unless a prior application is made and this is approved by the relevant authorities.

8.10 Air Monitoring

Air monitoring details must be outlined as part of the AMP to be prepared for the site. Air monitoring must only be carried out by personnel registered and accredited by NATA (National Association of Testing Authorities). Filter analysis must only be carried out within a NATA certified laboratory. The monitoring results must conform to the requirements of the NOHSC Guidance note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003 (2005)].

A monitoring program will be used to assess whether the control procedures being applied are satisfactory and that criteria for airborne asbestos fibre levels are not being exceeded. The following levels will be used as action criteria during the air monitoring:

- <0.01 Fibres/ml: Work procedures deemed to be successful;
- 0.01 to 0.02 Fibres/ml: Inspection of the site and review of procedures; and
- >0.02 Fibres/ml: Stop work, inspection of the site, review of procedures, clean-up, rectification works where required and notify the relevant regulator.

8.11 Odour Control Plan

All activities undertaken at the site should be completed in a manner that minimises emissions of smoke, fumes and vapour into the atmosphere and any odours arising from the works or stockpiled material should be controlled. Control measures may include:

- Maintenance of construction equipment so that exhaust emissions comply with the Clean Air Regulations issued under the POEO Act 1997;
- Demolition materials and other combustible waste should not be burnt on site;
- The spraying of a suitable proprietary product to suppress any odours that may be generated by excavated materials; and
- Use of protective covers (e.g. builder's plastic).

All practicable measures should be taken to reduce fugitive emissions emanating from the site so that associated odours do not constitute a nuisance and that the ambient air quality is not adversely impacted.

The following odour management plan should be implemented to limit the exposure of site personnel and surrounding residents to unpleasant odours:

- Excavation and stockpiling of material should be scheduled during periods with low winds if possible;
- A suitable proprietary product could be sprayed on material during excavation and following stockpiling to reduce odours (subject to an appropriate assessment of the product by the validation consultant);
- All complaints from workers and neighbours should be logged and a response provided. Work should be rescheduled as necessary to minimise odour problems;
- The site foreman should consider the following odour control measures as outlined in NEPM:
  - reduce the exposed surface of the odorous materials;
  - time excavation activities to reduce off-site nuisance (particularly during strong winds); and
  - cover exposed excavation faces overnight or during periods of low excavation activity.
- If continued complaints are received, alternative odour management strategies should be considered and implemented.

8.12 WHS Plan

A site specific WHS plan should be prepared by the remediation contractor for all work to be undertaken at the site. The WHS plan should meet all the requirements outlined in SafeWork NSW WHS regulations.

As a minimum requirement, personnel must wear appropriate protective clothing, including long sleeve shirts, long trousers, steel cap boots and hard hats. Additional asbestos-related PPE will be required and this will be specified in the AMP. Washroom and lunchroom facilities should also be provided to allow workers to remove potential contamination from their hands and clothing prior to eating or drinking.

8.13 Waste Management

Prior to commencement of remedial works and excavation for the proposed development, the remediation contractor should develop a waste management or recycling plan to minimise the amount of waste produced from the site.

8.14 Incident Management Contingency

The validation consultant should be contacted if any unexpected conditions are encountered at the site. This should enable the scope of remedial/validation works to be adjusted as required. Similarly, if any incident occurs at the site (e.g. a fuel spill during refuelling of machinery), the validation consultant should be advised to assess potential impacts on contamination conditions and the remediation/validation timetable.

Asbestos waste cannot be re-used or recycled.

8.15 Hours of Operation

Hours of operation should be between those approved by the consent authority under the development approval process.

8.16 Community Consultation and Complaints

The remediation contractor should provide details for managing community consultation and complaints within their Construction Plans.

9 CONCLUSION

Investigations at the site by JKE have identified asbestos in fill that represents a potential risk to human receptors during site development/excavation works and future site use.

The remediation strategy includes a combination of excavation and off-site disposal of fill where required to achieve the development levels, and cap and containment of the fill that remains in-situ. A visual marker layer will be installed over the remaining contaminated fill prior to the reinstatement of these areas with clean capping materials. The areas where fill remains will be managed under a LTEMP.

JKE is of the opinion that the site can be made suitable for the proposed development via remediation and the implementation of this RAP. A site validation report is to be prepared on completion of remediation activities and submitted to the consent authority to demonstrate that the site is suitable for the proposed development. The site will require management via a LTEMP. The LTEMP will provide a passive management approach which would not impose any onerous constraints on the day-to-day site use under the proposed development scenario.

The RAP has met the objectives outlined in Section 1.2.

9.1 Regulatory Requirements

The regulatory requirements applicable for the remediation are discussed in the following table:

Table 9-1: Regulatory Requirement

Guideline / Legislation / Policy	Applicability
SEPP55	JKE has assessed that the remediation falls within Category 2. This should be confirmed by the client's expert planner. Prior notice of Category 2 remediation work is to be provided to council at least 30 days prior to commencement in accordance with Clause 16 of SEPP55 Under Clause 17 of SEPP55, a notice of completion of remediation work is to be given to council within 30 days of completion of the work. The notice of completion of remediation works must be in accordance with Clause 18 of SEPP55.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner. Appropriate waste tracking is required for all waste that is disposed off-site. Activities should be carried out in a manner which does not result in the pollution of waters.
POEO (Waste) Regulation 2014	Part 7 of the POEO Waste Regulation 2014 set outs the requirements for the transportation and management of asbestos waste and Clause 79 of the POEO Waste Regulation requires waste transporters to provide information to the NSW EPA regarding the movement of any load in NSW of more than 10 square meters of asbestos sheeting, or 100 kilograms of asbestos waste. To fulfil these legal obligations, asbestos waste transporters must use WasteLocate.

Guideline / Legislation / Policy	Applicability
Work Health and Safety Regulation (2017)	Sites with asbestos become a 'workplace' when work is carried out there and require a register and AMP. Appropriate SafeWork NSW notification will be required for licensed (Class B) asbestos removal works or handling. Reference is to be made to the AMP for further details regarding the regulatory requirements for managing asbestos during remediation.
NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997	The requirement to notify the EPA should be assessed as part of the site validation process. The need to notify will be largely dependent on the asbestos air monitoring results during the remediation.

10 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of lower ground level levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Assessment Limitations
Although information provided by a site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Assessment Report

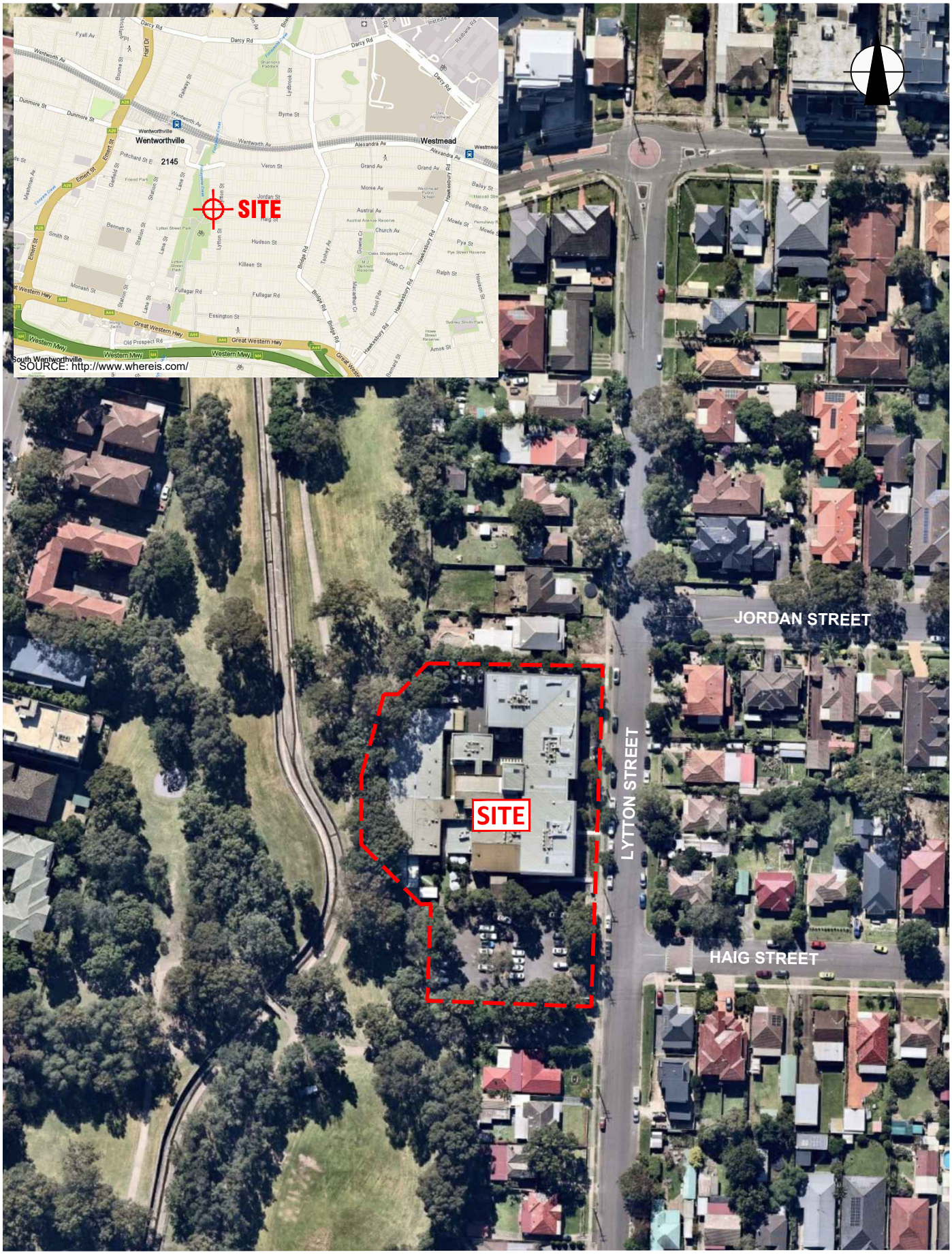
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site assessment is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the Environmental report.

Title: **SITE LOCATION PLAN**

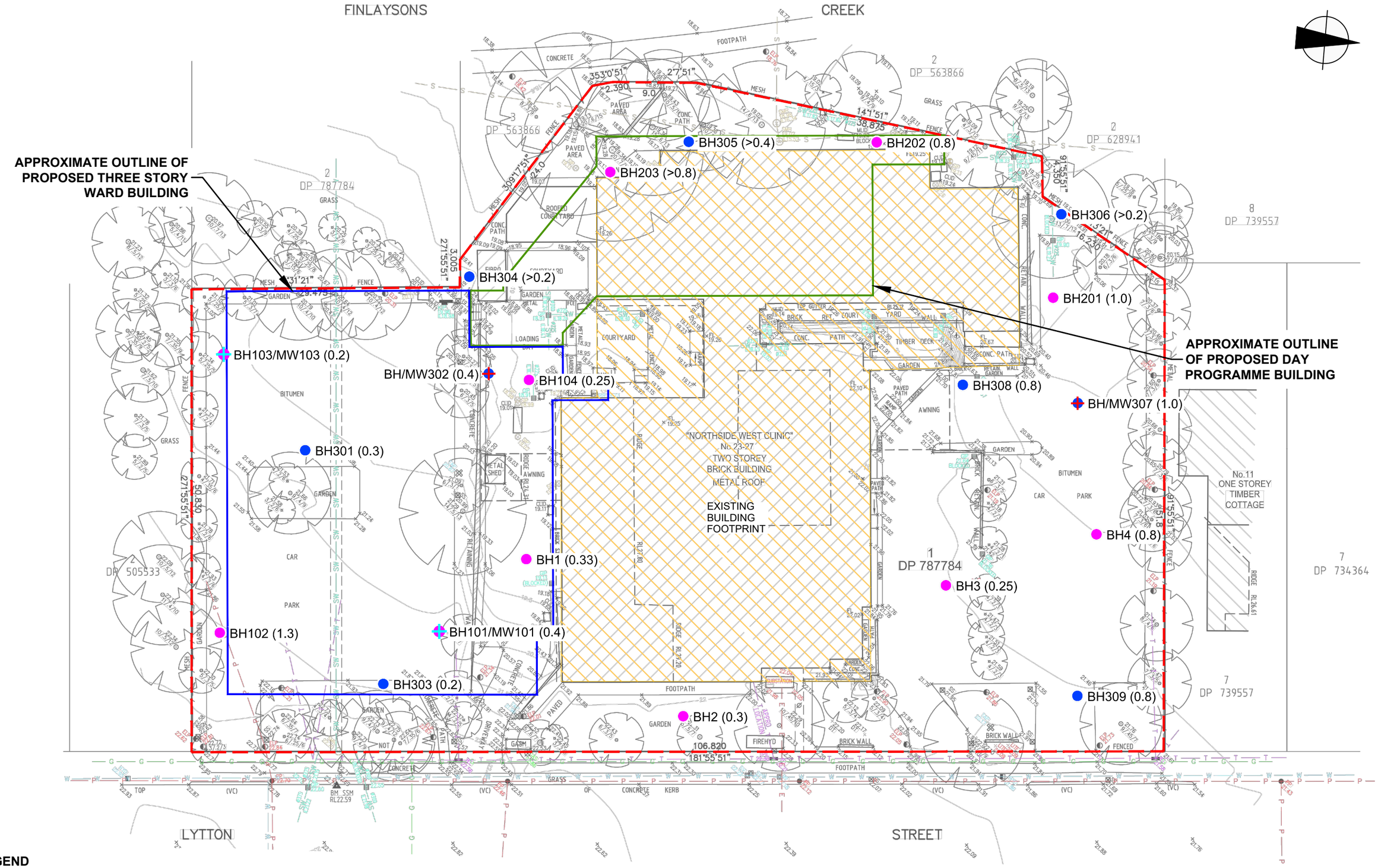
Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Project No: E27318PH

Figure No: 1

JKEnvironments

PLOT DATE: 26/05/2021 5:36:45 PM DWG FILE: Z:\5 EIS\5C EIS JOBS\27000'S\E27318K WENTWORTHVILLE\CAD\E27318PH.DWG



LEGEND

APPROXIMATE SITE BOUNDARY	
BH(Fill Depth)	PREVIOUS BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	PREVIOUS BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
BH(Fill Depth)	DSI BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	DSI BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

0 4 8 12 16 20

SCALE 1:400 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SAMPLE LOCATION PLAN**

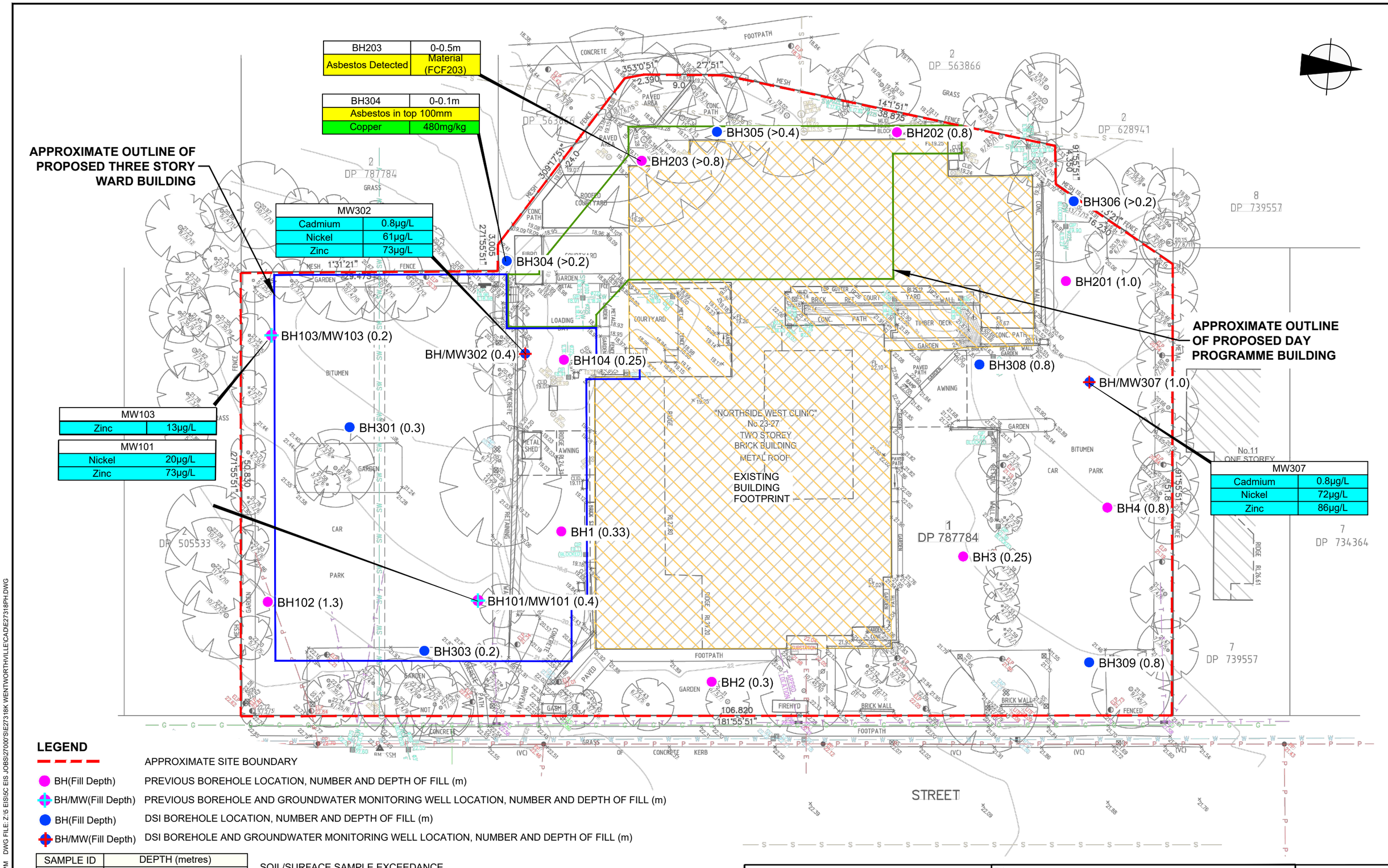
Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Project No: E27318PH

Figure No: 2

JKEnvironments

PLOT DATE: 11/08/2021 12:29:11 PM DWG FILE: Z:\5 EIS\SC EIS JOBS\27000\SIE27318K WENTWORTHVILLE\CAD\E27318PH.DWG



LEGEND

	APPROXIMATE SITE BOUNDARY
BH(Fill Depth)	PREVIOUS BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	PREVIOUS BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
BH(Fill Depth)	DSI BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	DSI BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

SAMPLE ID	DEPTH (metres)
CHEMICAL	CONCENTRATION

SOIL/SURFACE SAMPLE EXCEEDANCE

SAMPLE ID	-
CHEMICAL	CONCENTRATION (µg/L)

GROUNDWATER SAMPLE EXCEEDANCE

SOIL/SURFACE CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK

SOIL CONTAMINATION ABOVE SAC FOR ECOLOGICAL RISK

GROUNDWATER CONTAMINATION ABOVE SAC

0 4 8 12 16 20
SCALE 1:400 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **CONTAMINATION LOCATION PLAN**

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Project No: E27318PH

Figure No: 3

JKEnvironments

PLOT DATE: 11/08/2021 12:29:20 PM DWG FILE: Z:\5 EIS\5C EIS JOBS\27000'S\E27318K WENTWORTHVILLE\CAD\E27318PH.DWG

Appendix B: Proposed Development Plans

NORTHSIDE WEST CLINIC
WENTWORTHVILLE

ARCHITECTURAL DRAWING SET FOR:

DEVELOPMENT APPLICATION

NORTHSIDE WEST CLINIC
27 LYTTON ST, WENTWORTHVILLE
NEW SOUTH WALES

CLIENT:
ERILYAN

DA Sheet List

Sheet Number	Sheet Name	Current Revision	Current Revision Date
DA			
000-Specification + Site			
DA0000	COVER SHEET	4	14.12.21
DA0010	SITE PLAN - EXISTING	4	14.12.21
DA0011	SITE ANALYSIS	4	14.12.21
010 Overall Plan			
DA0100	OVERALL SITE PLAN - LOWER GROUND	4	14.12.21
DA0101	OVERALL SITE PLAN - GROUND FLOOR	5	14.12.21
DA0102	OVERALL SITE PLAN - LEVEL 1	4	14.12.21
DA0103	OVERALL SITE PLAN - LEVEL 2	4	14.12.21
DA0104	OVERALL SITE PLAN - LEVEL 3	4	14.12.21
DA0105	OVERALL SITE PLAN	4	14.12.21
050-Demolition Plan			
DA0500	OVERALL DEMOLITION - LOWER GROUND	3	14.12.21
DA0501	OVERALL DEMOLITION - GROUND	3	14.12.21
100-General Arrangement Plan			
DA1000	LOWER GROUND - STAGE 2	4	14.12.21
DA1001	LOWER GROUND - WEST PARKING	5	14.12.21
DA1002	GROUND - STAGE 2	4	14.12.21
DA1003	GROUND - STAGE 1	4	14.12.21
DA1004	GROUND -WEST PARKING	5	14.12.21
DA1005	LEVEL 1 - STAGE 2	5	14.12.21
DA1006	LEVEL 1 - WEST BLOCK	4	14.12.21
DA1007	LEVEL 2 - STAGE 2	4	14.12.21
DA1008	LEVEL 2 - WEST BLOCK	4	14.12.21
DA1009	LEVEL 3 - STAGE 2	4	14.12.21
DA1010	ROOF - STAGE 2	4	14.12.21
200-Elevations			
DA2000	ELEVATION	5	14.12.21
DA2001	ELEVATION	5	14.12.21
300-Sections			
DA3000	SECTIONS	6	14.12.21
800-LEP Height			
DA8100	LEP Height	3	14.12.21
DA8101	LEP Height	3	14.12.21
DA8102	LEP Height	3	14.12.21
DA8103	LEP Height	3	14.12.21
DA8104	LEP Height	3	14.12.21
DA8105	LEP Height	3	14.12.21
DA8106	LEP Height	3	14.12.21
800-Shadow Studies			
DA8000	SHADOW DIAGRAMS - SUMMER SOLSTICE	4	14.12.21
DA8002	SHADOW DIAGRAMS - WINTER SOLSTICE	4	14.12.21

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

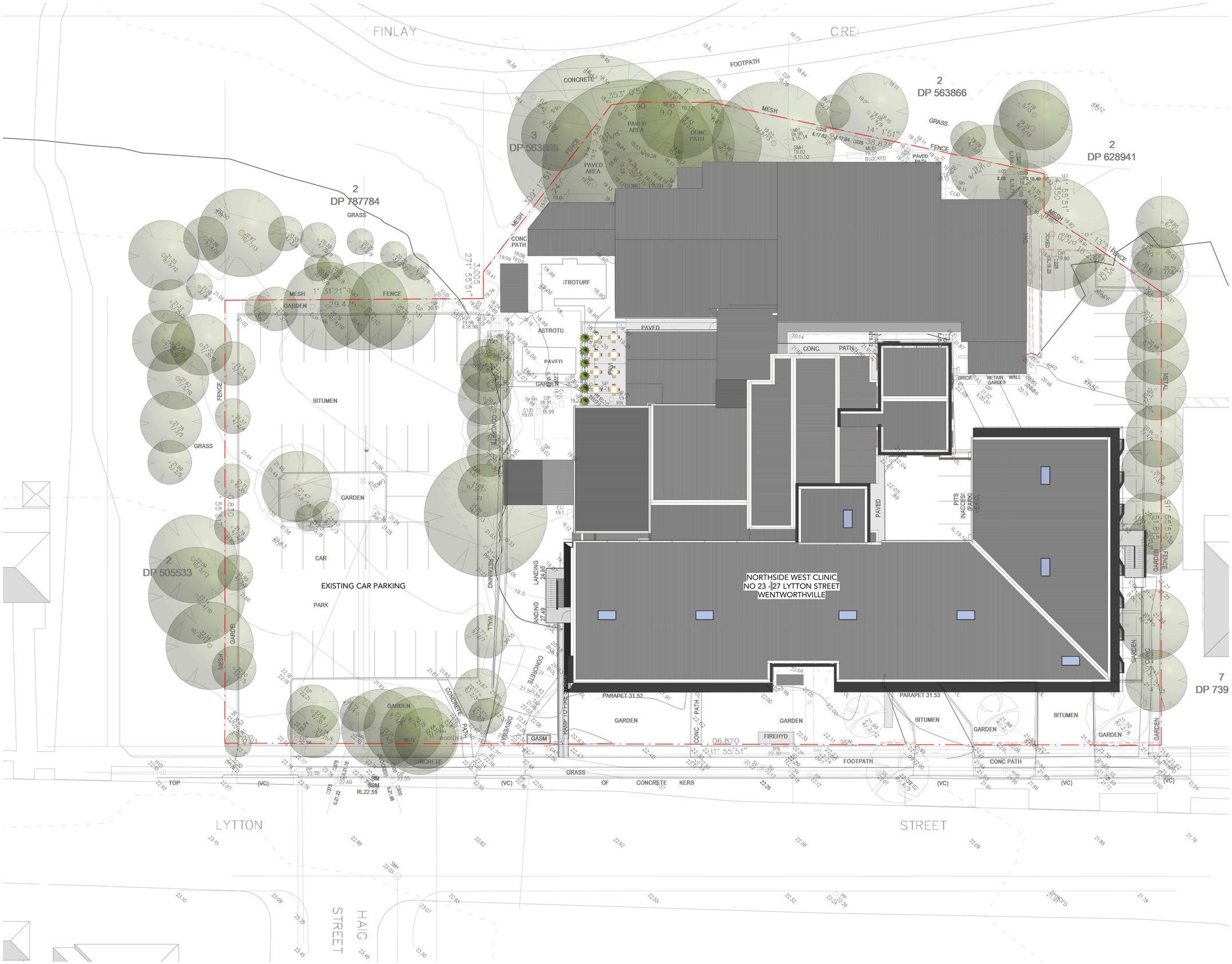
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
COVER SHEET

Project #:	Scale:	Drw:	Chd:
903	@A1	IK	IK

Drawing #: DA0000 Rev: 4



1 DA Site Plan - Existing
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

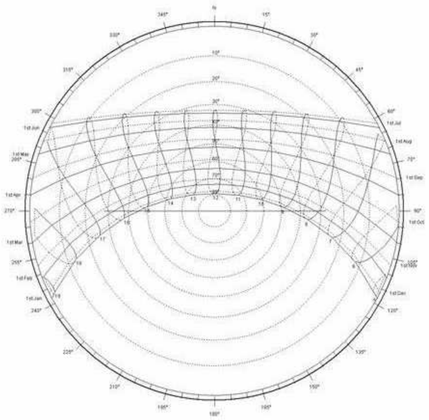
Wentworthville. NSW 2145

Title:
SITE PLAN - EXISTING

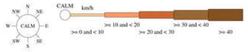
Project #:	Scale:	Drw:	Chk:
903	1 : 200 @A1	IK	VM

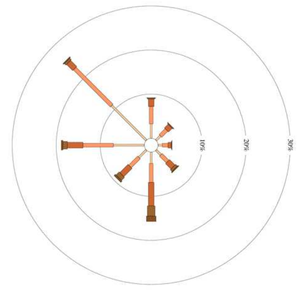
Drawing #: DA0010 Rev: 4

LOCATION PLAN - OVERALL

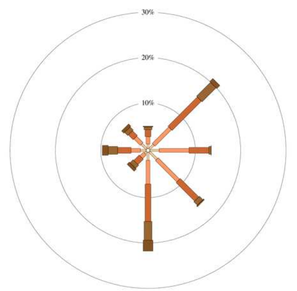


SUN PATH DIAGRAM
SYDNEY



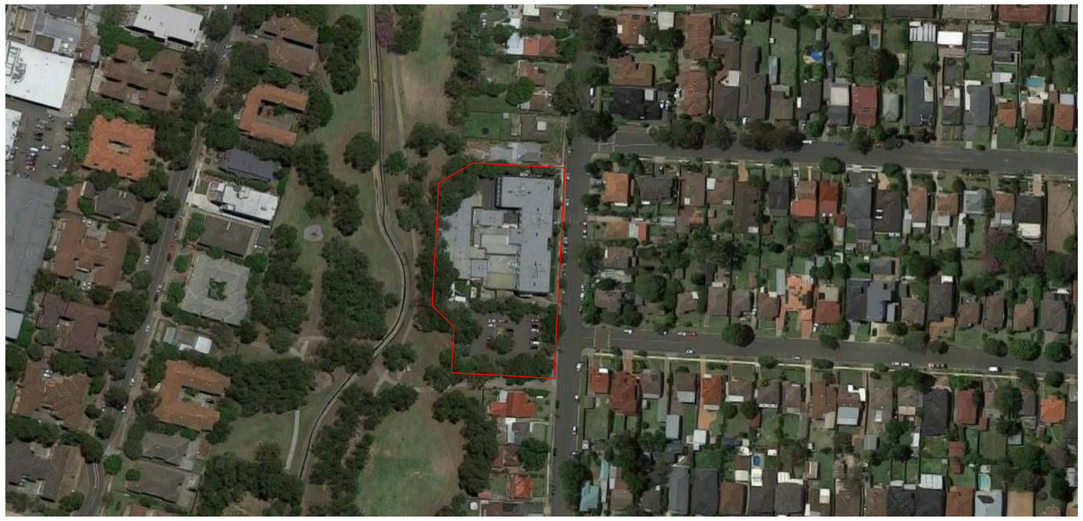


WIND ROSE AT 9AM
SYDNEY

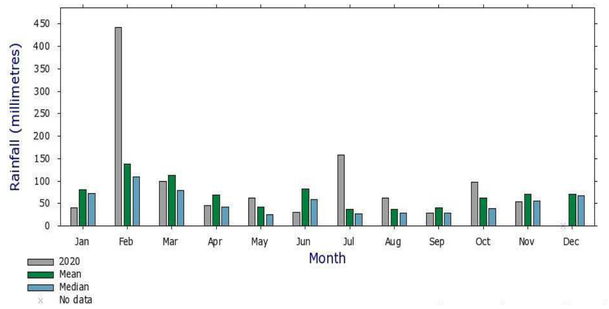


WIND ROSE AT 3PM
SYDNEY

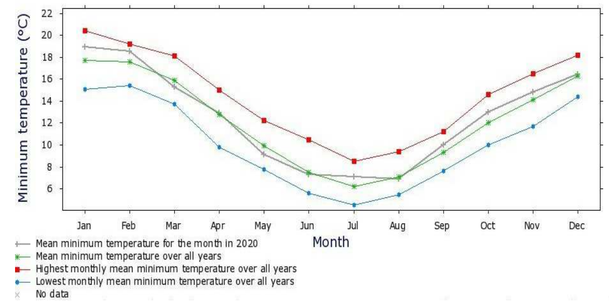
LOCATION PLAN



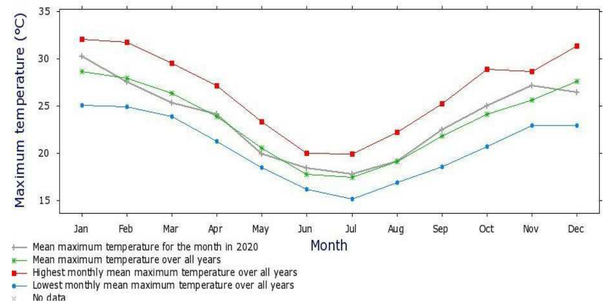
SITE PLAN



RAINFALL DATA: WENWORTHVILLE (GREYSTANES)
CLIMATE DATA FROM BUREAU OF METEOROLOGY



MINIMUM TEMPERATURE DATA: WENTWORTHVILLE (PARAMATTA NORTH)
CLIMATE DATA FROM BUREAU OF METEOROLOGY



MAXIMUM TEMPERATURE DATA: WENTWORTHVILLE (PARAMATTA NORTH)
CLIMATE DATA FROM BUREAU OF METEOROLOGY

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS

SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

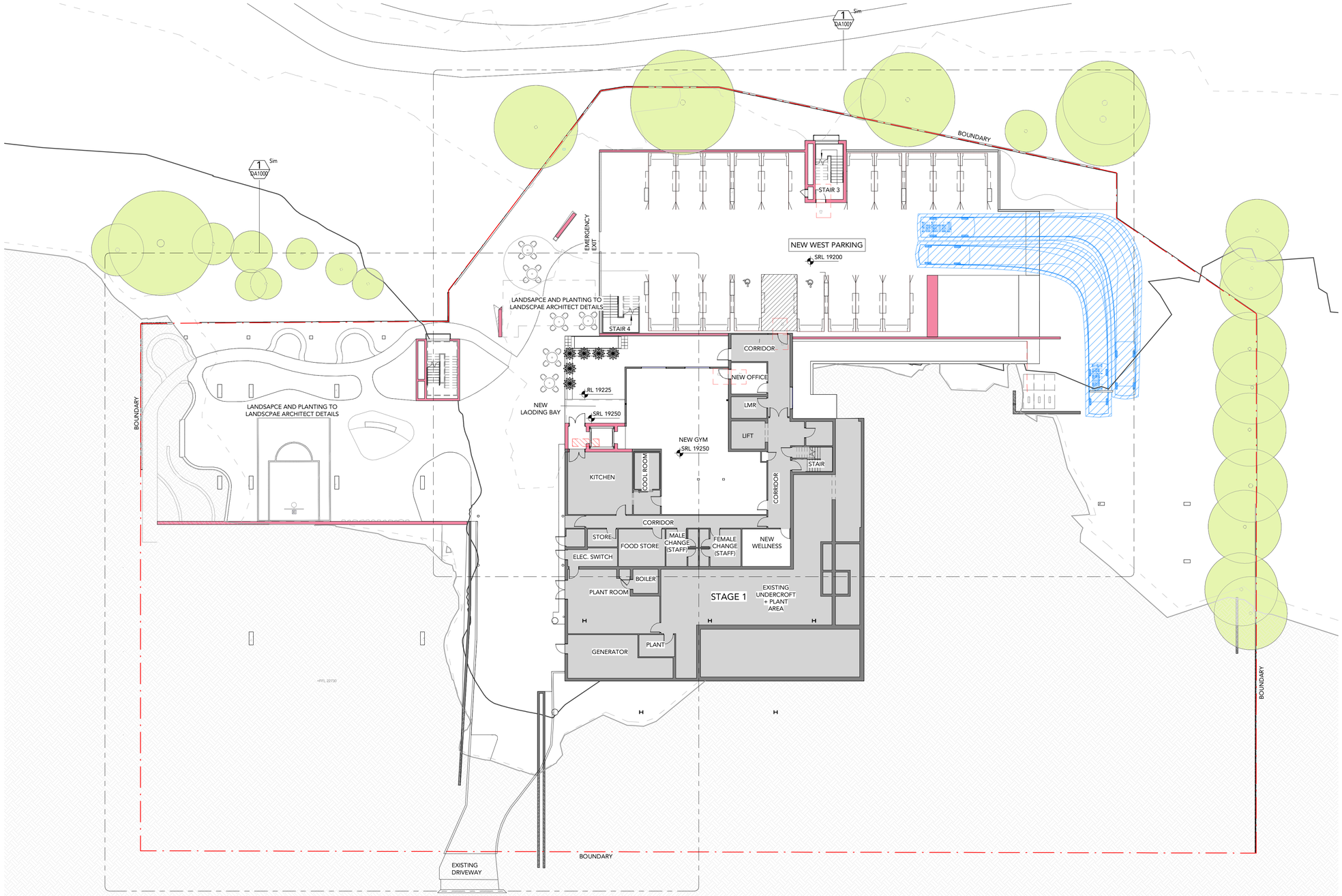
Wentworthville. NSW 2145

Title:
SITE ANALYSIS

Project #:	Scale:	Drw:	Chd:
903	@A1	IK	VM

Drawing #: DA0011

Rev: 4



1 DA Overall - Lower Ground
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

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0 1 2 3 4 5
SCALE 1:100

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL SITE PLAN - LOWER GROUND

Job	Scale	Dwn	Chd
903	As indicated @A1	IK	VM

Drawing #: DA0100
Rev: 4

1 DA Overall - Ground Floor
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	Preliminary Issue - Landscaping	13.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
5	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL SITE PLAN - GROUND FLOOR

Job #	Scale		Drw	Chd
903	As indicated	@A1	IK	IK

Drawing #: DA0101
Rev: 5

WARD ROOM:	41 ROOMS (INCL. 3 ACC.)
NEW CONCSULT:	9 ROOMS

1 DA Overall - Level 1
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

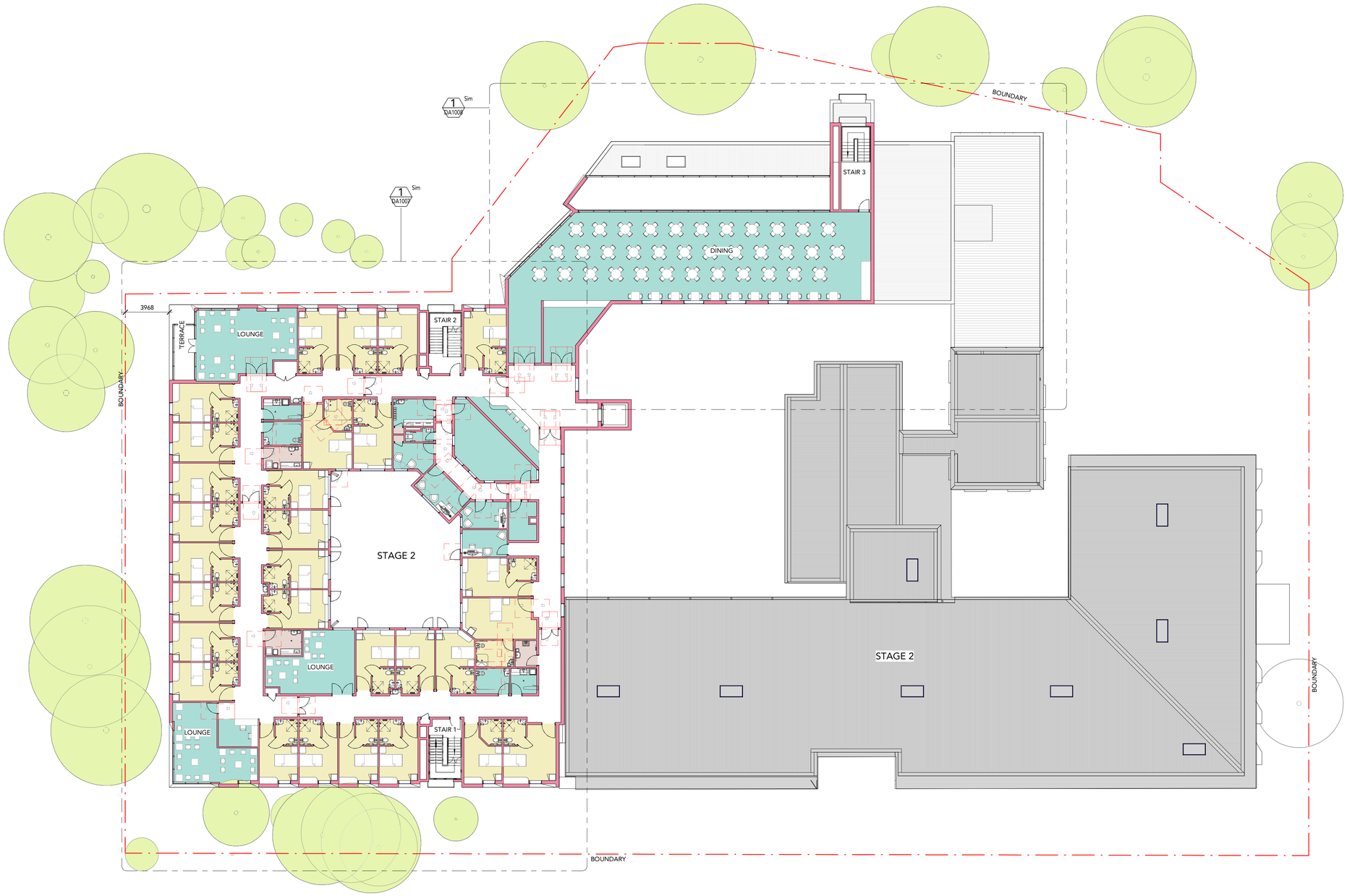
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL SITE PLAN - LEVEL 1

Project #:	Scale:	Drw:	Chd:
903	As indicated @A1	IK	VM

Drawing #: DA0102
Rev: 4



WARD ROOM: 29 ROOMS (INCL. 2 ACC.)

1 DA Overall - Level 2
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

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SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
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ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

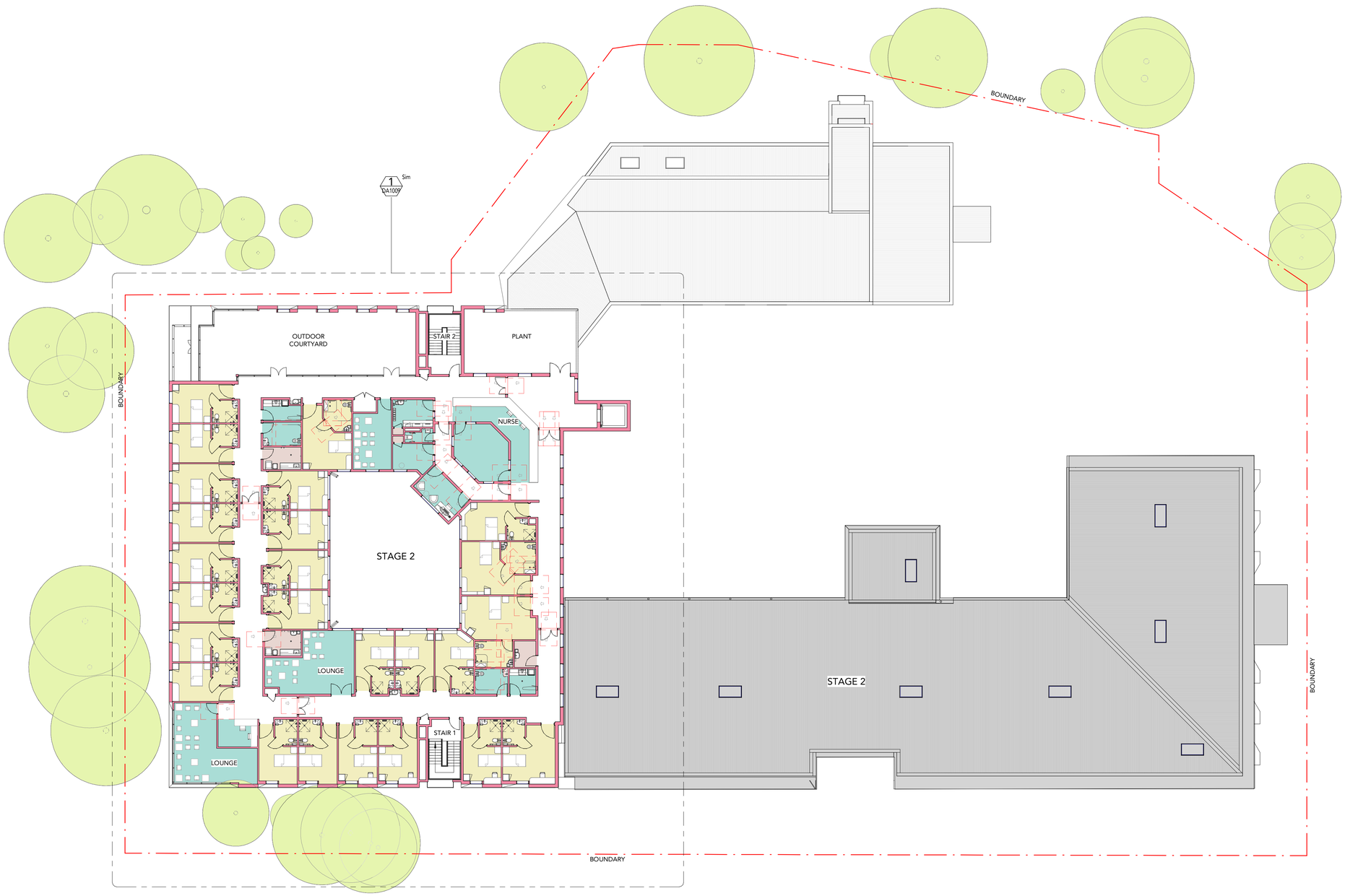
Wentworthville. NSW 2145

Title:
OVERALL SITE PLAN - LEVEL 2

Project #:	Scale:	Drw:	Ckd:
903	As indicated @A1	IK	VM

Drawing #: DA0103

Rev: 4



WARD ROOMS: 25 ROOMS (INCL. 3 ACC.)

1 DA Overall - Level 3
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

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0 1 2 3 4 5
SCALE 1:100

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

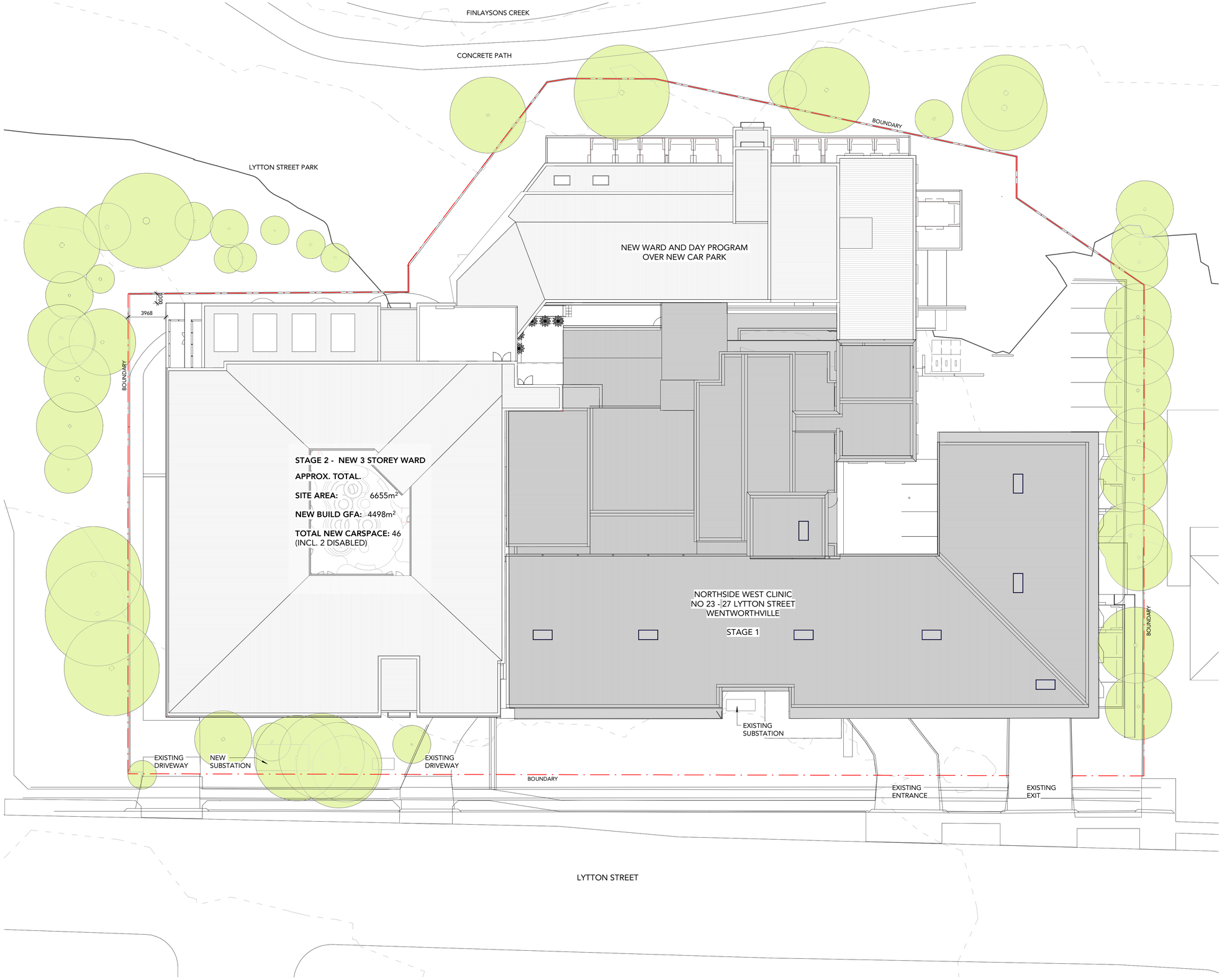
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL SITE PLAN - LEVEL 3

Project #	Scale	Drw	Chd
903	As indicated @A1	IK	VM

Drawing #: DA0104
Rev: 4



1 DA Overall - Roof
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940
MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

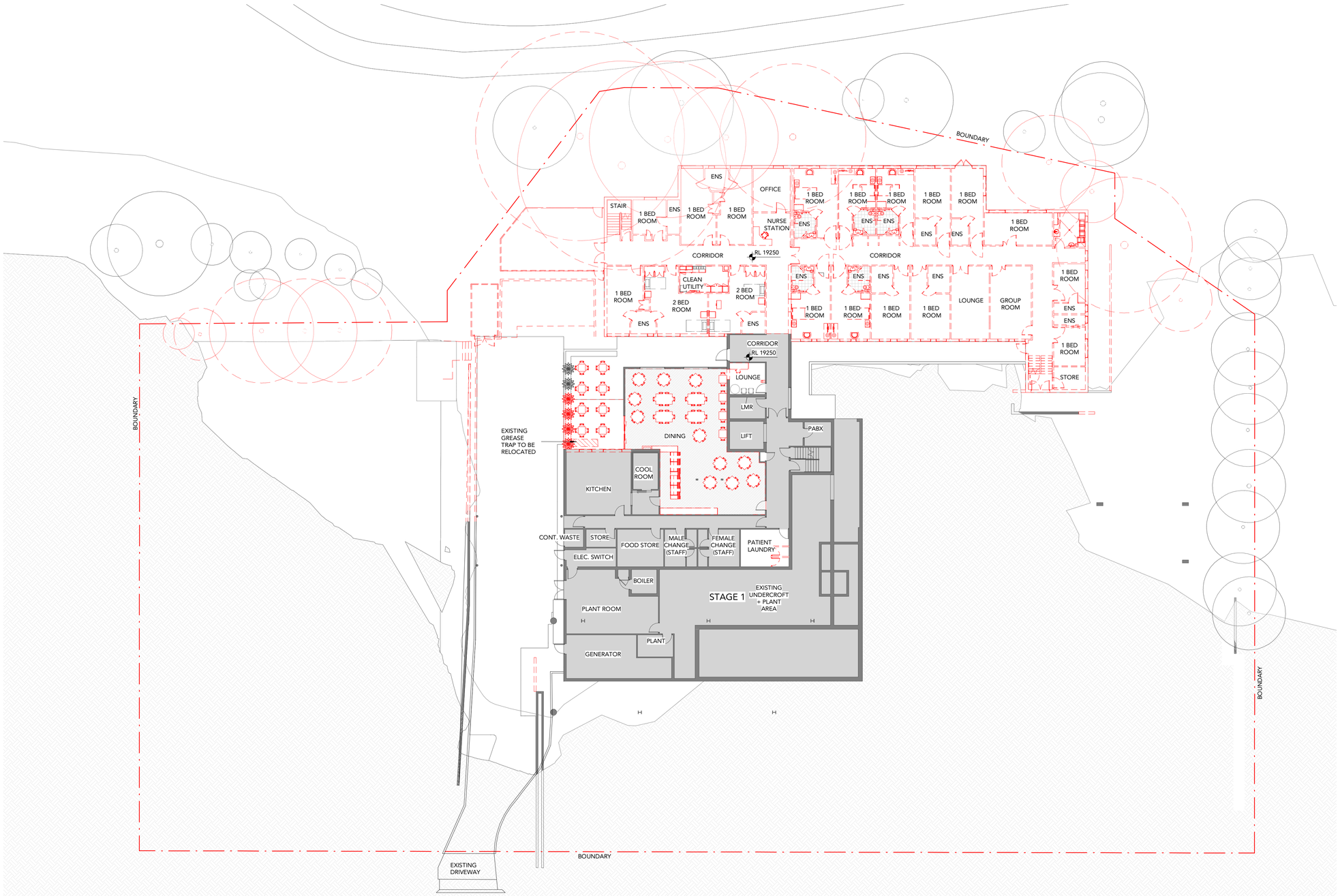
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL SITE PLAN

Project #:	Scale:	Drw:	Chd:
903	As indicated @A1	IK	VM

Drawing #: DA0105 Rev: 4



1 DA Overall Demo - Lower Ground
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - Demo Plan	15.10.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

DRAWING LEGEND:

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LEGEND

EXISTING TREE TO BE RELOCATED

WALL, DOOR AND WINDOW TO BE DEMOLISHED

NOT PART OF SCOPE

ERILYAN

0 1 2 3 4 5
SCALE 1:100

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SYDNEY
701/1 Chandos Street,
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Reg NSW: 9940

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Suite 204/9-11 Claremont Street,
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ABN: 72 104 833 507
Reg Vic: 19340

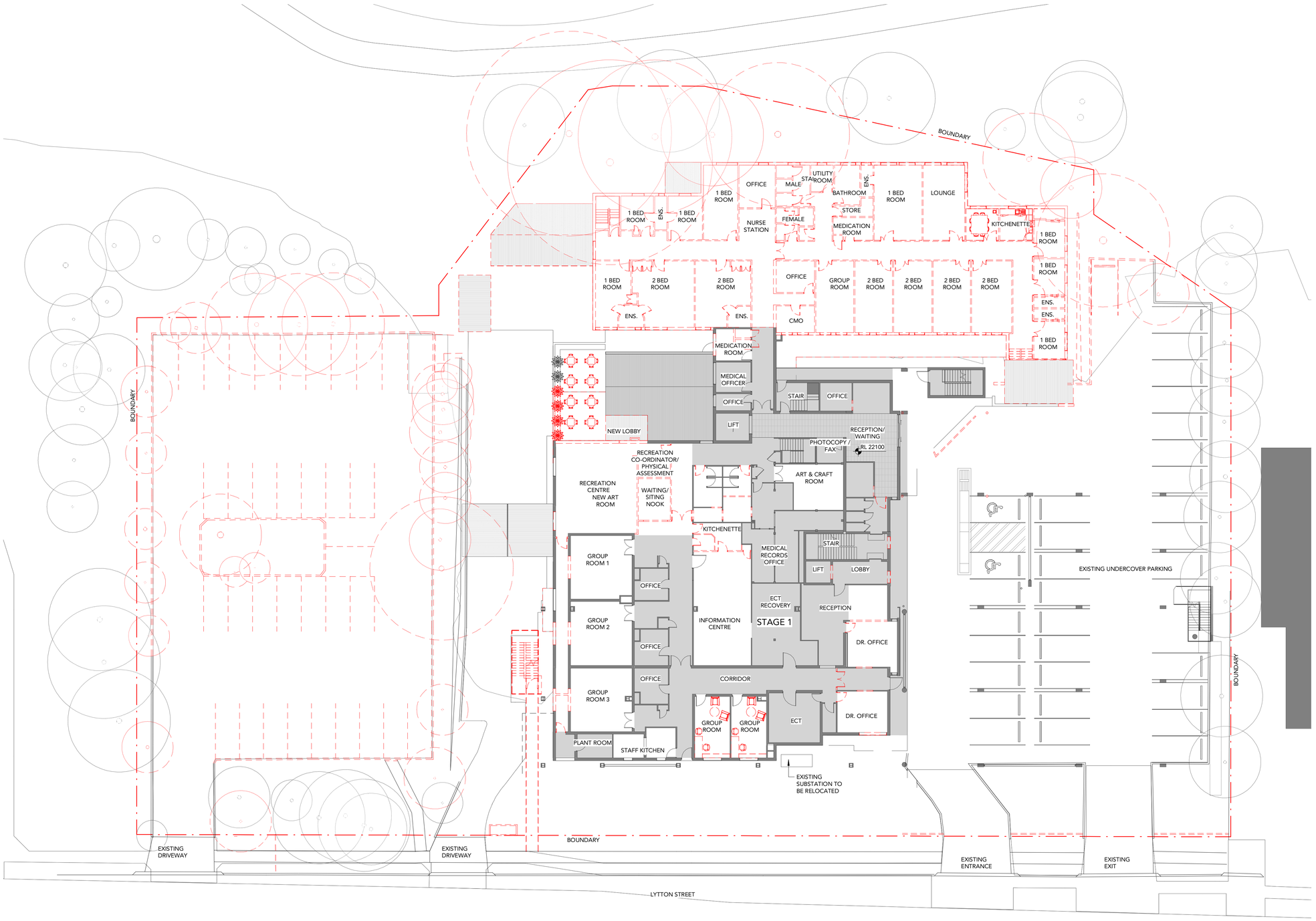
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL DEMOLITION - LOWER GROUND

Job No.	Scale:	Drw:	Chkd:
903	As indicated @A1	IK	Checker

Drawing #: DA0500 Rev: 3



1 DA Overall Demo - Ground Floor
Scale: 1 : 200

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - Demo Plan	15.10.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- EXISTING TREE TO BE RELOCATED
- WALL, DOOR AND WINDOW TO BE DEMOLISHED
- NOT PART OF SCOPE

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS

SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
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Reg NSW: 9940

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Suite 204/9-11 Claremont Street,
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ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
OVERALL DEMOLITION - GROUND

Project #:	Scale:	Drw:	Chd:
903	As indicated @A1	IK	IK

Drawing #: DA0501 Rev: 3

1 DA - Lower Ground Stage 2
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

ERILYAN

SCALE 1:100

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SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
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Reg NSW: 9940
MELBOURNE
Suite 204/9-11 Claremont Street,
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ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
LOWER GROUND - STAGE 2

Project #	Scale	Drw.	Chk.
903	1 : 100 @A1	IK	VM

Drawing #: DA1000
Rev: 4

DA2001
2

LANDSAPCE AND PLANTING TO LANDSCPAE ARCHITECT DETAILS

BOUNDARY

10 9 8 7 6 5 4 3 2 1

UP
STAIR 3
ELECT.

EMERGENCY EXIT

NEW WEST PARKING
SRL 19200

RL 19200
1:5
RL 19460

LINE OF RAMP ABOVE

RL 19500
1:5
1:10
RL 19300

11 12 13 14 15 16 17 18

UP

6 BICYCLE PARKING SPACE

NEW OFFICE
10 m²

LMR
7 m²

LIFT
9 m²

PABX
6 m²

CLEANERS
4 m²

STAIR
5 m²

EXISTING GREASE TRAP
TO BE RELOCATED

NEW
LAODING BAY

LIFT

CONFIRM
EXISTING DUCT

NEW GYM
140 m²

KITCHEN
45 m²

COOL ROOM
8 m²

CORRIDOR
21 m²

CONT. WASTE
3 m²

STORE
5 m²

FOOD STORE
16 m²

ELEC. SWITCH
8 m²

MALE
CHANGE
(STAFF)
7 m²

FEMALE
CHANGE
(STAFF)
11 m²

NEW
WELLNESS
17 m²

REFURBISHED

BOILER
6 m²

PLANT ROOM
46 m²

EXISTING
UNDERCROFT
+ PLANT
AREA
126 m²

H H H

1 DA - Lower Ground West Parking and Stage 1
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LOWER GROUND - WEST PARKING

Project #:	Scale:	Drw:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1001
Rev: 5

DA2001
1

BOUNDARY

LINE OF BUILDING ABOVE

LANDSAPCE AND PLANTING TO LANDSCPAE ARCHITECT DETAILS

STAIR 2

LANDSAPCE AND PLANTING TO LANDSCPAE ARCHITECT DETAILS

RL 20500

RL 21000

1419

PADESTRIAN PATH

RL 20751

DA2000
2

B
DA3000

13

12

SWITCH ROOM
43 m²
RL 22100

11 10 9 8 7 6 5

ON GRADE UNDERCOVER PARKING

RL 22000

LINE OF BUILDING ABOVE

1 2 3 4

RL 22100

HYDRANT AND SPRINKLER PUMP

5400

5444

HOT WATER PLANT ROOM

3600

2600

STAIR 1

UP

RL 22000

1:10

RL 22200

1:5

RL 22570

1:10

RL 22770

LINE OF BUILDING ABOVE

EXISTING EASEMENT TO BE RELOCATED

NEW SUBSTATION

EXISTING FIRE HYDRANT BOOSTER

BOUNDARY

EXISTING DRIVEWAY

A
DA3000

1
DA9000

EXISTING DRIVEWAY

LYTTION STREET

EXISTING RETAINING WALL

HIGHLIGHT WINDOW

CONFRIM EXISTING WINDOW

NEW WINDOW

NEW WINDOW

NEW WINDOW

LINE OF BUILDING ABOVE

11 12 13

NEW WINDOW

NEW OFFICE
11 m²

MEDICAL OFFICER
10 m²

OFFICE
6 m²

LIFT
9 m²

3.00°

LIFT

NEW LOBBY

EXISTING COLOUMN TBC

EXISTING TOILET UPGRADES

NEW ART ROOM
85 m²

FEMALE W.C
8 m²

MALE W.C
12 m²

NEW GROUP
1
37 m²

NEW LOUNGE
37 m²

EXISTING/ REROUTED FIRE WALL SHOWN IN RED

OFFICE
10 m²

NEW GROUP
2
37 m²

EXPANDED ECT RECOVERY
38 m²

OFFICE
11 m²

STAGE 1

OFFICE
11 m²

NEW GROUP
3
37 m²

NEW GROUP
4
21 m²

NEW GROUP
5
20 m²

PLANT ROOM
8 m²

NEW INTERVIEW
16 m²

1 DA - Ground Floor Stage 2
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

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1	Preliminary Issue	28.07.21
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- EXISTING WALL
- NEW WALL

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SCALE 1:100

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
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Project:
Northside West Stage 2

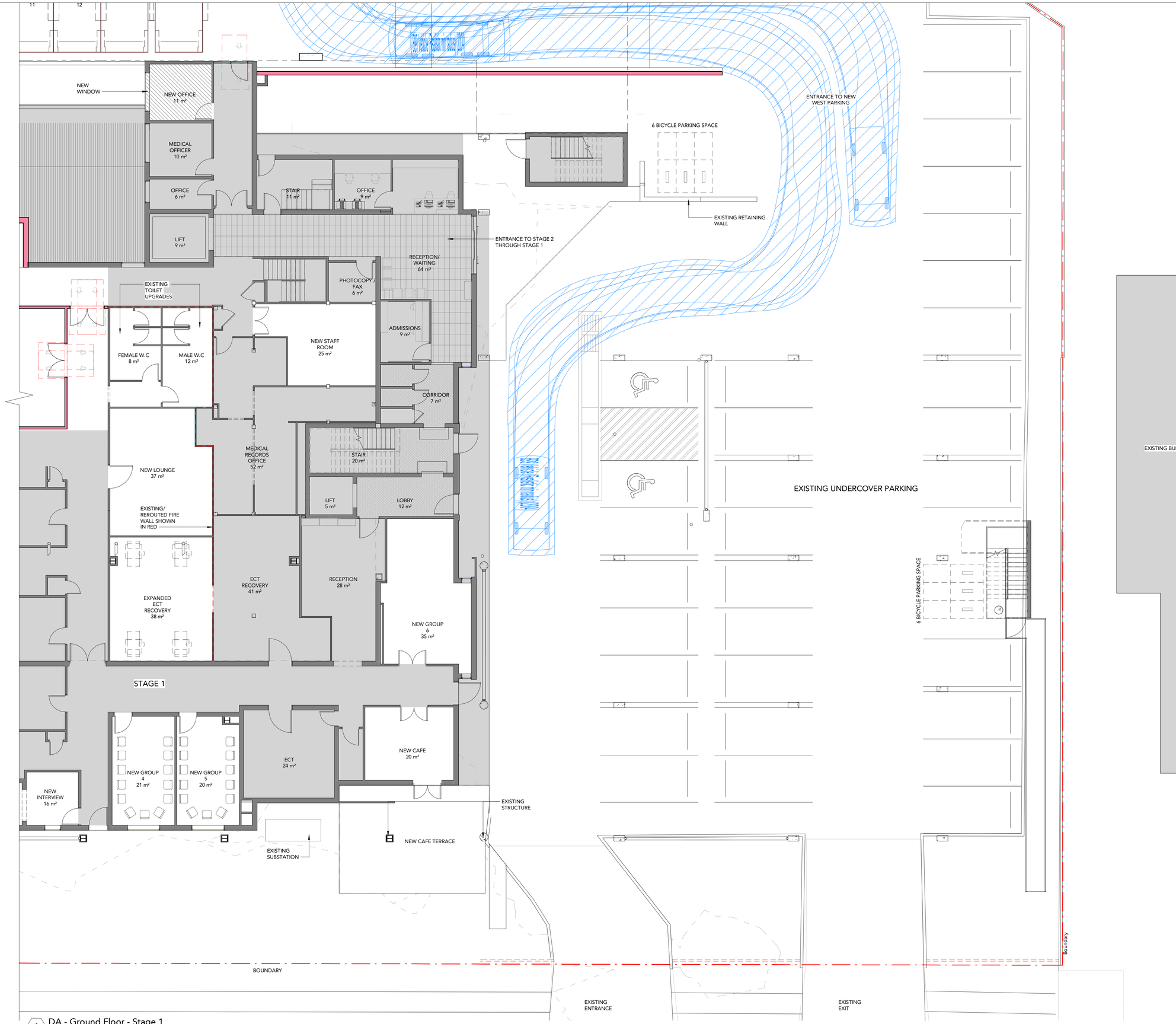
Wentworthville. NSW 2145

Title:
GROUND - STAGE 2

Project #:	Scale:	Drn:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1002

Rev: 4



1 DA - Ground Floor - Stage 1
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
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4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

ERILYAN

SCALE 1:100

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

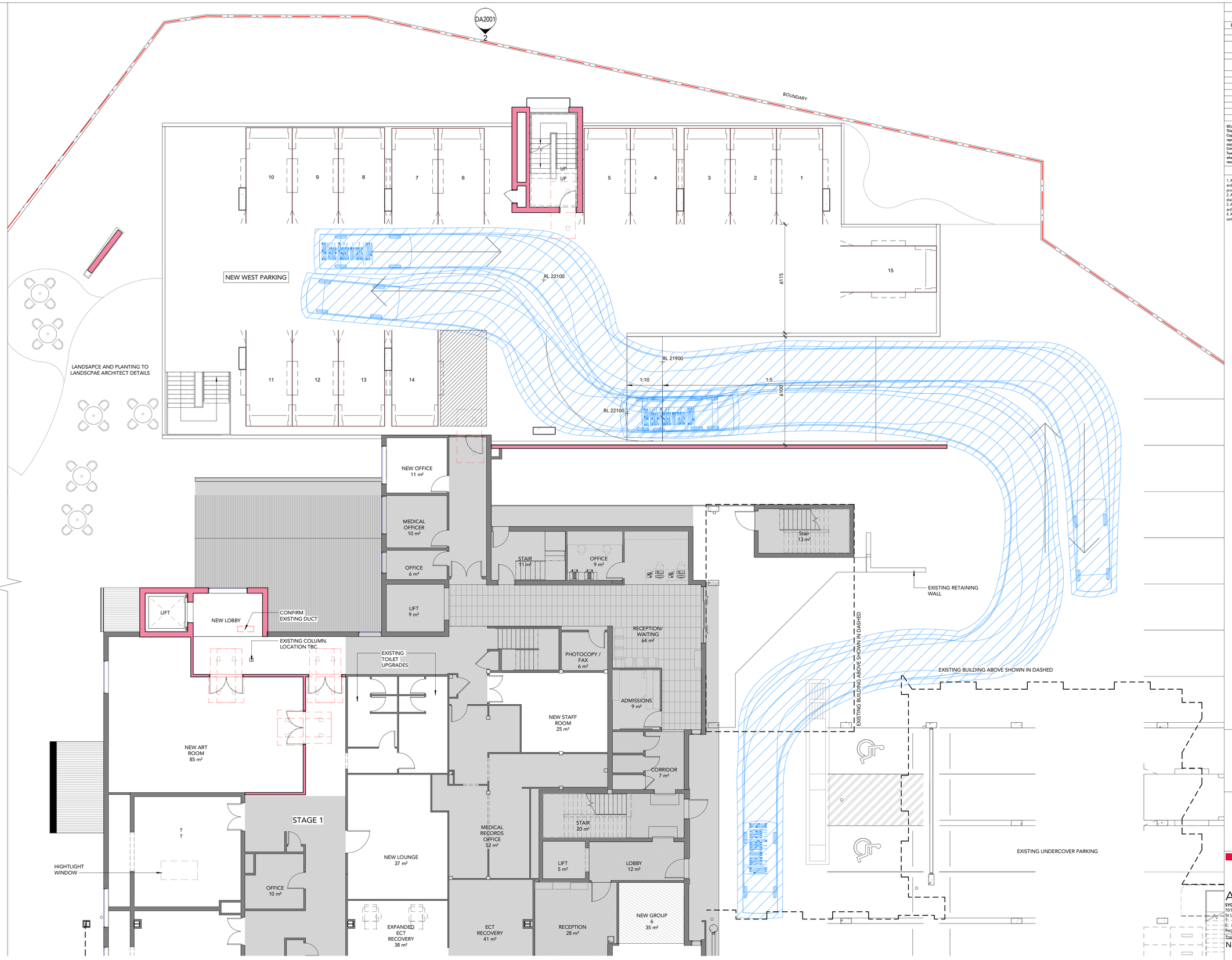
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
GROUND - STAGE 1

Project #:	Scale:	Drw:	Chk:
903	1 : 100 @A1	IK	VM

Drawing #: DA1003 Rev: 4



1 DA - Ground Floor West Parking
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	Issue For Information	29.10.21
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LEGEND

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- NEW WALL

ERILYAN

SCALE 1:100

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SYDNEY
701/1 Chandos Street,
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MELBOURNE
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ABN: 72 104 833 507
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Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
GROUND -WEST PARKING

Project #:	Scale:	Drw:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1004 Rev: 5

1 DA - Level 1
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION - UPDATED	08.11.21
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

ERILYAN

0 1 2 3 4 5
SCALE 1:100

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SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
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MELBOURNE
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Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEVEL 1 - STAGE 2

Project #:	Scale:	Drw.	Chk.
903	1 : 100 @A1	IK	VM

Drawing #: DA1005 Rev: 5

1 Level 1 - West Block
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

ERILYAN

0 1 2 3 4 5
SCALE 1:100

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SYDNEY
701/1 Chandos Street,
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Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEVEL 1 - WEST BLOCK

Project #:	Scale:	Drw:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1006
Rev: 4

DA2000 2

B DA3000

WARD ROOM: 29 ROOMS (INCL. 2 ACC.)

1 DA - Level 2
Scale: 1 : 100

A DA3000

1 DA9000

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

ERILYAN

0 1 2 3 4 5
SCALE 1:100

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SYDNEY
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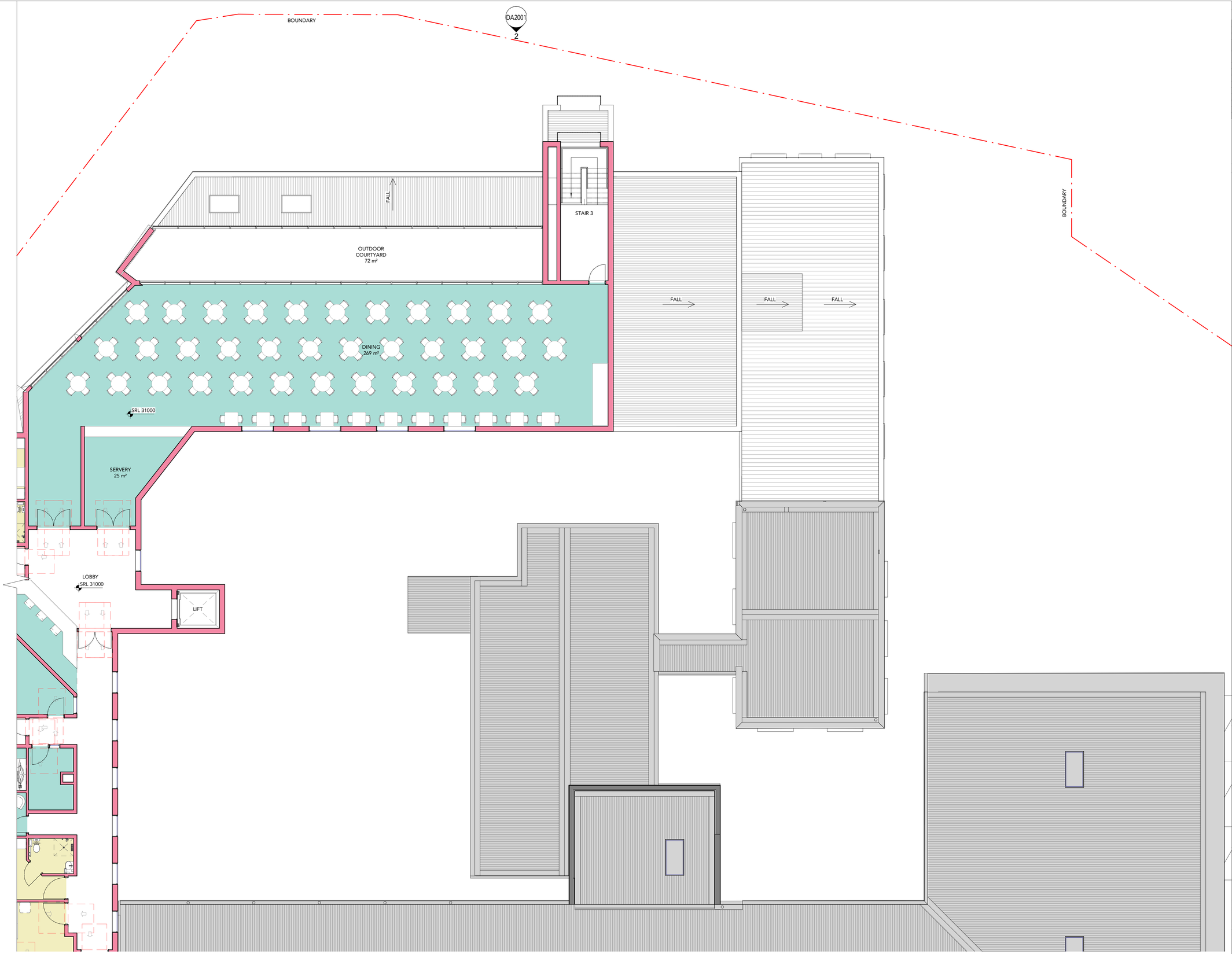
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEVEL 2 - STAGE 2

Project #:	Scale:	Drn:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1007 Rev: 4



1 Level 2 - West Block
Scale: 1 : 100

DRAWING STATUS:

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Rev	Revision Description	Date
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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

FLOOR PLAN LEGEND

- WARD ROOMS
- SUPPORT ROOMS
- UTILITY ROOMS

ERILYAN

0 1 2 3 4 5
SCALE 1:100

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Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEVEL 2 - WEST BLOCK

Project #:	Scale:	Drw:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1008
Rev: 4

WARD ROOMS: 25 ROOMS (INCL. 3 ACC.)

1 DA - Level 3
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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SCALE 1:100

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Reg NSW: 9940
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Suite 204/9-11 Claremont Street,
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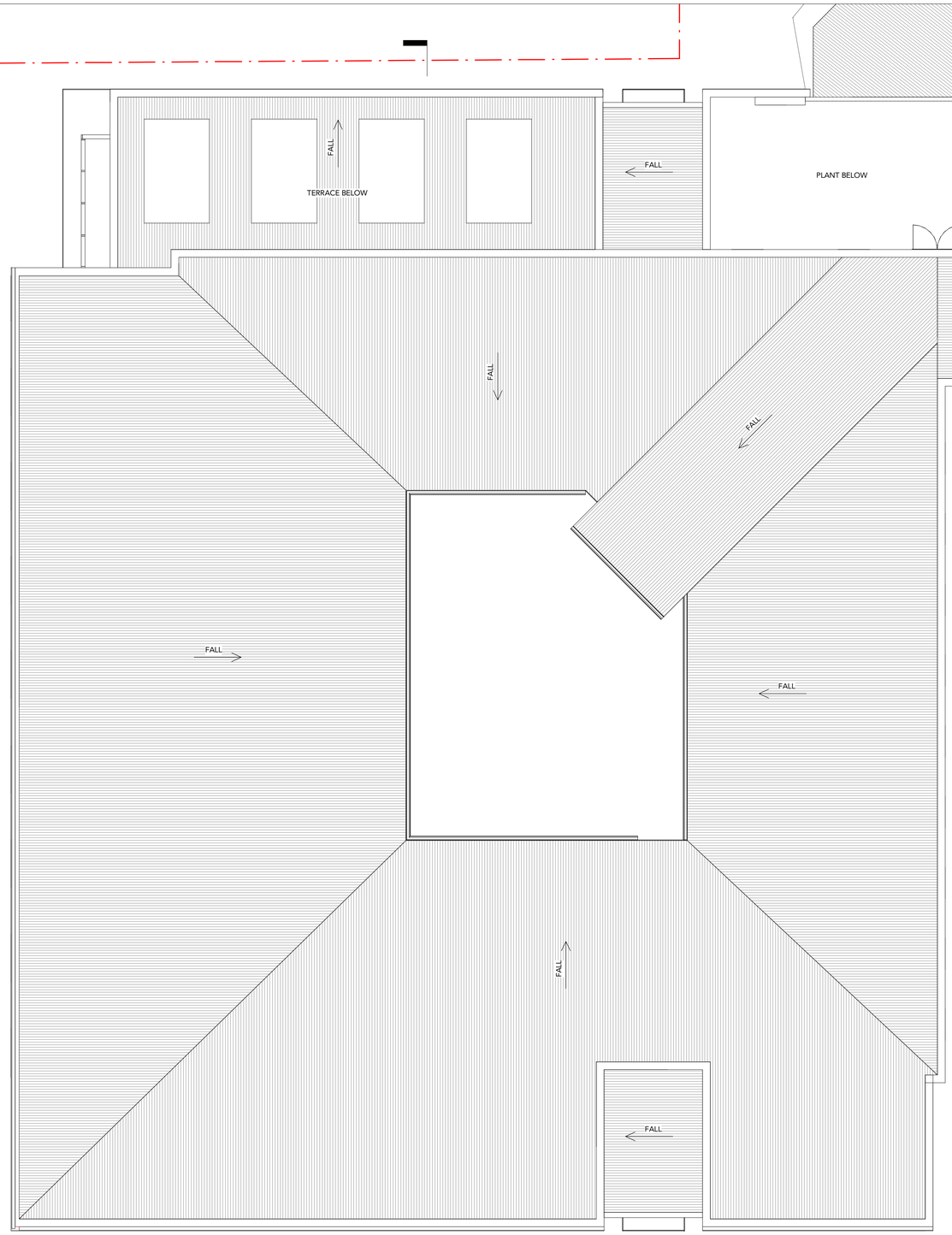
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEVEL 3 - STAGE 2

Project #:	Scale:	Drw:	Chk:
903	1 : 100 @A1	IK	VM

Drawing #: DA1009
Rev: 4



DA2000 2

B DA3000

A DA3000

1 DA9000

1 DA - Roof
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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SCALE 1:100

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Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
ROOF - STAGE 2

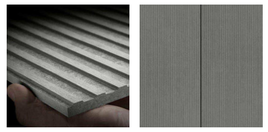
Project #:	Scale:	Drw:	Chd:
903	1 : 100 @A1	IK	VM

Drawing #: DA1010

Rev: 4

MATERIALS AND FINISHES LEGEND

01



EQUITONE LINES PANEL

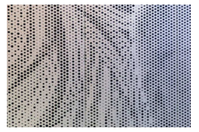
02

SOLID ALUMINUM PANEL

03

SOLID ALUMINUM PANEL

04



PERFORATED METAL SCREENING

1 DA - East Elevation - Lytton St View
Scale: 1 : 100

2 DA - South Elevation
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION - UPDATED	05.11.21
5	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

DRAWING LEGEND:

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ERILYAN

SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940
MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

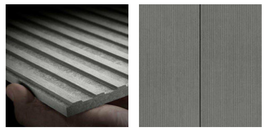
Title:
ELEVATION

Project #:	Scale:	Drw:	Chk:
903	As indicated @A1	IK	VM

Drawing #: DA2000 Rev: 5

MATERIALS AND FINISHES LEGEND

01



EQUITONE LINES PANEL

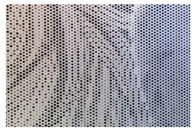
02

SOLID ALUMINUM PANEL

03

SOLID ALUMINUM PANEL

04



PERFORATED METAL SCREENING

1 DA - West Elevation - Lytton Park View
Scale: 1 : 100

2 DA - West Elevation - Lytton Park View 2
Scale: 1 : 100

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION - UPDATED	05.11.21
5	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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0 1 2 3 4 5
SCALE 1:100

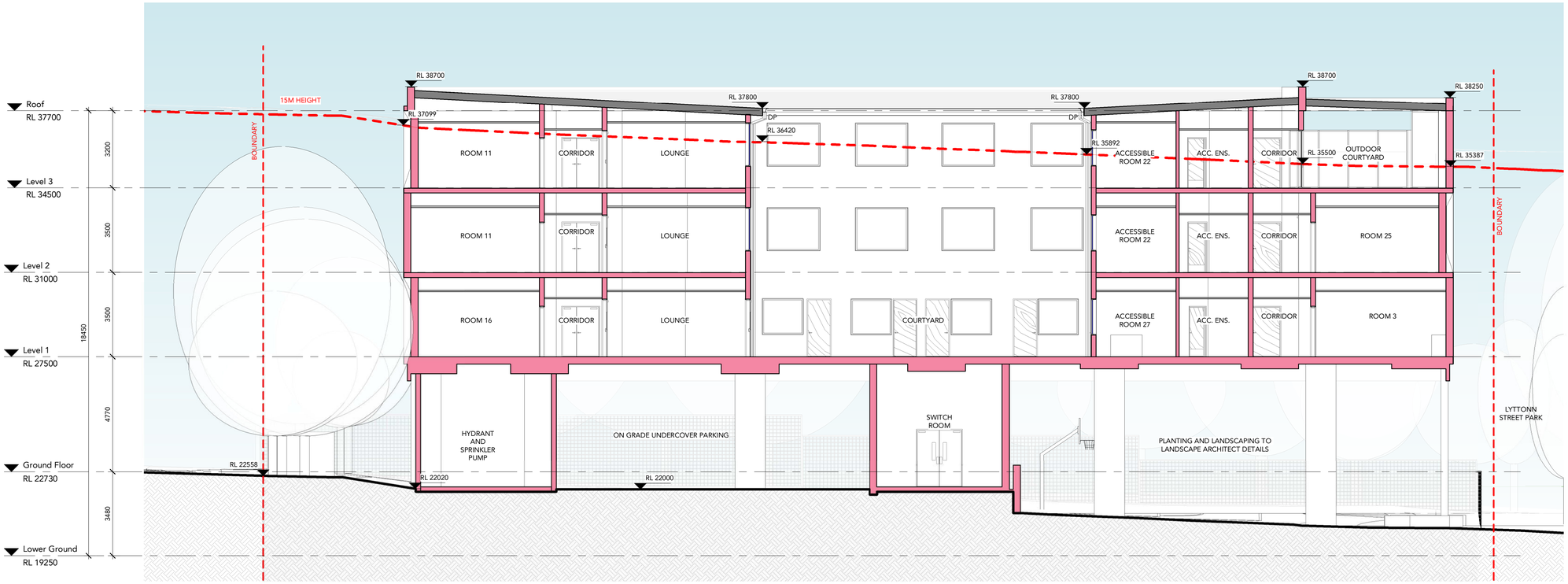
TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940
MELBOURNE
313/737 Burwood Road,
Hawthorn East VIC 3123
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
ELEVATION

Project #:	Scale:	Drw:	Ckd:
903	As indicated @A1	IK	VM

Drawing #: DA2001 Rev: 5



A SECTION A-A
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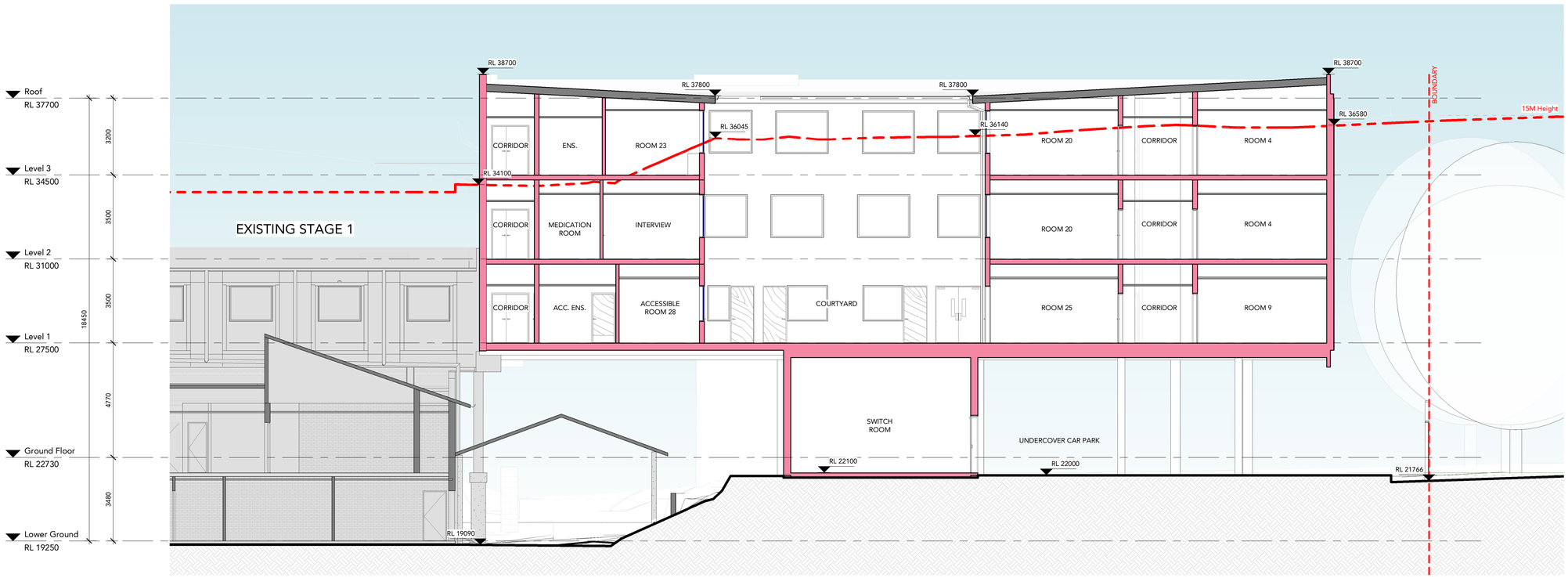

B SECTION B-B
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION - UPDATED	05.11.21
5	ISSUE FOR DEVELOPMENT APPLICATION - UPDATED	08.11.21
6	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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LEGEND

- NOT IN SCOPE
- EXISTING WALL
- NEW WALL

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940
MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

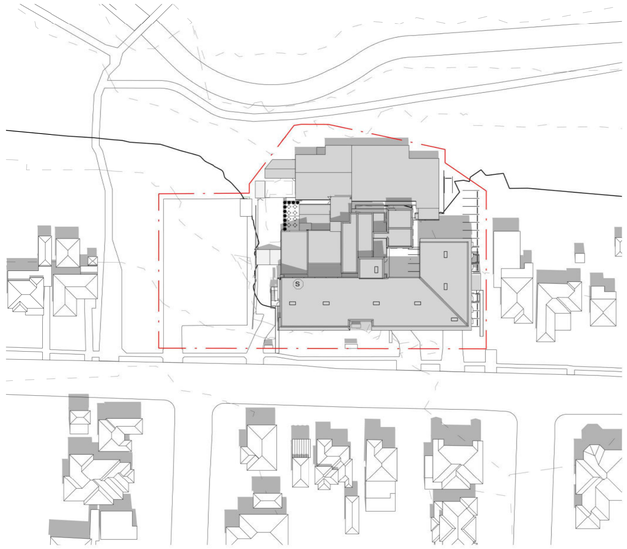
Project:
Northside West Stage 2

Wentworthville. NSW 2145

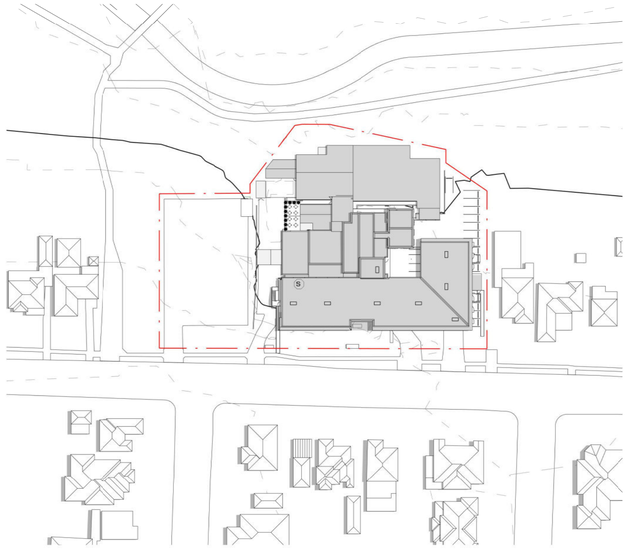
Title:
SECTIONS

Project #:	Scale:	Drw:	Chk:
903	As indicated @A1	IK	VM

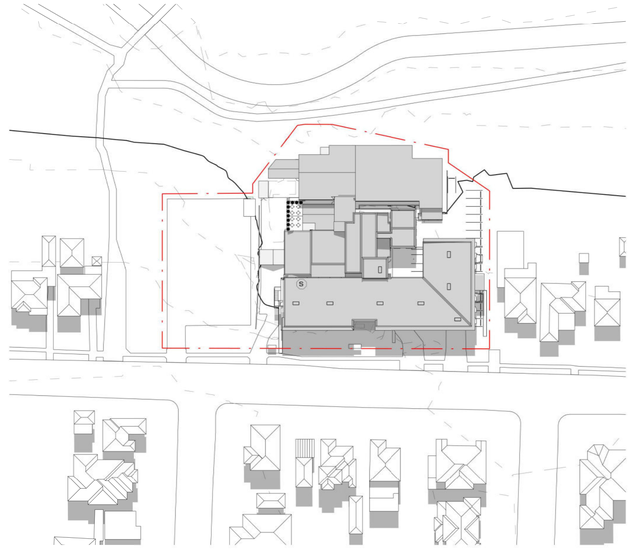
Drawing #: DA3000
Rev: 6



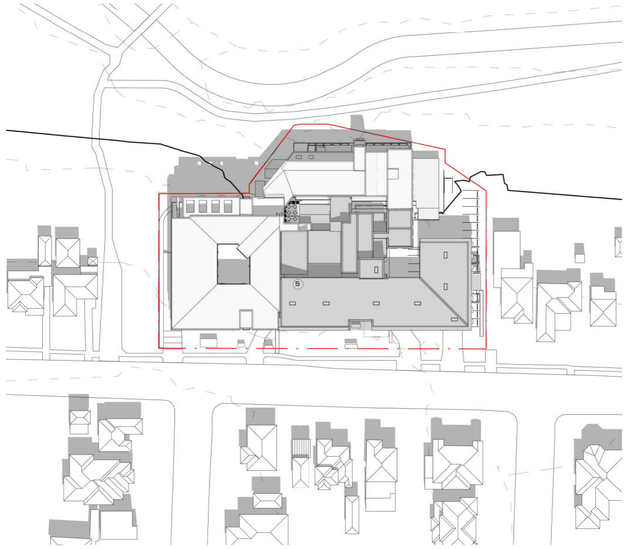
1 Shadow Diagram Existing_Summer Solstice 0900
Scale: 1 : 1000



2 Shadow Diagram Existing_Summer Solstice 1200
Scale: 1 : 1000



3 Shadow Diagram Existing_Summer Solstice 1500
Scale: 1 : 1000



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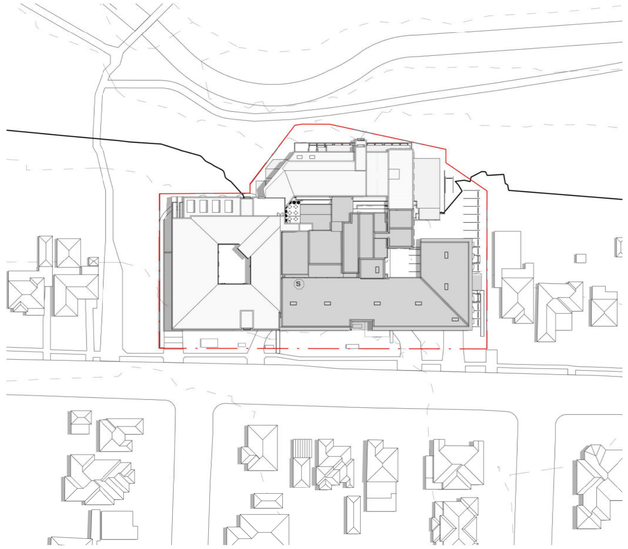
Scale: 1 : 1000



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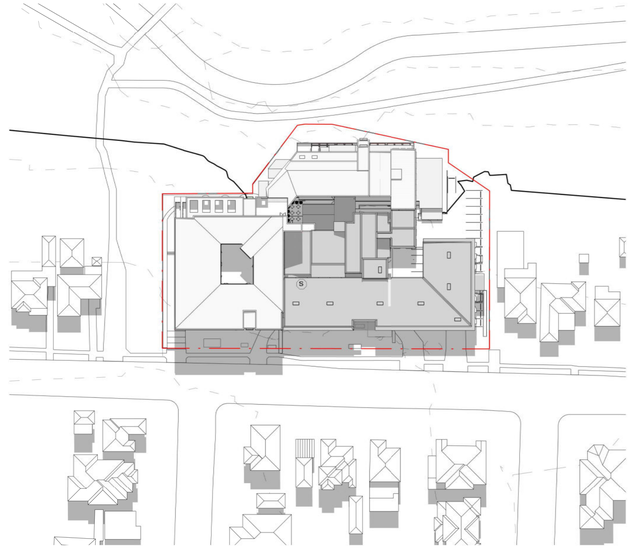
Scale: 1 : 1000



6 Shadow Diagram_Summer Solstice 1500
Scale: 1 : 1000

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

0 5 10 20 30
SCALE 1:500

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

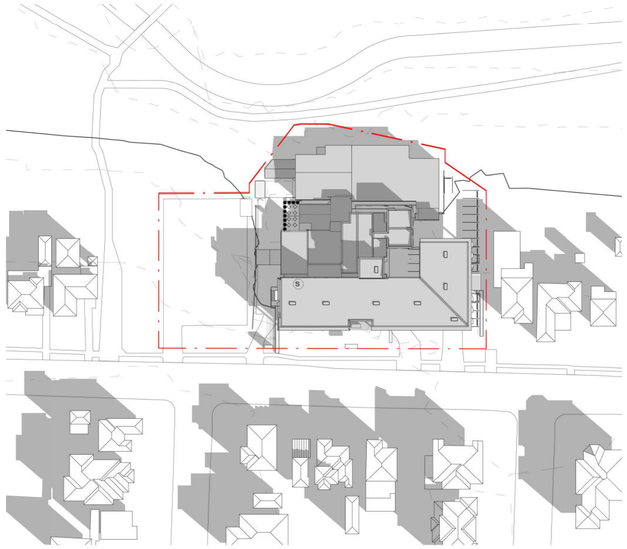
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
SHADOW DIAGRAMS - SUMMER SOLSTICE

Job No.	Scale	Drw	Chd
903	1 : 1000 @A1	IK	IK

Drawing #: DA8000
Rev: 4



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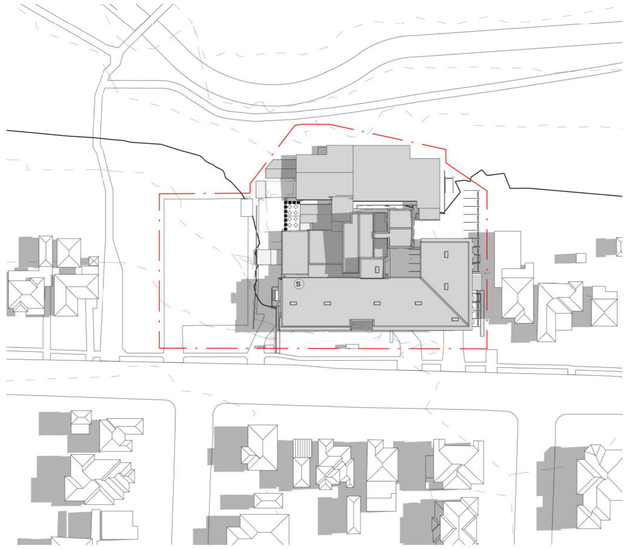
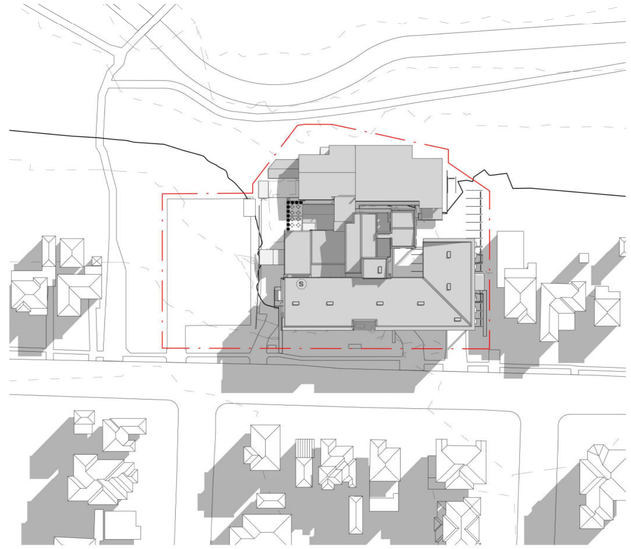
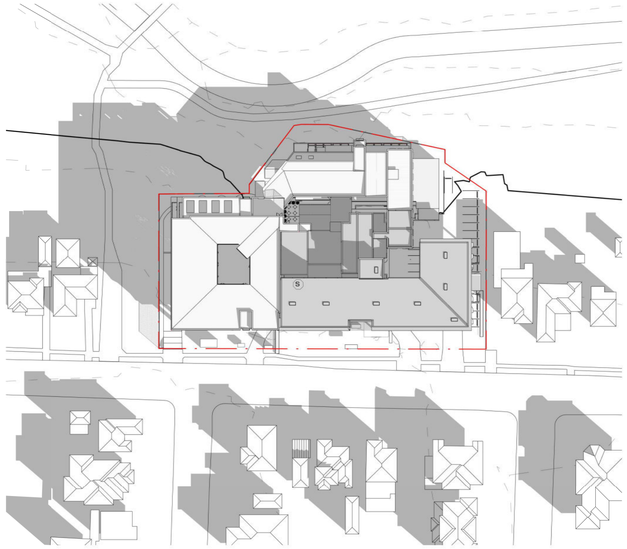
Scale: 1 : 1000



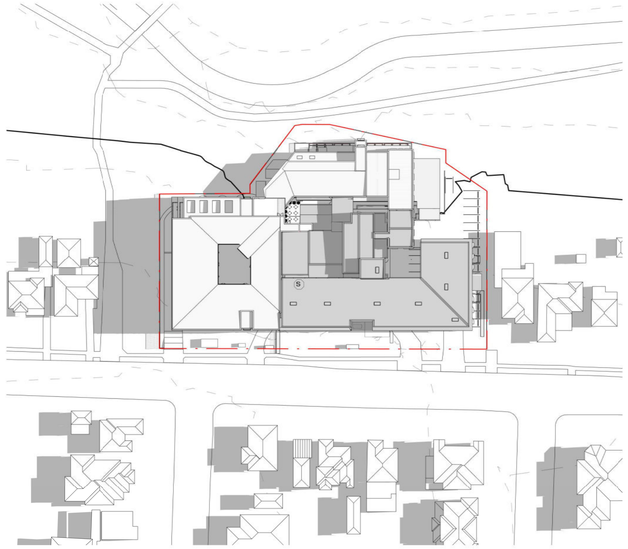
2 Shadow Diagram Existing_Winter Solstice 1200
Scale: 1 : 1000



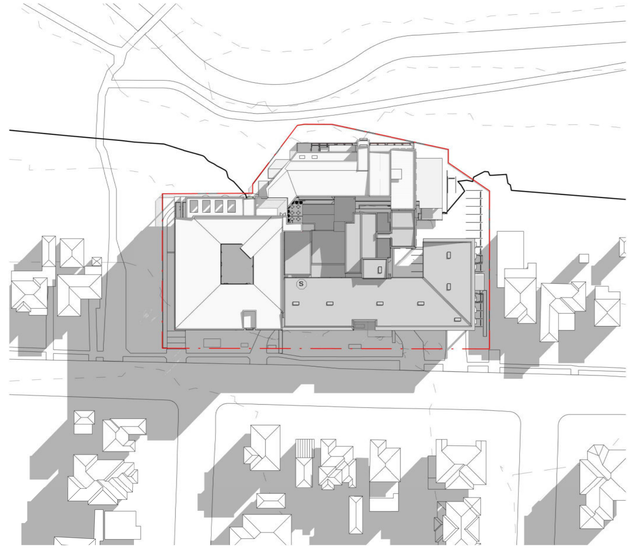
3 Shadow Diagram Existing_Winter Solstice 1500
Scale: 1 : 1000



4 Shadow Diagram_Winter Solstice 0900
Scale: 1 : 1000



5 Shadow Diagram_Winter Solstice 1200
Scale: 1 : 1000



6 Shadow Diagram_Winter Solstice 1500
Scale: 1 : 1000

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	28.07.21
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3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
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ERILYAN

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SCALE 1:500

TEAM2 ARCHITECTS

SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

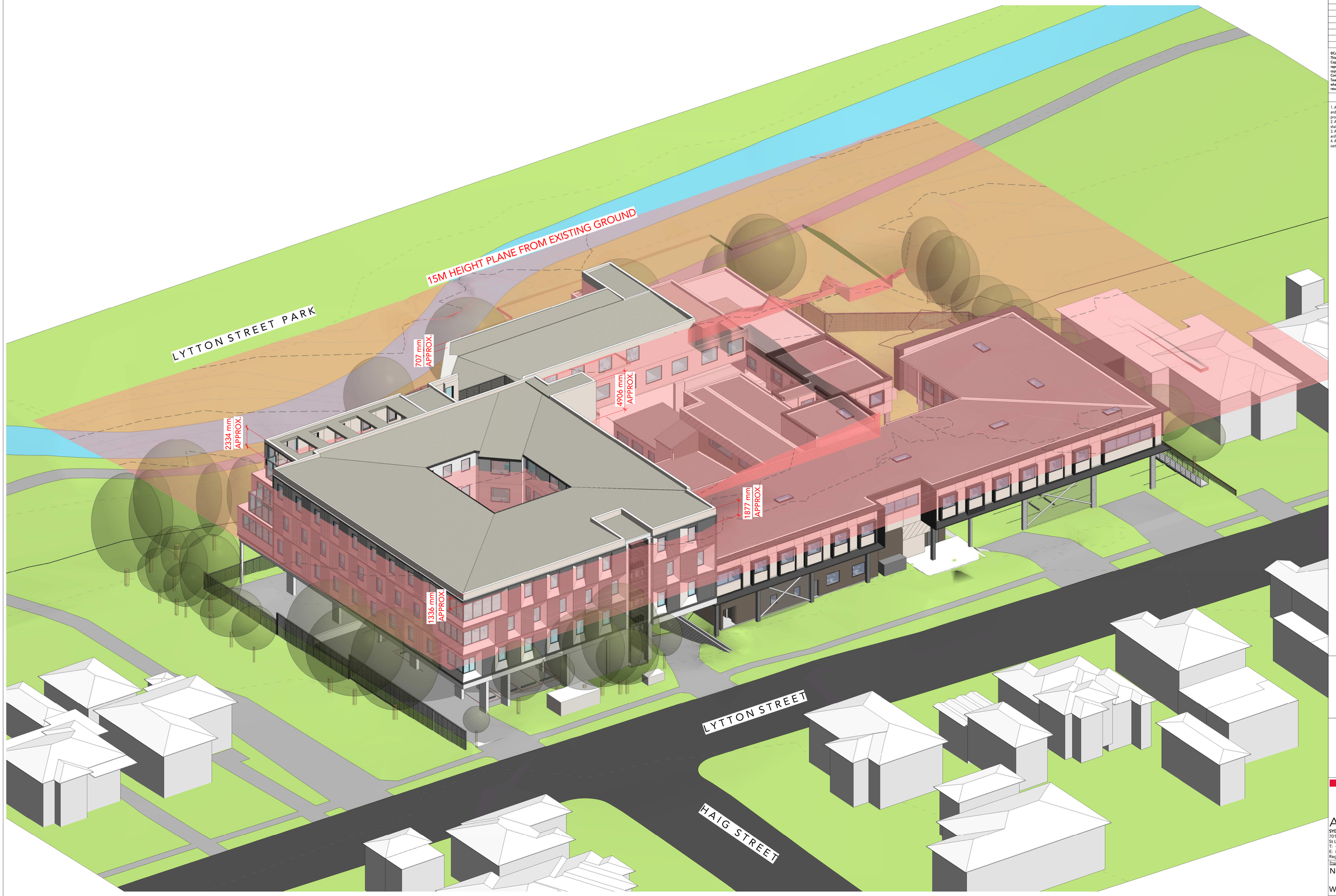
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
SHADOW DIAGRAMS - WINTER SOLSTICE

Job No.	Scale	Drw	Chd
903	1 : 1000 @A1	IK	IK

Drawing #: DA8002
Rev: 4



1 LEP Height - Lytton Street South View
N.T.S

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
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ERILYAN

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SYDNEY
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St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
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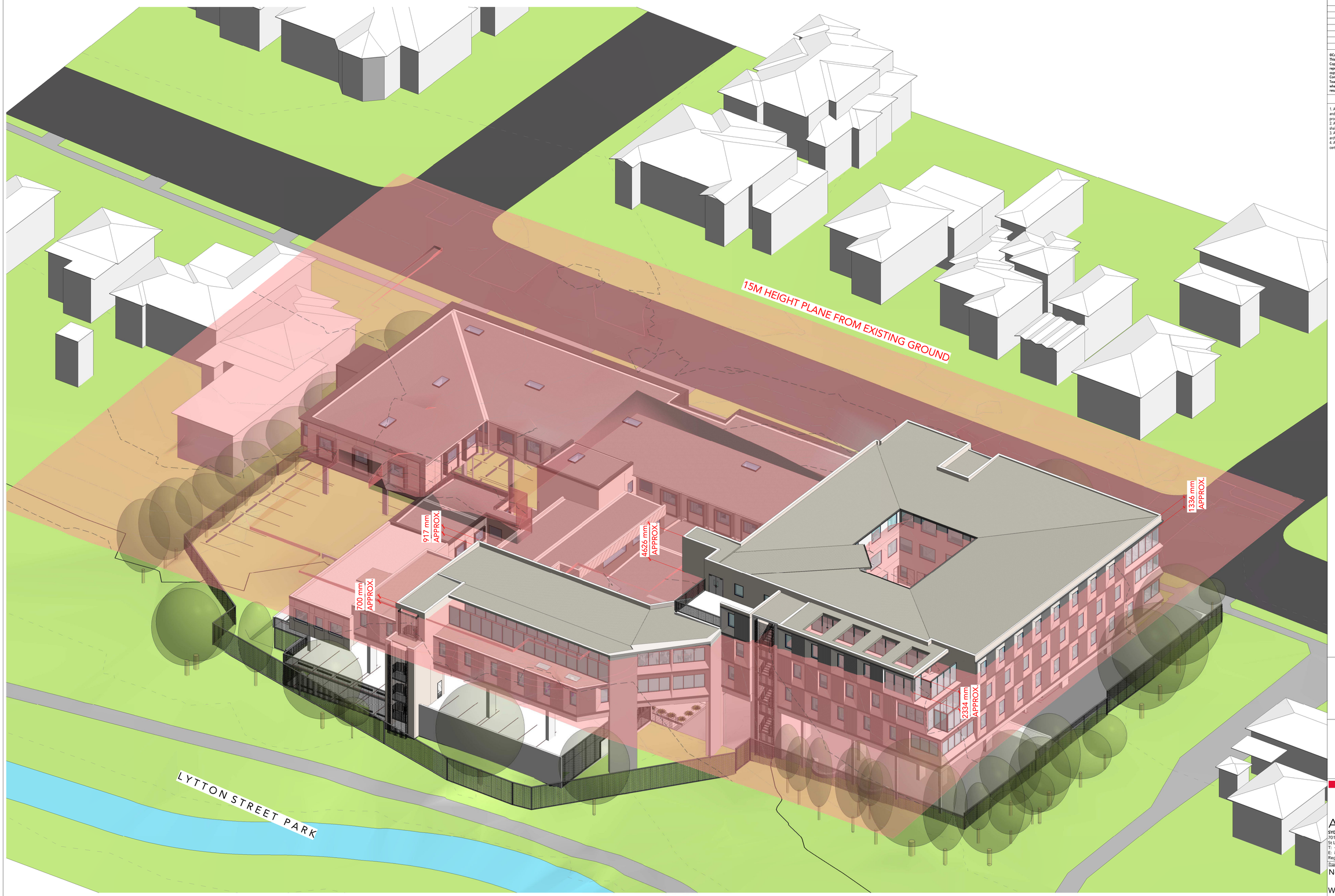
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEP Height

Project #:	Scale:	Drw:	Ckd:
903	@A1	IK	IK

Drawing #: DA8100 Rev: 3



1 LEP Height - Lytton Street South West
N.T.S

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
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3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

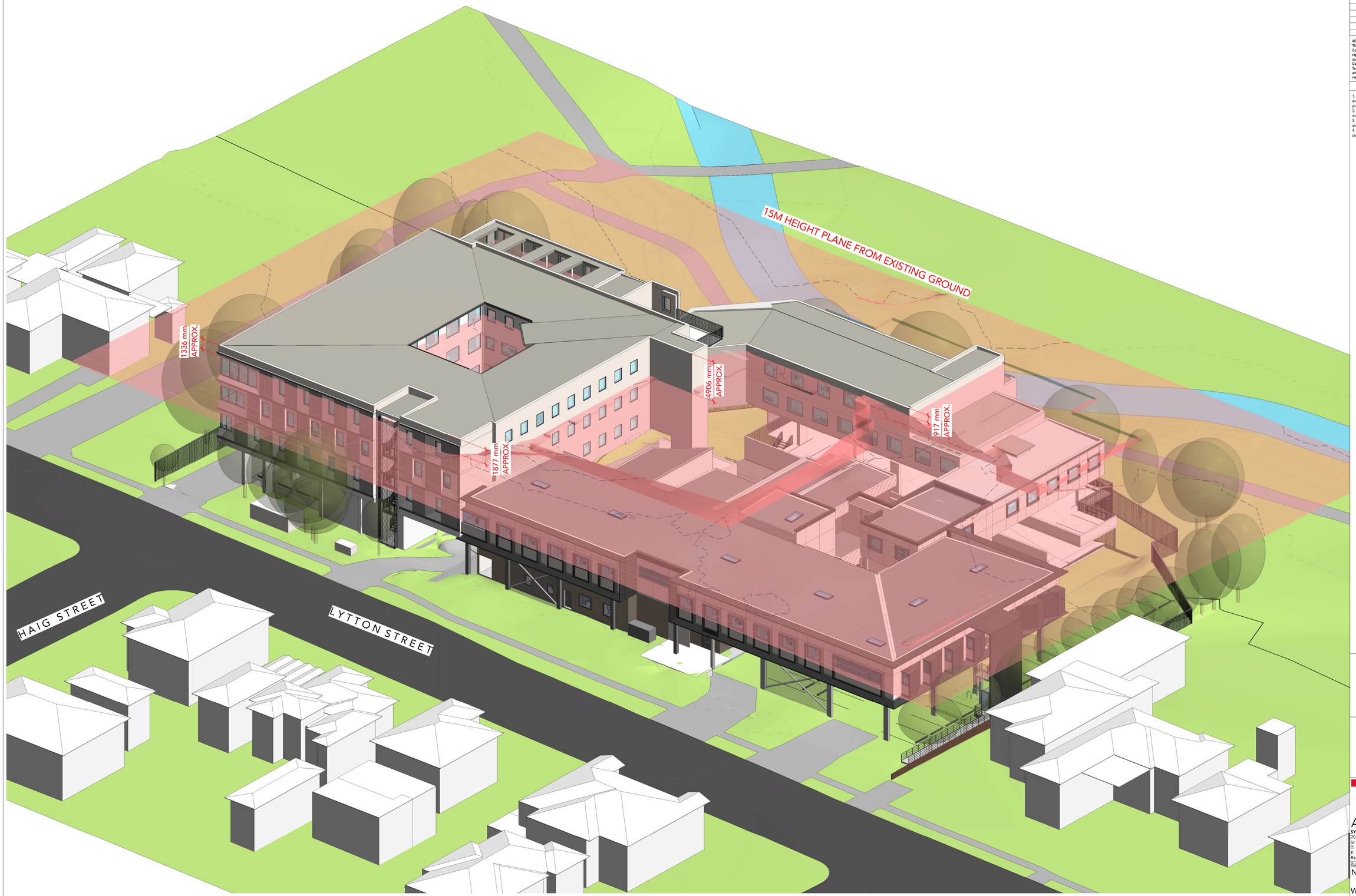
Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEP Height

Project #:	Scale:	Drw:	Chd:
903	@A1	IK	IK

Drawing #: DA8101 Rev: 3



1 LEP Height - Lytton Street North View
N.T.S

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940
MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEP Height

Project #:	Scale:	Drwn:	Chkd:
903	@A1	IK	IK

Drawing #: DA8102 Rev: 3

1 LEP Height - Lytton Street Park Axo View
Scale:

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

TEAM 2 ARCHITECTS
SYDNEY
201/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEP Height

Project #:	Scale:	Drw:	Chd:
903	@A1	IK	IK

Drawing #: DA8103 Rev: 3

1 LEP Height - Lytton Street - North East Street View
Scale:

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

TEAM 2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEP Height

Project #:	Scale:	Drw:	Chd:
903	@A1	IK	IK

Drawing #: DA8104
Rev: 3

1 LEP Height - Lytton Street - South Street View
Scale:

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
2	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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ERILYAN

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

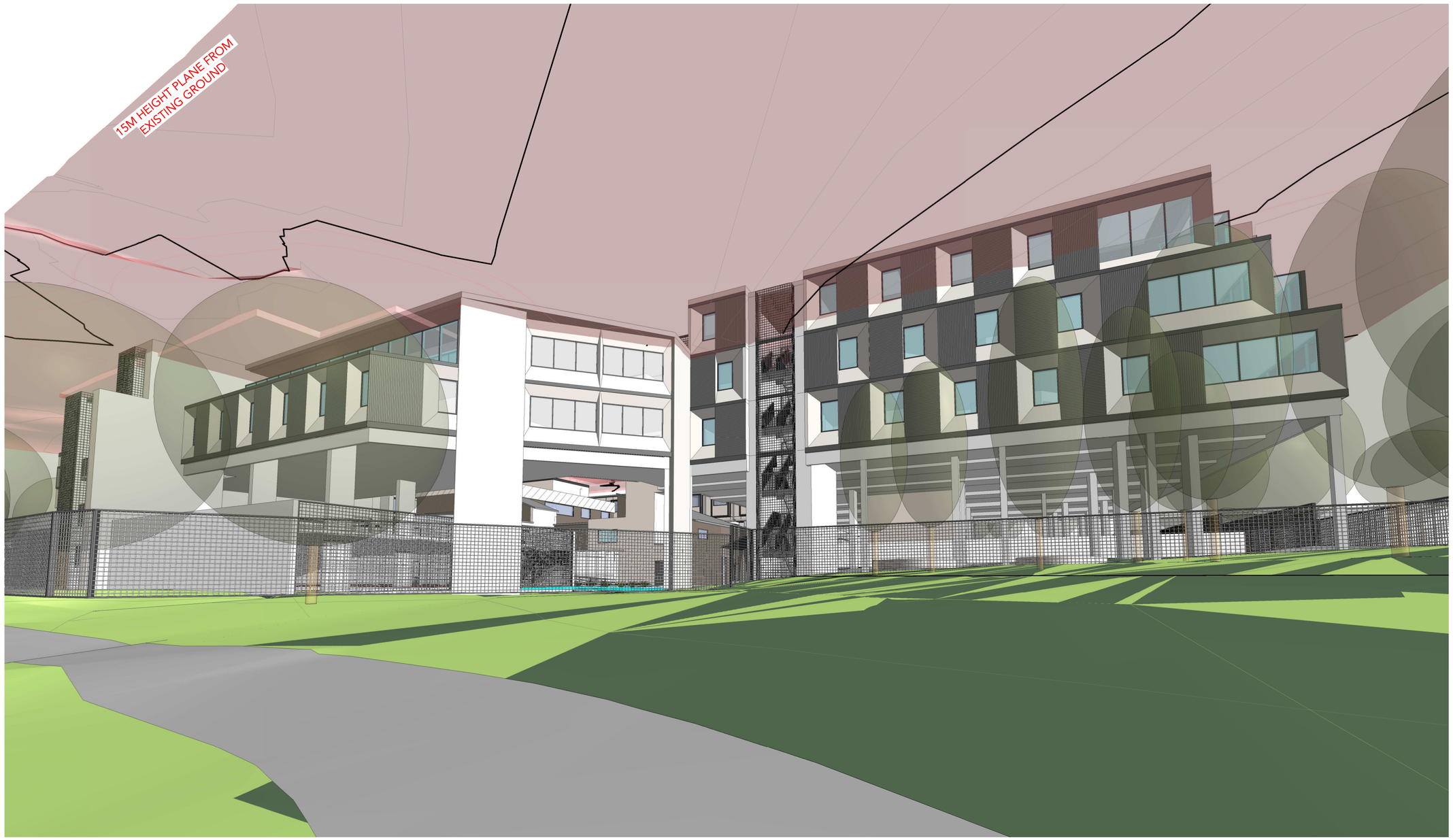
Wentworthville. NSW 2145

Title:
LEP Height

Project #:	Scale:	Drw:	Chd:
903	@A1	IK	IK

Drawing #: DA8105

Rev: 3



1 LEP Height - Lytton Street Park - Street View
Scale:

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue - LEP Height	28.09.21
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3	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

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4. All work to be carried out in accordance with the requirements of the principal certifying authority, current ncc & australian standards.

ERILYAN

TEAM2 ARCHITECTS

SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
LEP Height

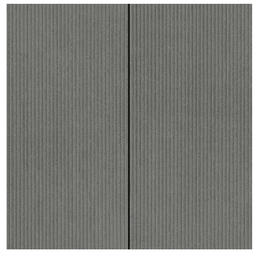
Project #:	Scale:	Drw:	Chk:
903	@A1	IK	IK

Drawing #: DA8106

Rev: 3

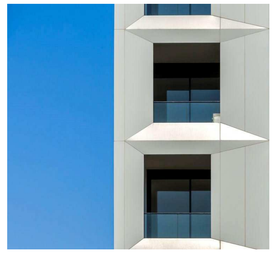
MATERIALS AND FINISHES LEGEND

01



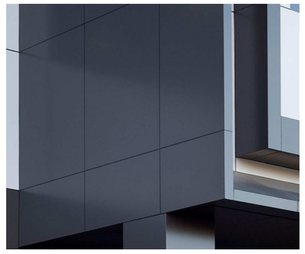
EQUITONE LINES PANEL

02



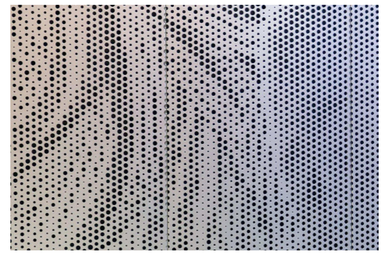
SOLID ALUMINUM PANEL

03



SOLID ALUMINUM PANEL

04



PERFORATED METAL SCREENING

1 DA - East Elevation - Lytton St View External Finishes
Scale: 1 : 100

DRAWING STATUS:

DEVELOPMENT APPLICATION

Rev	Revision Description	Date
1	Preliminary Issue	02.08.21
2	Preliminary Issue	05.08.21
3	ISSUE FOR DEVELOPMENT APPLICATION	27.10.21
4	ISSUE FOR DEVELOPMENT APPLICATION	14.12.21

DRAWING LEGEND:

1. Architectural drawings shall be read in conjunction with other consultant drawings and specifications. Any discrepancies shall be referred to team 2 architects before proceeding with work.
2. All dimensions and levels are in millimeters unless noted otherwise. No dimension shall be obtained by scaling the drawing.
3. All dimensions to be checked on site with any discrepancies referred to team 2 architects before proceeding with work.
4. All work to be carried out in accordance with the requirements of the principal certifying authority, current ncc & australian standards.

ERILYAN

0 1 2 3 4 5
SCALE 1:100

TEAM2 ARCHITECTS
SYDNEY
701/1 Chandos Street,
St Leonards NSW 2065
T: + 61 2 9437 3166
E: info@team2.com.au
Reg NSW: 9940

MELBOURNE
Suite 204/9-11 Claremont Street,
South Yarra, VIC 3141
ABN: 72 104 833 507
Reg Vic: 19340

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
EXTERNAL FINISHES

Project #:	Scale:	Drw:	Chd:
903	1 : 100 @A1	IK	ZA

Drawing #: DA9000

Rev: 4

Appendix C: PSI/DSI Summary Data Tables

TABLE A

CHEMICAL CONTAMINANT CRITERIA FOR WASTE CLASSIFICATION

Waste Classification Guidelines Part 1: Classifying Waste DECC NSW July 2009

All data in mg/kg unless stated otherwise

CONTAMINANT	GENERAL SOLID WASTE			RESTRICTED SOLID WASTE		
	CT1 (mg/kg)	TCLP1 (mg/L)	SCC1 (mg/kg)	CT2 (mg/kg)	TCLP2 (mg/L)	SCC2 (mg/kg)
Heavy Metals						
Arsenic	100	5	500	400	20	2,000
Beryllium	20	1	100	80	4	400
Cadmium	20	1	100	80	4	400
Chromium VI	100	5	1,900	400	20	7,600
Cyanide (total)	320	16	5,900	1280	64	23,600
Cyanide (Amenable)	70	3.5	300	280	14	1,200
Fluoride	3,000	150	10,000	12,000	600	40,000
Lead	100	5	1,500	400	20	6,000
Mercury	4	0.2	50	16	0.8	200
Molybdenum	100	5	1,000	400	20	4,000
Nickel	40	2	1,050	160	8	4,200
Selenium	20	1	50	80	4	200
Silver	100	5	180	400	20	720
Monocyclic Aromatic Hydrocarbons						
Benzene	10	0.5	18	40	2	72
Toluene	288	14.4	518	1,152	57.6	2,073
Ethyl benzene	600	30	1,080	2,400	120	4,320
Total xylenes	1,000	50	1,800	4,000	200	7,200
Petroleum Hydrocarbons (TPH)						
Light Fraction TPH (C6-C9)	nsl	nsl	650	nsl	nsl	2,600
Mid to Heavy Fraction TPH (C10-C36)	nsl	nsl	10,000	nsl	nsl	40,000
Polycyclic Aromatic Hydrocarbons (PAHs)						
Benzo(a)pyrene	0.8	0.04	10	3.2	0.16	23
Total PAHs	nsl	nsl	200	nsl	nsl	800
Others						
Polychlorinated biphenyls	nsl	nsl	<50	nsl	nsl	<50
Phenol (non-halogenated)	288	14.4	518	1,152	57.6	2,073
Scheduled chemicals	nsl	nsl	<50	nsl	nsl	<50

Explanation:

1). General Solid Waste (GSW):

- If SCC ≤ CT1 then TCLP not needed to classify the material as GSW
- If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as GSW

2). Restricted Solid Waste (RSW):

- If SCC ≤ CT2 then TCLP not needed to classify the material as RSW
- If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as RSW

3). Hazardous Waste (HW):

- If SCC > CT2 then TCLP not needed to classify the material as HW
- If TCLP > TCLP2 and/or SCC > SCC2 then treat as HW

Abbreviations:

SCC – Specific Contaminant Concentration

CT – Contaminant Threshold

TCLP – Toxicity Characteristics Leaching Procedure

nsl - No Set Limit

DECC - NSW Department of Environment and Climate Change (now OEH)

TABLE B
SOIL LABORATORY RESULTS COMPARED TO HILs
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0,1	0.1	100
Site Assessment Criteria (SAC) [1]			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.13-0.33	Fill	LPQL	LPQL	30	24	11	LPQL	25	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH1	0.5-0.7	Natural	LPQL	LPQL	5	34	22	LPQL	3	27	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.1-0.3	Fill	6	0.4	23	21	34	LPQL	9	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.05-0.25	Fill	LPQL	LPQL	84	24	6	LPQL	80	42	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.5-0.95	Natural	5	LPQL	23	9	17	LPQL	6	10	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	0.015-0.02	Natural	LPQL	LPQL	2	5	10	LPQL	LPQL	5	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP1	-		LPQL	LPQL	38	28	13	LPQL	33	39	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			7	7	7	7	7	7	7	7	7	7	3	3	3	3	3	3	3	3	3	3
Maximum Value			6	0.4	84	34	34	0	80	43	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'

2 - The results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

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TABLE C
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID [2]
PQL - Envirolab Services				25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]				COMMERCIAL/INDUSTRIAL							
Sample Reference	**Sample Depth**	**Depth Category**	**Soil Category**								
BH1	0.13-0.33	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH1	0.5-0.7	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	0.1-0.3	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	0.05-0.25	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.3	0
BH3	0.5-0.95	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
TP2	0.015-0.02	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples				6	6	6	6	6	6	6	6
Maximum Value				LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.3	LPQL

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC VALUE
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:
UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels
NA: Not Analysed
PQL: Practical Quantitation Limit
LPQL: Less than PQL
SAC: Site Assessment Criteria
NC: Not Calculated
NL: Not Limiting
NEPM: National Environmental Protection Measure

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SITE ASSESSMENT CRITERIA

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services				25	50	0.2	0.5	1	3	1
HSL Land Use Category [1]				COMMERCIAL/INDUSTRIAL						
Sample Reference	**Sample Depth**	**Depth Category**	**Soil Category**							
BH1	0.13-0.33	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH1	0.5-0.7	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.1-0.3	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.05-0.25	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.5-0.95	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
TP2	0.015-0.02	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL

TABLE D
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES (2009)
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OCPs				TOTAL	Total	TPH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	OPPs	PCBs	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	NSL	0.8	NSL	NSL	NSL	NSL	detect[2]	NSL	NSL		NSL		NSL	10	288	600	1000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	Scheduled Chemicals <50					50	650		NSL		10000	18	518	1080	1800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	NSL	3.2	NSL	NSL	NSL	NSL	detect[2]	NSL	NSL		NSL		NSL	40	1152	2400	4000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	Scheduled Chemicals <50					50	2600		NSL		40000	72	2073	4320	7200	-
Sample Reference	**Sample Depth**	**Sample Description**																										
BH1	0.13-0.33	Fill	LPQL	LPQL	30	24	11	LPQL	25	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH1	0.5-0.7	Natural	LPQL	LPQL	5	34	22	LPQL	3	27	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH2	0.1-0.3	Fill	6	0.4	23	21	34	LPQL	9	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	110	110	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.05-0.25	Fill	LPQL	LPQL	84	24	6	LPQL	**80**	42	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.5-0.95	Natural	5	LPQL	23	9	17	LPQL	6	10	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
TP2	0.015-0.02	Natural	LPQL	LPQL	2	5	10	LPQL	LPQL	5	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
DUP1	-		LPQL	LPQL	38	28	13	LPQL	33	39	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of samples			7	7	7	7	7	7	7	7	7	7	3	3	3	3	3	3	7	7	7	7	7	7	7	7	7	3
Maximum Value			6	0.4	84	34	34	LPQL	80	43	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	110	110	LPQL	LPQL	LPQL	LPQL	NC

EXPLANATION:

1 - NSW DECCW Waste Classification Guidelines (2009)

2 - Some Individual OPPs have CT1 & CT2 values. Reference should be made to the Waste Classification Guidelines in the event of any detections

Concentration above the CT1 — VALUE
Concentration above SCC1 — VALUE
Concentration above the SCC2 — VALUE

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
ALPQL: All values less than PQL
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
TPH: Total Petroleum Hydrocarbons
BTEX: Monocyclic Aromatic Hydrocarbons
OCP: Organochlorine Pesticides
CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure

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TABLE E
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste [1]			2
TCLP2 - Restricted Solid Waste [1]			8
TCLP3 - Hazardous Waste [1]			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH3	0.05-0.25	Fill	0.06
Total Number of samples			1
Maximum Value			LPQL

EXPLANATION:

1 - NSW DECCW Waste Classification Guidelines (2009)

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**

ABBREVIATIONS:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
B(a)P: Benzo(a)pyrene
NC: Not Calculated
NA: Not Analysed
TCLP: Toxicity Characteristics Leaching Procedure

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TABLE F
SOIL LABORATORY RESULTS COMPARED TO EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category [1]			COMMERCIAL/INDUSTRIAL																		
						AGED HEAVY METALS-EILs						EILs		ESLs							
			pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services			-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]			-	-	-	NSL	13	28	NSL	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Soil Texture**																				
BH1	0.13-0.33	Coarse	NA	NA	NA	LPQL	30	24	11	25	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH1	0.5-0.7	Fine	NA	NA	NA	LPQL	5	34	22	3	27	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH2	0.1-0.3	Coarse	NA	NA	NA	6	23	21	34	9	43	LPQL	LPQL	LPQL	LPQL	LPQL	170	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	0.05-0.25	Coarse	NA	NA	NA	LPQL	84	24	6	80	42	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	0.5-0.95	Fine	NA	NA	NA	5	23	9	17	6	10	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
TP2	0.015-0.02	Fine	NA	NA	NA	LPQL	2	5	10	LPQL	5	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
DUP1	-	Fine	NA	NA	NA	LPQL	38	28	13	33	39	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples			NA	NA	NA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Maximum Value			NA	NA	NA	6	84	34	34	80	43	0.2	LPQL	LPQL	LPQL	LPQL	170	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013

2 - ABC Values for selected metals has been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with high traffic have been quoted)

Concentration above the SAC **VALUE**

The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

Abbreviations:

EILs: Ecological Investigation Levels
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
UCL: Upper Level Confidence Limit on Mean Value
ESLs: Ecological Screening Levels
NA: Not Analysed
LPQL: Less than PQL
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure
NC: Not Calculated
NSL: No Set Limit
ABC: Ambient Background Concentration

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EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]			COMMERCIAL/INDUSTRIAL																		
						AGED HEAVY METALS-EILs						EILs		ESLs							
			pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services			-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]			-	-	-	NSL	13	28	NSL	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Soil Texture**																				
BH1	0.13-0.33	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	0.7
BH1	0.5-0.7	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7
BH2	0.1-0.3	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	0.7
BH3	0.05-0.25	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	0.7
BH3	0.5-0.95	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7
TP2	0.015-0.02	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7
DUP1	-	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7

TABLE G
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH1 (0.13-0.33m)	Arsenic	4	LPQL	LPQL	NC	NC
Dup Ref = DUP1	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	30	38	34	23.5
Envirolab Report: 106926	Copper	1	24	28	26	15.4
	Lead	1	11	13	12	16.7
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	25	33	29	27.6
	Zinc	1	30	39	34.5	26.1
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b)&(k)fluorant	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total PAHs	2.05	LPQL	LPQL	NC	NC

EXPLANATION:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value < = 50% are acceptable
Results between 5 & 10 times PQL = RPD value < = 75% are acceptable
Results < 5 times PQL = RPD value < = 100% are acceptable

RPD Results Above the Acceptance Criteria **VALUE**

ABBREVIATIONS:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TPH: Total Petroleum Hydrocarbons

E27318K
April 2014

TABLE A
SOIL LABORATORY RESULTS COMPARED TO HILs
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC) [1]			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH101	0.1-0.2	Fill	LPQL	0.4	100	32	7	LPQL	78	46	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH101	0.5-0.95	Silty clay	11	0.5	24	19	17	LPQL	3	12	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102	0.05-0.15	Fill	LPQL	LPQL	80	46	4	LPQL	69	41	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH102	1.5-1.95	Silty clay	LPQL	LPQL	6	13	18	LPQL	1	7	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH103	0.1-0.2	Fill	LPQL	0.4	68	55	7	LPQL	61	44	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH103	0.5-0.95	Silty clay	8	0.5	26	11	21	LPQL	5	14	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH104	0.13-0.25	Fill	LPQL	0.4	73	41	4	LPQL	71	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH104	0.5-0.95	Silty clay	LPQL	LPQL	5	16	13	LPQL	2	12	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			8	8	8	8	8	8	8	8	8	8	4	4	4	4	4	4	4	4	4	4
Maximum Value			11	0.5	100	55	21	LPQL	78	55	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'

2 - The results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

TABLE B
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID [2]
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]					**COMMERCIAL/INDUSTRIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH101	0.1-0.2	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH101	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH102	0.05-0.15	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH102	1.5-1.95	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH103	0.1-0.2	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH103	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH104	0.13-0.25	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH104	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples					8	8	8	8	8	8	8	8
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC **VALUE**
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:

UCL: Upper Level Confidence Limit on Mean Value	NC: Not Calculated	PQL: Practical Quantitation Limit	UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels	NL: Not Limiting	LPQL: Less than PQL	HILs: Health Investigation Levels
NA: Not Analysed	na: Not Analysed	SAC: Site Assessment Criteria	NEPM: National Environmental Protection Measure

SITE ASSESSMENT CRITERIA

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1
HSL Land Use Category [1]					**COMMERCIAL/INDUSTRIAL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH101	0.1-0.2	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH101	0.5-0.95	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH102	0.05-0.15	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH102	1.5-1.95	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH103	0.1-0.2	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH103	0.5-0.95	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH104	0.13-0.25	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH104	0.5-0.95	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL

EIS

TABLE C
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES (2014)
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful [2]	Total Scheduled [3]		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	<50	<50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	<50	<50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	<50	<50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	<50	<50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH101	0.1-0.2	Fill	LPQL	0.4	100	32	7	LPQL	**78**	46	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH101	0.5-0.95	Silty clay	11	0.5	24	19	17	LPQL	3	12	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH102	0.05-0.15	Fill	LPQL	LPQL	80	46	4	LPQL	**69**	41	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	130	130	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH102	1.5-1.95	Silty clay	LPQL	LPQL	6	13	18	LPQL	1	7	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH103	0.1-0.2	Fill	LPQL	0.4	68	55	7	LPQL	**61**	44	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH103	0.5-0.95	Silty clay	8	0.5	26	11	21	LPQL	5	14	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH104	0.13-0.25	Fill	LPQL	0.4	73	41	4	LPQL	**71**	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH104	0.5-0.95	Silty clay	LPQL	LPQL	5	16	13	LPQL	2	12	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of samples			8	8	8	8	8	8	8	8	8	8	4	4	4	4	4	8	8	8	8	8	8	8	8	8	4
Maximum Value			11	0.5	100	55	21	LPQL	78	55	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	130	130	LPQL	LPQL	LPQL	LPQL	NC

Explanation:
[1] - NSW EPA Waste Classification Guidelines (2014)
[2] - Assessment of Total Moderately Harmful pesticides includes: Dimethoate, Fenitrothion, Ethion
[3] - Assessment of Total Scheduled pesticides include: alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde

Concentration above the CT1 — **VALUE**
Concentration above SCC1 — **VALUE**
Concentration above the SCC2 — **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons	UCL: Upper Level Confidence Limit on Mean Value	CT: Contaminant Threshold
B(a)P: Benzo(a)pyrene	NA: Not Analysed	SCC: Specific Contaminant Concentration
PQL: Practical Quantitation Limit	NC: Not Calculated	HILs: Health Investigation Levels
LPQL: Less than PQL	NSL: No Set Limit	NEPM: National Environmental Protection Measure
PID: Photoionisation Detector	SAC: Site Assessment Criteria	BTEX: Monocyclic Aromatic Hydrocarbons
PCBs: Polychlorinated Biphenyls	TRH: Total Recoverable Hydrocarbons	

TABLE D

SOIL LABORATORY TCLP RESULTS

All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste [1]			2
TCLP2 - Restricted Solid Waste [1]			8
TCLP3 - Hazardous Waste [1]			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH101	0.1-0.2	Fill	0.09
BH102	0.05-0.15	Fill	0.05
BH103	0.1-0.2	Fill	0.07
BH104	0.13-0.25	Fill	0.06
Total Number of samples			4
Maximum Value			0.09

Explanation:

1 - NSW EPA Waste Classification Guidelines (2014)

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**

Abbreviations:

PQL: Practical Quantitation Limit

LPQL: Less than PQL

B(a)P: Benzo(a)pyrene

NC: Not Calculated

NA: Not Analysed

TCLP: Toxicity Characteristics Leaching Procedure

EIS

TABLE E
SOIL LABORATORY RESULTS COMPARED TO EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category [1]				COMMERCIAL/INDUSTRIAL																
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	AGED HEAVY METALS-EILs						EILs		ESLs						
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	8	18	NSL	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH101	0.1-0.2	Fill	Fine	NA	NA	NA	LPQL	100	32	7	78	46	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH101	0.5-0.95	Silty clay	Fine	NA	NA	NA	11	24	19	17	3	12	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH102	0.05-0.15	Fill	Fine	NA	NA	NA	LPQL	80	46	4	69	41	LPQL	LPQL	LPQL	LPQL	120	160	LPQL	LPQL	LPQL	LPQL	LPQL
BH102	1.5-1.95	Silty clay	Fine	NA	NA	NA	LPQL	6	13	18	1	7	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH103	0.1-0.2	Fill	Fine	NA	NA	NA	LPQL	68	55	7	61	44	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH103	0.5-0.95	Silty clay	Fine	NA	NA	NA	8	26	11	21	5	14	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH104	0.13-0.25	Fill	Fine	NA	NA	NA	LPQL	73	41	4	71	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH104	0.5-0.95	Silty clay	Fine	NA	NA	NA	LPQL	5	16	13	2	12	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples				0	0	0	8	8	8	8	8	8	8	4	8	8	8	8	8	8	8	8	8
Maximum Value				0	0	0	11	100	55	21	78	55	LPQL	LPQL	LPQL	LQPL	120	160	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013

2 - ABC Values for selected metals has been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with low traffic have been quoted)

Concentration above the SAC — VALUE

The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

Abbreviations:

EILs: Ecological Investigation Levels
UCL: Upper Level Confidence Limit on Mean Value
LPQL: Less than PQL
NC: Not Calculated
B(a)P: Benzo(a)pyrene
ESLs: Ecological Screening Levels
SAC: Site Assessment Criteria
NSL: No Set Limit
PQL: Practical Quantitation Limit
NA: Not Analysed
NEPM: National Environmental Protection Measure
ABC: Ambient Background Concentration

EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]				COMMERCIAL/INDUSTRIAL																
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	AGED HEAVY METALS-EILs						EILs		ESLs						
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	8	18	NSL	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH101	0.1-0.2	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH101	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4
BH102	0.05-0.15	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH102	1.5-1.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4
BH103	0.1-0.2	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH103	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4
BH104	0.13-0.25	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH104	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4

TABLE F

SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS

All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH102 (0.05-0.15m)	Arsenic	4	LPQL	LPQL	NC	NC
Dup Ref = DUPA	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	80	90	85.0	12
Envirolab Report: 124228	Copper	1	46	50	48.0	8
	Lead	1	4	4	4.0	0
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	69	70	69.5	1
	Zinc	1	41	43	42.0	5
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	0.1	0.2	0.2	67
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b)&(k)fluorant	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total PAHs	2.05	0.1	0.2	0.2	67
	Total OCPs	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	LPQL	LPQL	NC	NC
	C_6-C_{10} (F1)	25	LPQL	LPQL	NC	NC
	$>C_{10}$-C_{16} (F2)	50	LPQL	LPQL	NC	NC
	$>C_{16}$-C_{34} (F3)	100	120	130	125.0	8
	$>C_{34}$-C_{40} (F4)	100	160	180	170.0	12
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable

Results between 5 & 10 times PQL = RPD value <= 75% are acceptable

Results < 5 times PQL = RPD value <= 100% are acceptable

If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit

LPQL: Less than PQL

NA: Not Analysed

NC: Not Calculated

OCP: Organochlorine Pesticides

OPP: Organophosphorus Pesticides

PCBs: Polychlorinated Biphenyls

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration
ACM:	Asbestos Containing Material
ADWG:	AustralianDrinking Water Guidelines
AF:	Asbestos Fines
ANZG	Australian and New Zealand Guidelines
B(a)P:	Benzo(a)pyrene
CEC:	Cation Exchange Capacity
CRC:	Cooperative Research Centre
CT:	Contaminant Threshold
EILs:	Ecological Investigation Levels
ESLs:	Ecological Screening Levels
FA:	Fibrous Asbestos
GIL:	Groundwater Investigation Levels
GSW:	General Solid Waste
HILs:	Health Investigation Levels
HSLs:	Health Screening Levels
HSL-SSA:	Health Screening Level-SiteSpecific Assessment
kg/L	kilograms per litre
NA:	Not Analysed
NC:	Not Calculated
NEPM:	National Environmental Protection Measure
NHMRC:	National Health and Medical Research Council
NL:	Not Limiting
NSL:	No Set Limit
OCP:	Organochlorine Pesticides
OPP:	Organophosphorus Pesticides
PAHs:	Polycyclic Aromatic Hydrocarbons
%w/w:	weight per weight
ppm:	Parts per million
PCBs:	Polychlorinated Biphenyls
PCE:	Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} :	pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} :	pH of filtered 1:20 1M KCl after peroxide digestion
PQL:	Practical Quantitation Limit
RS:	Rinsate Sample
RSL:	Regional Screening Levels
RSW:	Restricted Solid Waste
SAC:	Site Assessment Criteria
SCC:	Specific Contaminant Concentration
S_{Cr}:	Chromium reducible sulfur
S_{POS}:	Peroxide oxidisable Sulfur
SSA:	Site Specific Assessment
SSHSLs:	Site Specific Health Screening Levels
TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB:	Trip Blank
TCA:	1,1,1 Trichloroethane (methyl chloroform)
TCE:	Trichloroethylene (Trichloroethene)
TCLP:	Toxicity Characteristics Leaching Procedure
TPA:	Total Potential Acidity 1M KCl peroxide digest
TS:	Trip Spike
TRH:	Total Recoverable Hydrocarbons
TSA:	Total Sulfide Acidity (TPA-TAA)
UCL:	Upper Level Confidence Limit on Mean Value
USEPA:	United States Environmental Protection Agency
VOC:	Volatile Organic Chlorinated Compounds
WHO:	World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

- ABC Values for selected metals have been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with high traffic have been quoted).

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

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TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-D: 'Commercial/Industrial'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH201	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**45**	**25**	**4**	<0.1	**45**	**37**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**48**	**18**	**3**	<0.1	**42**	**30**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201	0.1-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH201	0.5-0.6	Fill: Silty clay	<4	<0.4	**12**	**9**	**9**	<0.1	**6**	**11**	**<0.05**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201	0.5-1.0	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH201	1.4-1.5	Fill: Sand	**6**	<0.4	**10**	**12**	**11**	<0.1	**4**	**11**	**<0.05**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	0.1-0.3	Fill: Sand	<4	<0.4	**10**	**16**	**34**	**0.1**	**7**	**140**	**<0.05**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH202	0.05-0.5	Fill: Silty clay	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH202	0.5-0.6	Silty clay	<4	<0.4	**11**	**12**	**32**	**0.1**	**4**	**59**	**<0.05**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	0.8-0.9	Fill: Gravelly sand	<4	<0.4	**14**	**10**	**22**	<0.1	**5**	**25**	**<0.05**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH203	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**11**	**17**	**22**	**0.2**	**6**	**140**	**0.2**	[illegible]	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	NA
BH203	0-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
SDUP1	-	Fill: Gravelly sand	<4	<0.4	**40**	**23**	**5**	<0.1	**40**	**38**	**<0.4**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FCF203	0-0.5	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
Total Number of Samples			9	9	9	9	9	9	9	9	9	9	5	5	5	5	5	5	5	5	5	5
Maximum Value			6	<PQL	48	25	34	0.2	45	140	0.4	<PQL	<PQL	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	Detected

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					**HSL-D: COMMERCIAL/INDUSTRIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH201	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH201	0.5-0.6	Fill: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH201	1.4-1.5	Fill: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH202	0.1-0.3	Fill: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH202	0.5-0.6	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH202	0.8-0.9	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH203	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
SDUP1	-	Fill: Gravelly sand	0m to <1m	Sand	<25	**78**	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples					9	9	9	9	9	9	9	7
Maximum Value					<PQL	78	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH201	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH201	0.5-0.6	Fill: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH201	1.4-1.5	Fill: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH202	0.1-0.3	Fill: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH202	0.5-0.6	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH202	0.8-0.9	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH203	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP1	-	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL

TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	$>C_{10}$-C_{16} (F2) plus napthalene	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**COMMERCIAL/INDUSTRIAL**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH201	0.1-0.2	Coarse	<25	<50	**130**	**180**
BH201 - [LAB_DUP]	0.1-0.2	Coarse	<25	<50	**170**	**370**
BH201	0.5-0.6	Coarse	<25	<50	**<100**	**<100**
BH201	1.4-1.5	Coarse	<25	<50	**<100**	**<100**
BH202	0.1-0.3	Coarse	<25	<50	**<100**	**<100**
BH202	0.5-0.6	Coarse	<25	<50	**<100**	**<100**
BH202	0.8-0.9	Coarse	<25	<50	**<100**	**<100**
BH203	0.1-0.2	Coarse	<25	<50	**100**	**<100**
SDUP1	-	Coarse	<25	**78**	**120**	**270**
Total Number of Samples			9	9	9	9
Maximum Value			<PQL	78	170	370

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Soil Texture**	C_6-C_{10} (F1) plus BTEX	$>C_{10}$-C_{16} (F2) plus napthalene	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)
BH201	0.1-0.2	Coarse	700	1000	3500	10000
BH201 - [LAB_DUP]	0.1-0.2	Coarse	700	1000	3500	10000
BH201	0.5-0.6	Coarse	700	1000	3500	10000
BH201	1.4-1.5	Coarse	700	1000	3500	10000
BH202	0.1-0.3	Coarse	700	1000	3500	10000
BH202	0.5-0.6	Coarse	700	1000	3500	10000
BH202	0.8-0.9	Coarse	700	1000	3500	10000
BH203	0.1-0.2	Coarse	700	1000	3500	10000
SDUP1	-	Coarse	700	1000	3500	10000

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TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		26,000	20,000	27,000	38,000	430	99,000	27,000	81,000	11,000	
Site Use		**COMMERCIAL/INDUSTRIAL - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH201	0.1-0.2	<25	<50	**130**	**180**	<0.2	<0.5	<1	<3	<1	0
BH201 - [LAB_DUP]	0.1-0.2	<25	<50	**170**	**370**	<0.2	<0.5	<1	<3	<1	-
BH201	0.5-0.6	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH201	1.4-1.5	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH202	0.1-0.3	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH202	0.5-0.6	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH202	0.8-0.9	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH203	0.1-0.2	<25	<50	**100**	**<100**	<0.2	<0.5	<1	<3	<1	0
SDUP1	-	<25	**78**	**120**	**270**	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples		9	9	9	9	9	9	9	9	9	7
Maximum Value		<PQL	78	170	370	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HIL-D:Commercial/Industrial

FIELD DATA															LABORATORY DATA										
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC			**No**					**0.05**			**0.001**			**0.001**											**0.05**	**0.001**
20/04/2021	BH201	0.1-0.5	No	10	4,520	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH201	0.1-0.5	833.36	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected: Synthetic mineral fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
20/04/2021	BH201	0.5-1.0	No	10	4,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH201	0.5-1.0	545.24	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
20/04/2021	BH202	0.05-0.5	No	10	4,120	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH202	0.05-0.5	657.62	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
20/04/2021	BH203	0-0.5	No	10	3,400	2.7	0.405	0.0119	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH203	0-0.5	620.95	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001

Concentration above the SAC **VALUE**

TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				COMMERCIAL/INDUSTRIAL																	
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2) plus napthalene	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH201	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**45**	**25**	**4**	**45**	**37**	<1	<0.1	<25	<50	**130**	**180**	<0.2	<0.5	<1	<3	**<0.1**
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**48**	**18**	**3**	**42**	**30**	<1	<0.1	<25	<50	**170**	**370**	<0.2	<0.5	<1	<3	**<0.05**
BH201	0.5-0.6	Fill: Silty clay	Coarse	NA	NA	NA	<4	**12**	**9**	**9**	**6**	**11**	<1	<0.1	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH201	1.4-1.5	Fill: Sand	Coarse	NA	NA	NA	**6**	**10**	**12**	**11**	**4**	**11**	<1	NA	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH202	0.1-0.3	Fill: Sand	Coarse	NA	NA	NA	<4	**10**	**16**	**34**	**7**	**140**	<1	<0.1	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH202	0.5-0.6	Silty clay	Coarse	NA	NA	NA	<4	**11**	**12**	**32**	**4**	**59**	<1	NA	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH202	0.8-0.9	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**14**	**10**	**22**	**5**	**25**	<1	NA	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH203	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**11**	**17**	**22**	**6**	**140**	<1	<0.1	<25	<50	**100**	**<100**	<0.2	<0.5	<1	<3	**0.05**
SDUP1	-	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**40**	**23**	**5**	**40**	**38**	<1	NA	<25	**78**	**120**	**270**	<0.2	<0.5	<1	<3	**<0.05**
Total Number of Samples				0	0	0	9	9	9	9	9	9	9	5	9	9	9	9	9	9	9	9	9
Maximum Value				NA	NA	NA	6	48	25	34	45	[illegible]	<PQL	<PQL	<PQL	78	170	370	<PQL	<PQL	<PQL	<PQL	0.05

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2) plus napthalene	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH201	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH201	0.5-0.6	Fill: Silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH201	1.4-1.5	Fill: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH202	0.1-0.3	Fill: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH202	0.5-0.6	Silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH202	0.8-0.9	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH203	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
SDUP1	-	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72

TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH201	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**45**	**25**	**4**	<0.1	**45**	**37**	**0.4**	**<0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**150**	**150**	<0.2	<0.5	<1	<3	NA
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**48**	**18**	**3**	<0.1	**42**	**30**	**0.1**	**<0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**210**	**210**	<0.2	<0.5	<1	<3	NA
BH201	0.1-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
BH201	0.5-0.6	Fill: Silty clay	<4	<0.4	**12**	**9**	**9**	<0.1	**6**	**11**	**<0.05**	**<0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH201	0.5-1.0	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
BH201	1.4-1.5	Fill: Sand	**6**	<0.4	**10**	**12**	**11**	<0.1	**4**	**11**	**<0.05**	**<0.05**	NA	NA	NA	NA	NA	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH202	0.1-0.3	Fill: Sand	<4	<0.4	**10**	**16**	**34**	**0.1**	**7**	**140**	**<0.05**	**<0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH202	0.05-0.5	Fill: Silty clay	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
BH202	0.5-0.6	Silty clay	<4	<0.4	**11**	**12**	**32**	**0.1**	**4**	**59**	**<0.05**	**<0.05**	NA	NA	NA	NA	NA	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH202	0.8-0.9	Fill: Gravelly sand	<4	<0.4	**14**	**10**	**22**	<0.1	**5**	**25**	**<0.05**	**<0.05**	NA	NA	NA	NA	NA	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH203	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**11**	**17**	**22**	**0.2**	**6**	**140**	**0.2**	**0.05**	<0.1	<0.1	<0.1	**0.1**	<0.1	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH203	0-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
SDUP1	-	Fill: Gravelly sand	<4	<0.4	**40**	**23**	**5**	<0.1	**40**	**38**	**0.4**	**<0.05**	NA	NA	NA	NA	NA	<25	76	<100	**160**	**236**	<0.2	<0.5	<1	<3	NA
FCF203	0-0.5	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
Total Number of Samples			9	9	9	9	9	9	9	9	9	9	5	5	5	5	5	9	9	9	9	9	9	9	9	9	4
Maximum Value			6	<PQL	48	25	34	0.2	45	140	0.4	0.05	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	76	<PQL	210	236	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the CT1 — VALUE
Concentration above SCC1 — VALUE
Concentration above the SCC2 — VALUE
Concentration above PQL — **Bold**

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TABLE S8
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste			2
TCLP2 - Restricted Solid Waste			8
TCLP3 - Hazardous Waste			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH201	0.1-0.2	Fill: Gravelly sand	**0.06**
Total Number of samples			6
Maximum Value			0.09

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**
Concentration above PQL	**Bold**

TABLE Q1
SOIL QA/QC SUMMARY

			TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.05*	*0.1*	*0.1*	*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1.0*	*2.0*	*1.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra laboratory duplicate	BH201	0.1-0.2	<25	<50	130	180	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	45	25	4	<0.1	45	37
	SDUP1	-	<25	78	120	270	<0.2	<0.5	<1	<2	<1	0.2	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<4	<0.4	40	23	5	<0.1	40	38
	MEAN		nc	51.5	125	225	nc	nc	nc	nc	nc	0.125	nc	nc	nc	0.2	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	42.5	24	4.5	nc	42.5	37.5
	RPD %		nc	103%	8%	40%	nc	nc	nc	nc	nc	120%	nc	nc	nc	0%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	12%	8%	22%	nc	12%	3%
Field Blank	TBS1	-	NA	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	20/04/21																																	
Trip Spike	TS1		-	-	-	-	82%	83%	93%	94%	92%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20/04/21																																	

Result outside of QA/QC acceptance criteria

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG: AustralianDrinking Water Guidelines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CRC: Cooperative Research Centre
ESLs: Ecological Screening Levels
GIL: Groundwater Investigation Levels
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
SAC: Site Assessment Criteria
SSA: Site Specific Assessment
SSHSLs: Site Specific Health Screening Levels
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

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TABLE G1
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	ANZG 2018 Fresh Waters	SAMPLES			
			MW101	MW101 - [LAB_DUP]	MW103	WDUP1
Inorganic Compounds and Parameters						
pH		6.5 - 8.5	6.3	NA	6.4	NA
Electrical Conductivity (µS/cm)	1	NSL	**12000**	NA	8300	NA
Turbidity (NTU)		NSL	NA	NA	NA	NA
Metals and Metalloids						
Arsenic (As III)	1	24	<1	NA	<1	<1
Cadmium	0.1	0.2	<0.1	NA	0.2	0.2
Chromium (SAC for Cr III adopted)	1	3.3	<1	NA	<1	<1
Copper	1	1.4	<1	NA	<1	<1
Lead	1	3.4	<1	NA	<1	<1
Total Mercury (inorganic)	0.05	0.06	<0.05	NA	<0.05	<0.05
Nickel	1	11	**22**	NA	6	6
Zinc	1	8	**18**	NA	13	14
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)						
Benzene	1	950	<1	<1	<1	<1
Toluene	1	180	<1	<1	<1	<1
Ethylbenzene	1	80	<1	<1	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2
o-xylene	1	350	<1	<1	<1	<1
Total xylenes	2	NSL	<2	<2	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs						
Dichlorodifluoromethane	10	NSL	<10	<10	<10	NA
Chloromethane	10	NSL	<10	<10	<10	NA
Vinyl Chloride	10	100	<10	<10	<10	NA
Bromomethane	10	NSL	<10	<10	<10	NA
Chloroethane	10	NSL	<10	<10	<10	NA
Trichlorofluoromethane	10	NSL	<10	<10	<10	NA
1,1-Dichloroethene	1	700	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	NSL	<1	<1	<1	NA
1,1-dichloroethane	1	90	<1	<1	<1	NA
Cis-1,2-dichloroethene	1	NSL	<1	<1	<1	NA
Bromochloromethane	1	NSL	<1	<1	<1	NA
Chloroform	1	370	<1	<1	<1	NA
2,2-dichloropropane	1	NSL	<1	<1	<1	NA
1,2-dichloroethane	1	1900	<1	<1	<1	NA
1,1,1-trichloroethane	1	270	<1	<1	<1	NA
1,1-dichloropropene	1	NSL	<1	<1	<1	NA
Cyclohexane	1	NSL	<1	<1	<1	NA
Carbon tetrachloride	1	240	<1	<1	<1	NA
Benzene	1	950	<1	<1	<1	NA
Dibromomethane	1	NSL	<1	<1	<1	NA
1,2-dichloropropane	1	900	<1	<1	<1	NA
Trichloroethene	1	330	<1	<1	<1	NA
Bromodichloromethane	1	NSL	<1	<1	<1	NA
trans-1,3-dichloropropene	1	NSL	<1	<1	<1	NA
cis-1,3-dichloropropene	1	NSL	<1	<1	<1	NA
1,1,2-trichloroethane	1	6500	<1	<1	<1	NA
Toluene	1	[illegible]	<1	<1	<1	NA
1,3-dichloropropane	1	110	<1	<1	<1	NA
Dibromochloromethane	1	NSL	<1	<1	<1	NA
1,2-dibromoethane	1	NSL	<1	<1	<1	NA
Tetrachloroethene	1	70	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	NA
Chlorobenzene	1	55	<1	<1	<1	NA
Ethylbenzene	1	80	<1	<1	<1	NA
Bromoform	1	NSL	<1	<1	<1	NA
m+p-xylene	2	75	<2	<2	<2	NA
Styrene	1	NSL	<1	<1	<1	NA
1,1,2,2-tetrachloroetha[illegible]	1	400	<1	<1	<1	NA
o-xylen[illegible]	1	350	<1	<1	<1	NA
1,2,3-[illegible]propane	1	NSL	<1	<1	<1	NA
Isopropyl[illegible]ne	1	30	<1	<1	<1	NA
Bromobenzen[illegible]	1	NSL	<1	<1	<1	NA
n-propyl benzene	1	NSL	<1	<1	<1	NA
2-chlorotoluene	1	NSL	<1	<1	<1	NA
4-chlorotoluene	1	NSL	<1	<1	<1	NA
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	NA
Tert-butyl benzene	1	NSL	<1	<1	<1	NA
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	NA
1,3-dichlorobenzene	1	260	<1	<1	<1	NA
Sec-butyl benzene	1	NSL	<1	<1	<1	NA
1,4-dichlorobenzene	1	60	<1	<1	<1	NA
4-isopropyl toluene	1	NSL	<1	<1	<1	NA
1,2-dichlorobenzene	1	160	<1	<1	<1	NA
n-butyl benzene	1	NSL	<1	<1	<1	NA
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	NA
1,2,4-trichlorobenzene	1	85	<1	<1	<1	NA
Hexachlorobutadiene	1	NSL	<1	<1	<1	NA
1,2,3-trichlorobenzene	1	3	<1	<1	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	0.2	16	<0.2	NA	<0.2	<0.2
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1
Phenanthrene	0.1	0.6	<0.1	NA	<0.1	<0.1
Anthracene	0.1	0.01	<0.1	NA	<0.1	<0.1
Fluoranthene	0.1	1	<0.1	NA	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**
GIL >PQL	Red

TABLE G2
GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs
All data in µg/L unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	
PQL - Envirolab Services				10	50	1	1	1	2	1	PID
NEPM 2013 - Land Use Category				HSL-D: COMMERCIAL/INDUSTRIAL							
Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**								
MW101	4.535	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	2
MW101 - [LAB_DUP]	4.535	2m to <4m	Sand	<10	NA	<1	<1	<1	<2	<1	NA
MW103	4.17	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	98
WDUP1	-	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	NA
Total Number of Samples				4	3	4	4	4	4	4	2
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	98

Concentration above the SAC **VALUE**
Site specific assesment (SSA) required **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the Groundwater Assessment Criteria Table below

HSL GROUNDWATER ASSESSMENT CRITERIA

Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
MW101	4.535	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
MW101 - [LAB_DUP]	4.535	2m to <4m	Sand	6000	NA	5000	NL	NL	NL	NL
MW103	4.17	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
WDUP1	-	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL

TABLE Q2
GROUNDWATER QA/QC SUMMARY

		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD	*10*	*50*	*100*	*100*	*1*	*1*	*1*	*2*	*1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
	PQL Envirolab VIC	*10*	*50*	*100*	*100*	*1.0*	*1.0*	*1.0*	*2.0*	*1.0*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
Intra	MW103	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	0.2	<1	<1	<1	<0.05	6	13
laboratory	WDUP1	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	0.2	<1	<1	<1	<0.05	6	14
duplicate	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.2	nc	nc	nc	nc	6	13.5
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	nc	nc	nc	nc	0%	7%
Field	TB-W1	0	0	0	0	<1	<1	<1	<2	<1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blank	28/04/2021																																

Result outside of QA/QC acceptance criteria Value

PSI Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration
ACM:	Asbestos Containing Material
ADWG:	AustralianDrinking Water Guidelines
AF:	Asbestos Fines
ANZG	Australian and New Zealand Guidelines
B(a)P:	Benzo(a)pyrene
CEC:	Cation Exchange Capacity
CRC:	Cooperative Research Centre
CT:	Contaminant Threshold
EILs:	Ecological Investigation Levels
ESLs:	Ecological Screening Levels
FA:	Fibrous Asbestos
GIL:	Groundwater Investigation Levels
GSW:	General Solid Waste
HILs:	Health Investigation Levels
HSLs:	Health Screening Levels
HSL-SSA:	Health Screening Level-SiteSpecific Assessment
kg/L	kilograms per litre
NA:	Not Analysed
NC:	Not Calculated
NEPM:	National Environmental Protection Measure
NHMRC:	National Health and Medical Research Council
NL:	Not Limiting
NSL:	No Set Limit
OCP:	Organochlorine Pesticides
OPP:	Organophosphorus Pesticides
PAHs:	Polycyclic Aromatic Hydrocarbons
%w/w:	weight per weight
ppm:	Parts per million
PCBs:	Polychlorinated Biphenyls
PCE:	Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} :	pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} :	pH of filtered 1:20 1M KCl after peroxide digestion
PQL:	Practical Quantitation Limit
RS:	Rinsate Sample
RSL:	Regional Screening Levels
RSW:	Restricted Solid Waste
SAC:	Site Assessment Criteria
SCC:	Specific Contaminant Concentration
S_{Cr}:	Chromium reducible sulfur
S_{POS}:	Peroxide oxidisable Sulfur
SSA:	Site Specific Assessment
SSHSLs:	Site Specific Health Screening Levels
TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB:	Trip Blank
TCA:	1,1,1 Trichloroethane (methyl chloroform)
TCE:	Trichloroethylene (Trichloroethene)
TCLP:	Toxicity Characteristics Leaching Procedure
TPA:	Total Potential Acidity, 1M KCL peroxide digest
TS:	Trip Spike
TRH:	Total Recoverable Hydrocarbons
TSA:	Total Sulfide Acidity (TPA-TAA)
UCL:	Upper Level Confidence Limit on Mean Value
USEPA	United States Environmental Protection Agency
VOCC:	Volatile Organic Chlorinated Compounds
WHO:	World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

- ABC Values for selected metals have been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with high traffic have been quoted).

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-D: 'Commercial/Industrial'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH301	0.15-0.3	F: gravelly clay	<4	<0.4	**14**	**7**	**18**	<0.1	**3**	**9**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH301	0.15-0.3	Lab duplicate	<4	<0.4	**16**	**9**	**21**	<0.1	**5**	**15**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH301	0.5-0.95	Silty clay	**10**	<0.4	**12**	**12**	**12**	<0.1	<1	**4**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH301	1.6-1.8	Siltstone	NA	NA	NA	NA	**4**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH301	2.2-2.4	Siltstone	NA	NA	NA	NA	**11**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH302	0.16-0.4	F: silty clay	<4	<0.4	**14**	**15**	**12**	<0.1	**12**	**20**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH302	0.5-0.7	Siltstone	NA	NA	NA	NA	**8**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH302	0.8-0.95	Siltstone	<4	<0.4	**2**	**8**	**5**	<0.1	<1	**8**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH302	2.5-2.8	Siltstone	NA	NA	NA	NA	**12**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH303	0-0.2	F: silty sand	<4	<0.4	**12**	**19**	**90**	<0.1	**4**	**80**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH303	0-0.2	Lab duplicate	<4	<0.4	**13**	**17**	**84**	<0.1	**4**	**71**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH303	0-0.2	F: silty sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH303	0.5-0.7	Silty clay	NA	NA	NA	NA	**11**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH303	0.8-0.95	Silty clay	**9**	<0.4	**8**	**7**	**14**	<0.1	<1	**4**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH303	4.8-5.0	Siltstone	NA	NA	NA	NA	**19**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH304	0-0.1	F: Silty sandy clay	**8**	**0.8**	**21**	**480**	**110**	**0.2**	**10**	**380**	<0.05	<0.5	<0.1	<0.1	<0.1	**1**	**0.1**	<0.1	<0.1	<0.1	<0.1	Not Detected
BH304	0.1-0.2	F: silty clay	**5**	<0.4	**14**	**29**	**28**	<0.1	**3**	**67**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH305	0-0.1	F: clayey silty sand	**4**	<0.4	**15**	**16**	**34**	<0.1	**9**	**70**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH305	0.1-0.3	F: silty sandy clay	<4	<0.4	**12**	**15**	**27**	**0.1**	**7**	**45**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH306	0-0.1	F: silty clayey sand	**4**	<0.4	**16**	**73**	**50**	<0.1	**13**	**78**	**0.65**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH306	0.1-0.2	F: silty clay	**5**	<0.4	**19**	**37**	**59**	<0.1	**18**	**76**	**2.8**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH306	0.1-0.2	Lab duplicate	**5**	<0.4	**20**	**35**	**58**	<0.1	**18**	**80**	**2.5**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH307	0.05-0.15	F: silty sandy clay	<4	<0.4	**73**	**29**	**4**	<0.1	**72**	**40**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH307	0.4-0.5	F: silty sandy clay	**5**	<0.4	**18**	**31**	**9**	<0.1	**22**	**52**	**0.1**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH308	0.05-0.15	F: silty sandy clay	**4**	<0.4	**18**	**26**	**13**	<0.1	**30**	**110**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH308	0.8-1.0	Silty clay	**5**	<0.4	**10**	**14**	**17**	<0.1	**6**	**16**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH309	0.05-0.15	F: silty sandy clay	<4	<0.4	**74**	**30**	**6**	<0.1	**73**	**46**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH309	0.8-1.0	Silty clay	**6**	<0.4	**22**	**10**	**14**	<0.1	**5**	**11**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP301	-	Duplicate	**13**	<0.4	**17**	**17**	**17**	<0.1	**1**	**6**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP302	-	Duplicate	<4	<0.4	**18**	**14**	**11**	<0.1	**13**	**25**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP303	-	Duplicate	**6**	<0.4	**19**	**21**	**110**	<0.1	**7**	**120**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP304	-	Duplicate	**9**	**2**	**25**	**150**	**130**	**0.2**	**16**	**440**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP304	-	Lab Duplicate	**9**	**2**	**25**	**170**	**110**	**0.2**	**12**	**440**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH304	0-0.1AQ	FCF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH304	Surface	FCF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
BH301	0.15-0.3	Triplicate	<4	<0.4	**19**	**10**	**29**	<0.1	**7**	**22**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			27	27	27	27	33	27	27	27	31	31	11	11	11	11	11	11	11	11	11	15
Maximum Value			13	2	74	480	130	0.2	73	440	2.8	<PQL	<PQL	<PQL	<PQL	1	0.1	<PQL	<PQL	<PQL	<PQL	Detected

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					HSL-D: COMMERCIAL/INDUSTRIAL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH301	0.15-0.3	F: gravelly clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.2
BH301	0.15-0.3	Lab duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	NA
BH301	0.5-0.95	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH301	1.6-1.8	Siltstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH301	2.2-2.4	Siltstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH302	0.16-0.4	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH302	0.5-0.7	Siltstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH302	0.8-0.95	Siltstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH302	2.5-2.8	Siltstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH303	0-0.2	F: silty sand	0m to <1m	Sand	<25	**86**	<0.2	<0.5	<1	<3	<1	0
BH303	0-0.2	Lab duplicate	0m to <1m	Sand	<25	**85**	<0.2	<0.5	<1	<3	<1	NA
BH303	0.5-0.7	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH303	0.8-0.95	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH303	4.8-5.0	Siltstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH304	0-0.1	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH304	0.1-0.2	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH305	0-0.1	F: clayey silty sand	0m to <1m	Sand	**29**	<50	<0.2	<0.5	<1	<3	<1	0.8
BH305	0.1-0.3	F: silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH306	0-0.1	F: silty clayey sand	0m to <1m	Sand	**66**	<50	<0.2	<0.5	<1	<3	<1	0
BH306	0.1-0.2	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH306	0.1-0.2	Lab duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	NA
BH307	0.05-0.15	F: silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.4
BH307	0.4-0.5	F: silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH308	0.05-0.15	F: silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH308	0.8-1.0	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH309	0.05-0.15	F: silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH309	0.8-1.0	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
SDUP301	-	Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
SDUP302	-	Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
SDUP303	-	Duplicate	0m to <1m	Sand	<25	**51**	<0.2	<0.5	<1	<1	<1	-
SDUP304	-	Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
BH304	Surface	FCF			NA	NA	NA	NA	NA	NA	NA	-
Total Number of Samples					31	31	31	31	31	31	31	24
Maximum Value					66	86	<PQL	<PQL	<PQL	<PQL	<PQL	1.2

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH301	0.15-0.3	F: gravelly clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH301	0.15-0.3	Lab duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH301	0.5-0.95	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH301	1.6-1.8	Siltstone	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH301	2.2-2.4	Siltstone	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH302	0.16-0.4	F: silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH302	0.5-0.7	Siltstone	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH302	0.8-0.95	Siltstone	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH302	2.5-2.8	Siltstone	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH303	0-0.2	F: silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH303	0-0.2	Lab duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH303	0.5-0.7	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH303	0.8-0.95	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH303	4.8-5.0	Siltstone	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH304	0-0.1	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH304	0.1-0.2	F: silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH305	0-0.1	F: clayey silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH305	0.1-0.3	F: silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH306	0-0.1	F: silty clayey sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH306	0.1-0.2	F: silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH306	0.1-0.2	Lab duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH307	0.05-0.15	F: silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH307	0.4-0.5	F: silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH308	0.05-0.15	F: silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH308	0.8-1.0	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH309	0.05-0.15	F: silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH309	0.8-1.0	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP301	-	Duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP302	-	Duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP303	-	Duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP304	-	Duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH304	Surface	FCF			NA	NA	NA	NA	NA	NA	NA

TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**COMMERCIAL/INDUSTRIAL**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH301	0.15-0.3	Fine	<25	<50	<100	<100
BH301	0.15-0.3	Fine	<25	<50	<100	<100
BH301	0.5-0.95	Fine	<25	<50	<100	<100
BH301	1.6-1.8	Fine	<25	<50	<100	<100
BH301	2.2-2.4	Fine	<25	<50	<100	<100
BH302	0.16-0.4	Fine	<25	<50	<100	<100
BH302	0.5-0.7	Fine	<25	<50	<100	<100
BH302	0.8-0.95	Fine	<25	<50	<100	<100
BH302	2.5-2.8	Fine	<25	<50	<100	<100
BH303	0-0.2	Coarse	<25	**86**	**680**	**250**
BH303	0-0.2	Coarse	<25	**85**	**720**	**300**
BH303	0.5-0.7	Fine	<25	<50	<100	<100
BH303	0.8-0.95	Fine	<25	<50	<100	<100
BH303	4.8-5.0	Fine	<25	<50	<100	<100
BH304	0-0.1	Fine	<25	<50	**210**	**110**
BH304	0.1-0.2	Fine	<25	<50	<100	<100
BH305	0-0.1	Coarse	**29**	<50	<100	<100
BH305	0.1-0.3	Fine	<25	<50	**520**	<100
BH306	0-0.1	Coarse	**66**	<50	**300**	<100
BH306	0.1-0.2	Fine	<25	<50	<100	<100
BH306	0.1-0.2	Fine	<25	<50	<100	<100
BH307	0.05-0.15	Fine	<25	<50	<100	**120**
BH307	0.4-0.5	Fine	<25	<50	<100	<100
BH308	0.05-0.15	Fine	<25	<50	<100	<100
BH308	0.8-1.0	Fine	<25	<50	<100	<100
BH309	0.05-0.15	Fine	<25	<50	<100	**230**
BH309	0.8-1.0	Fine	<25	<50	<100	<100
SDUP301	-	Fine	<25	<50	<100	<100
SDUP302	-	Fine	<25	<50	<100	<100
SDUP303	-	Coarse	<25	**51**	**390**	**230**
SDUP304	-	Fine	<25	<50	**360**	**190**
Total Number of Samples			31	31	31	31
Maximum Value			66	86	720	300

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Soil Texture**	C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH301	0.15-0.3	Fine	800	1000	5000	10000
BH301	0.15-0.3	Fine	800	1000	5000	10000
BH301	0.5-0.95	Fine	800	1000	5000	10000
BH301	1.6-1.8	Fine	800	1000	5000	10000
BH301	2.2-2.4	Fine	800	1000	5000	10000
BH302	0.16-0.4	Fine	800	1000	5000	10000
BH302	0.5-0.7	Fine	800	1000	5000	10000
BH302	0.8-0.95	Fine	800	1000	5000	10000
BH302	2.5-2.8	Fine	800	1000	5000	10000
BH303	0-0.2	Coarse	700	1000	3500	10000
BH303	0-0.2	Coarse	700	1000	3500	10000
BH303	0.5-0.7	Fine	800	1000	5000	10000
BH303	0.8-0.95	Fine	800	1000	5000	10000
BH303	4.8-5.0	Fine	800	1000	5000	10000
BH304	0-0.1	Fine	800	1000	5000	10000
BH304	0.1-0.2	Fine	800	1000	5000	10000
BH305	0-0.1	Coarse	700	1000	3500	10000
BH305	0.1-0.3	Fine	800	1000	5000	10000
BH306	0-0.1	Coarse	700	1000	3500	10000
BH306	0.1-0.2	Fine	800	1000	5000	10000
BH306	0.1-0.2	Fine	800	1000	5000	10000
BH307	0.05-0.15	Fine	800	1000	5000	10000
BH307	0.4-0.5	Fine	800	1000	5000	10000
BH308	0.05-0.15	Fine	800	1000	5000	10000
BH308	0.8-1.0	Fine	800	1000	5000	10000
BH309	0.05-0.15	Fine	800	1000	5000	10000
BH309	0.8-1.0	Fine	800	1000	5000	10000
SDUP301	-	Fine	800	1000	5000	10000
SDUP302	-	Fine	800	1000	5000	10000
SDUP303	-	Coarse	700	1000	3500	10000
SDUP304	-	Fine	800	1000	5000	10000

TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		26,000	20,000	27,000	38,000	430	99,000	27,000	81,000	11,000	
Site Use		**COMMERCIAL/INDUSTRIAL - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH301	0.15-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.2**
BH301	0.15-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	NA
BH301	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH301	1.6-1.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH301	2.2-2.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH302	0.16-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH302	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH302	0.8-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH302	2.5-2.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH303	0-0.2	<25	**86**	**680**	**250**	<0.2	<0.5	<1	<3	<1	0
BH303	0-0.2	<25	**85**	**720**	**300**	<0.2	<0.5	<1	<3	<1	NA
BH303	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH303	0.8-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH303	4.8-5.0	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH304	0-0.1	<25	<50	**210**	**110**	<0.2	<0.5	<1	<3	<1	0
BH304	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH305	0-0.1	**29**	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.8**
BH305	0.1-0.3	<25	<50	**520**	<100	<0.2	<0.5	<1	<3	<1	0
BH306	0-0.1	**66**	<50	**300**	<100	<0.2	<0.5	<1	<3	<1	0
BH306	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH306	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	NA
BH307	0.05-0.15	<25	<50	<100	**120**	<0.2	<0.5	<1	<3	<1	**0.4**
BH307	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH308	0.05-0.15	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH308	0.8-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH309	0.05-0.15	<25	<50	<100	**230**	<0.2	<0.5	<1	<3	<1	**0.1**
BH309	0.8-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
SDUP301	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
SDUP302	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
SDUP303	-	<25	**51**	**390**	**230**	<0.2	<0.5	<1	<1	<1	-
SDUP304	-	<25	<50	**360**	**190**	<0.2	<0.5	<1	<1	<1	-
BH304	Surface	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Number of Samples		31	31	31	31	31	31	31	31	31	24
Maximum Value		66	86	720	300	<PQL	<PQL	<PQL	<PQL	<PQL	1.2

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HIL-D:Commercial/Industrial

FIELD DATA															LABORATORY DATA												
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC			**No**					**0.05**			**0.001**			**0.001**											**0.05**	**0.001**
6/07/2021	BH301	0.15-0.3	No	2	1,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH301	0.15-0.3	668.88	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH302	0.16-0.4	No	5	4,680	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH302	0.16-0.4	489.89	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH303	0-0.2	No	10	9,920	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH303	0-0.2	533.35	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH304	0-0.1	Yes	10	10,360	11.0	1.65	0.0159	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH304	0-0.1	542	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH304	0.1-0.2	NA	9	8,190	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH304	0.1-0.2	448.41	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH305	0-0.1	No	10	11,210	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH305	0-0.1	739.71	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH305	0.1-0.4	NA	7	6,180	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH305	0.1-0.3	758.59	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH306	0-0.1	No	10	10,830	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH306	0-0.1	624.08	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH306	0.1-0.2	NA	8	7,220	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH306	0.1-0.2	813.42	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH307	0.05-0.15	No	10	12,520	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH307	0.05-0.15	959.01	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH308	0.05-0.8	No	10	10,130	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH307	0.4-0.5	390.29	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
6/07/2021	BH309	0.05-0.8	No	10	10,360	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	273765	BH308	0.05-0.15	867.44	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	273765	BH309	0.05-0.15	1019.63	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	273765	BH304	0-0.1AQ	46.52	A)Chrysotile asbestos detected: Amosite asbestos detected: B)No asbestos detected: Organic fibres detected	No asbestos detected	NA	NA	NA	NA	NA	NA
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	273765	BH304	Surface	11.83	Chrysotile asbestos detected: Amosite asbestos detected	[NT]	NA	NA	NA	NA	NA	NA
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Concentration above the SAC **VALUE**

JKEnvironments

TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				COMMERCIAL/INDUSTRIAL																	
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH301	0.15-0.3	F: gravelly clay	Fine	NA	NA	NA	<4	**14**	**7**	**18**	**3**	**9**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH301	0.15-0.3	Lab duplicate	Fine	NA	NA	NA	<4	**16**	**9**	**21**	**5**	**15**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH301	0.5-0.95	Silty clay	Fine	NA	NA	NA	**10**	**12**	**12**	**12**	<1	**4**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH301	1.6-1.8	Siltstone	Fine	NA	NA	NA	NA	NA	NA	**4**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH301	2.2-2.4	Siltstone	Fine	NA	NA	NA	NA	NA	NA	**11**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH302	0.16-0.4	F: silty clay	Fine	NA	NA	NA	<4	**14**	**15**	**12**	**12**	**20**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH302	0.5-0.7	Siltstone	Fine	NA	NA	NA	NA	NA	NA	**8**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH302	0.8-0.95	Siltstone	Fine	NA	NA	NA	<4	**2**	**8**	**5**	<1	**8**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH302	2.5-2.8	Siltstone	Fine	NA	NA	NA	NA	NA	NA	**12**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH303	0-0.2	F: silty sand	Coarse	NA	NA	NA	<4	**12**	**19**	**90**	**4**	**80**	<1	<0.1	<25	**86**	**680**	**250**	<0.2	<0.5	<1	<3	<0.05
BH303	0-0.2	Lab duplicate	Coarse	NA	NA	NA	<4	**13**	**17**	**84**	**4**	**71**	<1	<0.1	<25	**85**	**720**	**300**	<0.2	<0.5	<1	<3	<0.05
BH303	0.5-0.7	Silty clay	Fine	NA	NA	NA	NA	NA	NA	**11**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH303	0.8-0.95	Silty clay	Fine	NA	NA	NA	**9**	**8**	**7**	**14**	<1	**4**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH303	4.8-5.0	Siltstone	Fine	NA	NA	NA	NA	NA	NA	**19**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH304	0-0.1	F: Silty sandy clay	Fine	**7.6**	**98**	**21**	**8**	**21**	480	**110**	**10**	**380**	<1	<0.1	<25	<50	**210**	**110**	<0.2	<0.5	<1	<3	<0.05
BH304	0.1-0.2	F: silty clay	Fine	NA	NA	NA	**5**	**14**	**29**	**28**	**3**	**67**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH305	0-0.1	F: clayey silty sand	Coarse	NA	NA	NA	**4**	**15**	**16**	**34**	**9**	**70**	<1	<0.1	**29**	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH305	0.1-0.3	F: silty sandy clay	Fine	NA	NA	NA	<4	**12**	**15**	**27**	**7**	**45**	<1	NA	<25	<50	**520**	<100	<0.2	<0.5	<1	<3	<0.05
BH306	0-0.1	F: silty clayey sand	Coarse	NA	NA	NA	**4**	**16**	**73**	**50**	**13**	**78**	<1	<0.1	**66**	<50	**300**	<100	<0.2	<0.5	<1	<3	**0.09**
BH306	0.1-0.2	F: silty clay	Fine	NA	NA	NA	**5**	**19**	**37**	**59**	**18**	**76**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.3**
BH306	0.1-0.2	Lab duplicate	Fine	NA	NA	NA	**5**	**20**	**35**	**58**	**18**	**80**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH307	0.05-0.15	F: silty sandy clay	Fine	**10.3**	**17**	**8**	<4	**73**	**29**	**4**	**72**	**40**	<1	<0.1	<25	<50	<100	**120**	<0.2	<0.5	<1	<3	<0.05
BH307	0.4-0.5	F: silty sandy clay	Fine	NA	NA	NA	**5**	**18**	**31**	**9**	**22**	**52**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH308	0.05-0.15	F: silty sandy clay	Fine	NA	NA	NA	**4**	**18**	**26**	**13**	**30**	**110**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH308	0.8-1.0	Silty clay	Fine	NA	NA	NA	**5**	**10**	**14**	**17**	**6**	**16**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH309	0.05-0.15	F: silty sandy clay	Fine	**10**	**12**	**9**	<4	**74**	**30**	**6**	**73**	**46**	<1	<0.1	<25	<50	<100	**230**	<0.2	<0.5	<1	<3	<0.05
BH309	0.8-1.0	Silty clay	Fine	NA	NA	NA	**6**	**22**	**10**	**14**	**5**	**11**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP301	-	Duplicate	Fine	NA	NA	NA	**13**	**17**	**17**	**17**	**1**	**6**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP302	-	Duplicate	Fine	NA	NA	NA	<4	**18**	**14**	**11**	**13**	**25**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP303	-	Duplicate	Coarse	NA	NA	NA	**6**	**19**	**21**	**110**	**7**	**120**	<1	NA	<25	**51**	**390**	**230**	<0.2	<0.5	<1	<1	<0.05
SDUP304	-	Duplicate	Fine	**7.6**	**98**	**21**	**9**	**25**	**150**	**130**	**16**	**440**	<1	NA	<25	<50	**360**	**190**	<0.2	<0.5	<1	<1	<0.05
SDUP304	-	Lab Duplicate	Fine	**7.6**	**98**	**21**	**9**	**25**	**170**	**110**	**12**	**440**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH301	0.15-0.3	Triplicate	Fine	NA	NA	NA	<4	**19**	**10**	**29**	**7**	**22**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples				5	5	5	27	27	27	33	27	27	31	11	31	31	31	31	31	31	31	31	31
Maximum Value				10.3	98	21	13	74	480	130	73	440	<PQL	<PQL	66	86	720	300	<PQL	<PQL	<PQL	<PQL	0.3

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH301	0.15-0.3	F: gravelly clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	72
BH301	0.15-0.3	Lab duplicate	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	72
BH301	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH301	1.6-1.8	Siltstone	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	72
BH301	2.2-2.4	Siltstone	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	72
BH302	0.16-0.4	F: silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	72
BH302	0.5-0.7	Siltstone	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	72
BH302	0.8-0.95	Siltstone	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH302	2.5-2.8	Siltstone	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	72
BH303	0-0.2	F: silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH303	0-0.2	Lab duplicate	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH303	0.5-0.7	Silty clay	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	72
BH303	0.8-0.95	Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH303	4.8-5.0	Siltstone	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	72
BH304	0-0.1	F: Silty sandy clay	Fine	7.6	98	21	160	670	370	2000	960	2100	370	640	215	170	2500	6600	95	135	185	95	72
BH304	0.1-0.2	F: silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH305	0-0.1	F: clayey silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH305	0.1-0.3	F: silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH306	0-0.1	F: silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH306	0.1-0.2	F: silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH306	0.1-0.2	Lab duplicate	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH307	0.05-0.15	F: silty sandy clay	Fine	10.3	17	8	160	670	330	2000	460	1200	370	640	215	170	2500	6600	95	135	185	95	72
BH307	0.4-0.5	F: silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH308	0.05-0.15	F: silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	72
BH308	0.8-1.0	Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
BH309	0.05-0.15	F: silty sandy clay	Fine	10	12	9	160	670	330	2000	460	1200	370	640	215	170	2500	6600	95	135	185	95	72
BH309	0.8-1.0	Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
SDUP301	-	Duplicate	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
SDUP302	-	Duplicate	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	72
SDUP303	-	Duplicate	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
SDUP304	-	Duplicate	Fine	7.6	98	21	160	670	370	2000	960	2100	370	--	215	170	2500	6600	95	135	185	95	72
SDUP304	-	Lab Duplicate	Fine	7.6	98	21	160	670	370	2000	960	2100	--	--	--	--	--	--	--	--	--	--	--
BH301	0.15-0.3	Triplicate	Fine	NA	NA	NA	160	320	110	2000	60	230	--	--	--	--	--	--	--	--	--	--	--

TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled	PCBs	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH301	0.15-0.3	F: gravelly clay	<4	<0.4	**14**	**7**	**18**	<0.1	**3**	**9**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH301	0.15-0.3	Lab duplicate	<4	<0.4	**16**	**9**	**21**	<0.1	**5**	**15**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH301	0.5-0.95	Silty clay	**10**	<0.4	**12**	**12**	**12**	<0.1	<1	**4**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH301	1.6-1.8	Siltstone	NA	NA	NA	NA	**4**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH301	2.2-2.4	Siltstone	NA	NA	NA	NA	**11**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH302	0.16-0.4	F: silty clay	<4	<0.4	**14**	**15**	**12**	<0.1	**12**	**20**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH302	0.5-0.7	Siltstone	NA	NA	NA	NA	**8**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH302	0.8-0.95	Siltstone	<4	<0.4	**2**	**8**	**5**	<0.1	<1	**8**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH302	2.5-2.8	Siltstone	NA	NA	NA	NA	**12**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH303	0-0.2	F: silty sand	<4	<0.4	**12**	**19**	**90**	<0.1	**4**	**80**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**390**	**420**	**810**	<0.2	<0.5	<1	<3	NA
BH303	0-0.2	Lab duplicate	<4	<0.4	**13**	**17**	**84**	<0.1	**4**	**71**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**410**	**450**	**860**	<0.2	<0.5	<1	<3	NA
BH303	0-0.2	F: silty sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH303	0.5-0.7	Silty clay	NA	NA	NA	NA	**11**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH303	0.8-0.95	Silty clay	**9**	<0.4	**8**	**7**	**14**	<0.1	<1	**4**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH303	4.8-5.0	Siltstone	NA	NA	NA	NA	**19**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH304	0-0.1	F: Silty sandy clay	**8**	**0.8**	**21**	**480**	**110**	**0.2**	**10**	**380**	<0.05	<0.05	<0.1	<0.1	<0.1	**1.3**	<0.1	<25	<50	<100	**190**	**190**	<0.2	<0.5	<1	<3	Not Detected
BH304	0.1-0.2	F: silty clay	**5**	<0.4	**14**	**29**	**28**	<0.1	**3**	**67**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH305	0-0.1	F: clayey silty sand	**4**	<0.4	**15**	**16**	**34**	<0.1	**9**	**70**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH305	0.1-0.3	F: silty sandy clay	<4	<0.4	**12**	**15**	**27**	**0.1**	**7**	**45**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	**52**	**450**	<100	**502**	<0.2	<0.5	<1	<3	Not Detected
BH306	0-0.1	F: silty clayey sand	**4**	<0.4	**16**	**73**	**50**	<0.1	**13**	**78**	**0.65**	**0.09**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**180**	**150**	**330**	<0.2	<0.5	<1	<3	Not Detected
BH306	0.1-0.2	F: silty clay	**5**	<0.4	**19**	**37**	**59**	<0.1	**18**	**76**	**2.8**	**0.3**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH306	0.1-0.2	Lab duplicate	**5**	<0.4	**20**	**35**	**58**	<0.1	**18**	**80**	**2.5**	**0.2**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH307	0.05-0.15	F: silty sandy clay	<4	<0.4	**73**	**29**	**4**	<0.1	**72**	**40**	**0.4**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH307	0.4-0.5	F: silty sandy clay	**5**	<0.4	**18**	**31**	**9**	<0.1	**22**	**52**	**0.1**	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH308	0.05-0.15	F: silty sandy clay	**4**	<0.4	**18**	**26**	**13**	<0.1	**30**	**110**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH308	0.8-1.0	Silty clay	**5**	<0.4	**10**	**14**	**17**	<0.1	**6**	**16**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH309	0.05-0.15	F: silty sandy clay	<4	<0.4	**74**	**30**	**6**	<0.1	**73**	**46**	**0.4**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**130**	**130**	<0.2	<0.5	<1	<3	Not Detected
BH309	0.8-1.0	Silty clay	**6**	<0.4	**22**	**10**	**14**	<0.1	**5**	**11**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
SDUP301	-	Duplicate	**13**	<0.4	**17**	**17**	**17**	<0.1	**1**	**6**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
SDUP302	-	Duplicate	<4	<0.4	**18**	**14**	**11**	<0.1	**13**	**25**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
SDUP303	-	Duplicate	**6**	<0.4	**19**	**21**	**110**	<0.1	**7**	**120**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	**210**	**300**	**510**	<0.2	<0.5	<1	<1	NA
SDUP304	-	Duplicate	**9**	**2**	**25**	**150**	**130**	**0.2**	**16**	**440**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	**140**	**300**	**440**	<0.2	<0.5	<1	<1	NA
SDUP304	-	Lab Duplicate	**9**	**2**	**25**	**170**	**110**	**0.2**	**12**	**440**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH304	0-0.1AQ	FCF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH304	Surface	FCF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
BH301	0.15-0.3	Triplicate	<4	<0.4	**19**	**10**	**29**	<0.1	**7**	**22**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			27	27	27	27	33	27	27	27	31	31	11	11	11	11	11	31	31	31	31	31	31	31	31	31	15
Maximum Value			13	2	74	480	130	0.2	73	440	2.8	0.3	<PQL	<PQL	<PQL	1.3	<PQL	<PQL	52	450	450	860	<PQL	<PQL	<PQL	<PQL	Detected

Concentration above the CT1 — **VALUE**
Concentration above SCC1 — **VALUE**
Concentration above the SCC2 — **VALUE**
Concentration above PQL — **Bold**

TABLE S8
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Lead	Nickel
PQL - Envirolab Services			0.03	0.02
TCLP1 - General Solid Waste			5	2
TCLP2 - Restricted Solid Waste			20	8
TCLP3 - Hazardous Waste			>20	>8
Sample Reference	**Sample Depth**	**Sample Description**		
BH304	0-0.1	F: Silty sandy clay	<0.03	NA
BH307	0.05-0.15	F: silty sandy clay	NA	**0.07**
BH307	0.05-0.15	Lab duplicate	NA	**0.07**
BH309	0.05-0.15	F: silty sandy clay	NA	**0.06**
Total Number of samples			1	3
Maximum Value			<PQL	0.07

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**
Concentration above PQL	**Bold**

TABLE S9
SOIL QA/QC SUMMARY

			TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.05*	*0.1*	*0.1*	*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1.0*	*2.0*	*1.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra laboratory duplicate	BH301	0.15-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<4	<0.4	14	7	18	<0.1	3	9
	SDUP301	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	13	<0.4	17	17	17	<0.1	1	6
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	7.5	nc	15.5	12	17.5	nc	2	7.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	147%	nc	19%	83%	6%	nc	100%	40%
Intra laboratory duplicate	BH302	0.16-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<4	<0.4	14	15	12	<0.1	12	20
	SDUP302	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<4	<0.4	18	14	11	<0.1	13	25
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	16	14.5	11.5	nc	12.5	22.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	25%	7%	9%	nc	8%	22%
Inter laboratory duplicate	BH303	0-0.2	<25	86	680	250	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<4	<0.4	12	19	90	<0.1	4	80
	SDUP303	-	<25	51	390	230	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	6	<0.4	19	21	110	<0.1	7	120
	MEAN		nc	68.5	535	240	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	4	nc	15.5	20	100	nc	5.5	100
	RPD %		nc	51%	54%	8%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	100%	nc	45%	10%	20%	nc	55%	40%
Inter laboratory duplicate	BH304	0-0.1	<25	<50	210	110	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	8	0.8	21	480	110	0.2	10	380
	SDUP304	-	<25	<50	360	190	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	9	2	25	150	130	0.2	16	440
	MEAN		nc	nc	285	150	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	8.5	1.4	23	315	120	0.2	13	410
	RPD %		nc	nc	53%	53%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	12%	86%	17%	105%	17%	0%	46%	15%
Trip Spike	TS-S1 6/07/21		-	-	-	-	104%	100%	98%	98%	97%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field Blank	TB-S1 6/07/21	-	<25	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR301 - SPT 6/07/21	-	NA	NA	NA	NA	<1	<1	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Result outside of QA/QC acceptance criteria

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG: AustralianDrinking Water Guidelines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CRC: Cooperative Research Centre
ESLs: Ecological Screening Levels
GIL: Groundwater Investigation Levels
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
SAC: Site Assessment Criteria
SSA: Site Specific Assessment
SSHSLs Site Specific Health Screening Levels
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

TABLE G1
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	ANZG 2018 Fresh Waters	SAMPLES					
			MW101	MW101 Duplicate	MW103	MW302	MW307	MWDUP1
Inorganic Compounds and Parameters								
pH		6.5 - 8.5	6.4	NA	6.5	6.7	5.8	NA
Electrical Conductivity (µS/cm)	1	NSL	**12000**	NA	**8400**	**13000**	**18000**	NA
Metals and Metalloids								
Arsenic (As III)	1	24	<1	NA	<1	**3**	<1	**3**
Cadmium	0.1	0.2	<0.1	NA	**0.1**	**0.8**	**0.7**	**0.9**
Chromium (SAC for Cr III adopted)	1	3.3	<1	NA	<1	<1	<1	<1
Copper	1	1.4	<1	NA	<1	<1	<1	<1
Lead	1	3.4	<1	NA	<1	<1	<1	<1
Total Mercury (inorganic)	0.05	0.06	<0.05	NA	<0.05	<0.05	<0.05	<0.05
Nickel	1	11	**20**	NA	**5**	**61**	**72**	**62**
Zinc	1	8	**18**	NA	**13**	**73**	**86**	**75**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)								
Benzene	1	950	<1	<1	<1	<1	<1	<1
Toluene	1	180	<1	<1	<1	<1	<1	<1
Ethylbenzene	1	80	<1	<1	<1	<1	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2	<2	<2
o-xylene	1	350	<1	<1	<1	<1	<1	<1
Total xylenes	2	NSL	<2	<2	<2	<2	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs								
Dichlorodifluoromethane	10	NSL	<10	<10	<10	<10	<10	NA
Chloromethane	10	NSL	<10	<10	<10	<10	<10	NA
Vinyl Chloride	10	100	<10	<10	<10	<10	<10	NA
Bromomethane	10	NSL	<10	<10	<10	<10	<10	NA
Chloroethane	10	NSL	<10	<10	<10	<10	<10	NA
Trichlorofluoromethane	10	NSL	<10	<10	<10	<10	<10	NA
1,1-Dichloroethene	1	700	<1	<1	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	NSL	<1	<1	<1	<1	<1	NA
1,1-dichloroethane	1	90	<1	<1	<1	<1	<1	NA
Cis-1,2-dichloroethene	1	NSL	<1	<1	<1	<1	<1	NA
Bromochloromethane	1	NSL	<1	<1	<1	<1	<1	NA
Chloroform	1	370	<1	<1	<1	<1	<1	NA
2,2-dichloropropane	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dichloroethane	1	1900	<1	<1	<1	<1	<1	NA
1,1,1-trichloroethane	1	270	<1	<1	<1	<1	<1	NA
1,1-dichloropropene	1	NSL	<1	<1	<1	<1	<1	NA
Cyclohexane	1	NSL	<1	<1	<1	<1	<1	NA
Carbon tetrachloride	1	240	<1	<1	<1	<1	<1	NA
Benzene	1	950	<1	<1	<1	<1	<1	NA
Dibromomethane	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dichloropropane	1	900	<1	<1	<1	<1	<1	NA
Trichloroethene	1	330	<1	<1	<1	<1	<1	NA
Bromodichloromethane	1	NSL	<1	<1	<1	<1	<1	NA
trans-1,3-dichloropropene	1	NSL	<1	<1	<1	<1	<1	NA
cis-1,3-dichloropropene	1	NSL	<1	<1	<1	<1	<1	NA
1,1,2-trichloroethane	1	6500	<1	<1	<1	<1	<1	NA
Toluene	1	180	<1	<1	<1	<1	<1	NA
1,3-dichloropropane	1	1100	<1	<1	<1	<1	<1	NA
Dibromochloromethane	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dibromoethane	1	NSL	<1	<1	<1	<1	<1	NA
Tetrachloroethene	1	70	<1	<1	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	<1	NA
Chlorobenzene	1	55	<1	<1	<1	<1	<1	NA
Ethylbenzene	1	80	<1	<1	<1	<1	<1	NA
Bromoform	1	NSL	<1	<1	<1	<1	<1	NA
m+p-xylene	2	75	<2	<2	<2	<2	<2	NA
Styrene	1	NSL	<1	<1	<1	<1	<1	NA
1,1,2,2-tetrachloroethane	1	400	<1	<1	<1	<1	<1	NA
o-xylene	1	350	<1	<1	<1	<1	<1	NA
1,2,3-trichloropropane	1	NSL	<1	<1	<1	<1	<1	NA
Isopropylbenzene	1	30	<1	<1	<1	<1	<1	NA
Bromobenzene	1	NSL	<1	<1	<1	<1	<1	NA
n-propyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
2-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	NA
4-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	NA
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
Tert-butyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,3-dichlorobenzene	1	260	<1	<1	<1	<1	<1	NA
Sec-butyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,4-dichlorobenzene	1	60	<1	<1	<1	<1	<1	NA
4-isopropyl toluene	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dichlorobenzene	1	160	<1	<1	<1	<1	<1	NA
n-butyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	<1	<1	NA
1,2,4-trichlorobenzene	1	85	<1	<1	<1	<1	<1	NA
Hexachlorobutadiene	1	NSL	<1	<1	<1	<1	<1	NA
1,2,3-trichlorobenzene	1	3	<1	<1	<1	<1	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	0.2	16	<0.2	NA	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.1	0.6	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Anthracene	0.1	0.01	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.1	1	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**
GIL >PQL	Red

TABLE G2
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO HUMAN CONTACT GILs
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	Recreational (10 x NHMRC ADWG)	SAMPLES					
			MW101	MW101 Duplicate	MW103	MW302	MW307	MWDUP1
Inorganic Compounds and Parameters								
pH		6.5 - 8.5	6.4	NA	6.5	6.7	5.8	NA
Electrical Conductivity (µS/cm)	1	NSL	**12000**	NA	**8400**	**13000**	**18000**	NA
Turbidity (NTU)		NSL	NA	NA	NA	NA	NA	NA
Metals and Metalloids								
Arsenic (As III)	1	100	<1	NA	<1	**3**	<1	**3**
Cadmium	0.1	20	<0.1	NA	**0.1**	**0.8**	**0.7**	**0.9**
Chromium (total)	1	500	<1	NA	<1	<1	<1	<1
Copper	1	20000	<1	NA	<1	<1	<1	<1
Lead	1	100	<1	NA	<1	<1	<1	<1
Total Mercury (inorganic)	0.05	10	<0.05	NA	<0.05	<0.05	<0.05	<0.05
Nickel	1	200	**20**	NA	**5**	**61**	**72**	**62**
Zinc	1	30000	**18**	NA	**13**	**73**	**86**	**75**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)								
Benzene	1	10	<1	<1	<1	<1	<1	<1
Toluene	1	8000	<1	<1	<1	<1	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	<1	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	<2	<2	<2
o-xylene	1	NSL	<1	<1	<1	<1	<1	<1
Total xylenes	2	6000	<2	<2	<2	<2	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs								
Dichlorodifluoromethane	10	NSL	<10	<10	<10	<10	<10	NA
Chloromethane	10	NSL	<10	<10	<10	<10	<10	NA
Vinyl Chloride	10	3	<10	<10	<10	<10	<10	NA
Bromomethane	10	NSL	<10	<10	<10	<10	<10	NA
Chloroethane	10	NSL	<10	<10	<10	<10	<10	NA
Trichlorofluoromethane	10	NSL	<10	<10	<10	<10	<10	NA
1,1-Dichloroethene	1	300	<1	<1	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	600	<1	<1	<1	<1	<1	NA
1,1-dichloroethane	1	NSL	<1	<1	<1	<1	<1	NA
Cis-1,2-dichloroethene	1	600	<1	<1	<1	<1	<1	NA
Bromochloromethane	1	2500	<1	<1	<1	<1	<1	NA
Chloroform	1		<1	<1	<1	<1	<1	NA
2,2-dichloropropane	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dichloroethane	1	30	<1	<1	<1	<1	<1	NA
1,1,1-trichloroethane	1	NSL	<1	<1	<1	<1	<1	NA
1,1-dichloropropene	1	NSL	<1	<1	<1	<1	<1	NA
Cyclohexane	1	NSL	<1	<1	<1	<1	<1	NA
Carbon tetrachloride	1	30	<1	<1	<1	<1	<1	NA
Benzene	1	10	<1	<1	<1	<1	<1	NA
Dibromomethane	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dichloropropane	1	NSL	<1	<1	<1	<1	<1	NA
Trichloroethene	1	NSL	<1	<1	<1	<1	<1	NA
Bromodichloromethane	1	NSL	<1	<1	<1	<1	<1	NA
trans-1,3-dichloropropene	1	1000	<1	<1	<1	<1	<1	NA
cis-1,3-dichloropropene	1	1000	<1	<1	<1	<1	<1	NA
1,1,2-trichloroethane	1	NSL	<1	<1	<1	<1	<1	NA
Toluene	1	8000	<1	<1	<1	<1	<1	NA
1,3-dichloropropane	1	NSL	<1	<1	<1	<1	<1	NA
Dibromochloromethane	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dibromoethane	1	NSL	<1	<1	<1	<1	<1	NA
Tetrachloroethene	1	500	<1	<1	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	<1	NA
Chlorobenzene	1	3000	<1	<1	<1	<1	<1	NA
Ethylbenzene	1	3000	<1	<1	<1	<1	<1	NA
Bromoform	1	NSL	<1	<1	<1	<1	<1	NA
m+p-xylene	2	NSL	<2	<2	<2	<2	<2	NA
Styrene	1	300	<1	<1	<1	<1	<1	NA
1,1,2,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	<1	NA
o-xylene	1	NSL	<1	<1	<1	<1	<1	NA
1,2,3-trichloropropane	1	NSL	<1	<1	<1	<1	<1	NA
Isopropylbenzene	1	NSL	<1	<1	<1	<1	<1	NA
Bromobenzene	1	NSL	<1	<1	<1	<1	<1	NA
n-propyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
2-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	NA
4-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	NA
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
Tert-butyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,3-dichlorobenzene	1	200	<1	<1	<1	<1	<1	NA
Sec-butyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,4-dichlorobenzene	1	400	<1	<1	<1	<1	<1	NA
4-isopropyl toluene	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dichlorobenzene	1	15000	<1	<1	<1	<1	<1	NA
n-butyl benzene	1	NSL	<1	<1	<1	<1	<1	NA
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	<1	<1	NA
1,2,4-trichlorobenzene	1	300	<1	<1	<1	<1	<1	NA
1,2,3-trichlorobenzene	1		<1	<1	<1	<1	<1	NA
Hexachlorobutadiene	1	7	<1	<1	<1	<1	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**
GIL >PQL	Red

TABLE G3
GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs
All data in µg/L unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	
PQL - Envirolab Services				10	50	1	1	1	2	1	PID
NEPM 2013 - Land Use Category				**HSL-D: COMMERCIAL/INDUSTRIAL**							
Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**								
MW101	4.47	2m to <4m	Clay	<10	<50	<1	<1	<1	<2	<1	0.4
MW101	4.47	2m to <4m	Clay	<10	NA	<1	<1	<1	<2	<1	0.4
MW103	4.12	2m to <4m	Clay	<10	<50	<1	<1	<1	<2	<1	0.3
MW302	1.53	2m to <4m	Clay	<10	<50	<1	<1	<1	<2	<1	12.7
MW307	4.44	2m to <4m	Clay	<10	<50	<1	<1	<1	<2	<1	1.4
MWDUP1	1.53	2m to <4m	Clay	<10	<50	<1	<1	<1	<2	<1	NA
Total Number of Samples				6	5	6	6	6	6	6	0
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0

Concentration above the SAC **VALUE**
Site specific assesment (SSA) required **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the Groundwater Assessment Criteria Table below

HSL GROUNDWATER ASSESSMENT CRITERIA

Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
MW101	4.47	2m to <4m	Clay	NL	NL	30000	NL	NL	NL	NL
MW101	4.47	2m to <4m	Clay	NL	NA	30000	NL	NL	NL	NL
MW103	4.12	2m to <4m	Clay	NL	NL	30000	NL	NL	NL	NL
MW302	1.53	2m to <4m	Clay	NL	NL	30000	NL	NL	NL	NL
MW307	4.44	2m to <4m	Clay	NL	NL	30000	NL	NL	NL	NL
MWDUP1	1.53	2m to <4m	Clay	NL	NL	30000	NL	NL	NL	NL

TABLE G4
GROUNDWATER QA/QC SUMMARY

		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD	*10*	*50*	*100*	*100*	*1*	*1*	*1*	*2*	*1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
	PQL Envirolab VIC	*10*	*50*	*100*	*100*	*1.0*	*1.0*	*1.0*	*2.0*	*1.0*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
Intra	MW302	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	3	0.8	<1	<1	<1	<0.05	61	73
laboratory	MWDUP1	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	3	0.9	<1	<1	<1	<0.05	62	75
duplicate	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	3	0.85	nc	nc	nc	nc	61.5	74
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	12%	nc	nc	nc	nc	2%	3%
Trip	TSW1	-	-	-	-	105%	108%	118%	108%	109%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Spike	13/07/2021																																
Field	TBW1	<10	NA	NA	NA	<1	<1	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Blank	13/07/2021																																

Result outside of QA/QC acceptance criteria Value

Appendix D: Waste Tracking Template

Imported Materials Register

Supplier	Date	Docket/Invoice #	Product Type	Quantity (specify m3 or tonnes)	Area where Material was Placed

Exported (Waste) Materials Register

Load	Date	Material Type / Classification	Site Area where Waste was Generated	Waste Classification Report Reference	Disposal Facility	Tipping Receipt/Docket Number	Tracking Number (where relevant)	Tonnage

Appendix E: Guidelines and Reference Documents

Contaminated Land Management Act 1997 (NSW)

Conveyancing Act (1919) (NSW).

Environmental Planning and Assessment Act 1979 (NSW)

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997

NSW EPA, (2017). Guidelines for the NSW Site Auditor Scheme, 3rd Edition

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy No.55 – Remediation of Land 1998 (NSW)

Work Health and Safety Regulation 2017 (NSW)

Western Australian Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia