Remedial Action Plan (RAP) – Revision A

30 – 46 Auburn Road, Regents Park NSW

29 JUNE 2021

Prepared for:

30 Auburn Road Pty Ltd

2A Gregory Place
Regents Park NSW 2150

Project # SES_590

Prepared/Approved by:

Mr Adam Sullivan

Site Contamination Specialist (SC)
Certified Environmental Practitioner (CEnvP)

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Document Control

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
--	27 Feb 2021	S. Guenther	A. Sullivan	A. Sullivan	Final
A	29 Jun 2021	S. Guenther	A. Sullivan	A. Sullivan	Final - Revised (following Phase 2, 28 June 2021)

Author:

.....
Sean Guenther
Snr Environmental Consultant

Sullivan Environmental Sciences Pty Ltd

PO Box 5248
Turramurra NSW 2074
Australia
E: adam@sullivan-es.com.au
T: 0400 500 264

Peer Reviewer/
Approval:

.....
Adam Sullivan
Principal Scientist
CEnvP-SC (#40944)

Date: **29 June 2021**
Reference: SES_590
Status: Final - Revision A

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Executive Summary

30 Auburn Road Pty Ltd engaged Sullivan Environmental Sciences Pty Ltd (Sullivan-ES) to prepare a revised Remedial Action Plan (the RAP – Revision A) for remediation of identified contamination at the property known as 30 - 46 Auburn Road, Regents Park NSW; henceforth referred to as 'the site'.

It is understood that the site is proposed for future development for mixed use with retail ground floor space, high density apartments and car parking basement levels. Recent correspondence received by 30 Auburn Road Pty Ltd from the Department Planning contained conditions of an amended gateway determination requiring preparation of a RAP. The correspondence referenced Ministerial Direction 2.6 Remediation of Contaminated Land, made under Section 9.1(2) of the Environmental Planning and Assessment Act 1979:

"…to demonstrate the land can be suitable [sic] remediated for the land uses permissible under the R4 High Density Residential zone, and the method and feasibility of remediation."

In response, Sullivan-ES prepared an initial RAP (Sullivan-ES, Feb 2021) to satisfy the amended condition to the gateway determination and fulfil obligations under SEPP55 for site remediation. The initial RAP presented an overview of the remediation methodology. The preferred remedial approach in the RAP comprised two steps including:

- A Phase 2 - data gap closure - Investigation; and thereafter, subject to the findings;
- Remediate contaminated soils by– excavation and subsequent disposal offsite to a licenced landfill.

In early June 2021, Sullivan-ES was engaged to complete the investigation of data gaps and prepared a report, referred to as Detailed Phase 2 Contamination Investigation (Sullivan-ES, Jun 2021a). Minor localised areas of the site showed surface soil contamination posing potential health risks to future site users, requiring remediation to be conducted during site redevelopment works. There were no reported potential risk to current users of the site.

The preparation of this RAP – Revision A follows the Phase 2 investigation and was conducted as a requirement under NSW state planning and development regulations (SEPP55) for the consent authority to consider potential contamination when assessing a Development Application (DA). The RAP Revision A meets the requirements of the amended Gateway conditions to demonstrate the land can be made suitable for the land uses permissible under the R4 High Density Residential zone.

The RAP – Revision A has been prepared in accordance with relevant NSW EPA guidance documentation and industry standards, with sufficient detail to implement the preferred remedial strategy. The steps in remediating the site are summarised below:

- Excavate and subsequent disposal offsite to a licenced landfill.

The preferred remediation strategy presented above is considered appropriate for contamination onsite and is both technically feasible and practical to implement under the known site conditions.

Subject to the successful implementation of the remediation and validation measures detailed in this RAP – Revision A, Sullivan-ES considers the site can be rendered suitable for its intended future land use as high density residential with ground floor retail and landscaped areas, with basement level car parking.

This executive summary is subject to the Limitations of the report as stated in Section 13.

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Introduction

30 Auburn Road Pty Ltd engaged Sullivan Environmental Sciences Pty Ltd (Sullivan-ES) to prepare a revised Remedial Action Plan (the RAP – Revision A) for remediation of identified contamination at the property known as 30 - 46 Auburn Road, Regents Park NSW; henceforth referred to as 'the site'. The site location is shown on Figure 1 and the general site layout is shown on Figure 2 (**Appendix A**).

The properties comprising the site have been a combination of industrial commercial premises built prior to 1960. It is understood that the site is proposed for future development for mixed use with retail ground floor space, high density apartments and car parking basement levels. Recent correspondence received by 30 Auburn Road Pty Ltd from the Department Planning contained conditions of an amended gateway determination requiring preparation of a RAP. The correspondence referenced Ministerial Direction 2.6 Remediation of Contaminated Land, made under Section 9.1(2) of the Environmental Planning and Assessment Act 1979:

> *"…to demonstrate the land can be suitable* [sic] *remediated for the land uses permissible under the R4 High Density Residential zone, and the method and feasibility of remediation."*

In response, Sullivan-ES prepared an initial RAP (Sullivan-ES, Feb 2021) to satisfy the amended condition to the gateway determination and fulfil obligations under SEPP55 for site remediation. The initial RAP presented an overview of the remediation methodology. The preferred remedial approach comprised two steps including:

1. A Phase 2 - data gap closure – Investigation involving:
    - Verifying validation of former USTs and AST areas - #30 Auburn Rd.
    - Assess contamination status of:
        - former wash bay area and settling pit areas - #30 Auburn Rd.
        - Waste piles, drains and pits - #46 Auburn Rd.
        - beneath building footprints and site coverage – sitewide.
    - Assess contamination status of groundwater sitewide.

And subject to the findings of the data gap closure sampling:

2. Remediate contaminated soils by - Excavate and subsequent disposal offsite to a licenced landfill.

In early June 2021, Sullivan-ES was engaged to complete the investigation of data gaps as described above and prepare a report, referred to as Detailed Phase 2 Contamination Investigation (Sullivan-ES, Jun 2021a)[1], the findings of which are summarised in this RAP – Revision A.

The preparation of this RAP – Revision A follows the Phase 2 contamination investigation and was conducted as a requirement under NSW state planning and development regulations (SEPP55[2]) for the consent authority to consider potential contamination when assessing a Development Application (DA). The RAP Revision A meets the requirements of the amended Gateway conditions to demonstrate the land can be made suitable for the land uses permissible under the R4 High Density Residential zone.

1.1 Purpose of RAP

The purpose of the RAP is to satisfy the amended condition to the gateway determination and fulfil obligations under SEPP55 for site remediation by:

[1] Detailed Phase 2 Contamination Investigation, 30 - 46 Auburn Road, Regents Park NSW, 28 June 2021, Sullivan Environmental Sciences Pty Ltd.
[2] State Environmental Planning Policy No. 55 – Remediation of Land.

- documenting the revised contamination status of the site:
- summarising the contamination issues;
- examining suitable and compatible methods to remediate contamination; and
- documenting the procedures and protocols necessary to implement and validate the remediation to make the site suitable for its intended use.

1.2 Scope of Work

Our scope was to prepare a RAP in accordance with the Guidelines for Consultants Reporting on Contaminated Land (EPA 2020) and detail the following items:

- Information from past reports and the contamination status of the site.
- The site setting and current conditions of the site.
- Suitable and preferred remedial options for effective management of land contamination.
- Establish validation criteria and methodology to verify that the remediation has been completed to meet the remediation objectives.
- Regulatory compliance requirements for licensing and approvals, and an overview of worker and environmental safeguards to mitigate potential harm during the remediation.
- Establish contingency measures to address potential issues or failures of the remedial methods or safeguards.

1.3 Regulatory Framework

The RAP has been prepared with consideration to the following regulatory framework:

- Contaminated Land Management Act 1997 (NSW) (CLM Act).
- Protection of the Environment Operations Act 1997 (POEO Act).
- Protection of the Environment Operations (Waste) Regulations 2014 (POEO – Waste Regulations).
- State Environmental Planning Policy No.55 – Remediation of Land 1998 (SEPP55).
- National Environment Protection (Assessment of Site Contamination) Measure 2013 (ASC NEPM 2013).
- Consultants Reporting on Contaminated Land, 2020 (EPA 2020).
- Guidelines for the NSW Site Auditor Scheme (3rd Edition), 2017 (NSW EPA 2017).
- Waste Classification Guidelines – Part 1: Classifying Waste 2014 (NSW EPA 2014)
- Bankstown Local Environmental Plan (LEP) 2015.
- Bankstown Development Control Plan (DCP) 2015.
- Ministerial Direction 2.6 Remediation of Contaminated Land, made under *Section 9.1(2) of the Environmental Planning and Assessment Act 1979.*

A full list of reference documents is presented in Section 12.

1.4 Consultants Certification and Competency

All contamination assessment work and reporting on remediation were conducted by the professionally trained team at Sullivan-ES. The Project Team consisted of the following members:

1. Adam Sullivan who has over 23 years of experience in contaminated land assessment and remediation. Adam is a certified Site Contamination Specialist (CEnvP-SC) under the Certified Environmental Practitioner Scheme (www.cenvp.org) and has Reviewed and approved this report in the capacity as a CEnvP-SC and Principal Scientist.

2. Sean Guenther who has over 20 years of experience in contaminated land assessment and remediation and has prepared this report in his capacity as Senior Associate.

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2 Site and Environmental Setting

2.1 Site Description

The site location and site layout are shown on Figure 1 and Figure 2, respectively (**Appendix A**)

Table 2-1 Site Identification Details

Information	Details
Address	30 – 46 Auburn Road, Regents Park NSW 2143
Title Identification	Lot 1 DP 656032 (#30) Lot 2 DP 433938 (#46)
Property Area	Approximately 21,000m^2
Local Government	City of Canterbury Bankstown (formerly Bankstown LGA)
Land use zone	R4 – High Density Residential (Bankstown LEP 2015)
Land uses	Past: Commercial operations and factory warehousing and storage. Current: Commercial operations including crane hire facility, scaffold/formwork hire, furniture storage and distribution, and Sydney Construction Training School Future: mix use of high-rise apartments, commercial and associated basement carparking
Geographic Coordinates	-33.887390, 151.021942

2.2 Existing, Proposed and Surrounding Land

The site is currently zoned R4 – High Density Residential (Bankstown LEP 2015). No changes to the land zoning are proposed as part of the DA. A planning proposal has been lodged for Gateway determination to increase the maximum building heights and Floor Space Ratio (FSR).

The concept design for the site involves a number of multi-level residential high-rise buildings with ground level commercial activities and landscaping, with underlying basement carparking.

Land surrounding the site consists of:

North: Industrial commercial precinct of Gunya Street (zoned IN2 – Light Industrial).

South: Rail infrastructure (SP2) then Low Density Residential (R2) of the suburb, Birrong.

East: Auburn Road then Low Density Residential (R2) of Regents Park suburb and Magney Reserve (RE1) parkland.

West: Rail infrastructure (SP2).

2.3 Regional Soil and Geology

Review of the 1:100,000 Geological Series for the Sydney area (Sheet 9130 NSW Department of Minerals Resources, Edition 1 1983) shows that the site is situated on Triassic period Bringelly Shales

from the Wianamatta Group. Bringelly Shales consist of shale, carbonaceous claystone, laminite, fine to medium-grained lithic sandstone, with rare coal.

The soil landscape map shows that the underlying soils at the site are of the Blacktown and Birrong soil landscapes[3]. These soil groups have the following traits:

- Blacktown Soils: shallow to moderately deep (<100 cm) Red and Brown Podzolic Soils on crests, upper slopes and well-drained areas; deep (150–300 cm) Yellow Podzolic Soils and Soloths on lower slopes and in areas of poor drainage.
- Birrong Soils: deep (>250 cm) Yellow Podzolic Soils and Yellow Solodic Soils on older alluvial terraces; deep (>250 cm) Solodic Soils and Yellow Solonetz on current floodplain.

2.4 Topography and Drainage

The site sits at approx. 30-40 metres Australian Height Datum (m AHD). Blacktown topography is typified as “Gently undulating rises on Wianamatta Shale with local relief 10–30 m and slopes generally <5%, but up to 10%. Crests and ridges are broad (200–600 m) and rounded with convex upper slopes grading into concave lower slopes. Rock outcrop is absent”.

Birrong topography is typified as “Level to gently undulating alluvial floodplains with local relief <5m and slope gradients <3%. Broad concave valleys”.

Most local drainage lines in the area have been converted to lined concrete and brick channels. Generally, site drainage is directed into the local stormwater network of Regents Park which is believed to enter the upper reaches of Duck River which flows north before entering the Parramatta River.

2.5 Regional Groundwater

A search of the NSW Office of Water Registered Groundwater Bore database (accessed 22/02/2021) indicated there are four (4) registered groundwater bores within 500m of the site. Details are presented below.

Table 2-2 Registered Groundwater Bores

Bore ID	Property	Direction from Site	Installed Date	Purpose	Depth	Standing Water
GW113057	Sefton Junction Substation	Approx. 160m W	Dec 2007	Monitoring	7m	Not recorded
GW113058	Sefton Junction Substation	Approx. 160m W	Dec 2007	Monitoring	6m	Not recorded
GW113059	Sefton Junction Substation	Approx. 160m W	Dec 2007	Monitoring	6m	Not recorded
GW113060	Sefton Junction Substation	Approx. 160m W	Dec 2007	Monitoring	6m	Not recorded

Depth to groundwater on the site was measured to be between approximately 3.0 m and 6.0 m, present within weathered shale and soft shale rock. Based on the measured groundwater levels onsite, there is an inferred moderate hydraulic gradient migrating to the west from the east boundary then toward the

[3] https://www.environment.nsw.gov.au/eSpade2WebApp#

northwest and offsite. Note that representative groundwater levels are indicative given only one round of groundwater levels were collected and the limited spatial coverage across the site.

2.6 Acid Sulfate Soils

The site is not located on land that would comprise a risk from potential acid sulfate soils.

2.7 Heritage, Environmental Conservation and Terrestrial Biodiversity

The site is not located within a Heritage, Environmental Conservation or Terrestrial Biodiversity Area under the Bankstown LEP 2015.

3

Background and Site History

3.1 Site History

The following information is sourced from Sullivan-ES 2017. Site history information is accurate up to the time of the report.

30 Auburn Rd

Email Ltd had occupied the land for approximately 40 years (prior to 1997) until the site was sold in 2001. Prior to that the site was used as an industrial facility for metal fabrication and warehousing.

The land was the main manufacturing facility for Email to manufacture filtration and ventilation products from sheet metal and filter material. Warehousing, product testing, maintenance and administration were also conducted.

Email operated two Underground Storage Tanks (USTs) and an Aboveground Storage Tank (AST) for fuel storage in separate locations of the site, which have since been removed 20 years ago.

Since land ownership transferred in 2000, the following activities have occurred on 30 Auburn Rd:

- Building 1 has been continuously occupied by a wholesaler of furniture since March 2006.
- Building 2 was leased by a paper recycling business from April 2010 to November 2010.
- Subsequent to this, Building 2 was occupied in its entirety by a construction training school.
- Since August 2017, the eastern half of Building 2 and the external awning on the eastern end has been occupied for formwork storage.
- Building 3 has been continuously occupied by a manufacturer of timber furniture since February 2006.
- Eastern sealed area of Building 2 was leased out as a formwork storage yard from September 2007 until April 2011, and subsequently leased out as a parking area for the construction training school.
- North of Building 2 has been utilised by the landowner as a storage yard of containers and demountable buildings since July 2016.
- The west external area of Building 2 has been utilised by a crane company since October 2007 as a storage yard, which then evolved into a construction training school. Since that time, the tenancy has grown to incorporate other areas around Building 1 and 2.

46 Auburn Rd

The land was owned by an ice manufacturer from 1945 to 1954, indicating the site may have been used for this purpose, however aerial images show the land was not developed during this time.

The land was owned by ABC Timbers Pty Ltd from 1960 to 1987, indicating timber yard related activities.

ABC Timber & Supplies was the occupant at the time of land ownership transfer in 2002. Since that time, the following activities have occurred on 46 Auburn Rd:

- A timber furniture manufacturer occupied the entire property from August 2005 until August 2008.
- An excavation company has occupied the entire site since January 2014 for the parking of trucks and excavation machinery.

3.2 Previous Contamination Assessments

Woodward-Clyde, Nov 1997

Sullivan-ES was provided with a 10-page extract from this report to review. The report was specific to 30 Auburn Rd and was part of a due diligence exercise prior to divestment of the site by Email Ltd. The following information is summarised from the report extract:

- *"The Regents Park site was the main manufacturing facility for Email Ltd.*
- *Email Ltd had occupied the site for approximately 40 years (before 1997). Prior to that the site was used as an industrial facility for metal fabrication and warehousing.*
- *Three factory buildings and a smaller canteen building existed onsite. Construction materials included asbestos-containing fibro sheet walls. Roofs of the three factory buildings were replaced in 1990. The canteen building roof is suspected asbestos-cement sheeting.*
- *The northern portion of the site was vacant grassed land (approximately one third of the site).*
- *Land surrounding the site was either commercial/industrial or railway corridor land.*
- *The site was used by Email Ltd to manufacture filtration and ventilation products from sheet metal and filter material. Warehousing, product testing, maintenance and administration were also conducted.*
- *Chemicals used include commercial cleaners, paints, glues, gel sprays, carbon, polyurethane foam, and methylene chloride cleaner.*
- *A Pollution Control Licence (#002811) was held at the site issued by the EPA. Trade wastes included paint and foam which were removed from the site under EPA regulation (Certificate of Registration #P24087).*
- *The site held a Dangerous Goods licence issued by WorkCover NSW for storage of unleaded petrol, paints, argon, LPG, diesel, nitrogen, acetylene, and kerosene.*
- *A wash bay was previously operated at the western site boundary outside Building 3. Wastewater from the wash bay was pumped to two settling pits at the eastern end of Building 2 and removed by contractor.*
- *Black staining was observed on the grassed area proximal to vent pipes on the southern side of Building 3 from the vent exhaust of activated carbon.*
- *Liquid wastes included paints, isocyanate foams, and waste oil. Paints and foams were removed offsite by a licenced contractor. Records of waste oil management were not reviewed.*
- *An Aboveground Storage Tank (AST) was located in a bunded area at the southern site boundary. Spillage of diesel was observed on the grassed surfaces around the AST.*
- *Spillage and chemical stains on the floor of Building 3 (gelling rigs) and along the outside gutter were noted.*
- *No dedicated storage area was noted for methylene chloride (a Class 6 Poison) used in the cleaning process of foam parts.*
- *An Underground Storage Tank (UST) with 10,000 litre capacity and bowser was located outside the main offices. The UST contained unleaded petrol for refuelling of company vehicles and had been present for greater than 10 years.*
- *Another UST and bowser had been removed approximately 4 years ago from outside the northeast corner of Building 2. The UST was used to store leaded (super) petrol. No records of tank decommissioning or validation was reviewed.*
- *A flammable goods store was located at the southern site boundary. Paints, thinners, acidic cleaner and a bag of trisodium phosphate was observed.*

- *Other chemicals identified included Corflex (di-2-ethyl hexyl phthalate), and historical used of oil in heaters, but now removed and not used for many years.*
- *A waste bin used to collect PCB-containing fluorescent light fittings was located on the grassed rear storage area. It was recommended that the bin be made liquid tight to prevent leakage of PCB material from the bin.*
- *Woodward-Clyde considered that the potential for soil and groundwater contamination was medium given the long industrial use of the site. Potential high-risk areas were considered to be unsealed waste storage areas, the diesel AST area, and the existing UST.*
- *Historical activities were also considered to pose potential contamination risks including imported fill materials.*

Woodward-Clyde concluded *"The potential for soil contamination from the existing unleaded petrol UST and the recently removed super petrol UST is the only potential materially significant issue that was identified during the walk over survey of the site."*

Woodward-Clyde, Apr 1998

Sullivan-ES was provided with a 3-page extract of the Executive Summary of this report to review. The report was only relevant to 30 Auburn Road. The following information was summarised from this report extract:

- *"The investigation was conducted to address recommendations made in the previous survey report (Woodward-Clyde Nov 1997) to evaluate liabilities associated with potential contamination at the site. The investigation included a sampling program of soil and groundwater targeted at locations identified as potential major issue areas.*
- *Eighteen (18) sampling locations were used to investigate the site. It was acknowledged that this number of locations did not meet the number of locations recommended by the NSW EPA to assess a site with an area of 1.9 hectares (i.e. 30 sampling locations). It was stated that the investigation was preliminary and adequate for the site given the continued use for industrial activities.*
- *Three (3) groundwater monitoring wells were installed proximal to former/existing USTs and other areas identified as groundwater risks.*
- *An asbestos survey and CCTV stormwater drain inspection was also conducted by others at the time of the Phase 2.*
- *Hydrocarbon odours and staining was observed at soil sample location BH2 and analytical results confirmed detections of hydrocarbon contaminants.*
- *Concentrations of heavy metals in several soil samples located in and between Building 3 and Building 2 were below the adopted soil criteria for industrial land use.*
- *Organic contaminants were not detected in soil samples collected from identified probable high-risk site areas which indicated that organic contaminants would not be prevalent across the site.*
- *Detectable concentrations of heavy metals in groundwater samples was considered to be indicative of background quality and not caused by activities onsite.*
- *The operation of USTs onsite had not caused detrimental impacts to groundwater because no organic contaminants were detected in groundwater samples.*
- *Asbestos containing materials were present in building materials."*

Woodward-Clyde made a number of recommendations to address various issues including:

- *"Removal of the UST and AST and validation of residual surrounding soils.*

- *Further sampling across the site should the site be rezoned for more sensitive land uses, such as residential, and at to establish baseline conditions for end of tenancy periods.*
- *Implementing an asbestos management plan in conjunction with a risk assessment of asbestos containing materials.*
- *Investigation of oil and diesel impacts to the stormwater system as well as cleaning stormwater sumps and improving stormwater pit access.*
- *An annual inspection of the site to document tenant activities pertaining to potential contamination risks."*

Woodward-Clyde, Dec 1998

Sullivan-ES was provided with a covering letter and 6-page letter report to review (excluding any tables or figures appendices). The report presents the works conducted for removal and validation of the remaining UST documented in the previous Phase 2 (Apr 1998) at 30 Auburn Road. The following information is summarised from this report:

- *"The work was conducted in accordance with relevant codes of practice at that time (e.g. AIP CP22 Dec 1994).*
- *The UST was pumped of 6,400 litres of fuel product prior to excavation.*
- *The UST was a 15,000-litre capacity tank and removed from the ground outside the north side of the Canteen Building.*
- *Soil validation was conducted in accordance with relevant guidelines at that time (e.g. EPA 1994).*
- *Soil validation results met relevant criteria at that time (e.g. NEHF 1996 and EPA 1994).*

Woodward-Clyde concluded that soil contaminants were below the land use criteria in both excavated areas and backfill material and considered suitable for ongoing commercial/industrial land use."

Douglas Partners, Sept 2002

Sullivan-ES was provided with a 5-page letter report prepared by Douglas Partners Pty Ltd (DP) pertaining to a review of the Phase 2 assessment (WWC, Apr 1998). The purpose of this report was to provide an independent opinion in consideration of the site to be rezoned from industrial to residential land use; as well as to identify areas of potential environmental liability and to provide actions to render the site suitable for the rezoned land. The following information is summarised from the review:

- *"DP stated that 46 Auburn Road was not covered in the Phase 2 investigation.*
- *DP stated that the Phase 2 was generally able to identify areas of concern and provided an evaluation of the suitability of the site for its intended industrial land use.*
- *DP identified a deficiency in sampling locations compared to NSW EPA (1995) recommended densities for specific land sizes, however stated that the sampling density was considered appropriate as a Phase 1 preliminary assessment to evaluate the general potential contamination risk.*
- *DP stated that the criteria values selected for assessing soil and groundwater were appropriate and adopted from relevant guidelines endorsed at that time (1998).*
- *DP identified hydrocarbon impacts at sampling location TP5 (not BH2 as reported in the Phase 2), and TP6, albeit as localised presence. DP also agreed that given the low permeable clay soils and depth to groundwater at 5.5m below ground, the risk of migration of impacts from surface layers to groundwater would be low.*

- *DP identified that methylene chloride was not analysed in the Phase 2, although identified as a target contaminant. After considering the sampling pattern followed in the Phase 2 that focussed on likely "high risk" locations and the analytical tests performed for other organic contaminants, DP concurred that potential chlorinated solvent impacts would be low.*
- *DP agreed that detection of heavy metals in the groundwater was due to background conditions.*
- *DP agreed that the operation of USTs on the site had not had a detrimental effect on groundwater quality.*
- *DP agreed that remediation of asbestos-containing materials was straight forward.*
- *DP agreed with the conclusions and recommendations of the Phase 2.*
- *In light of the proposed residential rezoning, DP conducted a review of all Phase 2 sampling results against assessment criteria for residential sites (with minimal access to soils, such as for apartment buildings), concluding that all soil results met the more sensitive land use criteria. DP noted that some metal concentrations exceeded ecologically based phytotoxic levels. DP stated that, all things considered, with the proposed development to effectively cover the site with hardstand layers, the exceedance of ecological criteria would not be a major issue.*

DP made the following conclusions from their review of the Phase 2 report:

- *Hydrocarbon impacts were generally localised and remediation of those areas would be relatively straight forward.*
- *Woodward-Clyde had identified site areas of concern requiring further investigation and/or remediation.*
- *The potential for extensive contamination of the site was low.*
- *The site could be practically remediated and rendered suitable for the proposed residential use.*
- *Further investigation may also be prudent at the time after building demolition to access soils to fully characterise the site for contamination."*

Sullivan-ES, Aug 2017

Sullivan-ES was engaged by Hallmark Construction Pty Ltd to conduct a Preliminary Contamination Investigation (PCI) to assess the suitability of the site in respect of high-rise residential use The following conclusions and recommendations are drawn from the PCI (Sullivan-ES, 2017):

- *"…Background searches indicate that the main activities relating to potential contamination is operation of the site by Email Ltd (on #30) and timber yard/hardware store operations (on #46).*
- *Sullivan-ES concur with the previous reports that priority high-risk areas at #30 Auburn Road have been identified and targeted for sampling. However, previous sampling should be supplemented with additional sampling under and around site buildings and filled areas to achieve sufficient site coverage and recommended sampling densities (NSW EPA, 1995). Further sampling can be conducted at a later stage once demolition of the existing buildings has occurred. Analytical tests should include general contaminants as well as asbestos impacts.*
- *Supplementary sampling on #30 should extend across the entire area of #46 to assess soil conditions at specific locations around drains and waste piles and generally across all site areas. Analytical tests should include general contaminants as well as contaminants related to timber storage or treatment. Piles of waste should be assessed for waste classification and removal offsite.*

- *We also consider that the former super UST and diesel AST areas on #30 should be targeted for sampling given that it is not known if validation sampling was conducted and no validation records were reviewed.*
- *Additional areas to target on #30 include the former wash bay and settling pits identified in the Phase 2 (Apr 1998), and general filled areas in the northern portion of the site.*
- *Supplementary groundwater sampling is recommended given the size of the site (including both #30 and #46) and limited previous sampling. Site boundary conditions should be targeted for this purpose.*
- *The proposed site redevelopment will remove the majority of the top 3m of soil across the site to construct basement parking. As such, any supplementary sampling recommended above should consider the need for removal of surplus soil offsite as a waste or otherwise as recovered resource material if proven so (e.g. Virgin Excavated Natural Material - VENM).*
- *Any site areas where existing soils are to be retaining and not subject to bulk excavations should be sampled after demolition of existing buildings and assessed against current health-based soil investigation criteria in accordance with Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM 2013).*
- *Sullivan-ES conclude that the site can be made suitable for the proposed residential use subject to the findings of previous reports, further sampling of soils and groundwater at an appropriate later stage, and if necessary; considerate of existing results and any new information; performing remediation works to remove any unacceptable human or environmental health risks..”*

Sullivan-ES, June 2021

Sullivan-ES was engaged by 30 Auburn Rd Pty Ltd to conduct a contamination assessment to close out data gaps presented in the initial RAP (Sullivan-ES, Feb 2021). The following conclusions were made based on the findings of the data gap contamination investigation:

- *“Soils at the former AST area, represented by results for BH08, are impacted by lead and TRH (>C_{10}-C_{16}) above human health criteria. The impacted soils are consistent with diesel spills observed by Woodward-Clyde at TP6 (WWC, 1998 & DP, 2002).*
- *While there is no health risks to current site users, there is a potential risk to future site users by contaminated soils at BH08 that requires remediation during site redevelopment.*
- *Asbestos containing fibre cement fragments were observed in ballast gravels/crushed rock beneath Building #2 foundation slab at BH28. Similar gravel layers were also observed elsewhere beneath and adjacent to Building #2 however no further ACM was observed. As such the extent of ACM impact is considered localised.*
- *While there is no health risks to current site users, there is a potential risk to future site users by the ACM impacted gravel fill beneath the east side of Building #2 that requires remediation during site redevelopment.*
- *A soil/waste stockpile (SP02_A) located on #46 Auburn Rd is impacted by TRH (>C_{10}-C_{16} and >C_{16}-C_{34}) fractions above the adopted site criteria. While the waste pile causes no risk to current site users, the stockpile is not suitable to remain onsite for the future redevelopment and therefore requires remediation or management.*
- *Surface soils proximal to SS01 on #46 Auburn Rd show oily stains and discolouration that should be ameliorated to address the aesthetic impacts in this localised area of the site.*
- *Groundwater onsite is of relatively good quality with no exceedances of the adopted human health screening levels.*

- *Heavy metals were recorded above the adopted GILs for ecological receptors. The exceedances are considered inconsequential at these locations and do not represent a health risk to the nearest receiving water (Duck Creek). No corresponding heavy metal impacts in soil were identified onsite suggesting impacts, particularly cadmium and chromium, are likely to be endemic in the local area.*
- *PFAS in groundwater was not reported above the adopted GILs for Ecological Freshwater 90% or 95% species protection values and PFOA was not detected onsite above the 99% species protection value representing a negligible risk to offsite ecological receptors.*
- *PFOS was detected marginally exceeding the draft NEMP freshwater 99% species protection value however site history, in an industrial setting and similar PFOS concentrations recorded at opposite site boundaries suggests levels are most likely ambient background concentrations in the area.*

Sullivan-ES conclude that the site poses a relatively low contamination risk and can be made suitable for the proposed high density residential use subject to performing remediation works in localised areas of the site.

We recommend that the existing RAP (Sullivan, Feb 2021) is revised to document the current contamination status of the site and evaluate the most suitable method/s to remediate contamination identified in this Phase 2 investigation in consideration of the proposed mixed-use high-rise residential development."

3.3 Outcomes from Previous Assessments

Sullivan-ES concluded that the site can be made suitable for the proposed high density residential use (at that time) subject to the findings of previous reports and performing remediation works to remove any unacceptable health risks.

Sampling locations and summary results tables from the Phase 2 are presented in the appendices.

The following recommendations are drawn from Sullivan-ES, June 2021a.

Revise the existing RAP (Sullivan, Feb 2021) to consider the follow items as a minimum:

- During site demolition stage - Additional sampling in and around the former AST to refine localised remediation extent within impacted surface soils and soils at depth for lead and TRH.
- During site demolition stage - Additional sampling to delineate beneath Building #2 to obtain a better understanding of the presence of buried asbestos fragments within impacted ballast/gravel fill materials.
- During site demolition stage - Characterisation and waste management of stockpiled soils associated with SP02_A.
- During site demolition stage - Removal of oil impacted surface soils in and around SS01 at the rear of #46 Auburn Rd.
- Materials management, classification and handling requirements and disposal.
- Unexpected finds protocol.

It was also recommended to conduct a hazardous building materials survey covering the entire site, meeting the requirements of the WH&S (Regulation) 2017, to demolishing buildings.

3.4 Site Characterisation and Conceptual Site Model

A Conceptual Site Model (CSM) was developed in consideration of the current results and field observations. The CSM takes into account the future use of the land as a mixture of ground floor commercial premises with high rise residential apartments and associated basement carparking.

3.4.1 Source-Pathway-Receptor Linkages

The following Source-Pathway-Receptor linkages are considered to exist:

- plausible link between Lead and TRH contaminated soils in and around the former AST area (at BH08) and future human receptors (ingestion and vapour inhalation risks) which requires intervention.
- potential link between bonded ACM fragments beneath Building #2 at BH28 and asbestos fibre inhalation risk to future human receptors which requires intervention.
- plausible link between anthropogenic waste/soil stockpile SP02_A on #46 Auburn Road and future human receptors (ingestion and direct contact risks) which requires intervention.

There is an aesthetic issue at SS01 caused by oil spillage that requires rectification during site development.

There is no apparent linkage between current/future users and potential contamination from the former USTs, wash bay, settling pits, former use as a timber yard or general filling onsite as contamination associated with these activities was not identified in those areas onsite.

There is no apparent linkage between current/future users and metal impacted groundwater directly beneath the site because as the site will remain connected to town mains water.

Groundwater is relatively deep and is not proposed to be used at the ground surface onsite. Groundwater reports elevated levels of metals that poses a risk to aquatic receptors offsite, therefore consideration for management of impacted groundwater during the proposed development will be necessary as it will likely to be encountered during basement carpark construction.

3.4.2 Delineation of Impacted Areas

Sufficient data was gathered to address the outstanding data gaps identified in Sullivan-ES 2017; however, the extent of the identified impacted areas requires delineation for the purpose of remediation. The following areas should be delineated and/or further assessed during site redevelopment:

- The extent of Lead and TRH impacts in surface soils and at depth in and around the former AST at BH08.
- The extent of bonded ACM impacted fill materials beneath Building #2 in and around BH28.

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4 Remediation Works

The proposed remediation method in this RAP – Revision A is specific to contaminated and potentially contaminated soils.

Based on the findings in Sullivan-ES, Jun 2021a, groundwater is not contaminated to a degree that would warrant remediation. Groundwater onsite is of relatively good quality with no exceedances of adopted human health screening levels and some heavy metal impacts above the adopted ecological GILs for 95% protection of freshwater species. Detectable metals were considered to be endemic background levels within a highly urbanised region of Sydney..

4.1 Remedial Goals

Remediation goals should mitigate exposure of humans or the environment to sources of contamination. The remediation goal for this site is to address the impacted surface and subsurface soil material in order to render the site suitable for high-density residential land use such that the soils pose no long-term health risks.

4.2 Regulatory Policy on Remediation

The remediation policy adopted for this RAP follows the hierarchy of order adopted by the NSW EPA. The preferred order of options for remediation are:

- On-site treatment (of the soil) so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level.
- Off-site treatment (of excavated soil) which, depending on the residual levels of contamination in the treated material, is then either returned to the site, removed to an approved waste disposal facility or used as landfill, and replaced with clean fill.

Should it not be possible for these options to be implemented, then other options that should be considered include:

- Removal (of contaminated soil) to an appropriate site or facility, followed where necessary by replacement with clean fill.
- Isolation (of the soil) on the site by covering and containing within a properly designed barrier.
- Choosing a less sensitive land use to minimise the need for remedial works, which may include partial remediation.

If remediation is likely to cause a greater adverse effect on any aspect of the site or surrounds than what would occur if the site was left undisturbed, then remediation should not proceed.

4.3 Assessment of Remediation Options

The table below presents a comparison of possible remediation options for the site.

Table 4-1 Comparison of Soil Remediation Options

Option	Strategy	Advantages	Disadvantages	Option Comparison
(1) No action	No action	Little to no remediation costs. Creates minimal disturbance to the Site.	Contamination remains on-site and would preclude the construction of the Proposed Development.	Not suitable Current situation. Most environmentally sustainable option.

Remediation Works

Option	Strategy	Advantages	Disadvantages	Option Comparison
		Retains contaminated material within the Site	Ongoing management through a passive EMP. Contamination and requirement of an EMP be noted on Section 10.7 planning certificate. Consent Authority is unlikely to approve.	However, all contamination remains onsite with the risk to site occupiers (long term) and construction workers (short term) remains.
(2) Excavation and off-site disposal to a waste management facility lawfully permitted to accept the materials.	Source Removal	Removes future liability. Surety of Consent Authority Approval. Mitigates exposure pathways to Site users and construction/maintenance workers. No ongoing management in the form of a passive EMP required.	Soil requires further sampling to support waste classification. Non-environmentally sustainable, use of landfill space and a large carbon footprint from haulage trucks. Potential to generate dust. High up-front cost.	Suitable option. Least environmentally sustainable option with the greatest risk of dust, however this method is suitable, as it removes all contamination sources and eliminates all risk with no requirement for an EMP. This method is compatible with the proposed development to include significant earthworks to construct basement levels, thus soil removal from site is necessary regardless.
(3) Capping and containment of soil in-situ.	Receptor and pathway control	No off-site disposal of soil to landfill. Mitigates exposure pathways to future Site users. Environmentally sustainable.	No or limited available onsite space to build/construct containment cell to store contaminated materials. Site soils potentially not suitable geotechnically. Ongoing management required in the form of a passive EMP. Contamination and requirement of an EMP must be noted on Section 10.7 planning certificate. No certainty of Consent Authority approving remediation approach. High up-front cost.	Not suitable A moderately environmentally sustainable option with mitigation of exposure pathways however constructability limitations and authority approval uncertainty make this option unsuitable.

Remediation options involving treatment of contaminated soils has been excluded from the comparison above for the following reasons:

- There is a net surplus of soil material onsite for the development particularly as basement construction will be required, and therefore offsite disposal of contaminated soils (or any other unsuitable materials) as waste to a licenced landfill is required regardless.

4.4 Preferred Remedial Option

The preferred remedial approach for the site to address the identified contamination is:

- **Option 2** - Excavation of contaminated soils with subsequent disposal offsite to a licenced landfill.

The following table presents estimated excavation quantities of contaminated material. The estimated quantities are considered conservative and may require adjustment to account for additional delineation sampling, existing hardstand and varying surface levels as these items may increase the volume.

Table 4-2 Estimated Excavation Quantities

Remediation Area	Investigation Locations	Contaminant	Approx. Remediation Depth (m bgl)	Approx. Remediation Area (m^2)	Approx. Remediation Quantity (m^3)
Former AST	BH08	Lead and TRH in surface and deep soils	1.5m	TBD Estimated 100	TBD Estimated 150
Beneath Building #2	BH28	Bonded asbestos in gravel fill	0.5m	TBD Estimated 100	TBD Estimated 50
Waste pile on #46 Auburn Rd	SP02_A&B	TRH	-	-	Estimated 15
Oil-stained surface soils	SS01	Oily staining and discolouration - TRH	0.2m	Estimated 25m	Estimated 5

TBD – to be determined - considered to include the delineation of all nominated contamination areas, including those lands immediately surrounding the known contamination areas.

4.5 Overview of Remediation Methodology

The following method presents as a guide for a qualified environmental consultant and specialist civil works contractor(s) engaged to undertake the remediation work. The following sections do not provide sufficient detail to be used as specification for civil work undertakings. A specific Remediation Works Plan should be prepared by the Contractor undertaking all remediation work.

All remediation works should be performed under the onsite guidance of a contaminated land consultant with sufficient experience in soil remediation activities. The following sections outline the remediation works required to be completed for the Remediation Areas (RAs) shown on Figure 3 (**Appendix A**).

Demolition and removal of concrete slab surfaces and footings have been excluded from the remediation scope overview.

4.5.1 Lead and TRH Contamination at Former AST

The surface and depth soils in and around former AST are contaminated with lead and petroleum hydrocarbons (TRH). Delineation sampling is required around BH08 to verify the volume of Lead and TRH containing waste requiring offsite disposal to a licenced facility, as shown on **Figure 3**.

Clear the area of overgrown vegetation, surface waste materials and stored equipment to access the area.

Four (4) sampling locations will be positioned 5.0m surrounding BH08 with one location positioned inside the brick bund if it has no concrete base. Each location will extend to a minimum of 2.0m below ground with sampling at the surface, then each vertical 0.5 metre depth, (i.e. 20 samples in total).

Each delineation soil sample will be analysed for heavy metals and TRH.

Once confirmed, the impacted surface and depth soils should be excavated using an excavator, or similar, to the nominated depth of impact (estimated 1.5m depth) and stockpiled together for waste characterisation.

Any concrete or hardstand materials should be segregated from the impacted soils and stockpiled separately for waste classification wherever possible.

The resulting stockpile(s) must be sampled in accordance with *Section 7.5 - Schedule B2 of the NEPM 2013* and a waste classification certificate in accordance with *NSW EPA Waste Classification Guidelines, 2014* must be prepared for disposal offsite to a licenced landfill. The analytical suite for stockpile classification of material from the former AST shall include as a minimum the following analytes: heavy metals, PAHs, BTEXN, TPHs and asbestos.

4.5.2 Bonded Asbestos Fragments Beneath Building #2

The ballast/coarse gravel fill beneath Building#2 at BH28 is contaminated by bonded asbestos fragments. Similar gravel layers were observed elsewhere beneath and adjacent to Building #2 however no further ACM was observed.

Once Building #2 has been demolished and removed, the concrete slab from across the entire Building #2 footprint should be carefully demolished and segregated from the underlying coarse gravels. There is no apparent plastic moisture barrier under the slab, therefore careful segregation is necessary. It is advisable that the Contractor undertaking these works conducts this work in such a manner to achieve minimal disturbance to the underlying gravels during slab demolition.

Once the concrete hardstand has been carefully removed, a thorough inspection of the underlying gravelly fill is required around BH28 to verify the presence and extent of bonded asbestos fragments in the gravelly fill. The initial area of inspection and sampling is considered to be localised as shown on **Figure 3,** however may need to be extended across the entire Building #2 footprint. Sampling and inspections will be carried out by a suitably qualified and experienced professional in accordance with WA DOH 2009 guidelines for the presence of fragments of bonded asbestos. The location and quantity of any ACM shall be systematically recorded. Verification sampling shall be carried out on asbestos in bulk materials as required.

A minimum of six (6) delineation sampling locations will be positioned at 5.0m intervals around BH28. Each location will extend to natural soil or a minimum 1.0m with sampling at the surface in gravelly fills, then each vertical 0.5 metre depth, (i.e. 18 samples in total). Each sample will be thoroughly inspected and analysed for the presence of asbestos.

If bonded ACM fragments are observed to be widespread, then implementation of the unexpected finds protocol should be conducted (refer **Section 9.0**).

Once confirmed, the impacted soils should be excavated using an excavator, or similar, to the nominated depth of impact (estimated 0.5m depth) and stockpiled together for waste characterisation.

The resulting stockpile(s) must be sampled in accordance with *Section 7.5 - Schedule B2 of the NEPM 2013* and a waste classification certificate in accordance with *NSW EPA Waste Classification Guidelines, 2014* must be prepared for disposal offsite to a licenced landfill. The analytical suite for stockpile classification of gravel fill from beneath Building #2 should include as a minimum the following analytes: heavy metals, PAHs, BTEXN, TPHs and asbestos.

4.5.3 TRH Contaminated Waste Pile on #46 Auburn Rd

The stockpile containing a mixture of anthropogenic wastes and soils on #46 Auburn Rd is contaminated with petroleum hydrocarbons and requires classification for offsite disposal.

Stockpile SP02_A & B must be sampled in accordance with *Section 7.5 - Schedule B2 of the NEPM 2013* and a waste classification certificate in accordance with *NSW EPA Waste Classification Guidelines, 2014* must be prepared for disposal offsite to a licenced landfill. The analytical suite for Stockpile SP02_A & B should include as a minimum the following analytes: heavy metals, TPHs, PAHs, BTEXN and asbestos.

4.5.4 Oil-stained Surface Soils on #46 Auburn Rd

The surface soils in and around the blue shipping container on #46 Auburn Road are stained/discoloured from leaks/spills originating from the storage of waste oil drums. While petroleum hydrocarbons are not detected in surface soil sample SS01 at levels that pose a potential human health risk, the stained/discoloured soils are considered an aesthetic issue requiring remediation and validated (refer Section 4.8). Moreover, the presence of oily stained soils is likely to cause a potential risk to terrestrial organisms if left insitu.

The impacted soils should be excavated using an excavator, or similar, to the nominated depth of impact (estimated 0.2m depth) and stockpiled together with Stockpile SP02_A & B for waste characterisation in accordance with *NSW EPA Waste Classification Guidelines, 2014* for disposal offsite to a licenced landfill. The analytical suite for should include as a minimum the following analytes: heavy metals, PAHs, BTEXN and TRH.

4.6 Bonded and Friable Asbestos Regulations

The removal of bonded asbestos contaminated soils must only be conducted by a SafeWork NSW Class A or B licenced person in accordance with the Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017 and the SafeWork NSW Code of Practice 2016 requirements.

Asbestos removal/remediation work must be conducted under relevant requirements, including but not limited to:

- Reference to SafeWork NSW Code of Practice 2016.
- SafeWork NSW permits.
- An Asbestos Removal Control Plan (ARCP).
- Air monitoring.
- PPE.

If any materials onsite are confirmed to be friable then all regulations applying to friable asbestos removal will apply, SafeWork NSW (2016) defines ‘friable’ asbestos as:

"…material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos."

Site Establishment

All safety and environmental controls are to be implemented as the first stage of remediation works. These controls will include, but not be limited to:

- Locate and isolate all required utilities in the proximity of the works;
- If required, erection of work area security fencing;
- Site signage and contact numbers; and
- Where required, environmental controls as specified in **Section 8**.

Air Monitoring

Air monitoring should be conducted in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC) Asbestos Code of Practice and Guidance Notes in particular the Guidance note for the estimation of airborne asbestos dust [NOHSC 3002:2005].

4.7 Materials Classification, Excavation and Offsite Disposal

Contaminated soils and other media across the site will require characterisation for the safest and most beneficial use. **Section 10** details the procedure to be utilised. Materials classification samples should be collected and a materials classification report produced.

Materials may be classified as follows:

1. Suitable to remain on the site; or
2. Materials requiring management prior to remaining on site; or
3. Materials requiring offsite disposal.

The vertical and horizontal extent of contaminated soil requiring excavation will be defined during the delineation sampling outlined above.

Hardstand areas should be dry-brushed cleaned or washed down to remove/reduce contaminated dirt stuck on the undersides prior to removal offsite as waste. Any turf which cannot be separated from the underlying contaminated soils shall be treated as contaminated waste.

All different waste streams and individual stockpiles i.e. liquids, chemicals, soils, and building and demolition wastes proposed to be disposed offsite must be compared against the criteria provided in NSW EPA Waste Classification Guidelines, 2014 and have an accompanying individual waste classification certificate prepared by an appropriately qualified contaminated land consultant.

A separate waste classification certificate must be prepared for each waste stream removed from the site.

4.8 Site Validation Post Excavation

The underlying soils (pits and trenches) from excavation of impacted soils and aesthetically impacted soil (stained/discoloured/odorous or anthropogenic waste) in remediated areas and stockpile removal areas, will require validation to confirm remediation extent has been achieved and therefore successful.

Validation sampling frequency will be in general accordance with Technical Note - Investigation of Service Station Sites (EPA 2014) and UPSS Technical Note: Site Validation Reporting (DECCW 2010) and NEPM (ASC) 2013:

- Pit/Impacted Soil and Aesthetically impacted excavations:
    - 1 x floor/base soil sample per 10m^2 (minimum 1 sample per remediated area if less).
    - 1x wall soil sample per 10m lineal (minimum 1 sample per wall if less).
    - Vertical wall samples should be collected every metre depth as such (0.0m – 1.0m, 1.0m – 2.0m, 2.0m – 3.0m, etc).
- Stockpile areas - 1 x soil sample per 10m^2 under base of stockpile (minimum 1 sample per remediated stockpile area if less).
- 1 x soil duplicate QA/QC for every 10 primary soil samples collected.

The validation analytical suite for each area will be based on the contaminant of concern identified and may include all or a combination of heavy metals, TRH, BTEXN, PAHs, Pesticides, PCBs or Asbestos.

4.9 Backfilling

Where backfill is required imported fill materials will need to be managed in accordance with **Section 10.4.**

4.10 Remediation Contingency Measures

The following table presents a general list of potential issues and contingency measures that can be employed should they arise during the remediation.

Table 4-3 Remediation Contingency Measures

Issue	Contingency
Identification of bonded ACM Under all of Building #2 or under other site buildings	If ACM is identified during the remediation these will be collected and placed within the designated asbestos disposal receptacle (i.e. bag) and the location noted on the daily validation field sheets. However, should an area of bonded ACM > 10 m^2 be identified during remedial works this will constitute an unexpected find which will require further assessment as described in Section 9.0.
Additional quantities of material over the expected quantity requiring excavation.	Immediately inform the Owner to discuss approach to remove additional material. Conduct additional delineation sampling to define the extent of impacted areas.
Contaminated Groundwater is encountered	If contaminated groundwater is encountered, the following questions will need to be considered: Does the contamination affect the safety and health of people or the environment? Does the contamination affect the project objectives and or the design /construction methodologies? If “yes” to either question, then reassessment of the remedial and validation options maybe required.

Issue	Contingency
Identification of bonded ACM Under all of Building #2 or under other site buildings	If ACM is identified during the remediation these will be collected and placed within the designated asbestos disposal receptacle (i.e. bag) and the location noted on the daily validation field sheets. However, should an area of bonded ACM > 10 m^2 be identified during remedial works this will constitute an unexpected find which will require further assessment as described in Section 9.0.
Remedial Methodology Failure	In the event the proposed remediation works do not meet the validation criteria, or if the selected remedial strategy is not able to proceed, the following action will be considered to ensure firstly the safety and health of people and the environment and secondly that the overall project objectives are achieved. Reassessment of the remedial and validation options.
Unexpected underground structures	Underground structures include USTs, fuel pipes and pits. In the event that any of these structures are discovered during the remediation works, then sampling work should be targeted around these locations to characterise potential soil and groundwater contamination. Subsequent remediation work must include removal of all additional underground structures and appropriate decommissioning (i.e. UPSS Regs 2019) in the case of USTs and fuel pipes.
Unexpected findings	Where unexpected finds are identified, generally detectable through visual or olfactory means (odours, stains or waste materials) the find will be managed in accordance with **Section 9.0.** It is acknowledged that previous investigations of the site have been undertaken to assess contaminants of potential concern. However, ground conditions between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations during remediation or development.

4.11 Proposed Protocol for Chasing Out Contamination

In the event validation sampling results from excavated areas fail validation criteria then further excavation vertically/horizontally will be required. The proposed protocol for chasing out identified contamination is presented below.

- Failed Floor/Base Sample: Excavation within the failed grid square is extended vertically a further 300mm below the failed validation surface and revalidated as per **Section 4.8**.
- Failed Wall Sample: Excavation is extended 1m horizontally and 5m either side of the failed wall sample and revalidated as per **Section 4.8**.

4.12 Work Hours

Site work hours are only to be undertaken in accordance with a Council issued DA, generally:

- Monday to Friday 7am-5pm
- Saturday 8am-1pm
- Sunday and Public Holidays No work

5

Site Validation

5.1 Data Quality Objectives

Data quality objectives (DQOs) have been developed for site validation to confirm remediation meets the required objective.

5.1.1 State the Problem

As a result of historical activities, soils are located in isolated areas of the site and require remediation by excavation, classification and disposal offsite, refer to Figure 3 (**Appendix A**).

- Soils at the former AST (BH08) are impacted by lead and TRH (>C_{10}-C_{16}).
- Asbestos fragments were observed in ballast gravel fill beneath Building #2 foundation slab.
- A soil stockpile (SP02_A&B) located on 46 Auburn Rd is impacted with TRH (>C_{10}-C_{16} and >C_{16}-C_{34}).
- Oil-stained/discoloured surface soils from oil leaks/spills on 46 Auburn Rd are an aesthetic issue.

Contaminated soils identified above pose a potential health risk or an aesthetic issue for future users of the site and require removal offsite.

The preferred remediation option is:

- Excavation of impacted soil materials and offsite disposal to a landfill licensed to accept the waste.

Validation data is required to be collected to verify the effectiveness of the remediation works and document the condition of the site as being suitable for the proposed land use.

5.1.2 Identify the Decision

The following decisions are required to be made during the validation works:

- Are there any unacceptable risks to future on-site or off-site receptors from contaminated media following removal of impacted materials?
- Were all impacted soils disposed off-site to a facility licensed to accept the classified waste?
- Were imported backfill materials appropriately classified as VENM or ENM in accordance with the POEO Act 1997?

5.1.3 Identify Inputs to the Decision

The inputs to the decisions are:

- Physical observations reported during site activities.
- Documentation to verify appropriate removal and disposal of waste.
- Characterisation and validation sampling results.
- Visual inspection of excavation area to verify successful removal of materials exhibiting staining, discolouration, odours or foreign materials (waste).
- Documentation to verify appropriate removal and disposal of waste.

5.1.4 Define the Study Boundaries

The lateral and vertical extent of areas subject to remediation is discussed in **Section 4** and shown on **Figure 3**.

Temporal boundaries are dictated by the timing of remediation and validation sampling activities.

5.1.5 Develop a Decision Rule

The following section presents the validation criteria for the project which will be used to answer the questions in **Section 5.1.2**.

Validation of Soils

The excavated areas will be validated based on laboratory sampling as detailed in **Section 4.8** and visual inspection and other field screening methods including PID and olfactory assessment when non-impact soils are encountered.

The systematic validation sampling and inspection will be supported by photographic evidence across all areas of the site showing the presence of natural soils or sufficient depth has been reached.

Validation criteria for soils will be adopted from ASC NEPM 2013 under a high-density residential land use setting as specified in **Section 5.2**.

Areas subject to asbestos contamination removal must be inspected and cleared in accordance with SafeWork NSW requirements as outlined in **Section 6.2**.

The proposed statistical methodology for comparison of the soil validation data to criteria is based on NSW EPA 1995 and ASC NEPM 2013, including:

- Comparison of the 95% UCL of each contaminant of concern to their respective criterion; and
- Comparison of standard deviations to a value of 50% of the nominated criteria.

Materials Characterisation and Waste Classification

Where required, stockpiled soils/wastes and other materials will be assessed and managed in accordance with **Section 10**.

Imported Fill

Where backfill is required, imported fill materials will need to be validated in accordance with **Section 10.4**.

The decision rules adopted to answer the decisions identified in **Section 5.1.2** are summarised in **Table 5.1**.

Table 5-1 Summary of Decision Rules

Decision Required to be Made	Decision Rule
1. Are there any unacceptable risks to future on-site or off-site receptors from any fill contamination following the removal of impacted soil?	Do validation sampling results comply with site validation criteria within remediation areas? Does field screening and visual/olfactory indicators of contamination from site inspection show only non-impacted soils present? If not then… Has all impacted surface and subsurface soils characterised?

Site Validation

Decision Required to be Made	Decision Rule
	Have all stockpiles been characterised for offsite disposal? If the criteria are not satisfied, the decision is No and the site is not suitable for use and subject to further management. If the criteria stated above are satisfied, the decision is yes and the site is suitable for use without further remediation.
2. Was chemical residues or soil materials suitably classified and disposed off-site to a facility licensed to accept the classified waste?	Soil analytical data will be compared against the guidelines as specified in **Section 10.3**. If the criteria stated above are satisfied, the decision is Yes, or if receipts are provided recording the disposal of material to an off-site licensed facility, the decision is Yes. If the material fails the criteria, or no classification is provided, and no disposal receipts are provided, the answer is No.
4. Are there any unacceptable risks to future on-site or off-site receptors from any remaining impacted soils?	Do validation sampling results comply with site validation criteria? If the criteria stated above is satisfied, the decision is Yes and the site is suitable for use without further remediation. If the criteria are not satisfied, the decision is No and it's not suitable for use and subject to further remediation/management.
3 Was imported material validated as either VENM or ENM?	Imported soil analytical data will be compared against the guidelines as specified in **Section 10.3** and supported by documentation from supplier verifying material classification. If the criteria stated above are satisfied, the decision is Yes. If the material fails the criteria, and no verification documentation is provided, the answer is No.

5.1.6 Specify Limits of Decision Error

This step is to establish the decision maker's tolerable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data. Validation data, photos, site notes, survey reports generated during this project must be appropriate to allow decisions to be made with confidence including a statement of the level of error in the data.

5.1.7 Optimise the Design for Obtaining Data

The purpose of this step is to identify a resource-effective field investigation and validation design that generates data that is expected to satisfy the decision performance criteria, as specified in the preceding steps of the DQO Process. The output of this step is a validation design that will guide development of the field sampling and analysis plan as required. This step provides a general description of the activities necessary to generate and select data collection designs that satisfy decision performance criteria.

5.2 Validation Criteria

The site is proposed for high density residential land use; therefore, the following criteria is to be adopted for validation:

Soils

- HIL/HSL B: Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
- HSL D: For areas that will be commercial retail on the ground floor and or basement footprint areas.
- Asbestos HSLs: Bonded Asbestos Containing Material (bonded ACM), Fibrous Asbestos (FA) and Asbestos Fines (AF).
- Management Limits.
- Aesthetics: Discolouration (staining), a malodorous nature (odours) or abnormal consistency.

HSLs criteria will be adopted for the top 1.0m of soil with a sandy consistency.

HSLs for direct contact will be adopted from Table 4 of CRC CARE Technical Report No. 10 by Friebel and Nadebaum (2011).

5.3 Quality Assurance and Quality Control Program

Field Samples and Quality

Field data quality samples should be collected as part of the QA/QC program. Field data quality samples that should be collected include:

- Field Duplicates:
    - Intra-Laboratory Duplicates at a frequency of 1/20 primary samples.
    - Inter-Laboratory Duplicates at a frequency of 1/20 primary samples.
- Equipment Rinsate Blanks (not for disposable items) at a frequency of 1/piece of equipment/sampling day.
- Trip Blanks at a frequency of 1/sample batch.
- Spiked Trip Blanks at a frequency of 1/sample batch (where volatile analysis is requested only).

The combination of Inter-laboratory and Intra-laboratory field duplicates corresponds to a field QA/QC program that consist of 10% of the total primary samples.

Laboratory Samples and Quality

The analytical laboratories undertaking the chemical analysis of samples must be accredited by the National Association of Testing Authorities (NATA) for each analytical method.

The following is a summary of the laboratory quality control samples that will be analysed by the selected laboratory and reported with the chemical analysis results:

- Method Blanks.
- Laboratory Duplicates.
- Laboratory Control Samples.
- Matrix Spikes.
- Surrogate Spikes.

The testing laboratories will undertake the analyses utilising their own internal procedures and their test methods (for which they are NATA, or equivalent, accredited) and in accordance with their own quality assurance system which forms part of their accreditation.

The analytical methodologies must be consistent with Schedule B4 of the ASC NEPM 2013 and in accordance with Australian Standards.

Fieldwork Quality

Soil samples of excavated surfaces will be sampled directly from the soil surface or excavator bucket or the bulk of the soil stockpile by hand or hand tool whilst wearing disposable nitrile gloves and placed into either acid-washed glass jars with Teflon® lids or suitable sample containers for analysis as provided by the laboratory.

All equipment to be used for soil and water sampling will be decontaminated prior to field work. Specifically, re-useable equipment, such as pumps, trowels, spatulas and hand augers will be decontaminated between sampling events by removing encrusted materials by scraping, followed by scrubbing with brushes and potable water, and rinsed with potable water. Nitrile gloves will be changed between each sample.

Sampling Documentation

Field data and observations will be recorded on field data sheets or in field logbooks. Field logbooks and field data sheets will be prepared in blue or black permanent ink.

Field logbooks will provide the means for recording field activity records and observations. Items that will be recorded into the field logbook include:

- All aspects of sample collection (including sample and duplicate sample IDs).
- Field measurements.
- Health and safety documentation.
- Equipment calibration documentation.
- Site diary detailing activities undertaken during the day.

Chain of Custody Documentation

Chain of custody (CoC) procedures shall be carried out in accordance with standard procedures. A CoC record will be utilised by field personnel to document possession of samples collected for chemical analysis. The CoC record will include the following information:

- Project name and number
- Name(s) of sampler(s).
- Sample type, identification number and location.
- Date and time of collection.
- Number, type and size of containers.
- Required analyses.

Sample containers will be packed in ice from the time of collection and transported under chain of custody procedures to the analytical laboratory. Copies of the chain of custody documents will be reproduced in the Validation Report.

Data Quality Assessment

An assessment of data quality and validity should be undertaken based on an evaluation of the Data Quality Indicators (DQIs). A decision on the acceptance of the analytical data will be made on the basis of the Data Quality Indicators (DQI) in the context of the PARCC parameters as follows:

- Precision: A quantitative measure of the variability (or reproducibility) of data.
- Accuracy: A quantitative measure of the closeness of reported data to the “true” value.
- Representativeness: The confidence (expressed qualitatively) that data are representative of each media present on site.
- Completeness: A measure of the amount of useable data from a data collection activity.
- Comparability: The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event. (i.e. precision, accuracy, representativeness, completeness and comparability).

The validation data set will be required to be assessed against the DQIs for both field and laboratory procedures and documented in the Validation Report.

5.4 Validation Report

Once the remediation end point has been reached and the remedial goal has been achieved, a validation report will be compiled detailing the remediation works and any additional remediation/assessment works undertaken to address soil impacts identified above the validation criteria. The report is to be prepared in general accordance with the Consultants reporting on Contaminated Land Guidelines (NSW EPA 2020).

The validation report is to be reviewed and/or approved by a Certified Environmental Practitioner specialising in Site Contamination (under a scheme recognised by the NSW EPA).

6

Legislation and Approvals

6.1 Legislative Requirements

6.1.1 SEPP 55 - Category 2 Remediation

In accordance with Clause 9 SEPP55, the remediation work is considered Category 2 remediation work for the following reasons. The remediation work is:

- Not designated development.
- Not being carried out or to be carried out on land declared to be a critical habitat.
- Not likely to have a significant effect on a critical habitat or a threatened species, population or ecological community.
- Not development for which another State environmental planning policy or a regional environmental plan requires development consent.
- Not being carried out or to be carried out in an area or zone to which any classifications to the following effect apply under an environmental planning instrument:
    - coastal protection,
    - conservation or heritage conservation,
    - habitat area, habitat protection area, habitat or wildlife corridor,
    - environment protection,
    - escarpment, escarpment protection or escarpment preservation,
    - floodway,
    - littoral rainforest,
    - nature reserve,
    - scenic area or scenic protection,
    - wetland.
- Not being carried out or to be carried out on any land in a manner that does not comply with a policy made under the contaminated land planning guidelines by the council for any local government area in which the land is situated (or if the land is within the unincorporated area, the Minister).

6.1.2 Other Requirements.

The remediation works (involving handling potentially contaminated soil materials) to be undertaken will comply with applicable environmental regulatory and legislative requirements. The following provides a summary of the general requirements for the proposed works.

Table 6-1 Summary of General Legislative Requirements

Legislation/Regulation	Key Project Requirements
Protection of the Environment Operations Act 1997 (POEO Act).	Undertake all activities so as to minimise harm to the environment (in particular pollution of air and water and noise emissions) and not cause an offence under the Act. Transporters of particular waste types are required to be licensed under the Act.
Protection of the Environment Operations (Waste) Regulation 2014.	Some waste disposal/processing facilities (including those receiving restricted solid waste, hazardous waste) are required to be licensed under the Act.

Legislation/Regulation	Key Project Requirements
	Requirements in relation to transportation, collection, storage or disposal of waste.
Environmental Planning and Assessment Act 1979 - Planning Guidelines and SEPP 55–Remediation of Land	Under SEPP55, consent is not required for remediating contaminated land on the site. Provisions under Clause 16 SEPP55 must be followed in relations to notification timeframes.
Contaminated Land Management Act 1997	Confirm that a Statutory Site Audit is required for remediation at the discretion of the consent authority.
Work Health and Safety Act 2011	Undertake all activities so as to minimise harm to human health and not cause an offence under the Act.

6.2 Asbestos Removal Regulations and Code of Practice

The removal and disposal of asbestos containing materials and or impacted fill must be managed in accordance with:

- Work Health and Safety Act 2011 (NSW) (WHS Act).
- Work Health and Safety Regulation 2017 (NSW) (WHS Regulation).
- Code of Practice for Management and Control of Asbestos in Workplaces, National Occupational Health and Safety Commission (NOHSC 2018 (2005))
- How to Safely Remove Asbestos Code of Practice, Safe Work Australia (July 2020) (SWA 2020a).
- How to manage and control asbestos in the Workplace Code of Practice, Safe Work Australia (July 2020) (SWA 2020b).
- Australia National Occupational Health and Safety Commission (NOHSC) (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC: 3003 (2005)].
- NSW EPA Waste Classification Guidelines, Part 1 - Classifying Waste (NSW EPA, 2014).

Excavation, onsite remediation and offsite removal of bonded asbestos is required to be conducted by a SafeWork NSW Class A or B licensed contractor.

Before starting any affected works, the appointed contractor is required to obtain a site-specific permit approving the asbestos works from SafeWork NSW. A permit will not be granted without a current licence and the permit application must be made at least seven days before the work is due to commence.

6.3 Standards and Codes of Practice

All work should be conducted, as appropriate, in accordance with (but not limited to) the following environmental codes of practice:

- Department of Conservation and Land Management, CALM (1992): Urban Erosion Control and Sediment Control.
- NSW Department of Housing (1998): Managing Urban Stormwater – Soils and Construction.
- AS 1940–2004: Storage and handling of flammable and combustible liquids.
- AS 4976–2008: The removal and disposal of underground petroleum storage tanks.

6.4 Handling, Transport and Disposal of Waste

The following provides guidance on the required documentation and approvals for the handling, transport and disposal of waste (including "General Solid", "Restricted" and "Hazardous" Waste). The guidance is a summary of the regulatory provisions as presented in the Protection of the Environment Operations (Waste) Regulation 2014 and the Protection of the Environment Operations Act 1997.

6.4.1 Transporters of Waste

Under Schedule 1, Part 2 of the POEO Act 1997 the transport of Hazardous, Restricted Solid Waste, Liquid Waste, Clinical and Related Waste or Friable Asbestos Waste (or any combination of them), in loads exceeding 200 kilograms is declared to be a scheduled activity for which a licence is required, but where no licence is required for the premises at which it is carried out (the activity is not premises-based).

The transport of any contaminated soil waste that is generated during the remediation works from the site may require the use of licensed transporters.

6.4.2 Waste Tracking Requirements

The POEO (Waste) Regulation 2014 specifies requirements for the tracking of waste both within NSW and interstate. The wastes that must be tracked are listed in Schedule 1 of the Regulation, in particular to this work is soil contaminated by wastes referred to in Schedule 1.

An EPA on-line tracking system is available to track waste that is transported within NSW or into NSW from other states or territories.

Waste producers (the landowner) are responsible under the legislation for ensuring that wastes (defined under Schedule 1 of the Regulation) are transported only after all the necessary documents and checks have been completed. Before transporting waste from the site, the following must occur:

- Ensure the waste has been correctly characterised.
- Ensure the facility (e.g. landfill/ hazardous waste treatment facility) where the waste is being transported to be legally able to accept the waste.

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7

Work Health and Safety

To address the WH&S requirements, a Site-specific Health and Safety Plan should be prepared by the Remediation Contractor (or Principal Contractor) prior to site works. The plan shall provide relevant health and safety standards for site personnel undertaking remediation works. All works will be undertaken under strict adherence to the Site WH&S Plan. The main features of the plan should include:

- The evaluation of on-site hazards and the risks associated with those hazards.
- Definition of personal protection standards.
- Classification of on-site personnel and work zones.
- Details on work practices and restrictions, assessment of anticipated protection levels, controls on access to work zones and decontamination practices.
- Supervision of work practices.
- Emergency information.
- Risk assessment methods.

7.1 Air Monitoring Procedures

It is prudent practice to conduct monitoring for airborne asbestos fibres during asbestos works. The results of air monitoring can be used:

- To identify failures in containment;
- To identify poor work practices; and
- To provide proof of containment for occupiers and regulatory authorities and to provide evidence of good work practices for both present and future needs.

Monitoring will be conducted in accordance with the National Occupational Health & Safety Commission (NOHSC) membrane filter method as approved by the National Association of Testing Authorities (NATA).

The appropriate TWA (NOHSC) levels are:

- Amosite - 0.1 fibre/mL;
- Chrysotile – 0.1 fibre/mL;
- Crocidolite - 0.1 fibre/mL;
- Other forms of asbestos - 0.1 fibre/mL; and
- Any mixture of these, or where the composition is unknown - 0.1 fibre/mL.

With consideration to these levels the following trigger levels have been developed:

- If airborne fibre levels reach 0.01 fibres/mL the source of fibre release is to be found and rectified. Work in the affected area does not have to stop; and
- If airborne fibre levels reach 0.02 fibres/mL work in the work area should stop and additional controls measures employed. This will involve additional water spraying during excavations.

Air monitoring should be conducted by a Safework NSW Licenced Asbestos Assessor which is mandatory for friable asbestos removal work.

Air monitoring results will be obtained within 24 hours of sample collection. While this precludes “real time” monitoring, inspections will be made during excavation works and, if there are any visible dusts, light water spays will be used to wet the excavation and prevent the release of any airborne asbestos fibres.

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8

Environmental Management

Environmental management during the remediation and earthworks will be managed through a Project construction environmental management plan (CEMP). The CEMP should be prepared by the Remediation Contractor (or Principal Contractor) engaged for the project. The CEMP should include (but not limited to) the following information and plans:

- *Project Objectives and Scope* – The project scope and objectives will be reassessed within the terms of any approval conditions.
- *Permits and Approvals* – All permits and approvals required prior to the remediation will be identified in the EMP.
- Consent Conditions – All consent conditions of approval the remediation works must be carried out in accordance with will be identified in the CEMP.
- Complaints Procedure – A complaint procedure will be provided in the CEMP.
- *Remedial Specification and Environmental Management Procedures* – This section will provide an accurate description of the proposed remedial activities and environmental considerations to be taken into account by the specialist remediation contractor.
- *Soil and Water Management Plan* – prepared in accordance with Managing Urban Stormwater: Soils and Construction (Landcom, 2004 – 4th edition). With consideration to minimising potential for erosion, minimising the risk of contamination from construction equipment and to avoid contamination leaving the construction site.
- *Unexpected Finds Plan* – Prepared in accordance with Section 9 below.
- *Materials Management Plan* - This plan will outline materials management procedures as presented in Section 10 below.
- *Air Quality Management Plan* –should detail how remedial actions shall be performed in such a way as to minimise the production of fugitive emissions including odours emanating from the site.
- *Noise and Vibration Management Plan* – This will include details of noise and vibration standards to be met, noise and vibration monitoring requirements and noise and vibration control measures to be implemented.
- *Traffic Management Plan* –The purpose of this plan will be to coordinate construction traffic operations, maximise safety and minimise disruption of local traffic.
- *Monitoring and Auditing* – The monitoring methods, locations, frequency, criteria, reporting and responsibilities will be detailed in this section of the CEMP.
- *Communications and Training* – Construction employee training and awareness programs will be developed to make employees aware of environmental responsibilities and environmental issues at the site.

9 Unexpected Finds Procedure

There is a possibility some hazards within the site have not been identified to date. The nature of hazards which may be present, and which may be discovered are expected to generally be detectable through visual or olfactory means, for example:

- The presence of significant aggregates of friable or non-friable asbestos materials (visible);
- Excessive quantities of Construction/Demolition Waste (visible);
- Hydrocarbon impacted materials (visible/odorous);
- Drums or underground storage tanks (USTs) (visible); and
- Oily Ash and/or oily slag contaminated soils/fill materials (visible/odorous).

As a precautionary measure to ensure the protection of the workforce, should any of the abovementioned substances (or any other unexpected potentially hazardous substance) be uncovered during ground disturbance activities, then the following should be immediately implemented:

- Stop work within the area. Isolate the affected area via the placement of temporary barriers or other appropriate measures (i.e. plastic sheeting, geotextile fabric covers, polymer dust suppressant spray, etc.) to prevent exposure to site personnel and/or off-site airborne dust migration; and
- an Environmental Consultant should be immediately contacted to determine an appropriate course of action regarding the assessment and/or management of the “Unexpected Find”.

It is envisaged the assessment strategy will be aimed at determining the nature of the substance – that is, is it hazardous and, if so, is it at concentrations which pose an unacceptable risk to human health or the environment.

9.1 Methodology

Various strategies for developing a statistically based sampling plan are identified in EPA (1995) or any future endorsed guidance from the NSW EPA, including judgemental, random, systematic and stratified sampling patterns. Random sampling is not appropriate. Based on the history of the site a systematic sampling program is considered the most appropriate for any unexpected finds. Sampling locations will initially be placed systematically across the Area of Concern (AOC).

9.1.1 Soil Sampling

Each sample collected as part of the assessment will be examined for signs of contamination and screened with a calibrated PID to identify the presence of VOCs, which might indicate contamination.

Soil samples will be collected directly from the excavator bucket and/or walls of the excavation surface using a dedicated pair of nitrile gloves for each sample to prevent cross contamination.

Test pitting or soil boring will be undertaken by the Environmental Consultant, with the use of an excavator, backhoe or drilling rig, on an appropriately spaced grid (*in situ* materials and stockpile footprints). Locations will be extended through fill material or the stockpile footprint to a maximum depth of 0.3 m into natural, whichever is the shallower.

Soil samples will be collected at 0-0.15 m, 0.3 m, 0.5 m and every 0.5 m interval to a maximum depth of 0.3 m into natural materials (or prior refusal). Should physical evidence of gross contamination be identified during the works, sampling locations may be extended to vertically delineate contamination. During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indicators of contamination will be noted.

Samples will be placed into laboratory prepared glass sampling jars with lined screw-on caps. Sample identification details will be added to the label on each jar.

The sample jar will be preserved on ice immediately after sampling and during shipment to NATA accredited laboratories. The laboratory chain of custody documentation will be completed and accompany the samples during shipment.

During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indications of contamination (e.g. ACM, staining, odours) will be noted. Photographs of site layout and features will be taken.

9.1.2 Potential ACM Areas

Where potential ACM has been identified an additional 10L sample will be collected from each 1 m interval for asbestos quantification (AQ), as detailed below:

- Environmental Consultant trained and experienced in the identification of ACM.
- If ACM is identified within stockpiled material, the AQ sample will be collected at a rate of 1/70m^3 (as per guidance provided in NEPM 2013).
- If ACM is identified within in-situ fill material, the AQ samples will be collected on an appropriately spaced grid across the area.
- Test pit locations will be flagged for subsequent remedial works.
- ACM in stockpiled fill material will be quantified by the methods advised in NEPM 2013 and WA DoH 2009. At each sample location, recovered fill material (10L) will be spread and raked. All ACM will be recovered and bagged. The volume of fill material within the test pit will be calculated and logged.
- One 500mL soil sample will be collected from within the 10L AQ sample and submitted for laboratory analysis to assess for the presence of FA/AF and free asbestos (respirable) fibres.
- ACM collected and bagged from each test pit will be weighed in-house using an externally calibrated scale with an accuracy of 1 g.
- Should any asbestos be observed during field works, these areas will be noted for later excavation for off-site disposal and validation. No allowance is made for management of such material during assessment works.

9.1.3 Potential Anthropogenic Fill Areas

Where additional anthropogenic fill (e.g. significant ash layers) is encountered, it shall be excavated, and the subsequent excavation validated. The following is to be implemented at each location:

- Impacted soils shall be excavated and the excavation works guided by an appropriately qualified and experienced consultant (Environmental Consultant). Excavated materials shall be visually inspected, and head space screened in the field with a portable photo-ionisation detector (PID) for the presence of volatile petroleum hydrocarbon contamination;
- Excavations shall extend until field observations (visual inspection and PID readings) indicate that contaminated soil above the adopted site remediation criteria is likely to have been removed;
- The depth and extent of excavations shall be continued until validated by the Environmental Consultant or until practicable limits of excavation are reached;
- Excavated soils shall be transported to a CATA (**Section 10**), where soils shall be stockpiled to enable characterisation, and appropriate reuse/disposal;

- If excavated materials cannot be carted directly to a CATA for temporary stockpiling or directly offsite for disposal, the materials will be placed in designated stockpile areas comprising a paved surface or plastic sheeting to provide a separation layer between potentially contaminated soils and surface soils; and
- Stockpiles outside CATAs will be covered to mitigate generation of dust or impacted surface water runoff.

9.1.4 Potential Groundwater Contamination

Should indicators of potential groundwater contamination be noted during any unexpected find assessment works, then the installation and sampling of groundwater wells will be recommended.

Indicators for potential groundwater impact can include the following:

- Concentration of contaminants in soils above the site criteria within natural soils; and / or
- Odours, discolouring, product or sheen on seepage water.

Groundwater assessment, if required, will implement DEC (2007) guidance, including adoption of appropriate groundwater investigation levels protective of relevant environmental values.

9.2 Remediation and Validation of Unexpected Finds

Where unexpected finds are assessed as a potential human health or ecological risk to remain on the site, remediation/management of those materials will be dictated by the remedial options set out in the RAP.

It is noted contaminated soil/fill material present will be ‘chased out’ during the excavation works based on visual, olfactory and preliminary field test results.

Additionally, all excavation works would be undertaken by a licensed contractor experienced in remediation projects and the handling of contaminated soils.

9.3 Reporting

All unexpected finds will be documented in a report/letter prepared in general accordance with the NSW EPA (2020) Consultants Reporting on Contaminated Land – Contaminated Land Guidelines.

10

Materials Management Procedure

10.1 Stockpile Management

Earthworks in the development phase are likely to, temporarily, generate excess material which may be stockpiled for re-use. Unless some event or observation indicates the material excavated and placed into the stockpile is potentially contaminated, no particular treatment is required other than normal dust suppression, and erosion controls in accordance with relevant project requirements.

All stockpiles will be maintained in an orderly and safe condition. Batters would be formed with sloped angles that are appropriate to prevent collapse or sliding of the stockpiled materials.

Subject to the agreement of the relevant Consultant, it may be possible to move and stockpile impacted material. Where temporary stockpiling is permitted such stockpiles shall be installed and maintained to eliminate risk to workers and other people due to exposure to contaminants in dust or vapours and risk to the environment as a result of silt or contamination of stormwater in accordance with the standard construction environmental management procedures.

If assessment by the Environmental Consultant identifies contamination, or a stockpile is observed to be contaminated, then the Environmental Consultant will assess the stockpile in accordance with **Section 10.2** to delineate the contamination and assess the extent of management/remediation, if required. In the event the stockpile contains asbestos the stockpile will be covered to minimise dust and potential asbestos release.

Stockpiles must be placed in a secure location onsite and covered if to remain for more than 24 hours. Stockpiles will be placed at locations to mitigate environmental impacts while facilitating material handling requirements. Contaminated or potentially contaminated materials would only be stockpiled at locations that did not pose any risk of environmental impairment of the stockpile area or surrounding areas.

10.2 Soil Classification and Treatment

No hazardous or regulated wastes shall be disposed of onsite.

The handling, stockpiling and assessing any impacted materials from the Site will be done in a Contamination Assessment and Treatment Area (CATA), to be established. The CATA will be capable of receiving, assessing and subsequently treating impacted soils. The process undertaken at the CATA will include:

- Stockpiling for initial materials classification;
- Sorting based on initial assessments;
- Potential treatment – including but not limited to emu picking for bonded asbestos or mixing of ash impacted materials; and
- Dispatching materials classified for offsite disposal or onsite reuse.
- Contaminated materials and wastes, where required, generated from the remediation and construction works would be taken to suitable licensed offsite disposal facilities.

Offsite disposals will be carried out by approved transport operators and to approved facilities.

The material processed through the CATA can be reused on the site subject to being classified as suitable to be remained and be reused onsite. Before the reuse of any material on-site, it would be validated so that the lateral and vertical extent of the contamination is defined.

10.3 Materials Characterisation Methodology

10.3.1 Objectives

The objectives of the materials characterisation methodology:

- Assess whether stockpiled or treated materials are suitable to remain on-site under the current land use, in general accordance with *National Environmental Protection Council (NEPC), National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999, as amended April 2013* ('NEPM 2013'); and/or
- Where material cannot remain on the site, provide a waste classification of soils to enable off-site disposal to an appropriately licensed landfill or recycling facility lawfully able to accept the waste, in accordance with the *NSW Environment Protection Authority ('EPA') Waste Classification Guidelines: Part 1 – Classifying Waste, 2014* (NSW EPA Waste Classification Guidelines, 2014) ('NSW EPA 2014').

10.3.2 Methodology

Materials Suitability

The number of locations for sampling should be determined in general accordance with the NSW EPA (1995) *Sampling Design Guidelines* or more current revisions thereof and the ASC NEPM (2013).

Waste Classification

Samples should be collected at the density stipulated within the ASC NEPM 2013 for stockpile sampling.

Laboratory Analysis

- Samples should be placed into laboratory supplied glass sampling jars with Teflon® lined screw-on caps. Sample identification details added to the label on each jar. Asbestos soil samples should be placed into laboratory prepared plastic Ziplock sampling bags, corresponding sample identification details added to the individual bag labels.
- The sample jars should be placed on ice immediately after sampling and transported to a National Association of testing Authorities (NATA) accredited laboratory under appropriate chain-of-custody (COC) documentation.
- Samples should be analysed for a broad suite comprising but not limited to broad contamination suites typically consisting of TRH – Total Recoverable Hydrocarbons, BTEX – Benzene, Toluene, Ethylbenzene, Xylene, PAH – Polycyclic Aromatic Hydrocarbons, Metals (Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Nickel (Ni), Mercury (Hg) and Zinc (Zn)), Polychlorinated Biphenyls (PCBs), Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs) and Asbestos Identification.

Soil Assessment Criteria

For the purposes of assessing the results of materials characterisation testing of soils at the site, the following guidelines should be considered:

- NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (Third Edition);
- NEPM 2013; and

- NSW EPA Waste Classification Guidelines, 2014.

10.3.3 Materials Classifications and Report

A letter report should be prepared in general accordance with NSW EPA (2020) detailing the scope of works, methodology, results and determine the classification of the materials as either:

- Class 1 – this is material that can be re-used onsite or offsite without restriction.
    - This class includes materials which satisfy the definition of Virgin Excavated Natural Materials (VENM) provided in the *Protection of the Environment Operations Act 1997 (POEO Act).*
- Class 2 - this material can be re-used on-site without restriction (i.e. within residential or landscaped areas) but may require additional assessment or management if taken off-site.
    - This class includes materials with chemical concentrations below the adopted Tier 1 criteria (ASC NEPM 2013), however, due to the origin of the material (i.e. reworked natural fill materials) or the proximity of the materials to a historical site activity which has potentially caused contamination, they do not satisfy the requirement of Class 1 materials. This would include materials which, following additional assessment, are likely to meet the NSW EPA classification of Excavated Natural Materials (ENM). However, the application of the NSW EPA ENM classification process is only applicable to materials scheduled to be taken offsite, materials proposed for re-use onsite do not need to satisfy the ENM classification process.
- Class 3 - this material can be re-used onsite without restriction in residential or landscaped areas.
    - This class includes materials with chemical concentrations below the adopted Tier 1 high density residential criteria (ASC NEPM 2013), however reported chemical concentrations which exceed Class 1 and 2 criteria above. It could require management or remediation, if re-used on-site within residential areas and would also require management or further assessment if taken off-site.
- Class 4 - this material is likely to require treatment or direct management before it can be reused on-site or is required to be taken off-site.
    - No criteria are needed for this class of soil as it is defined as soil that exceeds Class 3 criteria and will require treatment prior to reuse on site or warrants consideration of potential offsite disposal. A waste classification should be given in accordance with NSW EPA 2014.

10.4 Imported Fill Materials

Once validation data shows contaminated soil has been removed to the required levels, then imported soil sourced from reputable suppliers, certified as *Virgin Excavated Natural Material* or *Excavated Natural Material* as defined by the POEO Act 1997, will be used to backfill areas to original levels or specified finished levels as required. Prior to the importation of fill materials onto the site the following will be undertaken by the Environmental Consultant engaged for the project:

- Obtain material characterisation reports/certification showing the material being supplied sourced from reputable suppliers is virgin excavated natural material (VENM) / excavated natural material (ENM) or
- Carry out soil validation of the imported material in accordance with NSW EPA guidelines (under the POEO Act) as *Virgin Excavated Natural Material* or *Excavated Natural Material*

- Each truck entry should be visually checked and documented to confirm only approved materials consistent with the environmental approvals are allowed to enter the site. Only fully tarped loads are to be accepted by the gatekeeper.
- All documentation on imported fill material will be included in the validation report.

10.5 Materials Tracking

A Materials Tracking Plan (MTP) will be developed and implemented during the development works. The aim of the MTP is to identify the source and destination of all materials on the site at any time and requires the following tasks:

- Establish and maintain a nomenclature system for identification of all source and destination areas for soil both on and off the site. This includes excavations, stockpiles (both clean and potentially contaminated), soils for treatment or disposal (including final destination) and offsite sources of material;
- Use appropriate signage to identify the classification of the material and area number for each excavation prior to soil movement using the project documentation or in consultation with the Contract Administrator, prior to work being undertaken;
- Complete a ‘Record of Soil Movement’ sheet identifying the source of the materials, classification, volume and destination area of each load of material moved on or off-site;
- Place the soil in an approved location for the material based on its soil classification;
- Maintain the location of the soil without mixing with other soil classes; and
- Educate all operators in the requirements of the system.

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Conclusions

Sullivan-ES recommend this RAP – Revision A is approved by the Consent Authority for implementation to address the isolated soil contamination identified onsite and remove potential health risks to future site users for the proposed development.

The RAP – Revision A was developed to provide a plan detailing the remedial work activities including delineating contamination, removal, validation, WH&S and environment management strategies associated with the remediation of localised impacted soil material at the site. The RAP – Revision A has been prepared in accordance with relevant NSW EPA guidance documentation and industry standards, with sufficient detail to implement the preferred remedial strategy. The steps in remediating the site are to excavate and subsequently transport and disposal contaminated soil as waste offsite to a licenced landfill.

The preferred remediation strategy presented above is considered appropriate for soil contamination onsite and is both technically feasible and practical to implement under the known site conditions.

Subject to the successful implementation of the remediation and validation measures detailed in this RAP – Revision A, Sullivan-ES considers the site can be rendered suitable for its intended future land use as high density residential with ground floor retail and landscaped areas, with basement level car parking.

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References

Australian Standard 4482.1 Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, 2005.

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Bankstown Development Control Plan (DCP) 2015.

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

National Environment Protection (Assessment of Site Contamination) Measure 2013.

NSW EPA 2014. Waste Classification Guidelines – Part 1: Classifying Waste.

NSW EPA 2020, Contaminated Land Guidelines: Consultants Reporting on Contaminated Land, 2020.

NSW EPA 1995, Sampling Design Guidelines, 1995.

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Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019.

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State Environmental Planning Policy No.55 – Remediation of Land 1998 (SEPP55).

Sullivan Environmental Sciences Pty Ltd, Preliminary Contamination Investigation, 30-46 Auburn Road, Regents Park NSW. 11 August 2017.

Sullivan Environmental Sciences Pty Ltd, Remedial Action Plan, 30-46 Auburn Road, Regents Park NSW, 27 February 2021.

Sullivan Environmental Sciences Pty Ltd, Data Gap Contamination Investigation, 30-46 Auburn Road, Regents Park NSW, 28 June 2021a.

Work Health and Safety Act 2011.

Work Health and Safety Regulation 2017.

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Limitations

This Plan was prepared for 30 Auburn Road Pty Ltd in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this Plan, and any previous site investigation and assessment reports referred to in this Plan.

This Plan has been prepared for the sole benefit of 30 Auburn Road Pty Ltd and neither the whole nor any part of this Plan may be used or relied upon by any party other than 30 Auburn Road Pty Ltd.

This Plan should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Sullivan-ES for use of any part of this Plan in any other context.

This Plan is based solely on the investigations and findings contained in the previous reports and on the conditions encountered and information reviewed at the time of preparation. This Plan is subject to all limitations and recommendations included in the previous reports.

Where the plan indicates that information has been provided to Sullivan-ES, Sullivan-ES has made no independent verification of this information except as expressly stated. Sullivan-ES assumes no liability for any inaccuracies in or omissions to that information.

Sullivan-ES has only considered those chemicals specifically referred to in this Plan. Sullivan-ES makes no statement or representation as to the existence (or otherwise) of any other chemicals.

This Plan has been prepared to address on-site contamination issues only (within the context of and limited to the Scope of Work).

Investigations undertaken prior to this Plan are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and contamination may have been identified prior to this Plan.

Subsurface conditions can vary across a particular site and cannot be exhaustively defined by the investigations carried out prior to this Plan. It is unlikely therefore that the results and estimations expressed or used to compile this Plan will represent conditions at any location removed from the specific points of sampling.

A site which appears to be unaffected by contamination at the time the previous reports were prepared may later, due to natural phenomena or human intervention, become contaminated.

Except as specifically stated above, Sullivan-ES makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.

Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. Sullivan-ES offers no opinion as to whether the current use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals for development or redevelopment of the site, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.

Except as required by law, no third party may use or rely on, this Plan unless otherwise agreed by Sullivan-ES in writing.

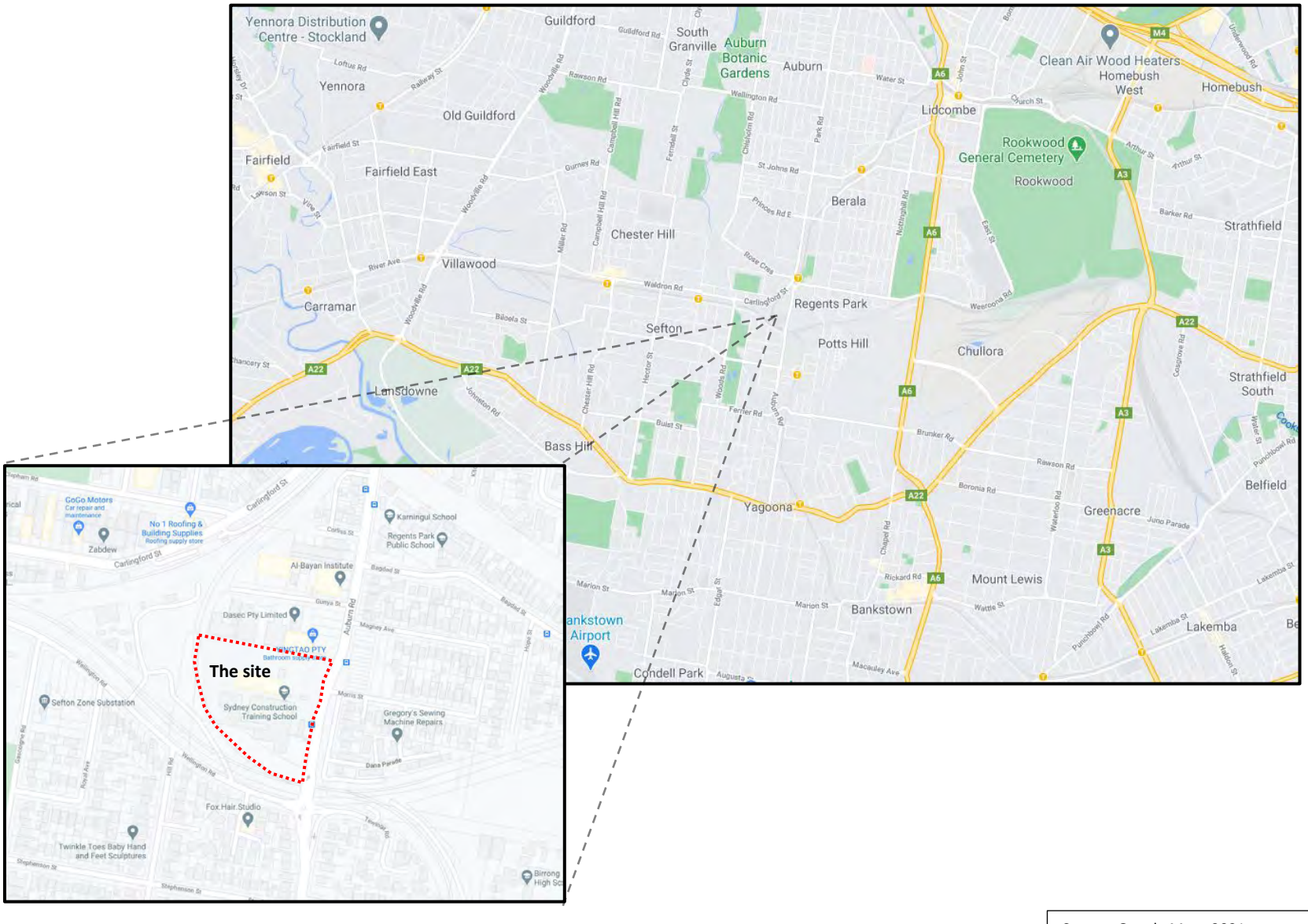
13 Limitations

To the extent permitted by law, Sullivan-ES expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Plan.

It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

A

Appendix A Figures



Not to scale Date: 24/06/2021

Source: Google Maps 2021

SULLIVAN environmental sciences	Project #: **SES_590**	Title: **Remedial Action Plan – Revision A**
	Figure 1: **Site Location**	Address: **30 - 46 Auburn Road, Regents Park NSW**

N

Site boundary

Added locations are approximate

Not to scale Date: 18/02/2021

Source: Sixmaps™ 2021

SULLIVAN environmental sciences	Project #: **SES_590**	Title: **Remedial Action Plan – Revision A**
	Figure 2: **Site Layout**	Address: **30 - 46 Auburn Road, Regents Park NSW**

N

Sample ID	Depth	Date	Asbestos (Bulk)	Lead	TRH >C_{10}-C_{16} (F2)	TRH >C_{16}-C_{34} (F3)
BH08_0.0-0.2	0.0-0.2	7/6/2021	-	2,800	<25	290
BH08_0.8-1.0	0.8-1.0	7/6/2021	-	6	190	250
BH28_F01	-	9/6/2021	Yes	-	-	-
SP02_A	-	9/6/2021	-	58	120	8,000
HIL B			Detect	1,200	-	-
HSL-A&B for VI			-	-	110	-
CRC Care Direct Contact HSL-B			-	-	3,300	4,500
Management Limits			-	-	-	2,500

- Site boundary
- New groundwater monitoring well
- Existing groundwater monitoring well
- Soil sample location
- Former AST Approx. Remediation Area
- Beneath Building #2 Approx. Remediation Area
- Stockpile SP02_A&B and Oil stains at SS01

Added locations are approximate

Not to scale Date: 24/06/2021

Source: Nearmaps™ 2021

SULLIVAN environmental sciences

Project #: **SES_590**

Title: **Remedial Action Plan – Revision A**

Figure 3: **June 2021 Sampling & Remediation Areas**

Address: **30 - 46 Auburn Road, Regents Park NSW**

B

Appendix B Summary Results Tables

Table 1
SES_590 - Soil Analytical Results
Regents Park - RAP

Sample ID	Depth	Date	Moisture	Asbestos: Asbestos Detected Soil	Asbestos: Estimated Fibres	Asbestos Detected - Bulk	Total Recoverable Elements: Arsenic, As #5	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb #4	Nickel, Ni	Zinc, Zn	Mercury, Hg #3	BTEXN: Benzene	Toluene	Ethylbenzene	m/p-xylene	o-xylene	Total Xylenes	Total BTEX	Naphthalene	Volatile Hydrocarbons: Benzene (F0)	TRH C6-C9	TRH C6-C10	TRH C6-C10 minus BTEX (F1)
Units			%w/w	No unit	%w/w	No unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	-	0.01	0	1	0.3	0.5	0.5	1	0.5	2	0.05	0.1	0.1	0.1	0.2	0.1	0.3	0.6	0.1	0.1	20	25	25
HIL B - High Density Residential			-	Detect	Detect	Detect	500	150	500	30,000	1,200	1,200	60,000	120	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	-	1	160	55	-	-	40	-	3	1	-	-	45
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	-	1	220	NL(64)	-	-	60	-	NL(9)	1	-	-	70
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	-	140	21,000	5,900	-	-	17,000	-	2,200	140	-	-	4,400
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.2-0.3	0.2-0.3	7/6/2021	20.7	No	<0.01	-	4	<0.3	15	15	16	5.2	36	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
QA01	-	7/6/2021	21.5	-	-	-	6	<0.3	14	17	16	5.1	39	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
% RPD			*4*	*-*	*-*		*40*	*-*	*7*	*13*	*0*	*2*	*8*	*-*	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	0.3-0.4	7/6/2021	22.1	No	<0.01	-	6	<0.3	11	18	12	2.5	20	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH03_0.15-0.25	0.15-0.25	7/6/2021	27.4	No	<0.01	-	7	<0.3	15	45	32	3.4	38	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH04_0.1-0.2	0.1-0.2	7/6/2021	18.3	No	<0.01	-	3	<0.3	4.2	26	24	11	50	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH05_0.2-0.3	0.2-0.3	7/6/2021	19.9	-	-	-	3	<0.3	8.2	14	28	1.0	12	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH06_0.2-0.3	0.2-0.3	7/6/2021	21.7	No	<0.01	-	15	<0.3	12	21	10	3.1	26	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH07_0.3-0.4	0.3-0.4	7/6/2021	19.9	No	<0.01	-	10	<0.3	15	24	14	8.7	53	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH08_0.0-0.2	0.0-0.2	7/6/2021	9.9	No	<0.01	-	3	1.6	74	72	**2,800**	32	410	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH08_0.8-1.0	0.8-1.0	7/6/2021	12.8	-	-	-	2	<0.3	9.4	28	6	7.9	61	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH09_0.4-0.5	0.4-0.5	7/6/2021	17.7	-	-	-	5	<0.3	13	32	12	19	31	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
QA02	-	7/6/2021	19.4	-	-	-	5	<0.3	14	15	12	3.5	28	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
% RPD			*9*	*-*	*-*		*0*	*-*	*7*	*72*	*0*	*138*	*10*	*-*	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	10.3	-	-	-	<1	<0.3	6.9	24	9	31	160	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH10_0.5-0.6	0.5-0.6	7/6/2021	14.3	No	<0.01	-	5	<0.3	11	25	15	16	70	0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH11_0.6-0.7	0.6-0.7	7/6/2021	19.4	No	<0.01	-	6	<0.3	8.4	38	13	5.7	63	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	[93%]	[94%]	[96%]	[96%]	[96%]	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	20.8	-	-	-	1	<0.3	3.0	6.3	7	1.1	28	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH12_1.3-1.4	1.3-1.4	8/6/2021	10.6	-	-	-	3	<0.3	6.2	12	13	18	97	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH13_0.2-0.4	0.2-0.4	8/6/2021	17.9	-	-	-	5	<0.3	5.9	59	10	25	90	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH13_1.0-1.2	1.0-1.2	8/6/2021	17.2	-	-	-	3	<0.3	7.7	21	10	26	310	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
QA03	-	8/6/2021	14.6	-	-	-	5	<0.3	9.2	27	10	49	190	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
% RPD			*16*	*-*	*-*		*50*	*-*	*18*	*25*	*0*	*61*	*48*	*-*	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	11.6	No	<0.01	-	4	<0.3	7.5	32	12	18	59	0.06	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH15_1.0-1.2	1.0-1.2	8/6/2021	19.4	-	-	-	70	0.6	8.4	28	12	2.5	26	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH15_2.2-2.3	2.2-2.3	8/6/2021	13.9	-	-	-	7	<0.3	7.9	28	18	21	72	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH16_0.0-0.2	0.0-0.2	8/6/2021	18.4	No	<0.01	-	6	0.4	15	110	130	9.9	180	0.07	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH17_1.0-1.2	1.0-1.2	8/6/2021	16.2	No	<0.01	-	7	<0.3	7.7	32	12	17	76	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
BH18_1.3-1.5	1.3-1.5	8/6/2021	15.7	No	<0.01	-	5	0.4	18	34	42	15	110	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
QA04	-	8/6/2021	16.1	-	-	-	6	<0.3	6.4	37	14	19	69	0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
% RPD			*3*	*-*	*-*		*40*	*-*	*95*	*8*	*100*	*24*	*46*	*-*	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	22.3	No	<0.01	-	7	<0.3	14	23	23	8.2	58	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
Trip Blank	-	2/6/2021	<1	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	21.9	-	-	-	4	<0.3	10	25	10	3.7	36	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH21_0.4-0.6	0.4-0.6	9/6/2021	15.7	-	-	-	6	<0.3	12	13	10	2.9	18	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
QA05	-	9/6/2021	20.3	-	-	-	7	<0.3	11	19	9	2.1	19	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH22_0.2-0.4	0.2-0.4	9/6/2021	20.8	-	-	-	9	<0.3	15	15	12	6.5	25	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH23_0.4-0.5	0.4-0.5	9/6/2021	21.9	-	-	-	8	<0.3	12	12	10	1.7	19	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH24_0.5-0.7	0.5-0.7	9/6/2021	18.9	-	-	-	9	<0.3	17	13	14	4.0	26	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH25_0.5-0.7	0.5-0.7	9/6/2021	22.0	No	<0.01	-	6	<0.3	15	18	35	5.2	69	0.08	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH26_0.3-0.5	0.3-0.5	9/6/2021	15.5	-	-	-	8	<0.3	15	22	11	12	22	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH27_0.4-0.5	0.4-0.5	9/6/2021	13.1	-	-	-	5	<0.3	13	58	41	21	180	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH27_0.7-0.8	0.7-0.8	9/6/2021	21.5	-	-	-	9	<0.3	17	12	13	1.7	23	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH28_F01	0.2-0.3	9/6/2021	-	-	-	**Yes**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	11.9	No	<0.01	-	4	<0.3	11	26	16	13	44	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH28_0.7-0.8	0.7-0.8	9/6/2021	22.7	-	-	-	10	<0.3	12	17	12	6.2	41	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH29_1.0-1.1	1.0-1.1	9/6/2021	11.0	-	-	-	6	<0.3	7.3	23	14	12	43	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
BH29_1.8-2.0	1.8-2.0	9/6/2021	22.1	-	-	-	7	<0.3	7.6	33	16	8.0	49	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
QA06	-	9/6/2021	21.4	-	-	-	14	0.4	13	29	19	4.8	68	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
HA01_0.5-0.6	0.5-0.6	9/6/2021	14.3	-	-	-	7	<0.3	20	10	16	6.1	28	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
SS01	-	9/6/2021	15.3	-	-	-	5	<0.3	12	65	37	20	380	<0.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25

Sample ID	Total Recoverable Hydrocarbons: TRH C10-C14	TRH C15-C28	TRH C29-C36	TRH C37-C40	TRH >C10-C16	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	TRH C10-C36 Total	TRH >C10-C40 Total (F bands)	Polynuclear Aromatic Hydrocarbons #1 #2: Naphthalene	2-methylnaphthalene	1-methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b&j)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(ah)anthracene	Benzo(ghi)perylene	Carcinogenic PAHs, BaP TEQ <LOR=0
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	20	45	45	100	25	25	90	120	110	210	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	0.2
HIL B - High Density Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
HSL-A&B Residential for VI (Sand, <1m)	-	-	-	-	-	110	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)	-	-	-	-	-	240	-	-	-	-	NL(9)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B	-	-	-	-	-	3,300	4,500	6,300	-	-	2,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential	-	-	-	-	1,000	-	2,500	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.2-0.3	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
QA01	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH03_0.15-0.25	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH04_0.1-0.2	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
BH05_0.2-0.3	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH06_0.2-0.3	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH07_0.3-0.4	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH08_0.0-0.2	<20	**170**	**170**	<100	<25	<25	**290**	<120	**340**	**290**	<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	<0.2
BH08_0.8-1.0	**98**	**320**	<45	<100	**190**	**190**	**250**	<120	**420**	**440**	<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	<0.2
BH09_0.4-0.5	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
QA02	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH10_0.5-0.6	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
BH11_0.6-0.7	<20	**550**	**280**	<100	<25	<25	750	<120	**820**	**750**	<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	<0.2
Trip Spike	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH12_1.3-1.4	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH13_0.2-0.4	<20	**630**	**250**	<100	<25	<25	**850**	<120	**880**	**850**	<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	<0.2
BH13_1.0-1.2	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
QA03	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH15_1.0-1.2	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH15_2.2-2.3	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH16_0.0-0.2	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH17_1.0-1.2	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH18_1.3-1.5	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
QA04	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
Trip Blank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH21_0.4-0.6	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
QA05	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH22_0.2-0.4	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH23_0.4-0.5	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH24_0.5-0.7	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH25_0.5-0.7	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH26_0.3-0.5	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH27_0.4-0.5	<20	**98**	**140**	<100	<25	<25	**190**	<120	**240**	<210	<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	<0.2
BH27_0.7-0.8	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH28_F01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH28_0.7-0.8	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH29_1.0-1.1	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
BH29_1.8-2.0	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
QA06	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
HA01_0.5-0.6	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<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	<0.2
SS01	**20**	**660**	**210**	<100	**60**	**60**	**770**	<120	**890**	**830**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.3**	**0.1**	**0.1**	**0.3**	**0.1**	**0.2**	**0.5**	<0.1	**0.5**	**0.3**

Notes
NEPM 2013 Table 1A(1) - Human Investigation Levels HIL-B for High Density Residential
NEPM 2013 Table 1A(3) Residentials A/B Soil HSL for Vapour Intrusion
CRC Care Direct Contact Health Screening Levels for Direct Contact HSL-B (High Density Residential)
NEPM 2013 Table 1 B(7) - Management Limits for TPH fractions in soil - Residential
NEMP (HEPA, Jan 2018) Human Health - Residential (with minimal opportunity for access to soil)
NEMP (HEPA, Jan 2018) Ecological Direct Toxicity - all uses
NEMP (HEPA, Jan 2018) Ecological Indirect Toxicity - residential
NL - Derived soil HSL exceeds soil saturation concentraiton
To obtain F2 subtract napthalene from the >C10 - C16 fraction.
To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2
#1 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7)
#2 Total PAHs: Based on sum of 16 most common reported (WHO 98)
#3 Elemental mercury: HIL does not address elemental mercury.
#4 Lead: HILs A,B,C based on blood lead models
#5 Arsenic: HIL assumes 70% oral bioavailability.
* Combined value for Aldrin & Dieldrin
** Combine value for DDT, DDE and DDD
^ Combined value for Endosulfan
# combiend value for Chlordane

Sample ID	Depth	Date	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	Total PAH (18)	Total PAH (NEPM/WHO 16)	Arochlor 1016 (Polychlorinated Biphenyls)	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Arochlor 1262	Arochlor 1268	Total PCBs (Arochlors)
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.3	0.2	0.8	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1
HIL B - High Density Residential			**4**	**4**	-	**400**	-	-	-	-	-	-	-	-	-	**1**
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.2-0.3	0.2-0.3	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
QA01	-	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	0.3-0.4	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH03_0.15-0.25	0.15-0.25	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH04_0.1-0.2	0.1-0.2	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH05_0.2-0.3	0.2-0.3	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH06_0.2-0.3	0.2-0.3	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH07_0.3-0.4	0.3-0.4	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH08_0.0-0.2	0.0-0.2	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH08_0.8-1.0	0.8-1.0	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH09_0.4-0.5	0.4-0.5	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
QA02	-	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH10_0.5-0.6	0.5-0.6	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH11_0.6-0.7	0.6-0.7	7/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH12_1.3-1.4	1.3-1.4	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH13_0.2-0.4	0.2-0.4	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH13_1.0-1.2	1.0-1.2	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
QA03	-	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH15_1.0-1.2	1.0-1.2	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH15_2.2-2.3	2.2-2.3	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH16_0.0-0.2	0.0-0.2	8/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH17_1.0-1.2	1.0-1.2	8/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH18_1.3-1.5	1.3-1.5	8/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
QA04	-	8/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
Trip Blank	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH21_0.4-0.6	0.4-0.6	9/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
QA05	-	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH22_0.2-0.4	0.2-0.4	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH23_0.4-0.5	0.4-0.5	9/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH24_0.5-0.7	0.5-0.7	9/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH25_0.5-0.7	0.5-0.7	9/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH26_0.3-0.5	0.3-0.5	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH27_0.4-0.5	0.4-0.5	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH27_0.7-0.8	0.7-0.8	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH28_F01	0.2-0.3	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH28_0.7-0.8	0.7-0.8	9/6/2021	<0.3	<0.2	<0.8	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1
BH29_1.0-1.1	1.0-1.1	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
BH29_1.8-2.0	1.8-2.0	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
QA06	-	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
HA01_0.5-0.6	0.5-0.6	9/6/2021	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-	-	-	-
SS01	-	9/6/2021	**0.4**	**0.4**	**2.3**	**2.3**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1

Per- and Polyfluoroalkyl Substances (PFAS) - Low level

Sample ID	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorohexadecanoic acid (PFHxDA)	Perfluorobutane sulfonate (PFBS)	Perfluoropentane sulfonate (PFPeS)	Perfluorohexane sulfonate (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctane sulfonate (PFOS)	Sum PFOS and PFHXS	Perfluorononane sulfonate (PFNS)	Perfluorodecane sulfonate (PFDS)	Perfluorododecane sulfonate (PFDoS)	1H,1H,2H,2H-Perfluorohexane sulfonate (4:2 FTS)	1H,1H,2H,2H-Perfluorooctane sulfonate (6:2 FTS)	1H,1H,2H,2H-Perfluorodecane sulfonate (8:2 FTS)	Perfluorooctane sulfonamide (PFOSA)	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.0001	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001
HIL B - High Density Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)	-	-	-	-	**20**	-	-	-	-	-	-	-	-	-	**2**	-	**2**	**2**	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.2-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.15-0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.1-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.2-0.3	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH07_0.3-0.4	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH08_0.0-0.2	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0003**	**0.0003**	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH08_0.8-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.5-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11_0.6-0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH12_1.3-1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0.2-0.4	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH13_1.0-1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_1.0-1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_2.2-2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16_0.0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17_1.0-1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18_1.3-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21_0.4-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22_0.2-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23_0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24_0.5-0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH25_0.5-0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH26_0.3-0.5	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH27_0.4-0.5	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
BH27_0.7-0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_F01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.7-0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.0-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.8-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA01_0.5-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SS01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	Dichlorodifluoromethane (CFC-12)	Chloromethane	Vinyl chloride (Chloroethene)	Bromomethane	Chloroethane	Trichlorofluoromethane	Acetone (2-propanone)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	1	0.1	1	1	1	10
HIL B - High Density Residential	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B	-	-	-	-	-	-	-
Management Limits - Residential	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)	-	-	-	-	-	-	-
BH01_0.2-0.3	-	-	-	-	-	-	-
QA01	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-
BH02_0.3-0.4	-	-	-	-	-	-	-
BH03_0.15-0.25	-	-	-	-	-	-	-
BH04_0.1-0.2	-	-	-	-	-	-	-
BH05_0.2-0.3	-	-	-	-	-	-	-
BH06_0.2-0.3	-	-	-	-	-	-	-
BH07_0.3-0.4	-	-	-	-	-	-	-
BH08_0.0-0.2	-	-	-	-	-	-	-
BH08_0.8-1.0	-	-	-	-	-	-	-
BH09_0.4-0.5	-	-	-	-	-	-	-
QA02	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-
BH09_1.7-1.8	-	-	-	-	-	-	-
BH10_0.5-0.6	-	-	-	-	-	-	-
BH11_0.6-0.7	-	-	-	-	-	-	-
Trip Spike	-	-	-	-	-	-	-
BH12_0.5-0.6	<1	<1	<0.1	<1	<1	<1	<10
BH12_1.3-1.4	<1	<1	<0.1	<1	<1	<1	<10
BH13_0.2-0.4	<1	<1	<0.1	<1	<1	<1	<10
BH13_1.0-1.2	<1	<1	<0.1	<1	<1	<1	<10
QA03	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-
BH14_0.3-0.5	-	-	-	-	-	-	-
BH15_1.0-1.2	-	-	-	-	-	-	-
BH15_2.2-2.3	-	-	-	-	-	-	-
BH16_0.0-0.2	-	-	-	-	-	-	-
BH17_1.0-1.2	-	-	-	-	-	-	-
BH18_1.3-1.5	-	-	-	-	-	-	-
QA04	-	-	-	-	-	-	-
% RPD	-	-	-	-	-	-	-
BH19_2.1-2.3	-	-	-	-	-	-	-
Trip Blank	-	-	-	-	-	-	-
BH20_0.3-0.4	-	-	-	-	-	-	-
BH21_0.4-0.6	-	-	-	-	-	-	-
QA05	-	-	-	-	-	-	-
BH22_0.2-0.4	<1	<1	<0.1	<1	<1	<1	<10
BH23_0.4-0.5	<1	<1	<0.1	<1	<1	<1	<10
BH24_0.5-0.7	-	-	-	-	-	-	-
BH25_0.5-0.7	-	-	-	-	-	-	-
BH26_0.3-0.5	<1	<1	<0.1	<1	<1	<1	<10
BH27_0.4-0.5	<1	<1	<0.1	<1	<1	<1	<10
BH27_0.7-0.8	<1	<1	<0.1	<1	<1	<1	<10
BH28_F01	-	-	-	-	-	-	-
BH28_0.5-0.6	-	-	-	-	-	-	-
BH28_0.7-0.8	-	-	-	-	-	-	-
BH29_1.0-1.1	<1	<1	<0.1	<1	<1	<1	<10
BH29_1.8-2.0	<1	<1	<0.1	<1	<1	<1	<10
QA06	<1	<1	<0.1	<1	<1	<1	<10
HA01_0.5-0.6	<1	<1	<0.1	<1	<1	<1	<10
SS01	-	-	-	-	-	-	-

Volatile Organic Compounds

			Iodomethane	1,1-dichloroethene	Acrylonitrile	Dichloromethane (Methylene chloride)	Allyl chloride	Carbon disulfide	trans-1,2-dichloroethene	MtBE (Methyl-tert-butyl ether)	1,1-dichloroethane	Vinyl acetate	MEK (2-butanone)	cis-1,2-dichloroethene	Bromochloromethane	Chloroform	2,2-dichloropropane	1,2-dichloroethane	1,1,1-trichloroethane	1,1-dichloropropene	Carbon tetrachloride	Dibromomethane	1,2-dichloropropane	Trichloroethene (Trichloroethylene - TCE)	2-nitropropane	Bromodichloromethane	MIBK (4-methyl-2-pentanone)	cis-1,3-dichloropropene	trans-1,3-dichloropropene	1,1,2-trichloroethane	1,3-dichloropropane	Chlorodibromomethane	2-hexanone (MBK)	1,2-dibromoethane (EDB)	Tetrachloroethene (Perchloroethylene,PCE)	1,1,1,2-tetrachloroethane	Chlorobenzene	Bromoform	cis-1,4-dichloro-2-butene	Styrene (Vinyl benzene)	1,1,2,2-tetrachloroethane	1,2,3-trichloropropane	trans-1,4-dichloro-2-butene	Isopropylbenzene (Cumene)	Bromobenzene	n-propylbenzene	2-chlorotoluene	4-chlorotoluene	1,3,5-trimethylbenzene	tert-butylbenzene	1,2,4-trimethylbenzene	sec-butylbenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	p-isopropyltoluene
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			5	0.1	0.1	0.5	0.1	0.5	0.1	0.1	0.1	10	10	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10	0.1	1	0.1	0.1	0.1	0.1	0.1	5	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	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
HIL B - High Density Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Depth	Date																																																					
BH01_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	-	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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BH02_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.15-0.25	0.15-0.25	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.1-0.2	0.1-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.0-0.2	0.0-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.8-1.0	0.8-1.0	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_0.4-0.5	0.4-0.5	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	-	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.5-0.6	0.5-0.6	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11_0.6-0.7	0.6-0.7	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH12_1.3-1.4	1.3-1.4	8/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH13_0.2-0.4	0.2-0.4	8/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH13_1.0-1.2	1.0-1.2	8/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
QA03	-	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_2.2-2.3	2.2-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16_0.0-0.2	0.0-0.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18_1.3-1.5	1.3-1.5	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA04	-	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21_0.4-0.6	0.4-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA05	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22_0.2-0.4	0.2-0.4	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH23_0.4-0.5	0.4-0.5	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH24_0.5-0.7	0.5-0.7	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH25_0.5-0.7	0.5-0.7	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH26_0.3-0.5	0.3-0.5	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH27_0.4-0.5	0.4-0.5	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH27_0.7-0.8	0.7-0.8	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH28_F01	0.2-0.3	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.0-1.1	1.0-1.1	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
BH29_1.8-2.0	1.8-2.0	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
QA06	-	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
HA01_0.5-0.6	0.5-0.6	9/6/2021	<5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<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
SS01	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1
SES_590 - Soil Analytical Results
Regents Park - RAP

			1,2-dichlorobenzene	n-butylbenzene	1,2-dibromo-3-chloropropane	1,2,4-trichlorobenzene	Hexachlorobutadiene	1,2,3-trichlorobenzene	Total VOC	Total Volatile Chlorinated Hydrocarbons	Total Chlorinated Hydrocarbons VIC EPA	Total Other Chlorinated Hydrocarbons VIC EPA
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.1	0.1	0.1	0.1	0.1	0.1	24	3	1.8	1.8
HIL B - High Density Residential			-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**										
BH01_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-
QA01	-	7/6/2021	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH03_0.15-0.25	0.15-0.25	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH04_0.1-0.2	0.1-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH06_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH07_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH08_0.0-0.2	0.0-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH08_0.8-1.0	0.8-1.0	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH09_0.4-0.5	0.4-0.5	7/6/2021	-	-	-	-	-	-	-	-	-	-
QA02	-	7/6/2021	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH10_0.5-0.6	0.5-0.6	7/6/2021	-	-	-	-	-	-	-	-	-	-
BH11_0.6-0.7	0.6-0.7	7/6/2021	-	-	-	-	-	-	-	-	-	-
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH12_1.3-1.4	1.3-1.4	8/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH13_0.2-0.4	0.2-0.4	8/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH13_1.0-1.2	1.0-1.2	8/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
QA03	-	8/6/2021	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	-	-	-	-	-	-	-	-	-	-
BH15_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-
BH15_2.2-2.3	2.2-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-
BH16_0.0-0.2	0.0-0.2	8/6/2021	-	-	-	-	-	-	-	-	-	-
BH17_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-
BH18_1.3-1.5	1.3-1.5	8/6/2021	-	-	-	-	-	-	-	-	-	-
QA04	-	8/6/2021	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-
Trip Blank	-	2/6/2021	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH21_0.4-0.6	0.4-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-
QA05	-	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH22_0.2-0.4	0.2-0.4	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH23_0.4-0.5	0.4-0.5	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH24_0.5-0.7	0.5-0.7	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH25_0.5-0.7	0.5-0.7	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH26_0.3-0.5	0.3-0.5	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH27_0.4-0.5	0.4-0.5	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH27_0.7-0.8	0.7-0.8	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH28_F01	0.2-0.3	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH28_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-	-	-
BH29_1.0-1.1	1.0-1.1	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
BH29_1.8-2.0	1.8-2.0	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
QA06	-	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
HA01_0.5-0.6	0.5-0.6	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<24	<3	<1.8	<1.8
SS01	-	9/6/2021	-	-	-	-	-	-	-	-	-	-

Speciated Phenols

			Phenol	2-methyl phenol (o-cresol)	3/4-methyl phenol (m/p-cresol)	Total Cresol	2-chlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2,4-dichlorophenol	2,4,6-trichlorophenol	2-nitrophenol	4-nitrophenol	2,4,5-trichlorophenol	2,3,4,6/2,3,5,6-tetrachlorophenol	Pentachlorophenol	2,4-dinitrophenol	4-chloro-3-methylphenol
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.5	0.5	1	1.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	2	2
HIL B - High Density Residential			**45,000**	-	-	**4,700**	-	-	-	-	-	-	-	-	-	**130**	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**																
BH01_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	-	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.15-0.25	0.15-0.25	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.1-0.2	0.1-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.0-0.2	0.0-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.8-1.0	0.8-1.0	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_0.4-0.5	0.4-0.5	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	-	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.5-0.6	0.5-0.6	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11_0.6-0.7	0.6-0.7	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_1.3-1.4	1.3-1.4	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0.2-0.4	0.2-0.4	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA03	-	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_2.2-2.3	2.2-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16_0.0-0.2	0.0-0.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18_1.3-1.5	1.3-1.5	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA04	-	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21_0.4-0.6	0.4-0.6	9/6/2021	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5	<2	<2
QA05	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22_0.2-0.4	0.2-0.4	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23_0.4-0.5	0.4-0.5	9/6/2021	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5	<2	<2
BH24_0.5-0.7	0.5-0.7	9/6/2021	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5	<2	<2
BH25_0.5-0.7	0.5-0.7	9/6/2021	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5	<2	<2
BH26_0.3-0.5	0.3-0.5	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27_0.4-0.5	0.4-0.5	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_F01	0.2-0.3	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.0-1.1	1.0-1.1	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.8-2.0	1.8-2.0	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA06	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA01_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SS01	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Organochlorine Pesticides

			Hexachlorobenzene (HCB)	Alpha BHC	Lindane	Heptachlor	Aldrin	Beta BHC	Delta BHC	Heptachlor epoxide	o,p'-DDE	Alpha Endosulfan	Gamma Chlordane	Alpha Chlordane	trans-Nonachlor	p,p'-DDE	Dieldrin	Endrin	o,p'-DDD	o,p'-DDT	Beta Endosulfan	p,p'-DDD	p,p'-DDT	Endosulfan sulphate	Endrin Aldehyde	Methoxychlor	Endrin Ketone	Isodrin	Mirex	Total CLP OC Pesticides	Dichlorvos	Dimethoate	Diazinon (Dimpylate)	Fenitrothion
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	0.5	0.5	0.5	0.2
HIL B - High Density Residential			**15**	-	-	**10**	**10***	-	-	-	**600****	**400^**	**90#**	**90#**	-	**600****	**10***	**20**	**600****	**600****	**400^**	**600****	**600****	-	-	**500**	-	-	**20**	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**																																
BH01_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	-	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.15-0.25	0.15-0.25	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.1-0.2	0.1-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.0-0.2	0.0-0.2	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.8-1.0	0.8-1.0	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_0.4-0.5	0.4-0.5	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	-	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.5-0.6	0.5-0.6	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11_0.6-0.7	0.6-0.7	7/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12_1.3-1.4	1.3-1.4	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0.2-0.4	0.2-0.4	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA03	-	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15_2.2-2.3	2.2-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16_0.0-0.2	0.0-0.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18_1.3-1.5	1.3-1.5	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA04	-	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% RPD			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank	-	2/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21_0.4-0.6	0.4-0.6	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.5	<0.5	<0.5	<0.2
QA05	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22_0.2-0.4	0.2-0.4	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23_0.4-0.5	0.4-0.5	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.5	<0.5	<0.5	<0.2
BH24_0.5-0.7	0.5-0.7	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.5	<0.5	<0.5	<0.2
BH25_0.5-0.7	0.5-0.7	9/6/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.5	<0.5	<0.5	<0.2
BH26_0.3-0.5	0.3-0.5	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27_0.4-0.5	0.4-0.5	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_F01	0.2-0.3	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.0-1.1	1.0-1.1	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29_1.8-2.0	1.8-2.0	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA06	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA01_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SS01	-	9/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1
SES_590 - Soil Analytical Results
Regents Park - RAP

			Organophosporous Pesticides								
			Malathion	Chlorpyrifos (Chlorpyrifos Ethyl)	Parathion-ethyl (Parathion)	Bromophos Ethyl	Methidathion	Ethion	Azinphos-methyl (Guthion)	Total OP Pesticides
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.2	0.2	0.2	0.2	0.5	0.2	0.2	1.7
HIL B - High Density Residential			-	340	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-
P Human Health - Residential (minimal access soil)			-	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**								
BH01_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-
QA01	-	7/6/2021	-	-	-	-	-	-	-	-
% *RPD*			-	-	-	-	-	-	-	-
BH02_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-
BH03_0.15-0.25	0.15-0.25	7/6/2021	-	-	-	-	-	-	-	-
BH04_0.1-0.2	0.1-0.2	7/6/2021	-	-	-	-	-	-	-	-
BH05_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-
BH06_0.2-0.3	0.2-0.3	7/6/2021	-	-	-	-	-	-	-	-
BH07_0.3-0.4	0.3-0.4	7/6/2021	-	-	-	-	-	-	-	-
BH08_0.0-0.2	0.0-0.2	7/6/2021	-	-	-	-	-	-	-	-
BH08_0.8-1.0	0.8-1.0	7/6/2021	-	-	-	-	-	-	-	-
BH09_0.4-0.5	0.4-0.5	7/6/2021	-	-	-	-	-	-	-	-
QA02	-	7/6/2021	-	-	-	-	-	-	-	-
% *RPD*			-	-	-	-	-	-	-	-
BH09_1.7-1.8	1.7-1.8	7/6/2021	-	-	-	-	-	-	-	-
BH10_0.5-0.6	0.5-0.6	7/6/2021	-	-	-	-	-	-	-	-
BH11_0.6-0.7	0.6-0.7	7/6/2021	-	-	-	-	-	-	-	-
Trip Spike	-	2/6/2021	-	-	-	-	-	-	-	-
BH12_0.5-0.6	0.5-0.6	8/6/2021	-	-	-	-	-	-	-	-
BH12_1.3-1.4	1.3-1.4	8/6/2021	-	-	-	-	-	-	-	-
BH13_0.2-0.4	0.2-0.4	8/6/2021	-	-	-	-	-	-	-	-
BH13_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-
QA03	-	8/6/2021	-	-	-	-	-	-	-	-
% *RPD*			-	-	-	-	-	-	-	-
BH14_0.3-0.5	0.3-0.5	8/6/2021	-	-	-	-	-	-	-	-
BH15_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-
BH15_2.2-2.3	2.2-2.3	8/6/2021	-	-	-	-	-	-	-	-
BH16_0.0-0.2	0.0-0.2	8/6/2021	-	-	-	-	-	-	-	-
BH17_1.0-1.2	1.0-1.2	8/6/2021	-	-	-	-	-	-	-	-
BH18_1.3-1.5	1.3-1.5	8/6/2021	-	-	-	-	-	-	-	-
QA04	-	8/6/2021	-	-	-	-	-	-	-	-
% *RPD*			-	-	-	-	-	-	-	-
BH19_2.1-2.3	2.1-2.3	8/6/2021	-	-	-	-	-	-	-	-
Trip Blank	-	2/6/2021	-	-	-	-	-	-	-	-
BH20_0.3-0.4	0.3-0.4	9/6/2021	-	-	-	-	-	-	-	-
BH21_0.4-0.6	0.4-0.6	9/6/2021	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<1.7
QA05	-	9/6/2021	-	-	-	-	-	-	-	-
BH22_0.2-0.4	0.2-0.4	9/6/2021	-	-	-	-	-	-	-	-
BH23_0.4-0.5	0.4-0.5	9/6/2021	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<1.7
BH24_0.5-0.7	0.5-0.7	9/6/2021	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<1.7
BH25_0.5-0.7	0.5-0.7	9/6/2021	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<1.7
BH26_0.3-0.5	0.3-0.5	9/6/2021	-	-	-	-	-	-	-	-
BH27_0.4-0.5	0.4-0.5	9/6/2021	-	-	-	-	-	-	-	-
BH27_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-
BH28_F01	0.2-0.3	9/6/2021	-	-	-	-	-	-	-	-
BH28_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-
BH28_0.7-0.8	0.7-0.8	9/6/2021	-	-	-	-	-	-	-	-
BH29_1.0-1.1	1.0-1.1	9/6/2021	-	-	-	-	-	-	-	-
BH29_1.8-2.0	1.8-2.0	9/6/2021	-	-	-	-	-	-	-	-
QA06	-	9/6/2021	-	-	-	-	-	-	-	-
HA01_0.5-0.6	0.5-0.6	9/6/2021	-	-	-	-	-	-	-	-
SS01	-	9/6/2021	-	-	-	-	-	-	-	-

Table 2
SES_590 - Groundwater Analytical Results
Regents Park - RAP

		Heavy Metals								Total Petroleum Hydrocarbons						Total Recoverable Hydrocarbons - ASC NEPM							BTEXN						
Analyte		Arsenic, As	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Nickel, Ni	Zinc, Zn	Mercury, Hg	Benzene (F0)	C6 - C9 Fraction	TRH C10-C14	TRH C15-C28	TRH C29-C36	TRH C37-C40	C6 - C10 Fraction	TRH C6-C10 minus BTEX (F1)	TRH >C10-C16	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	TRH C10-C40	Benzene	Toluene	Ethylbenzene	m/p-xylene	o-xylene	Total Xylenes	Total BTEX
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		1	0.1	1	1	1	1	5	0.1	0.5	40	50	200	200	200	50	50	50	60	500	500	320	0.5	0.5	0.5	1	0.5	1.5	3
HSL-A&B Residential for VI (Sand)		-	-	-	-	-	-	-	-	800	-	-	-	-	-	-	1,000	-	1,000	-	-	-	800	NL(61,000)	NL(3,900)	-	-	NL(21,000)	-
ANZG 2018 Eco (Fresh) 95% Protection		13	0.2	1	1.4	3.4	11	8	0.06	950	-	-	-	-	-	-	-	-	-	-	-	-	950	-	-	200	350	-	-
NEMP Human Health - Recreational Use		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Ecological - freshwater 95% species protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Draft NEMP Ecological - freshwater 99% species protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date																												
GW01	11/6/2021	1	0.9	4	3	<1	24	59	<0.0001	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
QC01	11/6/2021	1	0.9	4	3	<1	24	65	<0.0001	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
GW02	11/6/2021	<1	0.2	6	1	<1	15	15	<0.0001	<5	<400	<50	360	220	<200	<500	<500	<60	<60	530	<500	570	<5	<5	<50	<10	<5	<15	<30
GW03	11/6/2021	<1	0.2	6	2	<1	15	18	<0.0001	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
GW04	11/6/2021	<1	0.3	14	1	<1	7	19	<0.0001	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
GW05	11/6/2021	<1	<0.1	1	6	<1	54	180	0.0005	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
Rinse_HA	11/6/2021	<1	<0.1	<1	<1	<1	<1	<5	<0.0001	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
Rinse_Pump	11/6/2021	<1	<0.1	<1	2	<1	5	17	<0.0001	<0.5	<40	<50	<200	<200	<200	<50	<50	<60	<60	<500	<500	<320	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
Trip Blank	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<1	<0.5	<1.5	<3
Trip Spike	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	[105%]	[104%]	[105%]	[104%]	[106%]	-	-

Notes

NEPM 2013 Table 1A(41) - Health Screening Level HSL for Low and High Density Residential for Vapour Intrusion (Sand)
Australian and New Zealand Water quality guidelines 2018 Freshwater Ecological 95% Protection Values
NEMP (HEPA, Jan 2020) Human Health - Recreational Use
Draft NEMP (HEPA, Jan 2020) Ecological - freshwater 99% species protection
NEMP (HEPA, Jan 2020) Ecological - freshwater 95% species protection

Table 2
SES_590 - Groundwater Analytical Results
Regents Park - RAP

			Polycyclic Aromatic Hydrocarbons																																	
	Analyte	Naphthalene	Naphthalene	2-methylnaphthalene	1-methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b&j)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(ah)anthracene	Benzo(ghi)perylene	Total PAH (18)	Dichlorodifluoromethane (CFC-12)	Chloromethane	Vinyl chloride (Chloroethene)	Bromomethane	Chloroethane	Trichlorofluoromethane	Acetone (2-propanone)	Iodomethane	1,1-dichloroethene	Acrylonitrile	Dichloromethane (Methylene chloride)	Allyl chloride	Carbon disulfide
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
	LOR	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	5	5	0.3	10	5	1	10	5	0.5	0.5	5	2	2
HSL-A&B Residential for VI (Sand)		NL(170)	NL(170)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANZG 2018 Eco (Fresh) 95% Protection		16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Human Health - Recreational Use		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Ecological - freshwater 95% species protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Draft NEMP Ecological - freshwater 99% species protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date																																	
GW01	11/6/2021	<0.5	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	11/6/2021	<0.5	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
GW02	11/6/2021	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	1	<50	<50	<3	<100	<50	<10	<100	<50	<5	<5	<50	<20	<20
GW03	11/6/2021	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<5	<5	<0.3	<10	<5	<1	<10	<5	<0.5	<0.5	<5	<2	<2
GW04	11/6/2021	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<5	<5	<0.3	<10	<5	<1	<10	<5	<0.5	<0.5	<5	<2	<2
GW05	11/6/2021	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<5	<5	<0.3	<10	<5	<1	<10	<5	<0.5	<0.5	<5	<2	<2
Rinse_HA	11/6/2021	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
Rinse_Pump	11/6/2021	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank	11/6/2021	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

NEPM 2013 Table 1A(41) - Health Screening Level HSL for Low and High Density Residential for Vapour Intrusion (Sand)
Australian and New Zealand Water quality guidelines 2018 Freshwater Ecological 95% Protection Values
NEMP (HEPA, Jan 2020) Human Health - Recreational Use
Draft NEMP (HEPA, Jan 2020) Ecological - freshwater 99% species protection
NEMP (HEPA, Jan 2020) Ecological - freshwater 95% species protection

Table 2
SES_590 - Groundwater Analytical Results
Regents Park - RAP

Analyte		trans-1,2-dichloroethene	MtBE (Methyl-tert-butyl ether)	1,1-dichloroethane	Vinyl acetate	MEK (2-butanone)	cis-1,2-dichloroethene	Bromochloromethane	Chloroform (THM)	2,2-dichloropropane	1,2-dichloroethane	1,1,1-trichloroethane	1,1-dichloropropene	Carbon tetrachloride	Dibromomethane	1,2-dichloropropane	Trichloroethene (Trichloroethylene,TCE)	2-nitropropane	Bromodichloromethane (THM)	MIBK (4-methyl-2-pentanone)	cis-1,3-dichloropropene	trans-1,3-dichloropropene	1,1,2-trichloroethane	1,3-dichloropropane	Dibromochloromethane (THM)	2-hexanone (MBK)	1,2-dibromoethane (EDB)	Tetrachloroethene (Perchloroethylene,PCE)	1,1,1,2-tetrachloroethane	Chlorobenzene	Bromoform (THM)	cis-1,4-dichloro-2-butene	Styrene (Vinyl benzene)	1,1,2,2-tetrachloroethane	1,2,3-trichloropropane
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		0.5	2	0.5	10	10	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	100	0.5	5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5
HSL-A&B Residential for VI (Sand)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANZG 2018 Eco (Fresh) 95% Protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Human Health - Recreational Use		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Ecological - freshwater 95% species protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Draft NEMP Ecological - freshwater 99% species protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date																																		
GW01	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW02	11/6/2021	<5	<20	<5	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1000	<5	<50	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<10	<5	<5	<5
GW03	11/6/2021	<0.5	<2	<0.5	<10	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<100	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
GW04	11/6/2021	<0.5	<2	<0.5	<10	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<100	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
GW05	11/6/2021	<0.5	<2	<0.5	<10	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<100	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Rinse_HA	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rinse_Pump	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

NEPM 2013 Table 1A(41) - Health Screening Level HSL for Low and High Density Residential for Vapour Intrusion (Sand)
Australian and New Zealand Water quality guidelines 2018 Freshwater Ecological 95% Protection Values
NEMP (HEPA, Jan 2020) Human Health - Recreational Use
Draft NEMP (HEPA, Jan 2020) Ecological - freshwater 99% species protection
NEMP (HEPA, Jan 2020) Ecological - freshwater 95% species protection

Table 2
SES_590 - Groundwater Analytical Results
Regents Park - RAP

Analyte	trans-1,4-dichloro-2-butene	Isopropylbenzene (Cumene)	Bromobenzene	n-propylbenzene	2-chlorotoluene	4-chlorotoluene	1,3,5-trimethylbenzene	tert-butylbenzene	1,2,4-trimethylbenzene	sec-butylbenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	p-isopropyltoluene	1,2-dichlorobenzene	n-butylbenzene	1,2-dibromo-3-chloropropane	1,2,4-trichlorobenzene	Hexachlorobutadiene	1,2,3-trichlorobenzene	Total VOC	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	10	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001
HSL-A&B Residential for VI (Sand)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANZG 2018 Eco (Fresh) 95% Protection	-	-	-	-	-	-	-	-	-	-	260	60	-	160	-	-	85	-	3	-	-	-	-	-	-	-	-	-	-	-
NEMP Human Health - Recreational Use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-
NEMP Ecological - freshwater 95% species protection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	-	-	-	-	-
Draft NEMP Ecological - freshwater 99% species protection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-
Sample ID **Date**																														
GW01 11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01 11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW02 11/6/2021	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<3	<5	<5	<5	<5	<5	<5	<5	<100	**0.016**	**0.0008**	**0.0040**	**0.0017**	**0.0009**	<0.001	<0.001	<0.001	<0.001	<0.001
GW03 11/6/2021	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	-	-	-	-	-	-	-	-	-	-
GW04 11/6/2021	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	-	-	-	-	-	-	-	-	-	-
GW05 11/6/2021	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	**0.0034**	**0.0068**	**0.0088**	**0.0043**	**0.0044**	<0.001	<0.001	<0.001	<0.001	<0.001
Rinse_HA 11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001
Rinse_Pump 11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001
Trip Blank 11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike 11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes
NEPM 2013 Table 1A(41) - Health Screening Level HSL for Low and High Density Residential for Vapour Intrusion (Sand)
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Table 2
SES_590 - Groundwater Analytical Results
Regents Park - RAP

		Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level																			
	Analyte	Perfluorotetradecanoic acid (PFTeDA)	Perfluorohexadecanoic acid (PFHxDA)	Perfluorobutane sulfonate (PFBS)	Perfluoropentane sulfonate (PFPeS)	Perfluorohexane sulfonate (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctane sulfonate (PFOS)	Sum of PFHxS and PFOS	Perfluorononane sulfonate (PFNS)	Perfluorodecane sulfonate (PFDS)	Perfluorododecane sulfonate (PFDoS)	1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	Perfluorooctane sulfonamide (PFOSA)	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
	LOR	0.001	0.002	0.001	0.001	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
HSL-A&B Residential for VI (Sand)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANZG 2018 Eco (Fresh) 95% Protection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Human Health - Recreational Use		-	-	-	-	2	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
NEMP Ecological - freshwater 95% species protection		-	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Draft NEMP Ecological - freshwater 99% species protection		-	-	-	-	-	-	0.00023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date																					
GW01	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW02	11/6/2021	<0.001	<0.002	**0.002**	<0.001	**0.0012**	<0.0002	**0.0006**	**0.0018**	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
GW03	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW04	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW05	11/6/2021	<0.001	<0.002	**0.003**	**0.003**	**0.0079**	<0.0002	**0.0003**	**0.0082**	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Rinse_HA	11/6/2021	<0.001	<0.002	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Rinse_Pump	11/6/2021	<0.001	<0.002	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Trip Blank	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	11/6/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

013 Table 1A(41) - Health Screening Level HSL for Low and High Density Residential for Vapour Intrusion (Sand)
an and New Zealand Water quality guidelines 2018 Freshwater Ecological 95% Protection Values
HEPA, Jan 2020) Human Health - Recreational Use
EMP (HEPA, Jan 2020) Ecological - freshwater 99% species protection
HEPA, Jan 2020) Ecological - freshwater 95% species protection

Table 3
SES_590 - Stockpile Analytical Results
Regents Park - RAP

				Asbestos		Total Recoverable Elements									
			Moisture	Asbestos Detected Soil	Estimated Fibres	Arsenic, As [#5]	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb [#4]	Nickel, Ni	Zinc, Zn	Mercury, Hg [#3]	Benzene	Toluene
Units			%w/w	No unit	%w/w	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	-	0.01	1	0.3	0.5	0.5	1	0.5	2	0.05	0.1	0.1
HIL B - High Density Residential			-	Detect	Detect	500	150	500	30,000	1,200	1,200	60,000	120	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	1	160
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	1	220
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	140	21,000
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**													
SP01_0.5	0.5	8/6/2021	9.4	No	<0.01	3	<0.3	8.7	31	14	14	72	<0.05	<0.1	<0.1
SP02_0.5	0.5	8/6/2021	17.3	No	<0.01	7	<0.3	13	23	21	9.5	53	<0.05	<0.1	<0.1
SP03_0.5	0.5	8/6/2021	15.5	No	<0.01	5	<0.3	9.0	25	13	11	46	<0.05	<0.1	<0.1
SP02_A	-	9/6/2021	26.0	No	<0.01	9	3.5	42	250	58	21	1300	<0.05	<0.1	<0.1
SP02_B	-	9/6/2021	33.1	No	<0.01	15	0.6	19	62	220	21	1600	0.10	<0.1	<0.1

Notes

NEPM 2013 Table 1A(1) - Human Investigation Levels HIL-B for High Density Residential
NEPM 2013 Table 1A(3) Residentials A/B Soil HSL for Vapour Intrusion
CRC Care Direct Contact Health Screening Levels for Direct Contact HSL-B (High Density Residential)
NEPM 2013 Table 1 B(7) - Management Limits for TPH fractions in soil - Residential
NEMP (HEPA, Jan 2018) Human Health - Residential (with minimal opportunity for access to soil)
NEMP (HEPA, Jan 2018) Ecological Direct Toxicity - all uses
NEMP (HEPA, Jan 2018) Ecological Indirect Toxicity - residential
NL - Derived soil HSL exceeds soil saturation concentraiton
To obtain F2 subtract napthalene from the >C10 - C16 fraction.
To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2
#1 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7)
#2 Total PAHs: Based on sum of 16 most common reported (WHO 98)
#3 Elemental mercury: HIL does not address elemental mercury.
#4 Lead: HILs A,B,C based on blood lead models
#5 Arsenic: HIL assumes 70% oral bioavailability.

Table 3
SES_590 - Stockpile Analytical Results
Regents Park - RAP

			BTEXN						Volatile Hydrocarbons			
			Ethylbenzene	m/p-xylene	o-xylene	Total Xylenes	Total BTEX	Naphthalene	Benzene (F0)	TRH C6-C9	TRH C6-C10	TRH C6-C10 minus BTEX (F1)
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.1	0.2	0.1	0.3	0.6	0.1	0.1	20	25	25
HIL B - High Density Residential			-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			**55**	-	-	**40**	-	**3**	**1**	-	-	**45**
HSL-A&B Residential for VI (Sand, 1-2m)			**NL(64)**	-	-	**60**	-	**NL(9)**	**1**	-	-	**70**
CRC Care Direct Contact HSL-B			**5,900**	-	-	**17,000**	-	**2,200**	**140**	-	-	**4,400**
Management Limits - Residential			-	-	-	-	-	-	-	-	**700**	-
Sample ID	**Depth**	**Date**										
SP01_0.5	0.5	8/6/2021	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
SP02_0.5	0.5	8/6/2021	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
SP03_0.5	0.5	8/6/2021	<0.1	<0.2	<0.1	<0.3	<0.6	<0.1	<0.1	<20	<25	<25
SP02_A	-	9/6/2021	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25
SP02_B	-	9/6/2021	<0.1	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1	<20	<25	<25

Table 3
SES_590 - Stockpile Analytical Results
Regents Park - RAP

			Total Recoverable Hydrocarbons														
			TRH C10-C14	TRH C15-C28	TRH C29-C36	TRH C37-C40	TRH >C10-C16	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	TRH C10-C36 Total	TRH >C10-C40 Total (F bands)	Naphthalene	2-methylnaphthalene	1-methylnaphthalene	Acenaphthylene	Acenaphthene
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			20	45	45	100	25	25	90	120	110	210	0.1	0.1	0.1	0.1	0.1
HIL B - High Density Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	**110**	-	-	-	-	**3**	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	**240**	-	-	-	-	**NL(9)**	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	**3,300**	**4,500**	**6,300**	-	-	**2,200**	-	-	-	-
Management Limits - Residential			-	-	-	-	**1,000**	-	**2,500**	**10,000**	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**															
SP01_0.5	0.5	8/6/2021	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<0.1	<0.1	<0.1	<0.1	<0.1
SP02_0.5	0.5	8/6/2021	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<0.1	<0.1	<0.1	<0.1	<0.1
SP03_0.5	0.5	8/6/2021	<20	<45	<45	<100	<25	<25	<90	<120	<110	<210	<0.1	<0.1	<0.1	<0.1	<0.1
SP02_A	-	9/6/2021	**41**	**4800**	**4400**	**1400**	**120**	**120**	**8,000**	**2600**	**9200**	**11000**	**0.4**	**0.3**	**0.2**	<0.1	<0.1
SP02_B	-	9/6/2021	<20	**210**	**310**	**180**	<25	<25	**400**	**310**	**530**	**710**	<0.1	<0.1	<0.1	<0.1	<0.1

Notes

NEPM 2013 Table 1A(1) - Human Investigation Levels HIL-B for High Density Residential
NEPM 2013 Table 1A(3) Residentials A/B Soil HSL for Vapour Intrusion
CRC Care Direct Contact Health Screening Levels for Direct Contact HSL-B (High Density Residential)
NEPM 2013 Table 1 B(7) - Management Limits for TPH fractions in soil - Residential
NEMP (HEPA, Jan 2018) Human Health - Residential (with minimal opportunity for access to soil)
NEMP (HEPA, Jan 2018) Ecological Direct Toxicity - all uses
NEMP (HEPA, Jan 2018) Ecological Indirect Toxicity - residential
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To obtain F2 subtract napthalene from the >C10 - C16 fraction.
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ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2
#1 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7)
#2 Total PAHs: Based on sum of 16 most common reported (WHO 98)
#3 Elemental mercury: HIL does not address elemental mercury.
#4 Lead: HILs A,B,C based on blood lead models
#5 Arsenic: HIL assumes 70% oral bioavailability.

Table 3
SES_590 - Stockpile Analytical Results
Regents Park - RAP

			Polynuclear Aromatic Hydrocarbons[#1 #2]																	Polychlorinated Biphenyls						
			Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b&j)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(ah)anthracene	Benzo(ghi)perylene	Carcinogenic PAHs, BaP TEQ <LOR=0	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	Total PAH (18)	Total PAH (NEPM/WHO 16)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.8	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2
HIL B - High Density Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	-	400	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, <1m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care Direct Contact HSL-B			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limits - Residential			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	**Depth**	**Date**																									
SP01_0.5	0.5	8/6/2021	<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	<0.2	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-
SP02_0.5	0.5	8/6/2021	<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	<0.2	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-
SP03_0.5	0.5	8/6/2021	<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	<0.2	<0.3	<0.2	<0.8	<0.8	-	-	-	-	-	-	-
SP02_A	-	9/6/2021	<0.1	**0.3**	<0.1	**0.3**	**0.8**	**0.1**	**0.2**	**0.4**	**0.2**	**0.1**	**0.2**	<0.1	**0.2**	**0.2**	**0.3**	**0.3**	**3.5**	**3.1**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
SP02_B	-	9/6/2021	<0.1	**0.2**	<0.1	**0.5**	**0.6**	**0.2**	**0.3**	**0.4**	**0.2**	**0.3**	**0.2**	<0.1	**0.2**	**0.4**	**0.5**	**0.4**	**3.0**	**3.0**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Notes

NEPM 2013 Table 1A(1) - Human Investigation Levels HIL-B for High Density Residential
NEPM 2013 Table 1A(3) Residentials A/B Soil HSL for Vapour Intrusion
CRC Care Direct Contact Health Screening Levels for Direct Contact HSL-B (High Density Residential)
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NEMP (HEPA, Jan 2018) Human Health - Residential (with minimal opportunity for access to soil)
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NL - Derived soil HSL exceeds soil saturation concentraiton
To obtain F2 subtract napthalene from the >C10 - C16 fraction.
To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the
#1 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7)
#2 Total PAHs: Based on sum of 16 most common reported (WHO 98)
#3 Elemental mercury: HIL does not address elemental mercury.
#4 Lead: HILs A,B,C based on blood lead models
#5 Arsenic: HIL assumes 70% oral bioavailability.

Table 3
SES_590 - Stockpile Analytical Results
Regents Park - RAP

			Arochlor 1262	Arochlor 1268	Total PCBs (Arochlors)
Units			mg/kg	mg/kg	mg/kg
EQL			0.2	0.2	1
HIL B - High Density Residential			-	-	**1**
HSL-A&B Residential for VI (Sand, <1m)			-	-	-
HSL-A&B Residential for VI (Sand, 1-2m)			-	-	-
CRC Care Direct Contact HSL-B			-	-	-
Management Limits - Residential			-	-	-
Sample ID	**Depth**	**Date**			
SP01_0.5	0.5	8/6/2021	-	-	-
SP02_0.5	0.5	8/6/2021	-	-	-
SP03_0.5	0.5	8/6/2021	-	-	-
SP02_A	-	9/6/2021	<0.2	<0.2	<1
SP02_B	-	9/6/2021	<0.2	<0.2	<1

ɛ relevant fractions to obtain F1 & F2

Table 4
SES_590 - DQI Tables
Regents Park - RAP

Soil %RPD	Units	Sample ID	BH13_1.0-1.2	QA03	% RPD	BH18_1.3-1.5	QA04	% RPD	BH21_0.4-0.6	QA05	% RPD	BH29_1.8-2.0	QA06	% RPD
		EQL	8/6/21	8/6/21		8/6/21	8/6/21		9/6/21	9/6/21		9/6/21	9/6/21	
Moisture	%w/w	1	17.2	14.6	16	15.7	16.1	3	15.7	20.3	26	22.1	21.4	3
Arsenic, As	mg/kg	1	3	5	50	5	6	18	6	7	15	7	14	67
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	-	0.4	<0.3	-	<0.3	<0.3	-	<0.3	0.4	-
Chromium, Cr	mg/kg	0.5	7.7	9.2	18	18	6.4	95	12	11	9	7.6	13	52
Copper, Cu	mg/kg	0.5	21	27	25	34	37	8	13	19	38	33	29	13
Lead, Pb	mg/kg	1	10	10	0	42	14	100	10	9	11	16	19	17
Nickel, Ni	mg/kg	0.5	26	49	61	15	19	24	2.9	2.1	32	8.0	4.8	50
Zinc, Zn	mg/kg	2	310	190	48	110	69	46	18	19	5	49	68	32
Mercury, Hg	mg/kg	0.05	<0.05	<0.05	-	<0.05	0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Benzene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Total Xylenes	mg/kg	0.3	<0.3	<0.3	-	<0.3	<0.3	-	<0.1	<0.1	-	<0.1	<0.1	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	-	<0.6	<0.6	-	<0.3	<0.3	-	<0.3	<0.3	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.6	<0.6	-	<0.6	<0.6	-
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
TRH C6-C9	mg/kg	20	<20	<20	-	<20	<20	-	<20	<20	-	<20	<20	-
TRH C6-C10	mg/kg	25	<25	<25	-	<25	<25	-	<25	<25	-	<25	<25	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	-	<25	<25	-	<25	<25	-	<25	<25	-
TRH C10-C14	mg/kg	20	<20	<20	-	<20	<20	-	<20	<20	-	<20	<20	-
TRH C15-C28	mg/kg	45	<45	<45	-	<45	<45	-	<45	<45	-	<45	<45	-
TRH C29-C36	mg/kg	45	<45	<45	-	<45	<45	-	<45	<45	-	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	-	<100	<100	-	<100	<100	-	<100	<100	-
TRH >C10-C16	mg/kg	25	<25	<25	-	<25	<25	-	<25	<25	-	<25	<25	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	-	<25	<25	-	<25	<25	-	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-	<90	<90	-	<90	<90	-	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	<120	<120	-	<120	<120	-	<120	<120	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-	<110	<110	-	<110	<110	-	<110	<110	-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	<210	<210	-	<210	<210	-	<210	<210	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Fluorene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Phenanthrene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Anthracene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Fluoranthene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Pyrene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Chrysene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	-
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	-	<0.8	<0.8	-	<0.8	<0.8	-	<0.8	<0.8	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	-	<0.8	<0.8	-	<0.8	<0.8	-	<0.8	<0.8	-
Arochlor 1016	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	<0.2	-	-	<0.2	-	-	-	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-	-	<1	-	-	<1	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0005	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
(PFTeDA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
(PFHxDA)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
(PFPeS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
(PFHpS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sum PFOS and PFHXS	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononane sulfonate (PFNS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
(PFDoS)	mg/kg	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
sulfonate (4:2) (4:2 FTS)	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-

Table 4
SES_590 - DQI Tables
Regents Park - RAP

Soil %RPD	Units	Sample ID	BH13_1.0-1.2	QA03	% RPD	BH18_1.3-1.5	QA04	% RPD	BH21_0.4-0.6	QA05	% RPD	BH29_1.8-2.0	QA06	% RPD
		EQL	8/6/21	8/6/21		8/6/21	8/6/21		9/6/21	9/6/21		9/6/21	9/6/21	
sulfonate (6:2) (6:2 FTS)	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
sulfonate (8:2) (8:2 FTS)	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
(PFOSA)	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
sulfonamide (N-MeFOSA)	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
(N-EtFOSA)	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
sulfonamido)-ethanol (N-MeFOSE)	mg/kg	0.002	-	-	-	-	-	-	-	-	-	-	-	-
sulfonamido)-ethanol (N-EtFOSE)	mg/kg	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Methylperfluorooctanesulfonamido	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Ethylperfluorooctanesulfonamidoa	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Chloromethane	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Bromomethane	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Chloroethane	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Trichlorofluoromethane	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Acetone (2-propanone)	mg/kg	10	<10	-	-	-	-	-	-	-	-	<10	<10	-
Iodomethane	mg/kg	5	<5	-	-	-	-	-	-	-	-	<5	<5	-
1,1-dichloroethene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Acrylonitrile	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
chloride)	mg/kg	0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-
Allyl chloride	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Carbon disulfide	mg/kg	0.5	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	-
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,1-dichloroethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Vinyl acetate	mg/kg	10	<10	-	-	-	-	-	-	-	-	<10	<10	-
MEK (2-butanone)	mg/kg	10	<10	-	-	-	-	-	-	-	-	<10	<10	-
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Bromochloromethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Chloroform	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
2,2-dichloropropane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2-dichloroethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,1,1-trichloroethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,1-dichloropropene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Carbon tetrachloride	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Dibromomethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2-dichloropropane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
TCE)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
2-nitropropane	mg/kg	10	<10	-	-	-	-	-	-	-	-	<10	<10	-
Bromodichloromethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,3-dichloropropane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Chlorodibromomethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
2-hexanone (MBK)	mg/kg	5	<5	-	-	-	-	-	-	-	-	<5	<5	-
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
(Perchloroethylene,PCE)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Chlorobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Bromoform	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
cis-1,4-dichloro-2-butene	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	<1	-	-	-	-	-	-	-	-	<1	<1	-
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Bromobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
n-propylbenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
2-chlorotoluene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
4-chlorotoluene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
tert-butylbenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
sec-butylbenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
p-isopropyltoluene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
n-butylbenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Total VOC	mg/kg	24	<24	-	-	-	-	-	-	-	-	<24	<24	-
Hydrocarbons	mg/kg	3	<3	-	-	-	-	-	-	-	-	<3	<3	-
VIC EPA	mg/kg	1.8	<1.8	-	-	-	-	-	-	-	-	<1.8	<1.8	-
Hydrocarbons VIC EPA	mg/kg	1.8	<1.8	-	-	-	-	-	-	-	-	<1.8	<1.8	-
Phenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	-	-	-	-	-	-	<1	-	-	-	-	-
Total Cresol	mg/kg	1.5	-	-	-	-	-	-	<1.5	-	-	-	-	-
2-chlorophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,4-dimethylphenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-

Table 4
SES_590 - DQI Tables
Regents Park - RAP

Soil %RPD	Units	Sample ID	BH13_1.0-1.2	QA03	% RPD	BH18_1.3-1.5	QA04	% RPD	BH21_0.4-0.6	QA05	% RPD	BH29_1.8-2.0	QA06	% RPD
		EQL	8/6/21	8/6/21		8/6/21	8/6/21		9/6/21	9/6/21		9/6/21	9/6/21	
2,6-dichlorophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,4-dichlorophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,4,6-trichlorophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2-nitrophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
4-nitrophenol	mg/kg	1	-	-	-	-	-	-	<1	-	-	-	-	-
2,4,5-trichlorophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	-	-	-	-	-	-	<1	-	-	-	-	-
Pentachlorophenol	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,4-dinitrophenol	mg/kg	2	-	-	-	-	-	-	<2	-	-	-	-	-
4-chloro-3-methylphenol	mg/kg	2	-	-	-	-	-	-	<2	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-	-	-	<0.1	-	-	-	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	-	-	-	-	<1	-	-	-	-	-
Dichlorvos	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
Dimethoate	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
Fenitrothion	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Malathion	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Bromophos Ethyl	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Methidathion	mg/kg	0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-
Ethion	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-
Total OP Pesticides	mg/kg	1.7	-	-	-	-	-	-	<1.7	-	-	-	-	-

Table 5
SES_590 - DQI Tables
Regents Park - RAP

Groundwater %RPD	Units	Sample ID	GW01	QC01	% RPD
		LOR	11/6/2021	11/6/2021	
Arsenic, As	µg/L	1	1	1	*0*
Cadmium, Cd	µg/L	0.1	0.8	0.9	*12*
Chromium, Cr	µg/L	1	3	4	*29*
Copper, Cu	µg/L	1	2	3	*40*
Lead, Pb	µg/L	1	<1	<1	-
Nickel, Ni	µg/L	1	24	24	*0*
Zinc, Zn	µg/L	5	59	65	*10*
Mercury, Hg	µg/L	0.1	<0.0001	<0.0001	-
Benzene (F0)	µg/L	0.5	<0.5	<0.5	-
C6 - C9 Fraction	µg/L	40	<40	<40	-
TRH C10-C14	µg/L	50	<50	<50	-
TRH C15-C28	µg/L	200	<200	<200	-
TRH C29-C36	µg/L	200	<200	<200	-
TRH C37-C40	µg/L	200	<200	<200	-
C6 - C10 Fraction	µg/L	50	<50	<50	-
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	-
TRH >C10-C16	µg/L	50	<60	<60	-
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	-
TRH >C16-C34 (F3)	µg/L	500	<500	<500	-
TRH >C34-C40 (F4)	µg/L	500	<500	<500	-
TRH C10-C40	µg/L	320	<320	<320	-
Benzene	µg/L	0.5	<0.5	<0.5	-
Toluene	µg/L	0.5	<0.5	<0.5	-
Ethylbenzene	µg/L	0.5	<0.5	<0.5	-
m/p-xylene	µg/L	1	<1	<1	-
o-xylene	µg/L	0.5	<0.5	<0.5	-
Total Xylenes	µg/L	1.5	<1.5	<1.5	-
Total BTEX	µg/L	3	<3	<3	-
Naphthalene	µg/L	0.5	<0.5	<0.5	-
Naphthalene	µg/L	0.1	<0.1	<0.1	-
2-methylnaphthalene	µg/L	0.1	0.1	0.1	*0*
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	-
Acenaphthylene	µg/L	0.1	<0.1	<0.1	-
Acenaphthene	µg/L	0.1	<0.1	<0.1	-
Fluorene	µg/L	0.1	<0.1	<0.1	-
Phenanthrene	µg/L	0.1	<0.1	<0.1	-
Anthracene	µg/L	0.1	<0.1	<0.1	-
Fluoranthene	µg/L	0.1	<0.1	<0.1	-
Pyrene	µg/L	0.1	<0.1	<0.1	-
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	-
Chrysene	µg/L	0.1	<0.1	<0.1	-
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	-
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	-
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	-
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	-
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	-
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	-

Table 5
SES_590 - DQI Tables
Regents Park - RAP

Groundwater %RPD	Units	Sample ID	GW01	QC01	*% RPD*
		LOR	11/6/2021	11/6/2021	
Total PAH (18)	µg/L	1	<1	<1	-

Table 5
SES_590 - DQI Tables
Regents Park - RAP

Groundwater %RPD	Units	Sample ID	GW01	QC01	% RPD
		LOR	11/6/2021	11/6/2021	
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-	-
Chloromethane	µg/L	5	-	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-	-
Bromomethane	µg/L	10	-	-	-
Chloroethane	µg/L	5	-	-	-
Trichlorofluoromethane	µg/L	1	-	-	-
Acetone (2-propanone)	µg/L	10	-	-	-
Iodomethane	µg/L	5	-	-	-
1,1-dichloroethene	µg/L	0.5	-	-	-
Acrylonitrile	µg/L	0.5	-	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-	-
Allyl chloride	µg/L	2	-	-	-
Carbon disulfide	µg/L	2	-	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-	-	-
1,1-dichloroethane	µg/L	0.5	-	-	-
Vinyl acetate	µg/L	10	-	-	-
MEK (2-butanone)	µg/L	10	-	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-	-
Bromochloromethane	µg/L	0.5	-	-	-
Chloroform (THM)	µg/L	0.5	-	-	-
2,2-dichloropropane	µg/L	0.5	-	-	-
1,2-dichloroethane	µg/L	0.5	-	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-	-
1,1-dichloropropene	µg/L	0.5	-	-	-
Carbon tetrachloride	µg/L	0.5	-	-	-
Dibromomethane	µg/L	0.5	-	-	-
1,2-dichloropropane	µg/L	0.5	-	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-	-
2-nitropropane	µg/L	100	-	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-	-
1,3-dichloropropane	µg/L	0.5	-	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-	-
2-hexanone (MBK)	µg/L	5	-	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-	-
Chlorobenzene	µg/L	0.5	-	-	-
Bromoform (THM)	µg/L	0.5	-	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-	-

Table 5
SES_590 - DQI Tables
Regents Park - RAP

Groundwater %RPD	Units	Sample ID	GW01	QC01	% RPD
		LOR	11/6/2021	11/6/2021	
trans-1,4-dichloro-2-butene	µg/L	1	-	-	-
Isopropylbenzene (Cumene)	µg/L	0.5	-	-	-
Bromobenzene	µg/L	0.5	-	-	-
n-propylbenzene	µg/L	0.5	-	-	-
2-chlorotoluene	µg/L	0.5	-	-	-
4-chlorotoluene	µg/L	0.5	-	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-	-
tert-butylbenzene	µg/L	0.5	-	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-	-
sec-butylbenzene	µg/L	0.5	-	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-	-
p-isopropyltoluene	µg/L	0.5	-	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-	-
n-butylbenzene	µg/L	0.5	-	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-	-
Hexachlorobutadiene	µg/L	0.5	-	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-	-
Total VOC	µg/L	10	-	-	-
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	-	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	-	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	-	-	-
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	-	-	-
Perfluorononanoic acid (PFNA)	µg/L	0.001	-	-	-
Perfluorodecanoic acid (PFDA)	µg/L	0.001	-	-	-
Perfluoroundecanoic acid (PFUnA)	µg/L	0.001	-	-	-
Perfluorododecanoic acid (PFDoA)	µg/L	0.001	-	-	-
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.001	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.001	-	-	-
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.002	-	-	-
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	-	-	-
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	-	-	-
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	-	-	-
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.0002	-	-	-
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	-	-	-
Sum of PFHxS and PFOS	µg/L	0.0002	-	-	-
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	-	-	-
Perfluorodecane sulfonate (PFDS)	µg/L	0.0005	-	-	-
Perfluorododecane sulfonate (PFDoS)	µg/L	0.0005	-	-	-
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	-	-	-
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	-	-	-

Table 5
SES_590 - DQI Tables
Regents Park - RAP

Groundwater %RPD	Units	Sample ID	GW01	QC01	% RPD
		LOR	11/6/2021	11/6/2021	
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	-	-	-
Perfluoroctane sulfonamide (PFOSA)	µg/L	0.002	-	-	-
N-Methylperfluoroctane sulfonamide (N-MeFOSA)	µg/L	0.0025	-	-	-
N-Ethylperfluoroctane sulfonamide (N-EtFOSA)	µg/L	0.0025	-	-	-
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	µg/L	0.0025	-	-	-
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	µg/L	0.0025	-	-	-
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	µg/L	0.0025	-	-	-
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	µg/L	0.0025	-	-	-

Table 6 7
SES_590 - DQI Tables
Regents Park - RAP

Table 6 - Soil DQIs	Units	Sample ID	Trip Blank	Trip Spike
		EQL	2/6/2021	2/6/2021
Moisture	%w/w	1	<1	-
Benzene	mg/kg	0.1	<0.1	[93%]
Toluene	mg/kg	0.1	<0.1	[94%]
Ethylbenzene	mg/kg	0.1	<0.1	[96%]
m/p-xylene	mg/kg	0.2	<0.2	[96%]
o-xylene	mg/kg	0.1	<0.1	[96%]
Total Xylenes	mg/kg	0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	-

Table 7 - Groundwater DQIs	Units	Sample ID	Rinse_HA	Rinse_Pump	Trip Blank	Trip Spike
		LOR	11/6/2021	11/6/2021	11/6/2021	11/6/2021
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	[105%]
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	[104%]
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	[105%]
m/p-xylene	µg/L	1	<1	<1	<1	[104%]
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	[106%]
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	-
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	-
Total BTEX	µg/L	3	<3	<3	<3	-