REPORT TO

BURBOT PROPERTIES PTY LTD

ON

REMEDIATION ACTION PLAN

FOR

PROPOSED COMMERCIAL DEVELOPMENT

AT

574-584 CHURCH STREET, NORTH PARRAMATTA, NSW

Date: 16 September 2021
Ref: E33532PHrpt4-RAP

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
CEnvP SC

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

DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E33532PHrpt4-RAP	Draft Report	9 September 2021
E33532PHrpt4-RAP	Final Report	16 September 2021

Executive Summary

Burbot Properties Pty Ltd ('the client') commissioned JK Environments (JKE) to prepare a Remediation Action Plan (RAP) for the proposed commercial redevelopment of West End Mazda at 574-584 Church Street, North Parramatta, 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) (SEPP55). Based on the information provided, the proposed development is understood to include demolition of all existing buildings on site and construction of a new dealership building including showrooms, offices, undercover parking and workshop areas. The building will comprise a lower ground level with two commercial levels above. The proposed lower ground level, to be constructed at Reduced Level (RL) 19.19m, will require excavation to a maximum depth of approximately 3.6m over the eastern portion of the proposed building. Minor landscaping is also proposed.

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 and environmental 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.

JKE have previously undertaken a Preliminary Site Investigation (PSI) and a Detailed Site Investigation (DSI) at the site. A summary of this information has been included in Section 2. Investigations at the site by JKE have identified asbestos in fill above the human health-based land use criteria. Minor hydrocarbon odours are also likely to be encountered during the works in the western part of the site where there was a former service station.

The remediation strategy includes excavation and off-site disposal of fill from the majority of the proposed lower ground level footprint, and the excavation and offsite disposal of fill from the areas outside the proposed lower ground level footprint only to the extent required to achieve an appropriate cap over the fill that remains in-situ in these areas. 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 Long-Term Environmental Management Plan (LTEMP). A contingency has been included to encapsulate excavated fill within a borrow pit (i.e. a containment cell) on-site rather than dispose of the fill off-site.

The capping specification is outlined in Section 5.3 (Table 5-3). These minimum capping 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.

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 remediation was assessed by JKE to be Category 2 remediation with regards to SEPP55. This is to be confirmed by the client's expert planner.

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

Table of Contents

List of Tables

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

Burbot Properties Pty Ltd ('the client') commissioned JK Environments (JKE) to prepare a Remediation Action Plan (RAP) for the proposed commercial redevelopment of West End Mazda at 574-584 Church Street, North Parramatta, 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)[1].

JKE have previously undertaken a Preliminary Site Investigation (PSI) and a Detailed Site Investigation (DSI) at the site. 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: 33532Srpt, dated 20 October 2020)[2]. The JKG 2020 report should be read in conjunction with this RAP.

1.1 Proposed Development Details

Based on the information provided, the proposed development is understood to include demolition of all existing buildings on site and construction of a new dealership building including showrooms, offices, undercover parking and workshop areas. The building will comprise a lower ground level with two commercial levels above. The proposed lower ground level, to be constructed at Reduced Level (RL) 19.19m, will require excavation to a maximum depth of approximately 3.6m over the eastern portion of the proposed building. Minor landscaping is also proposed.

A selection of the proposed development plans is included in Appendix B.

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

[2] JKG, (2020). *Report to West End Mazda on Geotechnical Investigation for Proposed Commercial Development at 574-584 Church Street, Parramatta, NSW.* (referred to as JKG report)

1.3 Scope of Work

The RAP was prepared generally in accordance with a JKE proposal (Ref: EP54593PH) of 12 July 2021 and written acceptance from the client of 9 August 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)[3], SEPP55 and other guidelines made under or with regards to the Contaminated Land Management Act (1997)[4], including the Consultants Reporting on Contaminated Land (2020)[5] guidelines.

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

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

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

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

2 SITE INFORMATION

2.1 Summary of DSI and PSI

A PSI was previously undertaken by JKE in 2020[6]. The PSI included a review of historical information, soil sampling from seven boreholes and groundwater sampling from two monitoring wells installed onsite. A DSI[7] was undertaken in 2021. The DSI included soil sampling from 12 locations, groundwater sampling from five monitoring wells and soil vapour sampling from six sub-slab vapour pins.

At the time of the investigations, parts of the site were being used as car mechanical workshops (i.e. Bridgestone Select Tyre & Auto and West End Mazda Service Shop) and the site has historically been used for various commercial/light industrial activities, including a service station in operation in the western part of the site between 1959 and 1997.

Asbestos as asbestos fines/fibrous asbestos (AF/FA) and as bonded asbestos containing material (ACM) was encountered at concentrations that exceeded the site assessment criteria (SAC) in fill. Based on the results of the investigations, and considering other lines of evidence such as the extent of historical filling and building/demolition works, the asbestos was considered likely to be present in fill across the entire site. The risk posed by the asbestos contaminated fill was considered to be low in the present site configuration (where there are paved surface) as there is no direct link to human receptors (i.e. no complete source-pathway-receptor linkage). However, this risk was considered to potentially increase following demolition works and commencement of excavation works through exposure and disturbance of fill and potential inhalation of asbestos fibres. The DSI report concluded that asbestos was the primary contaminant of concern at the site.

Residual hydrocarbon impacts were identified in the western section of the site and these were considered most likely to be associated with the former service station. Although there were no exceedances of the SAC that were deemed to pose a risk, the DSI report indicated excavation works in this area may encounter odorous material and this would need to be considered as part of the construction.

The total recoverable hydrocarbon (TRH) F2 was detected in the groundwater in MW101. The TRH F2 in MW101 was not considered to represent a risk to human receptors with regards to vapour intrusion.

All soil vapour results were less than the SAC. Samples SV2 and SV5 were located in the west section of the site, immediately north and south of MW101. The soil vapour results at both these locations were very low, which further indicated that the TRH F2 encountered in the groundwater did not represent a risk to receptors.

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

[6] JKE (2020). *Report to West End Mazda Pty Ltd on Preliminary (Stage 1) Site Investigation for Proposed Commercial Development at 574-584 Church Street, North Parramatta, NSW.* (Ref: E33532PArpt) (referred to as JKE PSI)

[7] JKE (2021). *Report to Burbot Properties Pty Ltd on Detailed (Stage 2) Site Investigation for Proposed Commercial Development at 574-584 Church Street, North Parramatta, NSW.* (Ref: E33532PArpt3) (referred to as JKE DSI)

2.2 Site Identification

Table 2-1: Site Identification

Site Owner:	Burbot Properties Pty Limited
Site Address:	574-584 Church Street, North Parramatta, NSW Other addresses are also used for the site as outlined below.
Lot & Deposited Plan:	Lot 100 in DP1008491, 574-580 Church Street Lot 11 in DP583409, 584 and 586 Church Street Lot 1 in DP800654, 1 Ferris Street Lot 1 in DP981422, 6 Barney Street Lot 1 in DP128037, 8-10 Barney Street Lot 181 in DP997700, 5 Ferris Street Lot 1 in DP128020, 7 Ferris Street Lot F in DP363707, 8-10 Barney Street Lot B in DP330106, 12 Barney Street
Current Land Use:	Commercial (West End Mazda Dealership)
Proposed Land Use:	Commercial (West End Mazda Dealership)
Local Government Authority:	City of Parramatta Council
Current Zoning:	B6 – Enterprise Corridor
RL (AHD in m) (approx.):	6,500
Site Area (m^2 approximately):	~18-25
Geographical Location in decimal degrees (centre point approx.):	Latitude: -33.796661 Longitude: 151.002479
Site Location Plan	Figure 1

2.3 Site Location, Topography and Regional Setting

The site is located in a predominantly commercial and residential area of North Parramatta and is bound by Church Street to the west/south-west, Ferris Street to the north, Barney Street to the south and commercial (Auscot Motor & Service) and residential properties to the east. The site is located approximately 250m to the east of Darling Mills Creek.

The regional topography is characterised by a gently undulating terrain which falls west towards Darling Mills Creek. The site is located towards the mid-slope of the hillside and has a gentle slope at approximately 3°. Parts of the site have been levelled to account for the slope and accommodate the existing structures.

2.4 Summary of Site Inspections

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

- The majority of the site was occupied by West End Mazda dealership buildings which included showrooms, offices, vehicle holding yard, mechanical service workshops, car wash and parking areas. Bridgestone Select Tyre & Auto occupied western part of the site area, whilst commercial building in the north-western corner was vacant and noted to have previously been a computer retail shop (Abiscom);
- Site buildings were of varying construction age, with some noted to be from circa 1960s/1970s. External site areas were mostly concrete or asphalt/bitumen paved and used for vehicle parking and internal access;
- Various chemicals including bulk quantities of engine oil, transmission fluids, waste oils, lubricants, cleaning chemicals, used car batteries, etc. were noted to be kept on site, observed most notably within West End Mazda Service Shop and car wash areas, and Bridgestone Select Tyre & Auto workshop; and
- The surrounding land uses included primarily commercial/industrial areas, with similar land use to those encountered on the subject site.

2.5 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the PSI/DSI. The DBYD plans indicated that a sewer main extended through the central, northern and western parts of the site in an east-west and north-south directions (Refer Figure 2). The sewer was understood to be at a depth of approximately 1.6m below ground and also extended through the neighbouring property to the east which was a car mechanics.

Considering the geological conditions, there was considered to be a potential for the sewer trench to act as a preferential pathway for contamination migration (i.e. through relatively permeable backfill). However, the DSI did not identify any contamination that was assessed to be migrating preferentially along this pathway.

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 Hawkesbury Sandstone, which typically consists of medium to coarse grained quartz sandstone with minor shale and laminite lenses. The PSI/DSI encountered fill across the entire site that extended to depths of approximately 0.3m to 2.5m, underlain by silty clay, silty sandy clay, clayey silty sand and sandstone bedrock. Hydrocarbon odours were encountered in BH101, BH104 and BH110.

2.6.2 Acid Sulfate Soil (ASS) Risk and Planning

The ASS risk map prepared by Department of Land and Water Conservation (1997)[8] were reviewed for the PSI/DSI and indicated that the site is not located within a risk area.

[8] Department of Land and Water Conservation, (1997). *1:25,000 Acid Sulfate Soil Risk Map (Series 9130S3, Ed 2)*

Council planning maps identified that the site is within a Class 5 ASS risk area. Works in a Class 5 risk area that could pose an environmental risk in terms of ASS include works within 500m of adjacent Class 1,2,3,4 land which are likely to lower the water table below 1m AHD on the adjacent Class 1,2,3,4 land. Based on the proposed development details and the proximity of the site to land with Class 1, 2, 3 or 4 acid sulfate soil risk, we are of the opinion that the proposed development will not lower the water table below 1m AHD on the adjacent Class 1,2,3,4 land. Therefore, an ASS management plan was not required.

2.6.3 Hydrogeology

Hydrogeological information presented in the PSI/DSI 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 six registered bores within the report buffer of 1,000m. In summary:

- The nearest registered bore was located approximately 77m from the site. This was utilised for industrial purposes;
- The majority of the bores were registered for monitoring purposes;
- There were no nearby bores (i.e. within 1,000m) registered for domestic or irrigation uses; and
- The drillers log information from the closest registered bores typically identified fill and/or sandy clay soil to depths of 3.0m, underlain by sandstone bedrock. Standing water level (SWL) in the closest bore was indicated to be at 10.2m below ground level (BGL).

Groundwater monitoring wells were installed in BH101 (MW101), BH105 (MW105) and BH112 (MW112) for the DSI, in addition to BH3 (MW3) and BH4 (MW4) that were installed during the PSI. Standing water levels (SWLs) measured in the monitoring wells installed at the site ranged from 1.97m to 3.24m. Groundwater RLs calculated on these measurements ranged from RL 18.28m to RL 20.14m. A contour plot was prepared for the groundwater levels for the DSI. The contour plot indicated that groundwater generally flows towards north-west.

2.6.4 Receiving Water Bodies

The site location and regional topography indicates that excess surface water flows through the site are expected to eventuate in the municipal stormwater drainage channel along the bounding streets and could potentially enter the Darling Mills Creek located approximately 250m to the west of the site and which flows into Parramatta River. This water body is considered to be the closest potential ecological receptor.

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 historically imported fill (soil). The PSI/DSI identified fill in all borehole locations, to depths ranging from approximately 0.3m to 2.5mBGL. The fill typically comprised silty sand or silty sandy gravel, silty sandy clay and silty clay with inclusions of igneous, ironstone and sandstone gravel, slag, ash, brick fragments and fragments of fibre cement (bonded material) containing asbestos.

A summary of the soil contaminants of concern that were assessed to represent a risk to receptors as part of the preliminary Tier 1 risk assessments in the PSI/DSI is provided below, along with other issues to be addressed under the RAP:

- Human health risks – Asbestos as AF/FA and as ACM was encountered at concentrations that exceeded the SAC in fill and is considered to extend across the entire site. Asbestos is considered to be the primary contaminant of concern at the site; and
- Residual hydrocarbon impacts, in the form of low TRH concentrations and odorous soils/groundwater, were identified in the western section of the site and these are considered most likely to be associated with the former service station. Although there were no exceedances of the SAC that were deemed to pose a risk and remediation was not considered to be required for hydrocarbon impacts, excavation works in this area may encounter odorous material and this will need to be considered as part of the construction.

The contaminant exceedances of the SAC are shown on Figure 3 in Appendix A. It is noted that ecological risks associated with TRH F3 in BH104 and benzo(a)pyrene in BH106 (as shown on Figure 3) were assessed to be low and acceptable based on the proposed extent of excavation and paved surfaces associated with the new development.

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 contamination source is the historically imported fill (soil). The fill may have been imported with asbestos or may have been impacted due to historical demolition of former structures at the site. The primary contaminant of concern from a remediation standpoint is asbestos in the form of ACM and AF/FA.
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 adults in a commercial land use scenario), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, primarily in a commercial land use scenario.
Exposure pathways	The exposure pathway for asbestos includes inhalation of airborne asbestos fibres.
Evaluation of data gaps	Inspections of the site following removal of pavements and during excavation is required to assess any indicators of hydrocarbon contamination, in particular in the west section of the site. 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. 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)[9] 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)[10] 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.

[9] Western Australian (WA) Department of Health (DoH), (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2009)

[10] 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.	Not applicable. There are no available treatment methods to remove asbestos in the form of AF/FA in soil. Treatment of soil by picking/removal of fragments of bonded ACM may be possible. However, this is not considered to be valid considering the extent of the excavation required to construct the lower ground floor level, or considering the clayey nature of the soil which would make treatment difficult.
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, as noted above.
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 the areas that fall outside the proposed lower ground level footprint (i.e. areas where excavation is not proposed). In-situ capping is also applicable within the western extent of the proposed lower ground level as the complete removal of fill from these areas is not required to achieve the required development design levels. Risks associated with asbestos can be adequately mitigated by eliminating contact with the material via physical barriers.

Option	Discussion	Assessment/Applicability
Option 4 **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 the fill in the proposed lower ground level footprint that would be removed by default in order to achieve the required development design levels. Not considered to be applicable for all fill outside the proposed lower ground level footprint and within the western extent of the lower ground level. Attempting to remove all fill from the entire site risks damaging adjoining structures. This is also potentially cost-prohibitive in the context of the proposed development and is not commensurate with the level of risk posed by the contamination.
Option 5 **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 4 (excavation and off-site disposal), applicable to the proposed lower ground level area. Excavation for the proposed lower ground level will remove all fill, with the possible exception of the west section of this area, and hence is expected to remove the contamination from this area. This strategy aligns with the expected excavation and construction requirements; and
- Option 3/5 (in-situ capping and long-term management of the capped areas via an LTEMP), applicable to the remaining site areas that fall outside the proposed lower ground level footprint and the western extent of the lower ground floor level. Excavation/removal of all fill from these areas is not practicable and is not considered to be commensurate with the level of risk posed by the contamination. 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.

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 (Burbot Properties Pty Ltd) and their Project Manager (Greenwich Projects). 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[11] 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.
Site Auditor	Louise Walkden of Ramboll Australia has been appointed at the site auditor for the project. The site auditor will review the information provided by the validation consultant, including the site validation report and LTEMP.

[11] 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/the proposed lower ground floor and validation of this process; and
- Capping works, including installation of visual marker layers over the remaining fill in the areas outside the lower ground level footprint, 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. The consultant should 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
		In the proposed lower ground level footprint, this will include excavation to remove all fill (with the possible exception of the western end) and expose the surface of the underlying natural soil. In all other areas of the site (i.e. outside of the proposed lower ground level footprint), 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> Following completion of the fill excavation/removal, 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 lower ground level footprint, where fill is to remain, and any areas within the lower ground level footprint where all fill is not removed to achieve the required design levels. 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. In the event a borrow pit is created for storage of fill, the capping specification below will apply to the borrow pit, same as for any other remaining fill.

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 marker[12] layer over the contaminated fill; • Clean imported (validated) basecourse, as required based on the engineering specification; and • At least 100mm of pavement material (i.e. concrete), or construction of the above ground feature.
Other areas with non-continuous hardstand (e.g. tiled areas, paving/pavers etc.)	Installation of: • Geotextile 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	Installation of: • Geotextile marker layer over the contaminated fill;

[12] The purpose of the geotextile 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^
plantings, garden beds etc) and turfed areas This excludes any planting that occurs in planter boxes above pavements	• 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 marker layer over the contaminated fill. This must be secured to the geotextile 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 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 sewer that extends 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 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 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 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.

Step	Primary Role/ Responsibility	Procedure
3.	Remediation contractor	Post-Capping Survey of site levels: 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.

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 (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)[13] 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.

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.

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

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. the majority of the lower ground level footprint, and any areas outside the lower ground floor footprint where the fill is removed by default because the minimum capping thickness cannot be achieved), 500ml soil samples are to be collected from the surface (i.e the top 10mm) of natural soils at the base of the excavation, on a 10m x 10m grid. For any separate/segregated areas that are smaller than 100m^2, sampling is to occur at a rate of at least one sample per separate area, or on a 5m x 5m grid (whichever is greater). Samples are to be analysed for asbestos (500ml NEPM 2013 analysis).

The validation consultant is do document the excavation photographically and confirm that all fill was removed. A soil description of each sample is to be recorded.

The validation consultant/licensed asbestos assessor must undertake an asbestos clearance and provide an asbestos clearance certificate.

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)[14] (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.

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

We note that natural soil in the west section of the site is unlikely to be excavated for the proposed development. It is likely that this soil has been impacted by hydrocarbons/odours and would not meet the definition of VENM. As this material is not likely to be excavated, the potential for on-site re-use has not been considered in this RAP. If this material is to be excavated for a borrow pit, further assessment for waste classification will be required, however, as noted above, this material is very unlikely to be classified as VENM and, therefore, very limited benefit is likely to be gained through off-site disposal of this material in preference to fill.

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 is also to carry out an inspection following removal of the pavements/slabs, as noted in Section 5.3.3.

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 Excavated Natural Material (ENM)	Minimum of three samples per source/material type. ENM testing must meet the specification within the ENM Order. If the analysis is not compliant, the validation consultant	Heavy metals (as above), TRHs, BTEX, PAHs, OCPs, PCBs and asbestos (500ml quantification). As required in the ENM Order.	**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. Review of the facility's Environment Protection Licence (EPL), where relevant. Material is to be inspected by the **validation consultant** upon importation to

Aspect	Sampling	Analysis	Observations and Documentation
	must carry out an ENM assessment and prepare a report in accordance with the ENM Order/Exemption prior to material being imported.		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 and asbestos (500ml). Analysis of mulch can be limited to visual observations to confirm there are	**Remediation contractor** to provide documentation from the supplier confirming the product specification. This must include a description of the Australian 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.

Aspect	Sampling	Analysis	Observations and Documentation
		no anthropogenic materials.	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	Lower ground level excavation area or any other areas that will expose natural soil: - AF/FA <0.001%w/w (based on the Health Screening Level in Schedule B1 of NEPM 2013); and - No visible ACM.
Natural Soil Waste Classification	Waste: in accordance with the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2014)[15]. Additionally, VENM is defined in the Protection of the Environment Operations Act (1997)[16] as material: • 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.

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

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

Validation Aspect	VAC
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)[17]. 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.

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

[17] 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

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 natural soil and 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 lower ground level footprint, 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 asbestos validation, 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, excluding sample batches associated only with asbestos validation), analysed for the same analytical suite as the primary samples excluding asbestos;
- Trip spike samples (one per batch, excluding sample batches associated only with asbestos validation), analysed for BTEX; and
- Rinsate samples (one per batch, excluding sample batches associated only with asbestos validation), 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 that fall outside the lower ground level footprint and 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 and endorsement by the site auditor.

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. Subsequently, a summary SAQP is to be prepared and issued to the site auditor for review and comment;
- Following the auditor's approval of the summary SAQP, 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 – Lower Ground Level Footprint

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 validation sample obtained from the surface of the natural ground following removal of the overlying fill exceeds the VAC, 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 natural material (VENM) excavated 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.

Considering the extent of remediation (Section 3.3) and based on the assumption that fill will be required to be excavated for either the proposed development or remediation from approximately the eastern two thirds of the site (3,400m^2), it is estimated that there may be in the order of 2,000m^3 of fill to be excavated and contained within the borrow pit. This should be confirmed by a quantity survey and factored into the design and preparation of the RWP.

7.5 Remediation Strategy Changes

Any material change to the proposed remediation strategy will require revision of the RAP and further review and endorsement by the Auditor.

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 in friable (AF/FA) and non-friable (ACM), based on the definitions of asbestos forms detailed in NEPM 2013.

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. The asbestos in-ground should be noted as an addendum to the existing hazardous building materials register (JKE has assumed this register would already exist due to the statutory requirements and the age of the buildings).

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	Greenwich Projects	Contact: Stephen Craig Mobile: 0413 805 273 Email: s.craig@greenwichprojects.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 MTP is to be submitted to the site auditor for review and approval. 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)[18] 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

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

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.

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.

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 EMP.

9 CONCLUSION

Investigations at the site by JKE have identified asbestos in fill above the human health-based land use criteria. Minor hydrocarbon odours are likely to be encountered during the works in the western part of the site where there was a former service station.

The remediation strategy includes excavation and off-site disposal of fill from the majority of the proposed lower ground level footprint, and the excavation and offsite disposal of fill from the areas outside the proposed lower ground level footprint only to the extent required to achieve an appropriate cap over the fill that remains in-situ in these areas. 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

Guideline / Legislation / Policy	Applicability
	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.
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 A) 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**

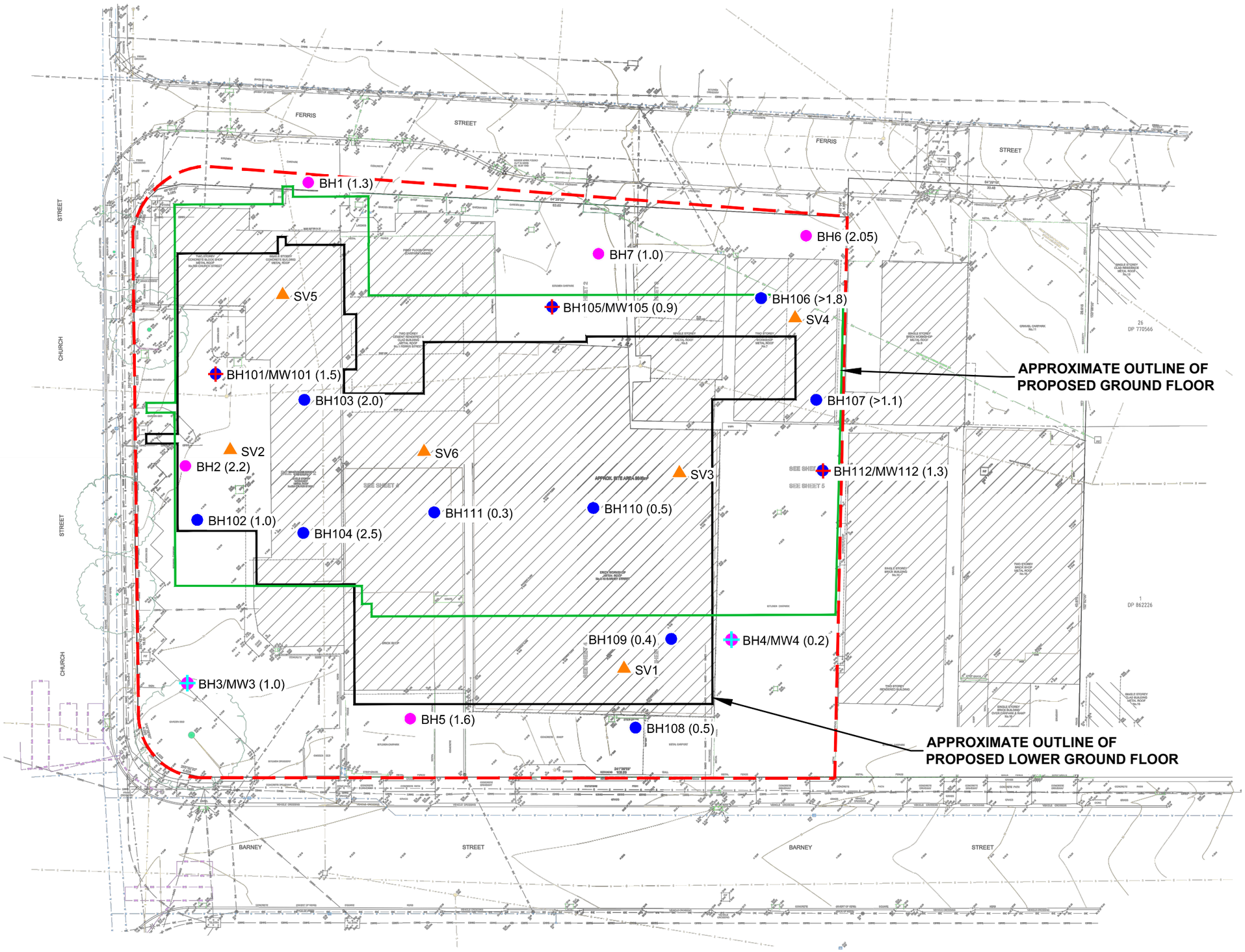
Location: 574-584 CHURCH STREET, NORTH PARRAMATTA, NSW

Project No: E33532PA

Figure No: 1

JKEnvironments

PLOT DATE: 13/10/2020 10:25:22 AM DWG FILE: Z:\5 EIS\5C EIS JOBS\33000'S\E33532PA PARRAMATTA\CAD\E33532PA.DWG



LEGEND

APPROXIMATE SITE BOUNDARY	
BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m) (PSI, JKE 2020)
BH/MW(Fill Depth)	BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m) (PSI, JKE 2020)
BH	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW	BOREHOLE AND GROUND WATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
SV	SOIL VAPOUR SAMPLING LOCATIONS

0 5 10 15 20 25
SCALE 1:500 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

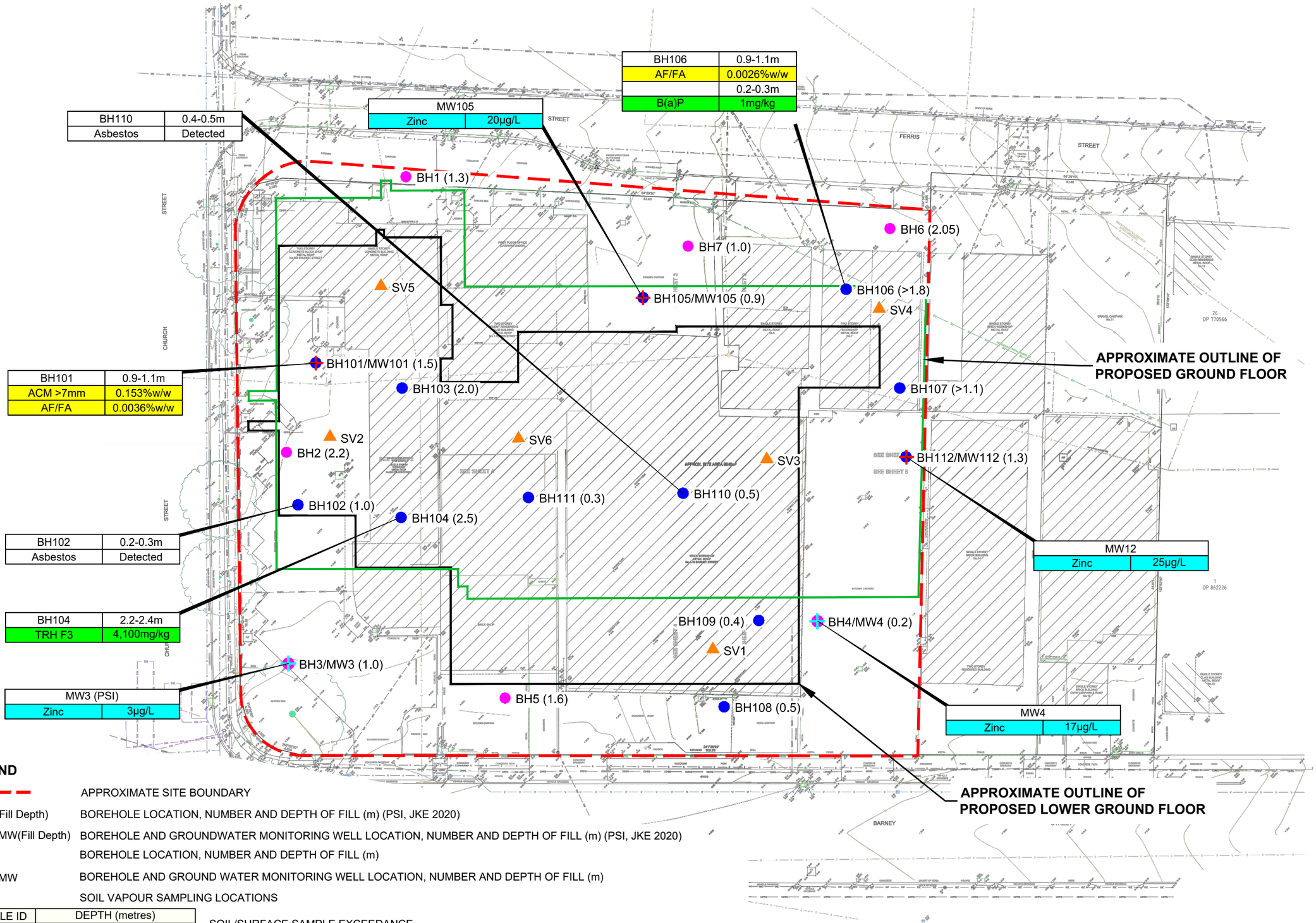
Location: 574-584 CHURCH STREET, NORTH PARRAMATTA, NSW

Project No: E33532PA

Figure No: 2

JKEnvironments

PLOT DATE: 25/06/2021 11:01:18 AM DWG FILE: Z:\5 EIS\5C EIS JOBS\33000'S\E33532PA PARRAMATTA\CAD\E33532PA.DWG



LEGEND

	APPROXIMATE SITE BOUNDARY
BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m) (PSI, JKE 2020)
BH/MW(Fill Depth)	BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m) (PSI, JKE 2020)
BH	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW	BOREHOLE AND GROUND WATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
SV	SOIL VAPOUR SAMPLING LOCATIONS

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 5 10 15 20 25
SCALE 1:500 @A3 METRES

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

Title: **SAC EXCEEDANCES PLAN**

Location: 574-584 CHURCH STREET, NORTH PARRAMATTA, NSW

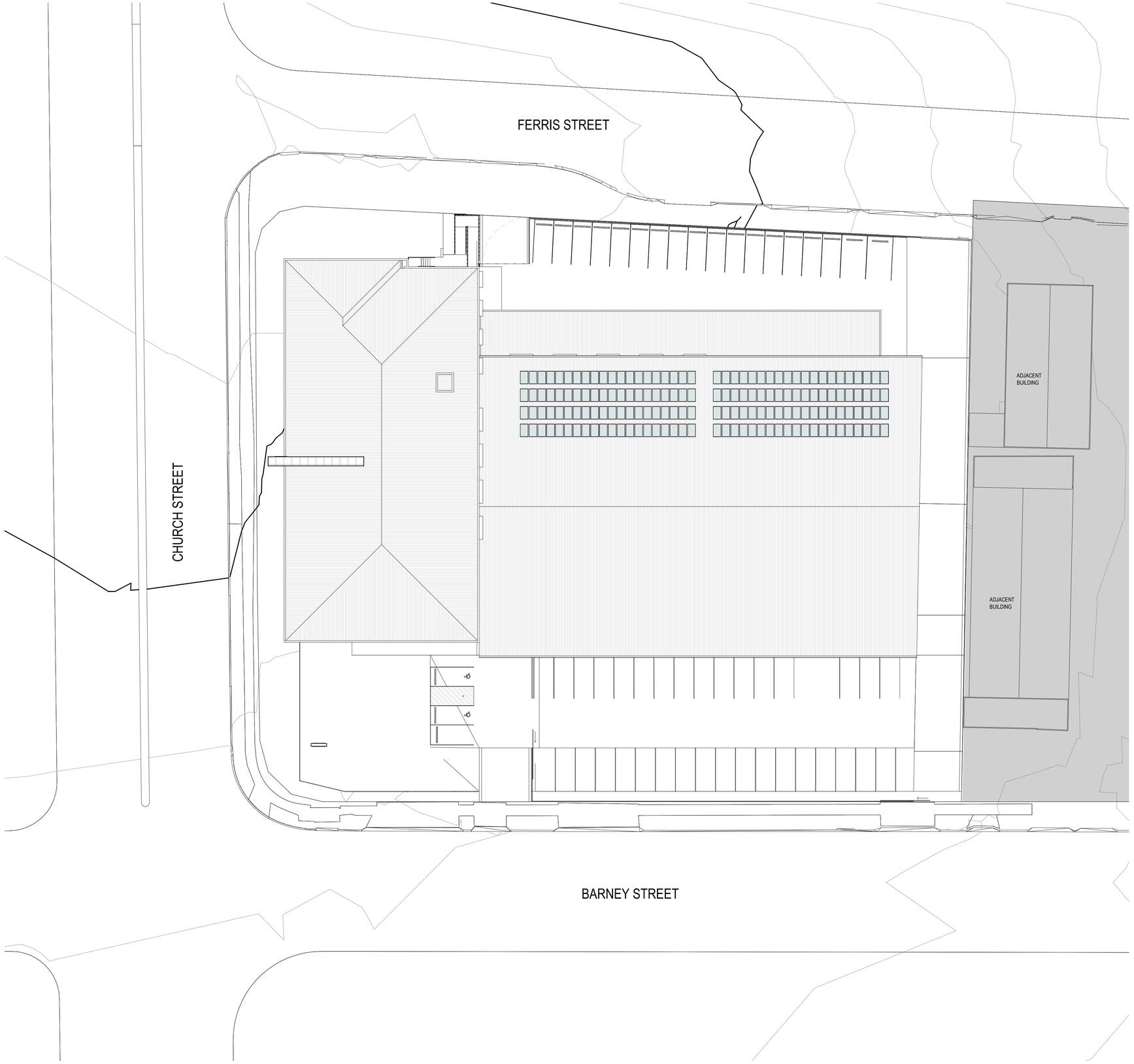
Project No: E33532PA

Figure No: 3

JKEnvironments

PLOT DATE: 30/06/2021 2:48:14 PM DWG FILE: Z:\5 EIS\5C EIS JOBS\33000\SIE33532PA PARRAMATTA\CAD\E33532PA.DWG

Appendix B: Proposed Development Plans



1 DA200 SITE PLAN 1 : 250

24/08/2020 11:53:42 AM C:_Revit\218024_WestEndMazda_C19_smurray@graypuksand.com.au.rvt

GRAY PUKSAND

Contractors to use Architectural drawings for set out.
Contractors to check & verify all Dimensions on Site prior to Construction/Fabrication.
Figured Dimensions take precedence over Scaled Dimensions.
Any Discrepancies should be immediatley referred to the Architect.
All work to comply with N.C.C. Statutory Authorities & Relevant Australian Standards.

NSW Nominated Architects Scott Moylan 7147 Craig Saltmarsh 6569

REV	DESCRIPTION	DATE
P1	PRELIMINARY ISSUE	12/02/2020
P2	PRELIMINARY ISSUE	06/04/2020
P3	PRELIMINARY SERVICES ISSUE	24/08/2020

PROJECT NO **218024**
DRAWN **Author**
CHECKED **Checker**
APPROVED **Approver**

West End Mazda Dealership

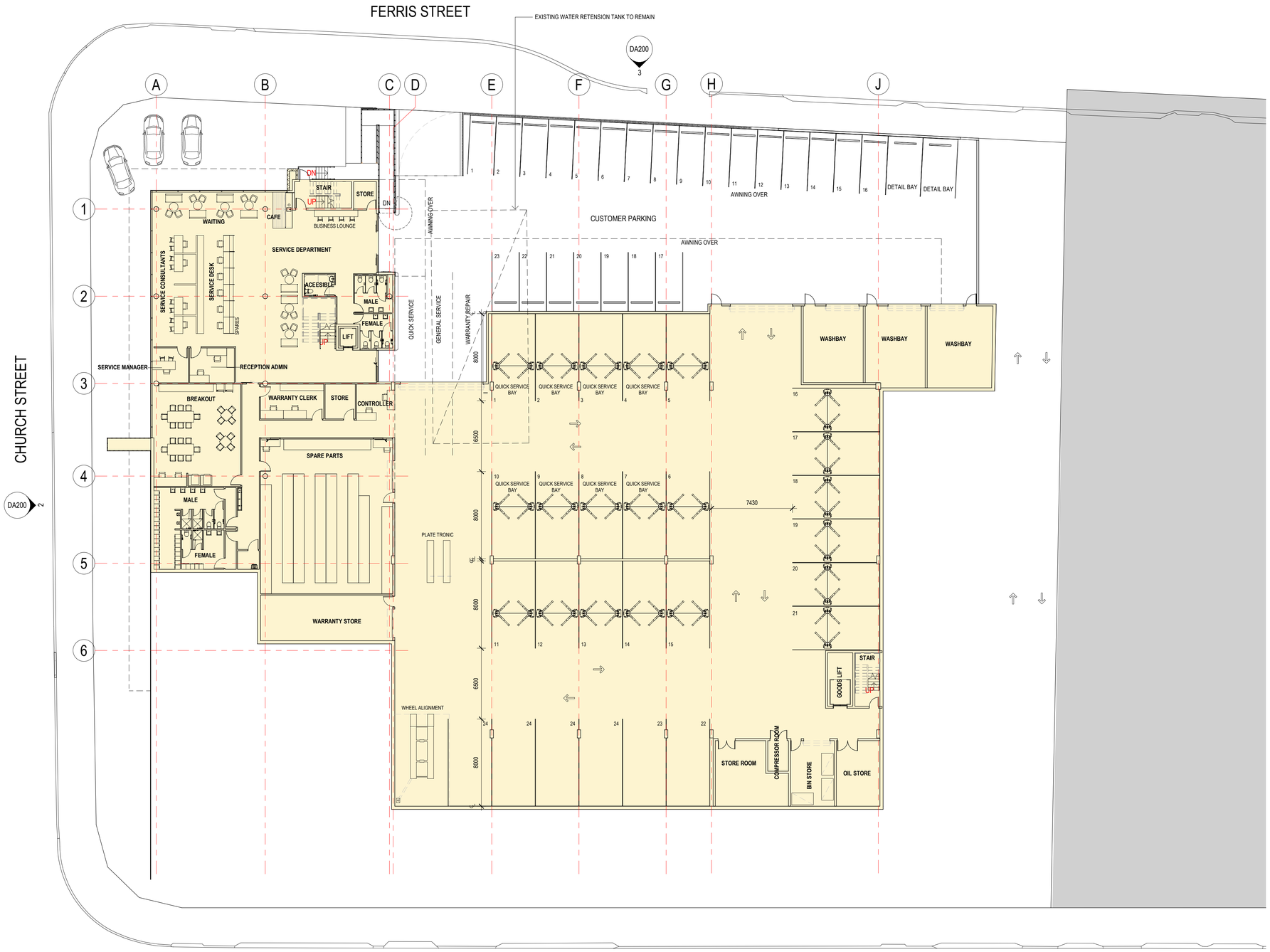
574 - 584 Church Street,
Parramatta NSW

DA APPROVAL ISSUE

SITE PLAN

DWG # **DA010** REV **P3**

SCALE @ A1 1 : 250



1 LOWER GROUND FLOOR PLAN
DA200 1 : 200

GRAY PUKSAND

Contractors to use Architectural drawings for set out.
Contractors to check & verify all Dimensions on Site prior to Construction/Fabrication.
Figured Dimensions take precedence over Scaled Dimensions.
Any Discrepancies should be immediatley referred to the Architect.
All work to comply with N.C.C, Statutory Authorities & Relevant Australian Standards.

NSW Nominated Architects Scott Moylan 7147 Craig Saltmarsh 6569

REV	DESCRIPTION	DATE
P1	PRELIMINARY ISSUE	12/02/2020
P2	PRELIMINARY ISSUE	06/04/2020
P3	PRELIMINARY SERVICES ISSUE	24/08/2020

PROJECT NO	**218024**
DRAWN	**Author**
CHECKED	**Checker**
APPROVED	**Approver**

West End Mazda Dealership

574 - 584 Church Street,
Parramatta NSW

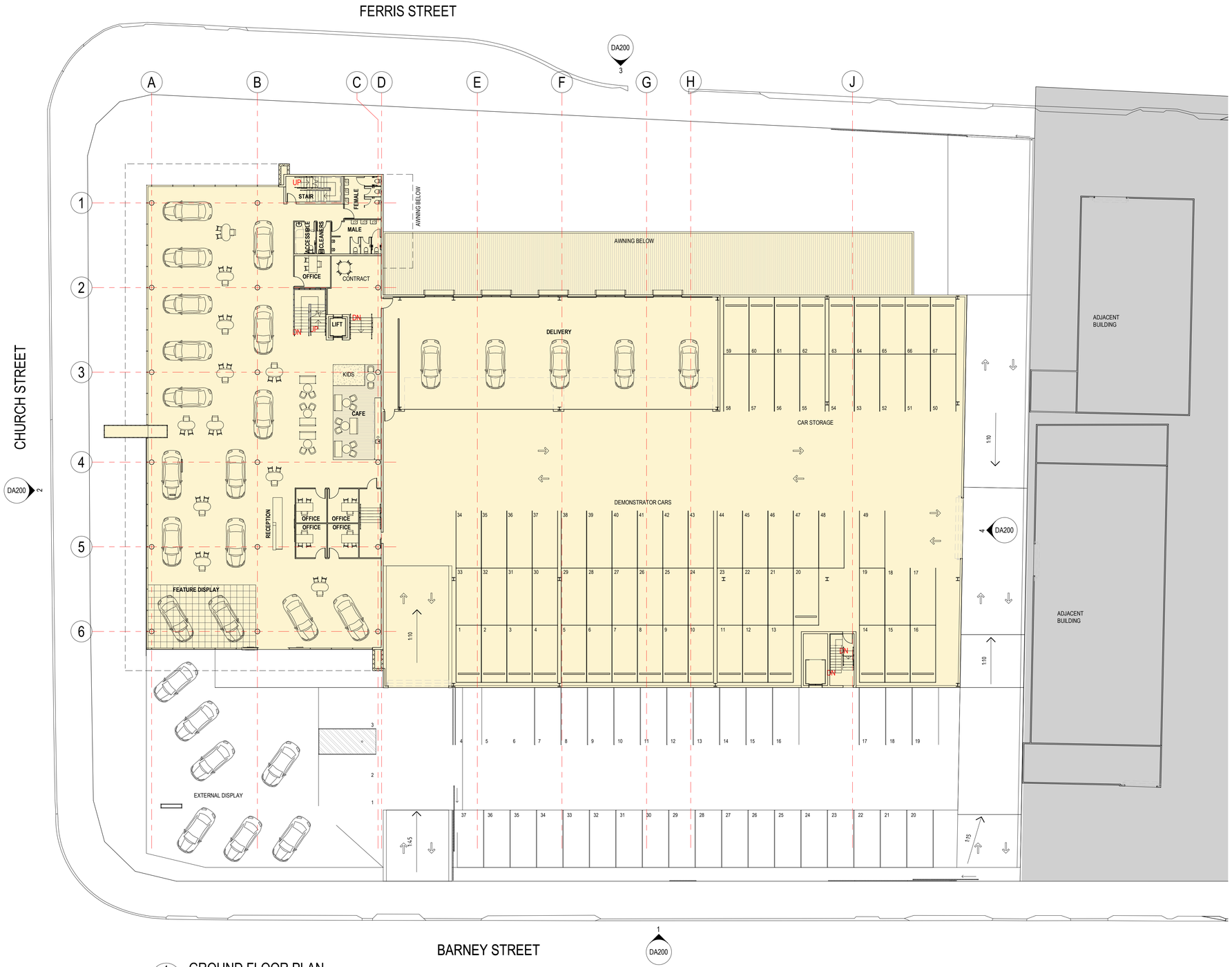
DA APPROVAL ISSUE

LOWER GROUND FLOOR PLAN

DWG # **DA100** REV **P3**

SCALE @ A1 1 : 200

24/08/2020 11:55:59 AM C:_Revit\218024_WestEndMazda_C19_smurray@graypuksand.com.au.rvt



1 DA200 GROUND FLOOR PLAN
1 : 200

REV	DESCRIPTION	DATE
P1	PRELIMINARY ISSUE	12/02/2020
P2	PRELIMINARY ISSUE	06/04/2020
P3	PRELIMINARY SERVICES ISSUE	24/08/2020

PROJECT NO	**218024**
DRAWN	**Author**
CHECKED	**Checker**
APPROVED	**Approver**

West End Mazda Dealership

574 - 584 Church Street,
Parramatta NSW

DA APPROVAL ISSUE

GROUND FLOOR PLAN

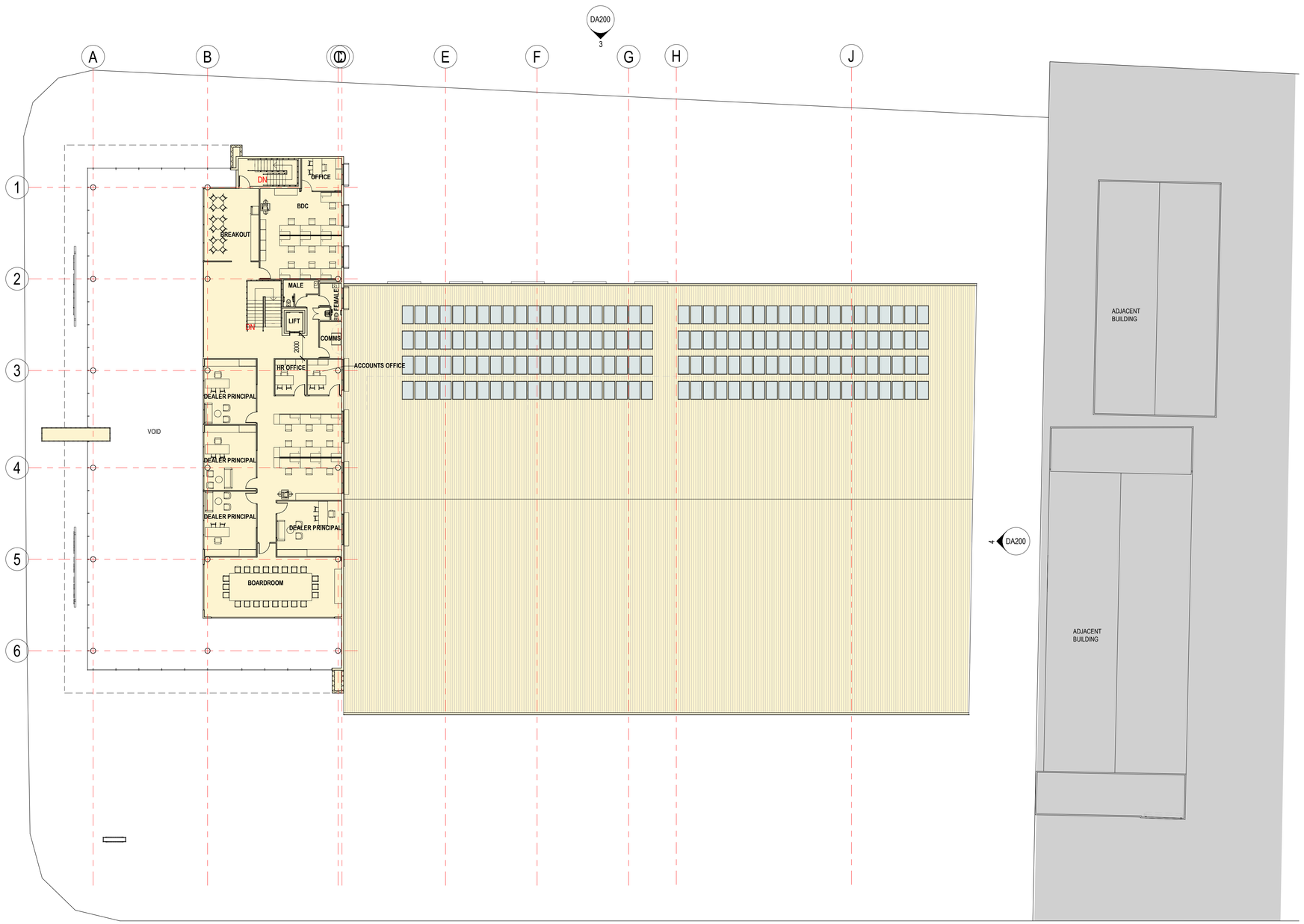
DWG # **DA101** REV **P3**

SCALE @ A1 1 : 200

FERRIS STREET

CHURCH STREET

BARNEY STREET



1 LEVEL 1 FLOOR PLAN
DA200 1 : 200

GRAY PUKSAND

Contractors to use Architectural drawings for set out.
Contractors to check & verify all Dimensions on Site prior to Construction/Fabrication.
Figured Dimensions take precedence over Scaled Dimensions.
Any Discrepancies should be immediatley referred to the Architect.
All work to comply with N.C.C. Statutory Authorities & Relevant Australian Standards.

NSW Nominated Architects Scott Moylan 7147 Craig Saltmarsh 6569

REV	DESCRIPTION	DATE
P1	PRELIMINARY ISSUE	12/02/2020
P2	PRELIMINARY ISSUE	06/04/2020
P3	PRELIMINARY SERVICES ISSUE	24/08/2020

PROJECT NO **218024**
DRAWN **Author**
CHECKED **Checker**
APPROVED **Approver**

West End Mazda Dealership

574 - 584 Church Street,
Parramatta NSW

DA APPROVAL ISSUE

LEVEL 1 FLOOR PLAN

DWG # **DA102** REV **P3**

SCALE @ A1 1 : 200

FERRIS STREET

CHURCH STREET

BARNEY STREET

3 x Eu
6 x Eu
1 x Tll
46 x Rop
4 x Mlg
Pine bark mulch to garden areas
Existing *Corymbia maculata* to be removed
T1
Selected turf to nature strip as required
T2
Existing *Angophora floribunda* to be removed
90 x Clj
24 x De
24 x By
T3
Existing *Corymbia maculata* to be removed
20 x Asu
66 x Clj
18 x De
346 x Lt
18 x By
T4
Existing *Corymbia maculata* to be removed
Selected turf to nature strip as required
Pine bark mulch to garden areas
22 x Clj
T5
Existing *Angophora floribunda* to be removed
1 x Tll
36 x Rop
7 x Clj
T6
3 x Li
T7
Selected turf to nature strip
T8
Existing *Lagestroemia indica* juvenile street trees to remain
T9
74 x Lt
38 x Asu
T10
Pine bark mulch to garden areas
T11
Cross-over to council specification
T12

RAMP UP 1:8
WAITING
UP
DN
SERVICE DEPARTMENT
SERVICE CONSULTANTS
CUSTOMER PARKING
BREAKOUT
QUICK SERVICE BAY
SPLIT IN FLOOR PLANS
SPLIT IN FLOOR PLANS
DEMONSTRATOR CARS
RECEPTION
OFFICE
OFFICE
OFFICE
OFFICE
FEATURE DISPLAY
EXTERNAL DISPLAY
HYDRANT ZONE
1:16
1:25
1:10
1:16
1:16
1:58
1:24
1:39
1:45
1:25

LEGEND

- Proposed trees - refer to plant schedule
- Proposed accents and grasses - refer to plant schedule
- Proposed shrubs - refer to plant schedule
- Proposed groundcovers and grasses - refer to plant schedule
- Turf
- Boundary
- Garden edging
- Boundary fencing
- Retaining walls
- Existing contours
- To be removed / demolished
- Existing tree to be retained
- Existing tree to be removed

REVISION	DESCRIPTION	DRAWN	CHECK	DATE
A	INITIAL PLAN ISSUED FOR COMMENT	GC	AS	02-09-20
B	ISSUE FOR DA	GC	AS	26-10-20

ecodesign outdoor living environments
po box 8136 baulkham hills nsw 2153
unit 61, 5 glastonne road castle hill nsw 2154
02 9680 7712
www.ecodesign.com.au
member of Australian Institute of Landscape Architects

1. Do not scale from drawings
2. Verify all measurements on site
3. Notify ecodesign of any inconsistencies
4. Copyright © ecodesign. All rights reserved
5. Drawing remains the property of ecodesign
6. All work to comply with relevant Australian Standards or Building Code of Australia
7. All work to be performed by a suitably qualified tradesperson
8. For application purposes only - NOT FOR CONSTRUCTION

ADDRESS: **574-584 CHURCH STREET, PARRAMATTA**

CLIENT: **GREENWICH PROJECTS**

PROJECT: WEST END MAZDA - SHOWROOM
DRAWING: SOFTWORKS PLAN
SCALE: 1:200 @ A1 | PAGE: DA | SHEET: L - 02
DRAWN: GC | CHECK: AS | DATE: 26-10-20 | REVISION: B

Appendix C: PSI/DSI Summary Data 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 VI	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**																				
BH1	0.1-0.2	F: Silty sand	**7**	**0.6**	**14**	**37**	**220**	<0.1	**8**	**220**	**2.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	**6**	**0.5**	**12**	**36**	**200**	<0.1	**8**	**210**	**3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1	0.5-0.7	F: Silty sandy clay	<4	<0.4	**15**	**19**	**140**	<0.1	**6**	**300**	**4.4**	**0.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.1-0.3	F: Sand & Silty clay	**4**	<0.4	**11**	**15**	**41**	<0.1	**9**	**46**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH2	0.5-0.6	F: Sand & Silty clay	<4	<0.4	**11**	**9**	**35**	<0.1	**9**	**50**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	2.7-2.9	Clayey silty sand	<4	<0.4	**14**	<1	**7**	<0.1	**1**	**2**	**0.61**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH3	0.1-0.2	F: Silty sand	<4	<0.4	**8**	**7**	**84**	**0.1**	**2**	**130**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH3	0.5-0.8	F: Silty sand	<4	<0.4	**10**	**5**	**47**	<0.1	**2**	**71**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH4	0.1-0.2	F: Gravelly sand	<4	<0.4	**56**	**27**	**7**	<0.1	**55**	**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
BH4	0.5-0.6	Sandy silty clay	**4**	<0.4	**14**	**4**	**34**	<0.1	**3**	**21**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH5	0.1-0.2	F: Sand	**5**	<0.4	**15**	**13**	**34**	<0.1	**13**	**51**	**0.3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	<0.1	<0.1	Not Detected
BH5	0.4-0.5	F: Sand	<4	<0.4	**10**	**14**	**130**	<0.1	**5**	**73**	**7.3**	**1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH6	0.2-0.3	F: Silty sand	<4	<0.4	**20**	**25**	**330**	<0.1	**28**	**120**	**12**	**1.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH6	0.8-1.0	F: Clayey silty sand	<4	<0.4	**16**	**13**	**67**	<0.1	**12**	**34**	**1**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH7	0.1-0.2	F: Gravelly sand	<4	<0.4	**65**	**26**	**9**	<0.1	**59**	**35**	**0.67**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	<4	<0.4	**67**	**25**	**10**	<0.1	**57**	**38**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH7	0.5-0.95	F: Silty clayey sand	<4	<0.4	**6**	<1	**10**	<0.1	**1**	**26**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP2	-	Soil Field Duplicate	**5**	<0.4	**12**	**13**	**38**	<0.1	**7**	**46**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	NA	NA	NA	NA	NA	NA	NA	NA	**0.4**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			18	18	18	18	18	18	18	18	19	19	9	9	9	9	9	9	9	9	9	7
Maximum Value			7	0.6	67	37	330	0.1	59	300	12	1.5	<PQL	<PQL	<PQL	<PQL	<PQL	0.2	<PQL	<PQL	<PQL	Not 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**								
BH1	0.1-0.2	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH1	0.5-0.7	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.8
BH2	0.1-0.3	F: Sand & Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	13.9
BH2	0.5-0.6	F: Sand & Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	24.2
BH2	2.7-2.9	Clayey silty sand	0m to <1m	Sand	<25	**76**	<0.2	<0.5	<1	<3	<1	227.4
BH3	0.1-0.2	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	2.4
BH3	0.5-0.8	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	7.8
BH4	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.7
BH4	0.5-0.6	Sandy silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.7
BH5	0.1-0.2	F: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH5	0.4-0.5	F: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH6	0.2-0.3	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH6	0.8-1.0	F: Clayey silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.8
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH7	0.5-0.95	F: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
DUP2	-	Soil Field Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	NA
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	0m to <1m	Sand	NA	NA	NA	NA	NA	NA	NA	-
Total Number of Samples					18	18	18	18	18	18	18	15
Maximum Value					<PQL	76	<PQL	<PQL	<PQL	<PQL	<PQL	227.4

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
BH1	0.1-0.2	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1	0.5-0.7	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.1-0.3	F: Sand & Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.5-0.6	F: Sand & Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	2.7-2.9	Clayey silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.1-0.2	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.5-0.8	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH4	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH4	0.5-0.6	Sandy silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH5	0.1-0.2	F: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH5	0.4-0.5	F: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH6	0.2-0.3	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH6	0.8-1.0	F: Clayey silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	0.5-0.95	F: Silty clayey sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
DUP2	-	Soil Field Duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	0m to <1m	Sand	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**				
BH1	0.1-0.2	Coarse	<25	<50	<100	<100
BH1 - [LAB_DUP]	0.1-0.2	Coarse	<25	<50	<100	<100
BH1	0.5-0.7	Coarse	<25	<50	<100	<100
BH2	0.1-0.3	Coarse	<25	<50	<100	<100
BH2	0.5-0.6	Coarse	<25	<50	<100	<100
BH2	2.7-2.9	Coarse	<25	**76**	<100	<100
BH3	0.1-0.2	Coarse	<25	<50	<100	<100
BH3	0.5-0.8	Coarse	<25	<50	<100	<100
BH4	0.1-0.2	Coarse	<25	<50	<100	**160**
BH4	0.5-0.6	Coarse	<25	<50	<100	<100
BH5	0.1-0.2	Coarse	<25	<50	<100	<100
BH5	0.4-0.5	Coarse	<25	<50	<100	<100
BH6	0.2-0.3	Coarse	<25	<50	<100	<100
BH6	0.8-1.0	Coarse	<25	<50	<100	<100
BH7	0.1-0.2	Coarse	<25	<50	**160**	**300**
BH7 - [LAB_DUP]	0.1-0.2	Coarse	<25	<50	**200**	**310**
BH7	0.5-0.95	Coarse	<25	<50	<100	<100
DUP2	-	Coarse	<25	<50	<100	<100
BH1 - [TRIPLICATE]	0.1-0.2	Coarse	NA	NA	NA	NA
Total Number of Samples			18	18	18	18
Maximum Value			<PQL	76	200	310

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)
BH1	0.1-0.2	Coarse	700	1000	3500	10000
BH1 - [LAB_DUP]	0.1-0.2	Coarse	700	1000	3500	10000
BH1	0.5-0.7	Coarse	700	1000	3500	10000
BH2	0.1-0.3	Coarse	700	1000	3500	10000
BH2	0.5-0.6	Coarse	700	1000	3500	10000
BH2	2.7-2.9	Coarse	700	1000	3500	10000
BH3	0.1-0.2	Coarse	700	1000	3500	10000
BH3	0.5-0.8	Coarse	700	1000	3500	10000
BH4	0.1-0.2	Coarse	700	1000	3500	10000
BH4	0.5-0.6	Coarse	700	1000	3500	10000
BH5	0.1-0.2	Coarse	700	1000	3500	10000
BH5	0.4-0.5	Coarse	700	1000	3500	10000
BH6	0.2-0.3	Coarse	700	1000	3500	10000
BH6	0.8-1.0	Coarse	700	1000	3500	10000
BH7	0.1-0.2	Coarse	700	1000	3500	10000
BH7 - [LAB_DUP]	0.1-0.2	Coarse	700	1000	3500	10000
BH7	0.5-0.95	Coarse	700	1000	3500	10000
DUP2	-	Coarse	700	1000	3500	10000
BH1 - [TRIPLICATE]	0.1-0.2	Coarse	--	--	--	--

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**										
BH1	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH1 - [LAB_DUP]	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
BH1	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.8**
BH2	0.1-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**13.9**
BH2	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**24.2**
BH2	2.7-2.9	<25	**76**	<100	<100	<0.2	<0.5	<1	<3	<1	**227.4**
BH3	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**2.4**
BH3	0.5-0.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**7.8**
BH4	0.1-0.2	<25	<50	<100	**160**	<0.2	<0.5	<1	<3	<1	**0.7**
BH4	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.7**
BH5	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
BH5	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
BH6	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
BH6	0.8-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH7	0.1-0.2	<25	<50	**160**	**300**	<0.2	<0.5	<1	<3	<1	**0.8**
BH7 - [LAB_DUP]	0.1-0.2	<25	<50	**200**	**310**	<0.2	<0.5	<1	<3	<1	-
BH7	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
DUP2	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	NA
BH1 - [TRIPLICATE]	0.1-0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Number of Samples		18	18	18	18	18	18	18	18	18	15
Maximum Value		<PQL	76	200	310	<PQL	<PQL	<PQL	<PQL	<PQL	227.4

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

JKEnvironments

TABLE S5
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**																				
BH1	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	**7**	**14**	**37**	**220**	**8**	**220**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	**6**	**12**	**36**	**200**	**8**	**210**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH1	0.5-0.7	F: Silty sandy clay	Coarse	NA	NA	NA	<4	**15**	**19**	**140**	**6**	**300**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.5**
BH2	0.1-0.3	F: Sand & Silty clay	Coarse	NA	NA	NA	**4**	**11**	**15**	**41**	**9**	**46**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH2	0.5-0.6	F: Sand & Silty clay	Coarse	NA	NA	NA	<4	**11**	**9**	**35**	**9**	**50**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH2	2.7-2.9	Clayey silty sand	Coarse	NA	NA	NA	<4	**14**	<1	**7**	**1**	**2**	<1	NA	<25	**76**	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH3	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	<4	**8**	**7**	**84**	**2**	**130**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH3	0.5-0.8	F: Silty sand	Coarse	NA	NA	NA	<4	**10**	**5**	**47**	**2**	**71**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH4	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	<4	**56**	**27**	**7**	**55**	**40**	<1	<0.1	<25	<50	<100	**160**	<0.2	<0.5	<1	<3	<0.05
BH4	0.5-0.6	Sandy silty clay	Coarse	NA	NA	NA	**4**	**14**	**4**	**34**	**3**	**21**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.1-0.2	F: Sand	Coarse	NA	NA	NA	**5**	**15**	**13**	**34**	**13**	**51**	<1	**0.2**	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.4-0.5	F: Sand	Coarse	NA	NA	NA	<4	**10**	**14**	**130**	**5**	**73**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.64**
BH6	0.2-0.3	F: Silty sand	Coarse	NA	NA	NA	<4	**20**	**25**	**330**	**28**	**120**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**1**
BH6	0.8-1.0	F: Clayey silty sand	Coarse	NA	NA	NA	<4	**16**	**13**	**67**	**12**	**34**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH7	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	<4	**65**	**26**	**9**	**59**	**35**	<1	<0.1	<25	<50	**160**	**300**	<0.2	<0.5	<1	<3	<0.05
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	<4	**67**	**25**	**10**	**57**	**38**	<1	<0.1	<25	<50	**200**	**310**	<0.2	<0.5	<1	<3	<0.05
BH7	0.5-0.95	F: Silty clayey sand	Coarse	NA	NA	NA	<4	**6**	<1	**10**	**1**	**26**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
DUP2	-	Soil Field Duplicate	Coarse	NA	NA	NA	**5**	**12**	**13**	**38**	**7**	**46**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.09**
Total Number of Samples				0	0	0	18	18	18	18	18	18	18	9	18	18	18	18	18	18	18	18	19
Maximum Value				NA	NA	NA	7	67	37	330	59	300	<PQL	0.2	<PQL	76	200	310	<PQL	<PQL	<PQL	<PQL	1

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
BH1	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH1	0.5-0.7	F: Silty sandy clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH2	0.1-0.3	F: Sand & Silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH2	0.5-0.6	F: Sand & Silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH2	2.7-2.9	Clayey silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH3	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH3	0.5-0.8	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH4	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH4	0.5-0.6	Sandy silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH5	0.1-0.2	F: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH5	0.4-0.5	F: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH6	0.2-0.3	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH6	0.8-1.0	F: Clayey silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH7	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH7	0.5-0.95	F: Silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
DUP2	-	Soil Field Duplicate	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72

TABLE S6
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**																									
BH1	0.1-0.2	F: Silty sand	**7**	**0.6**	**14**	**37**	**220**	<0.1	**8**	**220**	**2.1**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	**6**	**0.5**	**12**	**36**	**200**	<0.1	**8**	**210**	**3**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH1	0.5-0.7	F: Silty sandy clay	<4	<0.4	**15**	**19**	**140**	<0.1	**6**	**300**	**4.4**	**0.5**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH2	0.1-0.3	F: Sand & Silty clay	**4**	<0.4	**11**	**15**	**41**	<0.1	**9**	**46**	<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
BH2	0.5-0.6	F: Sand & Silty clay	<4	<0.4	**11**	**9**	**35**	<0.1	**9**	**50**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH2	2.7-2.9	Clayey silty sand	<4	<0.4	**14**	<1	**7**	<0.1	**1**	**2**	**0.61**	<0.05	NA	NA	NA	NA	NA	<25	**78**	<100	<100	**78**	<0.2	<0.5	<1	<3	NA
BH3	0.1-0.2	F: Silty sand	<4	<0.4	**8**	**7**	**84**	**0.1**	**2**	**130**	**0.1**	<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
BH3	0.5-0.8	F: Silty sand	<4	<0.4	**10**	**5**	**47**	<0.1	**2**	**71**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH4	0.1-0.2	F: Gravelly sand	<4	<0.4	**56**	**27**	**7**	<0.1	**55**	**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
BH4	0.5-0.6	Sandy silty clay	**4**	<0.4	**14**	**4**	**34**	<0.1	**3**	**21**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH5	0.1-0.2	F: Sand	**5**	<0.4	**15**	**13**	**34**	<0.1	**13**	**51**	**0.3**	<0.05	<0.1	<0.1	<0.1	**0.2**	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH5	0.4-0.5	F: Sand	<4	<0.4	**10**	**14**	**130**	<0.1	**5**	**73**	**7.3**	**0.64**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH6	0.2-0.3	F: Silty sand	<4	<0.4	**20**	**25**	**330**	<0.1	**28**	**120**	**12**	**1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH6	0.8-1.0	F: Clayey silty sand	<4	<0.4	**16**	**13**	**67**	<0.1	**12**	**34**	**1**	**0.2**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH7	0.1-0.2	F: Gravelly sand	<4	<0.4	**65**	**26**	**9**	<0.1	**59**	**35**	**0.67**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**170**	**170**	<0.2	<0.5	<1	<3	Not Detected
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	<4	<0.4	**67**	**25**	**10**	<0.1	**57**	**38**	**0.4**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**190**	**190**	<0.2	<0.5	<1	<3	NA
BH7	0.5-0.95	F: Silty clayey sand	<4	<0.4	**6**	<1	**10**	<0.1	**1**	**26**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
DUP2	-	Soil Field Duplicate	**5**	<0.4	**12**	**13**	**38**	<0.1	**7**	**46**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	NA	NA	NA	NA	NA	NA	NA	NA	**0.4**	**0.09**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			18	18	18	18	18	18	18	18	19	19	9	9	9	9	9	18	18	18	18	18	18	18	18	18	7
Maximum Value			7	0.6	67	37	330	0.1	59	300	12	1	<PQL	<PQL	<PQL	0.2	<PQL	<PQL	78	<PQL	190	190	<PQL	<PQL	<PQL	<PQL	Not Detected

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

TABLE S7

SOIL LABORATORY TCLP RESULTS

All data in mg/L unless stated otherwise

			Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	B(a)P
PQL - Envirolab Services			0.05	0.01	0.01	0.03	0.0005	0.02	0.001
TCLP1 - General Solid Waste			5	1	5	5	0.2	2	0.04
TCLP2 - Restricted Solid Waste			20	4	20	20	0.8	8	0.16
TCLP3 - Hazardous Waste			>20	>4	>20	>20	>0.8	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**							
BH1	0.1-0.2	F: Silty sand	<0.05	<0.01	<0.01	**0.2**	<0.0005	**0.02**	NA
BH6	0.2-0.3	F: Silty sand	<0.05	<0.01	<0.01	**1.3**	<0.0005	**0.02**	<0.001
BH7	0.1-0.2	F: Gravelly sand	<0.05	<0.01	<0.01	<0.03	<0.0005	**0.04**	NA
Total Number of samples			3	3	3	3	3	3	1
Maximum Value			<PQL	<PQL	<PQL	1.30	<PQL	0.04	<PQL

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

TABLE S8
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
	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*
	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*
Intra	BH2	0.1-0.3	<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
laboratory	DUP2	-	<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
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
	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

			HCB	alpha- BHC	gamma- BHC	beta- BHC	Heptachlor	delta- BHC	Aldrin	Heptachlor Epoxide	Gamma- Chlordane	alpha- chlordane	Endosulfan I	pp- DDE	Dieldrin	Endrin	pp- DDD	Endosulfan II	pp- DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Intra	BH2	0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	DUP2	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc

			Azinphos-methyl (Guthion)	Bromophos-ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	Total PCBS	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra	BH2	0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4	<0.4	11	15	41	<0.1	9	46
laboratory	DUP2	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	<0.4	12	13	38	<0.1	7	46
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	4.5	nc	11.5	14	39.5	nc	8	46
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	22%	nc	9%	14%	8%	nc	25%	0%

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			
			MW3	MW3 - [LAB_DUP]	MW4	WDUP1
Inorganic Compounds and Parameters						
pH		6.5 - 8.5	NA	NA	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	NA	NA	NA	NA
Turbidity (NTU)		NSL	NA	NA	NA	NA
Metals and Metalloids						
Arsenic (As III)	1	24	<1	<1	<1	<1
Cadmium	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Chromium (SAC for Cr III adopted)	1	3.3	<1	<1	<1	<1
Copper	1	1.4	<1	<1	<1	<1
Lead	1	3.4	<1	<1	<1	<1
Total Mercury (inorganic)	0.05	0.06	<0.05	<0.05	<0.05	<0.05
Nickel	1	11	**2**	**2**	**4**	**2**
Zinc	1	8	**9**	**9**	**11**	**9**
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	**9**	**11**	**7**	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	180	<1	<1	<1	NA
1,3-dichloropropane	1	1100	<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-tetrachloroethane	1	400	<1	<1	<1	NA
o-xylene	1	350	<1	<1	<1	NA
1,2,3-trichloropropane	1	NSL	<1	<1	<1	NA
Isopropylbenzene	1	30	<1	<1	<1	NA
Bromobenzene	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
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			
			MW3	MW3 - [LAB_DUP]	MW4	WDUP1
Inorganic Compounds and Parameters						
pH		6.5 - 8.5	NA	NA	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	NA	NA	NA	NA
Turbidity (NTU)		NSL	NA	NA	NA	NA
Metals and Metalloids						
Arsenic (As III)	1	100	<1	<1	<1	<1
Cadmium	0.1	20	<0.1	<0.1	<0.1	<0.1
Chromium (total)	1	500	<1	<1	<1	<1
Copper	1	20000	<1	<1	<1	<1
Lead	1	100	<1	<1	<1	<1
Total Mercury (inorganic)	0.05	10	<0.05	<0.05	<0.05	<0.05
Nickel	1	200	**2**	**2**	**4**	**2**
Zinc	1	30000	**9**	**9**	**11**	**9**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)						
Benzene	1	10	<1	<1	<1	<1
Toluene	1	8000	<1	<1	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	<2
o-xylene	1	NSL	<1	<1	<1	<1
Total xylenes	2	6000	<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	3	<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	300	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	600	<1	<1	<1	NA
1,1-dichloroethane	1	NSL	<1	<1	<1	NA
Cis-1,2-dichloroethene	1	600	<1	<1	<1	NA
Bromochloromethane	1	2500	<1	<1	<1	NA
Chloroform	1		**9**	**11**	**7**	NA
2,2-dichloropropane	1	NSL	<1	<1	<1	NA
1,2-dichloroethane	1	30	<1	<1	<1	NA
1,1,1-trichloroethane	1	NSL	<1	<1	<1	NA
1,1-dichloropropene	1	NSL	<1	<1	<1	NA
Cyclohexane	1	NSL	<1	<1	<1	NA
Carbon tetrachloride	1	30	<1	<1	<1	NA
Benzene	1	10	<1	<1	<1	NA
Dibromomethane	1	NSL	<1	<1	<1	NA
1,2-dichloropropane	1	NSL	<1	<1	<1	NA
Trichloroethene	1	NSL	<1	<1	<1	NA
Bromodichloromethane	1	NSL	<1	<1	<1	NA
trans-1,3-dichloropropene	1	1000	<1	<1	<1	NA
cis-1,3-dichloropropene	1	1000	<1	<1	<1	NA
1,1,2-trichloroethane	1	NSL	<1	<1	<1	NA
Toluene	1	8000	<1	<1	<1	NA
1,3-dichloropropane	1	NSL	<1	<1	<1	NA
Dibromochloromethane	1	NSL	<1	<1	<1	NA
1,2-dibromoethane	1	NSL	<1	<1	<1	NA
Tetrachloroethene	1	500	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	NA
Chlorobenzene	1	3000	<1	<1	<1	NA
Ethylbenzene	1	3000	<1	<1	<1	NA
Bromoform	1	NSL	<1	<1	<1	NA
m+p-xylene	2	NSL	<2	<2	<2	NA
Styrene	1	300	<1	<1	<1	NA
1,1,2,2-tetrachloroethane	1	NSL	<1	<1	<1	NA
o-xylene	1	NSL	<1	<1	<1	NA
1,2,3-trichloropropane	1	NSL	<1	<1	<1	NA
Isopropylbenzene	1	NSL	<1	<1	<1	NA
Bromobenzene	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	200	<1	<1	<1	NA
Sec-butyl benzene	1	NSL	<1	<1	<1	NA
1,4-dichlorobenzene	1	400	<1	<1	<1	NA
4-isopropyl toluene	1	NSL	<1	<1	<1	NA
1,2-dichlorobenzene	1	15000	<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	300	<1	<1	<1	NA
1,2,3-trichlorobenzene	1		<1	<1	<1	NA
Hexachlorobutadiene	1	7	<1	<1	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	0.2	NSL	<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	NSL	<0.1	NA	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1
Fluoranthene	0.1	NSL	<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 G3
GROUNDWATER LABORATORY RESULTS COMPARED TO SITE SPECIFIC HSLs - RISK ASSESSMENT
All results in µg/L unless stated otherwise.

	PQL	NHMRC	WHO 2008	USEPA RSL	SAMPLES			
	Envirolab Services	ADWG 2011 (v3.5 2018)		Tapwater 2017	MW3	MW3 - [LAB_DUP]	MW4	WDUP1
Total Recoverable Hydrocarbons (TRH)								
C_6-C_9 Aliphatics (assessed using F1)	10	-	15000	-	<10	<10	<10	<10
>C_9-C_{14} Aliphatics (assessed using F2)	50	-	100	-	<50	NA	<50	<50
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)								
Benzene	1	1	-	-	<1	<1	<1	<1
Toluene	1	800	-	-	<1	<1	<1	<1
Ethylbenzene	1	300	-	-	<1	<1	<1	<1
Total xylenes	2	600	-	-	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	1	-	-	6.1	<1	<1	<1	<1
Volatile Organic Compounds (VOCs), including chlorinated VOCs								
Dichlorodifluoromethane	10	-	-	-	<10	<10	<10	NA
Chloromethane	10	-	-	-	<10	<10	<10	NA
Vinyl Chloride	10	0.3	-	-	<10	<10	<10	NA
Bromomethane	10	-	-	-	<10	<10	<10	NA
Chloroethane	10	-	-	-	<10	<10	<10	NA
Trichlorofluoromethane	10	-	-	-	<10	<10	<10	NA
1,1-Dichloroethene	1	30	-	-	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	60	-	-	<1	<1	<1	NA
1,1-dichloroethane	1	-	-	-	<1	<1	<1	NA
Cis-1,2-dichloroethene	1	60	-	-	<1	<1	<1	NA
Bromochloromethane	1	250	-	-	<1	<1	<1	NA
Chloroform	1		-	-	**9**	**11**	**7**	NA
2,2-dichloropropane	1	-	-	-	<1	<1	<1	NA
1,2-dichloroethane	1	3	-	-	<1	<1	<1	NA
1,1,1-trichloroethane	1	-	-	-	<1	<1	<1	NA
1,1-dichloropropene	1	-	-	-	<1	<1	<1	NA
Cyclohexane	1	-	-	-	<1	<1	<1	NA
Carbon tetrachloride	1	3	-	-	<1	<1	<1	NA
Benzene	1	1	-	-	<1	<1	<1	NA
Dibromomethane	1	-	-	-	<1	<1	<1	NA
1,2-dichloropropane	1	-	-	-	<1	<1	<1	NA
Trichloroethene	1	-	-	-	<1	<1	<1	NA
Bromodichloromethane	1	-	-	-	<1	<1	<1	NA
trans-1,3-dichloropropene	1	100	-	-	<1	<1	<1	NA
cis-1,3-dichloropropene	1	100	-	-	<1	<1	<1	NA
1,1,2-trichloroethane	1	-	-	-	<1	<1	<1	NA
Toluene	1	800	-	-	<1	<1	<1	NA
1,3-dichloropropane	1	-	-	-	<1	<1	<1	NA
Dibromochloromethane	1	-	-	-	<1	<1	<1	NA
1,2-dibromoethane	1	-	-	-	<1	<1	<1	NA
Tetrachloroethene	1	50	-	-	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	-	-	-	<1	<1	<1	NA
Chlorobenzene	1	300	-	-	<1	<1	<1	NA
Ethylbenzene	1	300	-	-	<1	<1	<1	NA
Bromoform	1	-	-	-	<1	<1	<1	NA
m+p-xylene	2	-	-	-	<2	<2	<2	NA
Styrene	1	30	-	-	<1	<1	<1	NA
1,1,2,2-tetrachloroethane	1	-	-	-	<1	<1	<1	NA
o-xylene	1	-	-	-	<1	<1	<1	NA
1,2,3-trichloropropane	1	-	-	-	<1	<1	<1	NA
Isopropylbenzene	1	-	-	-	<1	<1	<1	NA
Bromobenzene	1	-	-	-	<1	<1	<1	NA
n-propyl benzene	1	-	-	-	<1	<1	<1	NA
2-chlorotoluene	1	-	-	-	<1	<1	<1	NA
4-chlorotoluene	1	-	-	-	<1	<1	<1	NA
1,3,5-trimethyl benzene	1	-	-	-	<1	<1	<1	NA
Tert-butyl benzene	1	-	-	-	<1	<1	<1	NA
1,2,4-trimethyl benzene	1	-	-	-	<1	<1	<1	NA
1,3-dichlorobenzene	1	20	-	-	<1	<1	<1	NA
Sec-butyl benzene	1	-	-	-	<1	<1	<1	NA
1,4-dichlorobenzene	1	40	-	-	<1	<1	<1	NA
4-isopropyl toluene	1	-	-	-	<1	<1	<1	NA
1,2-dichlorobenzene	1	1500	-	-	<1	<1	<1	NA
n-butyl benzene	1	-	-	-	<1	<1	<1	NA
1,2-dibromo-3-chloropropane	1	-	-	-	<1	<1	<1	NA
1,2,4-trichlorobenzene	1	30	-	-	<1	<1	<1	NA
1,2,3-trichlorobenzene	1		-	-	<1	<1	<1	NA
Hexachlorobutadiene	1	7	-	-	<1	<1	<1	NA

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

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	MW3	<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	2	9
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	<0.1	<1	<1	<1	<0.05	2	9
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	nc	nc	nc	nc	nc	2	9
	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	nc	nc	nc	nc	0%	0%
Field	TB-W1	<10	-	-	-	<1	<1	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blank	23/09/2020																																
Trip	TS-W1	-	-	-	-	89%	102%	110%	108%	114%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Spike	23/09/2020																																

Result outside of QA/QC acceptance criteria Value

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.

JKEnvironments

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	TOTAL Phenolics	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	5	100
Site Assessment Criteria (SAC)			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	240000	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																					
BH1	0.1-0.2	F: Silty sand	**7**	**0.6**	**14**	**37**	**220**	<0.1	**8**	**220**	**2.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	**6**	**0.5**	**12**	**36**	**200**	<0.1	**8**	**210**	**3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
BH1	0.5-0.7	F: Silty sandy clay	<4	<0.4	**15**	**19**	**140**	<0.1	**6**	**300**	**4.4**	**0.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.1-0.3	F: Sand & Silty clay	**4**	<0.4	**11**	**15**	**41**	<0.1	**9**	**46**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH2	0.5-0.6	F: Sand & Silty clay	<4	<0.4	**11**	**9**	**35**	<0.1	**9**	**50**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	2.7-2.9	Clayey silty sand	<4	<0.4	**14**	<1	**7**	<0.1	**1**	**2**	**0.61**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH3	0.1-0.2	F: Silty sand	<4	<0.4	**8**	**7**	**84**	**0.1**	**2**	**130**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH3	0.5-0.8	F: Silty sand	<4	<0.4	**10**	**5**	**47**	<0.1	**2**	**71**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH4	0.1-0.2	F: Gravelly sand	<4	<0.4	**56**	**27**	**7**	<0.1	**55**	**40**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH4	0.5-0.6	Sandy silty clay	**4**	<0.4	**14**	**4**	**34**	<0.1	**3**	**21**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH5	0.1-0.2	F: Sand	**5**	<0.4	**15**	**13**	**34**	<0.1	**13**	**51**	**0.3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	<0.1	<0.1	NA	Not Detected
BH5	0.4-0.5	F: Sand	<4	<0.4	**10**	**14**	**130**	<0.1	**5**	**73**	**7.3**	**1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH6	0.2-0.3	F: Silty sand	<4	<0.4	**20**	**25**	**330**	<0.1	**28**	**120**	**12**	**1.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH6	0.8-1.0	F: Clayey silty sand	<4	<0.4	**16**	**13**	**67**	<0.1	**12**	**34**	**1**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH7	0.1-0.2	F: Gravelly sand	<4	<0.4	**65**	**26**	**9**	<0.1	**59**	**35**	**0.67**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	<4	<0.4	**67**	**25**	**10**	<0.1	**57**	**38**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
BH7	0.5-0.95	F: Silty clayey sand	<4	<0.4	**6**	<1	**10**	<0.1	**1**	**26**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP2	-	ield Dup of BH2 [0.1-0.3	**5**	<0.4	**12**	**13**	**38**	<0.1	**7**	**46**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	NA	NA	NA	NA	NA	NA	NA	NA	**0.4**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH101	0.16-0.3	F: Silty sand	<4	<0.4	**7**	**6**	**13**	<0.1	**3**	**12**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH101 - Lab Replicate	0.16-0.3	F: Silty sand	<4	<0.4	**6**	**5**	**12**	<0.1	**2**	**14**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
BH101	0.9-1.1	F: Silty sand	<4	<0.4	**12**	**7**	**38**	**0.2**	**4**	**59**	**2.2**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
BH101	4.0-4.1	Silty sandy clay	NA	NA	NA	NA	**7**	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102	0.2-0.5	F: Silty sand	<4	<0.4	**5**	**15**	**55**	**0.1**	**3**	**62**	**0.56**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH102 - Lab Replicate	0.2-0.5	F: Silty sand	<4	<0.4	**5**	**11**	**35**	<0.1	**2**	**42**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
BH102	0.8-1.0	F: Silty sandy clay	<4	<0.4	**7**	**2**	**12**	<0.1	**2**	**7**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH103	0.18-0.4	F: Silty sand	<4	<0.4	**8**	**3**	**13**	<0.1	**2**	**13**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH103	0.5-0.8	F: Silty clay	**9**	<0.4	**13**	**10**	**28**	<0.1	**3**	**34**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH104	0.15-0.4	F: Silty sandy clay	**4**	<0.4	**11**	**12**	**36**	<0.1	**9**	**60**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH104	0.6-0.8	F: Silty sandy clay	**4**	<0.4	**13**	**9**	**34**	<0.1	**4**	**48**	**4.4**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH104	2.5-2.7	Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH105	0.1-0.3	F: Gravelly sand	**7**	<0.4	**30**	**14**	**47**	**0.1**	**25**	**48**	**0.71**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH105	0.4-05	F: Silty clayey sand	<4	<0.4	**8**	**2**	**12**	<0.1	**4**	**9**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH106	0.16-0.3	F: Silty clay	<4	<0.4	**25**	**40**	**10**	<0.1	**40**	**88**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH106	0.9-1.1	F: Silty clay	<4	<0.4	**13**	**12**	**95**	<0.1	**4**	**31**	**2**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
BH107	0.12-0.3	F: Silty sandy clay	**41**	<0.4	**5**	**3**	**14**	<0.1	**1**	**26**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH107 - Lab Replicate	0.12-0.3	F: Silty sandy clay	**37**	<0.4	**10**	**2**	**15**	<0.1	**1**	**26**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
BH107	0.55-0.75	F: Silty sandy clay	**8**	<0.4	**12**	**3**	**15**	<0.1	**2**	**28**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH108	0.15-0.4	F: Silty clay	**19**	<0.4	**21**	**13**	**36**	<0.1	**16**	**28**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH108	0.5-0.7	Silty clay	<4	<0.4	**11**	**4**	**9**	<0.1	**5**	**5**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH109	0.13-0.25	F: Silty sand	<4	<0.4	**10**	**51**	**2**	<0.1	**65**	**26**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH109	0.3-0.4	F: Silty clay	**10**	<0.4	**20**	**15**	**21**	<0.1	**26**	**45**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH110	0.13-0.25	F: Silty sand	<4	<0.4	**6**	**22**	**2**	<0.1	**24**	**20**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH110 - Lab Replicate	0.13-0.25	F: Silty sand	<4	<0.4	**7**	**21**	**2**	<0.1	**29**	**21**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
BH110	0.4-0.5	F: Silty clay	<4	<0.4	**23**	**9**	**45**	<0.1	**15**	**18**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
BH111	0.12-0.3	F: Silty Clay	<4	<0.4	**14**	**54**	**6**	<0.1	**56**	**34**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH112	0.12-0.3	F: Silty clayey sand	<4	<0.4	**19**	**5**	**5**	<0.1	**12**	**9**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	Not Detected
BH112 - Lab Replicate	0.12-0.3	F: Silty clayey sand	<4	<0.4	**8**	<1	**5**	<0.1	**2**	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
BH112	0.5-0.65	Sandy silty clay	<4	<0.4	**21**	<1	**17**	<0.1	**5**	**10**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP100	-	F: Silty sand	<4	<0.4	**7**	**6**	**12**	<0.1	**3**	**13**	**0.67**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP105	-	F: Silty sand	<4	<0.4	**8**	**30**	**2**	<0.1	**37**	**24**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102 - Lab Triplicate	0.2-0.5	F: Silty sand	<4	<0.4	**6**	**14**	**47**	<0.1	**2**	**59**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH107 - Lab Triplicate	0.12-0.3	F: Silty sandy clay	**40**	<0.4	**6**	**3**	**19**	<0.1	**1**	**31**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH112 - Lab Triplicate	0.12-0.3	F: Silty clayey sand	<4	<0.4	**8**	<1	**5**	<0.1	**1**	**2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102-FCF1	0.2-0.8	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
BH106-FCF1	0.5-0.6	Fragment	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			51	51	51	51	52	51	51	51	50	50	26	26	26	26	26	26	26	26	26	5	28
Maximum Value			41	0.6	67	54	330	0.2	65	300	12	1.5	<PQL	<PQL	<PQL	<PQL	<PQL	0.2	<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**								
BH1	0.1-0.2	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH1	0.5-0.7	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.8
BH2	0.1-0.3	F: Sand & Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	13.9
BH2	0.5-0.6	F: Sand & Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	24.2
BH2	2.7-2.9	Clayey silty sand	0m to <1m	Sand	<25	**76**	<0.2	<0.5	<1	<3	<1	227.4
BH3	0.1-0.2	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	2.4
BH3	0.5-0.8	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	7.8
BH4	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.7
BH4	0.5-0.6	Sandy silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.7
BH5	0.1-0.2	F: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH5	0.4-0.5	F: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH6	0.2-0.3	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH6	0.8-1.0	F: Clayey silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.8
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH7	0.5-0.95	F: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
DUP2	-	Field Dup of BH2 [0.1-0.3]	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	NA
BH101	0.16-0.3	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH101 - Lab Replicate	0.16-0.3	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH101	0.9-1.1	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH101	3.0-3.1	Silty sandy clay	0m to <1m	Sand	<25	**100**	<0.2	<0.5	<1	<3	<1	7
BH101	4.0-4.1	Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	38
BH101	5.0-5.1	Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH102	0.2-0.5	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.3
BH102 - Lab Replicate	0.2-0.5	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.3
BH102	0.8-1.0	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.4
BH103	0.18-0.4	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH103	0.5-0.8	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.2
BH103	1.5-1.7	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.8
BH104	0.15-0.4	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.2
BH104	0.6-0.8	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.2
BH104	2.2-2.4	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	3.3
BH104	2.5-2.7	Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.8
BH105	0.1-0.3	F: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH105	0.4-05	F: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1
BH106	0.16-0.3	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH106	0.9-1.1	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH107	0.12-0.3	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH107 - Lab Replicate	0.12-0.3	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH107	0.55-0.75	F: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH108	0.15-0.4	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.9
BH108	0.5-0.7	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.7
BH109	0.13-0.25	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.2
BH109	0.3-0.4	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.2
BH110	0.13-0.25	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH110 - Lab Replicate	0.13-0.25	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH110	0.4-0.5	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	2.9
BH110	0.5-0.7	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	1.4
BH111	0.12-0.3	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH112	0.12-0.3	F: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH112 - Lab Replicate	0.12-0.3	F: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH112	0.5-0.65	Sandy silty clay	0m to <1m	Sand	<25	**120**	<0.2	<0.5	<1	<3	<1	0
SDUP100	-	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
SDUP104	-	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP105	-	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples					56	56	56	56	56	56	56	51
Maximum Value					<PQL	120	<PQL	<PQL	<PQL	<PQL	<PQL	227.4

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
BH1	0.1-0.2	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1	0.5-0.7	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.1-0.3	F: Sand & Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.5-0.6	F: Sand & Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	2.7-2.9	Clayey silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.1-0.2	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.5-0.8	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH4	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH4	0.5-0.6	Sandy silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH5	0.1-0.2	F: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH5	0.4-0.5	F: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH6	0.2-0.3	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH6	0.8-1.0	F: Clayey silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	0.5-0.95	F: Silty clayey sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
DUP2	-	Field Dup of BH2 [0.1-0.3]	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH101	0.16-0.3	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH101 - Lab Replicate	0.16-0.3	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH101	0.9-1.1	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH101	3.0-3.1	Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH101	4.0-4.1	Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH101	5.0-5.1	Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH102	0.2-0.5	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH102 - Lab Replicate	0.2-0.5	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH102	0.8-1.0	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH103	0.18-0.4	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH103	0.5-0.8	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH103	1.5-1.7	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH104	0.15-0.4	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH104	0.6-0.8	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH104	2.2-2.4	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH104	2.5-2.7	Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH105	0.1-0.3	F: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH105	0.4-05	F: Silty clayey sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH106	0.16-0.3	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH106	0.9-1.1	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH107	0.12-0.3	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH107 - Lab Replicate	0.12-0.3	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH107	0.55-0.75	F: Silty sandy clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH108	0.15-0.4	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH108	0.5-0.7	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH109	0.13-0.25	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH109	0.3-0.4	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH110	0.13-0.25	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH110 - Lab Replicate	0.13-0.25	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH110	0.4-0.5	F: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH110	0.5-0.7	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH111	0.12-0.3	F: Silty Clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH112	0.12-0.3	F: Silty clayey sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH112 - Lab Replicate	0.12-0.3	F: Silty clayey sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH112	0.5-0.65	Sandy silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP100	-	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP104	-	F: Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP105	-	F: Silty 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**				
BH1	0.1-0.2	Coarse	<25	<50	<100	<100
BH1 - [LAB_DUP]	0.1-0.2	Coarse	<25	<50	<100	<100
BH1	0.5-0.7	Coarse	<25	<50	<100	<100
BH2	0.1-0.3	Coarse	<25	<50	<100	<100
BH2	0.5-0.6	Coarse	<25	<50	<100	<100
BH2	2.7-2.9	Coarse	<25	**76**	<100	<100
BH3	0.1-0.2	Coarse	<25	<50	<100	<100
BH3	0.5-0.8	Coarse	<25	<50	<100	<100
BH4	0.1-0.2	Coarse	<25	<50	<100	**160**
BH4	0.5-0.6	Coarse	<25	<50	<100	<100
BH5	0.1-0.2	Coarse	<25	<50	<100	<100
BH5	0.4-0.5	Coarse	<25	<50	<100	<100
BH6	0.2-0.3	Coarse	<25	<50	<100	<100
BH6	0.8-1.0	Coarse	<25	<50	<100	<100
BH7	0.1-0.2	Coarse	<25	<50	**160**	**300**
BH7 - [LAB_DUP]	0.1-0.2	Coarse	<25	<50	**200**	**310**
BH7	0.5-0.95	Coarse	<25	<50	<100	<100
DUP2	-	Coarse	<25	<50	<100	<100
BH101	0.16-0.3	Coarse	<25	<50	<100	<100
BH101 - Lab Replicate	0.16-0.3	Coarse	<25	<50	<100	<100
BH101	0.9-1.1	Coarse	<25	<50	<100	<100
BH101	3.0-3.1	Fine	<25	**100**	<100	<100
BH101	4.0-4.1	Fine	<25	<50	<100	<100
BH101	5.0-5.1	Fine	<25	<50	<100	<100
BH102	0.2-0.5	Coarse	<25	<50	<100	<100
BH102 - Lab Replicate	0.2-0.5	Coarse	<25	<50	<100	<100
BH102	0.8-1.0	Fine	<25	<50	<100	<100
BH103	0.18-0.4	Coarse	<25	<50	<100	<100
BH103	0.5-0.8	Coarse	<25	<50	<100	<100
BH103	1.5-1.7	Coarse	<25	<50	**130**	**110**
BH104	0.15-0.4	Fine	<25	<50	<100	<100
BH104	0.6-0.8	Fine	<25	<50	<100	<100
BH104	2.2-2.4	Fine	<25	<50	**4100**	**1700**
BH104	2.5-2.7	Fine	<25	<50	**530**	**300**
BH105	0.1-0.3	Coarse	<25	<50	<100	<100
BH105	0.4-05	Coarse	<25	<50	<100	<100
BH106	0.16-0.3	Fine	<25	<50	<100	<100
BH106	0.9-1.1	Fine	<25	<50	<100	<100
BH107	0.12-0.3	Fine	<25	<50	<100	<100
BH107 - Lab Replicate	0.12-0.3	Fine	<25	<50	<100	<100
BH107	0.55-0.75	Fine	<25	<50	<100	<100
BH108	0.15-0.4	Fine	<25	<50	<100	<100
BH108	0.5-0.7	Fine	<25	<50	<100	<100
BH109	0.13-0.25	Coarse	<25	<50	<100	<100
BH109	0.3-0.4	Fine	<25	<50	<100	<100
BH110	0.13-0.25	Coarse	<25	<50	<100	<100
BH110 - Lab Replicate	0.13-0.25	Coarse	<25	<50	<100	<100
BH110	0.4-0.5	Fine	<25	<50	<100	<100
BH110	0.5-0.7	Fine	<25	<50	<100	<100
BH111	0.12-0.3	Fine	<25	<50	<100	<100
BH112	0.12-0.3	Coarse	<25	<50	<100	<100
BH112 - Lab Replicate	0.12-0.3	Coarse	<25	<50	<100	<100
BH112	0.5-0.65	Fine	<25	**120**	<100	<100
SDUP100	-	Coarse	<25	<50	<100	<100
SDUP104	-	Coarse	<25	<50	<50	<100
SDUP105	-	Coarse	<25	<50	<100	<100
Total Number of Samples			57	57	57	57
Maximum Value			<PQL	120	4100	1700

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)
BH1	0.1-0.2	Coarse	700	1000	3500	10000
BH1 - [LAB_DUP]	0.1-0.2	Coarse	700	1000	3500	10000
BH1	0.5-0.7	Coarse	700	1000	3500	10000
BH2	0.1-0.3	Coarse	700	1000	3500	10000
BH2	0.5-0.6	Coarse	700	1000	3500	10000
BH2	2.7-2.9	Coarse	700	1000	3500	10000
BH3	0.1-0.2	Coarse	700	1000	3500	10000
BH3	0.5-0.8	Coarse	700	1000	3500	10000
BH4	0.1-0.2	Coarse	700	1000	3500	10000
BH4	0.5-0.6	Coarse	700	1000	3500	10000
BH5	0.1-0.2	Coarse	700	1000	3500	10000
BH5	0.4-0.5	Coarse	700	1000	3500	10000
BH6	0.2-0.3	Coarse	700	1000	3500	10000
BH6	0.8-1.0	Coarse	700	1000	3500	10000
BH7	0.1-0.2	Coarse	700	1000	3500	10000
BH7 - [LAB_DUP]	0.1-0.2	Coarse	700	1000	3500	10000
BH7	0.5-0.95	Coarse	700	1000	3500	10000
DUP2	-	Coarse	700	1000	3500	10000
BH101	0.16-0.3	Coarse	700	1000	3500	10000
BH101 - Lab Replicate	0.16-0.3	Coarse	700	1000	3500	10000
BH101	0.9-1.1	Coarse	700	1000	3500	10000
BH101	3.0-3.1	Fine	800	1000	5000	10000
BH101	4.0-4.1	Fine	800	1000	5000	10000
BH101	5.0-5.1	Fine	800	1000	5000	10000
BH102	0.2-0.5	Coarse	700	1000	3500	10000
BH102 - Lab Replicate	0.2-0.5	Coarse	700	1000	3500	10000
BH102	0.8-1.0	Fine	800	1000	5000	10000
BH103	0.18-0.4	Coarse	700	1000	3500	10000
BH103	0.5-0.8	Coarse	700	1000	3500	10000
BH103	1.5-1.7	Coarse	700	1000	3500	10000
BH104	0.15-0.4	Fine	800	1000	5000	10000
BH104	0.6-0.8	Fine	800	1000	5000	10000
BH104	2.2-2.4	Fine	800	1000	5000	10000
BH104	2.5-2.7	Fine	800	1000	5000	10000
BH105	0.1-0.3	Coarse	700	1000	3500	10000
BH105	0.4-05	Coarse	700	1000	3500	10000
BH106	0.16-0.3	Fine	800	1000	5000	10000
BH106	0.9-1.1	Fine	800	1000	5000	10000
BH107	0.12-0.3	Fine	800	1000	5000	10000
BH107 - Lab Replicate	0.12-0.3	Fine	800	1000	5000	10000
BH107	0.55-0.75	Fine	800	1000	5000	10000
BH108	0.15-0.4	Fine	800	1000	5000	10000
BH108	0.5-0.7	Fine	800	1000	5000	10000
BH109	0.13-0.25	Coarse	700	1000	3500	10000
BH109	0.3-0.4	Fine	800	1000	5000	10000
BH110	0.13-0.25	Coarse	700	1000	3500	10000
BH110 - Lab Replicate	0.13-0.25	Coarse	700	1000	3500	10000
BH110	0.4-0.5	Fine	800	1000	5000	10000
BH110	0.5-0.7	Fine	800	1000	5000	10000
BH111	0.12-0.3	Fine	800	1000	5000	10000
BH112	0.12-0.3	Coarse	700	1000	3500	10000
BH112 - Lab Replicate	0.12-0.3	Coarse	700	1000	3500	10000
BH112	0.5-0.65	Fine	800	1000	5000	10000
SDUP100	-	Coarse	700	1000	3500	10000
SDUP104	-	Coarse	700	1000	3500	10000
SDUP105	-	Coarse	700	1000	3500	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**										
BH1	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH1 - [LAB_DUP]	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH1	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.8**
BH2	0.1-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**13.9**
BH2	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**24.2**
BH2	2.7-2.9	<25	**76**	<100	<100	<0.2	<0.5	<1	<3	<1	**227.4**
BH3	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**2.4**
BH3	0.5-0.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**7.8**
BH4	0.1-0.2	<25	<50	<100	**160**	<0.2	<0.5	<1	<3	<1	**0.7**
BH4	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.7**
BH5	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
BH5	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
BH6	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
BH6	0.8-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH7	0.1-0.2	<25	<50	**160**	**300**	<0.2	<0.5	<1	<3	<1	**0.8**
BH7 - [LAB_DUP]	0.1-0.2	<25	<50	**200**	**310**	<0.2	<0.5	<1	<3	<1	-
BH7	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.1**
DUP2	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	NA
BH101	0.16-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH101 - Lab Replicate	0.16-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH101	0.9-1.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH101	3.0-3.1	<25	**100**	<100	<100	<0.2	<0.5	<1	<3	<1	**7**
BH101	4.0-4.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**38**
BH101	5.0-5.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH102	0.2-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.3**
BH102 - Lab Replicate	0.2-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.3**
BH102	0.8-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.4**
BH103	0.18-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH103	0.5-0.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.2**
BH103	1.5-1.7	<25	<50	**130**	**110**	<0.2	<0.5	<1	<3	<1	**0.8**
BH104	0.15-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.2**
BH104	0.6-0.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.2**
BH104	2.2-2.4	<25	<50	**4100**	**1700**	<0.2	<0.5	<1	<3	<1	**3.3**
BH104	2.5-2.7	<25	<50	**530**	**300**	<0.2	<0.5	<1	<3	<1	**0.8**
BH105	0.1-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH105	0.4-05	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1**
BH106	0.16-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH106	0.9-1.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH107	0.12-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH107 - Lab Replicate	0.12-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH107	0.55-0.75	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH108	0.15-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.9**
BH108	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.7**
BH109	0.13-0.25	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.2**
BH109	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.2**
BH110	0.13-0.25	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH110 - Lab Replicate	0.13-0.25	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH110	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**2.9**
BH110	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**1.4**
BH111	0.12-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH112	0.12-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH112 - Lab Replicate	0.12-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH112	0.5-0.65	<25	**120**	<100	<100	<0.2	<0.5	<1	<3	<1	0
SDUP100	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
SDUP104	-	<25	<50	<50	<100	<0.2	<0.5	<1	<1	<1	-
SDUP105	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples		56	56	56	56	56	56	56	56	56	51
Maximum Value		<PQL	120	4100	1700	<PQL	<PQL	<PQL	<PQL	<PQL	227.4

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

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

				LABORATORY DATA							
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								**0.05**		**0.05**	**0.001**
251706	BH1	0.1-0.2	655.03	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
251706	BH2	0.1-0.3	603.89	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
251706	BH3	0.1-0.2	424.84	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
251706	BH4	0.1-0.2	755.42	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
251706	BH5	0.1-0.2	447.87	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
251706	BH6	0.2-0.3	487.48	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
251706	BH7	0.1-0.2	556.98	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
267807	BH101	0.16-0.3	922.65	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
267807	BH101	0.9-1.1	769.45	Chrysotile asbestos detected: Organic fibres detected	No asbestos detected	1.5676	Chrysotile	1.1782	0.028	0.1531	0.0036
267807	BH105	0.1-0.3	1093.67	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
267807	BH105	0.4-05	908.81	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
267807	BH112	0.12-0.3	1118.7	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
268087	BH102	0.2-0.5	674.24	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
268087	BH102	0.8-1.0	710.26	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
268087	BH103	0.18-0.4	656.25	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
268087	BH103	0.5-0.8	555.4	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
268087	BH104	0.15-0.4	530.1	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
268087	BH106	0.16-0.3	541.43	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
268087	BH106	0.9-1.1	526.82	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	Chrysotile:Amosite	–	0.0137	<0.01	0.0026
268087	BH107	0.12-0.3	763.79	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
268087	BH108	0.15-0.4	890.78	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
268087	BH109	0.13-0.25	756.21	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
268087	BH109	0.3-0.4	634.01	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
268087	BH110	0.13-0.25	936.8	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
268087	BH110	0.4-0.5	527.09	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	Chrysotile	–	0.0041	<0.01	<0.001
268087	BH111	0.12-0.3	556.32	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**																			
BH1	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	**7**	**14**	**37**	**220**	**8**	**220**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	**6**	**12**	**36**	**200**	**8**	**210**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH1	0.5-0.7	F: Silty sandy clay	Fine	NA	NA	NA	<4	**15**	**19**	**140**	**6**	**300**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.5**
BH2	0.1-0.3	F: Sand & Silty clay	Fine	NA	NA	NA	**4**	**11**	**15**	**41**	**9**	**46**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH2	0.5-0.6	F: Sand & Silty clay	Fine	NA	NA	NA	<4	**11**	**9**	**35**	**9**	**50**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH2	2.7-2.9	Clayey silty sand	Coarse	NA	NA	NA	<4	**14**	<1	**7**	**1**	**2**	<1	NA	<25	**76**	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH3	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	<4	**8**	**7**	**84**	**2**	**130**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH3	0.5-0.8	F: Silty sand	Coarse	NA	NA	NA	<4	**10**	**5**	**47**	**2**	**71**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH4	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	<4	**56**	**27**	**7**	**55**	**40**	<1	<0.1	<25	<50	<100	**160**	<0.2	<0.5	<1	<3	<0.05
BH4	0.5-0.6	Sandy silty clay	Fine	NA	NA	NA	**4**	**14**	**4**	**34**	**3**	**21**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.1-0.2	F: Sand	Coarse	NA	NA	NA	**5**	**15**	**13**	**34**	**13**	**51**	<1	**0.2**	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.4-0.5	F: Sand	Coarse	NA	NA	NA	<4	**10**	**14**	**130**	**5**	**73**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.64**
BH6	0.2-0.3	F: Silty sand	Coarse	NA	NA	NA	<4	**20**	**25**	**330**	**28**	**120**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**1**
BH6	0.8-1.0	F: Clayey silty sand	Coarse	NA	NA	NA	<4	**16**	**13**	**67**	**12**	**34**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH7	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	<4	**65**	**26**	**9**	**59**	**35**	<1	<0.1	<25	<50	**160**	**300**	<0.2	<0.5	<1	<3	<0.05
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	<4	**67**	**25**	**10**	**57**	**38**	<1	<0.1	<25	<50	**200**	**310**	<0.2	<0.5	<1	<3	<0.05
BH7	0.5-0.95	F: Silty clayey sand	Coarse	NA	NA	NA	<4	**6**	<1	**10**	**1**	**26**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
DUP2	-	Field Dup of BH2 [0.1-0.3]	Coarse	NA	NA	NA	**5**	**12**	**13**	**38**	**7**	**46**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.09**
BH101	0.16-0.3	F: Silty sand	Coarse	NA	NA	NA	<4	**7**	**6**	**13**	**3**	**12**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH101 - Lab Replicate	0.16-0.3	F: Silty sand	Coarse	NA	NA	NA	<4	**6**	**5**	**12**	**2**	**14**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.05**
BH101	0.9-1.1	F: Silty sand	Coarse	NA	NA	NA	<4	**12**	**7**	**38**	**4**	**59**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.1**
BH101	3.0-3.1	Silty sandy clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	**100**	<100	<100	<0.2	<0.5	<1	<3	NA
BH101	4.0-4.1	Silty sandy clay	Fine	NA	NA	NA	NA	NA	NA	**7**	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH101	5.0-5.1	Silty sandy clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	NA
BH102	0.2-0.5	F: Silty sand	Coarse	NA	NA	NA	<4	**5**	**15**	**55**	**3**	**62**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.08**
BH102 - Lab Replicate	0.2-0.5	F: Silty sand	Coarse	NA	NA	NA	<4	**5**	**11**	**35**	**2**	**42**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.08**
BH102	0.8-1.0	F: Silty sandy clay	Fine	NA	NA	NA	<4	**7**	**2**	**12**	**2**	**7**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH103	0.18-0.4	F: Silty sand	Coarse	NA	NA	NA	<4	**8**	**3**	**13**	**2**	**13**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH103	0.5-0.8	F: Silty clay	Fine	NA	NA	NA	**9**	**13**	**10**	**28**	**3**	**34**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH103	1.5-1.7	F: Silty clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	**130**	**110**	<0.2	<0.5	<1	<3	NA
BH104	0.15-0.4	F: Silty sandy clay	Fine	NA	NA	NA	**4**	**11**	**12**	**36**	**9**	**60**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH104	0.6-0.8	F: Silty sandy clay	Fine	NA	NA	NA	**4**	**13**	**9**	**34**	**4**	**48**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.3**
BH104	2.2-2.4	F: Silty sandy clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	**4100**	**1700**	<0.2	<0.5	<1	<3	NA
BH104	2.5-2.7	Silty sandy clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	**530**	**300**	<0.2	<0.5	<1	<3	NA
BH105	0.1-0.3	F: Gravelly sand	Coarse	NA	NA	NA	**7**	**30**	**14**	**47**	**25**	**48**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.07**
BH105	0.4-05	F: Silty clayey sand	Coarse	NA	NA	NA	<4	**8**	**2**	**12**	**4**	**9**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH106	0.16-0.3	F: Silty clay	Fine	NA	NA	NA	<4	**25**	**40**	**10**	**40**	**88**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH106	0.9-1.1	F: Silty clay	Fine	NA	NA	NA	<4	**13**	**12**	**95**	**4**	**31**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.2**
BH107	0.12-0.3	F: Silty sandy clay	Fine	NA	NA	NA	**41**	**5**	**3**	**14**	**1**	**26**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH107 - Lab Replicate	0.12-0.3	F: Silty sandy clay	Fine	NA	NA	NA	**37**	**10**	**2**	**15**	**1**	**26**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH107	0.55-0.75	F: Silty sandy clay	Fine	NA	NA	NA	**8**	**12**	**3**	**15**	**2**	**28**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH108	0.15-0.4	F: Silty clay	Fine	NA	NA	NA	**19**	**21**	**13**	**36**	**16**	**28**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH108	0.5-0.7	Silty clay	Fine	NA	NA	NA	<4	**11**	**4**	**9**	**5**	**5**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH109	0.13-0.25	F: Silty sand	Coarse	**9.2**	**17**	NA	<4	**10**	**51**	**2**	**65**	**26**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH109	0.3-0.4	F: Silty clay	Fine	NA	NA	NA	**10**	**20**	**15**	**21**	**26**	**45**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH110	0.13-0.25	F: Silty sand	Coarse	NA	NA	NA	<4	**6**	**22**	**2**	**24**	**20**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH110 - Lab Replicate	0.13-0.25	F: Silty sand	Coarse	NA	NA	NA	<4	**7**	**21**	**2**	**29**	**21**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH110	0.4-0.5	F: Silty clay	Fine	NA	NA	NA	<4	**23**	**9**	**45**	**15**	**18**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH110	0.5-0.7	Silty clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	NA
BH111	0.12-0.3	F: Silty Clay	Fine	NA	NA	NA	<4	**14**	**54**	**6**	**56**	**34**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH112	0.12-0.3	F: Silty clayey sand	Coarse	NA	NA	NA	<4	**19**	**5**	**5**	**12**	**9**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH112 - Lab Replicate	0.12-0.3	F: Silty clayey sand	Coarse	NA	NA	NA	<4	**8**	<1	**5**	**2**	**3**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH112	0.5-0.65	Sandy silty clay	Fine	NA	NA	NA	<4	**21**	<1	**17**	**5**	**10**	<1	NA	<25	**120**	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP100	-	F: Silty sand	Coarse	NA	NA	NA	<4	**7**	**6**	**12**	**3**	**13**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	**0.05**
SDUP104	-	F: Silty sand	Coarse	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<50	<100	<0.2	<0.5	<1	<1	NA
SDUP105	-	F: Silty sand	Coarse	NA	NA	NA	<4	**8**	**30**	**2**	**37**	**24**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH102 - Lab Triplicate	0.2-0.5	F: Silty sand	Coarse	NA	NA	NA	<4	**6**	**14**	**47**	**2**	**59**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH107 - Lab Triplicate	0.12-0.3	F: Silty sandy clay	Fine	NA	NA	NA	**40**	**6**	**3**	**19**	**1**	**31**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH112 - Lab Triplicate	0.12-0.3	F: Silty clayey sand	Coarse	NA	NA	NA	<4	**8**	<1	**5**	**1**	**2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples				1	1	0	51	51	51	52	51	51	56	26	56	56	56	56	56	56	56	56	50
Maximum Value				9.2	17	NA	41	67	54	330	65	300	<PQL	0.2	<PQL	120	4100	1700	<PQL	<PQL	<PQL	<PQL	1

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
BH1	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH1	0.5-0.7	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH2	0.1-0.3	F: Sand & Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH2	0.5-0.6	F: Sand & Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH2	2.7-2.9	Clayey silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH3	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH3	0.5-0.8	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH4	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH4	0.5-0.6	Sandy silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH5	0.1-0.2	F: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH5	0.4-0.5	F: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH6	0.2-0.3	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH6	0.8-1.0	F: Clayey silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH7	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH7	0.5-0.95	F: Silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
DUP2	-	Field Dup of BH2 [0.1-0.3]	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	Coarse	NA	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.7
BH101	0.16-0.3	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH101 - Lab Replicate	0.16-0.3	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH101	0.9-1.1	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH101	3.0-3.1	Silty sandy clay	Fine	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	2500	6600	95	135	185	95	--
BH101	4.0-4.1	Silty sandy clay	Fine	NA	NA	NA	--	--	--	2000	--	--	370	--	215	170	2500	6600	95	135	185	95	0.7
BH101	5.0-5.1	Silty sandy clay	Fine	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	2500	6600	95	135	185	95	--
BH102	0.2-0.5	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH102 - Lab Replicate	0.2-0.5	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH102	0.8-1.0	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH103	0.18-0.4	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH103	0.5-0.8	F: Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH103	1.5-1.7	F: Silty clay	Fine	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	2500	6600	95	135	185	95	--
BH104	0.15-0.4	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH104	0.6-0.8	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH104	2.2-2.4	F: Silty sandy clay	Fine	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	2500	6600	95	135	185	95	--
BH104	2.5-2.7	Silty sandy clay	Fine	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	2500	6600	95	135	185	95	--
BH105	0.1-0.3	F: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH105	0.4-05	F: Silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH106	0.16-0.3	F: Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH106	0.9-1.1	F: Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH107	0.12-0.3	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH107 - Lab Replicate	0.12-0.3	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH107	0.55-0.75	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH108	0.15-0.4	F: Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH108	0.5-0.7	Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH109	0.13-0.25	F: Silty sand	Coarse	9.2	17	NA	160	320	330	2000	460	1200	370	640	215	170	1700	3300	75	135	165	180	0.7
BH109	0.3-0.4	F: Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH110	0.13-0.25	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH110 - Lab Replicate	0.13-0.25	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH110	0.4-0.5	F: Silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
BH110	0.5-0.7	Silty clay	Fine	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	2500	6600	95	135	185	95	--
BH111	0.12-0.3	F: Silty Clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	2500	6600	95	135	185	95	0.7
BH112	0.12-0.3	F: Silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH112 - Lab Replicate	0.12-0.3	F: Silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	0.7
BH112	0.5-0.65	Sandy silty clay	Fine	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	2500	6600	95	135	185	95	0.7
SDUP100	-	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
SDUP104	-	F: Silty sand	Coarse	NA	NA	NA	--	--	--	--	--	--	370	--	215	170	1700	3300	75	135	165	180	--
SDUP105	-	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	0.7
BH102 - Lab Triplicate	0.2-0.5	F: Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	--	--	--	--	--	--	--	--	--	--	--
BH107 - Lab Triplicate	0.12-0.3	F: Silty sandy clay	Fine	NA	NA	NA	160	320	110	2000	60	230	--	--	--	--	--	--	--	--	--	--	--
BH112 - Lab Triplicate	0.12-0.3	F: Silty clayey sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	--	--	--	--	--	--	--	--	--	--	--

JKEnvironments

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				Total Phenols	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	5	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	288	-
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	518	-
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	1152	-
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	2073	-
Sample Reference	**Sample Depth**	**Sample Description**																										
BH1	0.1-0.2	F: Silty sand	**7**	**0.6**	**14**	**37**	**220**	<0.1	**8**	**220**	**2.1**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH1 - [LAB_DUP]	0.1-0.2	F: Silty sand	**6**	**0.5**	**12**	**36**	**200**	<0.1	**8**	**210**	**3**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH1	0.5-0.7	F: Silty sandy clay	<4	<0.4	**15**	**19**	**140**	<0.1	**6**	**300**	**4.4**	**0.5**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH2	0.1-0.3	F: Sand & Silty clay	**4**	<0.4	**11**	**15**	**41**	<0.1	**9**	**46**	<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	Not Detected
BH2	0.5-0.6	F: Sand & Silty clay	<4	<0.4	**11**	**9**	**35**	<0.1	**9**	**50**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH2	2.7-2.9	Clayey silty sand	<4	<0.4	**14**	<1	**7**	<0.1	**1**	**2**	**0.61**	<0.05	NA	NA	NA	NA	NA	<25	**78**	<100	<100	**78**	<0.2	<0.5	<1	<3	NA	NA
BH3	0.1-0.2	F: Silty sand	<4	<0.4	**8**	**7**	**84**	**0.1**	**2**	**130**	**0.1**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH3	0.5-0.8	F: Silty sand	<4	<0.4	**10**	**5**	**47**	<0.1	**2**	**71**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH4	0.1-0.2	F: Gravelly sand	<4	<0.4	**56**	**27**	**7**	<0.1	**55**	**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	NA	Not Detected
BH4	0.5-0.6	Sandy silty clay	**4**	<0.4	**14**	**4**	**34**	<0.1	**3**	**21**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH5	0.1-0.2	F: Sand	**5**	<0.4	**15**	**13**	**34**	<0.1	**13**	**51**	**0.3**	<0.05	<0.1	<0.1	<0.1	**0.2**	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH5	0.4-0.5	F: Sand	<4	<0.4	**10**	**14**	**130**	<0.1	**5**	**73**	**7.3**	**0.64**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH6	0.2-0.3	F: Silty sand	<4	<0.4	**20**	**25**	**330**	<0.1	**28**	**120**	**12**	**1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH6	0.8-1.0	F: Clayey silty sand	<4	<0.4	**16**	**13**	**67**	<0.1	**12**	**34**	**1**	**0.2**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH7	0.1-0.2	F: Gravelly sand	<4	<0.4	**65**	**26**	**9**	<0.1	**59**	**35**	**0.67**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**170**	**170**	<0.2	<0.5	<1	<3	NA	Not Detected
BH7 - [LAB_DUP]	0.1-0.2	F: Gravelly sand	<4	<0.4	**67**	**25**	**10**	<0.1	**57**	**38**	**0.4**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**190**	**190**	<0.2	<0.5	<1	<3	NA	NA
BH7	0.5-0.95	F: Silty clayey sand	<4	<0.4	**6**	<1	**10**	<0.1	**1**	**26**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
DUP2	-	Field Dup of BH2 [0.1-0.3]	**5**	<0.4	**12**	**13**	**38**	<0.1	**7**	**46**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH1 - [TRIPLICATE]	0.1-0.2	F: Silty sand	NA	NA	NA	NA	NA	NA	NA	NA	**0.4**	**0.09**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH101	0.16-0.3	F: Silty sand	<4	<0.4	**7**	**6**	**13**	<0.1	**3**	**12**	**0.1**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH101 - Lab Replicate	0.16-0.3	F: Silty sand	<4	<0.4	**6**	**5**	**12**	<0.1	**2**	**14**	**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	<5	NA
BH101	0.9-1.1	F: Silty sand	<4	<0.4	**12**	**7**	**38**	**0.2**	**4**	**59**	**2.2**	**0.1**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Detected
BH101	3.0-3.1	Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	**97**	<100	<100	**97**	<0.2	<0.5	<1	<3	NA	NA
BH101	4.0-4.1	Silty sandy clay	NA	NA	NA	NA	**7**	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH101	5.0-5.1	Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH102	0.2-0.5	F: Silty sand	<4	<0.4	**5**	**15**	**55**	**0.1**	**3**	**62**	**0.56**	**0.08**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH102 - Lab Replicate	0.2-0.5	F: Silty sand	<4	<0.4	**5**	**11**	**35**	<0.1	**2**	**42**	**0.4**	**0.08**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	NA
BH102	0.8-1.0	F: Silty sandy clay	<4	<0.4	**7**	**2**	**12**	<0.1	**2**	**7**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH103	0.18-0.4	F: Silty sand	<4	<0.4	**8**	**3**	**13**	<0.1	**2**	**13**	<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	<5	Not Detected
BH103	0.5-0.8	F: Silty clay	**9**	<0.4	**13**	**10**	**28**	<0.1	**3**	**34**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH103	1.5-1.7	F: Silty clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	**110**	**110**	<0.2	<0.5	<1	<3	NA	NA
BH104	0.15-0.4	F: Silty sandy clay	**4**	<0.4	**11**	**12**	**36**	<0.1	**9**	**60**	<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	<5	Not Detected
BH104	0.6-0.8	F: Silty sandy clay	**4**	<0.4	**13**	**9**	**34**	<0.1	**4**	**48**	**4.4**	**0.3**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH104	2.2-2.4	F: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	**1700**	**3100**	**4800**	<0.2	<0.5	<1	<3	NA	NA
BH104	2.5-2.7	Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	**180**	**450**	**630**	<0.2	<0.5	<1	<3	NA	NA
BH105	0.1-0.3	F: Gravelly sand	**7**	<0.4	**30**	**14**	**47**	**0.1**	**25**	**48**	**0.71**	**0.07**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH105	0.4-05	F: Silty clayey sand	<4	<0.4	**8**	**2**	**12**	<0.1	**4**	**9**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH106	0.16-0.3	F: Silty clay	<4	<0.4	**25**	**40**	**10**	<0.1	**40**	**88**	<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	Not Detected
BH106	0.9-1.1	F: Silty clay	<4	<0.4	**13**	**12**	**95**	<0.1	**4**	**31**	**2**	**0.2**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Detected
BH107	0.12-0.3	F: Silty sandy clay	**41**	<0.4	**5**	**3**	**14**	<0.1	**1**	**26**	**0.1**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH107 - Lab Replicate	0.12-0.3	F: Silty sandy clay	**37**	<0.4	**10**	**2**	**15**	<0.1	**1**	**26**	<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	NA
BH107	0.55-0.75	F: Silty sandy clay	**8**	<0.4	**12**	**3**	**15**	<0.1	**2**	**28**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH108	0.15-0.4	F: Silty clay	**19**	<0.4	**21**	**13**	**36**	<0.1	**16**	**28**	<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	Not Detected
BH108	0.5-0.7	Silty clay	<4	<0.4	**11**	**4**	**9**	<0.1	**5**	**5**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH109	0.13-0.25	F: Silty sand	<4	<0.4	**10**	**51**	**2**	<0.1	**65**	**26**	<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	Not Detected
BH109	0.3-0.4	F: Silty clay	**10**	<0.4	**20**	**15**	**21**	<0.1	**26**	**45**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Not Detected
BH110	0.13-0.25	F: Silty sand	<4	<0.4	**6**	**22**	**2**	<0.1	**24**	**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	NA	Not Detected
BH110 - Lab Replicate	0.13-0.25	F: Silty sand	<4	<0.4	**7**	**21**	**2**	<0.1	**29**	**21**	<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	NA
BH110	0.4-0.5	F: Silty clay	<4	<0.4	**23**	**9**	**45**	<0.1	**15**	**18**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	Detected
BH110	0.5-0.7	Silty clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH111	0.12-0.3	F: Silty Clay	<4	<0.4	**14**	**54**	**6**	<0.1	**56**	**34**	<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	Not Detected
BH112	0.12-0.3	F: Silty clayey sand	<4	<0.4	**19**	**5**	**5**	<0.1	**12**	**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	NA	Not Detected
BH112 - Lab Replicate	0.12-0.3	F: Silty clayey sand	<4	<0.4	**8**	<1	**5**	<0.1	**2**	**3**	<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	NA
BH112	0.5-0.65	Sandy silty clay	<4	<0.4	**21**	<1	**17**	<0.1	**5**	**10**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	**70**	<100	<100	**70**	<0.2	<0.5	<1	<3	NA	NA
SDUP100	-	F: Silty sand	<4	<0.4	**7**	**6**	**12**	<0.1	**3**	**13**	**0.67**	**0.05**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
SDUP104	-	F: Silty sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA	NA
SDUP105	-	F: Silty sand	<4	<0.4	**8**	**30**	**2**	<0.1	**37**	**24**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA	NA
BH102 - Lab Triplicate	0.2-0.5	F: Silty sand	<4	<0.4	**6**	**14**	**47**	<0.1	**2**	**59**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH107 - Lab Triplicate	0.12-0.3	F: Silty sandy clay	**40**	<0.4	**6**	**3**	**19**	<0.1	**1**	**31**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH112 - Lab Triplicate	0.12-0.3	F: Silty clayey sand	<4	<0.4	**8**	<1	**5**	<0.1	**1**	**2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102-FCF1	0.2-0.8	Fragment	NA	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
BH106-FCF1	0.5-0.6	Fragment	NA	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			51	51	51	51	52	51	51	51	50	50	26	26	26	26	26	56	56	56	56	56	56	56	56	56	5	28
Maximum Value			41	0.6	67	54	330	0.2	65	300	12	1	<PQL	<PQL	<PQL	0.2	<PQL	<PQL	97	1700	3100	4800	<PQL	<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

			Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	B(a)P
PQL - Envirolab Services			0.05	0.01	0.01	0.03	0.0005	0.02	0.001
TCLP1 - General Solid Waste			5	1	5	5	0.2	2	0.04
TCLP2 - Restricted Solid Waste			20	4	20	20	0.8	8	0.16
TCLP3 - Hazardous Waste			>20	>4	>20	>20	>0.8	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**							
BH1	0.1-0.2	F: Silty sand	<0.05	<0.01	<0.01	**0.2**	<0.0005	**0.02**	NA
BH6	0.2-0.3	F: Silty sand	<0.05	<0.01	<0.01	**1.3**	<0.0005	**0.02**	<0.001
BH7	0.1-0.2	F: Gravelly sand	<0.05	<0.01	<0.01	<0.03	<0.0005	**0.04**	NA
BH109	0.13-0.25	F: Silty sand	<0.05	<0.01	<0.01	<0.03	<0.0005	**0.06**	NA
BH109	0.13-0.25	Lab duplicate	<0.05	<0.01	<0.01	<0.03	NA	**0.06**	NA
BH111	0.12-0.3	F: Silty Clay	<0.05	<0.01	<0.01	<0.03	<0.0005	**0.04**	NA
Total Number of samples			6	6	6	6	5	6	1
Maximum Value			<PQL	<PQL	<PQL	1.30	<PQL	0.06	<PQL

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

TABLE S9
SOIL VAPOUR LABORATORY RESULTS COMPARED TO HSLs
All data in mg/m^3 unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - SGS				NA	NA	0.005	0.005	0.005	0.005	0.005
PQL - Envirolab				140	90	0.01	0.01	0.001	0.001	0.001
NEPM 2013 Land Use Category				COMMERCIAL/INDUSTRIAL						
Sample Reference	**Sample Depth**	**Depth Category**	**Soil Category**							
SV1	Sub-slab	0m to <1m	Sand	NA	NA	**0.039**	**4.800**	**1.70**	**9**	**0.034**
SV2	Sub-slab	0m to <1m	Sand	NA	NA	**0.017**	**0.019**	<0.005	**0.007**	<0.005
SV3	Sub-slab	0m to <1m	Sand	NA	NA	**0.033**	**0.091**	**0.011**	**0.129**	<0.005
SV4	Sub-slab	0m to <1m	Sand	NA	NA	<0.005	**0.006**	<0.005	<0.005	<0.005
SV4 DUP	Sub-slab	0m to <1m	Sand	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
SV5	Sub-slab	0m to <1m	Sand	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
SV6	Sub-slab	0m to <1m	Sand	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
SV4 DUP - Envirolab	Sub-slab	0m to <1m	Sand	<140	**300**	<0.01	<0.01	**0.001**	**0.003**	**0.002**
Total Number of Samples				2	2	9	9	9	9	9
Maximum Value				<PQL	300	0.039	4.8	1.7	9	0.034

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

HSL SOIL VAPOUR ASSESSMENT CRITERIA

NEPM 2013 Land Use Category				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
Sample Reference	**Sample Depth**	**Depth Category**	**Soil Category**							
SV1	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV2	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV3	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV4	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV4 DUP	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV5	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV6	Sub-slab	0m to <1m	Sand	--	--	4	4800	1300	840	3
SV4 DUP - Envirolab	Sub-slab	0m to <1m	Sand	680	500	4	4800	1300	840	3

TABLE S10
SOIL VAPOUR LABORATORY RESULTS COMPARED TO INTERIM HILs FOR VOCC
All data in mg/m^3 unless stated otherwise

			TCE	1,1,1-TCA	PCE	cis 1,2 dichloro-ethene	Vinyl chloride
PQL - SGS			0.005	0.005	0.005	0.005	0.005
PQL - Envirolab			0.001	0.001	0.001	0.001	0.001
NEPM 2013 Site Assessment Criteria (SAC)			0.08	230	8	0.3	0.1
Land Use			**COMMERCIAL/INDUSTRIAL LAND USE**				
Sample Reference	**Sample Depth**	**Sample Description**					
SV1	0m to <1m	Sand	<0.02	<0.02	**0.023**	<0.02	<0.02
SV2	0m to <1m	Sand	<0.005	<0.005	**0.61**	<0.005	<0.005
SV3	0m to <1m	Sand	<0.005	<0.005	**0.013**	<0.005	<0.005
SV4	0m to <1m	Sand	<0.005	<0.005	**0.0061**	<0.005	<0.005
SV4 DUP	0m to <1m	Sand	<0.005	<0.005	<0.005	<0.005	<0.005
SV5	0m to <1m	Sand	<0.005	<0.005	**0.02**	<0.005	<0.005
SV6	0m to <1m	Sand	<0.005	<0.005	**0.0089**	<0.005	<0.005
SV4 DUP	0m to <1m	Sand	<0.001	<0.001	**0.002**	<0.001	<0.001
Total Number of Samples			8	8	8	8	8
Maximum Value			<PQL	<PQL	0.61	<PQL	<PQL

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

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

CT:	Contaminant Threshold
FTS:	Fluorotelomer sulfonic acid
NA:	Not Analysed
NC:	Not Calculated
NEMP	National Environmental Management Plan
NSL:	No Set Limit
PFAS	Per- and polyfluoroalkyl substances
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PQL:	Practical Quantitation Limit
RS:	Rinsate Sample
SAC:	Site Assessment Criteria
SCC:	Specific Contaminant Concentration
TB:	Trip Blank
TCLP:	Toxicity Characteristics Leaching Procedure
TS:	Trip Spike
UCL:	Upper Level Confidence Limit on Mean Value

Table Specific Explanations:

Groundwater Ecology Tables:

- 95% refers to a concentration that has been derived to protect 95% of aquatic species
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

Waste Classification and TCLP Table:

- Data assessed using the Addendum to the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014) -October 201

TABLE G4
SUMMARY OF PFAS CONCENTRATIONS IN GROUNDWATER - ECOLOGY
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	NEMP 2018 95% Freshwater	SAMPLES				
			MW3	MW4	MW101	MW105	MW112
PFAS Compound							
Perfluorobutanesulfonic acid	0.01	NSL	<0.01	**0.01**	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.01	NSL	<0.01	**0.03**	<0.01	<0.01	**0.02**
Perfluoroheptanesulfonic acid	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.01	0.13	<0.01	**0.03**	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	0.02	NSL	<0.02	**0.03**	<0.02	<0.02	<0.02
Perfluorohexanoic acid	0.01	NSL	<0.01	**0.04**	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	0.01	NSL	<0.01	**0.02**	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.01	220	<0.01	**0.04**	<0.01	<0.01	<0.01
Perfluorononanoic acid	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.05	NSL	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	0.5	NSL	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	0.01	NSL	<0.01	**0.01**	<0.01	<0.01	<0.01
8:2 FTS	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.05	NSL	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	0.05	NSL	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	0.5	NSL	<0.5	<0.5	<0.5	<0.5	<0.5
MePer uorooctanesulf-amid oacetic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
EtPer uorooctanesulf-amid oacetic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.01	NSL	<0.01	**0.06**	<0.01	<0.01	**0.02**
Total Positive PFOS & PFOA	0.01	NSL	<0.01	**0.08**	<0.01	<0.01	<0.01
Total Positive PFAS	0.01	NSL	<0.01	**0.22**	<0.01	<0.01	**0.02**

Positive PFAS result **Bold**
PFAS result above the SAC **Bold**

JKEnvironments

TABLE G5
SUMMARY OF PFAS CONCENTRATIONS IN GROUNDWATER - HUMAN HEALTH
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	NEMP 2020 Recreational	SAMPLES				
			MW3	MW4	MW101	MW105	MW112
PFAS Compound							
Perfluorobutanesulfonic acid	0.01	NSL	<0.01	**0.01**	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.01	NSL	<0.01	**0.03**	<0.01	<0.01	**0.02**
Perfluoroheptanesulfonic acid	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.01	NSL	<0.01	**0.03**	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	0.02	NSL	<0.02	**0.03**	<0.02	<0.02	<0.02
Perfluorohexanoic acid	0.01	NSL	<0.01	**0.04**	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	0.01	NSL	<0.01	**0.02**	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.01	5.6	<0.01	**0.04**	<0.01	<0.01	<0.01
Perfluorononanoic acid	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.05	NSL	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	0.5	NSL	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	0.01	NSL	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	0.01	NSL	<0.01	**0.01**	<0.01	<0.01	<0.01
8:2 FTS	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.05	NSL	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	0.05	NSL	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	0.5	NSL	<0.5	<0.5	<0.5	<0.5	<0.5
MePer uorooctanesulf-amid oacetic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
EtPer uorooctanesulf-amid oacetic acid	0.02	NSL	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.01	0.7	<0.01	**0.06**	<0.01	<0.01	**0.02**
Total Positive PFOS & PFOA	0.01	NSL	<0.01	**0.08**	<0.01	<0.01	<0.01
Total Positive PFAS	0.01	NSL	<0.01	**0.22**	<0.01	<0.01	**0.02**

Positive PFAS result **Bold**
PFAS result above the SAC **Bold**

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													
			MW3 - PSI	MW3- [LAB_DUP] - PSI	MW4 - PSI	MW3	MW4	MW101	MW105	MW105 - [LAB_DUP]	MW112	MW112 - [LAB_DUP]	WDUP1 - PSI	WDUP1	WDUP1 - [LAB_DUP]	WDUP3
Inorganic Compounds and Parameters																
pH		6.5 - 8.5	NA	NA	NA	6.3	5	6.3	3.1	NA	6.2	NA	NA	NA	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	NA	NA	NA	**590**	**370**	**330**	**970**	NA	**350**	NA	NA	NA	NA	NA
Metals and Metalloids																
Arsenic (As III)	1	24	<1	<1	<1	**2**	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1
Cadmium	0.1	0.2	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1
Chromium (SAC for Cr III adopted)	1	3.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1
Copper	1	1.4	<1	<1	<1	<1	**1**	<1	<1	<1	<1	NA	<1	<1	NA	<1
Lead	1	3.4	<1	<1	<1	<1	**2**	<1	<1	<1	<1	NA	<1	<1	NA	**2**
Total Mercury (inorganic)	0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Nickel	1	11	**2**	**2**	**4**	<1	**4**	<1	**3**	**2**	**3**	NA	**2**	<1	NA	**4**
Zinc	1	8	**9**	**9**	**11**	**6**	**17**	**6**	**20**	**20**	**25**	NA	**9**	**5**	NA	**13**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)																
Benzene	1	950	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	<1	<1	<1
Toluene	1	180	<1	<1	<1	<1	<1	<1	**2**	NA	<1	NA	<1	<1	<1	<1
Ethylbenzene	1	80	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	<1	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2	<2	<2	<2
o-xylene	1	350	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	<1	<1	<1
Total xylenes	2	NSL	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2	<2	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs																
Dichlorodifluoromethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Chloromethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Vinyl Chloride	10	100	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Bromomethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Chloroethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Trichlorofluoromethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
1,1-Dichloroethene	1	700	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Trans-1,2-dichloroethene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1-dichloroethane	1	90	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Cis-1,2-dichloroethene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromochloromethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Chloroform	1	370	9	11	7	<1	<1	<1	4	NA	<1	NA	NA	<1	<1	<1
2,2-dichloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dichloroethane	1	1900	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,1-trichloroethane	1	270	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1-dichloropropene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Cyclohexane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	**1**	**2**	<1
Carbon tetrachloride	1	240	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Benzene	1	950	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Dibromomethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dichloropropane	1	900	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Trichloroethene	1	330	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromodichloromethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
trans-1,3-dichloropropene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
cis-1,3-dichloropropene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,2-trichloroethane	1	6500	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Toluene	1	180	<1	<1	<1	<1	<1	<1	**2**	NA	<1	NA	NA	<1	<1	<1
1,3-dichloropropane	1	1100	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Dibromochloromethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dibromoethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Tetrachloroethene	1	70	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Chlorobenzene	1	55	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Ethylbenzene	1	80	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromoform	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	NA	<2	<2	<2
Styrene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,2,2-tetrachloroethane	1	400	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
o-xylene	1	350	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2,3-trichloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Isopropylbenzene	1	30	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromobenzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
n-propyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	**2**	**2**	<1
2-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
4-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Tert-butyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	**1**	**1**	<1
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,3-dichlorobenzene	1	260	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Sec-butyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,4-dichlorobenzene	1	60	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
4-isopropyl toluene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dichlorobenzene	1	160	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
n-butyl benzene	1	NSL	<1	<1	<1	<1	<1	**1**	<1	NA	<1	NA	NA	**3**	**3**	<1
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2,4-trichlorobenzene	1	85	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Hexachlorobutadiene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2,3-trichlorobenzene	1	3	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Polycyclic Aromatic Hydrocarbons (PAHs)																
Naphthalene	0.2	16	<0.2	NA	<0.2	<0.2	<0.2	**1**	<0.2	NA	<0.2	NA	<0.2	**0.5**	NA	<0.1
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Phenanthrene	0.1	0.6	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Anthracene	0.1	0.01	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Fluoranthene	0.1	1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2	<0.2	NA	<0.2	NA	<0.2	<0.2	NA	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Phenols																
Total Phenolics	0.05	320	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	<0.05	<0.05	<0.05

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													
			MW3 - PSI	MW3- [LAB_DUP] - PSI	MW4 - PSI	MW3	MW4	MW101	MW105	MW105 - [LAB_DUP]	MW112	MW112 - [LAB_DUP]	WDUP1 - PSI	WDUP1	WDUP1 - [LAB_DUP]	WDUP3
Inorganic Compounds and Parameters																
pH		6.5 - 8.5	NA	NA	NA	6.3	5	6.3	3.1	NA	6.2	NA	NA	NA	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	NA	NA	NA	**590**	**370**	**330**	**970**	NA	**350**	NA	NA	NA	NA	NA
Turbidity (NTU)		NSL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals and Metalloids																
Arsenic (As III)	1	100	<1	<1	<1	**2**	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1
Cadmium	0.1	20	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1
Chromium (total)	1	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1
Copper	1	20000	<1	<1	<1	<1	**1**	<1	<1	<1	<1	NA	<1	<1	NA	<1
Lead	1	100	<1	<1	<1	<1	**2**	<1	<1	<1	<1	NA	<1	<1	NA	**2**
Total Mercury (inorganic)	0.05	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Nickel	1	200	**2**	**2**	**4**	<1	**4**	<1	**3**	**2**	**3**	NA	**2**	<1	NA	**4**
Zinc	1	30000	**9**	**9**	**11**	**6**	**17**	**6**	**20**	**20**	**25**	NA	**9**	**5**	NA	**13**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)																
Benzene	1	10	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	<1	<1	<1
Toluene	1	8000	<1	<1	<1	<1	<1	<1	**2**	NA	<1	NA	<1	<1	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	<1	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2	<2	<2	<2
o-xylene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	<1	<1	<1
Total xylenes	2	6000	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2	<2	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs																
Dichlorodifluoromethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Chloromethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Vinyl Chloride	10	3	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Bromomethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Chloroethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
Trichlorofluoromethane	10	NSL	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	NA	<10	<10	<10
1,1-Dichloroethene	1	300	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Trans-1,2-dichloroethene	1	600	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1-dichloroethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Cis-1,2-dichloroethene	1	600	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromochloromethane	1	2500	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Chloroform	1		9	11	7	<1	<1	<1	4	NA	<1	NA	NA	<1	<1	<1
2,2-dichloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dichloroethane	1	30	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,1-trichloroethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1-dichloropropene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Cyclohexane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	**1**	**2**	<1
Carbon tetrachloride	1	30	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Benzene	1	10	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Dibromomethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dichloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Trichloroethene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromodichloromethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
trans-1,3-dichloropropene	1	1000	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
cis-1,3-dichloropropene	1	1000	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,2-trichloroethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Toluene	1	8000	<1	<1	<1	<1	<1	<1	**2**	NA	<1	NA	NA	<1	<1	<1
1,3-dichloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Dibromochloromethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dibromoethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Tetrachloroethene	1	500	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Chlorobenzene	1	3000	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromoform	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	NA	<2	<2	<2
Styrene	1	300	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,1,2,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
o-xylene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2,3-trichloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Isopropylbenzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Bromobenzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
n-propyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	**2**	**2**	<1
2-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
4-chlorotoluene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Tert-butyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	**1**	**1**	<1
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,3-dichlorobenzene	1	200	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Sec-butyl benzene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,4-dichlorobenzene	1	400	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
4-isopropyl toluene	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2-dichlorobenzene	1	15000	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
n-butyl benzene	1	NSL	<1	<1	<1	<1	<1	**1**	<1	NA	<1	NA	NA	**3**	**3**	<1
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2,4-trichlorobenzene	1	300	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
1,2,3-trichlorobenzene	1		<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Hexachlorobutadiene	1	7	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	NA	<1	<1	<1
Polycyclic Aromatic Hydrocarbons (PAHs)																
Naphthalene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	**1**	<0.2	NA	<0.2	NA	<0.2	**0.5**	NA	<0.1
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Phenanthrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Fluoranthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2	<0.2	NA	<0.2	NA	<0.2	<0.2	NA	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<0.1	<0.1	NA	<0.1
Phenols																
Total Phenolics	0.05	NSL	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	<0.05	<0.05	<0.05

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

TABLE G3
GROUNDWATER LABORATORY RESULTS COMPARED TO SITE SPECIFIC HSLs - RISK ASSESSMENT
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	NHMRC ADWG 2011 (v3.5 2018)	WHO 2008	USEPA RSL Tapwater 2017	SAMPLES											
					MW3 - PSI	MW3- [LAB_DUP] - PSI	MW4 - PSI	MW3	MW4	MW101	MW105	MW112	WDUP1 - PSI	WDUP1	WDUP1 - [LAB_DUP]	WDUP3
Total Recoverable Hydrocarbons (TRH)																
C_6-C_9 Aliphatics (assessed using F1)	10	-	15000	-	<10	<10	<10	<10	<10	**13**	<10	<10	<10	**120**	**120**	<10
>C_9-C_{14} Aliphatics (assessed using F2)	50	-	100	-	<50	NA	<50	<50	<50	**170**	<50	<50	<50	**110**	NA	<50
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)																
Benzene	1	1	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	1	800	-	-	<1	<1	<1	<1	<1	<1	**2**	<1	<1	<1	<1	<1
Ethylbenzene	1	300	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total xylenes	2	600	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAHs)																
Naphthalene	1	-	-	6.1	<1	<1	<1	<1	<1	**1**	<1	<1	<1	**2**	**1**	<1
Volatile Organic Compounds (VOCs), including chlorinated VOCs																
Dichlorodifluoromethane	10	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10
Chloromethane	10	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10
Vinyl Chloride	10	0.3	-	-	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10
Bromomethane	10	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10
Chloroethane	10	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10
Trichlorofluoromethane	10	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10
1,1-Dichloroethene	1	30	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Trans-1,2-dichloroethene	1	60	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,1-dichloroethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Cis-1,2-dichloroethene	1	60	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Bromochloromethane	1	250	-	-	**<1**	**<1**	**<1**	<1	<1	<1	**<1**	<1	NA	<1	<1	<1
Chloroform	1		-	-	**9**	**11**	**7**	<1	<1	<1	**4**	<1	NA	<1	<1	<1
2,2-dichloropropane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2-dichloroethane	1	3	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,1,1-trichloroethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,1-dichloropropene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Cyclohexane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	**1**	**2**	<1
Carbon tetrachloride	1	3	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Benzene	1	1	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Dibromomethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2-dichloropropane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Trichloroethene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Bromodichloromethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
trans-1,3-dichloropropene	1	100	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
cis-1,3-dichloropropene	1	100	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,1,2-trichloroethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Toluene	1	800	-	-	<1	<1	<1	<1	<1	<1	**2**	<1	NA	<1	<1	<1
1,3-dichloropropane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Dibromochloromethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2-dibromoethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Tetrachloroethene	1	50	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,1,1,2-tetrachloroethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Chlorobenzene	1	300	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Ethylbenzene	1	300	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Bromoform	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
m+p-xylene	2	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	NA	<2	<2	<2
Styrene	1	30	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,1,2,2-tetrachloroethane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
o-xylene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2,3-trichloropropane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Isopropylbenzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Bromobenzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
n-propyl benzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	**2**	**2**	<1
2-chlorotoluene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
4-chlorotoluene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,3,5-trimethyl benzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Tert-butyl benzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	**1**	**1**	<1
1,2,4-trimethyl benzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,3-dichlorobenzene	1	20	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Sec-butyl benzene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,4-dichlorobenzene	1	40	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
4-isopropyl toluene	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2-dichlorobenzene	1	1500	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
n-butyl benzene	1	-	-	-	<1	<1	<1	<1	<1	**1**	<1	<1	NA	**3**	**3**	<1
1,2-dibromo-3-chloropropane	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2,4-trichlorobenzene	1	30	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
1,2,3-trichlorobenzene	1		-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Hexachlorobutadiene	1	7	-	-	<1	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1
Phenols																
Total Phenolics	0.05	-	-	-	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05

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

TABLE G4
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**								
MW3 - PSI	2.78	0m to <2m	Sand	<10	<50	<1	<1	<1	<2	<1	10.2
MW3- [LAB_DUP] - PSI	2.78	0m to <2m	Sand	<10	NA	<1	<1	<1	<2	<1	10.2
MW4 - PSI	2.95	0m to <2m	Sand	<10	<50	<1	<1	<1	<2	<1	2
MW3	2.91	0m to <2m	Sand	<10	<50	<1	<1	<1	<2	<1	2
MW4	2.65	0m to <2m	Sand	<10	<50	<1	<1	<1	<2	<1	0.1
MW101	2.83	2m to <4m	Sand	**13**	**170**	<1	<1	<1	<2	**1**	475.1
MW105	1.97	0m to <2m	Sand	<10	<50	<1	**2**	<1	<2	<1	1
MW105 - [LAB_DUP]	1.97	0m to <2m	Sand	NA	NA	NA	NA	NA	NA	NA	1
MW112	3.24	0m to <2m	Sand	<10	<50	<1	<1	<1	<2	<1	8.2
MW112 - [LAB_DUP]	3.24	0m to <2m	Sand	NA	NA	NA	NA	NA	NA	NA	8.2
WDUP1 - PSI	2.78	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	10.2
WDUP1	2.83	2m to <4m	Sand	**120**	**110**	<1	<1	<1	<2	**2**	475.1
WDUP1 - [LAB_DUP]	2.83	2m to <4m	Sand	**120**	NA	<1	<1	<1	<2	**1**	475.1
WDUP2	2.91	0m to <2m	Sand	NA	NA	NA	NA	NA	NA	NA	2
WDUP3	2.65	0m to <2m	Sand	<10	<50	<1	<1	<1	<2	<1	0.1
Total Number of Samples				12	10	12	12	12	12	12	15
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	475.1

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
MW3 - PSI	2.78	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA
MW3- [LAB_DUP] - PSI	2.78	0m to <2m	Sand	SSA	NA	SSA	SSA	SSA	SSA	SSA
MW4 - PSI	2.95	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA
MW3	2.91	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA
MW4	2.65	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA
MW101	2.83	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
MW105	1.97	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA
MW105 - [LAB_DUP]	1.97	0m to <2m	Sand	NA	NA	NA	NA	NA	NA	NA
MW112	3.24	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA
MW112 - [LAB_DUP]	3.24	0m to <2m	Sand	NA	NA	NA	NA	NA	NA	NA
WDUP1 - PSI	2.78	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
WDUP1	2.83	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
WDUP1 - [LAB_DUP]	2.83	2m to <4m	Sand	6000	NA	5000	NL	NL	NL	NL
WDUP2	2.91	0m to <2m	Sand	NA	NA	NA	NA	NA	NA	NA
WDUP3	2.65	0m to <2m	Sand	SSA	SSA	SSA	SSA	SSA	SSA	SSA

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)