APPENDIX 8. INVESTIGATIONS – PRELIMINARY SITE INVESTIGATION AND TARGETED INTRUSIVE SITE INVESTIGATION

KAMBITSIS GROUP

SEPTEMBER 2020

PRELIMINARY SITE INVESTIGATION (PSI) AND TARGETED INTRUSIVE SITE INVESTIGATION

GUMERACHA ROAD, O'SULLIVAN BEACH, SA

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Preliminary Site Investigation (PSI) and Targeted Intrusive Site Investigation Gumeracha Road, O'Sullivan Beach, SA

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ABBREVIATIONS

ALS	Australian Laboratory Services Pty Ltd
AS	Australian Standard
ASRIS	Australian Soil Resource Information System
AST	Aboveground Storage Tank
BTEXN	Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene
CEC	Cation Exchange Capacity
COC	Contaminant of Concern/Chain of Custody
EILs	Ecological Investigation Levels
EPA	Environment Protection Authority
ESLs	Ecological Screening Levels
HESP	Health, Environment and Safety Plan
HILs	Health Investigation Levels
HSLs	Health Screening Levels
IBC	Intermediate Bulk Container
LOR	Laboratory Limit of Reporting
mBGL	Metres Below Ground Level
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
OCP	Organochlorine Pesticide
OPP	Organophosphorus Pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionisation Detector
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
RSL	Regional Screening Level
SVOC	Semi-volatile Organic Compound
SWL	Standing Water Level
TDS	Total Dissolved Solids

TOC	Total Organic Carbon
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compound
WHO	World Health Organisation
WSP	WSP Australia Pty Limited

EXECUTIVE SUMMARY

INTRODUCTION

WSP Australia Pty Ltd (WSP) was commissioned by Future Urban on behalf of Kambitsis Group to undertake a Preliminary Site Investigation (PSI) and Targeted Intrusive Site Investigation of a land located at the corner of Baden Terrace and Gumeracha Road, O'Sullivan Beach, South Australia (the 'site'). The site comprises two adjacent legal allotments identified as Allotment 67, Filed plan 152643, Hundred of Noarlunga (northern portion) and as Allotment 20, Deposited plan 115116, Hundred of Noarlunga (southern portion).

This report has been prepared in accordance with WSP's proposal reference PPFutureUrban-CLM-LTR-001 RevA_final accepted via email on 24 June 2020.

In addition, further soil investigations were undertaken in September 2020 to assess the potential for contamination to migrate onto the site from the 3 identified drains traversing the site in an east west direction from adjacent offsite properties to the East.

OBJECTIVES

The main objective of the investigation was to understand the contamination status of the site and the feasibility of the proposed rezoning and development in the context of the site's contamination profile.

To assess if potential contamination from off site sources may have migrated onto the site.

SCOPE OF WORKS

The scope of work undertaken as part of the PSI for the site included the following:

- assessment of site history through purchase of property report including historical aerial photographs and council zoning
- assessment of available site plans to determine general site occupancy, infrastructure and usage
- review of current and historical certificates of title
- review of the Department for Environment and Water *WaterConnect* database for groundwater bores located within 2 km radius of the site in line with the South Australian Environment Protection Authority *Guidelines for the assessment and remediation of site contamination* (SA EPA, 2019)
- review of the physical site setting including topography, geology (including acid sulfate soil risk), hydrology, hydrogeology and potential sensitive receptors on or near the site
- search of the SA EPA Public Register for information pertaining to environmental authorisations, site contamination, new applications for licenses, or environmental protection orders for the site
- SA EPA Section 7 search of the land described in the Certificate of Title
- review of Dangerous Goods licences
- preparation of a health, environment and safety plan (HESP) prior to a site walkover.

The site walkover carried out at the site on 13 July 2020 comprised:

- a visual assessment of the site and surrounds with particular attention to the location of potential contamination sources present at the site or immediate surrounds and to identify potential site constraints for access to soil sampling
- inspection of ground surface for the presence of surface impacts.

The limited soil investigation was undertaken on two separate events, test pit excavation and shallow soil bores were undertaken on 20 to 21 July and deeper soil bores targeting the stormwater and the wastewater pipes was undertaken on 8 September 2020.

The limited soil sampling investigation comprised the following:

- advancement of 20 test pits (TP01 to TP20) up 2.2 mBGL targeting areas of interest identified during the PSI.
- advancement of three boreholes via hang auger up to 1 mBGL targeting one of the water drainage alignments identified during the site inspection in the southern portion of the site
- advancement of 8 boreholes to a depth of 3 mBGL targeting the two underground stormwater pipes in the southern portion of the site
- advancement of 2 boreholes to a depth of 4 mBGL targeting the underground sewerage pipe along the easement in the boundary between the northern and southern allotments, these were placed on the southern side of the fence line
- collection of soil samples from the following depth intervals within each soil bore, adjusted to ensure intervals with visual and/or olfactory evidence of contamination were sampled:
  - 0.0 to 0.15 mBGL
  - 0.35 to 0.5 mBGL
  - 0.9 to 1.0 mBGL; and
  - every 1 metre thereafter
- screening of all soil samples in the field using a handheld photoionisation detector (PID) to evaluate the presence of VOCs
- logging of soils in accordance with AS1726-2017 Australian Standard *Geotechnical site investigations* and the Unified Soil Classification System (USCS)
- submission of selected soil samples for laboratory analysis to a National Association of Testing Authorities (NATA) accredited laboratory, using standard chain of custody procedures. The laboratories used were as follows:
  - Primary laboratory: Eurofins MGT
  - Secondary laboratory: Australian Laboratory Services (ALS).

FINDINGS

The main findings of the PSI were as follows:

- historically, the site has been used for farming/agricultural activities
- with the exception of few small buildings erected over the years and a small area in the central section of the site that was used for antenna/TV systems testing most of the site has remained undeveloped.

The findings of the targeted soil investigation were as follows:

- The majority of the site consists of natural soil to the surface with a thin layer of topsoil (about 0.1–0.3 m thick) overlying calcareous layer about 0.1–0.15 m thick and then transitioning into calcareous silty clay material. Minor quantity of fill was noted in the surface at location BH03 and TP20. No olfactory or visual evidence of contamination was observed during the investigation.

- Most of the results were reported below the laboratory LOR and/below the assessment criteria. None of the samples analysed exceeded the adopted human heath criteria. Laboratory analysis indicated chemical impacts (i.e. exceeding adopted assessment criteria) were limited to metals and/or PAHs compounds at four locations (TP9, TP14, TP18, TP20) as follows:

  - surficial samples in TP9, TP14, TP18 and TP20 exceeded the ecological investigation level criterion for zinc. Surficial sample in TP20 also exceeded the ecological screen level criterion for benzo(a)pyrene
  - surficial samples in TP18 and TP20 exceeded respectively the intermediate criterion and the waste fill criterion for total PAHs.

- Detectable TRH compounds were found in surficial samples in TP18 and TP20 and detectable concentrations of heavy metals were found in samples across site.
- All soil analytical results from the deep soil bores targeting the two stormwater pipes in the southern portion of the site and the sewerage pipe located in the northern portion of the site, were reported below the LOR and the assessment criteria.

CONCLUSION

Under Section 5B of the Environment Protection Act 1993 the following applies:

5B—Site contamination
(1) For the purposes of this Act, ***site contamination*** *exists at a site if —*
(a) chemical substances are present on or below the surface of the site in concentrations above the background concentrations (if any); and
(b) the chemical substances have, at least in part, come to be present there as a result of an activity at the site or elsewhere; and
(c) the presence of the chemical substances in those concentrations has resulted in—

> *(i) actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses; or*
> *(ii) actual or potential harm to water that is not trivial; or*
> *(iii) other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses.*

Based on the intrusive investigations undertaken to date, chemical substances in soils were not found to exceed the relevant health based guidelines for commercial/industrial or residential land use. Therefore, site contamination of soils taking into account commercial/industrial or residential land use has not been found on the subject site.

Investigations of potential migration of chemical substances onto the site from the adjacent Class 1 activity was investigated via assessment of the soils in close proximity to the drainage systems bisecting the site from properties to the east. No evidence of gross soil impacts or volatile organic compounds were found within soils at depth corresponding to the base of this underground infrastructure. Therefore, the likelihood that the site has been impacted by historical site contamination emanating from an adjacent land use appears to be low.

1 INTRODUCTION

WSP Australia Pty Ltd (WSP) was commissioned by Future Urban on behalf of Kambitsis Group to undertake a Preliminary Site Investigation (PSI) and Targeted Intrusive Site Investigation of a land located at the corner of Baden Terrace and Gumeracha Road, O'Sullivan Beach, South Australia (the 'site'). The site comprises two adjacent legal allotments identified as Allotment 67, Filed plan 152643, Hundred of Noarlunga (northern portion) and as Allotment 20, Deposited plan 115116, Hundred of Noarlunga (southern portion). A site location plan is presented in Figure 1 at the end of this report.

This report has been prepared in accordance with WSP's proposal reference PPFutureUrban-CLM-LTR-001 RevA_final accepted via email on 24 June 2020 and further intrusive investigations proposed via email on 1 September 2020 and accepted on 4 September 2020.

1.1 BACKGROUND

The site is currently vacant, disused and zoned as Urban Employment. WSP understands that:

- Kambitsis Group is seeking to purchase the site with the objective of rezoning and developing for a potentially more sensitive landuse
- the propose future overlay of the site is residential allotments
- Kambitsis Group is currently in a 55-day due diligence period for the proposed purchase, with the due diligence period expiring on 12 August 2020
- additional intrusive investigations were undertaken in September 2020 to assess the potential for off site contamination to migrate onto the site via underground stormwater and sewer infrastructure from an identified Class 1 Potentially Contaminating Activity occurring on the adjacent Orrcon site.

1.2 OBJECTIVES

The main objective of the investigation was to understand the contamination status of the site and the feasibility of the proposed rezoning and development in the context of the site's contamination profile.

To assess if potential contamination from off site sources may have migrated onto the site.

2 SITE HISTORY INVESTIGATION

2.1 METHODOLOGY

This report has been prepared in accordance with the guidance provided in the following documents:

- National Environment Protection Council (NEPC) 2013, *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended in 2013 (ASC NEPM).
- Planning SA (2001) *Site Contamination.* Planning Advisory Notice 20.
- Australian Standard (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, AS 4482.1—2005.

The research components of the report are detailed in Table 2.1.

Table 2.1 Summary of PSI research components

COMPONENT	SECTION OF REPORT
Site Characterisation	**Section 2.2**
Site identification	Section 2.2.1
Site inspection	Section 2.2.2
Adjacent land uses and sensitive receptors	Section 2.2.3
Regional geology	Section 2.2.4
Regional hydrogeology	Section 2.2.5
Zoning	Section 2.2.6
Previous site investigation reports	**Section 0**
Historical information	**Section 2.4**
History of Certificates of Title	Section 2.4.11
Aerial photographs	Section 2.4.2
EPA Section 7 search	Section 2.4.3
EPA Public Register search	Section 2.4.4
Dangerous Goods search	Section 2.4.5

2.2 SITE CHARACTERISATION

2.2.1 SITE IDENTIFICATION

Site information details are provided in Table 2.2 below.

Table 2.2 Site details

SITE ADDRESS	64 Baden Terrace, O'Sullivan Beach, South Australia 5166 (Northern Portion) 36-70 Gumeracha Road, O'Sullivan Beach, South Australia 5166 (Southern Portion)
CERTIFICATE OF TITLE REFERENCE	Volume 6136 Folio 727 (Northern Portion) Volume 6214 Folio 427 (Southern Portion)
PROPERTY DESCRIPTION	Allotment 67, Filed Plan 152643 In the Area named Lonsdale, Hundred of Noarlunga Allotment 20 Deposited Plan 115116 In the Area named Lonsdale Hundred of Noarlunga
PROPERTY OWNER	Gumeracha Road Pty Ltd
LOCAL GOVERNMENT AUTHORITY	City of Onkaparinga
ZONING	UE – Urban Employment (Northern and Southern Portions)
CURRENT SITE USE	Vacant
LAND AREA	Northern portion: approximately 1.6 hectares Southern portion: approximately 4.3 hectares

2.2.2 SITE INSPECTION

WSP conducted a site inspection on 13 July 2020 with a summary of the inspection outlined below. Photographs taken during the site inspection are included in Appendix A.

The southern portion of the site was fenced with tall chain link fencing topped with barbed wire and contained three sets of double gates (locked) along the western boundary. The northern portion was fenced with plain wire along the western and northern boundary, whilst the eastern boundary comprised tall chain link fencing topped with barbed wire. An embankment ran along the length of the eastern boundary, with the site at a lower elevation to the eastern property. There was a general slope to the west and south.

The site was covered with grass which had been recently mowed. An open stormwater drain containing boulders was present adjacent the southern boundary running in an east/west orientation, discharging to Gumeracha Road. This was connected to the eastern property and a clay-lined retention basin was present in the south-west corner of the site. Two other buried stormwater drains were observed running east/west across the southern portion of the site (also presumed to discharge to Gumeracha Road). At the western end of the drains near the site boundary were a grated pit (central drain) and a PVC inspection pipe (northern drain). A gatic/manhole was also present midway along the northern most drain. Water was observed in the central drain but no water was observed within the northern drain. Anecdotal information suggested this drain originated in the eastern property (formerly *Hills*) and had been capped.

Minor amounts of demolition waste material (concrete, red bricks and bitumen) was observed in the southern portion of the site, in small localised pockets. Minor fill, comprising gravels, was also observed in the southern part of the northern portion of the site. The site owner advised that approximately two years ago, the site had been generally cleared of fill material, with the fill being utilised at the adjacent eastern property to fill and level for a laydown area.

An electricity meter (live) was present in the central eastern part of the southern portion of the site. No buildings or other infrastructure were observed at the site.

2.2.3 SURROUNDING LAND USE AND SENSITIVE RECEPTORS

At the time of the assessment, the immediately surrounding land uses were as detailed in Table 2.3.

Table 2.3 Surrounding land use

NORTH	Baden Terrace and residential properties beyond. An oil refinery was located approximately 300 m north of site boundary.
SOUTH	Residential properties and Moorong Road beyond.
EAST	Commercial/industrial properties including: — DeYoung Salvage & Demolition (building materials supplier) and Brooks Trailers (Trailer supply store) adjacent to the northern portion of the site — Orrcon (sheet metal fabrication) and Walker Australia – Tenneco (exhaust pipe manufacturing) adjacent to the southern portion of the site.
WEST	Gumeracha Road and residential properties beyond.

The site is located within a mixed residential and commercial/industrial area. Sensitive human and environmental receptors located within the vicinity of the site are considered likely to include the following:

- future users on the site
- workers who may undertake excavation, maintenance or construction work within the site and surrounding area (i.e. to the site developments, underground services)
- residential properties with gardens located north, west and south of the site
- open space/park lands located approximately 350 m south of the site
- Christie Creek approximately 500 m south of the site which flows in a westerly direction towards Gulf St Vincent and
- Gulf St Vincent located approximately 1 km to the west of the site.

2.2.4 REGIONAL GEOLOGY

Based on a review of the Geological Survey of South Australia (1962) – Department of Mines Adelaide – *Baker Sheet 1 54-3 1:250,000*, the Site overlays Quaternary aged Outwash Deposits consisting of sands and clay locally with piedmont boulder beds. The eastern boundary of the Site is considered to potentially overlay Marinoan aged Brighton limestone consisting of calitic, flaggy and dolomitic limestones, recurring in overlying and underlying beds.

The Australian Soil Resource Information System (ASRIS) and CSIRO Australia (www.asris.csiro.au) consider the general soil type of the Site is comprised of Chromosol soils. Chromosols are generally described as having a strong texture contrast, moderate agricultural potential with moderate chemical fertility and moderate waterholding capacity. Chromosol soils can be susceptible to soil acidification and generally have quite dense clay subsoil, which has relatively low permeability that tends to limit the vertical migration of contamination if a surface spill occurs.

In addition, a review of the ASRIS – Acid Sulphate Risk map (http://www.asris.csiro.au/mapping/viewer.htm) identified the site is located within an area with extremely low probability of acid sulphate soil (ASS) occurrence.

2.2.5 REGIONAL HYDROGEOLOGY

A summary of the Department for Environment and Water (DEW, 2020) WaterConnect bore database for the area (Lotsearch report – Appendix B) indicates the following:

- There are 289 registered bores within a 2 km radius of the site, of which 198 of them are groundwater bores. The status of 21 bores were listed as backfilled, ten bores were dry, four bores was abandoned and one bore was listed as unknown. The current status of the remaining 162 bores was not listed. In terms of their primary purpose, 117 bores were listed as being for investigation purposes, eleven for monitoring purposes and four for investigation purposes. The purpose of the remaining 66 bores was not listed.
- Based on the available data the wells around the site were drilled to depths of between 1 and 65 m between 1936 and 2020 with recorded standing water levels (SWLs) of 0.5 to 48.4 m.
- Groundwater salinity, recorded for 19 bores, ranged from 533 mg/L to 13,564 mg/L total dissolved solids (TDS). Yield rate reported for five bores ranged from 0 to 1.26 L/sec.
- The closest registered groundwater bore to the site was bore no. 313173 (6527-2157), located 9 m east of the site. All registered bores were located offsite.

Details regarding the five closest registered bores to the site are presented in Table 2.4.

Table 2.4 Information regarding closest registered bores to site

BORE NO.	APPROXIMATE DISTANCE FROM SITE	DRILL DATE	DRILL/MAX DEPTH (m)	STATUS	PURPOSE	SWL (mBGL*)	SALINITY (mg/L TDS)
6527-2157	9 m	10/09/2018	6	–	Investigation	–	–
6527-2154	10 m	17/09/2018	31.2	–	Investigation	–	–
6527-2153	10 m	18/09/2018	33	–	Investigation	–	–
6527-2150	24 m	10/09/2018	6	Dry	Investigation	–	–
6527-2151	89 m	20/09/2018	35	–	Investigation	–	–

* mBGL = metres below ground level.

Based on the proximity of the Christie Creek (approximately 500 m south of the site, flowing in a westerly direction) and the Gulf St Vincent (approximately 1 km west of the site), groundwater within the uppermost aquifer would generally be expected to flow in a west south-west direction towards these water bodies.

2.2.6 ZONING

According to the Onkaparinga Council Development Plan (consolidated 2 July 2020), an extract of which is included in Appendix C, the site is currently zoned Urban Employment (UE). The purpose of this zoning is to create an area of mixed use employment accommodating a variety of industrial land uses together with other employment and business activities in order to promote business clusters providing diverse economic and environmental benefits.

The intended future use of the site will be ongoing residential purposes, pending the contamination status of the site.

2.3 PREVIOUS INVESTIGATIONS

Previous investigations have been undertaken at the site and reported as follows:

- WSP (2013) *Draft Phase 1 Environmental Due Diligence Assessment (EDD)*, dated 16 July 2013.
- WSP (2014a) *Phase 1 and 2 Environmental Due Diligence (EDD) Assessment*, dated 31 March 2014.

The above assessments were undertaken within a previously larger site boundary, with a land area of 7.8 hectares, however pertinent historical and soil chemical data information were sourced from these previous reports.

The main findings of previous investigations were:

- Historical land use has included agriculture and grazing, with the site being vacant since at least 1959.
- Surrounding land uses included industrial facilities to the north-east and east, and residential properties to the north, south and west.
- The site was considered to represent a moderate risk of environmental liability for commercial/industrial use due to the presence of uncontrolled fill material and soil/building rubble mounds, and as a result of potential use of agricultural chemicals.
- The site generally comprised natural soils with the exception of the southern portion which contained extensive fill material and numerous stockpiles.
- Fill material in the southern portion of the site ranged from 0.9 to 1.8 m depth, with inclusions of concrete, bitumen and brick. Additional features noted within the central portion of this area of the site included plastic and timber and may have represented a backfilled waste pit.
- Various stockpiles were present across the site and comprised soil mixed with concrete, bitumen, brick, steel and/or plastic.
- No asbestos was observed on the surface of the site or within test pits, boreholes or stockpiles.
- Analysis of soil reported all concentrations below the adopted assessment criteria.
- An assessment of groundwater was not undertaken.

Previous investigations have also been undertaken at the properties immediately adjacent to the east boundary of the site (29 Morrow Road, O'Sullivan Beach (Orrcon and Walker sites)) and reported as follows:

- WSP (2014b) *Phase 1 Environmental Due Diligence Assessment (EDD)*, dated 28 November 2014 (Orrcon site).
- WSP (2014c) *Phase 1 and 2 Environmental Due Diligence (EDD) Assessment*, dated 28 November 2014 (Walker site).

Based on a review of these previous investigations undertaken on immediately surrounding properties, various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (DCE) have been detected in local groundwater. Groundwater encountered at these sampling locations comprises a relatively thin and discontinuous water bearing unit above bedrock (at approximately 8–9 m below ground level (mBGL) at the time of the previous investigations). At the time of the previous investigations, the Orrcon site (located east of the southern portion), was an operational steel tube fabrication facility and the Walker site (located south-east of the southern portion), was an operational muffler and exhaust system fabrication facility. The source of VOCs was considered possible to be due to the historical use of solvents either in the paint shop or from degreaser during machinery maintenance in the boiler maker shop.

VOCs can pose a potential future vapour risk to future residential sites and change to a more sensitive land use will result in the threshold criteria for vapour risks to be lower than that of commercial/industrial land use options.

2.4 HISTORICAL INFORMATION

2.4.1 HISTORY OF CERTIFICATES OF TITLE

The site is currently described by Certificate of Titles (CTs) Volume 6136 Folio 727 (northern portion) and Volume 6214 Folio 427. A copy of the current CTs are included in Appendix D. Historical CTs had been obtained from Advanced Legal Searches on 07/06/2013 during the previous investigations. The historical CTs search has been completed to present day using readily available information from the South Australian Integrated Land Information System (SAILIS). The history of CTs is summarised in Table 2.5 (northern portion) and Table 2.6 (southern portion) below.

Table 2.5 Summary of Certificates of Titles – Northern Portion

CURRENT CT6136/727 – ALLOTMENT 67 FILED PLAN 152643	
Year	**Proprietor**
Prior to July 1965	South Australian Housing Trust
July 1965	Hills Hoists (Manufacturing) Pty Ltd – portion of Certificate of Title (CT) 149/65, CT 2602/6 and CT 3116/156
September 1965 – 1969	Hills Hoists (Manufacturing) Pty Ltd – portion of Certificate of Title 3352/23
1969 – 1975	Regent Lighting Company Proprietary Limited
1975 – 1993	Elan (No 8) Pty Ltd
1993 – 2014	Hills Industries Limited
2014 – present	Gumeracha Road Pty Ltd

Table 2.6 Summary of Certificates of Titles – Southern Portion

CURRENT CT6136/727 – ALLOTMENT 67 FILED PLAN 152643	
Prior to July 1965	South Australian Housing Trust
July 1965	Hills Hoists (Manufacturing) Pty Ltd – portion of Certificate of Title (CT) 149/65, CT 2602/6 and CT 3116/156
September 1965 – 1969	Hills Hoists (Manufacturing) Pty Ltd – portion of Certificate of Title 3352/22
1966 – 2014	Hills Industries Limited
2014 – Present	Gumeracha Road Pty Ltd

2.4.2 AERIAL PHOTOGRAPH REVIEW

Copies of relevant portions of aerial photographs of the area taken in 1949, 1959, 1969, 1979, 1989 and 1999 were provided to Lotsearch by DEW (2020). The 2004, 2010, 2014 and 2020 aerial photographs were provided to Lotsearch by Aerometrex Pty Ltd (2020).

Copies of all aerial photographs have been included in the Lotsearch report in Appendix B.

A summary of the features identified within each of the aerial photographs is provided in Table 2.7.

Table 2.7 Aerial photograph review

YEAR	DESCRIPTION
1949	**Site Layout:** The site comprises mostly of agricultural/farm land. At the most southern end of the site a track is visible along with few building structures. Some trees are visible next to the building structures in the south-west corner of the site. **Surrounding Area:** The surrounding area comprises predominantly of agricultural/farm land with some building structures visible immediately adjacent to the south and south-east site boundary. Some trees are visible along the building structure located adjacent to the south-east corner of the site. The track visible in the southern part of the site extends beyond the west and east boundaries of the site. Other tracks – one running in a south-west to north-east direction and one running in an east-west direction – are visible west and north of the site, respectively.
1959	**Site Layout:** The site appears relatively unchanged, with the same buildings still in place. Tracks are now visible within the northern half portion of the site and the one in the southern end of the site has been further developed and now branches off in the southern corner of the site towards the south boundary and beyond. **Surrounding Area:** The surrounding area appears relatively unchanged, however small building structures are now visible to the west of the northern portion of the site. Additional tracks are now visible in the site surroundings.
1969	**Site Layout:** The buildings in the southern end of the site are no longer visible and a small building structure is visible at the site boundary in the south-east corner of the site. The rest of the site remains undeveloped. **Surrounding Area:** Residential development has occurred to the north, west and south of the site. Neighbouring land to the east has been developed and now includes a large warehouse building. Additional industrial development is also visible further north-east. To the south-east of the site, the vegetation appears to have been cleared. Moorong and Gumeracha roads have also been developed.
1979	**Site Layout:** The site appears relatively unchanged. Some trees are now visible along the south and the west boundaries of the site. A second small building structure is now visible immediately west of the new building structure identified in the previous photograph in the south east section of the site. **Surrounding Area:** New warehouse buildings have been developed to the north east and south east of the site. Further residential developments have taken place to the north, west and south of the site.
1989	**Site Layout:** The site appears to be relatively unchanged, with a few additional buildings erected in the central and north portions of the site. **Surrounding Area:** The surrounding area appears relatively unchanged, with the addition of smaller warehouse buildings to the east of the larger warehouses buildings already present to the east of the site.

YEAR	DESCRIPTION
1999	**Site Layout:** The site appears to be relatively unchanged. **Surrounding Area:** The surrounding area appears relatively unchanged, with additional small warehouse buildings erected east of the site in the vicinity of or adjacent to the already existing larger warehouse buildings.
2004	The site and surrounding area appear relatively unchanged.
2010	The site and surrounding area appear relatively unchanged.
2014	The site and surrounding area appear relatively unchanged.
2020	**Site Layout:** All building structures on the site have been cleared. The rest of the site appears relatively unchanged. **Surrounding Area:** The surrounding area appears relatively unchanged, except for the land immediately east of the centre portion of the site which has been developed into a carpark area.

2.4.3 EPA SECTION 7 SEARCH

A Section 7 search was conducted by the South Australian Environment Protection Authority (SA EPA) for the land described in CTs Volume 6136 Folio 727 and Volume 6214 Folio 427.

A copy of the search results is included in Appendix E and indicated the following, as of 30 June 2020:

VOLUME 6136 FOLIO 727

- There are no mortgages, charges or prescribed encumbrances affecting the site under the relevant sections of the *Environment Protection Act 1993.*
- No exemptions (current or no longer in force) recorded by EPA in the public register have been issued under the Part 6 of the *Environment Protection Act 1993.*
- No licenses to operate a waste depot and/or to produce listed waste have been issued or repealed for the site under the *South Australian Waste Management Commission Act 1979* or the *Waste Management Act 1987* or the *Environment Protection Act 1993.*
- The EPA does hold details of a licence to undertake activities producing listed wastes under Schedule 1 of the *Environment Protection Act 1993* in the public register. However, it is understood that the licence was related to an industrial facility which used to be part of that portion of the site (Orrcon). In addition, this section of the site never contained any building structures within which production of listed wastes could have occurred. Copy of license is included in Appendix E.
- The EPA does not hold any of the following information:
  - reports, environmental assessments or site contamination audits of the land or any part of the land
  - details of serious or material harm, or notifications of site contamination, under Section 83A of the *Environment Protection Act 1993*
  - details of an agreement for the exclusion or limitation of liability for site contamination
  - details of any agreements relating to approved voluntary site contamination assessment or remediation proposals
  - details of notification of the commencement or termination of a site contamination audit; or
  - any other relevant information, as listed in the Section 7 search results.

VOLUME 6214 FOLIO 427

- There are no mortgages, charges or prescribed encumbrances affecting the site under the relevant sections of the *Environment Protection Act 1993.*
- No exemptions (current or no longer in force) recorded by EPA in the public register have been issued under the Part 6 of the *Environment Protection Act 1993.*
- No licenses to operate a waste depot have been issued or repealed for the site under the *South Australian Waste Management Commission Act 1979* or the *Waste Management Act 1987* or the *Environment Protection Act 1993.*
- In the public register, the EPA does hold details of:
  - a licence to undertake activities producing listed wastes under Schedule 1 of the *Environment Protection Act 1993*
  - a licence to produce waste of a prescribed kind under the repealed *Waste Management Act 1979;* and
  - a licence to produce prescribed waste under the repealed *Waste Management Act 1987.*

  However, it is understood that the licences were related to an industrial facility which used to be part of that portion of the site (Walker). In addition, this section of the site never contained any building structures within which production of listed and/or prescribed wastes could have occurred. Copies of the licenses are included in Appendix E.
- The EPA does not hold any of the following information:
  - reports, environmental assessments or site contamination audits of the land or any part of the land
  - details of serious or material harm, or notifications of site contamination, under Section 83A of the *Environment Protection Act 1993*
  - details of an agreement for the exclusion or limitation of liability for site contamination
  - details of any agreements relating to approved voluntary site contamination assessment or remediation proposals
  - details of notification of the commencement or termination of a site contamination audit; or
  - any other relevant information, as listed in the Section 7 search results.

2.4.4 EPA PUBLIC REGISTER SEARCH

The SA EPA Site Contamination Index Search provided by Lotsearch (30 June 2020) indicates that no records of Section 83A notifications were found for the site. 21 Section 83A notifications recorded within 1km of the site. Most of them are related to the former oil refinery located about 300 m north east of the site, four are related to the up-gradient land located immediately east of the site. Potential contamination from this neighbouring site is considered possible to impact upon the site due its relative proximity and that it is located upgradient from the site.

2.4.5 DANGEROUS GOODS SEARCH

A register of information regarding current and historical licensing of dangerous goods is maintained by Worksafe SA, who conducted a search of the Dangerous Goods Register on 5 August 2020 (Appendix F). No records of any existing licenses for the site could be found.

2.5 POTENTIALLY CONTAMINATING ACTIVITIES

It is considered possible that the following potentially contaminating activities may have occurred at the site:

- historical use of agricultural chemicals, weedicides and termiticides (Class 3 – Low Risk)
- use of imported, and potentially impacted fill materials.

Based on the industrial nature of the surrounding sites, there is a potential for the groundwater beneath the site to have been impacted from the historical and current land uses on the up-gradient sites, particular the one located immediately east of the site for which Section 83A notification records exist for contamination that affects or threatens the groundwater. The chemical identified were chlorinated solvents and petroleum hydrocarbons.

It is noted that natural groundwater is deep and intermittent perched water was recorded in shallow wells installed at both upgradient sites.

No Class 1 or 2 Activities were identified as having occurred on the site.

2.5.1 ADJACENT POTENTIALLY CONTAMINATING ACTIVITIES

Based on the draft State Planning Commission Practice Direction (Site Contamination Assessment) 2019, a Class 1 potentially contaminating activity (PCA) has been identified on the adjacent site, being Orrcon identified as metal coating, finishing or spray painting. Whilst the Oil Refinery (also a Class 1 Activity) has been identified as being located 300 m north of the site boundary, this activity is considered to be cross hydraulic gradient and not immediately adjacent to the site.

Since a Class 1 PCA was identified adjacent to the site and three underground pipes including an easement with 225 mm vitreous clay sewer was identified as bisecting the site, further investigations of potential impacts to the site from potential offsite contamination was proposed for September 2020.

3 TARGETED SOIL INVESTIGATION

3.1 SCOPE OF WORKS

The soil investigation works were undertaken in general accordance with the relevant sections of the following guideline documents:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013 (No. 1) (ASC NEPM).
- Australian Standard (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, AS 4482.1—2005.
- Australian Standard (1999) *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 2: Volatile Substances*, AS 4482.2-1999.

The limited soil investigation was undertaken on two separate events, test pit excavation and shallow soil bores were undertaken on 20 to 21 July and deeper soil bores targeting the stormwater and the wastewater pipes was undertaken on 8 September 2020.

The limited soil sampling investigation comprised the following:

- advancement of 20 test pits (TP01 to TP20) up 2.2 mBGL targeting areas of interest identified during the PSI
- advancement of three boreholes via hang auger up to 1 mBGL targeting one of the water drained alignments identified during the site inspection in the southern portion of the site
- advancement of 8 boreholes to a depth of 3 mBGL targeting the two underground stormwater pipes
- advancement of 2 boreholes to a depth of 4 mBGL targeting the underground sewerage pipe along the fenceline between the northern and southern allotments
- collection of soil samples from the following depth intervals within each soil bore, adjusted to ensure intervals with visual and/or olfactory evidence of contamination were sampled:
  - 0.0 to 0.15 mBGL
  - 0.35 to 0.5 mBGL
  - 0.9 to 1.0 mBGL; and
  - every 1 metre thereafter
- screening of all soil samples in the field using a handheld photoionisation detector (PID) to evaluate the presence of VOCs
- logging of soils in accordance with AS1726-2017 Australian Standard *Geotechnical site investigations* and the Unified Soil Classification System (USCS)
- submission of selected soil samples for laboratory analysis to a National Association of Testing Authorities (NATA) accredited laboratory, using standard chain of custody procedures. The laboratories used were as follows:
  - Primary laboratory: Eurofins MGT
  - Secondary laboratory: Australian Laboratory Services (ALS).

Combined soil sampling locations are presented in Figure 2.

3.2 METHODOLOGY

Field methodologies adopted during the soil sampling program was consistent with WSP Environmental Site Assessment (ESA) Field Procedures and have been summarised in Table 3.1.

Table 3.1 Soil sampling methodology

ACTIVITY	DETAILS
Service location	All locations were checked for the presence of buried services by a professional services locator before the commencement of the field investigations. In addition, underground service plans for the area were obtained prior to the commencement of the investigations and used to assist with locating underground services.
Soil collection method	— Soil bores (BH01-BH03) were hand augered and test pits were advanced with a professionally operated excavator. — Soil bores (BH01B-BH11B) were hand augered to 1 mBGL depth then drilled using pushtube technique by a professional drilling company.
Soil logging	Soil logging was based on field interpretation and was consistent with AS 1726-2017.
Field screening	Soil samples were screened in the field using a PID unit calibrated to a known concentration of isobutylene gas at the commencement of each day of field work.
Soil sampling method	Soil cores were discharged from the hand auger/geo probe sleeve into a clean core tray and samples obtained from the relevant intervals. Test pits samples were collected directly from the excavator bucket. Soil samples were handled using gloves and samples were stored in glass jars supplied by the primary laboratory. Gloves were changed prior to the collection of each sample.
Sample preservation	Soil samples were stored on ice in an insulated chest immediately after sampling. Samples were kept chilled prior to and during delivery to the laboratory.
Soil bore abandonment	All soil bores and test pits were backfilled using drill cuttings or excavated material.
Decontamination	All drilling and sampling equipment was cleaned between each sampling location using mains water and a phosphate free detergent (Decon 90).

3.3 ASSESSMENT CRITERIA

To assess the relative concentration and significance of any potential contaminants detected through laboratory analysis it is usual to reference established human health and environmental screening criteria. These contaminant screening criteria represent threshold concentrations of specific contaminants which, if exceeded in a particular sample, may pose a health or environmental risk and may therefore warrant further site specific investigation, risk analysis and/or remediation.

Health investigation levels (HILs) provide an assessment of potential risk to human health from chronic exposure to contaminants from dermal contact with soil, and have been developed based on land use setting. As the current land use of the site is as commercial/industrial, the values for HIL-D (commercial/industrial) land use have been adopted. As the proposed land use of the site is residential (subject to additional environmental assessments works and site contamination auditor endorsement), the results have also been compared to HIL-A/B.

Health screening levels (HSLs) have been developed for selected petroleum compounds and fractions and are applicable for assessing human health risk via the vapour intrusion and inhalation pathway. The HSLs depend on specific soil physicochemical properties and land use scenarios. They apply to different soil types and depths. For the purpose of this investigation, the values for HSL-D (commercial/industrial) land use, 0 m to <1 m, 1 m to <2 m and 2 m to <4 m depth, and sand soil type has been adopted. This soil type has been selected based on a conservative approach.

To provide a qualitative assessment of the risk to maintenance/excavation workers from identified impacts in soil via inhalation pathways and dermal contact, concentrations of hydrocarbons have also been compared to risk-based HSLs detailed in CRC CARE Technical Report No. 10 (Friebel and Nadebaum, 2011).

Ecological investigations levels (EILs) have been developed for selected metals, dichlorodiphenyltrichloroethane (DDT) and naphthalene and provide an assessment for the protection of terrestrial ecosystems. The EILs take into consideration the physicochemical properties of soil and contaminants and the capacity of the local ecosystem to accommodate increases in the contaminant levels. Site-specific EILs for chromium (III), copper, nickel and zinc were adopted as calculated using the CSIRO EIL Calculation Spreadsheet provided online in the ASC NEPM Toolbox. The calculations require an understanding of the cation exchange capacity (CEC), total organic carbon (TOC), clay content and pH. Generic EILs for *commercial and industrial* land use have been adopted. The ASC NEPM, provides ecological screening levels (ESLs) for TRH, BTEX compounds and PAHs for use as an initial screening risk assessment to determine whether laboratory analysed concentrations of contaminants potentially pose a risk to plant growth. For the purpose of this investigation, ESLs for *Urban and Residential* and *Commercial and industrial* land use with coarse-grained soil textures have been considered.

A summary of the references used to source the health and ecological soil screening criteria is provided in Table 3.2. In addition, the aesthetics of site soils must be considered, in that contamination that causes the land to be offensive to the senses of human beings must not be present.

Table 3.2 Sources of adopted soil criteria

POTENTIAL SENSITIVE RECEPTOR	REFERENCE
Human Health (HIL/HSL)	ASC NEPM (1999 amended) National Environment Protection (Assessment of Site Contamination) Measure Schedule B1 – health based investigation levels for residential (HIL-A values) and commercial/industrial land uses (HIL-D values).
	ASC NEPM (1999 amended) National Environment Protection (Assessment of Site Contamination) Measure Schedule B1 – health based screening levels for residential (HSL-A/B values) and commercial/industrial land use (HSL-D values).
	CRC CARE Technical Report No. 10 (Friebel and Nadebaum, 2011) – health screening levels for vapour intrusion - maintenance worker (shallow trench).
	CRC CARE Technical Report No. 10 (Friebel and Nadebaum, 2011) – health screening levels for direct contact – HSL-A Low Density Residential and HSL-D Commercial/industrial.
Ecological (EIL/ESL)	ASC NEPM (1999 amended) National Environment Protection (Assessment of Site Contamination) Measure Schedule B1 – ecological based investigation levels for urban residential & public open space and commercial/industrial land uses.
	ASC NEPM (1999 amended) National Environment Protection (Assessment of Site Contamination) Measure Schedule B1 – ecological based screening levels for urban residential and commercial/industrial land uses.

3.4 RESULTS

3.4.1 SOIL PROFILE

Soil borehole log reports are included in Appendix G and provide details of soil types encountered at each of the sampling locations.

The majority of the site consists of natural soil to the surface with a thin layer of topsoil (about 0.1–0.3 m thick) overlying calcareous layer about 0.1–0.15 m thick and then transitioning into calcareous silty clay material. Fill material was encountered at BH07 to 0.8 mBGL comprising clayey gravel material and minor quantity of fill was noted in the surface at location BH03 and TP20. Additional features noted within sampled soils included a piece of red brick in TP20.

3.4.2 SOIL PID READINGS, ODOUR AND STAINING

Headspace PID readings within soils ranged from 0.0 to 0.4 ppm, with the maximum reading detected at 2.2–2.3 mBGL in BH06B.

No olfactory evidence of contamination was observed. Visual evidence of potential contamination was also observed in TP20 identified as a piece of brick, indicative of fill material.

3.4.3 SOIL ANALYTICAL RESULTS

Soil analytical results are included in the table section at the end of this report and copies of laboratory certificates are included in Appendix H.

3.4.3.1 COMPARISON OF RESULTS WITH HEALTH AND ECOLOGICAL CRITERIA

Individual sample results can be interpreted as follows:

- most of the samples analysed from test pit and shallow soil bore locations were reported below the laboratory LOR and below the assessment criteria
- none of the samples analysed exceeded the adopted human heath criteria for both commercial/industrial or residential land use
- surficial samples in TP9, TP14, TP18 and TP20 exceeded the ecological investigation level criterion for zinc. Surficial sample in TP20 also exceeded the ecological screen level criterion for benzo(a)pyrene
- surficial samples in TP18 and TP20 exceeded respectively the intermediate criterion and the waste fill criterion for total PAHs
- detectable TRH compounds were found in surficial samples in TP18 and TP20
- detectable concentrations of heavy metals were found in samples across site
- all samples analysed from the deeper soil bore locations were below the LOR and below the assessment criteria for the volatile contaminants of concern.

3.5 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

Data quality is typically discussed in terms of accuracy, precision and representativeness. In order to assess the quality of the data collected during the investigation program, specific QA/QC procedures were implemented during both the field sampling and laboratory analysis programs, in accordance with the requirements of the following documents:

- AS4482.1-2005 Australian Standard (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*.
- National Environment Protection Council (2013) *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013 (ASC NEPM).

3.5.1 FIELD QA/QC PROCEDURES

Table 3.3 indicates conformance to field QA/QC procedures.

Field QA procedures generally include the collection of the following QC samples, aimed at assessing possible errors associated with cross contamination as well as inconsistencies in sampling and/or laboratory analytical techniques:

- Intra-laboratory replicate (blind replicate) samples: submitted to the same (primary laboratory) to assess variation in analyte concentrations between samples collected from the same sampling point and/or the repeatability (precision) of the analytical procedures.
- Inter-laboratory replicate (split) samples: submitted to a second laboratory to check on the analytical proficiency (accuracy) of the results produced by the primary laboratory.
- Equipment rinsate blank: used to assess whether decontamination procedures have been sufficient and/or whether cross-contamination may have occurred between samples.
- Trip blank: used to assess whether cross-contamination may have occurred between samples during transport.

Whereas analyte concentrations within both the rinsate and trip blanks should be below the laboratory LORs, the replicate sample results are assessed via the calculation of a relative percentage difference (RPD), as follows:

$$RPD = \frac{(Concentration\ 1 - Concentration\ 2)\ x\ 100}{(Concentration\ 1 + Concentration\ 2)\ /\ 2}$$

Table 3.3 Field QA/QC procedures

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Field instruments calibrated	Yes	The PID was calibrated prior to use.
Appropriate and well documented sample collection, handling, transportation and decontamination procedures	Yes	All sample collection and transportation was conducted in accordance with WSP Contaminated Land Management Procedures which have been developed in accordance with published industry guidelines and standards and best practice.
Chain of custody documentation completed	Yes	All samples were transported under strict WSP chain of custody procedures and signed chain of custody documents are included in Appendix H.
Required number (1:10) of blind field duplicates collected	Mostly	Refer to Table 3.4. The duplicate ratio was adequate for the main contaminants of concern, NEPM screen was not analysed in duplicate samples.
Acceptable soil sample RPD results	Yes	All RPD results were within the acceptable range. RPD results are included in the table section at the end of this report.
Required numbers of trip and rinsate blank samples collected	Yes	The frequency of rinsate blanks was considered acceptable for the purpose of this report and are included in the table section at the end of this report. A Trip blank was not analysed.
Acceptable rinsate blank results	Yes	Rinsate blank results were reported below the laboratory LOR. Rinsate blank results are included in the table section at the end of this report.
Samples delivered to laboratories within sample holding times and with correct preservative(s)	Yes	Samples were delivered to the laboratories within the sample holding times and in laboratory-supplied containers prepared with the appropriate preservative (where required).

3.5.2 LABORATORY QA/QC

Table 3.4 indicates conformance to laboratory QA/QC procedures.

Laboratory QA procedures generally include the performance of a number of internal checks of data precision and accuracy that are aimed at assessing possible errors associated with sample preparation and analytical techniques. Specific types of QC samples analysed by laboratories, and the relevant acceptance criteria are as follows:

- Internal laboratory replicate samples: maximum RPD values of 20% to 50%.
- Spike (matrix[1] and surrogate[2]) recoveries: recoveries of between 70% and 130% (except for phenols recoveries of between 30% and 130% for Eurofins).
- Laboratory control blanks: results below the laboratory LORs.

Table 3.4 Laboratory QA/QC procedures

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Samples extracted and analysed within relevant holding times	Yes	Refer to Eurofins MGT and ALS laboratory reports in Appendix H.
All analyses NATA accredited	Yes	Eurofins MGT and ALS are NATA accredited for all the analyses performed. Dioxin and furan analysis was conducted by Eurofins | GfA Lab Service in Germany which has its own national accreditation (DAkkS).
Acceptable laboratory LORs adopted	Yes	The LORs for all soil samples were below the adopted assessment criteria. A summary of the limits of reporting adopted are provided in the laboratory analysis reports in Appendix H.
Acceptable laboratory QC results	Mostly	The results of internal laboratory quality control procedures are provided within the laboratory analysis report (Appendix H). Laboratory recoveries were within the acceptable range with the exception of boron (Lab sample ID M20_Jl37708) whereby the matrix spike recovery was outside the recommended range. An acceptable recovery was obtained for the laboratory control sample indicating sample matrix interference. Laboratory replicate RPD values were within the acceptable range. The matrix spike recovery were within the acceptable range. Laboratory control blank results were all below the LOR.

In summary, the QA/QC procedures and results were considered to be generally adequate and the analytical results obtained were of acceptable quality for the purposes of this report.

[1] A matrix spike is prepared by splitting a field sample and spiking each portion with a known quantity of a target compound to ascertain the effects of the specific sample matrix on the recovery of the analyte.

[2] A surrogate spike comprises a sample spiked with a pure substance that has similar chemical properties to the target analyte, but is unlikely to be found in the environment, such that the spike compound is expected to behave, during analysis, in the same way as the target compound.

4 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) was developed utilising information from the PSI and LSI to determine the presence of plausible exposure pathways and hence the presence of significant risk to susceptible receptors such as humans, ecosystems or the built environment.

In accordance with national guidance on the assessment and management of contaminated land (ASC NEPM), potential risks to receptors are based on three components:

- Source: a potentially hazardous substance that may be released to the environment (petroleum hydrocarbons or volatile organic compounds migrating onto the site through drains/pipes in the context of this investigation).
- Pathway: a mechanism by which the hazardous substance may reach and be exposed to receptors.
- Receptors: person(s) or ecosystem(s) that may be detrimentally affected by exposure to the hazardous substance.

If all three components are present in a system, the source-pathway-receptor linkage is considered complete and a receptor is potentially at risk. If one of the components is absent, no risk is present. Therefore, the presence of measurable concentrations of contaminants does not automatically imply that the site will cause harm. In order for this to be the case a plausible exposure pathway must be present allowing a source to adversely affect a receptor. The nature and importance of both receptors and exposure routes, which are relevant to any particular site, will vary according to its characteristics, intended end-use and its environmental setting.

4.1 CONTAMINANT OF CONCERN (SOURCE)

The CoCs associated with the identified historical land uses at the site include but are not limited to: TRH, BTEXN, metals, phenols, PAH, OCPs, OPPs. The above CoCs have been identified based on the findings of the PSI and can be attributed to:

- historical use of agricultural chemicals, weedicides and termiticides
- use of imported, and potentially impacted fill materials.

In addition, there is potential for a secondary source to exist in the form of impacted water or vapour from the site adjacent to the eastern boundary migrating along bedding sands in water/sewer infrastructure or within the pipes themselves and leaking beneath the site. The CoC identified in the shallow intermittent perched groundwater in the neighbouring site include petroleum hydrocarbons and chlorinated solvents.

4.2 POTENTIAL EXPOSURE ROUTES AND TRANSPORT MECHANISMS

The main exposure routes associated with contaminants associated with the potentially contaminating historical activities at the site include:

- through direct skin contact with impacted soils
- through hand to mouth activities resulting in ingestion of soil
- migration of contaminated soils through physical disturbance associated with excavation works
- through volatilisation of VOCs leading to inhalation
- through surface water infiltration leading to limited downward leaching of contaminants within shallow soils
- through inhalation of dust (including respirable asbestos fibres) or vapours.

4.3 POTENTIAL RECEPTORS

The following potential receptors have been identified:

- current and future users and occupants of the site
- utility workers, excavation and construction workers in the vicinity of the site
- ecological receptors of Christie Creek and the Gulf St Vincent.

4.4 SUMMARY

The limited soil investigation undertaken at the site has identified heavy metals and PAHs (including benzo(a)pyrene) impacts in surficial soils, leading to potential exposure pathways and receptor linkages identified above. However, these concentrations were well below the respective human health assessment criteria for commercial/industrial or residential land use.

Groundwater assessment, due to its depth, was not included in this scope of works.

Potential soil and vapour impacts to the site from offsite drainage systems crossing into the site were not found in the bores advanced adjacent to the pipelines.

5 CONCLUSIONS

5.1 PSI

The main findings of the PSI were as follows:

- historically, the site has been used for farming/agricultural activities which may be classified as a Class 3 PCA (Low Risk) under the draft State Planning Commission Practice Direction (Site Contamination Assessment) 2019
- with the exception of few small buildings erected over the years and a small area in the central section of the site that was used for antenna/TV systems testing most of the site has remained undeveloped
- a Class 1 PCA is understood to have occurred on the adjacent site to the East, with evidence of sewers and drains within easements bisecting the site from these properties.

5.2 TARGETED SOIL INVESTIGATION

The majority of the site consists of natural soil to the surface with a thin layer of topsoil (about 0.1–0.3 m thick) overlying calcareous layer about 0.1–0.15 m thick and then transitioning into calcareous silty clay material. Fill material was encountered at BH07 to 0.8 mBGL comprising clayey gravel material and minor quantity of fill was noted in the surface at location BH03 and TP20. Additional features noted within sampled soils included a piece of red brick in TP20.

Most of the test pit and shallow soil bores results were reported below the laboratory LOR and/below the assessment criteria. None of the samples analysed exceeded the adopted human heath criteria for residential or commercial/industrial land use. Laboratory analysis indicated chemical impacts (i.e. exceeding adopted assessment criteria) were limited to metals and/or PAHs compounds at four locations (TP9, TP14, TP18, TP20) as follows

- surficial samples in TP9, TP14, TP18 and TP20 exceeded the ecological investigation level criterion for zinc. Surficial sample in TP20 also exceeded the ecological screen level criterion for benzo(a)pyrene
- surficial samples in TP18 and TP20 exceeded respectively the intermediate criterion and the waste fill criterion for total PAHs.

Detectable TRH compounds were found in surficial samples in TP18 and TP20 and detectable concentrations of heavy metals were found in samples across site.

All soil analytical results from the deep soil bores event targeting the two stormwater pipes in the southern portion of the site and the sewerage pipe located in the northern portion of the site, were reported below the LOR and the assessment criteria.

Under Section 5B of the Environment Protection Act 1993 the following applies:

5B—Site contamination
(1) For the purposes of this Act, ***site contamination*** *exists at a site if —*
(a) chemical substances are present on or below the surface of the site in concentrations above the background concentrations (if any); and
(b) the chemical substances have, at least in part, come to be present there as a result of an activity at the site or elsewhere; and
(c) the presence of the chemical substances in those concentrations has resulted in—

> *(i) actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses; or*
> *(ii) actual or potential harm to water that is not trivial; or*
> *(iii) other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses.*

Based on the intrusive investigations undertaken to date, chemical substances in soils were not found to exceed the relevant health based guidelines for commercial/industrial or residential land use. Therefore, site contamination of soils taking into account commercial/industrial or residential land use has not been found in the subject site.

Investigations of potential migration of chemical substances onto the site from the adjacent Class 1 activity was investigated via assessment of the soils in close proximity to the drainage systems bisecting the site from properties to the east. No evidence of gross soil impacts or volatile organic compounds were found within soils at depth corresponding to the base of this underground infrastructure. Therefore, the likelihood that the site has been impacted by historical site contamination emanating from an adjacent land use appears to be low.

6 REFERENCES

AS1726-1993. Australian Standard (2017) *Geotechnical site investigations*.

AS4482.1-2005. Australian Standard (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*.

AS 4482.2-1999. Australian Standard (1999) *Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile Substances.*

Environment Protection Act 1993.

Friebel & Nadebaum (2011) CRC CARE Technical Report No. 10: Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, Part 2: Application Document.

Lotsearch (2020) Environmental Risk and Planning Report (LS013142 EP), 3 Trussel Terrace, Cobdogla, SA 5346, Report Date: 30 Jun 2020 10:52:43.

National Environment Protection Council, (2013) *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended in 2013 (ASC NEPM).

Planning SA (2001) *Site Contamination.* Planning Advisory Notice 20.

South Australian Environment Protection Authority (SA EPA, 2019) *Guidelines for the assessment and remediation of site contamination*.

SA EPA public register http://www.epa.sa.gov.au/what_we_do/public_register_directory/site_contamination_index

South Australian Department of Mines and Energy (1971) Renmark 1:250,000 *Geological Map Sheet.*

WSP (2013) Phase 1 Environmental Due Diligence Assessment (EDD) Gumeracha Road, O'Sullivan Beach, SA.

WSP (2014) Phase 1 and 2 Environmental Due Diligence (EDD) Assessment Gumeracha Road, O'Sullivan Beach, SA Hills Holding Limited.

7 LIMITATIONS

This Report is provided by WSP Australia Pty Limited (WSP) for Kambitsis Group (Client) in response to specific instructions from Future Urban representing the Client and in accordance with WSP's proposals dated 10 June 2020 and 1 September 2020 agreement with Future Urban on behalf of Kambitsis Group dated 24 June 2020 and Financelab on behalf of Kambitsis Group on 4 September 2020 (Agreement).

7.1 PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (Permitted Purpose).

7.2 QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (Conclusions) are based in whole or in part on information provided by the Client and other parties identified in the report (Information), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

7.3 USE AND RELIANCE

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FIGURES

O'Sullivans Beach

Figure 1
Site Location Plan

Legend

- Cadastre
- Site Outline

0 250 500 Meters

Coordinate system: GDA 1994 MGA Zone 54

Scale ratio correct when printed at A3

1:10,000 Date: 06/08/20

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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O'Sullivans Beach

Figure 2
Combined Sampling Locations and Historical and Current Site Layout

Legend

- Borehole
- Test Pit
- Current Site Features
- Water Drain Alignment
- Cadastre
- Site Outline

Historic Site Features/Soil Cover Discoloration (year)

- 1979 Historic Features
- 1989 Soil Cover Discoloration
- 2004 Soil Cover Discoloration
- 2010 Soil Cover Discoloration
- 2013 Historic Features
- 2013 Soil Cover Discoloration
- 2014 Historic Features

0 50 100 Meters

Coordinate system: GDA 1994 MGA Zone 54

Scale ratio correct when printed at A3

1:2,000 Date: 11/09/20

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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O'Sullivans Beach

Figure 3
Test Pit and Shallow Soil Bores Sampling Locations

Legend

- Borehole
- Test Pit
- Current Site Features
- Water Drain Alignment
- Cadastre
- Site Outline

Historic Site Features/Soil Cover Discoloration (year)

- 1979 Historic Features
- 1989 Soil Cover Discoloration
- 2004 Soil Cover Discoloration
- 2010 Soil Cover Discoloration
- 2013 Historic Features
- 2013 Soil Cover Discoloration
- 2014 Historic Features

0 50 100 Meters

Coordinate system: GDA 1994 MGA Zone 54

Scale ratio correct when printed at A3

1:2,000 Date: 07/08/20

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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Figure 4
Soil Bore Sampling Locations

Legend

- Borehole
- Current Site Features
- Water Drain Alignment
- Cadastre
- Site Outline

Historic Site Features/Soil Cover Discoloration (year)

- 1979 Historic Features
- 1989 Soil Cover Discoloration
- 2004 Soil Cover Discoloration
- 2010 Soil Cover Discoloration
- 2013 Historic Features
- 2013 Soil Cover Discoloration
- 2014 Historic Features

0 50 100 Meters

Coordinate system: GDA 1994 MGA Zone 54

Scale ratio correct when printed at A3

1:2,000 Date: 18/09/20

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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ANALYTICAL RESULT TABLES

			Soil Properties							MAH	TRH						
			% Moisture	Clay content	Conductivity (1:5 aqueous extract)	Iron	pH (at 25°C)	Total Organic Carbon	CEC	Styrene	C6 - C10	C6 - C10 less BTEX (F1)	C10 - C16	C10 - C16 less Naphthalene (F2)	C16 - C34	C34 - C40	C10 - C40 (Sum)
			%	%	µs/cm	mg/kg	PH UNITS	%	meq/100g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	1	10	20	0.1	0.1	0.05	0.5	20	20	50	50	100	100	100
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m												**215**	**170**		**2,500**	**6,600**	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m												180	120		1,300	5,600	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m												**260**					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m												**370**					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m												**630**					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m												45		110			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m												70		240			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m												110		440			
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)												4,400	3,300		4,500	6,300	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)												**26,000**	**20,000**		**27,000**	**38,000**	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill																	
SA EPA 2010 Intermediate Waste																	
SA EPA 2010 Low Level Contaminated Waste																	
Location Code	**Field ID**	**Date**															
Northern portion	**TP01_0.3-0.4**	**20-07-20**	16	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	TP02_0.9-1.0	**20-07-20**	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	12	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP05_0.9-1.5	**20-07-20**	12	13	140	9,800	8.2	1.2	38	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	16	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	18	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	12	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	BH03_0.4-0.5	**20-07-20**	12	10	310	7,300	8.6	0.6	39	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	17	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP08_0.0-0.1	**20-07-20**	14	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP09_0.0-0.1	**20-07-20**	14	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP09_0.4-0.5	**20-07-20**	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	14	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	13	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP12_0.0-0.1	**20-07-20**	17	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP13_1.4-1.5	**21-07-20**	12	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP13_1.9-2.0	**21-07-20**	12	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	14	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-

			Soil Properties							MAH	TRH						
			% Moisture	Clay content	Conductivity (1:5 aqueous extract)	Iron	pH (at 25°C)	Total Organic Carbon	CEC	Styrene	C6 - C10	C6 - C10 less BTEX (F1)	C10 - C16	C10 - C16 less Naphthalene (F2)	C16 - C34	C34 - C40	C10 - C40 (Sum)
			%	%	µs/cm	mg/kg	PH UNITS	%	meq/100g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	1	10	20	0.1	0.1	0.05	0.5	20	20	50	50	100	100	100
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m												**215**	**170**		**2,500**	**6,600**	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m												180	120		1,300	5,600	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m												**260**					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m												**370**					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m												**630**					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m												45		110			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m												70		240			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m												110		440			
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)												4,400	3,300		4,500	6,300	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)												**26,000**	**20,000**		**27,000**	**38,000**	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill																	
SA EPA 2010 Intermediate Waste																	
SA EPA 2010 Low Level Contaminated Waste																	
Location Code	**Field ID**	**Date**															
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	13	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	13	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	15	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	10	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	12	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	13	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	9.9	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	16	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	13	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	14	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	10	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	13	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	13	-	-	-	-	-	-	-	<20	<20	<50	<50	<100	<100	<100
	TP16_1.9-2.0	**21-07-20**	11	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-
	TP17_0.9-1.0	**21-07-20**	18	-	-	-	-	-	-	<0.5	<20	<20	<50	<50	<100	<100	<100
	TP18_0.0-0.1	**21-07-20**	15	-	-	-	-	-	-	-	<20	<20	<50	<50	310	<100	310
	TP18_0.4-0.5	**20-07-20**	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	16	-	-	-	-	-	-	-	<20	<20	91	91	410	190	691
	TP20_0.4-0.5	**21-07-20**	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			TPH					BTEXN						
			C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene (Sum)	Naphthalene
			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	20	50	50	50	0.1	0.1	0.1	0.2	0.1	0.3	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind														**370**
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space														170
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m								**95**	**135**	**185**			**95**	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m								65	105	125			45	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil														
NEPM 2013 Table 1A(1) HILs Res A Soil														
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m								**3**					**230**	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m								**3**						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m								**3**						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m								0.5	160	55			40	3
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m								0.5	220				60	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m								0.5	310				95	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)								100	14,000	4,500			12,000	1,400
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)								**430**	**99,000**	**27,000**			**81,000**	**11,000**
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND								77						
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND								160						
SA EPA 2010 Waste Fill			65				1,000	1	1.4	3.1			14	
SA EPA 2010 Intermediate Waste			100				1,000	5	50	100			180	
SA EPA 2010 Low Level Contaminated Waste			1,000				10,000	15	500	1,000			1,800	
Location Code	**Field ID**	**Date**												
Northern portion	**TP01_0.3-0.4**	**20-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH03_0.0-0.1	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP08_0.0-0.1	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP09_0.0-0.1	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	TP11_0.4-0.5	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP12_0.0-0.1	**20-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP13_1.4-1.5	**21-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-

			TPH					BTEXN						
			C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene (Sum)	Naphthalene
			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	20	50	50	50	0.1	0.1	0.1	0.2	0.1	0.3	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind														**370**
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space														170
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m								**95**	**135**	**185**			**95**	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m								65	105	125			45	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil														
NEPM 2013 Table 1A(1) HILs Res A Soil														
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m								**3**					**230**	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m								**3**						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m								**3**						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m								0.5	160	55			40	3
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m								0.5	220				60	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m								0.5	310				95	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)								100	14,000	4,500			12,000	1,400
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)								**430**	**99,000**	**27,000**			**81,000**	**11,000**
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND								77						
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND								160						
SA EPA 2010 Waste Fill			65				1,000	1	1.4	3.1			14	
SA EPA 2010 Intermediate Waste			100				1,000	5	50	100			180	
SA EPA 2010 Low Level Contaminated Waste			1,000				10,000	15	500	1,000			1,800	
Location Code	**Field ID**	**Date**												
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP16_1.9-2.0	**21-07-20**	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
	TP17_0.9-1.0	**21-07-20**	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP18_0.0-0.1	**21-07-20**	<20	<20	240	130	370	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	<0.5
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	<20	37	300	260	597	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-

			PAH																		
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum)	Pyrene	Benzo(a)pyrene TEQ (medium bound)	Benzo(a)pyrene TEQ (upper bound)
			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			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																					
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																					
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m							**1.4**														
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m							1.4														
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	**40**	**4,000**		**40**	**40**
NEPM 2013 Table 1A(1) HILs Res A Soil																	3	300		3	3
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																					
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																					
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																					
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																					
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																					
SA EPA 2010 Waste Fill							1											5			
SA EPA 2010 Intermediate Waste							2											40			
SA EPA 2010 Low Level Contaminated Waste							5											200			
Location Code	**Field ID**	**Date**																			
Northern portion	**TP01_0.3-0.4**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP08_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP09_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP12_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP13_1.4-1.5	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			PAH																	
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum)	Pyrene	Benzo(a)pyrene TEQ (medium bound)	Benzo(a)pyrene TEQ (upper bound)
			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			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																					
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																					
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m							**1.4**														
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m							1.4														
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	**40**	**4,000**		**40**	**40**
NEPM 2013 Table 1A(1) HILs Res A Soil																	3	300		3	3
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																					
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																					
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																					
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																					
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																					
SA EPA 2010 Waste Fill							1											5			
SA EPA 2010 Intermediate Waste							2											40			
SA EPA 2010 Low Level Contaminated Waste							5											200			
Location Code	**Field ID**	**Date**																			
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP16_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.9-1.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
	TP18_0.0-0.1	**21-07-20**	<0.5	0.7	1.9	4.8	**5.9**	4.1	2.8	4.3	4.2	0.9	14	<0.5	2.5	8.1	8.4	66.2	12	8.4	8.4
	TP18_0.4-0.5	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.6	1.2
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	<0.5	<0.5	<0.5	1.7	**1.7**	1.3	1.2	1.3	1.4	<0.5	4.2	<0.5	0.9	3.2	2.2	20.9	4	2.5	2.7
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Metals														Inorganics
			Arsenic	Berryllium	Boron	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Cyanide (Free)
			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			2	2	10	0.4	5	1	5	5	5	5	0.1	5	2	5	5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind			**160**				**310**			**85**	**1,800**			**55**		**110**	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space			100				190			60	1,100			30		70	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil			**3,000**	**500**	**300,000**	**900**	**3,600**	**3,600**	**4,000**	**240,000**	**1,500**	**60,000**	**730**	**6,000**	**10,000**	**400,000**	**1,500**
NEPM 2013 Table 1A(1) HILs Res A Soil			100	60	4,500	20	100	100	100	6,000	300	3,800	40	400	200	7,400	250
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill			20	20		3	400	1	170	60	300	500	1	60		200	
SA EPA 2010 Intermediate Waste			200	40		30		200	170	2,000	1,200	6,000	30	600		14,000	
SA EPA 2010 Low Level Contaminated Waste			750	150		60		750	1,000	7,500	5,000	10,000	110	3,000		50,000	
Location Code	**Field ID**	**Date**															
Northern portion	**TP01_0.3-0.4**	**20-07-20**	2.4	-	-	<0.4	21	-	-	9.3	8.9	-	<0.1	13	-	20	-
	TP02_0.9-1.0	**20-07-20**	6.7	-	-	<0.4	20	-	-	6.4	8	-	<0.1	10	-	15	-
	TP03_0.0-0.1	**20-07-20**	2.4	-	-	<0.4	22	-	-	11	8.7	-	<0.1	14	-	19	-
	TP04_0.0-0.1	**20-07-20**	3.3	-	-	<0.4	32	-	-	16	13	-	<0.1	19	-	38	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	<2	-	-	<0.4	8.2	-	-	5.6	<5	-	<0.1	6.5	-	6.4	-
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	2.7	-	-	<0.4	18	-	-	8.8	7	-	<0.1	14	-	18	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	4.3	<2	43	<0.4	26	<1	7.9	12	13	360	<0.1	15	<2	26	<5
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	3.1	-	-	<0.4	30	-	-	15	11	-	<0.1	18	-	26	-
	TP08_0.0-0.1	**20-07-20**	2.8	-	-	<0.4	29	-	-	13	12	-	<0.1	16	-	25	-
	TP09_0.0-0.1	**20-07-20**	3	-	-	<0.4	27	-	-	14	17	-	<0.1	18	-	100	-
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	<2	-	-	<0.4	12	-	-	6.6	<5	-	<0.1	9.2	-	13	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	<2	-	-	<0.4	9.9	-	-	<5	<5	-	<0.1	7.6	-	6.9	-
	TP12_0.0-0.1	**20-07-20**	5.4	-	-	<0.4	31	-	-	12	9.6	-	<0.1	18	-	24	-
	TP13_1.4-1.5	**21-07-20**	2.4	-	-	<0.4	13	-	-	5.5	<5	-	<0.1	9.3	-	11	-
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	4.7	-	-	<0.4	24	-	-	13	24	-	<0.1	21	-	**140**	-
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Metals														Inorganics
			Arsenic	Berryllium	Boron	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Cyanide (Free)
			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			2	2	10	0.4	5	1	5	5	5	5	0.1	5	2	5	5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind			**160**				**310**			**85**	**1,800**			**55**		**110**	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space			100				190			60	1,100			30		70	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil			**3,000**	**500**	**300,000**	**900**	**3,600**	**3,600**	**4,000**	**240,000**	**1,500**	**60,000**	**730**	**6,000**	**10,000**	**400,000**	**1,500**
NEPM 2013 Table 1A(1) HILs Res A Soil			100	60	4,500	20	100	100	100	6,000	300	3,800	40	400	200	7,400	250
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill			20	20		3	400	1	170	60	300	500	1	60		200	
SA EPA 2010 Intermediate Waste			200	40		30		200	170	2,000	1,200	6,000	30	600		14,000	
SA EPA 2010 Low Level Contaminated Waste			750	150		60		750	1,000	7,500	5,000	10,000	110	3,000		50,000	
Location Code	**Field ID**	**Date**															
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	2.9	-	-	<0.4	26	-	-	13	11	-	<0.1	17	-	27	-
	TP16_1.9-2.0	**21-07-20**	6.6	-	-	<0.4	9	-	-	<5	<5	-	<0.1	5.2	-	7.3	-
	TP17_0.9-1.0	**21-07-20**	5.8	-	-	<0.4	26	-	-	5.8	30	-	<0.1	17	-	19	-
	TP18_0.0-0.1	**21-07-20**	5.3	-	-	<0.4	21	-	-	18	83	-	<0.1	12	-	100	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	<2	-	-	<0.4	13	-	-	5.4	<5	-	<0.1	11	-	10	-
	TP20_0.0-0.1	**21-07-20**	5.9	<2	26	<0.4	20	<1	5.8	13	52	280	<0.1	11	<2	100	<5
	TP20_0.4-0.5	**21-07-20**	<2	-	-	<0.4	9.1	-	-	<5	<5	-	<0.1	9.2	-	7.1	-

													OCP			
			4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endrin ketone	Endosulfan I	Endosulfan II
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg
EQL			0.05	0.05	0.05	0.05	0.05	100	0.05	0.05	0.05	0.05	0.05	50	0.05	0.05
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind											**640**					
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space											180					
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						**45**		**530,000**				**3,600**				
NEPM 2013 Table 1A(1) HILs Res A Soil						6		50,000				240				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																
SA EPA 2010 Waste Fill						2		2,000			2					
SA EPA 2010 Intermediate Waste						2		2,000			2					
SA EPA 2010 Low Level Contaminated Waste						50		50,000			50					
Location Code	**Field ID**	**Date**														
Northern portion	**TP01_0.3-0.4**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	<0.05	<0.05	<0.05	<0.05	<0.05	<100	<0.05	<0.05	<0.05	<0.05	<0.05	<50	<0.05	<0.05
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	<0.05	-	<0.05	-	-	<100	-	<0.05	<0.05	-	<0.05	-	<0.05	<0.05
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	<0.05	<0.05	<0.05	<0.05	<0.05	<100	<0.05	<0.05	<0.05	<0.05	<0.05	<50	<0.05	<0.05
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	<0.05	<0.05	<0.05	<0.05	<0.05	<100	<0.05	<0.05	<0.05	<0.05	<0.05	<50	<0.05	<0.05
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	<0.05	<0.05	<0.05	<0.05	<0.05	<100	<0.05	<0.05	<0.05	<0.05	<0.05	<50	<0.05	<0.05
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

																OCP				
			4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endrin ketone	Endosulfan I	Endosulfan II
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg
EQL			0.05	0.05	0.05	0.05	0.05	100	0.05	0.05	0.05	0.05	0.05	50	0.05	0.05
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind											**640**					
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space											180					
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						**45**		**530,000**				**3,600**				
NEPM 2013 Table 1A(1) HILs Res A Soil						6		50,000				240				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																
SA EPA 2010 Waste Fill						2		2,000			2					
SA EPA 2010 Intermediate Waste						2		2,000			2					
SA EPA 2010 Low Level Contaminated Waste						50		50,000			50					
Location Code	**Field ID**	**Date**														
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	<0.05	<0.05	<0.05	<0.05	<0.05	<100	<0.05	<0.05	<0.05	<0.05	<0.05	<50	<0.05	<0.05
	TP16_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	<0.05	-	<0.05	-	-	<100	-	<0.05	<0.05	-	<0.05	-	<0.05	<0.05
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

												OPP	Pesticides	PCB								
			Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Mirex	Toxaphene	Chlorpyrifos	Atrazine	Arochlor 1016	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Aroclor 1221	PCBs (Sum of total)
			mg/kg	mg/kg	µg/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			0.05	0.05	50	0.05	0.05	0.05	0.05	0.05	0.01	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																						
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																						
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil				**100**			**50**		**80**	**2,500**	**100**	**160**	**2,000**	**2,500**								**7**
NEPM 2013 Table 1A(1) HILs Res A Soil				10			6		10	300	10	20	160	320								1
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																						
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																						
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																						
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																						
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																						
SA EPA 2010 Waste Fill							2															2
SA EPA 2010 Intermediate Waste							2															2
SA EPA 2010 Low Level Contaminated Waste							50															50
Location Code	**Field ID**	**Date**																				
Northern portion	**TP01_0.3-0.4**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	<0.05	<0.05	<50	<0.05	<0.05	<0.05	<0.05	<0.05	-	<1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	<0.05	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.01	<1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	<0.05	<0.05	<50	<0.05	<0.05	<0.05	<0.05	<0.05	-	<1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	<0.05	<0.05	<50	<0.05	<0.05	<0.05	<0.05	<0.05	-	<1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	<0.05	<0.05	<50	<0.05	<0.05	<0.05	<0.05	<0.05	-	<1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

												OPP	Pesticides	PCB							
			Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Mirex	Toxaphene	Chlorpyrifos	Atrazine	Arochlor 1016	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Aroclor 1221	PCBs (Sum of total)
			mg/kg	mg/kg	µg/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			0.05	0.05	50	0.05	0.05	0.05	0.05	0.05	0.01	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																						
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																						
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil				**100**			**50**		**80**	**2,500**	**100**	**160**	**2,000**	**2,500**								**7**
NEPM 2013 Table 1A(1) HILs Res A Soil				10			6		10	300	10	20	160	320								1
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																						
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																						
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																						
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																						
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																						
SA EPA 2010 Waste Fill							2															2
SA EPA 2010 Intermediate Waste							2															2
SA EPA 2010 Low Level Contaminated Waste							50															50
Location Code	**Field ID**	**Date**																				
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	<0.05	<0.05	<50	<0.05	<0.05	<0.05	<0.05	<0.05	-	<1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP16_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	<0.05	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.01	<1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

												Phe
			2,4,5-trichlorophenol	2,4,6-Trichlorophenol	2,4-dichlorophenol	2,4-dinitrophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3/4-methyl phenol (m/p-cresol)
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	1	0.5	5	0.5	0.5	0.5	0.2	1	0.4
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind												
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space												
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m												
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m												
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil												
NEPM 2013 Table 1A(1) HILs Res A Soil												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m												
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)												
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)												
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND												
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND												
SA EPA 2010 Waste Fill												
SA EPA 2010 Intermediate Waste												
SA EPA 2010 Low Level Contaminated Waste												
Location Code	**Field ID**	**Date**										
Northern portion	**TP01_0.3-0.4**	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	<1	<1	<0.5	<5	<0.5	<0.5	<0.5	<0.2	<1	<0.4
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	<0.2	-	<0.4
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	<1	<1	<0.5	<5	<0.5	<0.5	<0.5	<0.2	<1	<0.4
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	<1	<1	<0.5	<5	<0.5	<0.5	<0.5	<0.2	<1	<0.4
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	<1	<1	<0.5	<5	<0.5	<0.5	<0.5	<0.2	<1	<0.4
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-

												Phe
			2,4,5-trichlorophenol	2,4,6-Trichlorophenol	2,4-dichlorophenol	2,4-dinitrophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3/4-methyl phenol (m/p-cresol)
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	1	0.5	5	0.5	0.5	0.5	0.2	1	0.4
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind												
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space												
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m												
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m												
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil												
NEPM 2013 Table 1A(1) HILs Res A Soil												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m												
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)												
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)												
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND												
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND												
SA EPA 2010 Waste Fill												
SA EPA 2010 Intermediate Waste												
SA EPA 2010 Low Level Contaminated Waste												
Location Code	**Field ID**	**Date**										
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	<1	<1	<0.5	<5	<0.5	<0.5	<0.5	<0.2	<1	<0.4
	TP16_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP17_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	<0.2	-	<0.4
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-

			nols										Asbestos
			4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Dinoseb	Pentachlorophenol	Phenol	tetrachlorophenols	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	Asbestos Reported Result
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Comment
EQL			5	20	1	5	20	1	0.5	10	1	20	
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind													
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								**660**	**240,000**				
NEPM 2013 Table 1A(1) HILs Res A Soil								100	3,000				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m													
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)													
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)													
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND													
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND													
SA EPA 2010 Waste Fill									0.5				
SA EPA 2010 Intermediate Waste									17,000				
SA EPA 2010 Low Level Contaminated Waste									50,000				
Location Code	**Field ID**	**Date**											
Northern portion	**TP01_0.3-0.4**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	ND
	TP05_0.4-0.5	**20-07-20**	<5	<20	<1	<5	<20	<1	<0.5	<10	<1	<20	-
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.0-0.1	**20-07-20**	-	-	-	-	-	<1	<0.5	-	-	-	-
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	<5	<20	<1	<5	<20	<1	<0.5	<10	<1	<20	-
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	<5	<20	<1	<5	<20	<1	<0.5	<10	<1	<20	ND
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	ND
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	<5	<20	<1	<5	<20	<1	<0.5	<10	<1	<20	ND
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	ND
	TP14_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-

			nols										Asbestos
			4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Dinoseb	Pentachlorophenol	Phenol	tetrachlorophenols	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	Asbestos Reported Result
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Comment
EQL			5	20	1	5	20	1	0.5	10	1	20	
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind													
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								**660**	**240,000**				
NEPM 2013 Table 1A(1) HILs Res A Soil								100	3,000				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m													
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)													
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)													
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND													
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND													
SA EPA 2010 Waste Fill									0.5				
SA EPA 2010 Intermediate Waste									17,000				
SA EPA 2010 Low Level Contaminated Waste									50,000				
Location Code	**Field ID**	**Date**											
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH02B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH03B_2.9-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH04B_0.0-0.1	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH05B_1.75-1.85	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH06B_2.8-3.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH07B_0.7-0.8	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH08B_2.4-2.5	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH09B_2.2-2.3	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH10B_3.8-4.0	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
	BH11B_1.3-1.4	**08-09-20**	-	-	-	-	-	-	-	-	-	-	-
Southern portion	**TP15_0.0-0.1**	**21-07-20**	<5	<20	<1	<5	<20	<1	<0.5	<10	<1	<20	ND
	TP16_1.9-2.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	ND
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	-	-	-	-	-	<1	<0.5	-	-	-	ND
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-

Location Code	Field ID	Date	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2,4-trimethylbenzene	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane
			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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill																	
SA EPA 2010 Intermediate Waste																	
SA EPA 2010 Low Level Contaminated Waste																	
Northern portion	**TP01_0.3-0.4**	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH02_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

			1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2,4-trimethylbenzene	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane
			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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill																	
SA EPA 2010 Intermediate Waste																	
SA EPA 2010 Low Level Contaminated Waste																	
Location Code	**Field ID**	**Date**															
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH02B_2.9-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03B_2.9-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH04B_0.0-0.1	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH05B_1.75-1.85	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH06B_2.2-2.3	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH06B_2.8-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH07B_0.7-0.8	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH08B_2.4-2.5	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH09B_2.2-2.3	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH10B_3.8-4.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH11B_1.3-1.4	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Southern portion	**TP15_0.0-0.1**	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_1.9-2.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP17_0.9-1.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			VOC															
			1,4-dichlorobenzene	2-butanone (MEK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Acetone	Allyl chloride	Bromochloromethane	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorodibromomethane	Chlorobenzene	Chloroethane
			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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																		
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																		
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																		
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																		
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																		
NEPM 2013 Table 1A(1) HILs Res A Soil																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																		
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																		
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																		
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																		
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																		
SA EPA 2010 Waste Fill																		
SA EPA 2010 Intermediate Waste																		
SA EPA 2010 Low Level Contaminated Waste																		
Location Code	**Field ID**	**Date**																
Northern portion	**TP01_0.3-0.4**	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH02_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

			VOC															
			1,4-dichlorobenzene	2-butanone (MEK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Acetone	Allyl chloride	Bromochloromethane	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorodibromomethane	Chlorobenzene	Chloroethane
			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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																		
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																		
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																		
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																		
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																		
NEPM 2013 Table 1A(1) HILs Res A Soil																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																		
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																		
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																		
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																		
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																		
SA EPA 2010 Waste Fill																		
SA EPA 2010 Intermediate Waste																		
SA EPA 2010 Low Level Contaminated Waste																		
Location Code	**Field ID**	**Date**																
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH02B_2.9-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03B_2.9-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH04B_0.0-0.1	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH05B_1.75-1.85	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH06B_2.2-2.3	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH06B_2.8-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH07B_0.7-0.8	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH08B_2.4-2.5	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH09B_2.2-2.3	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH10B_3.8-4.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH11B_1.3-1.4	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Southern portion	**TP15_0.0-0.1**	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_1.9-2.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP17_0.9-1.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Location Code	Field ID	Date	Chloromethane	Chloroform	cis-1,3-dichloropropene	cis-1,2-dichloroethene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Iodomethane	Isopropylbenzene	TCE	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	Trichlorofluoromethane	Vinyl chloride
			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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill																	
SA EPA 2010 Intermediate Waste													14				
SA EPA 2010 Low Level Contaminated Waste													25.2				
Northern portion	**TP01_0.3-0.4**	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP02_0.9-1.0	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9-1.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_1.0-1.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Center portion	**BH01_0.4-0.5**	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH02_0.0-0.1	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.3-0.4	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10A_0.9-1.0	**20-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP11_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.0-0.1	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.4-1.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_1.9-2.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP14_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.4-0.5	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

			Chloromethane	Chloroform	cis-1,3-dichloropropene	cis-1,2-dichloroethene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Iodomethane	Isopropylbenzene	TCE	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	Trichlorofluoromethane	Vinyl chloride
			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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil 0-2m																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand 2-4m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 0-1m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 1-2m																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand 2-4m																	
CRC Care 2011 Table 4 HSL-A Low Density Residential (Direct Contact)																	
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND																	
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 2 to <4m - SAND																	
SA EPA 2010 Waste Fill																	
SA EPA 2010 Intermediate Waste													14				
SA EPA 2010 Low Level Contaminated Waste													25.2				
Location Code	**Field ID**	**Date**															
Targetted stormwater and sewerage pipes boreholes	**BH01B_1.8-1.9**	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH02B_2.9-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03B_2.9-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH04B_0.0-0.1	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH05B_1.75-1.85	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH06B_2.2-2.3	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH06B_2.8-3.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH07B_0.7-0.8	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH08B_2.4-2.5	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH09B_2.2-2.3	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH10B_3.8-4.0	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH11B_1.3-1.4	**08-09-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Southern portion	**TP15_0.0-0.1**	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_1.9-2.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP17_0.9-1.0	**21-07-20**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP18_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4-0.5	**20-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.9-1.0	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.0-0.1	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.4-0.5	**21-07-20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Lab Report Number	733480	733480		733480	EM2012924	
			Field ID	TP05_0.4-0.5	QC03	**RPD**	TP05_0.4-0.5	QC04	**RPD**
			Sampled Date/Time	20-07-20	20-07-20		20-07-20	20-07-20	
Chem_Gr	**ChemName**	**Units**	**EQL**						
	% Moisture	%	1	12	13	8	12	12.1	1
	Total MAH	mg/kg	0.5						
TPH	C6 - C9	mg/kg	20	<20	<20	NA	<20		
	C10 - C14	mg/kg	20	<20	<20	NA	<20		
	C15 - C28	mg/kg	50	<50	<50	NA	<50		
	C29 - C36	mg/kg	50	<50	<50	NA	<50		
	C10 - C36 (Sum)	mg/kg	50	<50	<50	NA	<50		
TRH	C6 - C10	mg/kg	20	<20	<20	NA	<20		
	C6 - C10 less BTEX (F1)	mg/kg	20	<20	<20	NA	<20		
	C10 - C16	mg/kg	50	<50	<50	NA	<50		
	C10 - C16 less Naphthalene (F2)	mg/kg	50	<50	<50	NA	<50		
	C16 - C34	mg/kg	100	<100	<100	NA	<100		
	C34 - C40	mg/kg	100	<100	<100	NA	<100		
	C10 - C40 (Sum)	mg/kg	100	<100	<100	NA	<100		
BTEXN	Benzene	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Benzene	mg/kg	0.1 : 0.2 (Interlab)						
	Toluene	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Toluene	mg/kg	0.1 : 0.5 (Interlab)						
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Ethylbenzene	mg/kg	0.1 : 0.5 (Interlab)						
	Xylene (m & p)	mg/kg	0.2	<0.2	<0.2	NA	<0.2		
	Xylene (m & p)	mg/kg	0.2 : 0.5 (Interlab)						
	Xylene (o)	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Xylene (o)	mg/kg	0.1 : 0.5 (Interlab)						
	Xylene (Sum)	mg/kg	0.3	<0.3	<0.3	NA	<0.3		
	Naphthalene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Anthracene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benzo(a) pyrene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benzo(b&j)fluoranthene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Chrysene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Fluorene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Pyrene	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	PAHs (Sum)	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	Benzo(a)pyrene TEQ (medium bound	mg/kg	0.5	0.6	0.6	NA	0.6		
	Benzo(a)pyrene TEQ (upper bound)	mg/kg	0.5	1.2	1.2	NA	1.2		
PCB	Arochlor 1016	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Arochlor 1232	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Arochlor 1242	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Arochlor 1248	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Arochlor 1254	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Arochlor 1260	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	Aroclor 1221	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	PCBs (Sum)	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
Metals	Arsenic	mg/kg	2 : 5 (Interlab)	<2	2.5	22	<2	<5	NA
	Cadmium	mg/kg	0.4 : 1 (Interlab)	<0.4	<0.4	NA	<0.4	<1	NA
	Chromium	mg/kg	5 : 2 (Interlab)	8.2	13	45	8.2	15	59
	Copper	mg/kg	5	5.6	9	47	5.6	11	65
	Lead	mg/kg	5	<5	<5	NA	<5	<5	NA
	Mercury	mg/kg	0.1	<0.1	<0.1	NA	<0.1	<0.1	NA
	Nickel	mg/kg	5 : 2 (Interlab)	6.5	11	51	6.5	11	51
	Zinc	mg/kg	5	6.4	11	53	6.4	14	75
Chlorinate	Chlorinated hydrocarbons	mg/kg	0.5						
	Other chlorinated hydrocarbons	mg/kg	0.5						
Hydrocarbons									
Phenols	2,4,5-trichlorophenol	mg/kg	1	<1	<1	NA	<1		
	2,4,6-Trichlorophenol	mg/kg	1	<1	<1	NA	<1		
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	2,4-dinitrophenol	mg/kg	5	<5	<5	NA	<5		
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	2-methylphenol	mg/kg	0.2	<0.2	<0.2	NA	<0.2		
	2-nitrophenol	mg/kg	1	<1	<1	NA	<1		
	3/4-methyl phenol (m/p-cresol)	mg/kg	0.4	<0.4	<0.4	NA	<0.4		
	4,6-Dinitro-2-methylphenol	mg/kg	5	<5	<5	NA	<5		
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	<20	<20	NA	<20		
	4-chloro-3-methylphenol	mg/kg	1	<1	<1	NA	<1		
	4-nitrophenol	mg/kg	5	<5	<5	NA	<5		
	Dinoseb	mg/kg	20	<20	<20	NA	<20		
	Pentachlorophenol	mg/kg	1	<1	<1	NA	<1		
	Phenol	mg/kg	0.5	<0.5	<0.5	NA	<0.5		
	tetrachlorophenols	mg/kg	10	<10	<10	NA	<10		
	Phenols (Total Halogenated)	mg/kg	1	<1	<1	NA	<1		
	Phenols (Total Non Halogenated)	mg/kg	20	<20	<20	NA	<20		

			Lab Report Number	733480	733480		733480	EM2012924	
			Field ID	TP05_0.4-0.5	QC03	**RPD**	TP05_0.4-0.5	QC04	**RPD**
			Sampled Date/Time	20-07-20	20-07-20		20-07-20	20-07-20	
Chem_Gr	**ChemName**	**Units**	**EQL**						
OCP	Organochlorine pesticides EPAVic	mg/kg	0.1	<0.1	<0.1	0	<0.1		
	Other organochlorine pesticides EPAV	mg/kg	0.1	<0.1	<0.1	NA	<0.1		
	4,4-DDE	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	a-BHC	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Aldrin	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	b-BHC	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	chlordane	µg/kg	100	<100	<100	NA	<100		
	d-BHC	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	DDD	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	DDT	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Dieldrin	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Endrin ketone	µg/kg	50	<50	<50	NA	<50		
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Endrin	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Endrin aldehyde	µg/kg	50	<50	<50	NA	<50		
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Heptachlor	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Methoxychlor	mg/kg	0.05	<0.05	<0.05	NA	<0.05		
	Toxaphene	mg/kg	1	<1	<1	NA	<1		
VOC	1,1,1,2-tetrachloroethane	mg/kg	0.5						
	1,1,1-trichloroethane	mg/kg	0.5						
	1,1,2,2-tetrachloroethane	mg/kg	0.5						
	1,1-dichloroethane	mg/kg	0.5						
	1,1,2-trichloroethane	mg/kg	0.5						
	1,1-dichloroethene	mg/kg	0.5						
	1,2,3-trichloropropane	mg/kg	0.5						
	1,2,4-trimethylbenzene	mg/kg	0.5						
	1,2-dibromoethane	mg/kg	0.5						
	1,2-dichlorobenzene	mg/kg	0.5						
	1,2-dichloroethane	mg/kg	0.5						
	1,2-dichloropropane	mg/kg	0.5						
	1,3,5-trimethylbenzene	mg/kg	0.5						
	1,3-dichlorobenzene	mg/kg	0.5						
	1,3-dichloropropane	mg/kg	0.5						
	1,4-dichlorobenzene	mg/kg	0.5						
	2-butanone (MEK)	mg/kg	0.5 : 5 (Interlab)						
	4-chlorotoluene	mg/kg	0.5						
	4-methyl-2-pentanone (MIBK)	mg/kg	0.5 : 5 (Interlab)						
	Acetone	mg/kg	0.5						
	Allyl chloride	mg/kg	0.5						
	Bromobenzene	mg/kg	0.5						
	Bromochloromethane	mg/kg	0.5						
	Bromodichloromethane	mg/kg	0.5						
	Bromoform	mg/kg	0.5						
	Bromomethane	mg/kg	0.5 : 5 (Interlab)						
	Carbon disulfide	mg/kg	0.5						
	Carbon tetrachloride	mg/kg	0.5						
	Chlorodibromomethane	mg/kg	0.5						
	Chloroethane	mg/kg	0.5 : 5 (Interlab)						
	Chlorobenzene	mg/kg	0.5						
	Chloromethane	mg/kg	0.5 : 5 (Interlab)						
	Chloroform	mg/kg	0.5						
	cis-1,3-dichloropropene	mg/kg	0.5						
	cis-1,2-dichloroethene	mg/kg	0.5						
	Dibromomethane	mg/kg	0.5						
	Dichlorodifluoromethane	mg/kg	0.5 : 5 (Interlab)						
	Dichloromethane	mg/kg	0.5						
	Iodomethane	mg/kg	0.5						
	Isopropylbenzene	mg/kg	0.5						
	Styrene	mg/kg	0.5						
	TCE	mg/kg	0.5						
	Tetrachloroethene	mg/kg	0.5						
	trans-1,3-dichloropropene	mg/kg	0.5						
	trans-1,2-dichloroethene	mg/kg	0.5						
	Trichlorofluoromethane	mg/kg	0.5 : 5 (Interlab)						
	Vinyl chloride	mg/kg	0.5 : 5 (Interlab)						

*RPDs have only been considered where a concentration is greater than 5 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))

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

			Lab Report Number	733480	733480		743032	EM2015752	
			Field ID	TP13_1.9-2.0	QC07	**RPD**	BH06B_2.8-3.0	QC07	**RPD**
			Sampled Date/Time	21-07-20	21-07-20		08-09-20	08-09-20	
Chem_Gr	**ChemName**	**Units**	**EQL**						
	% Moisture	%	1	12	12	NA			
	Total MAH	mg/kg	0.5	<0.5	<0.5	NA			
TPH	C6 - C9	mg/kg	20						
	C10 - C14	mg/kg	20						
	C15 - C28	mg/kg	50						
	C29 - C36	mg/kg	50						
	C10 - C36 (Sum)	mg/kg	50						
TRH	C6 - C10	mg/kg	20						
	C6 - C10 less BTEX (F1)	mg/kg	20						
	C10 - C16	mg/kg	50						
	C10 - C16 less Naphthalene (F2)	mg/kg	50						
	C16 - C34	mg/kg	100						
	C34 - C40	mg/kg	100						
	C10 - C40 (Sum)	mg/kg	100						
BTEXN	Benzene	mg/kg	0.1						
	Benzene	mg/kg	0.1 : 0.2 (Interlab)	<0.1	<0.1	NA	<0.1	<0.2	NA
	Toluene	mg/kg	0.1						
	Toluene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	NA	<0.1	<0.5	NA
	Ethylbenzene	mg/kg	0.1						
	Ethylbenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	NA	<0.1	<0.5	NA
	Xylene (m & p)	mg/kg	0.2						
	Xylene (m & p)	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	NA	<0.2	<0.5	NA
	Xylene (o)	mg/kg	0.1						
	Xylene (o)	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	NA	<0.1	<0.5	NA
	Xylene (Sum)	mg/kg	0.3	<0.3	<0.3	NA			
	Naphthalene	mg/kg	0.5						
PAH	Acenaphthene	mg/kg	0.5						
	Acenaphthylene	mg/kg	0.5						
	Anthracene	mg/kg	0.5						
	Benz(a)anthracene	mg/kg	0.5						
	Benzo(a) pyrene	mg/kg	0.5						
	Benzo(b&j)fluoranthene	mg/kg	0.5						
	Benzo(g,h,i)perylene	mg/kg	0.5						
	Benzo(k)fluoranthene	mg/kg	0.5						
	Chrysene	mg/kg	0.5						
	Dibenz(a,h)anthracene	mg/kg	0.5						
	Fluoranthene	mg/kg	0.5						
	Fluorene	mg/kg	0.5						
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5						
	Phenanthrene	mg/kg	0.5						
	Pyrene	mg/kg	0.5						
	PAHs (Sum)	mg/kg	0.5						
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5						
	Benzo(a)pyrene TEQ (medium bound	mg/kg	0.5						
	Benzo(a)pyrene TEQ (upper bound)	mg/kg	0.5						
PCB	Arochlor 1016	mg/kg	0.1						
	Arochlor 1232	mg/kg	0.1						
	Arochlor 1242	mg/kg	0.1						
	Arochlor 1248	mg/kg	0.1						
	Arochlor 1254	mg/kg	0.1						
	Arochlor 1260	mg/kg	0.1						
	Aroclor 1221	mg/kg	0.1						
	PCBs (Sum)	mg/kg	0.1						
Metals	Arsenic	mg/kg	2 : 5 (Interlab)						
	Cadmium	mg/kg	0.4 : 1 (Interlab)						
	Chromium	mg/kg	5 : 2 (Interlab)						
	Copper	mg/kg	5						
	Lead	mg/kg	5						
	Mercury	mg/kg	0.1						
	Nickel	mg/kg	5 : 2 (Interlab)						
	Zinc	mg/kg	5						
Chlorinate	Chlorinated hydrocarbons	mg/kg	0.5	<0.5	<0.5	NA			
	Other chlorinated hydrocarbons	mg/kg	0.5	<0.5	<0.5	NA			
Hydrocarbons									
Phenols	2,4,5-trichlorophenol	mg/kg	1						
	2,4,6-Trichlorophenol	mg/kg	1						
	2,4-dichlorophenol	mg/kg	0.5						
	2,4-dimethylphenol	mg/kg	0.5						
	2,4-dinitrophenol	mg/kg	5						
	2,6-dichlorophenol	mg/kg	0.5						
	2-chlorophenol	mg/kg	0.5						
	2-methylphenol	mg/kg	0.2						
	2-nitrophenol	mg/kg	1						
	3/4-methyl phenol (m/p-cresol)	mg/kg	0.4						
	4,6-Dinitro-2-methylphenol	mg/kg	5						
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20						
	4-chloro-3-methylphenol	mg/kg	1						
	4-nitrophenol	mg/kg	5						
	Dinoseb	mg/kg	20						
	Pentachlorophenol	mg/kg	1						
	Phenol	mg/kg	0.5						
	tetrachlorophenols	mg/kg	10						
	Phenols (Total Halogenated)	mg/kg	1						
	Phenols (Total Non Halogenated)	mg/kg	20						

Lab Report Number	733480	733480		743032	EM2015752	
Field ID	TP13_1.9-2.0	QC07	RPD	BH06B_2.8-3.0	QC07	RPD
Sampled Date/Time	21-07-20	21-07-20		08-09-20	08-09-20	

Chem_Gr	ChemName	Units	EQL						
OCP	Organochlorine pesticides EPAVic	mg/kg	0.1						
	Other organochlorine pesticides EPAV	mg/kg	0.1						
	4,4-DDE	mg/kg	0.05						
	a-BHC	mg/kg	0.05						
	Aldrin	mg/kg	0.05						
	Aldrin + Dieldrin	mg/kg	0.05						
	b-BHC	mg/kg	0.05						
	chlordane	µg/kg	100						
	d-BHC	mg/kg	0.05						
	DDD	mg/kg	0.05						
	DDT	mg/kg	0.05						
	DDT+DDE+DDD	mg/kg	0.05						
	Dieldrin	mg/kg	0.05						
	Endrin ketone	µg/kg	50						
	Endosulfan I	mg/kg	0.05						
	Endosulfan II	mg/kg	0.05						
	Endosulfan sulphate	mg/kg	0.05						
	Endrin	mg/kg	0.05						
	Endrin aldehyde	µg/kg	50						
	g-BHC (Lindane)	mg/kg	0.05						
	Heptachlor	mg/kg	0.05						
	Heptachlor epoxide	mg/kg	0.05						
	Hexachlorobenzene	mg/kg	0.05						
	Methoxychlor	mg/kg	0.05						
	Toxaphene	mg/kg	1						
VOC	1,1,1,2-tetrachloroethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,1,1-trichloroethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,1,2,2-tetrachloroethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,1-dichloroethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,1,2-trichloroethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,1-dichloroethene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,2,3-trichloropropane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,2-dibromoethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,2-dichlorobenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,2-dichloroethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,2-dichloropropane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,3,5-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,3-dichlorobenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,3-dichloropropane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	1,4-dichlorobenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	2-butanone (MEK)	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	4-chlorotoluene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	4-methyl-2-pentanone (MIBK)	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	Acetone	mg/kg	0.5	<0.5	<0.5	NA			
	Allyl chloride	mg/kg	0.5	<0.5	<0.5	NA			
	Bromobenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Bromochloromethane	mg/kg	0.5	<0.5	<0.5	NA			
	Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Bromoform	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Bromomethane	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	Carbon disulfide	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Chloroethane	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	Chlorobenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Chloromethane	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	Chloroform	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	cis-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	cis-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Dibromomethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Dichlorodifluoromethane	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	Dichloromethane	mg/kg	0.5	<0.5	<0.5	NA			
	Iodomethane	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Styrene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	TCE	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	NA	<0.5	<0.5	NA
	Trichlorofluoromethane	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA
	Vinyl chloride	mg/kg	0.5 : 5 (Interlab)	<0.5	<0.5	NA	<0.5	<5	NA

*RPDs have only been considered where a concentration is greater than 5 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))

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

SDG	23-Jul-20	23-Jul-20	09-Sep-20	23-Jul-20	09-Sep-20
Field ID	RB01	RB02	RB01B	TB01	TB01B
Sampled_Date/Time	20-07-20	21-07-20	08-09-20	21-07-20	08-09-20
Sample Type	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B

Chem_Group	ChemName	Units	EQL					
	Total MAH	mg/l	0.003	<0.003	<0.003	<0.003		
BTEX	Benzene	µg/l	1	<1	<1	<1	<1	<1
	Toluene	µg/l	1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/l	1	<1	<1	<1	<1	<1
	Xylene (m & p)	µg/l	2	<2	<2	<2	<2	<2
	Xylene (o)	µg/l	1	<1	<1	<1	<1	<1
	Xylene (Sum)	µg/l	3	<3	<3	<3	<3	<3
Chlorinated Hydrocarbons	Chlorinated hydrocarbons	ug/L	5	<5	<5	<5		
	Other chlorinated hydrocarbons	ug/L	5	<5	<5	<5		
Metals	Arsenic	µg/l	1	<1	<1			
	Cadmium	µg/l	0.2	<0.2	<0.2			
	Chromium	µg/l	1	<1	<1			
	Copper	µg/l	1	<1	<1			
	Lead	µg/l	1	<1	<1			
	Mercury	µg/l	0.1	<0.1	<0.1			
	Nickel	µg/l	1	<1	<1			
	Zinc	µg/l	5	<5	<5			
PAH	Acenaphthene	µg/l	1	<1	<1			
	Acenaphthylene	µg/l	1	<1	<1			
	Anthracene	µg/l	1	<1	<1			
	Benz(a)anthracene	µg/l	1	<1	<1			
	Benzo(a) pyrene	µg/l	1	<1	<1			
	Benzo(b&j)fluoranthene	µg/l	1	<1	<1			
	Benzo(g,h,i)perylene	µg/l	1	<1	<1			
	Benzo(k)fluoranthene	µg/l	1	<1	<1			
	Chrysene	µg/l	1	<1	<1			
	Dibenz(a,h)anthracene	µg/l	1	<1	<1			
	Fluoranthene	µg/l	1	<1	<1			
	Fluorene	µg/l	1	<1	<1			
	Indeno(1,2,3-c,d)pyrene	µg/l	1	<1	<1			
	Naphthalene	µg/l	1	<10	<10		<10	<10
	Phenanthrene	µg/l	1	<1	<1			
	Pyrene	µg/l	1	<1	<1			
	PAHs (Sum)	µg/l	1	<1	<1			
TPH	C6 - C9	µg/l	20	<20	<20		<20	<20
	C10 - C14	µg/l	50	<50	<50			
	C15 - C28	µg/l	100	<100	<100			
	C29 - C36	µg/l	100	<100	<100			
	C10 - C36 (Sum)	µg/l	100	<100	<100			
TRH	C6 - C10	µg/l	20	<20	<20		<20	<20
	C6 - C10 less BTEX (F1)	µg/l	20	<20	<20		<20	<20
	C10 - C16	µg/l	50	<50	<50			
	C10 - C16 less Naphthalene (F2)	µg/l	50	<50	<50			
	C16 - C34	µg/l	100	<100	<100			
	C34 - C40	µg/l	100	<100	<100			
	C10 - C40 (Sum)	µg/l	100	<100	<100			
VOC	1,1,1,2-tetrachloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,1,1-trichloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,1,2,2-tetrachloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,1-dichloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,1,2-trichloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,1-dichloroethene	mg/l	0.001	<0.001	<0.001	<0.001		
	1,2,3-trichloropropane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,2,4-trimethylbenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	1,2-dibromoethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,2-dichlorobenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	1,2-dichloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,2-dichloropropane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,3,5-trimethylbenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	1,3-dichlorobenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	1,3-dichloropropane	mg/l	0.001	<0.001	<0.001	<0.001		
	1,4-dichlorobenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	2-butanone (MEK)	mg/l	0.001	<0.001	<0.001	<0.001		
	4-chlorotoluene	mg/l	0.001	<0.001	<0.001	<0.001		
	4-methyl-2-pentanone (MIBK)	mg/l	0.001	<0.001	<0.001	<0.001		
	Acetone	mg/l	0.001	<0.001	<0.001	<0.001		
	Allyl chloride	mg/l	0.001	<0.001	<0.001	<0.001		
	Bromobenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	Bromochloromethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Bromodichloromethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Bromoform	mg/l	0.001	<0.001	<0.001	<0.001		
	Bromomethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Carbon disulfide	mg/l	0.001	<0.001	<0.001	<0.001		
	Carbon tetrachloride	mg/l	0.001	<0.001	<0.001	<0.001		
	Chlorodibromomethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Chloroethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Chlorobenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	Chloromethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Chloroform	mg/l	0.005	<0.005	<0.005	<0.005		
	cis-1,3-dichloropropene	mg/l	0.001	<0.001	<0.001	<0.001		
	cis-1,2-dichloroethene	mg/l	0.001	<0.001	<0.001	<0.001		
	Dibromomethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Dichlorodifluoromethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Dichloromethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Iodomethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Isopropylbenzene	mg/l	0.001	<0.001	<0.001	<0.001		
	Styrene	mg/l	0.001	<0.001	<0.001	<0.001		
	TCE	mg/l	0.001	<0.001	<0.001	<0.001		
	Tetrachloroethene	mg/l	0.001	<0.001	<0.001	<0.001		
	trans-1,3-dichloropropene	mg/l	0.001	<0.001	<0.001	<0.001		
	trans-1,2-dichloroethene	mg/l	0.001	<0.001	<0.001	<0.001		
	Trichlorofluoromethane	mg/l	0.001	<0.001	<0.001	<0.001		
	Vinyl chloride	mg/l	0.001	<0.001	<0.001	<0.001		

APPENDIX A

SITE PHOTOGRAPHS

wsp	**PHOTOGRAPHIC LOG – Site Inspection**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
1	13 July 2020

Description

Southern Portion
View of open swale near the eastern boundary, adjacent the southern boundary.
Photograph taken facing east.

Photo No.	**Date**
2	13 July 2020

Description

Southern Portion
View along open swale adjacent southern boundary.
Photograph taken facing west.

wsp	**PHOTOGRAPHIC LOG – Site Inspection**

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
3	13 July 2020

Description

Southern Portion
View of clay-lined retention basin in south-west corner.
Photograph taken facing west.

Photo No.	Date
4	13 July 2020

Description

Southern Portion
View of red brick fragments and concrete on site surface.
Photograph taken facing west.

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
5	13 July 2020

Description

Southern Portion
View of bitumen on site surface. Photograph taken facing north-west.

Photo No.	Date
6	13 July 2020

Description

Southern Portion
View along eastern boundary, showing embankment and significant change in surface level. Photograph taken facing north.

wsp	**PHOTOGRAPHIC LOG – Site Inspection**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
7	13 July 2020

Description

Southern Portion
View along alignment of easement with buried stormwater drain. Photograph taken facing west.

Photo No.	**Date**
8	13 July 2020

Description

Southern Portion
View of stormwater drain outlet inside western boundary. Photograph taken facing north-east.

wsp	**PHOTOGRAPHIC LOG – Site Inspection**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
9	13 July 2020

Description

Southern Portion
View of PVC cap in north-west corner for vent or inspection point to buried wastewater drain. Photograph taken facing north.

Photo No.	**Date**
10	13 July 2020

Description

Southern Portion
View of gatic midway along alignment of buried wastewater drain. Photograph taken facing east.

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
11	13 July 2020

Description

Northern Portion
View at southern entrance to northern portion, with minor gravels on surface. Photograph taken facing west.

Photo No.	Date
12	13 July 2020

Description

Northern Portion
View across northern portion. Photograph taken facing east.

wsp	**PHOTOGRAPHIC LOG – Site Inspection**

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
13	13 July 2020

Description

Northern Portion
View along eastern boundary with embankment. Photograph taken facing south.

Photo No.	Date
14	13 July 2020

Description

View of materials stored in laydown yard adjacent the eastern boundary of southern portion. Photograph taken facing north.

wsp	**PHOTOGRAPHIC LOG – Site Inspection**

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
15	13 July 2020

Description

View of machinery stored in adjacent laydown yard to the east. Photograph taken facing south-east.

Photo No.	Date
16	13 July 2020

Description

View of waste materials (tyres, concrete, boulders) stored in adjacent laydown yard to the east. Photograph taken facing south-east.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
1	20 July 2020

Description

Southern Portion- facing north

Photo No.	**Date**
2	20 July 2020

Description

Southern Portion- facing south

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
3	20 July 2020

Description

Southern Portion
TP03 before excavation- facing south.

Photo No.	**Date**
4	20 July 2020

Description

Southern Portion
TP03 during excavation- facing south.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
5	20 July 2020

Description

Southern Portion
TP03 after backfilling- facing south.

Photo No.	**Date**
6	20 July 2020

Description

Southern Portion
TP06 before excavation- facing west.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
7	20 July 2020

Description

Southern Portion
TP06 during excavation- facing west.

Photo No.	**Date**
8	20 July 2020

Description

Southern Portion
TP06 after backfilling- facing south west.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
9	20 July 2020

Description

Center Portion- facing north west.

Photo No.	**Date**
10	20 July 2020

Description

Center Portion- facing north east.

	PHOTOGRAPHIC LOG – Soil Investigation

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
11	20 July 2020

Description

Center Portion
TP07 before excavation- facing west.

Photo No.	Date
12	20 July 2020

Description

Center Portion
TP07 during excavation- facing west.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
13	20 July 2020

Description

Center Portion
TP07 after backfilling- facing west.

Photo No.	**Date**
14	20 July 2020

Description

Center Portion
TP09 before excavation- facing west.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
15	20 July 2020

Description

Center Portion
TP09 during excavation- facing west.

Photo No.	**Date**
16	20 July 2020

Description

Center Portion
TP09 after backfilling- facing south.

	PHOTOGRAPHIC LOG – Soil Investigation

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
17	20 July 2020

Description

Center Portion
TP13 before excavation- facing south.

Photo No.	Date
18	20 July 2020

Description

Center Portion
TP13 during excavation- facing west.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
19	20 July 2020

Description

Center Portion
TP13 after backfilling- facing west.

Photo No.	**Date**
20	20 July 2020

Description

Southern Portion- facing south.

	PHOTOGRAPHIC LOG – Soil Investigation

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
21	20 July 2020

Description

Southern Portion- facing west.

Photo No.	Date
22	20 July 2020

Description

Southern Portion
TP17 before excavation- facing south.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
23	20 July 2020

Description

Southern Portion
TP17 during excavation- facing south.

Photo No.	**Date**
24	20 July 2020

Description

Southern Portion
TP17 after backfilling- facing south.

	PHOTOGRAPHIC LOG – Soil Investigation

Client Name	Site Location	Project No.
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	Date
25	20 July 2020

Description

Southern Portion
TP19 before excavation- facing south.

Photo No.	Date
26	20 July 2020

Description

Southern Portion
TP19 during excavation- facing south.

wsp	**PHOTOGRAPHIC LOG – Soil Investigation**

Client Name	**Site Location**	**Project No.**
Kambitsis Group	64 Baden Terrace & 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166	PS120574

Photo No.	**Date**
27	20 July 2020

Description

Southern Portion
TP19 after backfilling facing south.

APPENDIX B

LOTSEARCH REPORT

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: 64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Date: 30 Jun 2020 10:52:43

Reference: LS013142 EP

Disclaimer:
The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.
You should obtain independent advice before you make any decision based on the information within the report.
The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	PSMA Australia Limited	16/04/2020	01/02/2020	Quarterly	-	-	-	-
EPA Site Contamination Index	EPA South Australia	25/05/2020	25/05/2020	Monthly	1000	0	4	31
EPA Environmental Protection Orders	EPA South Australia	25/06/2020	25/06/2020	Monthly	1000	0	0	2
EPA Environmental Authorisations	EPA South Australia	25/06/2020	25/06/2020	Monthly	1000	1	1	13
EPA Assessment Areas	EPA South Australia	10/01/2020	10/01/2020	Quarterly	1000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	12/02/2020	12/02/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	12/02/2020	12/02/2020	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	29/06/2020	29/06/2020	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	05/06/2020	05/06/2020	Monthly	2000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	15/05/2020	07/03/2017	Quarterly	1000	0	0	1
EPA Collection Depots	EPA South Australia	18/05/2020	18/05/2020	Quarterly	1000	0	0	1
National Liquid Fuel Facilities	Geoscience Australia	05/02/2020	15/03/2012	Quarterly	1000	0	0	1
Historical Business Directories (Premise & Intersection Matches)	Hardie Grant, Sands & McDougall			Not required	150	0	5	6
Historical Business Directories (Road & Area Matches)	Hardie Grant, Sands & McDougall			Not required	150	-	9	10
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant, Sands & McDougall			Not required	500	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant, Sands & McDougall			Not required	500	-	0	2
Mines and Mineral Deposits	Department for Energy and Mining	09/04/2020	09/04/2020	Quarterly	1000	0	0	2
Groundwater Aquifers	Department for Environment and Water	09/04/2018	01/01/2008	As required	1000	1	1	2
Drillholes	Department for Environment and Water	09/04/2020	30/03/2020	Quarterly	2000	0	7	289
Surface Geology 1:100,000	Department for Energy and Mining	12/07/2018	01/07/2018	As required	1000	1	1	8
Geological Linear Structures 1:100,000	Department for Energy and Mining	12/07/2018	01/07/2018	As required	1000	0	0	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	1	1	1
Soil Types	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	6
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Acid Sulfate Soil Potential	Department for Environment and Water	09/04/2018	03/06/2016	As required	1000	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Soil Salinity - Watertable Induced	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	3
Soil Salinity - Non-watertable	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	3
Soil Salinity - Non-watertable (magnesia patches)	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	1
Land Development Zones	Department of Planning, Transport and Infrastructure	09/04/2020	09/04/2020	Quarterly	1000	1	2	9
Land Use Generalised 2018	Department of Planning, Transport and Infrastructure	19/06/2019	15/06/2019	Annually	1000	1	6	12
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	18/05/2020	20/11/2019	Quarterly	1000	0	0	0
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	18/05/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Areas	Department for Environment and Water	12/07/2018	10/11/2004	As required	1000	0	0	0
SA Heritage Places	Department for Environment and Water	09/04/2020	08/08/2019	Quarterly	1000	0	0	1
Aboriginal Land	Department for Energy and Mining	09/04/2018	08/04/2018	As required	1000	0	0	0
Bushfire Protection Areas	Department of Planning, Transport and Infrastructure	04/09/2018	20/02/2018	As required	1000	1	1	4
Bushfires and Prescribed Burns History	Department for Environment and Water	04/09/2018	26/05/2018	As required	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	3
Ramsar Wetland Areas	Department for Environment and Water	30/01/2017	30/01/2013	As required	1000	0	0	0

Site Diagram

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 60237m^2

Total Perimeter: 1225m

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Scale:

0 25 50 100
Meters

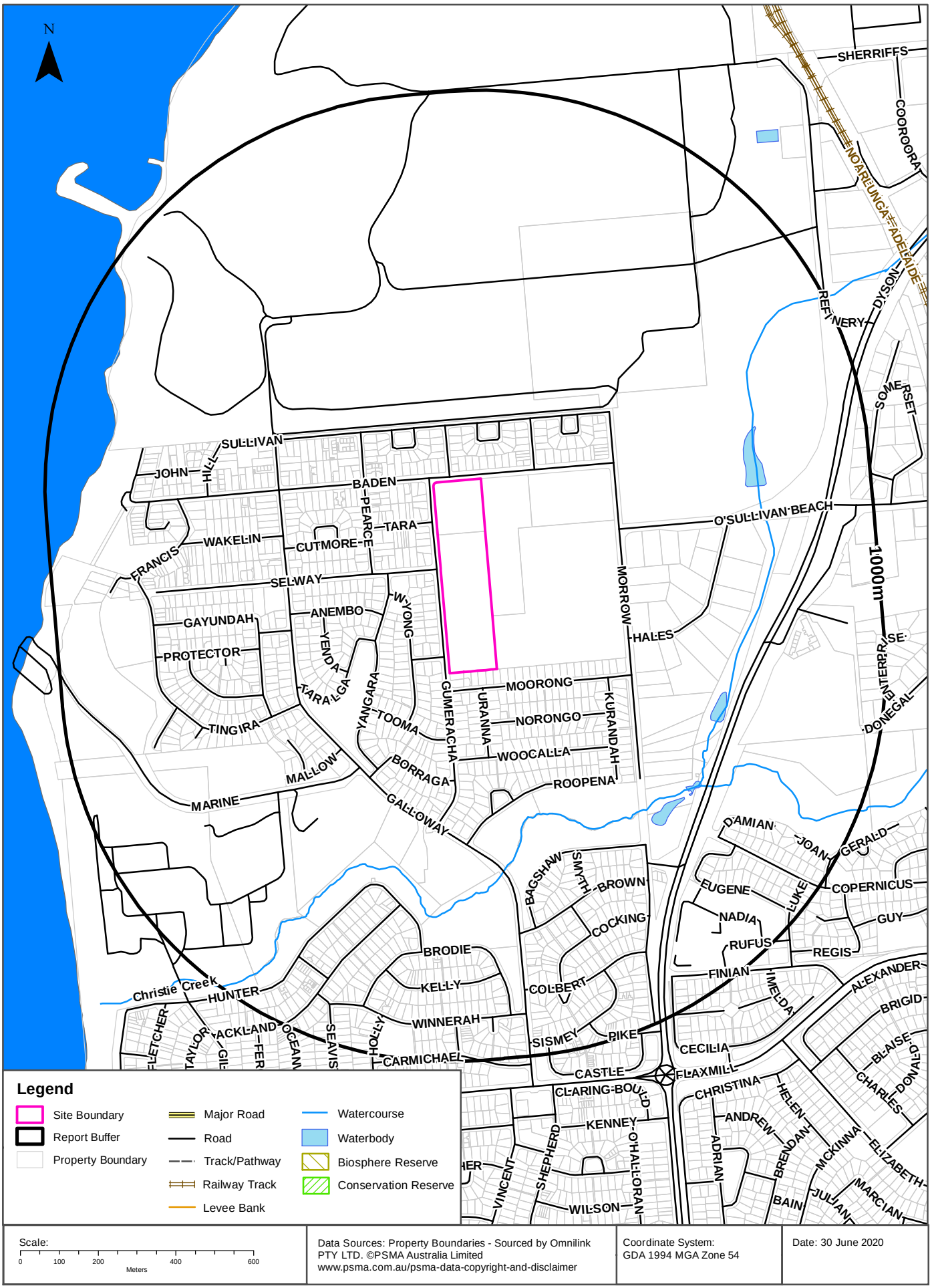
Data Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS UserCommunity

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Topographic Features

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 100 200 400 600 Meters

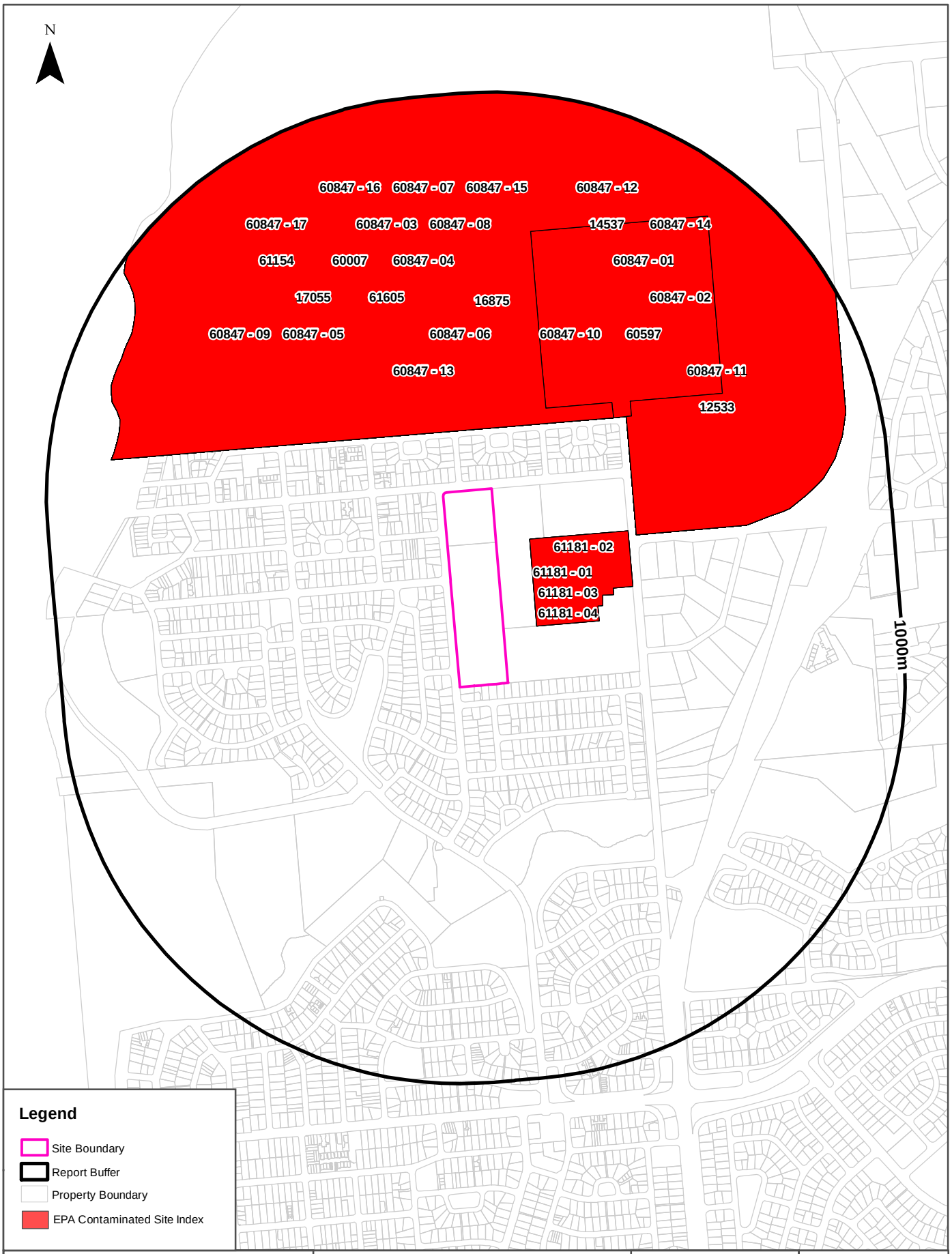
Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

EPA Site Contamination Index

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

EPA Contaminated Land

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

EPA Site Contamination Index

Sites on the EPA Contamination Index within the dataset buffer:

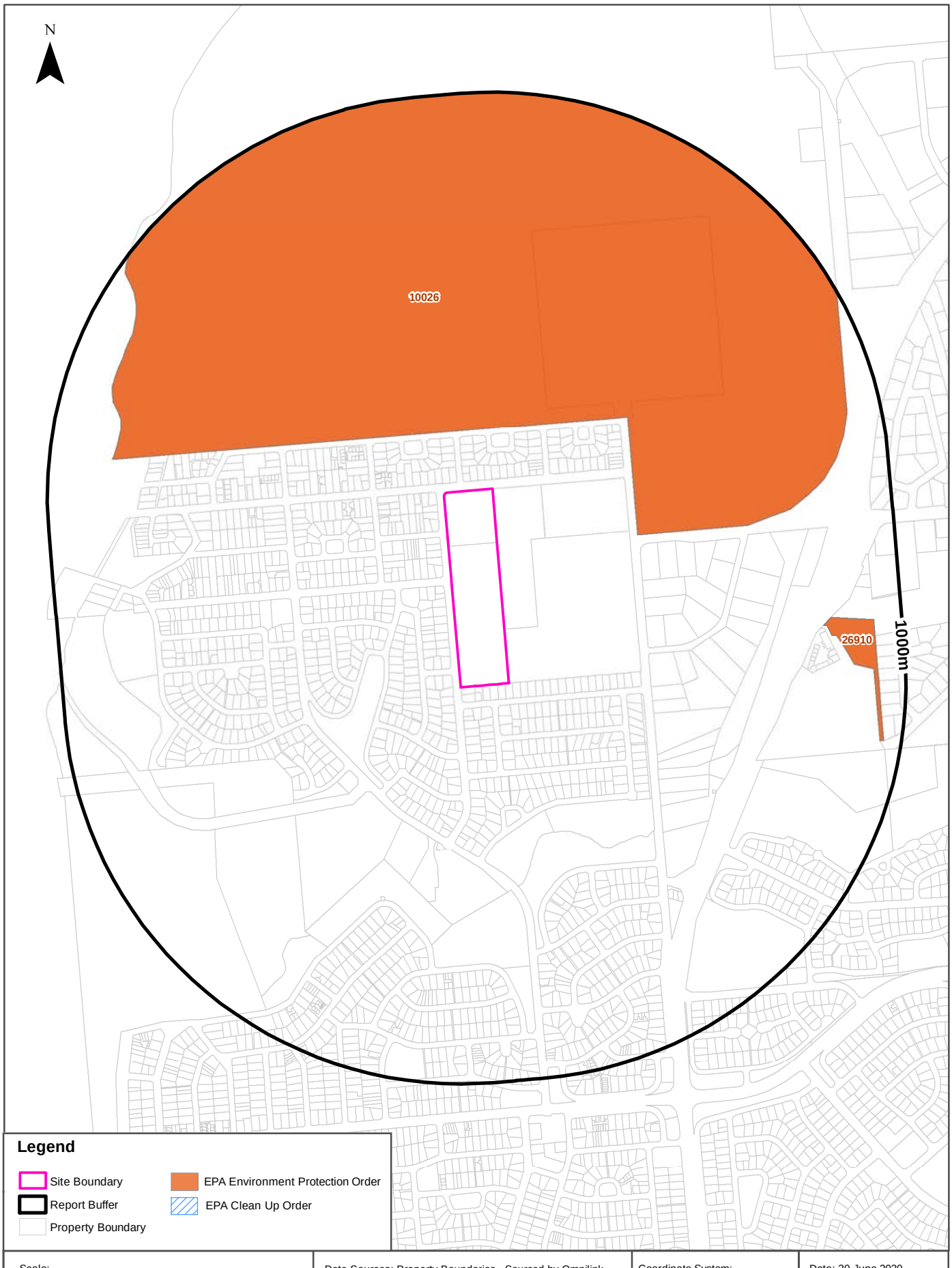
Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
61181 - 01	S83A Notification	Part Lot 19 Morrow Road O'SULLIVAN BEACH SA 5166	Listed Substances (manufacture, production, recycling)	Current EPA List	Premise Match	84m	East
61181 - 02	S83A Notification	70 Baden Terrace O'SULLIVAN BEACH SA 5166	Metal processing, smelting, refining or metallurgical works	Current EPA List	Premise Match	84m	East
61181 - 03	S83A Notification	Part Lot 19 70 Baden Terrace O'SULLIVAN BEACH SA 5166	Metal coating, finishing or spray painting	Current EPA List	Premise Match	84m	East
61181 - 04	S83A Notification	70 Baden Terrace O'SULLIVAN BEACH SA 5166	Metal coating, finishing or spray painting; Metal processing, smelting, refining or metallurgical works	Current EPA List	Premise Match	84m	East
61605	Audit Notification	Portion Lot 1 Dyson Road, Lonsdale and Portion of Crown land between low tide mark and high tide mark LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
12533	Pre 1 July 2009 Audit Notification	Refinery Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
12533	Pre 1 July 2009 Audit Termination	Refinery Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
14537	Pre 1 July 2009 Audit Notification	Refinery Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
14537	Pre 1 July 2009 Audit Termination	Refinery Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
16875	109 Notification	Refinery Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
17055	109 Notification	Lot 1 Dyson Road & Lot 66 Sullivan Terrace LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
60007	Audit Notification	Lot 1 Dyson Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
60597	Voluntary Proposal	Lt 1 Dyson Rd & Lt 66 Sullivan Tce LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 01	S83A Notification	Lot 12 Christie Road, Lot 66 Sullivan Terrace & Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 02	S83A Notification	Lot 12 Christie Road, Lot 66 Sullivan Terrace & Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 03	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 04	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 05	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 06	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 07	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 08	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 09	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 10	S83A Notification	Lot 12 Christie Road, Lot 66 Sullivan Terrace & Lot 1 Dyson Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
60847 - 11	S83A Notification	Lot 12 Christie Road, Lot 66 Sullivan Terrace & Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 12	S83A Notification	Lot 12 Christie Road, Lot 66 Sullivan Terrace & Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 13	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 14	S83A Notification	Lot 12 Christie Road, Lot 66 Sullivan Terrace & Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 15	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
60847 - 16	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Not recorded	Current EPA List	Premise Match	153m	North
60847 - 17	S83A Notification	Lot 1 Dyson Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North
61154	Voluntary Proposal	Adelaide Refinery Refinery Road LONSDALE SA 5160	Oil refineries	Current EPA List	Premise Match	153m	North

Site Contamination Index Data Source: EPA South Australia

EPA Environment Protection and Clean Up Orders

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 100 200 400 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

EPA Public Register

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

EPA Environment Protection and Clean Up Orders

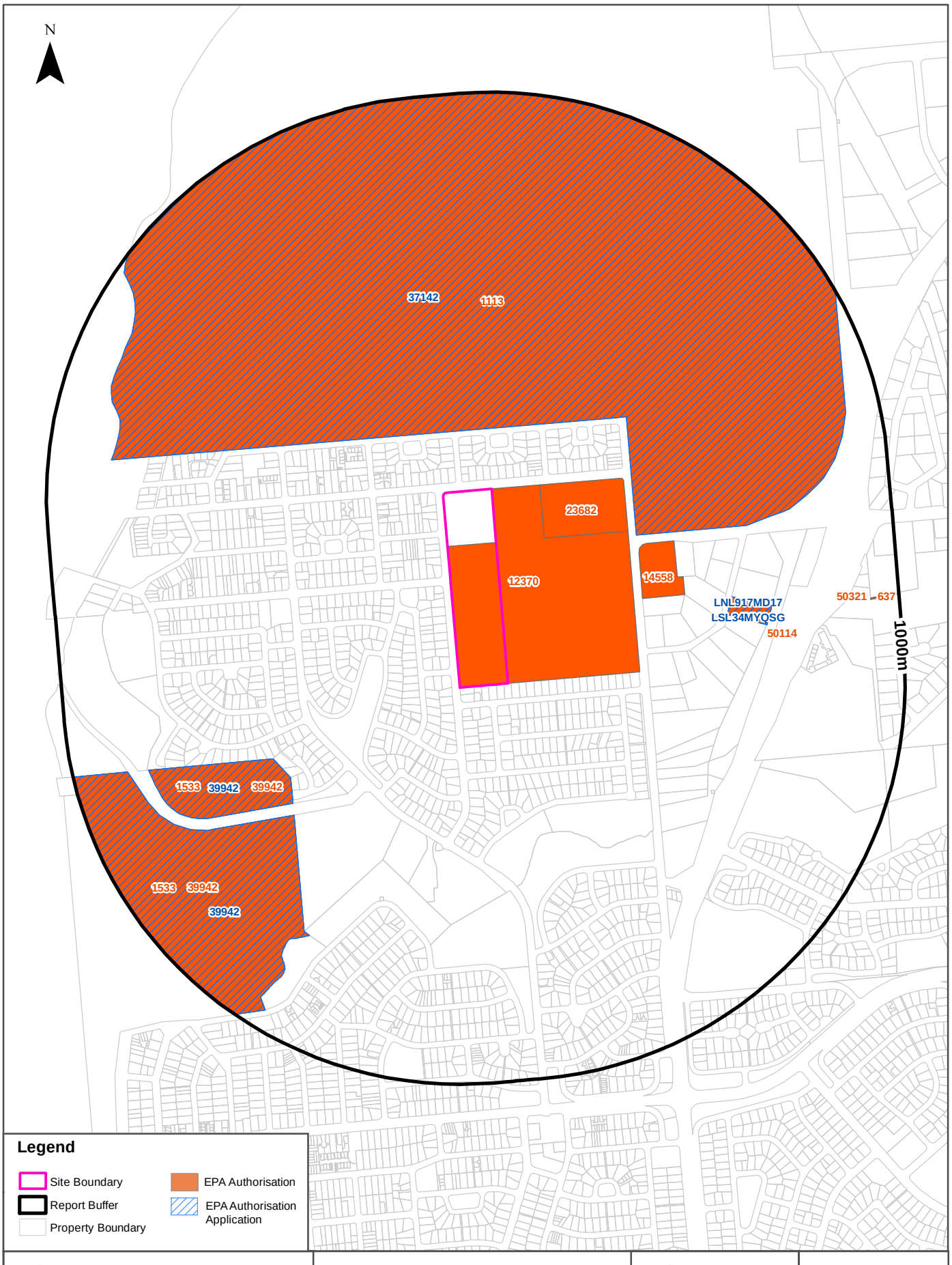
EPA Environment Protection and Clean Up Orders, within the dataset buffer:

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
10026	ENVIRONMENT PROTECTION ORDER	COMPLIED	Mobil Refining Australia Pty Ltd	Dyson Road, Lonsdale SA 5160	Harm or potential harm to the environment arising from the handling of ethyl mercaptan.	Current EPA Register	Premise Match	153 m	North
26910	ENVIRONMENT PROTECTION ORDER	ISSUED		Dyson Road, Lonsdale SA 5160	Caused or permitted the receipt, storage and disposal of waste at the site, without an environmental authorisation (licence).	Current EPA Register	Premise Match	801 m	East

Authorisations Data Source: EPA South Australia

EPA Authorisations and Applications

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

EPA Public Register

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

EPA Authorisations and Applications

EPA Authorisations and Authorisation Applications within the dataset buffer:

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
12370	LICENCE	Surrendered	WALKER AUSTRALIA PTY. LIMITED	Allotment 100 (FP 32358) and Allotment 19 (FP 152595) Morrow Road, O'SULLIVAN BEACH, 5166, SA	Activities producing listed wastes	Current EPA Register	Premise Match	0m	Onsite
23682	LICENCE	Surrendered	HILLS LIMITED	80 - 98 Baden Terrace, O'SULLIVAN BEACH SA 5166	Activities producing listed wastes,Fuel burning comprising the burning of fuel to stove enamel or to bake or dry substances releasing dust or air impurities,Surface coating works (spray painting or powder coating)	Current EPA Register	Premise Match	121m	North East
37142	LICENCE APPLICATION	Proceed To Authorisation	EDS Australasia Pty Ltd	Allotment 66 (FP 148404) Sullivan Tce & Allotment 1 (FP 149603) Dyson Rd, Lonsdale SA 5160	Activities producing listed wastes	Current EPA Register	Premise Match	153m	North
1113	LICENCE	Surrendered	MOBIL REFINING AUSTRALIA PTY. LTD.	Refinery Road, LONSDALE SA 5160	Activities producing listed wastes,Petroleum storage	Current EPA Register	Premise Match	153m	North
14558	LICENCE	Issued	HOLCIM (AUSTRALIA) PTY LTD	2-6 O'Sullivan Beach Road, LONSDALE SA 5160	Concrete batching works	Current EPA Register	Premise Match	356m	East
1533	LICENCE	Issued	SOUTH AUSTRALIAN WATER CORPORATION	Christies Beach WWTP Hunter Road, CHRISTIES BEACH, 5165, SA	Sewage treatment works or septic tank effluent disposal schemes (discharge other than to marine waters or a Water Protection Area),Sewage treatment works or septic tank effluent disposal schemes (discharge to marine waters)	Current EPA Register	Premise Match	483m	South West
39942	EXEMPTION	Cancelled	SOUTH AUSTRALIAN WATER CORPORATION		Sewage Treatment Works or Septic Tank Effluent Disposal Schemes-Discharge to Marine Waters; Sewage Treatment Works or Septic Tank Effluent Disposal Schemes-discharge to land or waters other than marine waters	Current EPA Register	Premise Match	483m	South West
39942	EXEMPTION APPLICATION	Proceed To Authorisation	South Australian Water Corporation			Current EPA Register	Premise Match	483m	South West
LNL917MD17	LICENCE APPLICATION	Proceed To Authorisation	SENWILL CIVIL PTY LTD	Various Locations in SA	Waste transport business (category A)	Current EPA Register	Premise Match	565m	East
LSL34MYQSG	LICENCE APPLICATION	Authorisation Updated	SENWILL CIVIL PTY LTD	11 Hales Drive, LONSDALE SA 5160	Waste recycling depot (waste for resource recovery or transfer)	Current EPA Register	Premise Match	565m	East
50114	LICENCE	Issued	SENWILL CIVIL PTY LTD	11 Hales Drive, LONSDALE SA 5160	Waste recycling depot (waste for resource recovery or transfer)	Current EPA Register	Premise Match	565m	East

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
637	LICENCE	Issued	SA WASTE MANAGEMENT PTY LTD	Allotment 50, Donegal Road, LONSDALE SA 5160	Waste recycling depot (waste for resource recovery or transfer)	Current EPA Register	Premise Match	928m	East
50321	LICENCE	Issued	CLEANAWAY PTY LTD	Allotment 50, Donegal Road, LONSDALE SA 5160	Waste recycling depot (waste for resource recovery or transfer)	Current EPA Register	Premise Match	928m	East

Authorisations Data Source: EPA South Australia

EPA Assessment Areas

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

EPA Assessment Areas

EPA Assessment Areas within the dataset buffer:

Map Id	Supplied Ref	Area Name	Map Link	Status	Location Confidence	Distance	Direction
N/A	No records in buffer						

Assessment Areas Data Source: EPA South Australia

PFAS Investigation and Management Programs

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Defence PFAS Investigation and Management Program Investigation Sites

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation and Management Program Data Source: Department of Defence, Australian Government

Defence PFAS Investigation and Management Program Management Sites

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation and Management Program Data Source: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Location Confidence	Distance	Direction
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Defence 3 Year Regional Contamination Investigation Program

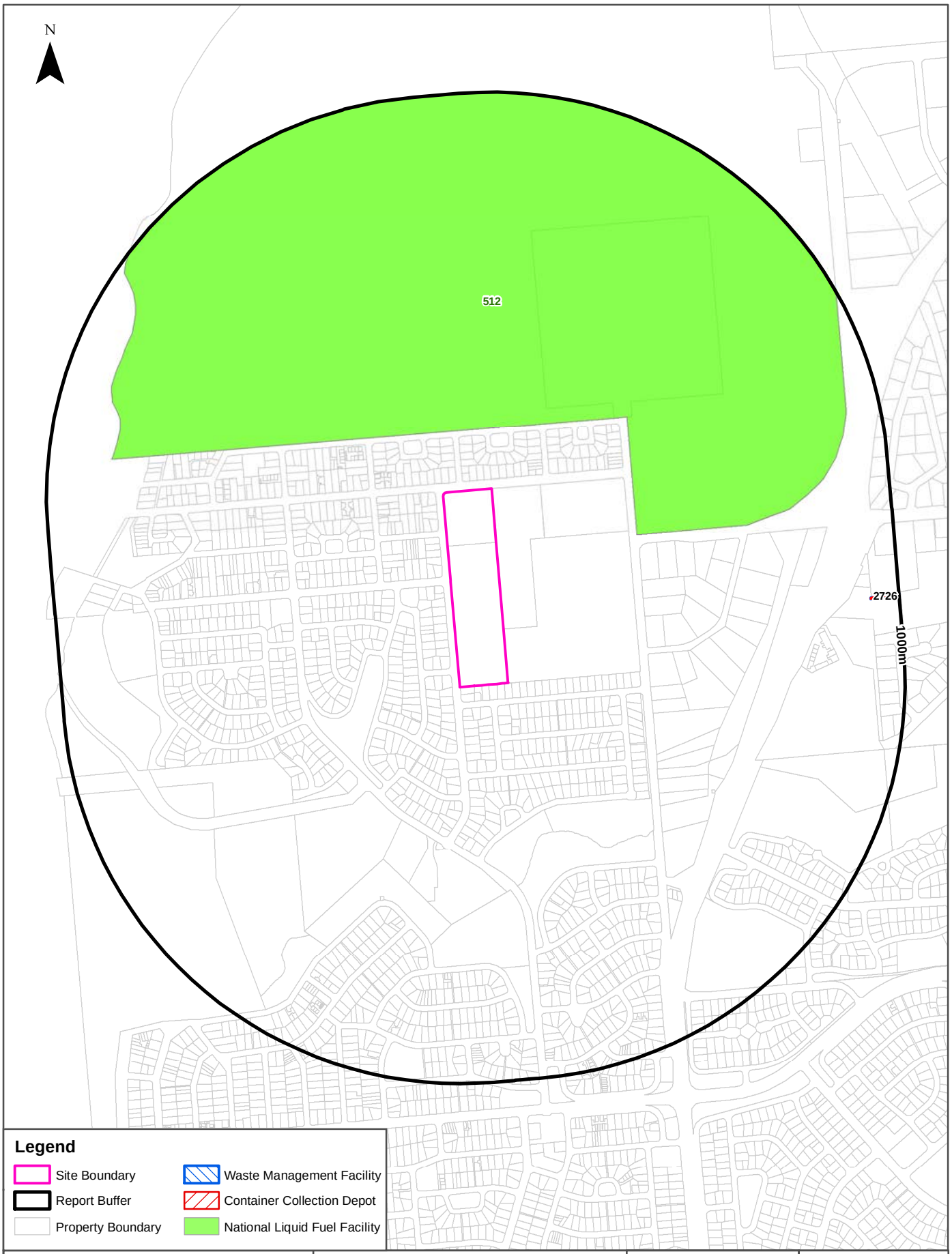
Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

Waste Management & Liquid Fuel Facilities

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 170 340 Meters 510 680

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Waste Management and Liquid Fuel Facilities

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Revised Date	Location Confidence	Distance	Direction
2726	City Of Onkaparinka	Lonsdale Waste and Recycling Depot	10 Donegal Road	Lonsdale	Transfer Station	08/06/2012	Premise Match	928m	East

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

EPA Approved Container Collection Depots

EPA approved container collection depots within the dataset buffer:

MapId	Name	Address	Suburb	Loc Conf	Distance	Direction
17	Lonsdale Transfer Station	10 Donegal Road	LONSDALE	Premise Match	928m	East

Collection Depot Data Source: EPA South Australia

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Dir
512	Mobil	Port Stanvac	Refinery Road	Lonsdale	Fuel Refinery	Closed		15/03/2012	Premise Match	153m	North

National Liquid Fuel Facilities Data Source: Geoscience Australia
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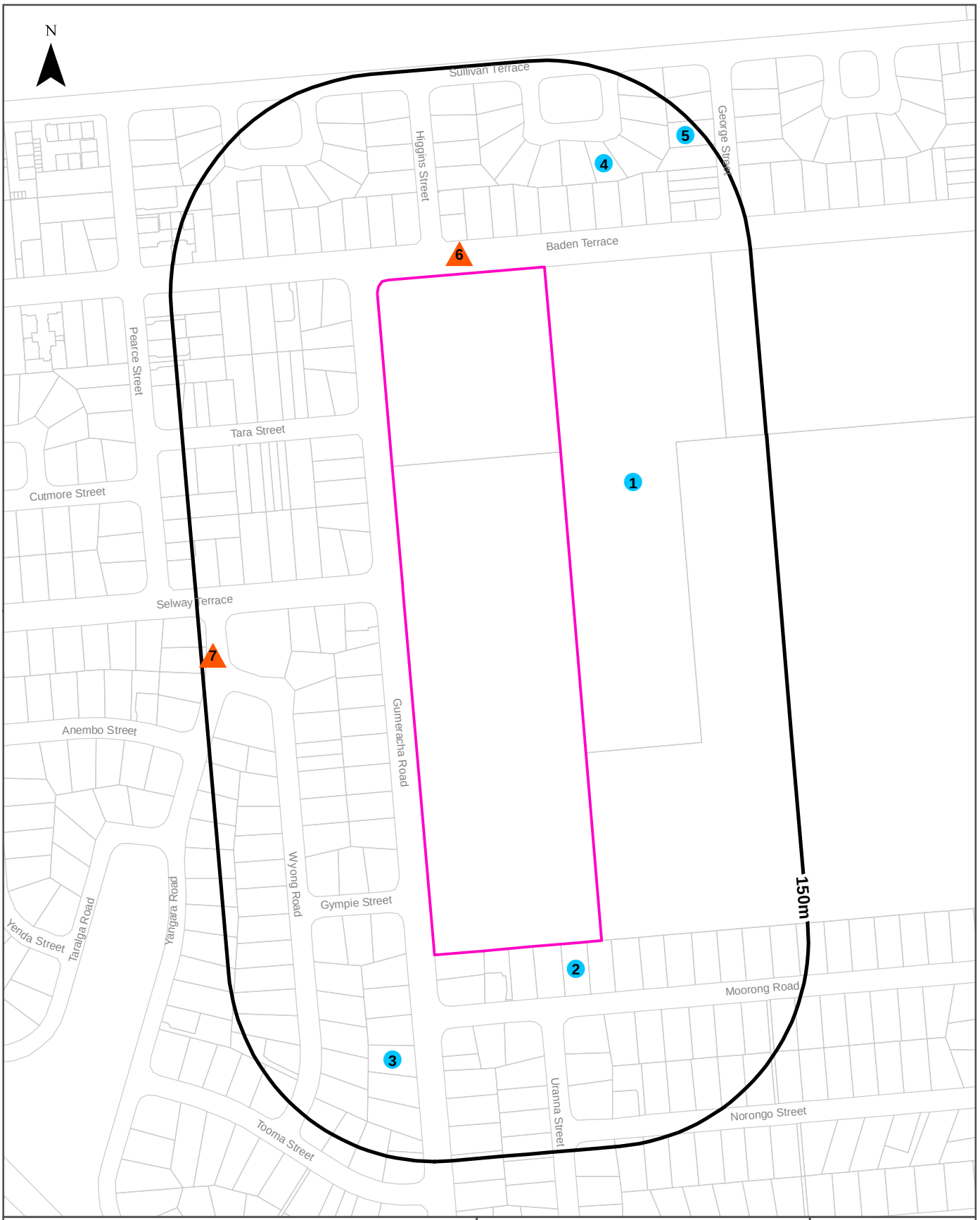
Historical Business Directories

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 50 100 150 200 Meters

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Sands & McDougall's Directory - Digitised by State Library Victoria
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Historical Business Directories

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Business Directory Records 1910-1991
Premise or Road Intersection Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940, 1930, 1920 & 1910, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Towel Mfrs &/or W/salers	Palm Beach Towel Company (Division of Guthrie Operations Pty Ltd), 74 Baden Tce O'Sullivan Beach 5166	35246	1991	Premise Match	0m	North East
	Textile Mfrs &/Or Imps &/Or W'salers	Palm Beach Towel Company. (Division of Guthrie Operations Pty. Ltd.)., 74 Baden Tce, O'Sullivan Beach, 5166.	34893	1991	Premise Match	0m	North East
2	Clubs &/or Sporting Bodies	Southern Districts Lacrosse Sports Club, 9 Moorong Rd, O'Sullivan Beach 5166	5922	1984	Premise Match	0m	South
3	CARPENTERS & JOINERS	Sands T J 25 Gumeracha rd O'Sullivan Beach	33470	1973	Premise Match	67m	South
4	BRICKLAYERS AND MASONS	Dunford E H 62 Sullivan ter O'Sullivan Beach	22009	1973	Premise Match	72m	North
5	PAINTERS & DECORATORS	Brady & Griffin 7 George st O'Sullivan Beach	21868	1973	Premise Match	126m	North

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

Business Directory Records 1910-1991
Road or Area Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940, 1930, 1920 & 1910, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

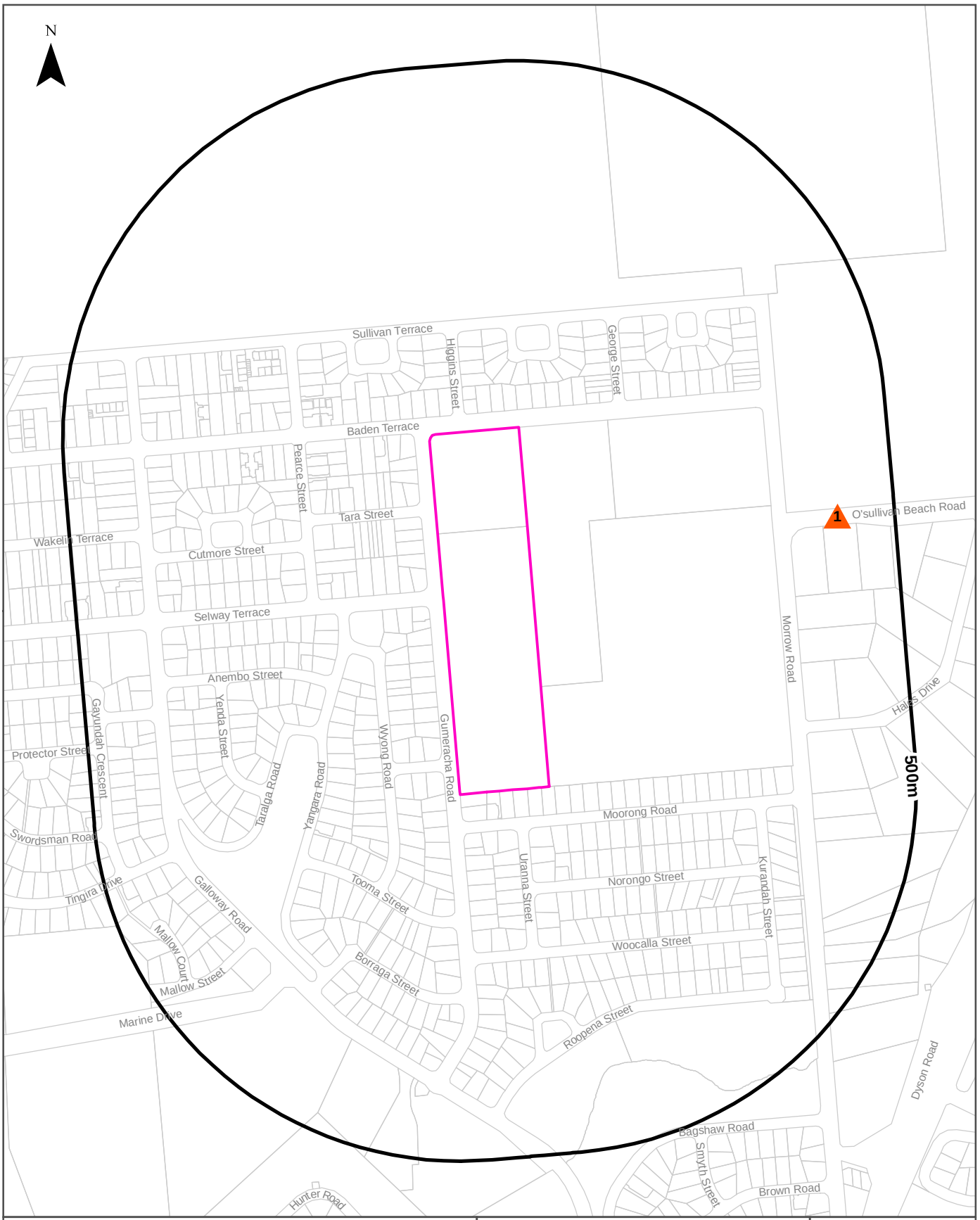
Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Approx. Dist. to Road Corridor or Area
6	Powder Coating Equipment &/or Service	Universal Industries Ply. Ltd., Baden Tce., O'Sullivan Beach. 5166.	31073	1991	Road Match	13m
	Die & Press Tool Makers	Universal Industries Pty Ltd Baden Tce O'Sullivan Beach 5166	42302	1991	Road Match	13m
	Anodisers	Universal Industries Pty Ltd, Baden Tce, O'Sullivan Beach 5166	37478	1991	Road Match	13m
	Engineers - Fabricating	Universal Industries Pty Ltd, Baden Tce, O'Sullivan Beach 5166	20262	1991	Road Match	13m
	Toolmakers	Universal Industries Pty Ltd, Baden Tce, O'Sullivan Beach 5166	35238	1991	Road Match	13m
	Engineers - Manufacturing	Universal Industries Pty. Ltd . Baden tce., O'Sullivan Beach. 5166.	20664	1991	Road Match	13m
	Tool - Precision - Mfrs &/Or Dists.	Universal Industries Pty. Ltd., Baden Tce., O'Sullivan Beach. 5166.	35174	1991	Road Match	13m
	Anodisers	Anodising Industries Pty Ltd, Baden Tce, O'Sullivan Beach 5166	705	1984	Road Match	13m
	TOOLMAKERS	Universal Industries Pty Ltd Baden ter Christies Beach North	6228	1973	Road Match	13m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Approx. Dist. to Road Corridor or Area
7	PAINTERS & DECORATORS	Wheelwright D & W A Yangarra rd O'Sullivan Beach	24591	1973	Road Match	137m

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

Dry Cleaners, Motor Garages & Service Stations

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 100 200 300 400 Meters

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

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Historical Business Directories

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Dry Cleaners, Motor Garages & Service Stations 1930-1991 Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940 & 1930, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

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Historical Business Directories

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Dry Cleaners, Motor Garages & Service Stations 1930-1991 Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940 & 1930, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Approx. Dist. to Road Corridor or Area
1	Motor Garages &/or Engineers &/or Service Stations	Prime, R. Mechanical Repairs, O'Sullivan Beach Rd., Lonsdale. 5160.	18475	1984	Road Match	344m
	Motor Garages &/or Engineers &/or Service Stations	V. & T. Motors Pty. Ltd., O'Sullivan Beach Rd., Lonsdale. 5160.	18574	1984	Road Match	344m

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Aerial Imagery 2020

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Aerial Imagery 2014

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Aerial Imagery 2010

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Aerial Imagery 2004

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Aerial Imagery 1999

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 June, 2020

Aerial Imagery 1989

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 June, 2020

Aerial Imagery 1979

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 June, 2020

Aerial Imagery 1969

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

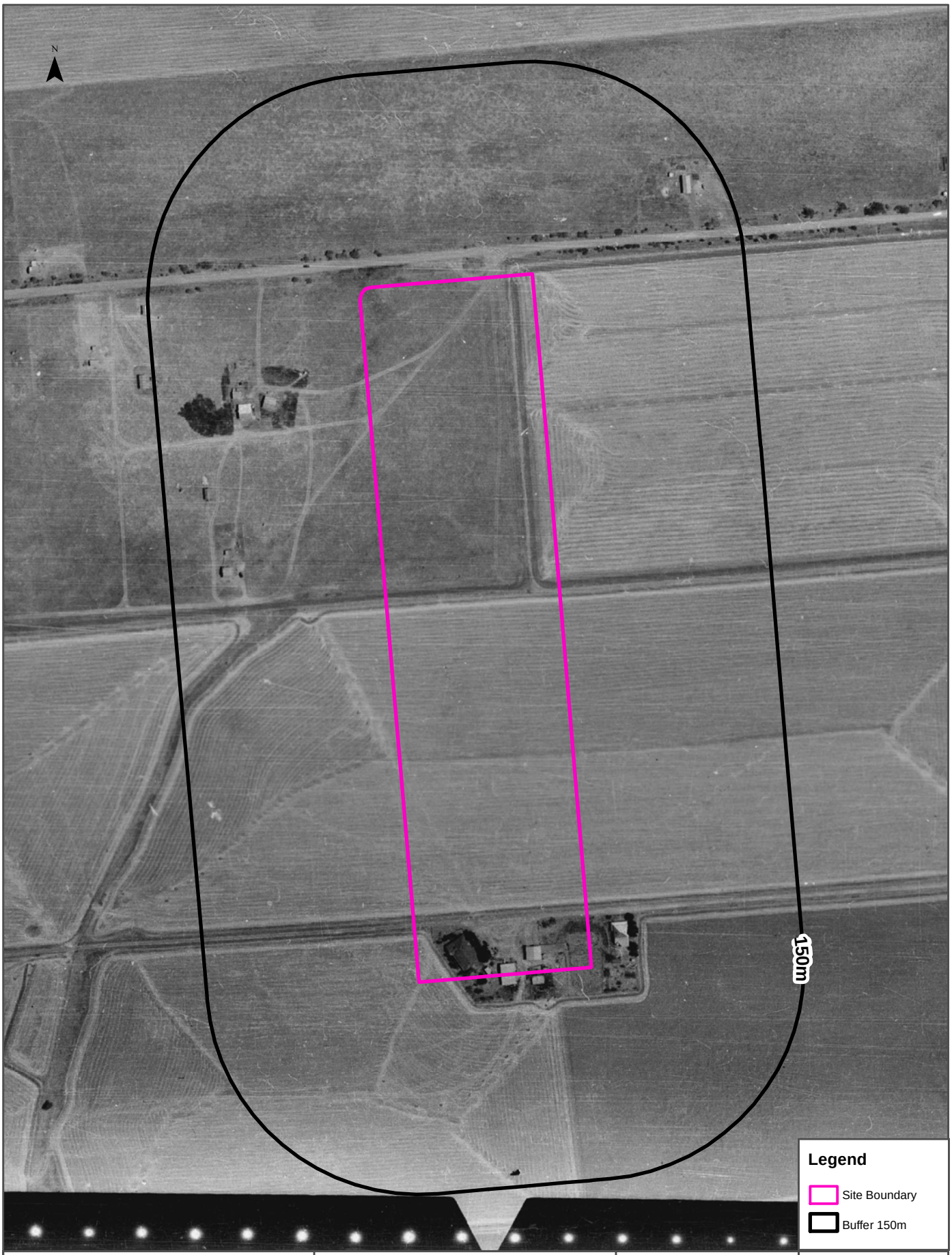
Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 June, 2020

Aerial Imagery 1959

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166



Scale:
0 40 80 120 160
Meters

Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 June, 2020

Aerial Imagery 1949

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166

Scale:
0 40 80 120 160
Meters

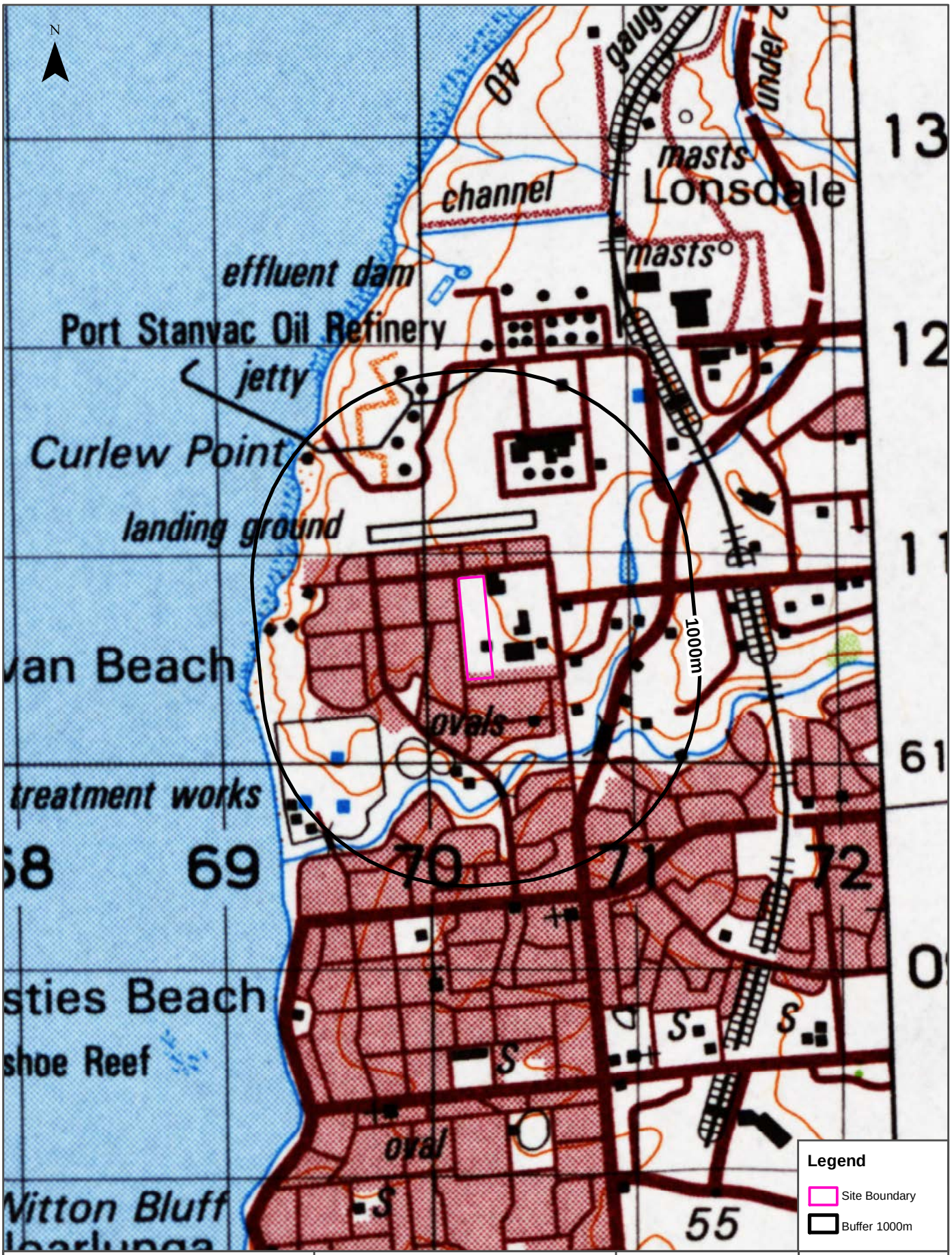
Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 June, 2020

Historical Map 1982

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166



Scale: 0 200 400 800 Metres

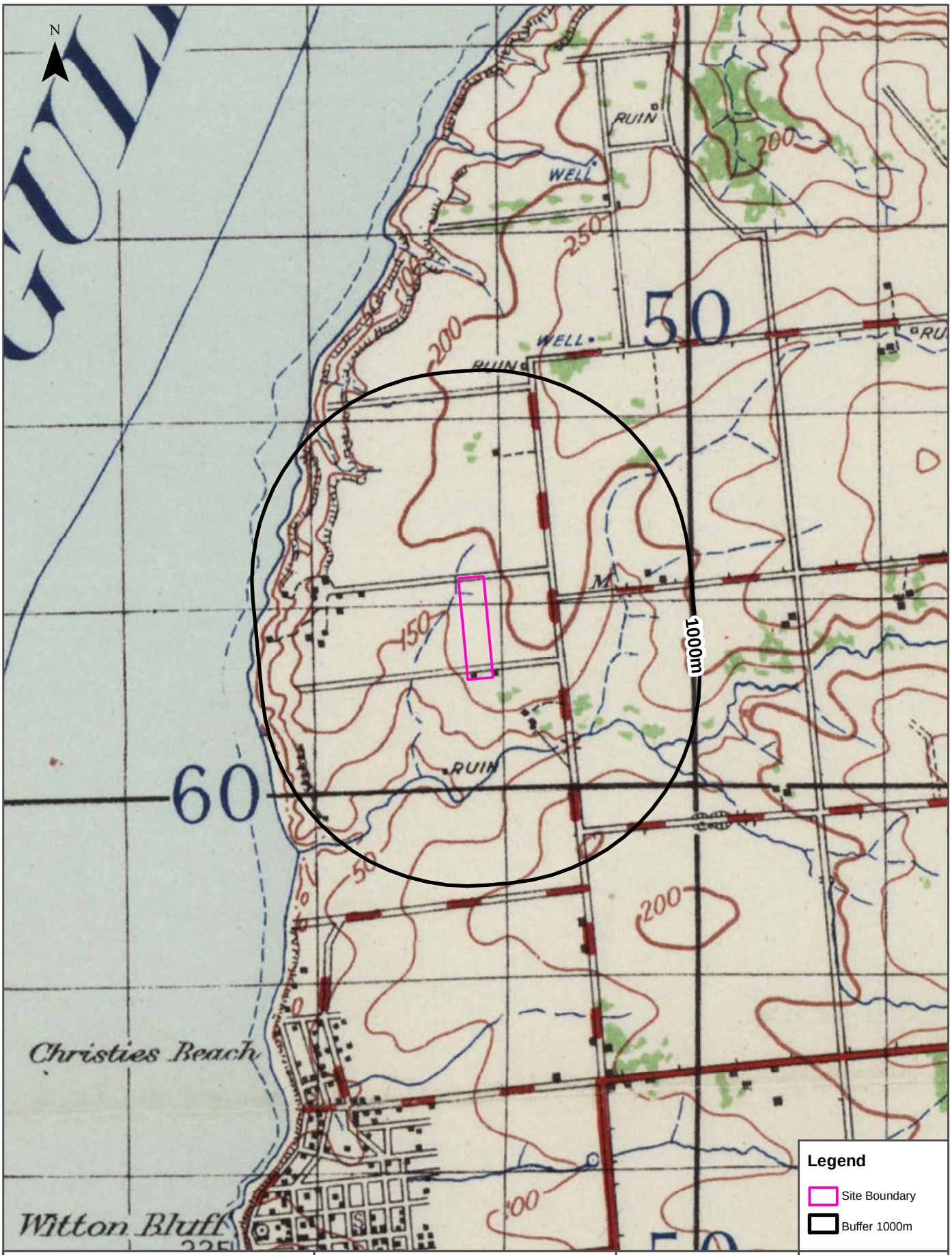
Data Sources: NATMAP 1:100,000 Topographic Maps
Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Historical Map c.1937

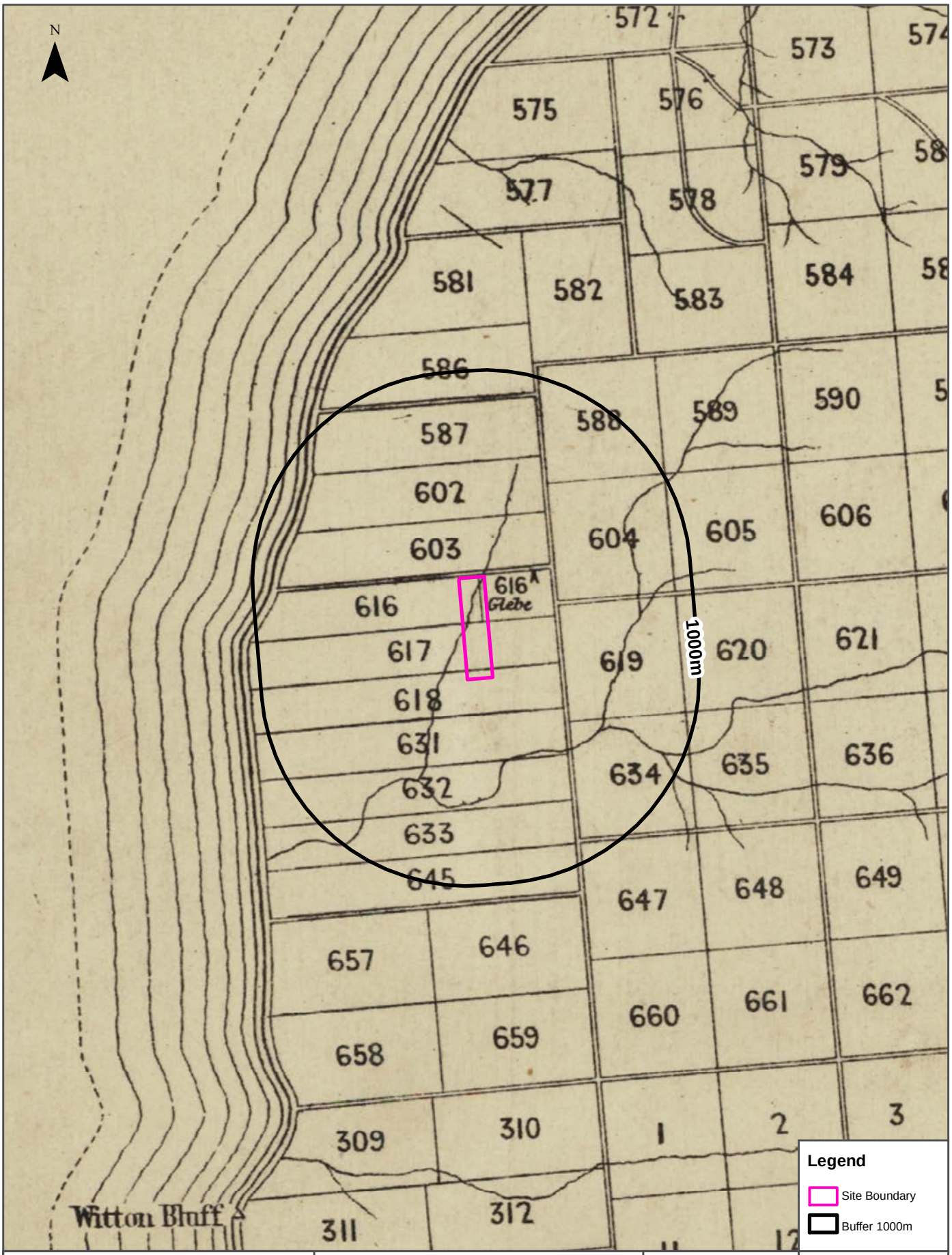
64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166



Scale: 0 200 400 800 Metres	Data Sources: Australia 1:63,360 Prepared by Commonwealth Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 54	Date: 30 June 2020

Historical Map 1894

64 Baden Terrace and 36-70 Gumeracha Road, O'Sullivan Beach, SA 5166



Scale: 0 200 400 800 Metres

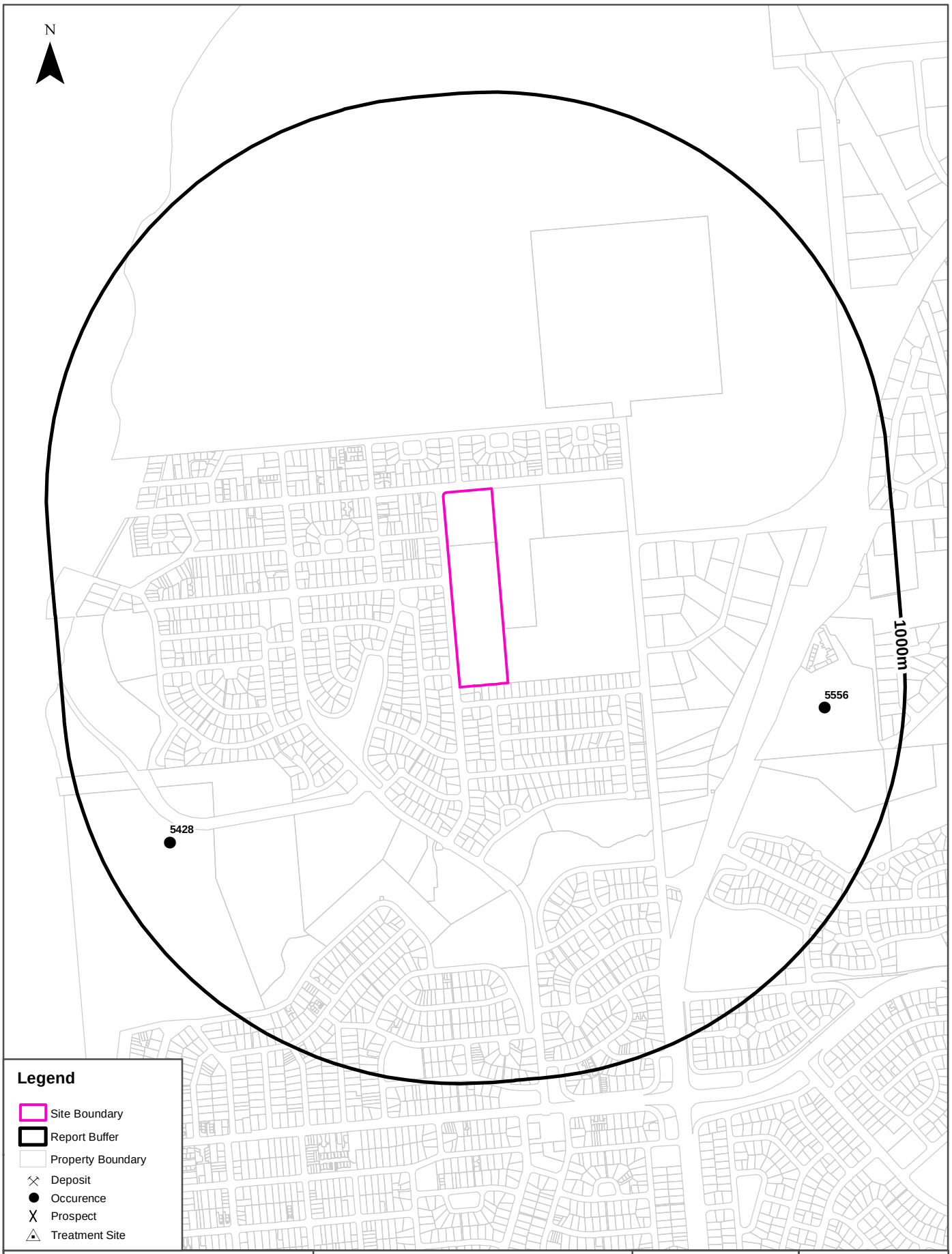
Data Sources: Hundred Map - Noarlunga
Surveyor General's Office, Adelaide

Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Mines and Mineral Deposits

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 100 200 400 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Mining

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Mines and Mineral Deposits

Mines and mineral deposits within the dataset buffer:

Deposit No.	Name	Class	Status	Commodity	Year	Description	Dist	Dir'n
5556	CHRISTIE CREEK	OCCURRENCE	Rehabilitated	Quartzite	1950	quartzite of the Wilmington Formation quarried in the 1950's and 60's, now rehabilitated.	800m	East
5428	CHRISTIES BEACH	OCCURRENCE	Rehabilitated	Sand	1947	deposit of sand of the Tertiary Maslin Beach Sand. Operations from 1947-57 for production of ~1Mt, closing when the resources were exhausted.	829m	South West

All Mines and Mineral Deposits Data Source: Dept. of State Development, Resources and Energy - South Australia
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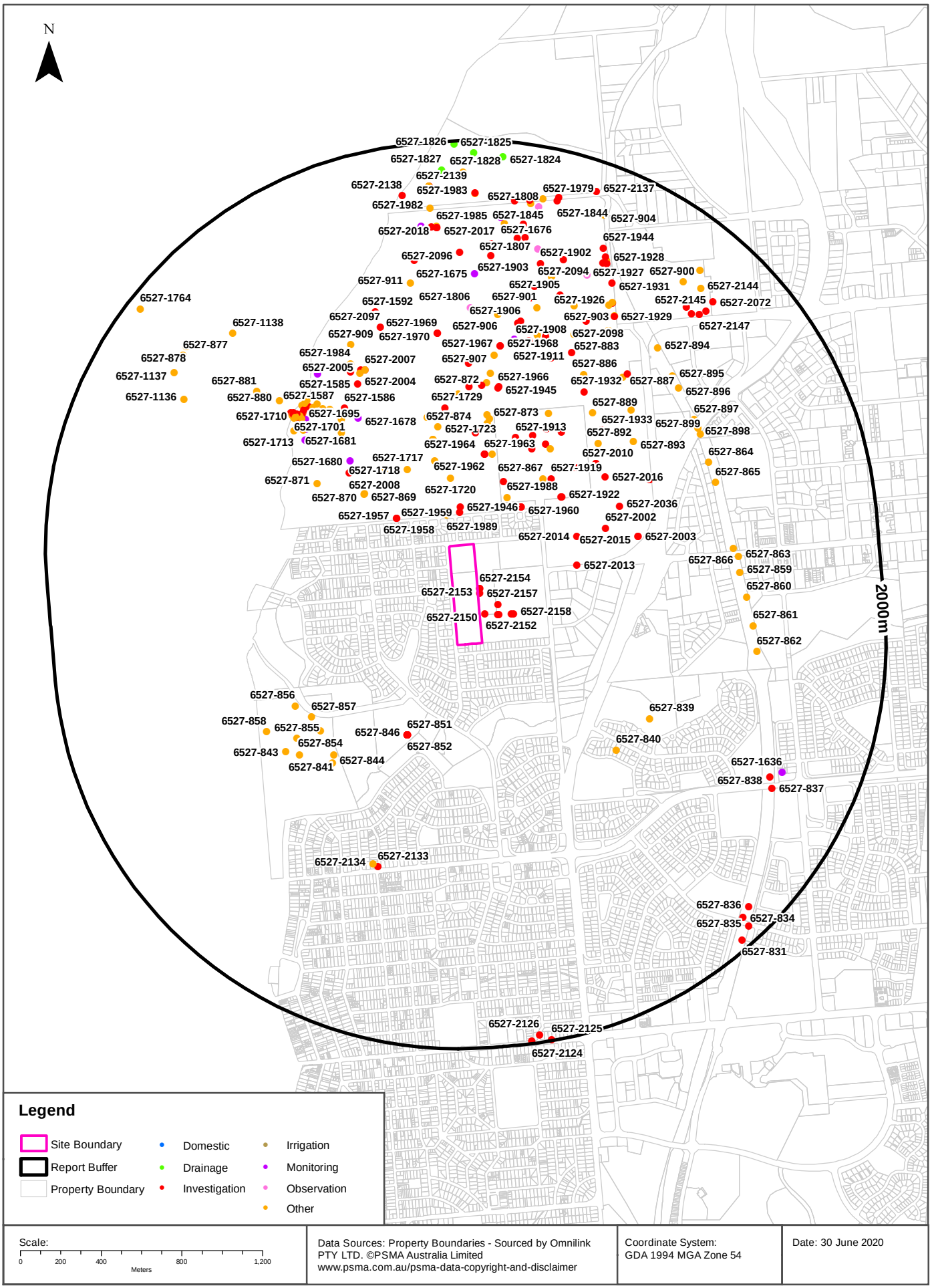
Drillholes

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Report Buffer
- Property Boundary
- Domestic
- Drainage
- Investigation
- Irrigation
- Monitoring
- Observation
- Other

Scale: 0 200 400 800 1,200 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Groundwater and Drillholes

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Groundwater Aquifers

Groundwater aquifers within the dataset buffer:

Aquifer Code	Description	Distance	Direction
30	Fractured Rocks - Cambrian and Precambrian rocks - quartzite, sandstone, limestone, dolomite, slate, marble, siltstone, phyllite, schist and gneiss	0m	Onsite
20	Sedimentary Rocks - basins include limestone, often cavernous, sandstone, sand shale and clay	623m	South East

Groundwater Aquifers Data Source: Dept. of Environment, Water and Natural Resources - South Australia
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Drillholes

Drillholes within the dataset buffer:

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-2157	313173			Investigation	2018-09-10	6.00										9m	East
6527-2154	313170			Investigation	2018-09-17	31.20										10m	North East
6527-2153	313168			Investigation	2018-09-18	33.00										10m	North East
6527-2150	313164		Dry	Investigation	2018-09-10	6.00										24m	South East
6527-2151	313166			Investigation	2018-09-20	35.00										89m	South East
6527-2155	313171			Investigation	2018-09-11	6.00										94m	South East
6527-2156	313172			Investigation	2018-09-11	6.00										95m	East
6527-1989	270761	MW 128														156m	North
6527-2152	313167			Investigation	2018-09-22	35.00										157m	South East
6527-1959	270412	GW 93	Dry	Investigation	2012-04-02	7.00										165m	North
6527-2158	313184			Investigation	2018-09-15	6.00										167m	East
6527-1946	269001	GW 94		Investigation	2012-05-08	39.30							29.90	29.90		190m	North
6527-1988	270760	MW 126	Backfilled													285m	North East
6527-1958	270411	GW 92		Investigation	2012-04-26	36.00						0.6000	27.00	27.00		299m	North West
6527-1961	270414	GW 96		Investigation	2012-04-20	40.50							40.50	40.50		299m	North East
6527-1957	270410	GW 91		Investigation	2012-04-26	9.00										299m	North West
6527-1960	270413	GW 95	Dry	Investigation	2012-04-04	5.50										299m	North East
6527-1720	239871	BH 04 S			2008-07-22	16.00		61.19								336m	North
6527-1918	264084	GW 65		Investigation	2011-03-09	5.80							3.00	3.00		343m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-1719	239870	BH 03 S			2008-07-21	20.00		58.26								430m	North
6527-1718	239869	BH 02 S			2008-07-18	20.00		55.96								435m	North West
6527-1963	270416	GW 98		Investigation	2012-04-17	40.50						0.6000				448m	North
6527-1962	270415	GW 97		Investigation	2012-03-30	6.50							5.00	5.00		448m	North
6527-868	26864	VACUUM OIL CO.	Abandoned		1960-06-15	19.81		66.51								457m	North
6527-867	26863	VACUUM OIL CO.	Abandoned		1960-07-20	7.62		70.83								473m	North East
6527-1923	264253	GW 24		Investigation	2010-11-25	43.80				3303	5890		36.50	36.50		492m	North East
6527-1922	264252	GW 25	Dry	Investigation	2010-10-28	6.80										496m	North East
6527-870	26866	VACUUM OIL CO.	Abandoned		1960-07-19	27.43		54.76								498m	North West
6527-869	26865	VACUUM OIL CO.	Abandoned		1960-07-15	11.73		54.87								498m	North West
6527-2013	272051	GW 37		Investigation	2012-09-27	1.40										499m	East
6527-1717	239868	BH 01 S				20.00		54.04								500m	North West
6527-1919	264085	GW 66		Investigation	2011-03-09	4.60							2.00	2.00		502m	North East
6527-849	26845	E. + W.S. DEPT.	Unknown	Investigation	1966-09-27	7.92		20.24								509m	South West
6527-851	26847	E. + W.S. DEPT.	Unknown	Investigation	1966-10-04	14.02		20.24								509m	South West
6527-846	26842	E. + W.S. DEPT.	Unknown	Investigation	1966-09-20	10.82		20.24								509m	South West
6527-852	26848	E. + W.S. DEPT.	Unknown	Investigation	1966-10-06	10.82		20.24								509m	South West
6527-847	26843	E. + W.S. DEPT.	Unknown	Investigation	1966-09-21	4.88		20.24								509m	South West
6527-853	26849	E. & W.S. DEPT	Unknown	Investigation	1966-10-11	18.29		20.24								509m	South West
6527-850	26846	E. + W.S. DEPT.	Unknown	Investigation	1966-09-28	13.41		20.24								509m	South West
6527-848	26844	E. + W.S. DEPT.	Unknown	Investigation	1966-09-23	10.67		20.24					8.84	8.84	11.40	509m	South West
6527-845	26841	E & W S DEPT	Unknown	Investigation	1966-09-19	12.65		20.24								509m	South West
6527-2014	272052	GW 36		Investigation	2012-10-08	33.00										511m	North East
6527-1986	270758	UK 11	Backfilled													536m	North
6527-1721	239872	BH 05 S			2008-07-22	20.00		59.18								536m	North
6527-1964	270417	GW 99		Investigation	2012-03-28	9.50							8.00	8.00		554m	North
6527-1917	264083	GW 64		Investigation	2011-03-09	6.80										554m	North East
6527-1965	270418	GW 100		Investigation	2012-04-10	41.00						3.0000	31.50	31.50		557m	North
6527-1913	264079	GW 60		Investigation	2011-03-04	3.30				533	969		1.80	1.80		567m	North
6527-874	26870	VACUUM OIL CO.	Abandoned		1960-06-22	39.62		59.96		9409	16148		38.40	38.40	21.56	595m	North
6527-1992	270764	MW 3														602m	North
6527-891	26887	VACUUM OIL CO.	Abandoned		1960-06-16	9.75		71.30								606m	North East
6527-2092	285039	GW 153		Investigation	2015-03-24	42.00							38.00	38.00		610m	North East
6527-1914	264080	GW 61		Investigation	2011-03-02	4.60				748	1356					615m	North East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-2008	272046	GW 78		Investigation	2012-10-15	8.00										618m	North West
6527-1990	270762	MW 4	Backfilled													626m	North
6527-1921	264251	GW 27		Investigation	2010-10-22	3.80										629m	North East
6527-1912	264078	GW 59		Investigation	2011-03-04	6.50				820	1487		4.50	4.50		637m	North
6527-1723	239874	BH 07 S			2008-07-25	20.00		60.59								640m	North
6527-873	26869	VACUUM OIL CO.	Abandoned		1960-06-10	18.29		66.09								644m	North
6527-1722	239873	BH 06 S			2008-07-23	24.00		57.22								647m	North
6527-1991	270763	BH 65	Backfilled													647m	North
6527-1724	239875	BH 08 S			2008-07-26	20.00		62.11								648m	North
6527-1680	236859	SB309/MW309		Monitoring	2005-09-23	8.50		50.25					5.60	5.60	44.65	652m	North West
6527-2002	272039	GW 33		Investigation	2012-09-27	11.30										657m	North East
6527-1915	264081	GW 62		Investigation	2011-03-03	3.20							0.80	0.80		677m	North East
6527-1729	239880	BH 12 S		Investigation	2008-08-06	19.50		60.24								686m	North
6527-1916	264082	GW 63		Investigation	2011-03-03	4.50										705m	North East
6527-2010	272048	GW 29		Investigation	2012-10-02	5.60										724m	North East
6527-2001	272038	GW 28		Investigation	2012-10-11	38.00										724m	North East
6527-871	26867	VACUUM OIL CO.	Abandoned		1960-09-16	22.56		36.52								728m	North West
6527-2016	272054	GW 31		Investigation	2012-09-25	10.70										731m	North East
6527-2036	274286	GW 32		Investigation	2012-09-26	10.70										746m	North East
6527-1725	239876	BH 09 S			2008-07-27	20.00		61.61								747m	North
6527-888	26884	VACUUM OIL CO.	Abandoned		1960-06-16	13.72		72.07								748m	North East
6527-876	26872	VACUUM OIL CO.	Abandoned		1960-09-14	18.59		36.50								778m	North West
6527-1678	236857	SB307/MW307		Monitoring	2005-09-23	4.00		46.64					2.50	2.50	44.14	782m	North West
6527-1966	270419	GW 101		Investigation	2012-03-26	6.30							5.00	5.00		783m	North
6527-1727	239878	BH 10 S		Investigation	2008-08-03	20.00		63.57								784m	North
6527-1728	239879	BH 11 S		Investigation	2008-08-05	19.50		65.26								789m	North
6527-1945	269000	GW 102A		Investigation	2012-05-16	43.80							33.00	33.00		790m	North
6527-892	26888	VACUUM OIL CO.	Abandoned		1960-06-16	15.24		64.81								794m	North East
6527-854	26850	DK ROSEWALL	Unknown	Construction Materials	1951-02-16	29.26		27.79								802m	South West
6527-872	26868	VACUUM OIL CO.	Abandoned		1960-06-09	22.86		65.70								804m	North
6527-857	26853	DK ROSEWALL			1951-03-21	25.91		41.16								807m	South West
6527-2003	272040	GW 35		Investigation	2012-09-26	5.60										813m	East
6527-2015	272053	GW 34		Investigation	2012-10-04	30.00										813m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-841	26837	DK ROSEWALL	Unknown	Exploration	1951-02-08	21.34		15.65								819m	South West
6527-1980	270752	MW 298	Backfilled													828m	North West
6527-1933	264263	GW 23		Investigation	2010-10-27	7.60										848m	North East
6527-840	26836	CREEK	Unknown					48.24		3546	6312					849m	South East
6527-844	26840	DK ROSEWALL	Unknown	Construction Materials	1951-05-17	12.80		13.82								852m	South West
6527-2011	272049	GW 30			2012-09-28	8.60										852m	North East
6527-1987	270759	MW 156	Backfilled													852m	North
6527-856	26852	DK ROSEWALL			1951-03-15	25.60		32.32								858m	South West
6527-1586	199000	SB/MW 298		Investigation	2003-12-12	19.80	93.00	93.00					9.40			863m	North West
6527-889	26885	VACUUM OIL CO.	Abandoned		1960-06-16	12.19		73.69								878m	North East
6527-1684	236863	SB313/MW313		Monitoring	2005-10-04	2.10		7.99					2.00	2.00	5.99	891m	North West
6527-885	26881	VACUUM OIL CO.	Abandoned		1960-06-10	16.76		70.01								893m	North
6527-2093	285040	GW 154		Investigation	2015-03-17	35.00							31.00	31.00		897m	North
6527-875	26871	VACUUM OIL CO.	Abandoned		1960-09-09	20.42		29.95								902m	North West
6527-839	26835		Unknown		1936-07-10	18.90		30.16		6138	10752	1.2600	7.62	7.62	22.54	909m	South East
6527-855	26851	DK ROSEWALL	Unknown	Construction Materials	1951-03-06	39.62		13.49								919m	South West
6527-1681	236860	SB310/MW310		Monitoring	2005-09-23	6.00		11.15					2.90	2.90	8.25	921m	North West
6527-2004	272042	GW 76		Investigation	2012-10-08	5.00							3.00	3.00		926m	North West
6527-2021	272263	GW 38		Investigation	2012-11-09	30.00										927m	North East
6527-2012	272050	GW 39		Investigation	2012-09-28	1.00										927m	North East
6527-1714	238475	SB344/MW344			2006-10-24	2.00		9.19								927m	North West
6527-1694	238441	SB320/MW320			2006-08-04	18.00		21.66								928m	North West
6527-1932	264262	GW 21	Dry	Investigation	2010-10-19	9.00										932m	North East
6527-908	26904	VACUUM OIL CO.	Abandoned		1960-06-22	25.91		58.87								934m	North
6527-893	26889	VACUUM OIL CO.	Abandoned		1960-06-17	3.05		62.55								940m	North East
6527-907	26903	VACUUM OIL CO.	Abandoned		1960-06-08	21.64		65.87								943m	North
6527-842	26838	DK ROSEWALL	Unknown	Construction Materials	1951-04-12	35.97		12.07								952m	South West
6527-1682	236861	SB311/MW311		Monitoring	2005-09-26	7.00		10.25					3.00	3.00	7.25	953m	North West
6527-1909	264074	GW 56		Investigation	2011-02-25	4.70				1530	2760		2.40	2.40		959m	North
6527-1713	238474	SB343/MW343			2006-10-23	9.00		4.39								961m	North West
6527-1692	238437	SB318/MW318			2006-08-04	15.00		13.29								964m	North West
6527-1697	238447	SB323/MW323			2006-08-04	9.30		5.93								964m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-1691	238436	SB317/MW317			2006-07-11	15.00		11.29								967m	North West
6527-910	26906	VACUUM OIL CO.	Abandoned		1960-09-07	21.64		44.23								968m	North West
6527-2006	272044	GW 73			2012-10-17	16.00										969m	North West
6527-1715	238476	SB347/MW347			2006-10-24	1.50		5.79								969m	North West
6527-2007	272045	GW 74		Investigation	2012-10-22	38.00										969m	North West
6527-1864	257923	GW 4		Investigation	2009-03-02	6.90										975m	North West
6527-1689	238434	SB349/MS349			2006-10-24	1.50		5.72								977m	North West
6527-2005	272043	GW 75		Investigation	2012-10-17	17.00										978m	North West
6527-1695	238443	SB321/MW321			2006-08-04	9.00		5.22								978m	North West
6527-1863	257922	GW 2		Investigation	2009-03-02	6.90										979m	North West
6527-1867	257926	GW 1			2009-03-02	5.05										979m	North West
6527-1865	257924	GW 6		Investigation	2009-03-02	6.50										981m	North West
6527-1705	238466	SB335/MW335			2006-10-19	8.00		4.83								982m	North West
6527-1866	257925	GW 7		Investigation	2009-03-02	6.90										982m	North West
6527-1706	238467	SB336/MW336			2006-10-24	4.50		4.73								983m	North West
6527-1587	199001	SB/MW 301		Investigation	2003-12-12	5.00		6.77					3.80	3.80	2.97	984m	North West
6527-1861	256304	GW 13		Investigation	2010-07-09	6.80										985m	North West
6527-1690	238435	SB316/MW316			2006-07-11	8.50		4.48								985m	North West
6527-1862	256305	GW 14		Investigation		6.10										989m	North West
6527-1967	270420	GW 103		Investigation	2012-03-23	7.60							6.10	6.10		992m	North
6527-1968	270421	GW 104		Investigation	2012-03-23	47.00							34.30	34.30		992m	North
6527-1585	198999	SB/MW 296		Investigation	2003-12-12	50.00		45.20					45.80	45.80	-0.60	995m	North West
6527-1703	238464	SB333/MW333			2006-10-18	9.00		3.57								997m	North West
6527-1696	238445	SB322/MW322			2006-08-04	9.00		3.51								998m	North West
6527-1704	238465	SB334/MW334			2006-10-24	3.90		3.36								999m	North West
6527-1693	238439	SB319/MW319			2006-07-11	12.00		9.19								1000m	North West
6527-843	26839	DK ROSEWALL	Unknown	Construction Materials	1951-04-19	15.24		12.12								1001m	South West
6527-1910	264075	GW 57		Investigation	2011-02-25	3.50				1244	2249					1002m	North
6527-1702	238456	SB328/MW328			2006-08-10	6.30		3.01								1002m	North West
6527-1860	256303	GW 11		Investigation	2010-06-09	4.90										1003m	North West
6527-886	26882	VACUUM OIL CO.	Abandoned		1960-06-10	6.10		75.26								1003m	North East
6527-1711	238472	SB341/MW341			2006-10-20	10.00		3.11								1006m	North West
6527-1712	238473	SB342/MW342			2006-10-23	5.00		3.05								1006m	North West
6527-1710	238471	SB340/MW340			2006-10-25	15.00		3.20								1007m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-1701	238454	SB327/MW327			2006-08-10	6.00										1009 m	North West
6527-1700	238452	SB326/MW326			2006-08-07	4.00		4.07								1011 m	North West
6527-1699	238450	SB325/MW325			2006-08-07	4.00		3.81								1011 m	North West
6527-1698	238448	SB324/MW324			2006-08-07	4.10		3.66								1013 m	North West
6527-1708	238469	SB338/MW338			2006-10-19	10.00										1015 m	North West
6527-1709	238470	SB339/MW339			2006-10-20	15.00										1015 m	North West
6527-1707	238468	SB337/MW337			2006-10-19	5.00										1015 m	North West
6527-1858	256301	GW 9		Investigation	2010-06-09	5.60										1016 m	North West
6527-1857	256300	GW 8	Abandoned	Investigation	2010-06-09	3.10										1019 m	North West
6527-890	26886	VACUUM OIL CO.	Abandoned		1960-06-15	2.59		74.65								1024 m	North East
6527-1859	256302	GW 10		Investigation	2010-06-09	5.50										1030 m	North West
6527-1984	270756	MW 142	Backfilled													1032 m	North West
6527-1677	236856	SB306/MW306		Monitoring	2005-09-21	41.00		67.56					34.30	34.30	33.26	1036 m	North
6527-858	26854	DK ROSEWALL			1951-05-10	12.50		10.99								1038 m	South West
6527-1908	264073	GW 55		Investigation	2011-02-24	4.40				826	1498		2.20	2.20		1046 m	North
6527-1969	270422	GW 105	Dry	Investigation	2012-03-08	4.00										1057 m	North
6527-1970	270423	GW 106		Investigation	2012-03-14	27.00							18.00	18.00		1057 m	North
6527-1911	264076	GW 58		Investigation	2011-02-28	3.80				982	1779		1.40	1.40		1065 m	North East
6527-1679	236858	SB308/MW308		Monitoring	2005-09-22	10.00		11.48					5.50	5.50	5.98	1078 m	North West
6527-882	26878	VACUUM OIL CO.	Abandoned		1960-06-07	21.95		69.71								1083 m	North
6527-1907	264072	GW 54		Investigation	2011-02-24	4.40				753	1365		2.40	2.40		1090 m	North
6527-887	26883	VACUUM OIL CO.	Abandoned		1960-06-11	9.14		79.69								1108 m	North East
6527-880	26876	BEACH PET. N.L.			1962-01-01											1112 m	North West
6527-909	26905	VACUUM OIL CO.	Abandoned		1960-09-05	22.86		40.55								1113 m	North West
6527-1804	253058	SB/MW350		Investigation	2008-07-29	4.00							0.80	0.80		1115 m	North
6527-1906	264071	GW 53		Investigation	2011-03-02	3.50				2194	3940					1128 m	North
6527-1934	264264	GW 20		Investigation	2010-10-20	46.50				3476	6190		40.00	40.00		1136 m	North East
6527-2097	285044	GW 155		Investigation	2015-03-02	29.00							22.00	22.00		1140 m	North
6527-906	26902	VACUUM OIL CO.	Abandoned		1960-06-07	28.96		65.53								1145 m	North
6527-883	26879	VACUUM OIL CO.	Abandoned		1960-06-04	10.67		72.67								1151 m	North East
6527-2134	295098	MW 2			2017-06-20	18.00							12.50	12.50		1163 m	South
6527-2133	295097	MW 1		Investigation	2017-06-02	18.00							13.10	13.10		1166 m	South
6527-879	26875	BEACH PET. N.L.			1962-01-01											1172 m	North West
6527-1806	253060	SB/MW352		Observation	2008-07-31	4.00							0.50	0.50		1173 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-901	26897	VACUUM OIL CO.	Abandoned		1960-06-09	17.98		69.07								1212 m	North
6527-1592	199010	SB/MW 295		Investigation	2003-11-20	50.00		47.65					48.40	48.40	-0.75	1219 m	North
6527-881	26877	BEACH PET. N.L.			1962-01-01											1228 m	North West
6527-864	26860	SAR DH 4	Unknown		1972-03-09	5.50		70.26								1231 m	North East
6527-865	26861	SAR DH 5	Unknown		1972-03-10	8.30		70.73								1236 m	North East
6527-2098	285045	GW 148		Investigation	2015-03-26	45.00							40.00	40.00		1237 m	North East
6527-899	26895	SAR CB 2	Unknown		1972-11-22	4.60		69.96								1249 m	North East
6527-898	26894	SAR CB 1A	Unknown		1972-12-08	5.95		69.46					0.90	0.90	68.56	1250 m	North East
6527-897	26893	SAR CB 1	Unknown		1972-11-21	8.80		70.66								1252 m	North East
6527-884	26880	VACUUM OIL CO.	Abandoned		1960-06-03	12.19		77.83								1252 m	North East
6527-1904	264069	GW 51		Investigation	2011-02-28	4.00				1995	3590		1.80	1.80		1254 m	North
6527-896	26892	SAR DH 3	Unknown		1972-03-08	7.50		78.65								1276 m	North East
6527-866	26862	SAR CB 3	Unknown		1972-11-23	15.25		69.99								1279 m	East
6527-902	26898	VACUUM OIL CO.	Abandoned		1960-06-08	18.29		74.50								1284 m	North
6527-895	26891	SAR DH 2	Unknown		1972-03-07	11.10		78.65								1289 m	North East
6527-863	26859	SAR CB 4	Unknown		1972-11-23	10.00		71.61								1301 m	East
6527-859	26855	SAR DH 6	Unknown		1972-03-13	8.50		73.22								1301 m	East
6527-1905	264070	GW 52		Investigation	2011-02-28	3.90				1215	2198					1306 m	North
6527-2095	285042	GW 150		Investigation	2015-02-25	41.00							32.00	32.00		1313 m	North
6527-911	26907	VACUUM OIL CO.	Abandoned		1960-09-01	21.03		51.31								1320 m	North
6527-860	26856	SAR DH 7	Unknown		1972-03-13	11.50		75.21								1324 m	East
6527-1925	264255	GW 40		Investigation	2011-03-16	50.30				2596	4650		44.00	44.00		1325 m	North East
6527-1929	264259	GW 41	Dry		2011-02-17	6.00										1328 m	North East
6527-894	26890	SAR DH 1	Unknown		1972-03-06	9.00		83.58								1332 m	North East
6527-1675	236854	SB304/MW304		Monitoring	2005-09-20	31.00		60.32					20.00	20.00	40.32	1343 m	North
6527-861	26857	SAR DH 8	Unknown		1972-03-14	12.00		71.40								1345 m	East
6527-903	26899	VACUUM OIL CO.	Abandoned		1960-06-08	12.19		78.81								1360 m	North East
6527-862	26858	SAR DH 9	Unknown		1972-03-15	4.00		60.23								1362 m	East
6527-1926	264256	GW 42		Investigation	2011-02-25	50.00				10206	17420		43.40	43.40		1379 m	North East
6527-905	26901	VACUUM OIL CO.	Abandoned		1960-07-20	12.19		70.97								1380 m	North
6527-1930	264260	GW 43	Dry		2011-02-21	6.00										1382 m	North East
6527-1591	199009	SW/MW 294		Investigation	2003-11-25	25.00		47.53					17.20	17.20	30.33	1428 m	North
6527-1902	264067	GW 49		Investigation	2011-02-23	3.60				1434	2590		1.60	1.60		1429 m	North
6527-1903	264068	GW 50		Investigation	2011-02-23	3.60				1883	3390		1.50	1.50		1434 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-1805	253059	SB/MW351		Observation	2008-07-29	4.00							1.10	1.10		1448 m	North
6527-2096	285043	GW 157		Investigation	2015-03-04	33.00							32.00	32.00		1450 m	North
6527-1931	264261	GW 45	Dry	Investigation	2011-02-22	8.00										1462 m	North East
6527-2094	285041	GW 149		Investigation	2015-02-18	44.00							36.00	36.00		1477 m	North
6527-2019	272057	GW 81		Investigation	2012-09-14	38.50							26.00	26.00		1490 m	North
6527-1589	199003	SB/MW 288		Investigation	2003-11-17	4.00		77.71					2.00	2.00	75.71	1490 m	North East
6527-1901	264066	GW 48		Investigation	2011-02-23	3.80							1.80	1.80		1491 m	North
6527-1978	270750	NMW 2	Backfilled													1491 m	North
6527-1807	253061	SB/MW353		Observation	2008-07-31	4.00							0.70	0.70		1496 m	North
6527-1136	27132	SV 79	Backfilled		1989-05-01	1.68										1504 m	North West
6527-1138	27134	SV 81	Backfilled		1989-05-01	2.30										1507 m	North West
6527-1590	199004	SB/MW 291		Investigation	2003-11-25	40.00		62.56					30.70	30.70	31.86	1531 m	North
6527-2023	272265	GW 108		Investigation	2012-11-04	48.50										1534 m	North
6527-2020	272262	GW 109		Investigation	2012-11-05	50.00										1538 m	North East
6527-1588	199002	SB/MW 302		Investigation	2003-12-12	3.50		64.41					2.60	2.60	61.81	1540 m	North
6527-1927	264257	GW 46		Investigation	2011-03-21	50.00				13564	22700		44.00	44.00		1550 m	North East
6527-1928	264258	GW 47	Dry		2011-03-21	4.20										1553 m	North East
6527-2022	272264	GW 107		Investigation	2012-11-05	49.00										1565 m	North
6527-2146	306826	SB11/MW33		Investigation	2013-04-22	16.00										1568 m	North East
6527-838	26834	SAR CB 5	Unknown	Investigation	1972-11-28	14.10		58.81								1570 m	South East
6527-2073	277914	MW 34		Investigation	2013-07-05	60.00										1578 m	North East
6527-2017	272055	GW 80		Investigation	2012-09-25	30.50							26.50	26.50		1578 m	North
6527-2018	272056	GW 79		Investigation	2012-09-19	20.00										1580 m	North
6527-2009	272047	GW 82		Investigation	2012-10-12	6.00							4.00	4.00		1584 m	North
6527-1985	270757	MW 82	Backfilled													1584 m	North
6527-1683	236862	SB312/MW312		Monitoring	2005-09-19	31.00		38.14					19.90	19.90	18.24	1593 m	North
6527-2147	306827	SB12/MW32		Investigation	2013-04-22	15.00										1594 m	North East
6527-912	26908	VACUUM OIL CO.	Abandoned		1960-09-19	16.76		58.20								1597 m	North
6527-1944	268999	GW 86		Investigation	2011-12-13	45.00							41.00	41.00		1601 m	North
6527-2024	272266	GW 90		Investigation	2012-11-09	40.00										1604 m	North
6527-837	26833	SAR CB 6	Unknown	Investigation	1972-11-30	15.60		55.67								1605 m	South East
6527-1137	27133	SV 80	Backfilled		1989-05-01	2.31										1615 m	North West
6527-1636	206387		Backfilled	Monitoring	2005-07-22	11.50		61.99								1619 m	South East
6527-1676	236855	SB305/MW305		Monitoring	2005-09-20	34.00		56.25					26.00	26.00	30.25	1623 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-877	26873	BEACH PET. N.L.			1962-01-01											1625 m	North West
6527-2145	306825	MW 31		Investigation	2013-04-22	13.00										1630 m	North East
6527-878	26874	BEACH PET. N.L.			1962-01-01											1638 m	North West
6527-900	26896	K.W.G. SMITH	Backfilled		1966-08-19	15.77		87.69								1662 m	North East
6527-1982	270754	NMW 7	Backfilled													1678 m	North
6527-2072	277913	MW 30		Investigation	2013-07-05	25.50										1686 m	North East
6527-2144	306824	SB02/MW 29				2.20										1694 m	North East
6527-1808	253062	SB/MW35 4		Observation	2008-07-31	4.00							0.90	0.90		1702 m	North
6527-2140	306751	NMW 12		Investigation	2008-10-06	52.20										1712 m	North
6527-1845	254714				2010-05-11	41.00						0.0000	33.00	33.00		1713 m	North
6527-1848	255943	GW 14	Backfilled	Investigation	2010-05-11	40.30										1727 m	North
6527-1983	270755	NMW 5	Backfilled													1738 m	North
6527-1739	240119	NPW 5/6		Investigation	2008-10-15	63.00		48.55								1741 m	North
6527-1979	270751	NMW 3	Backfilled													1744 m	North
6527-1844	254713			Investigation	2010-05-10	53.70						0.1000	46.00	46.00		1750 m	North
6527-2138	306749	NMW 8		Investigation	2008-10-03	35.00										1753 m	North
6527-904	26900	VACUUM OIL CO.	Abandoned		1960-07-02	13.72		75.48								1754 m	North
6527-2149	312454	MW 28				6.30										1761 m	North East
6527-1847	255942	GW 13	Backfilled	Investigation	2010-05-06	52.70										1768 m	North
6527-1981	270753	NMW 9	Backfilled													1786 m	North
6527-2139	306750	NMW 10		Investigation	2008-10-03	45.00										1786 m	North
6527-1828	254384	GW 10	Backfilled		2009-08-21	56.00										1844 m	North
6527-2137	306748	NMW 2		Investigation	2008-10-02	50.00										1851 m	North
6527-836	26832	SAR DH 10	Unknown	Investigation	1972-03-17	9.00		54.90								1858 m	South East
6527-1827	254383	GW 9	Backfilled	Drainage	2009-08-24	45.50										1862 m	North
6527-834	26830	SAR CB 7	Unknown	Investigation	1972-12-01	7.70		56.32								1876 m	South East
6527-835	26831	SAR CB 8	Unknown	Investigation	1972-12-05	14.00		56.42								1926 m	South East
6527-1824	254380	GW 6	Backfilled	Drainage	2009-08-17	58.00										1927 m	North
6527-1764	240503	SV 320			2008-09-29	1.47										1933 m	North West
6527-1825	254381	GW 7	Backfilled	Drainage	2009-08-18	43.00										1940 m	North
6527-831	26827	SAR DH 11	Unknown	Investigation	1972-03-16	6.00		54.98								1953 m	South East
6527-2126	291399	MW 12		Investigation	2016-10-20	4.00							2.00	2.00		1961 m	South
6527-1826	254382	GW 8	Backfilled	Drainage	2009-07-19	55.00										1986 m	North
6527-2124	291397			Investigation	2016-10-20	4.00							2.00	2.00		1988 m	South

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6527-2125	291398	MW 11		Investigation	2016-10-20	4.00							2.00	2.00		1994 m	South

Drillholes Data Source: Dept of Environment, Water and Natural Resources - South Australia
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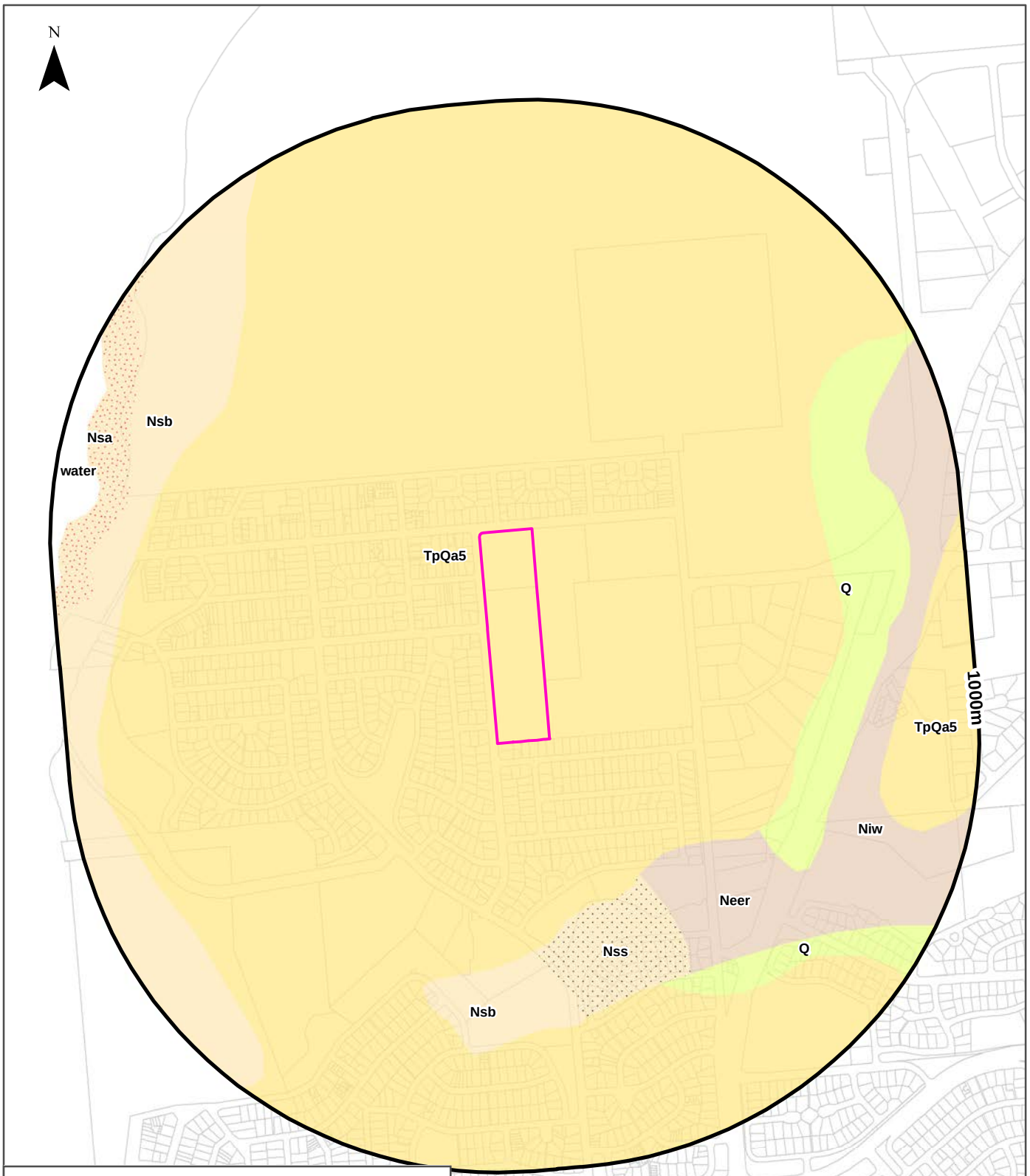
Geology 1:100,000

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Report Buffer
- Property Boundary

Linear Feature

- Alluvial fan
- Dyke
- Fault
- Fold
- Gilgai
- Joint
- Lineament
- Open cut quarry
- Shear zone
- Other Linear Feature

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Geology

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Surface Geology 1:100,000

Surface Geology Units within the dataset buffer:

Map Unit Code	Name	Description	Parent Name	Province	Age	Min Age	Max Age	Distance
TpQa5	Unnamed GIS Unit - see description	Hindmarsh Clay, Carisbrooke Sand, Ochre Cove Fmn, Seaford Fmn: ADELAIDE/BARKER digital database.	Unnamed GIS Unit - see description	UNKNOWN	PLIOCENE-PLEISTOCENE	Pleistocene	Pliocene	0m
Neer	Reynella Siltstone Member	Siltstone, red, gritty, glacigenic?.	Elatina Formation	ADELAIDE GEOSYNCLINE	NEOPROTEROZOIC	Marinoan	Marinoan	373m
Nss	Seacliff Sandstone	Quartzite; sandstone; siltstone.	Sandison Subgroup	ADELAIDE GEOSYNCLINE	NEOPROTEROZOIC	Marinoan	Marinoan	375m
Nsb	Brachina Formation	Siltstone, shale, red-brown and olive green, laminated, flaggy to medium bedded; alternating with sandstone, fine grained, occasionally coarse grained. All lithologies calcitic in part.	Wilpena Group	ADELAIDE GEOSYNCLINE	NEOPROTEROZOIC	Marinoan	Marinoan	489m
Q	Unnamed GIS Unit - see description	Undifferentiated Quaternary rocks.		UNKNOWN	PLEISTOCENE-HOLOCENE	Quaternary	Quaternary	529m
Niw	Wilmington Formation	Sandstone, red, grey, with grit bands and gritty limestone; siltstone, red, gritty.	Upalinna Subgroup	ADELAIDE GEOSYNCLINE	NEOPROTEROZOIC	Marinoan	Marinoan	650m
Nsa	ABC Range Quartzite	Quartzite, slightly feldspathic, fine to medium grained, pale pinkish grey, clay intraclasts, flaggy to medium bedded, heavy mineral lamination, minor siltstone.	Wilpena Group	ADELAIDE GEOSYNCLINE	NEOPROTEROZOIC	Marinoan	Marinoan	821m
water								892m

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Linear Structures 1:100,000

Linear geological structures within the dataset buffer:

Map Code	Description	Distance
N/A	No features in buffer	

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia
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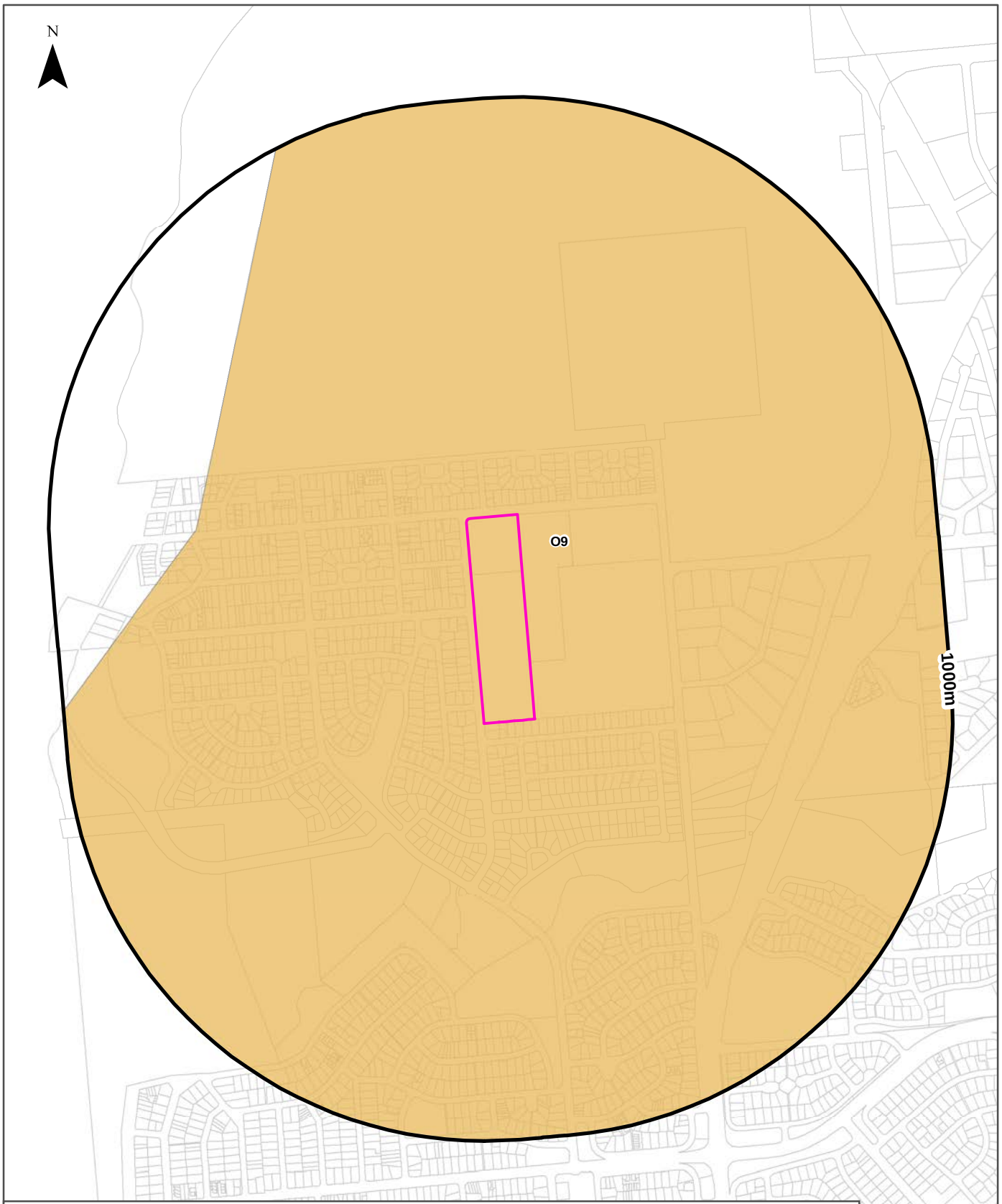
Atlas of Australian Soils

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Report Buffer
- Property Boundary

Australian Soil Classification Orders

- Anthroposol
- Calcarosol
- Chromosol
- Dermosol
- Ferrosol
- Hydrosol
- Kandosol
- Kurosol
- Organosol
- Podosol
- Rudosol
- Sodosol
- Tenosol
- Vertosol
- Lake
- No Data

Scale: 0 100 200 400 600 Meters

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Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Soils

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance
O9	Chromosol	Undulating: soils as for 08 but the proportion of cracking clays (Ug5) and sandy alkaline yellow mottled soils (Dy5) is larger; hard alkaline yellow mottled soils (Dy3.43) and leached sands (Uc2.2) occur in small areas also.	0m

Atlas of Australian Soils Data Source: CSIRO
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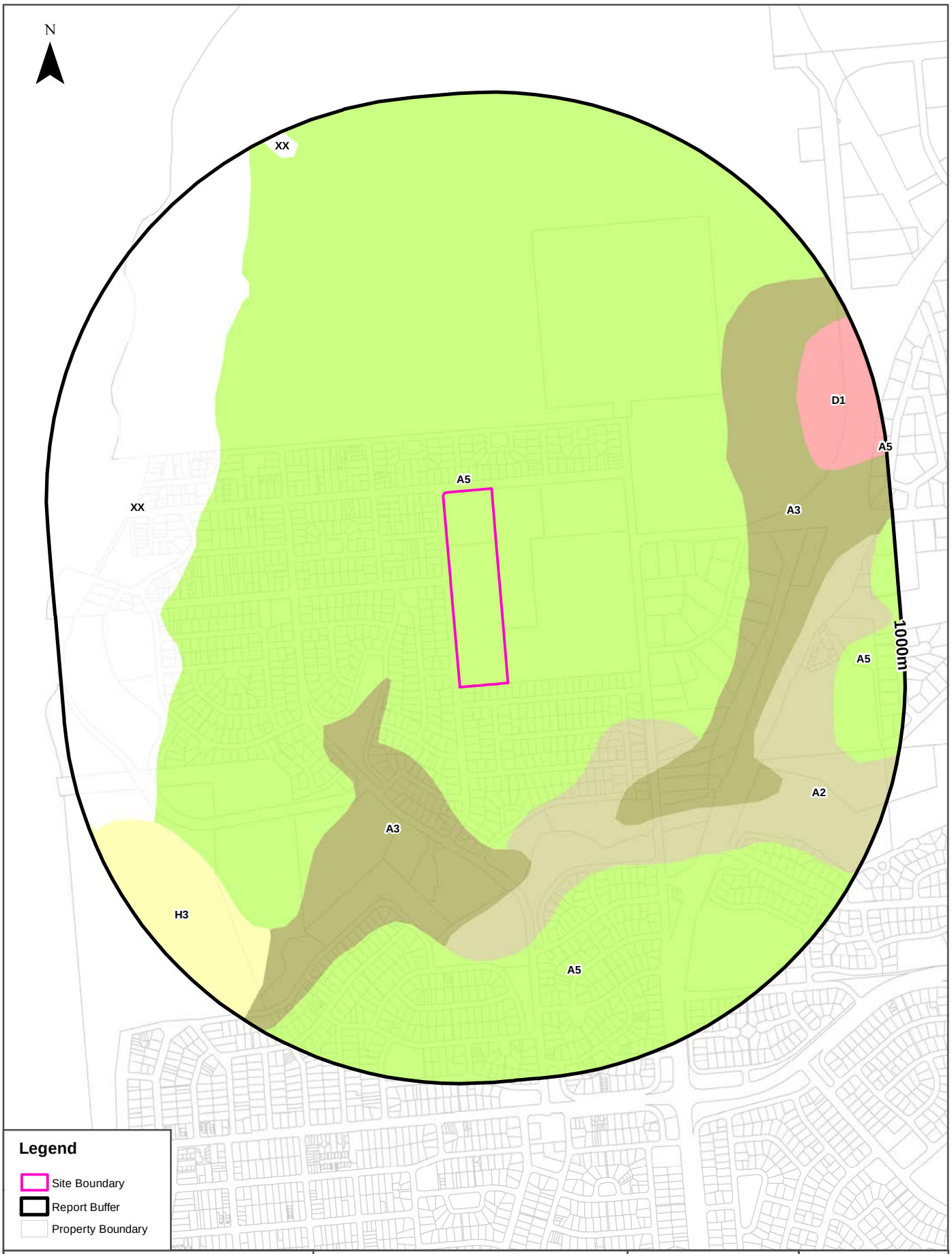
Soil Types

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 100 200 400 Meters

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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Soils

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Soil Types

Soil types within the dataset buffer:

Map category code	Soil type description	Distance
A5	Calcareous loam on clay	0m
A3	Moderately calcareous loam	173m
A2	Calcareous loam on rock	269m
XX	Not applicable - No assessment/analysis undertaken	569m
H3	Bleached siliceous sand	775m
D1	Loam over clay on rock	796m

Soil Types Data Source: Dept of Environment, Water and Natural Resources - South Australia
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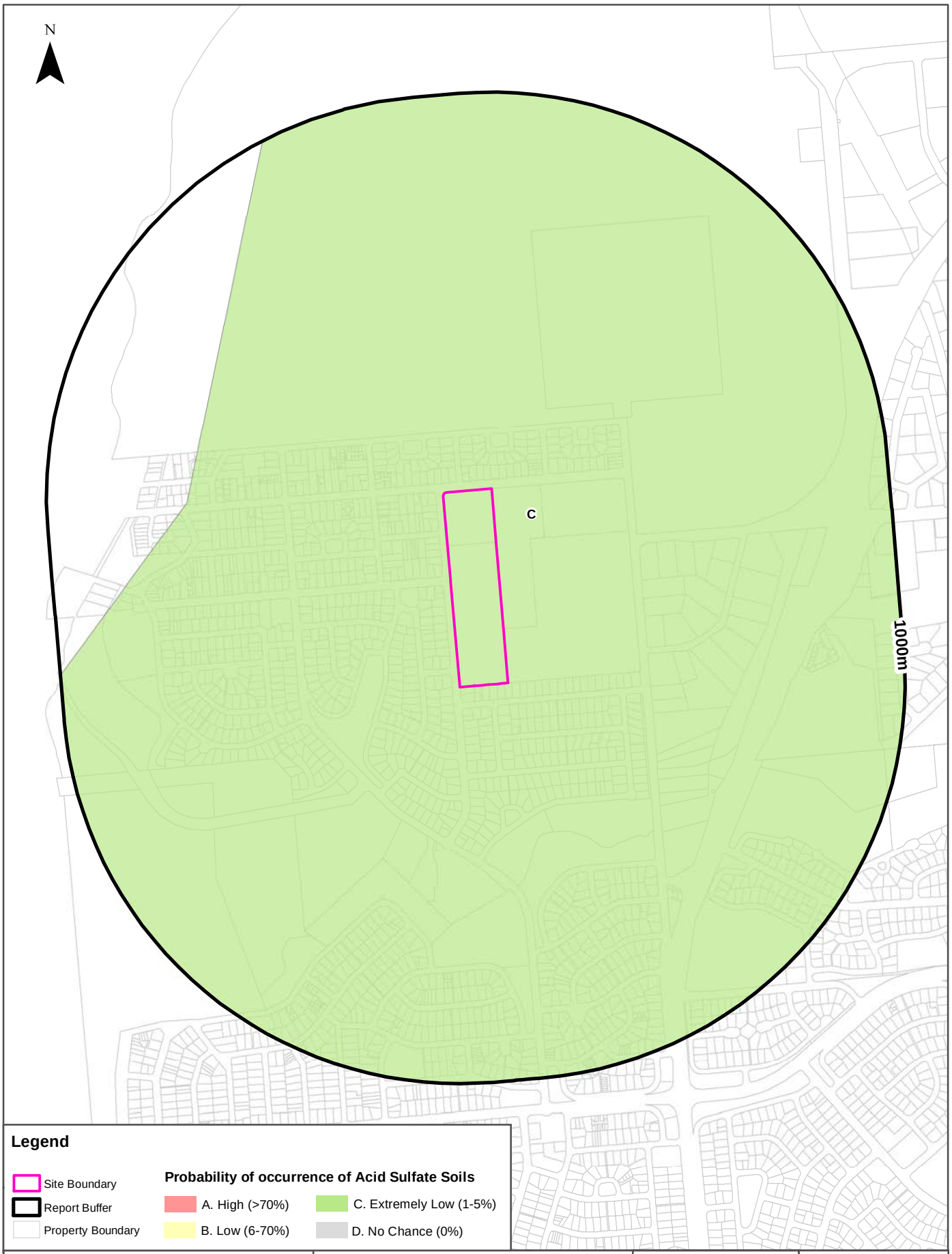
Atlas of Australian Acid Sulfate Soils

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Acid Sulfate Soils

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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Acid Sulfate Soils Potential

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Legend

- Site Boundary
- Report Buffer
- Property Boundary

Proportion of land susceptible to the development of Acid Sulfate Soils

- Negligible
- 1-10%
- 10-30%
- 30-60%
- More than 60%
- Incomplete data (usually wet inland areas)
- Not applicable - No assessment/ analysis

Scale: 0 100 200 400 Meters

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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Acid Sulfate Soils

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Acid Sulfate Soil Potential

Acid sulfate soil potential within the dataset buffer:

Map category code	Proportion of land susceptible to the development of acid sulfate soils	Distance
A	Negligible	0m

Acid Sulfate Soils Data Source: Dept of Environment, Water and Natural Resources - South Australia
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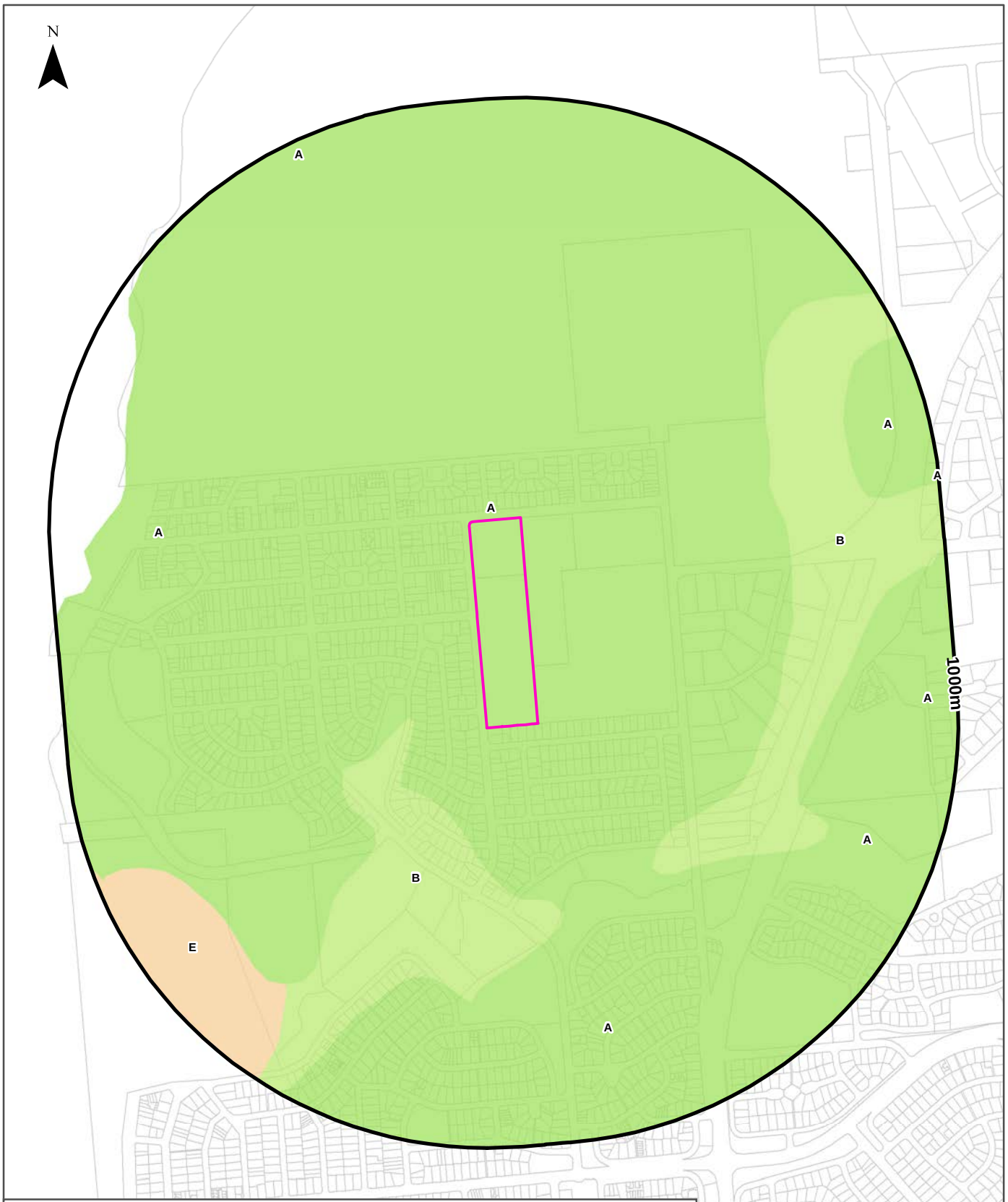
Soil Salinity - Watertable Induced

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

Site Boundary
Report Buffer
Property Boundary

Severity of watertable induced soil salinity

A. Negligible
B. Moderately low
C. Moderate
D. Moderately high
E. Moderately high to high
F. High
G. Very high to extreme
X. Not applicable

Scale: 0 112.5 225 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
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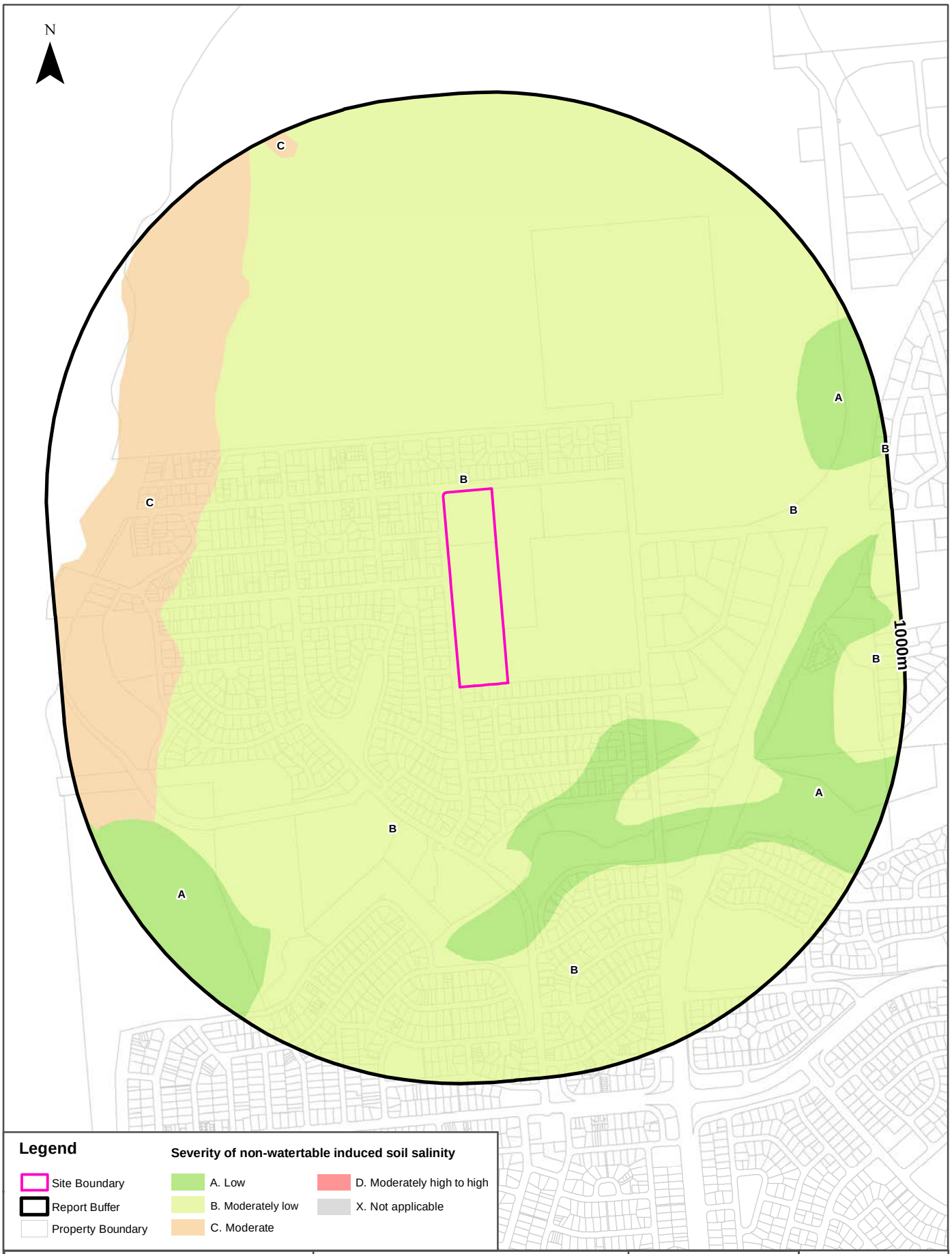
Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Soil Salinity - Non-watertable

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Report Buffer
- Property Boundary

Severity of non-watertable induced soil salinity

- A. Low
- B. Moderately low
- C. Moderate
- D. Moderately high to high
- X. Not applicable

Scale: 0 112.5 225 Meters

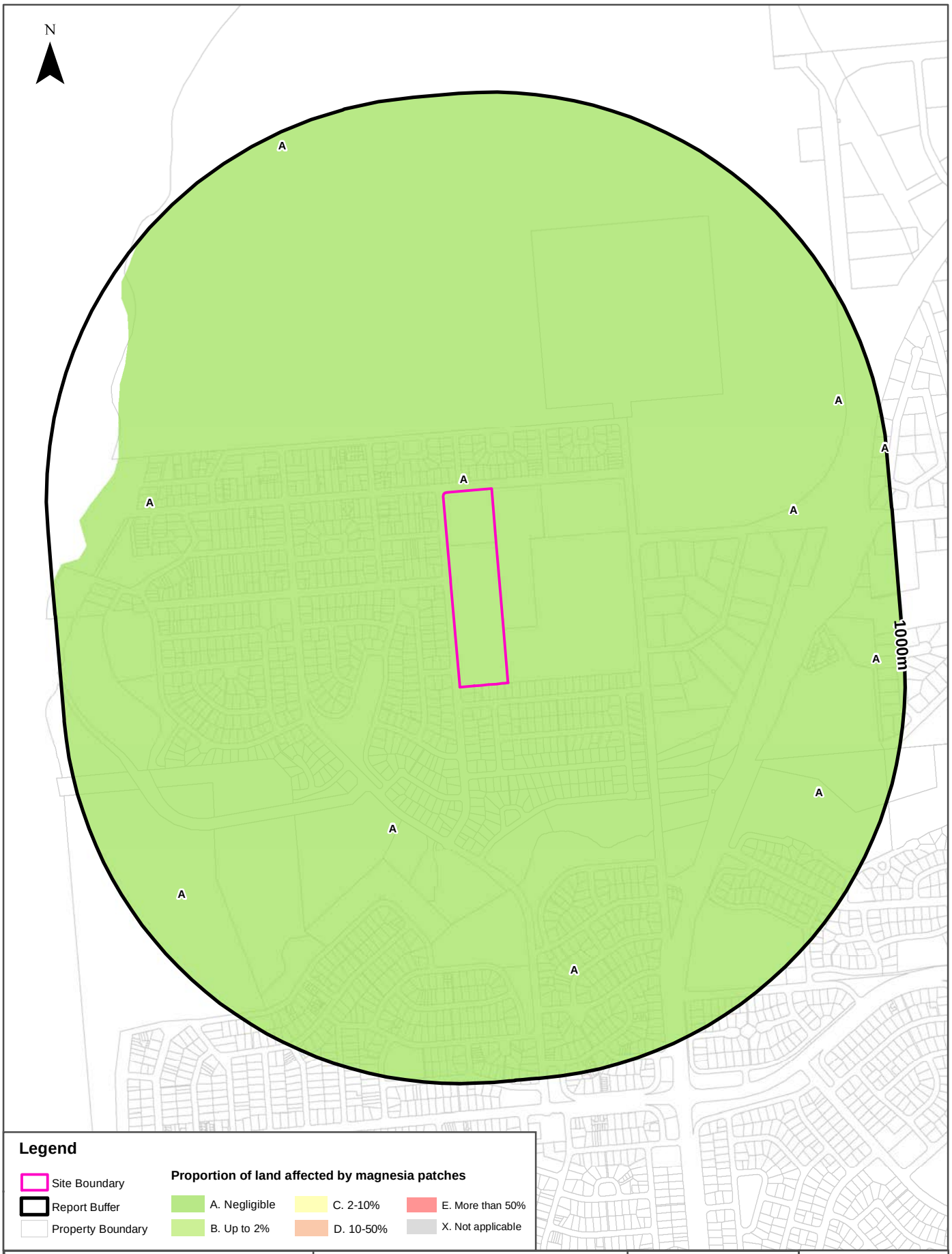
Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Soil Salinity - Non-watertable (Magnesia Patches)

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



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Date: 30 June 2020

Soil Salinity

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Soil Salinity - Watertable Induced

Watertable induced soil salinity within the dataset buffer:

Map category code	Severity description	Distance
A	Negligible	0m
B	Moderately low salinity, or less than 2% of land affected by highly saline seepage	173m
E	Moderately high to high salinity, or 30-50% of land affected by highly saline seepage	775m

Salinity Watertable Induced Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Soil Salinity - Non-Watertable

Non-watertable soil salinity within the dataset buffer:

Map category code	Severity description	Surface ECe (dS/m)	Subsoil ECe (dS/m)	Distance
B	Moderately low	2-4	4-8	0m
A	Low	<2	<4	269m
C	Moderate	4-8	8-16	569m

Salinity Non-Watertable Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Soil Salinity - Non-Watertable (Magnesia Patches)

Magnesia patches within the dataset buffer:

Map category code	Proportion of land affected by magnesia patches	Distance
A	Negligible	0m

Salinity Non-Watertable (Magnesia Patches) Data Source: Dept of Environment, Water and Natural Resources - South Australia
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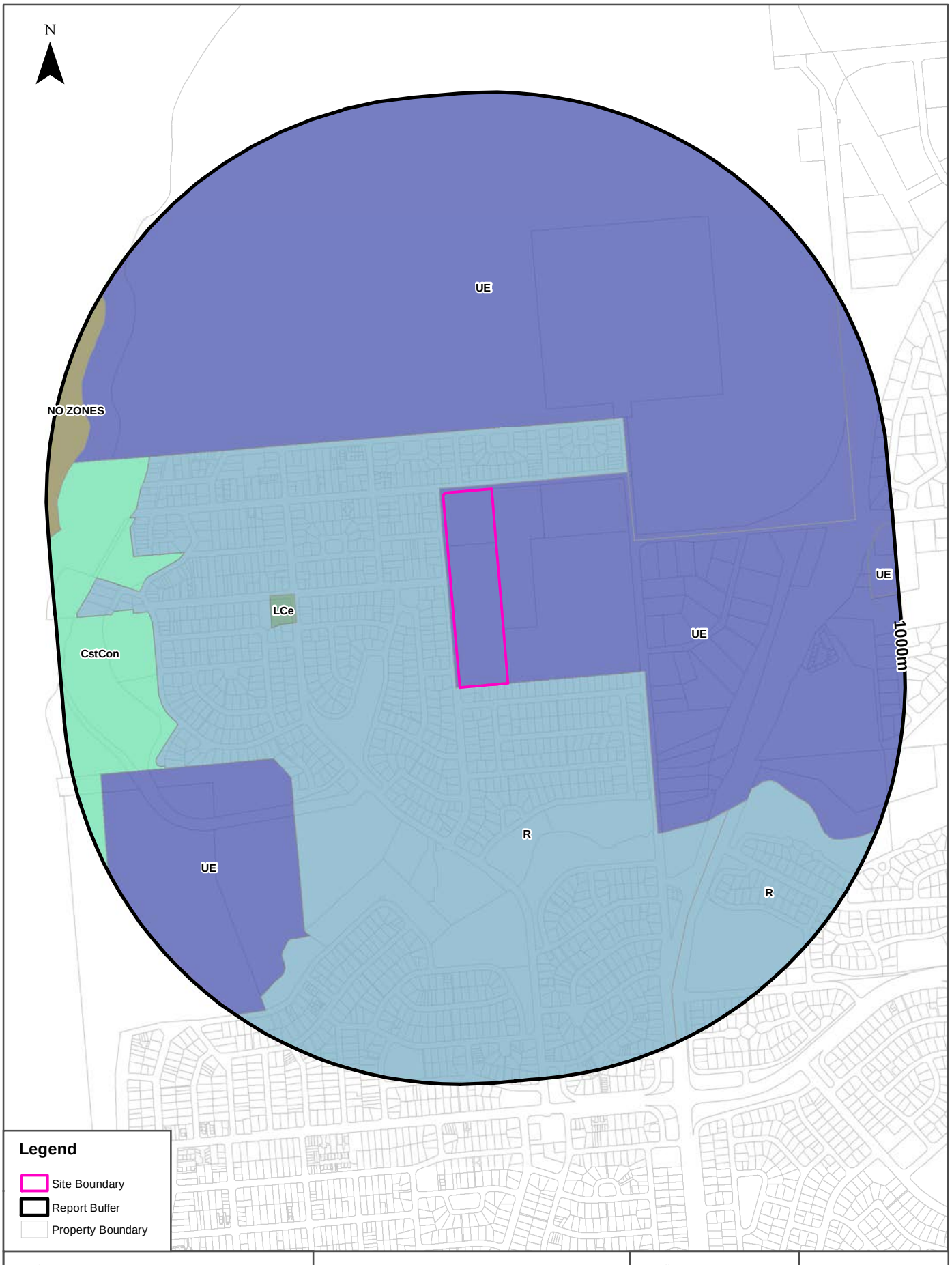
Land Development Zones

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Scale: 0 100 200 400 600 Meters

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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Planning

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Land Development Zones

Land development zoning within the dataset buffer:

Zone Code	Development Plan Code	Zone Description	Devlopment Category	Distance	Direction
UE	ONKA	Urban Employment	INDUSTRIAL	0m	Onsite
R	ONKA	Residential	RESIDENTIAL	0m	South
UE	ONKA	Urban Employment	INDUSTRIAL	153m	North
LCe	ONKA	Local Centre	COMMERCIAL	395m	West
UE	ONKA	Urban Employment	INDUSTRIAL	483m	South West
R	ONKA	Residential	RESIDENTIAL	638m	South East
CstCon	ONKA	Coastal Conservation	ENVIRONMENTAL CONSTRAINT	663m	South
NO ZONES	LNWCA_MA	NO ZONES	NO ZONES	907m	North
UE	ONKA	Urban Employment	INDUSTRIAL	928m	East

Land Development Zones Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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Land Use Generalised 2018

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Legend

- Site Boundary
- Report Buffer
- Property Boundary
- No Description
- Agriculture
- Commercial
- Education
- Food Industry
- Forestry
- Golf
- Horticulture
- Livestock
- Mining or Quarrying
- Non Private Residential
- Public Institution
- Recreation
- Reserves
- Residential
- Retail Commercial
- Rural Residential
- Utilities or Industry
- Vacant
- Vacant Urban Land

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Planning

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Land Use Generalised 2018

Land use classes within the dataset buffer:

Description	Distance	Direction
Vacant Urban Land	0m	Onsite
Utilities or Industry	0m	East
Commercial	0m	North East
Residential	0m	South
Residential	0m	South East
Reserves	84m	West
Vacant	118m	North West
Recreation	187m	South West
Retail Commercial	356m	East
Retail Commercial	356m	South East
Education	365m	South
Public Institution	667m	South East

Land Use Generalised Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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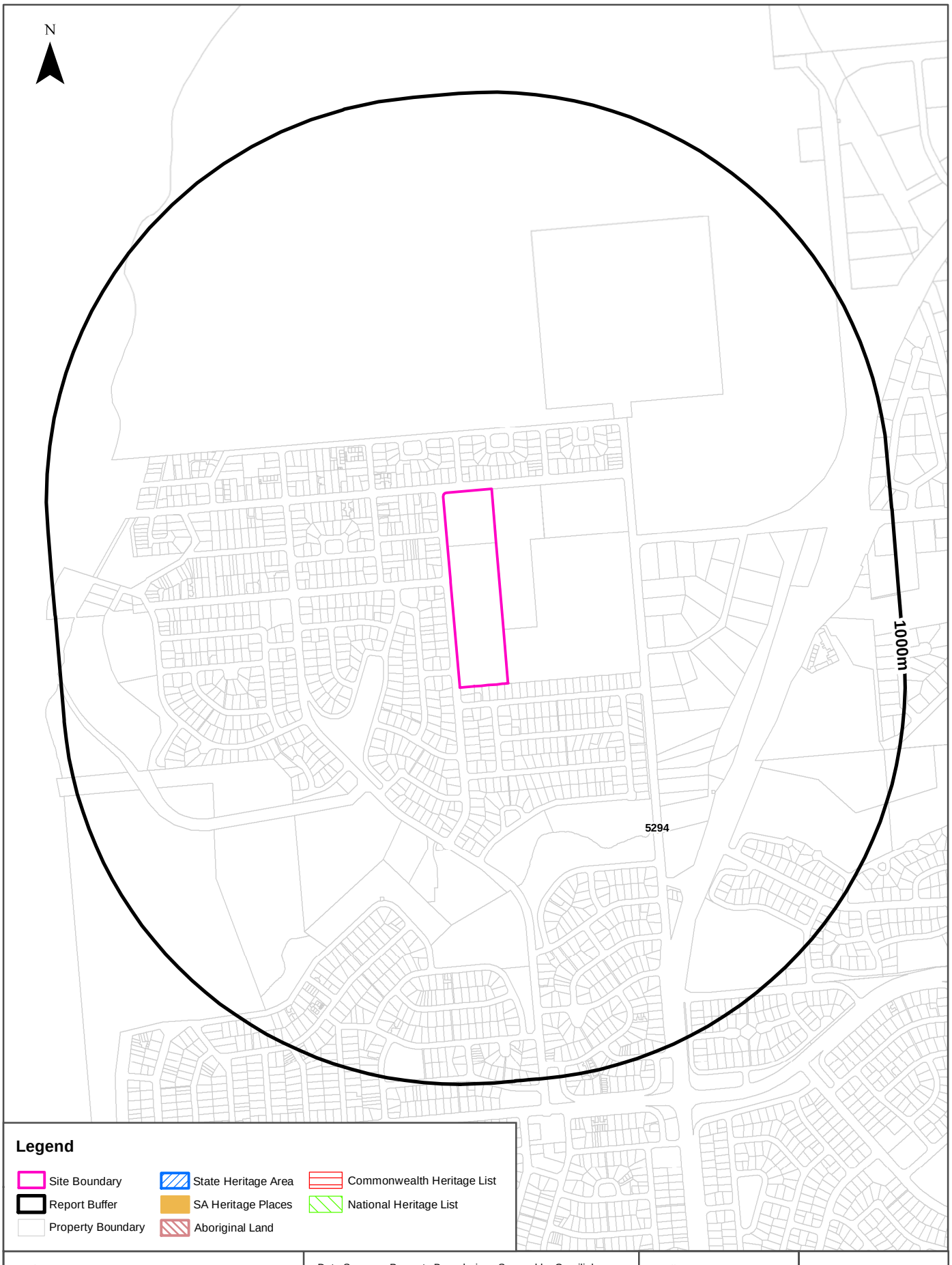
Heritage

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Heritage

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Areas

State Heritage Areas within the dataset buffer:

Heritage Id	Name	Distance	Direction
N/A	No records in buffer		

Heritage Areas Data Source: Dept of Environment, Water and Natural Resources - South Australia
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SA Heritage Places

SA Heritage Places within the dataset buffer:

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
5294	Morrow LONSDALE	Local	Bridge	Bridge across Christie Creek Original bridge structure	12/2/2004	510m	South East

Heritage Places Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Aboriginal Land

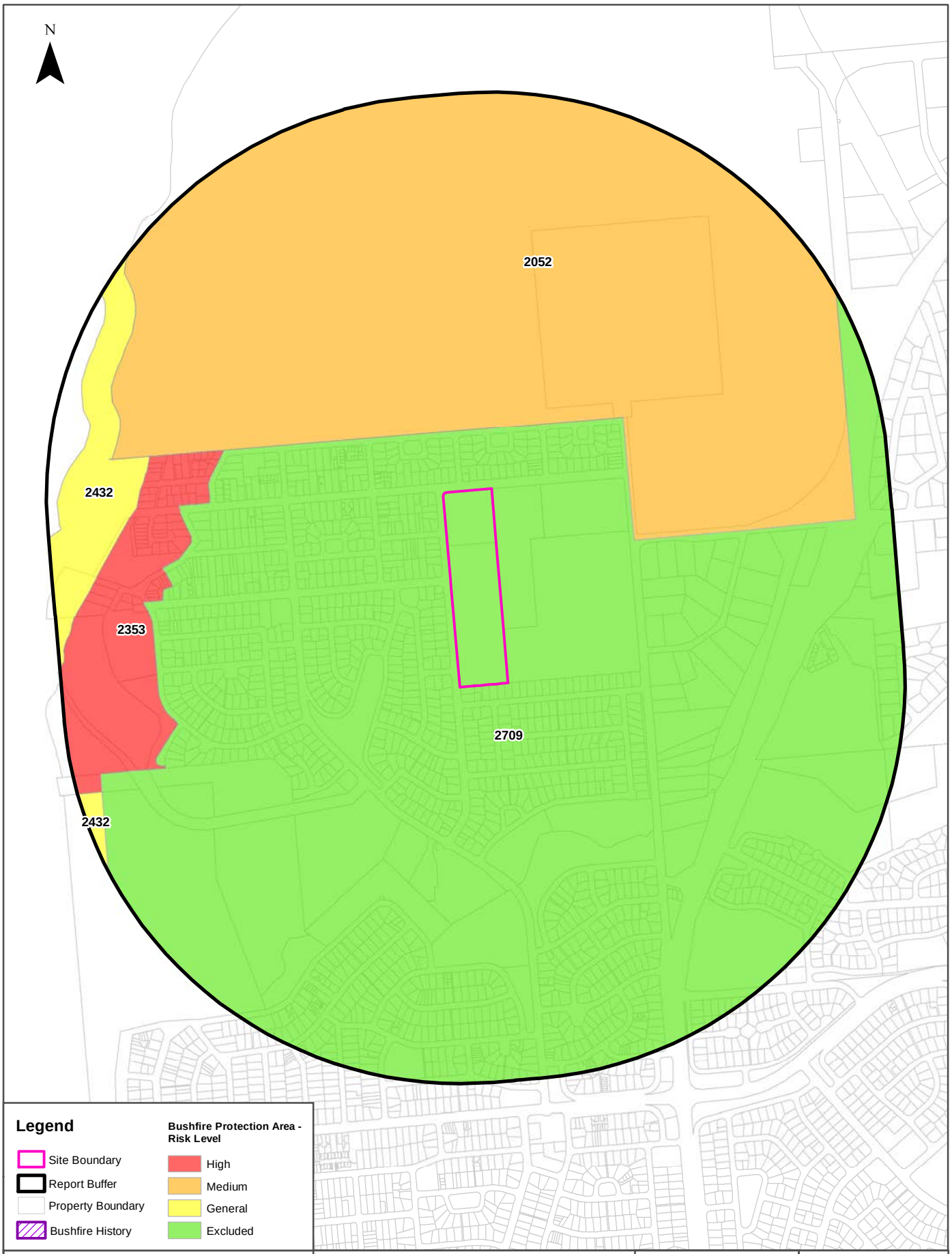
Aboriginal Land within the dataset buffer:

Map Id	Grant Date	Address	Locality	Description	Title	Distance	Direction
N/A	No records in buffer						

Aboriginal Land Data Source: Department of State Development, Resources and Energy - South Australia

Natural Hazards - Bushfire

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



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Coordinate System:
GDA 1994 MGA Zone 54

Date: 30 June 2020

Natural Hazards

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Bushfire Protection Areas

Bushfire Protection Areas within the dataset buffer:

Map Id	Bushfire Risk Code	Development Plan Code	Additional Development Criteria	Distance	Direction
2709	Excluded	ONKA		0m	On-site
2052	Medium	ONKA		153m	North
2353	High	ONKA		565m	West
2432	General	ONKA		747m	South

Bushfire Protection Areas Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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Bushfires and Prescribed Burns History

Bushfires and prescribed burns within the dataset buffer:

Map Id	Incident No.	Incident Name	Incident Type	Date of Fire	Area of Fire	Distance	Direction
N/A	No records in buffer						

Bushfires and Prescribed Burns History Data Source: Dept of Environment, Water and Natural Resources - South Australia
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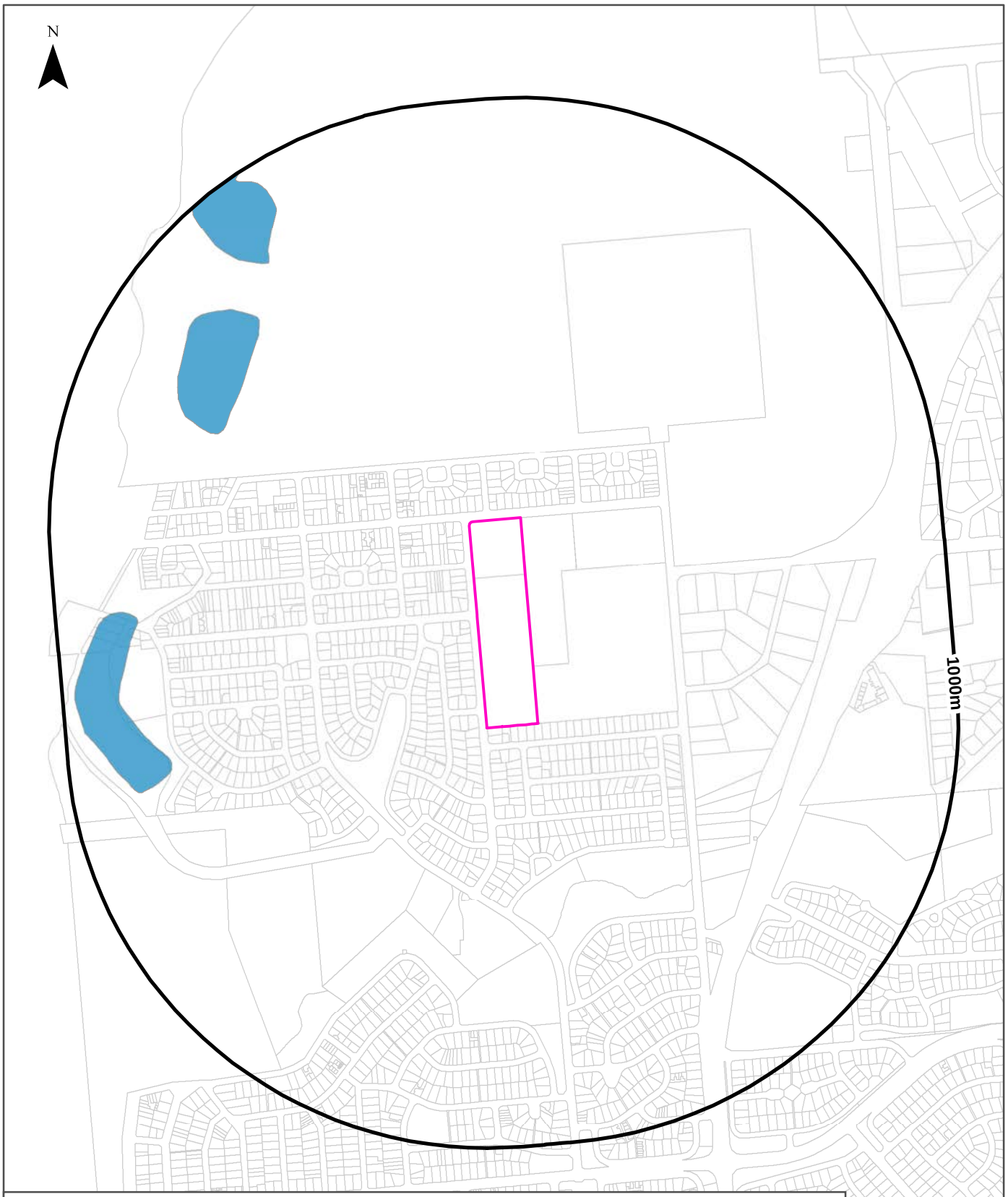
Ecological Constraints - Groundwater Dependent Ecosystems Atlas

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166



Legend

- Site Boundary
- Report Buffer
- Property Boundaries
- High potential GDE - from national assessment
- High potential GDE - from regional studies
- Moderate potential GDE - from national assessment
- Moderate potential GDE - from regional studies
- Low potential GDE - from national assessment
- Low potential GDE - from regional studies
- Known GDE - from regional studies
- Unclassified potential GDE - from national assessment
- Unclassified potential GDE - from regional studies

Scale: 0 100 200 400 Meters

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Coordinate System: GDA 1994 MGA Zone 54

Date: 30 June 2020

Ecological Constraints

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Groundwater Dependent Ecosystems Atlas

GDEs within the dataset buffer:

MapID	Type	Name	GDE Potential	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
113707	Terrestrial		Low potential GDE - from national assessment	10	Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings.	Vegetation		626m
113744	Terrestrial		Low potential GDE - from national assessment	10	Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings.	Vegetation		754m
113674	Terrestrial		Low potential GDE - from national assessment	10	Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings.	Vegetation		782m

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
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Ecological Constraints

64 Baden Terrace and 36-70 Gumeracha Road, OSullivan Beach, SA 5166

Ramsar Wetlands

Ramsar Wetlands within the dataset buffer:

Wetland	Distance	Direction
No records in buffer		

Ramsar Wetlands Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading “LC” or “LocConf”. These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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   - (k) the End User should undertake its own inspections of the Land or Property to satisfy itself that there are no defects or failures
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    (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,

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12. These Terms are subject to New South Wales law.

APPENDIX C

EXTRACT FROM ONKAPARINGA COUNCIL DEVELOPMENT PLAN

Urban Employment Zone

Refer to the *Map Reference Tables* for a list of the maps that relate to this zone.

OBJECTIVES

1 A mixed use employment zone that accommodates a wide range of industrial land uses together with other related employment and business activities.

2 Commercial uses including shops, offices, consulting rooms, personal service establishments and training facilities that are able to provide support services for businesses and an expanding workforce located primarily along main road frontages.

3 Provision for enterprises, such as major logistics and manufacturing plants, high technology and/or research and development related uses, located to take advantage of existing and future road and rail infrastructure.

4 The effective location and management of activities at the interface of industrial/commercial activity with land uses that are sensitive to these operations.

5 A high standard of development which promotes distinctive building, landscape and streetscape design, with high visual and environmental amenity, particularly along arterial roads and the boundaries of adjoining zones.

6 Development that promotes business clusters that provide a range of economic and environmental benefits.

7 Co-ordinated and integrated development that:

(a) incorporates high speed information technology and telecommunications facilities and infrastructure

(b) contributes to the improvement of the physical, social and economic conditions of adjoining communities where appropriate.

8 Adequate and co-ordinated servicing of land and provision of infrastructure before development takes place.

9 Development that contributes to the desired character of the zone.

DESIRED CHARACTER

Onkaparinga's **Urban Employment Zone** will be a high quality enterprise and employment destination of regional importance for Southern Adelaide. It will attract a wide range of activities that generate employment. While currently focusing on industry and similar activities, over time offices and industry-related educational establishments, high technology and/or research and development related uses will develop in compatibility with the surrounding uses. It is anticipated that the zone will associate with and leverage off new manufacturing trends emerging from the Tonsley Innovation District.

Clustering of industrial activities to share resources and reduce waste impacts and energy needs is encouraged, as well as shared use of facilities and services, including training, communication and information technology and car parking areas where practical.

As a zone accommodating well-established industrial activities, which fulfil an important employment function for the surrounding residential areas and region, they will be protected from the intrusion of inappropriate uses which may reduce their potential operation and the utility of the land resource.

Activities which are potentially hazardous or produce negative off-site impacts, such as noise, air, water and waste emissions, significant volumes of industrial traffic or have a detrimental impact on the amenity of properties should not be located adjacent residential or similar environmentally sensitive zones.

Non-industrial development should not compromise ongoing industrial operations and should only be established where designed and sited to be compatible with existing EPA licenses and associated separation distances.

The development of local shops (including cafes and restaurants), consulting rooms, service trade premises, indoor recreation centres and training facilities are encouraged in the zone to support the existing and expanding workforce and to provide support services for business. Such land uses that cannot be reasonably accommodated within a centre type location could be located within parts of the zone outside of Aldinga and the Core Industry Area where sufficient and safe vehicle access and parking is demonstrated.

More sensitive land uses such as educational establishments, child care centres and consulting rooms will be located in the appropriate policy areas and designed to ensure that higher impact land uses (such as general industry) are not undermined and can continue the successful operation of such land uses.

Entry for industrial traffic, commercial traffic and heavy vehicles will be from arterial and distributor roads and via local roads within the zone. Vehicles will be restricted from entering residential areas through the use of traffic management measures.

To ensure the safe movement and accommodation of all vehicles in the zone, development that is a traffic generating activity should demonstrate how vehicle movements will manage impacts on Main South Road and the adjoining road network, particularly the Main South / Seaford Road / Patapinda Road intersection.

It is envisaged that over time Seaford Road will need to be augmented and upgraded to accommodate increases in traffic volumes.

Development particularly in the **Main Road Policy Area 12** will consolidate driveway crossovers to optimise the provision for on-street car parking and minimise conflicts with traffic.

A large portion of the area is located in Lonsdale, extending from Christie Creek in the south to the Field River and the City boundary in the north. The terrain varies from gently to steeply sloping and accordingly some areas are visually prominent from the road network and residential areas. In areas of visual prominence it is important that development incorporates on-site measures together with visual and environmental buffers to avoid the potential for negative impacts on the urban landscape as viewed from main roads and residential areas.

The allotment pattern in Lonsdale provides a mix of sizes to cater for a range of land uses. The core area will continue to provide large allotments to meet the needs of industry. Any further division of land should not undermine the existing allotment pattern in the area.

Allotments that adjoin the boundary of another zone or policy area where more sensitive land uses are anticipated (e.g. residential development), will be large enough to accommodate design features and siting arrangements that limit impact.

Development will be well designed and comprise high quality, innovative contemporary architecture that is both adaptable and flexible to accommodate multiple uses or changes in future land uses where practical. Buildings will provide a positive visual impact incorporating a variation in materials, facade treatments and setbacks rather than appearing as large uniform buildings with blank façades.

Buildings facing onto public roads or thoroughfares will avoid large expanses of solid unarticulated walling or blank facades by incorporating design elements in particular glazing to increase the void to solid ratio of external surfaces and will incorporate landscaping to soften their appearance.

The erection of open ornamental or decorative fences, other than wire mesh and barbed wire, at the street frontage of a site is appropriate as part of a development. Colour coated wire mesh fencing is appropriate where it is sited in line with the building or behind landscaped areas.

Landscaping, matched to the scale of the development will be carefully integrated with built form, to achieve evaporative cooling and shading, habitat, stormwater retention or other desired functions, while also providing a pleasant and attractive environment.

Car parking areas will include trees to provide shade and enhance visual amenity. The appearance of outdoor storage areas will also be enhanced through landscaping. Landscaping will be carefully designed to minimise opportunity for crime by ensuring passive/active surveillance and minimising places of entrapment.

Water Sensitive Urban Design systems, including the harvest, treatment, storage and reuse of stormwater, will be integrated throughout the area at the neighbourhood, street, site and building level including in car park areas. Harvested stormwater will improve the aesthetic and functional value of open spaces, including public access ways and greenways.

Interface Area

The area at O'Sullivan Beach contains vacant land and provides a transition between longstanding general industry activities accessed from Morrow Road and adjoining residential areas.

The area fronting Brodie Road on the western side comprises a diverse mix of new industrial activities focussing on manufacturing and processing activities.

It is envisaged that these areas, as shown on *Concept Plan Map Onka/29 - Core Industry and Interface Areas* will accommodate light or service industry uses, warehousing, office, consulting rooms, retail activities and training facilities, which reduce adverse impact on the amenity and safety of the adjoining **Residential Zone**.

The Interface Area will be developed in a way that minimises impacts on residential land uses though the appropriate setback, scale and massing of buildings, a high standard of design and extensive landscaping along road frontages. General or special industry is not appropriate within the Interface Area.

Co-ordinated Development Sites

There are a number of larger sites in the Core Industry Area as identified on *Concept Plan Map Onka/29 - Core Industry and Interface Areas* that are vacant or underutilised and potentially available for redevelopment in the short to medium term. These sites provide the opportunity for delivery of integrated development of contemporary design and layout, and provision of land use and on-site infrastructure. Development should integrate with and enhance the streetscape with provision of landscaping that contributes to the evolving character of the zone.

Development of Co-ordinated Development Sites may be more intensive with a mix of allotment sizes and a wider range of land uses not envisaged in the Core Industry Area. Co-ordinated Development Site design and planning allows for a greater sharing of car parking and provision of uses such as child care centres, indoor recreation centres, cafes or other uses that support employment activity. These land uses will form part of an integrated development rather than stand alone.

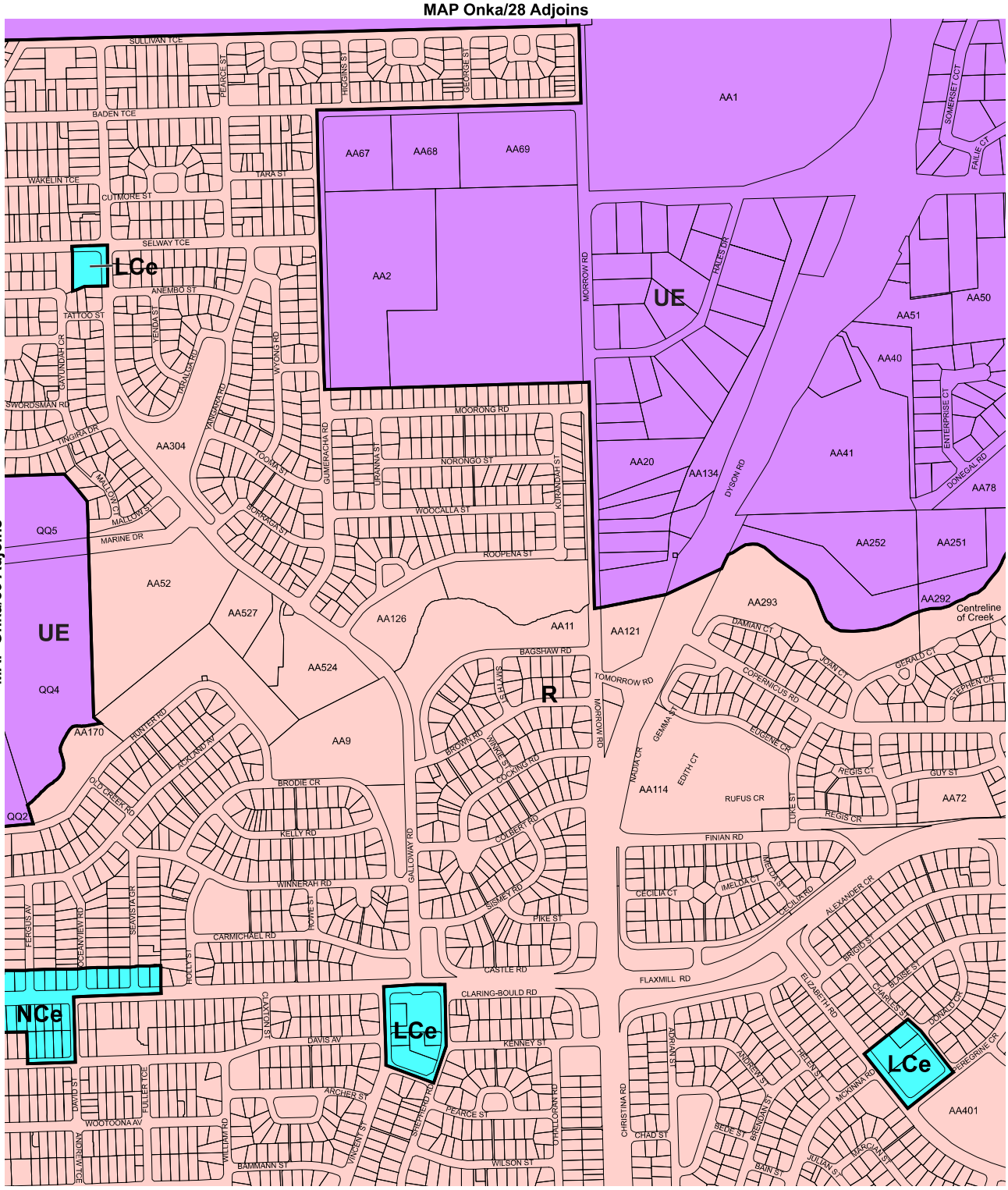
Careful Co-ordinated Development Site layout and building design should be applied to mitigate amenity impacts on any sensitive uses within a site and not compromise the operation of existing business. On site environment auditing and remediation may be required to ensure a site is capable of accommodating sensitive uses.

MAP Onka/28 Adjoins

MAP Onka/39 Adjoins

MAP Onka/41 Adjoins

MAP Onka/48 Adjoins



Lamberts Conformal Conic Projection, GDA94

N

0 500 m

Zones

LCe	Local Centre
NCe	Neighbourhood Centre
R	Residential
UE	Urban Employment
	Zone Boundary

Zone Map Onka/40

ONKAPARINGA COUNCIL

Consolidated - 2 July 2020

APPENDIX D

CERTIFICATE OF TITLES

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

REGISTRAR-GENERAL SOUTH AUSTRALIA

Certificate of Title - Volume 6136 Folio 727

Parent Title(s) CT 5648/521

Creating Dealing(s) SC 12109777

Title Issued 05/05/2014 **Edition** 5 **Edition Issued** 28/03/2020

Estate Type

FEE SIMPLE

Registered Proprietor

GUMERACHA ROAD PTY. LTD. (ACN: 611 313 878)
OF CARE L 11 70 FRANKLIN STREET ADELAIDE SA 5000

Description of Land

ALLOTMENT 67 FILED PLAN 152643
IN THE AREA NAMED O'SULLIVAN BEACH
HUNDRED OF NOARLUNGA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A TO THE MINISTER FOR INFRASTRUCTURE (T 3046585)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A TO THE COUNCIL FOR THE AREA (T 3053731)

Schedule of Dealings

NIL

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

AREA NAME UPDATED VIDE GOVERNMENT GAZETTE DATED 21/05/1970

Administrative Interests NIL

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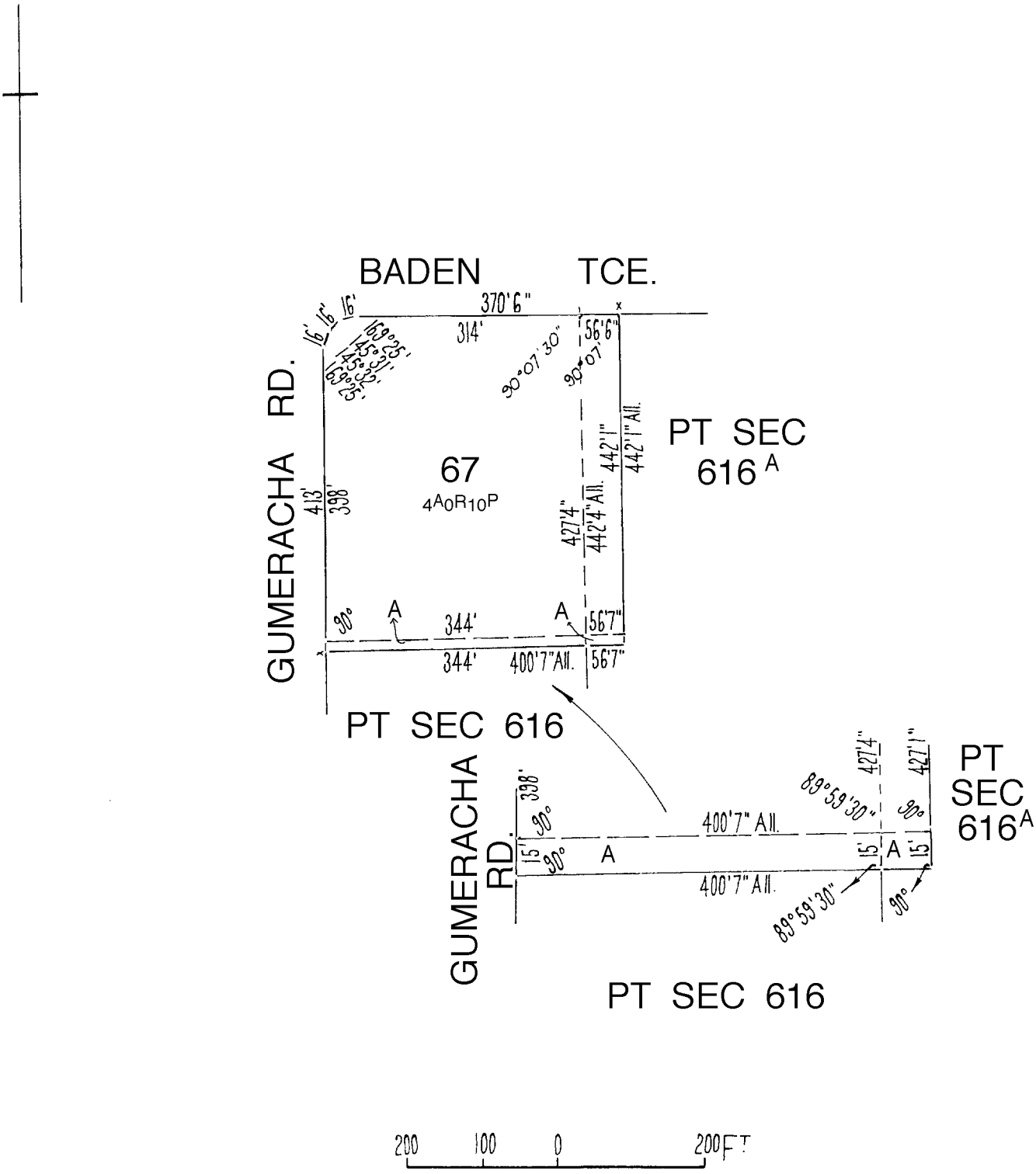
THIS PLAN IS SCANNED FOR CERTIFICATE OF TITLE 3676/102
SEE TITLE TEXT FOR EASEMENT DETAILS



FOR METRIC CONVERSION		
1 FOOT	=	0·3048 METRES
1 INCH	=	0·0254 METRES
1 ACRE	=	0·404686 HECTARES
1 ROOD	=	1011·7m²
1 PERCH	=	25·29 m²

NOTE: SUBJECT TO ALL LAWFULLY EXISTING PLANS OF DIVISION

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REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

REGISTRAR-GENERAL SOUTH AUSTRALIA

Certificate of Title - Volume 6214 Folio 427

Parent Title(s) CT 6197/337

Creating Dealing(s) TG 12995556

Title Issued 10/10/2018 **Edition** 1 **Edition Issued** 10/10/2018

Estate Type

FEE SIMPLE

Registered Proprietor

GUMERACHA ROAD PTY. LTD. (ACN: 611 313 878)
OF CARE L 11 70 FRANKLIN STREET ADELAIDE SA 5000

Description of Land

ALLOTMENT 20 DEPOSITED PLAN 115116
IN THE AREA NAMED O'SULLIVAN BEACH
HUNDRED OF NOARLUNGA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON F253808 TO THE MINISTER FOR INFRASTRUCTURE (T 3044512)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED E AND F ON F253808 FOR DRAINAGE PURPOSES (TG 12995556)

Schedule of Dealings

NIL

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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APPENDIX E

EPA SECTION 7

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

Receipt No :
Admin No : 62678 (59093)

WSP Australia Pty Limited
Level 1
1 King William Street
ADELAIDE SA 5000

Contact: Section 7
Telephone: (08) 8204 2026
Email: epasection7@sa.gov.au

Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

30 June, 2020

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 6136 Folio 727
Address	64 Baden Terrace, O'SULLIVAN BEACH SA 5166

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or[1]	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or[1]	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or[1]	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or[1]	**YES**
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO

[1] Note Schedule 1 Part A of the Environment Protection Act 1993 changed on 1 June 2019. Land and Business (Sale and Conveyancing) Regulations 2010 references to a 'waste or recycling depot' under 'clause 3(3)' are out of date and are to be read instead as clause 3(1), 3(2), 3(3)(a), 3(3)(b), 3(5)(b) or 3(5)(c) or a combination of them from 1 June 2019. Similarly, references to 'activities producing listed wastes' under 'clause 3(4)' are out of date and are to be read instead as clause 3(5)(a) from 1 June 2019.

g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO
h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO

b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO
d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

Details and/or copies of environmental assessments, licences,exemptions and records on the Public Register may be obtained from the Environment Protection Authority.

Prior to arranging an examination and/or copies of the required above information please telephone (08) 8204 9128 to contact the Public Register Administrator to ensure the required details are available upon arrival.

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

File Reference: EPA/12370

ENVIRONMENT PROTECTION AUTHORITY

South Australia

LICENCE

EPA Licence No: 2189

Licence Co-ordinator: Maryann Woods (8204 2072)

Environmental Authorisation under Part 6 of the Environment Protection Act, 1993

Hills Industries Limited

Postal Address PO Box 378
MELROSE PARK SA 5039

is hereby issued a

Licence to undertake a prescribed activity of environmental significance under Section 36 of the Environment Protection Act, 1993.

The Licensee/s: Hills Industries Limited

Is authorised to undertake the following activity(s) of environmental significance referred to under Schedule 1 of the Act, subject to the conditions below and the Environment Protection Act, 1993 (the Act).

3(4) Activities Producing Listed Waste

carried on at

Morrow Rd, O'SULLIVAN BEACH 5166 SA (the Premises)

This licence will commence on: 01-JUNE-1999

It will expire on: 31-OCT-2001

This licence shall remain in force until the expiry date unless sooner suspended, cancelled or surrendered. It is subject to the following conditions, which must be complied with no later than the date of commencement of this licence unless provided for on the right hand side of the condition in the column marked compliance date.

Conditions: **Compliance Date:**

400-262 Definitions

"Act" means the Environment Protection Act SA 1993 as amended.

"ADG Code" means the Australian Dangerous Goods Code 6th edition.

"Agency" means the body in a State or Territory responsible for administering environment legislation or a body or bodies nominated for that purpose.

"Consignment Authorisation" means an approval which includes a unique identifier granted by an agency or a facility delegated by an agency in the jurisdiction of destination to allow the movement of controlled waste.

Department for Environment, Heritage and Aboriginal Affairs

Environment Protection Agency

Level 5, 6, 7 & 8 Australis House
77 Grenfell Street, Adelaide
South Australia 5000
GPO Box 2607 Adelaide
South Australia 5001 Australia
Contact: Kirsty Evans
Telephone (08) 8204 2036
Freecall 1 800 623 445
Facsimile (08) 8204 2025
Email : kevans@oehaa.sa.gov.au

Ref: EPA 2189

1 June 1999

The Licensee
Hills Industries Limited
PO Box 378
MELROSE PARK SA 5039

Dear Sir/Madam

In June 1998 the National Environment Protection Council produced a National Environment Protection Measure that provides for a system to track the movement of certain types of waste known as controlled wastes between States and Territories.

The Environment Protection Agency (EPA) in South Australia has obligations to implement the Measure. This is to be done through the licensing system by changes to conditions of existing licenses.

You have recently been contacted by an officer of the EPA to explain the changes that will result because of the Measure. It should be emphasised that the new waste codes, outlined in List 1a and 1b of the Schedule in your licence, were introduced on 1 January 1999 and must be entered on all Waste Transport Certificates. Further information will be available to assist you with fulfilling your obligations.

Your licence has been amended (the commence date and conditions) to incorporate the provisions of the Measure and either replaces the licence you currently hold or, in the case of a renewal, the new licence reflects the changes.

Should you wish to obtain any further information regarding the Measure please contact Kirsty Evans on telephone 8204 2036.

Yours faithfully,

Neil Power
Manager – Environment and Water Licensing
ENVIRONMENT PROTECTION AGENCY

Enclosure

Government
of South Australia

"Controlled Waste" means any waste in List 1a or List 1b provided that the waste possesses one or more of the characteristics in List 2. Unless otherwise demonstrated to the satisfaction of the agency in the jurisdiction of destination, wastes in List 1 are considered to possess one or more of the characteristics in List 2.

[Note: Controlled waste for the purposes of this licence and the Environment Protection Act, includes all Listed Waste except the following waste substances:
(i) any waste that is a substance within the meaning of the Dangerous Substances Act 1979; and
(ii) any waste that is a poison within the meaning of the Drugs Act 1908.]

"EPA" means the Environment Protection Authority of South Australia.

"Facility" means a place where Controlled wastes are received.

"Listed Waste" means any waste set out in Part B of Schedule 1 of the Environment Protection Act 1993

"Measure" means the National Environment Protection (Movement of Controlled Wastes across State and Territory Boundaries) Measure.

"Medical Waste" is defined in the Environment Protection (Waste Management) Policy 1994 and includes Clinical Wastes as referred to in the Australian/New Zealand Standard AS/NZS 3816:1998 "Management of Clinical and Related Wastes".

"Producer" means a person who produces Controlled Waste or a person authorised by an agency in the jurisdiction where the Controlled Waste is produced, to act on behalf of the producer.

"Related Wastes" means Cytotoxic waste, Pharmaceutical waste and Chemical waste referred to in the Australian/New Zealand Standard AS NZS 3816:1998 "Management of Clinical and Related Wastes".

"Worksafe Code of Practice for Asbestos" means the Code Of Practice and Guidance Notes for Asbestos published by Worksafe Australia dated August 1988.

400-211 If the name and/or address of the Licensee changes, then the Licensee must inform the Environment Protection Authority within one (1) month of the change occurring.

400-213 1. The last date for an application for renewal of this licence is sixty (60) days before expiry.

2. The last date for payment of the licence fee for a renewed licence period is thirty (30) days before expiry.

400-214 A copy of this licence is to be displayed on a notice board or other suitable place at each place named as a site on which the licensed activities are to be undertaken.

ENVIRONMENT PROTECTION AUTHORITY

South Australia

LICENCE

EPA Licence No: 2189

80-36 - GENERAL CONDITIONS OF LICENCE APPLYING TO PRODUCERS OF LISTED WASTES.

1. Any waste which is a substance within the meaning of the Dangerous Substances Act 1979 and any waste that is a poison within the meaning of the Drugs Act 1908 must be managed in the same manner as if they were a Controlled Waste for the purposes of this licence.

2. All material used in the course of the activity that becomes part of any listed waste must be stored, contained or treated in a manner that does not cause any of the following :
   (a) environmental harm; or
   (b) a risk to health and safety.

3. All listed waste storage containers must be marked to identify the waste contained within them.

4. All containers of listed waste leaving the licensees premises must display safety warnings in accordance with the Australian Code for the Transport of Dangerous Goods.

5. All listed waste leaving the premises must be removed only by a Waste Transporter currently licensed by the EPA.

6. The licensee must not spill listed waste onto soil.

7. No listed waste is permitted to enter any sewerage system or stormwater drain.

8. Before any listed waste leaves the premises the licensee must advise the transporter of the waste of the following matters:
   (a) the nature of the waste;
   (b) any hazards associated with the waste; and
   (c) any precautions to be taken during the collection, transport or disposal of the waste.

9. The licensee must render such assistance as is necessary to prevent the spillage of any listed waste during loading.

10. The licensee must provide such equipment as is necessary to contain and recover any spill at the loading point.

11. The licensee must not mix solid listed waste with liquid listed waste.

[Note : In general, wastes are incompatible if when mixed or otherwise brought into contact, they are likely to interact and increase the risk to human health and/or the environment. If a waste is classified as a dangerous good, the Australian Dangerous Goods Code relating to the mixing of incompatible goods must be observed. Notwithstanding the above, for the purpose of the Measure, mixing incompatible wastes also includes mixing of incompatible liquids and mixing solid waste with liquid waste.].

WHEN WASTE IS TO BE TRANSPORTED TO A DESTINATION WITHIN SOUTH AUSTRALIA.

12 The information set out in Schedule X must be entered on a Waste Transport Certificate by the licensee and the information set out in Schedule Y must be entered by the waste transporter on the same Waste Transport Certificate before any controlled waste on List 1(a) is transported off the licensees premises.

13. The information set out in Schedule A must be entered on a Waste Tracking Form by the licensee and the information set out in Schedule B must be entered by the waste transporter on the same Waste Tracking Form before any controlled waste on List 1(b) is transported off the licensees premises.

14. In the event of a Waste Transport Certificate being required. the licensee must :
(a) retain the green copy of the Waste Transport Certificate for no less than 12 months; and
(b) post or otherwise send the pink copy of the Waste Transport Certificate to the EPA within seven days of collection of the waste; and
(c) give the white, yellow and blue copies of the Waste Transport Certificate to the transporter of the waste at the time of collection.

15. In the event of a Waste Tracking Form being required, the licensee must;
(a) retain the green copy of the Waste Tracking Form for no less than 12 months; and
(b) give the yellow and blue copies of the Waste Tracking Form to the transporter of the waste at the time of collection.

WHEN CONTROLLED WASTE IS TO BE TRANSPORTED TO A DESTINATION OTHER THAN WITHIN SOUTH AUSTRALIA.

16. The information set out in Schedule X must be entered on a Waste Transport Certificate by the licensee and the information set out in Schedule Y must be entered by the waste transporter on the same Waste Transport Certificate before any controlled waste on Lists 1(a) or 1(b) is transported off the licensees premises.

17. The licensee must;
(a) retain the green copy of the Waste Transport Certificate for no less than 12 months; and
(b) post or otherwise send the green "Tear-Off" slip to the environment Regulatory Authority or a delegated facility in the State or Territory to which the waste is to be taken; and
(c) post or otherwise send the pink copy of the Waste Transport Certificate to the EPA within seven days of collection of the waste; and
(d) give the white, yellow and blue copies of the Waste Transport Certificate to the transporter of the waste at the time of collection.

18. No controlled waste destined for another State or Territory is permitted to be removed from the Licensees premises unless a Consignment Authorisation has been obtained by the Licensee from an agency in the jurisdiction of destination or from a facility delegated by that agency prior to the collection of such wastes.

19. The licensee must confirm that the waste transporter is appropriately licensed in all States or Territories through which the controlled waste will be transported.

400-203 Listed Waste Producer only :
The Environment Protection Authority may impose or vary conditions during the term

of this licence relating to handling and disposal of listed wastes.

400-215 The Licensee must ensure that every employee, agent or contractor responsible for carrying out any task controlled by this licence is properly advised as to the requirements of this licence and the general environmental duty under Section 25 of the Environment Protection Act 1993 that relate to that person's tasks and responsibilities as employee, agent or contractor.

400-212 PROCESS CHANGE - CONSENT for CERTAIN WORKS.

1. During the term of this licence, the Licensee shall not carry out works for the construction or alteration of a building or structure or the installation or alteration of plant or equipment for use for an activity the subject of this licence where such works or alterations are likely to result in :

   (a) an alteration of the process by which the pollution or waste arising from the activity occurs; or

   (b) an increased level of, or change in the nature of, the pollution or waste arising from the activity; or

   (c) a relocation of the point of discharge of pollution or waste at the site the subject of this licence; without application for and subsequent approval from the Environment Protection Authority (the Authority).

2. Upon application for the construction, installation or alteration of works the Licensee must provide details to the satisfaction of the Authority, to enable an appropriate assessment of the environmental impact of the proposed works to be made.

400-210 Where a Licensee (or a relevant related entity for a member of a corporate group):

1. has an annual report available to the Australian Securities Commission, shareholders or otherwise publicly available, a copy of this report is to be provided to the Environment Protection Authority (the Authority) within one (1) month of it becoming publicly available;

2. has an environmental policy relating to reporting of incidents, handling public complaints or requirements for environment protection practices relating to pollution and waste, a copy of this policy to be provided to the Authority within one (1) month of being issued a Licence unless the Authority agrees that the policy is not required to be provided.

400-201 The Environment Protection Authority may during the term of this licence impose or vary conditions :

1. in relation to testing, monitoring and reporting referred to in Section 52(1)(a) of the Environment Protection Act 1993 (the 'Act');

2. which require the Licensee, in accordance with Section 53 of the Act, to prepare a plan of action to be taken in the event of an emergency;

ENVIRONMENT PROTECTION AUTHORITY

South Australia

LICENCE

EPA Licence No: 2189

3. which require the Licensee to develop an Environment Improvement Programme (EIP) as set out in Section 54 of the Act and to comply with the requirements of the EIP;

4. in relation to any activity the conduct of which has not required a licence relating to protection of the environment prior to the commencement of the Act;

5. which relate to provision of information relating to the Licensee or any agent or contractor operating on behalf of the Licensee;

6. which relate to provision of information relating to the activity subject to the licence including the levels of inputs and outputs and the amounts of pollutants or waste generated by the activity.

This licence is not valid unless signed below.

For Office use only
Date Issued:17-Jun-1999

Delegate
Environment Protection Authority
Date: 23/6/99

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

Receipt No :
Admin No : 84843 (59094)

WSP Australia Pty Limited
Level 1
1 King William Street
ADELAIDE SA 5000

Contact: Section 7
Telephone: (08) 8204 2026
Email: epasection7@sa.gov.au

Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

30 June, 2020

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference CT Volume 6214 Folio 427
Address 36-70 Gumeracha Road, O'SULLIVAN BEACH SA 5166

Summary of land use:
Automotive Component Manufacture

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO

7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO
7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or[1]	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or[1]	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or[1]	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or[1]	**YES**
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO

[1] Note Schedule 1 Part A of the Environment Protection Act 1993 changed on 1 June 2019. Land and Business (Sale and Conveyancing) Regulations 2010 references to a 'waste or recycling depot' under 'clause 3(3)' are out of date and are to be read instead as clause 3(1), 3(2), 3(3)(a), 3(3)(b), 3(5)(b) or 3(5)(c) or a combination of them from 1 June 2019. Similarly, references to 'activities producing listed wastes' under 'clause 3(4)' are out of date and are to be read instead as clause 3(5)(a) from 1 June 2019.

f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	**YES**
h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	**YES**

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO

b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO
d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

Details and/or copies of environmental assessments, licences,exemptions and records on the Public Register may be obtained from the Environment Protection Authority.

Prior to arranging an examination and/or copies of the required above information please telephone (08) 8204 9128 to contact the Public Register Administrator to ensure the required details are available upon arrival.

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

File Reference: EPA/2189; EPA/12370; EPA/13694; P0107; P0245

NOTE

This parcel of land was used by a business or company who in the course of an industrial or commercial process or a teaching or research activity produced prescribed (hazardous) waste.

Waste Produced

Alkalis And Alkaline Solutions
Oils
Paint Sludges And Residues

ENVIRONMENT PROTECTION AUTHORITY
SOUTH AUSTRALIA

Environmental Authorisation under Part 6 of the Environment Protection Act 1993

LICENCE

EPA 12370

Walker Australia Pty Ltd

PO Box 216
LONSDALE SA 5160

Location

Allotment 100 (FP 32358) and Allotment 19 (FP 152595) Morrow Road, O'SULLIVAN BEACH 5166 SA

Licensed Activities

The Licensee(s)

- Walker Australia Pty Ltd

is (are) authorised to undertake the following activities of environmental significance under Schedule 1 Part A of the Environment Protection Act 1993 (the Act), subject to the conditions of licence set out in the attached pages:

3(4) Activities Producing Listed Wastes

Term of Licence

Commence Date: 01-OCT-2012

Expiry Date: 30-SEP-2017

Delegate
Environment Protection Authority 10 October 2012

This licence is not valid unless signed Conditions of licence to follow

Definitions

"THE ACT" means the Environment Protection Act 1993.

"THE AUTHORITY" means the Environment Protection Authority established under Division 1 of Part 3 of the Act.

"THE PREMISES" means, at the time of issue of this authorisation, the whole of the land comprised in Titles Register - Certificate of Title, Crown Lease and Crown Record:

List of Titles
CT 5084/707
CT 5779/940

"AUTHORISATION FEE PAYMENT DATE" means the anniversary of the grant or renewal of this authorisation.

"CONSIGNMENT AUTHORISATION" means an approval which includes a unique identifier granted by an agency or a facility delegated by an agency in the jurisdiction of destination to allow the movement of Controlled Waste.

"CONTROLLED WASTE" Waste as defined in the National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure 1998.

"LIQUID WASTE" means waste classified as liquid waste in accordance with the assessment process set out in the guideline Liquid waste classification test, 2003.
NOTE: Liquid waste that is liquid at 20 degrees Celcius regardless of whether or not it is packaged or otherwise contained, and irrespective of whether or not the packaging or container is to be disposed of together with the liquid that it contains.

"LISTED WASTE" means wastes listed in Part B of Schedule 1 of the Environment Protection Act 1993.

Acronyms

"EPA" means Environment Protection Authority.

"EIP" means Environment Improvement Programme.

"WTC" means Waste Transport Certificate.

"WTF" means Waste Tracking Form.

Explanatory Notes

(NB. - Explanatory Notes do not constitute a part of this Authorisation)

1. This licence does not permit any activity in breach of any other approval by any other authority. For example, this licence does not permit any activity on the Premises which is not authorised under the Development Act 1993. It is the responsibility of the Licensee to ensure that any action or activity referred to in this licence is permitted by, and is carried out in compliance with, statutory requirements.

2. This licence is subject to the Act.

3. PUBLIC REGISTER INFORMATION.
The Environment Protection Authority maintains a Public Register that is available to the public. Information maintained includes issued Environmental Authorisations (Licences, Exemptions & Works Approvals), Emergency Authorisations and various submitted Applications.
Should the conditions of an Environmental Authorisation require that the Holder submit a report or other information to the Authority, then that submitted information is made available on the Public Register subject to commercial confidentiality.
Endorsed Public Register information may be available on the EPA website.

4. Conditions of this licence can be varied by the Authority in accordance with section 45 of the Act.

5. This licence can be suspended, cancelled or surrendered during the term of the licence in accordance with sections 55 and 56 of the Act.

6. The Licensee must report to the Authority (on EPA emergency phone number 1800 100 833) all incidents causing or threatening serious or material environmental harm, upon becoming aware of the incident, in accordance with section 83 of the Act.
Note - In the event that the primary emergency phone number is out of order, phone the secondary number (08) 8204 2004.

7. The Licensee must be aware of, and comply with:
1. the requirements of the Environment Protection Policies which operate pursuant to the Act; and
2. the requirements of any National Environment Protection Measure which operates as an Environment Protection Policy under the Act.
NB: These requirements govern permissible procedures and protocols, emission or concentration levels, as well as operation and/or maintenance standards of plant and equipment.

8. The Authority undertakes to provide written advice within 14 days of receipt of all information required for assessment.

CONDITIONS OF LICENCE

The Licensee is authorised to conduct the prescribed activities as described in this licence on the Premises nominated, subject to the following conditions:

Compliance Date

Listed Waste Management Condition(s)

1. (80-43) LISTED WASTE TO BE TRANSPORTED WITHIN SA

1. The Licensee must not cause or permit any waste on list 1, attached to this licence, to be removed from the Premises for transport to a place within South Australia unless:

1.1 the Licensee has completed Part 1 of a WTC regarding that waste; and

1.2 the transporter has completed Part 2 of that WTC, and

1.3 the transporter has provided the pink and green copy of that WTC (with parts 1 and 2 completed) to the Licensee.

2. The licensee must:

2.1 retain the green copy of WTCs for no less than 12 months; and

2.2 provide the white, yellow and blue copies of the WTC (with parts 1 and 2 completed) to the transporter at the time of collection of the waste; and

2.3 provide the pink copy of the WTC (with parts 1 and 2 completed) to the Authority within seven days of collection of the waste.

3. The Licensee must not cause or permit any waste on list 2, attached to this licence, to be collected from the Premises for transport to a place within South Australia unless a WTF is completed regarding that waste.

4. The Licensee must retain the green copy of WTFs for not less than 12 months.

2. (80-44) PRODUCTION OF CONTROLLED WASTE TO BE TRANSPORTED FROM SA TO ANOTHER STATE OR TERRITORY

1. The Licensee not cause or permit any Controlled Waste, as detailed in the list attached to this licence, to be collected from the Premises for transport to a place outside South Australia unless:

1.1. The licensee has:

1.1.1. obtained a consignment authorisation from the appropriate environmental agency in the state or territory of destination of that waste, and

1.1.2. completed Part 1 of WTC regarding that waste, and

1.2. The transporter has:

1.2.1. completed Part 2 of that WTC, and

1.2.2. has provided the pink and green copy of that WTC (with parts 1 and 2 completed) to the Licensee.

2. The licensee must:

2.1. retain the green copy of WTCs for no less than 12 months, and

2.2. Provide the white, yellow and blue copies of the WTC (with parts 1 and 2 completed) to the transporter at the time of collection of the waste, and

2.3. provide the pink copy of the WTC (with parts 1 and 2 completed) to the Authority within seven days of collection of that waste, and

2.4. complete the green tear off slip at the bottom of the WTC and provide it to the appropriate environmental agency in the state or territory of destination of that waste within seven days of collection of that waste.

3. (80-45) LISTED WASTE MANAGEMENT

The Licensee must:

1. store listed waste in accordance with the relevant Australian Standards that applies to that waste;

2. ensure that listed waste is transported to a waste depot licensed by the Authority to receive that waste by:

2.1 a person who is licensed by the Authority to transport that waste; or

2.2 a person who is not transporting that waste for fee or reward;

3. provide an emergency spill kit at the collection and loading point of listed waste; and

4. store any substances that, by their nature or amount, have the potential to cause environmental harm to surface waters or groundwater, in accordance with the EPA Guideline entitled 'Bunding and Spill Management' updated June 2007.

General Administrative Condition(s)

4. (400-338) CHANGE OF LICENSEE DETAILS

If the Licensee's name or postal address (or both) changes, then the Licensee must inform the Authority within 28 days of the change

occurring.

5. (400-339) DISPLAY LICENCE

The Licensee must display a copy of this licence on a notice board at the Premises.

6. (400-215) LICENCE INFORMATION TO EMPLOYEES/CONTRACTORS

The Licensee must ensure that every employee, agent or contractor responsible for carrying out any task controlled by this licence is properly advised as to the requirements of this licence and the general environmental duty under section 25 of the Act that relate to that person's tasks and responsibilities as employee, agent or contractor.

7. (400-201) IMPOSE OR VARY CONDITIONS

The Authority may during the term of this licence impose or vary conditions:

1. in relation to testing, monitoring and reporting referred to in section 52(1)(a) of the Act;

2. which require the Licensee, in accordance with section 53 of the Act, to prepare a plan of action to be taken in the event of an emergency;

3. which require the Licensee to develop an EIP as set out in section 54 of the Act and to comply with the requirements of the EIP;

4. which relate to provision of information relating to the Licensee or any agent or contractor undertaking any activity on behalf of the Licensee pursuant to this licence; and

5. which relate to provision of information relating to the activity subject to the licence including the levels of inputs and outputs and the amounts of pollutants or waste generated by the activity.

8. (400-347) CHANGE to PROCESS EMISSIONS or WASTE

The Licensee must:

1. not undertake changes to operating processes at the Premises without written approval from the Authority, where such changes:

1.1 have the potential to increase the emissions, or alter the nature, of

pollutants or waste currently generated by or from the licensed activity; or

1.2 have the potential to increase the risk of environmental harm; or

1.3 would relocate the point of discharge of pollution or waste at the Premises;

2. ensure that written application is submitted to the Authority on the EPA form entitled 'Application for Change to Process Emissions or Waste', that details the proposed changes; and

3. pay the prescribed application fee indicated on the Application form.

NOTES.

A. The Authority may during the term of this licence impose or vary the conditions of this authorisation upon approval of an application made in accordance with this condition.

B. The 'Application for Change to Process Emissions or Waste' form is available on the EPA website at - http://www.epa.sa.gov.au/xstd_files/Licensing/Form/06_process_change.pdf.

9. (400-348) ALTERATIONS to PLANT and EQUIPMENT

The Licensee must:

1. not construct or alter a building or structure, or, install or alter any plant or equipment at the Premises, without written approval from the Authority, where such changes:

1.1 have the potential to increase the emissions, or alter the nature of pollutants or waste currently generated by, or from the licensed activity, or

1.2 have the potential to increase the risk of environmental harm, or

1.3 would relocate the point of discharge of pollution or waste at the Premises;

2. ensure that written application is submitted to the Authority on the EPA form entitled 'Application for Alterations to Plant and Equipment' that details the proposed changes; and

3. pay the prescribed application fee indicated on the Application form.

NOTES.

A. The Authority may during the term of this licence impose or vary the conditions of this authorisation upon approval of an application made in accordance with this condition.

B. The 'Application for Alterations to Plant and Equipment' form is available on the EPA website at - http://www.epa.sa.gov.au/xstd_files/Licensing/Form/06_equipment_change.pdf.

C. In some circumstances installation of plant and equipment may be subject to consent under the provisions of the Development Act, which may have priority over the obligations of this condition - check with the licence coordinator for advice prior to completing the Application form.

10. (400-78) ANNUAL RETURN PROCESS

The Licensee must:

1. submit an annual return at least 90 days before the authorisation fee payment date, if this licence is for a term of two years or more; and

2. pay the annual authorisation fee by the authorisation fee payment date.

11. (400-79) LICENCE RENEWAL PROCESS

An application for renewal of this licence must be made at least 90 days before the expiry date of this licence.

Delegate

Environment Protection Authority

Date 10-OCTOBER-2012

There are 2 attachments to this Licence

List 1

Listed Waste – Part B of Schedule 1 to the Environment Protection Act 1993
Requiring provision of Waste Tracking Certificate (WTC)

Acids and acidic solutions
Adhesives (excluding solid inert polymeric materials)
Alkali metals and alkaline earth metals
Alkalis and alkaline solutions
Antimony and antimony compounds and solutions
Arsenic and arsenic compounds and solutions
Asbestos
Barium compounds and solutions
Beryllium and beryllium compounds
Boron and boron compounds
Cadmium and cadmium compounds and solutions
Calcium carbide
Carbon disulphide
Carcinogens teratogens and mutagens
Chlorates
Chromium compounds and solutions
Copper compounds and solutions
Cyanides or cyanide solutions and cyanide complexes
Cytotoxic wastes
Dangerous substances within the meaning of the *Dangerous Substances Act 1979*
Distillation residues
Fluoride compounds
Halogens
Heterocyclic organic compounds containing oxygen, nitrogen or sulphur
Hydrocarbons and their oxygen, nitrogen and sulphur compounds (including oils)
Isocyanate compounds (excluding solid inert polymeric materials)
Laboratory chemicals
Lead compounds and solutions
Lime sludges or slurries
Manganese compounds
Medical waste consisting of—

(a) a needle, syringe with needle, surgical instrument or other article that is discarded in the course of medical*, dental or veterinary practice or research and has a sharp edge or point capable of inflicting a penetrating injury on a person who comes into contact with it; or
(b) human tissue, bone, organ, body part or foetus; or
(c) a vessel, bag or tube containing a liquid body substance; or
(d) an animal carcass discarded in the course of veterinary or medical* practice or research; or
(e) a specimen or culture discarded in the course of medical*, dental or veterinary practice or research and any material that has come into contact with such a specimen or culture; or
(f) any other article or matter that is discarded in the course of medical*, dental or veterinary practice or research and that poses a significant risk to the health of a person who comes into contact with it.

* ***medical practice*** *includes the practice of pathology and the operation of an immunisation clinic.*

Mercaptans
Mercury compounds and equipment containing mercury
Nickel compounds and solutions

List 1 (continued)

Listed Waste – Part B of Schedule 1 to the Environment Protection Act 1993
Requiring provision of Waste Tracking Certificate (WTC)

Nitrates
Organic halogen compounds (excluding solid inert polymeric materials)
Organic phosphates
Organic solvents
Organometallic residues
Oxidising agents
Paint sludges and residues
Perchlorates
Peroxides
Pesticides (including herbicides and fungicides)
Pharmaceutical wastes and residues
Phenolic compounds (excluding solid inert polymeric materials)
Phosphorus and its compounds
Polychlorinated biphenyls
Poisons within the meaning of the *Drugs Act 1908*
Reactive chemicals
Reducing agents
Selenium and selenium compounds and solutions
Silver compounds and solutions
Solvent recovery residues
Sulphides and sulphide solutions
Surfactants
Thallium and thallium compounds and solutions
Vanadium compounds
Zinc compounds and solutions

List 2

Wastes Requiring provision of Waste Tracking Form (WTF)

Water based paints
Waste oil
Oil/water mixtures
Wool scouring waste
Grease trap waste
Intermediate landfill cover (contaminated soil)
Waste tyres

Controlled Waste

Controlled Waste – per the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure

Requiring provision of Waste Transport Certificate (WTC) from the State where waste originates

Waste stream or wastes having as constituents:

Acidic solutions or acids in solid form
Animal effluent and residues (abattoir effluent, poultry and fish processing waste)
Antimony; antimony compounds
Arsenic; arsenic compounds
Asbestos
Barium compounds (excluding barium sulphate)
Basic solutions or bases in solid form
Beryllium; beryllium compounds
Boron compounds
Cadmium; cadmium compounds
Ceramic-based fibres with physico-chemical characteristics similar to those of asbestos
Chlorates
Chromium compounds (hexavalent and trivalent)
Clinical and related wastes
Cobalt compounds
Containers which are contaminated with residues of substances referred to in this list
Copper compounds
Cyanides (inorganic)
Cyanides (organic)
Cyanides (organic) / nitriles
Encapsulated, chemically-fixed, solidified or polymerised wastes referred to in this list
Ethers
Filter cake contaminated with residues of substances referred to in this list
Fire debris and fire washwaters
Fly ash, excluding fly ash generated from Australian coal fired power stations
Grease trap waste
Halogenated organic solvents
Highly odorous organic chemicals (including mercaptans and acrylates)
Inorganic fluorine compounds excluding calcium fluoride
Inorganic sulfides
Isocyanate compounds
Lead; lead compounds
Mercury; mercury compounds

Per December 2010 NEPM Variation

Controlled Waste (continued)

Controlled Waste – per the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure

Requiring provision of Waste Transport Certificate (WTC) from the State where waste originates

Waste stream or wastes having as constituents:

Metal carbonyls
Nickel compounds
Non toxic salts
Organic phosphorus compounds
Organic solvents excluding halogenated solvents
Organohalogen compounds - other than substances referred to in this list
Oxidising agents
Perchlorates
Phenols, phenol compounds including chlorophenols
Phosphorus compounds excluding mineral phosphates
Polychlorinated dibenzo-furan (any congener)
Polychlorinated dibenzo-p-dioxin (any congener)
Reactive chemicals
Reducing agents
Residues from industrial waste treatment/disposal operations.
Selenium; selenium compounds
Soils contaminated with a controlled waste
Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials
Tannery wastes (including leather dust, ash, sludges and flours)
Tellurium, tellurium compounds
Thallium; thallium compounds
Triethylamine catalysts for setting foundry sands
Tyres
Vanadium compounds
Waste chemical substances arising from research and development or teaching activities including those which are not identified and/or are new and whose effects on human health and/or the environment are not known
Waste containing peroxides other than hydrogen peroxide
Waste from heat treatment and tempering operations containing cyanides
Waste from the manufacture, formulation and use of wood-preserving chemicals
Waste from the production, formulation and use of biocides and phytopharmaceuticals
Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish
Waste from the production, formulation and use of organic solvents
Waste from the production, formulation and use of photographic chemicals and processing materials
Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives
Waste from the production and preparation of pharmaceutical products
Waste mineral oils unfit for their original intended use
Waste oil/water, hydrocarbons/water mixtures or emulsions
Waste pharmaceuticals, drugs and medicines
Waste resulting from surface treatment of metals and plastics
Waste tarry residues arising from refining, distillation, and any pyrolytic treatment
Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated naphthalenes (PCNs), polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)
Waste of an explosive nature not subject to other legislation
Wool scouring waste
Zinc compounds

ENVIRONMENT PROTECTION AUTHORITY
SOUTH AUSTRALIA

Environmental Authorisation under Part 6 of the Environment Protection Act 1993

LICENCE

EPA 13694

Orrcon Pty Ltd

Allotment 19 29 Morrow Road
O'SULLIVAN BEACH SA 5166

Location

Morrow Road, O'SULLIVAN BEACH 5166 SA

Licensed Activities

The Licensee(s)

- Orrcon Pty Ltd

is (are) authorised to undertake the following activities of environmental significance under Schedule 1 Part A of the Environment Protection Act 1993 (the Act), subject to the conditions of licence set out in the attached pages:

3(4) Activities Producing Listed Waste

Term of Licence

Commence Date: 01-NOV-2003

Expiry Date: 31-OCT-2006

Delegate
Environment Protection Authority

30 December 2003

This licence is not valid unless signed

Conditions of licence to follow

Definitions

"the Act" means the Environment Protection Act 1993.

"the Authority" means the Environment Protection Authority established under Division 1 of Part 3 of the Act.

"the Premises" means, at the time of issue of this authorisation, the whole of the land comprised in Titles Register - Certificate of Title, Crown Lease and Crown Record:

List of Titles

CT 5084/707
CT 5779/940

"ADG Code" means the Australian Dangerous Goods Code 6th Edition.

"Consignment Authorisation" means an approval which includes a unique identifier granted by an agency or a facility delegated by an agency in the jurisdiction of destination to allow the movement of Controlled Waste.

"Controlled Waste" means any waste in List 1a or List 1b provided that the waste possesses one or more of the characteristics in List 2. Unless otherwise demonstrated to the satisfaction of the Agency in the jurisdiction of destination, wastes in Lists 1a & 1b are considered to possess one or more characteristics in List 2.

"Controlled Waste Measure" means the National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure established under the National Environment Protection Council (South Australia) Act 1998.

"Facility" means a place where Controlled Wastes are received.

"Liquid Waste" means waste classified in accordance with the assessment process set out in EPA Guideline entitled 'Liquid waste classification test' re-issued March 2003.

"Listed Waste" means any waste listed in Schedule 1 Part B of the Act.

Acronyms

"EIP" means Environment Improvement Programme.

"WTC" means Waste Transport Certificate.

"WTF" means Waste Tracking Form.

Explanatory Notes

1. This licence does not permit any activity in breach of any other approval by any other authority. For example, this licence does not permit any activity on the Premises which is not authorised under the Development Act 1993. It is the responsibility of the Licensee to ensure that any action or activity referred to in this licence is permitted by, and is carried out in compliance with, statutory requirements.

2. This licence is subject to the Act.

3. Conditions of this licence can be varied by the Authority at any time in accordance with section 45 of the Act.

4. This licence can be suspended, cancelled or surrendered during the term of the licence in accordance with sections 55 and 56 of the Act.

5. Any rights of renewal may be lost if the following requirement under the Act is not met:

   The Licensee must lodge with the Authority an application for renewal no less than 60 days prior to the date on which this licence expires. [Regulation 7(1)(b) Environment Protection (General) Regulations 1994].

6. 1. The Licensee must be aware of, and comply with:

   1.1 the requirements of the Environment Protection Policies which operate pursuant to the Act; and
   1.2 the requirements of any National Environment Protection Measure which operates as an Environment Protection Policy under the Act.

   2. These requirements govern permissible procedures and protocols, emission or concentration levels, as well as operation and/or maintenance standards of plant and equipment.

CONDITIONS OF LICENCE

The Licensee is authorised to conduct the prescribed activities as described in this licence on the Premises nominated, subject to the following conditions:

Compliance Date

1. (80-36) PRODUCERS OF LISTED WASTES

1. The Licensee must ensure that any waste which is a substance within the meaning of the Dangerous Substances Act 1979 and any waste that is a poison within the meaning of the Drugs Act 1908 is managed in the same manner as if it was a Controlled Waste for the purposes of this licence.

2. The Licensee must store, contain and treat all material used in the course of the activity that becomes part of any Listed Waste in a manner that does not cause either of the following:

2.1 environmental harm; or

2.2 a risk to health and safety.

3. The Licensee must mark all Listed Waste storage containers to identify the waste contained within them.

4. The Licensee must ensure that all containers of Listed Waste leaving the Premises displays safety warnings in accordance with the ADG Code.

5. The Licensee must ensure that all Listed Waste leaving the Premises is removed only by a waste transporter currently licensed by the Authority.

6. The Licensee must not spill Listed Waste onto soil.

7. The Licensee must not permit Listed Waste to enter any sewerage system or stormwater drain.

8. Before any Listed Waste leaves the Premises, the Licensee must advise the transporter of the waste of the following matters:

8.1 the nature of the waste;

8.2 any hazards associated with the waste; and

8.3 any precautions to be taken during the collection, transport or disposal of the waste.

9. The Licensee must render such assistance as is necessary to prevent the spillage of any Listed Waste during loading.

10. The Licensee must provide such equipment as is necessary to contain and recover any spill at the loading point.

11. The Licensee must not mix solid Listed Waste with liquid Listed Waste.

NOTE: In general, wastes are incompatible if, when mixed or otherwise brought into contact, they are likely to interact and increase the risk to human health and/or the environment. If a waste is classified as a dangerous good, the ADG Code relating to the mixing of incompatible goods must be observed. Notwithstanding the above, for the purpose of the Controlled Waste Measure, mixing incompatible wastes also includes mixing of incompatible liquids and mixing solid waste with Liquid Waste.

WHEN WASTE IS TO BE TRANSPORTED TO A DESTINATION WITHIN SOUTH AUSTRALIA

12. The Licensee must enter the information set out in Schedule X on a WTC and ensure that the information set out in Schedule Y is entered by the waste transporter on the same WTC before any Controlled Waste on List 1a is transported off the Premises.

13. The Licensee must enter the information set out in Schedule A on a WTF and ensure that the information set out in Schedule B is entered by the waste transporter on the same WTF before any Controlled Waste on List 1b is transported off the Premises.

14. In the event of a WTC being required, the Licensee must:

14.1 retain the green copy of the WTC for no less than 12 months;

14.2 post or otherwise send the pink copy of the WTC to the Authority within seven days of collection of the waste; and

14.3 give the white, yellow and blue copies of the WTC to the transporter of the waste at the time of collection.

15. In the event of a WTF being required, the Licensee must:

15.1 retain the green copy of the WTF for no less than 12 months; and

15.2 give the yellow and blue copies of the WTF to the transporter of the waste at the time of collection.

WHEN CONTROLLED WASTE IS TO BE TRANSPORTED TO A DESTINATION OTHER THAN WITHIN SOUTH AUSTRALIA

16. The Licensee must enter the information set out in Schedule X on a WTC and ensure that the information set out in Schedule Y is entered by the waste transporter on the same WTC before any Controlled Waste on Lists 1a or 1b is transported off the Premises.

17. The Licensee must:

17.1 retain the green copy of the WTC for no less than 12 months;

17.2 post or otherwise send the green 'Tear-Off' slip to the environment Regulatory Authority or a delegated facility in the State or Territory to which the waste is to be taken;

17.3 post or otherwise send the pink copy of the WTC to the Authority within seven days of collection of the waste; and

17.4 give the white, yellow and blue copies of the WTC to the transporter of the waste at the time of collection.

18. The Licensee must not permit Controlled Waste destined for another State or Territory to be removed from the Premises unless a Consignment Authorisation has been obtained by the Licensee from an agency in the jurisdiction of destination or from a facility delegated by that agency prior to the collection of such wastes.

19. The Licensee must confirm that the waste transporter is appropriately licensed in all States or Territories through which the Controlled Waste will be transported.

2. (400-203) LISTED WASTE PRODUCER ONLY

The Authority may impose or vary conditions during the term of this licence relating to handling and disposal of Listed Wastes.

3. (400-211) If the Licensee's name or address (or both) changes, then the Licensee must inform the Authority within one month of the change occurring.

4. (400-214) The Licensee must display a copy of this licence on a notice board or other suitable place at the Premises.

5. (400-215) The Licensee must ensure that every employee, agent or contractor responsible for carrying out any task controlled by this licence is properly advised as to the requirements of this licence and the general environmental duty under section 25 of the Act that relate to that person's tasks and responsibilities as employee, agent or contractor.

6. (400-212) PROCESS CHANGE - CONSENT FOR CERTAIN WORKS

1. The Licensee must not carry out works for the construction or alteration of a building or structure, or the installation or alteration of plant or equipment for use in the course of any activity undertaken pursuant to this licence, where such works, installations or alterations are likely to result in:

1.1 an alteration of the process by which the pollution or waste arising from the activity occurs; or

1.2 an increased level, or change in the nature, of the pollution or waste arising from the activity; or

1.3 a relocation of the point of discharge of pollution or waste at the Premises,

without application for, and subsequent approval from, the Authority.

2. The Licensee must, upon application for the construction, installation or alteration of works, provide details to the Authority to enable the Authority to make an assessment of the environmental impact of the proposed works to be undertaken.

7. (400-201) The Authority may during the term of this licence impose or vary conditions:

1. in relation to testing, monitoring and reporting referred to in section 52(1)(a) of the Act;

2. which require the Licensee, in accordance with section 53 of the Act, to prepare a plan of action to be taken in the event of an emergency;

3. which require the Licensee to develop an EIP as set out in section 54 of the Act and to comply with the requirements of the EIP;

4. which relate to provision of information relating to the Licensee or any agent or contractor undertaking any activity on behalf of the Licensee pursuant to this licence; and

5. which relate to provision of information relating to the activity subject to the licence including the levels of inputs and outputs and the amounts of pollutants or waste generated by the activity.

8. (400-73) The Licensee must pay the fee for renewal of this licence by no later than 30 days before expiry.

9. (400-85) 1. The Licensee must:

1.1 notify the Authority as soon as reasonably practical but in any case within two hours of becoming aware of an incident which results in the release of solid, liquid or gas (or a combination thereof) at the Premises that is not specifically authorised by this licence and is not trivial due to the following:

1.1.1 plant or equipment breakdown or malfunction;

1.1.2 power generation failure;

1.1.3 pipe or pipeline breakage;

1.1.4 storage container or vessel fracture;

1.1.5 bund fracture, leakage or overflow;

1.1.6 a physical or chemical reaction;

1.1.7 transportation vehicle breakdown, or malfunction;

1.1.8 using plant or equipment for a purpose for which it was not designed;

1.1.9 operating or maintaining plant, vehicles or equipment in an improper manner; or

1.1.10 failure to process, handle, move or store goods and or materials in a proper manner.

An example of a trivial incident that does not need to be reported, is one that results in a minor release that is ordinarily expected to occur despite the existence of a proper maintenance programme and procedures.

1.2 notify the Authority as soon as reasonably practicable, but in any case within two hours of becoming aware of the incident referred to in paragraph 1.1, of the following:

1.2.1 the location of the incident;

1.2.2 the time and date of the incident;

1.2.3 the nature of the release;

1.2.4 the Licensee's name; and

1.2.5 the name and telephone number of the designated contact person.

2. The Licensee is not required to notify the Authority of incidents described in paragraph 1 if the incident results from damage to a water main or pipeline connected to the water supply that is operated by SA Water.

NOTES:

(1) The telephone number to contact the Authority to report the incident is Freecall 1800 100 833.

(2) The above telephone number is available for use 24 hours a day, seven days a week. This number will work from mobile phones.

Delegate

Environment Protection Authority **30 December 2003**

Date

End of Licence Document with the exception of any Attachments

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

G.P.O. BOX 2607 ADELAIDE 5001

APPLICATION/ANNUAL RETURN PRESCRIBED WASTE LICENCE

583185

OFFICE USE ONLY

CHEQUE $ 27-00
RECEIVED 13/5 DSL
LIST UPDATED ✓
COMPUTER UPDATED ✓
CHECKED
SECT. 90

NAME AND POSTAL ADDRESS

Hills Industries Ltd
PO Box 378
MELROSE PARK 5039

I wish to advise that the annual fee for the licence referred to above is now due.

Please complete both sides of the form, sign and return to this office with the prescribed fee.

In the event of a variation in licence details, please amend the form before it is returned.

LICENCE NUMBER (OFFICE USE ONLY)		P0107	PAYMENT OF FEE DUE BY 31-May-1994
LICENSEE		Hills Industries Ltd	
PLACE(S) AT WHICH THE WASTE IS GENERATED	PLACE 1	944 South Rd EDWARDSTOWN 5039 ASSESSMENT NUMBER 1	
	PLACE 2	Morrow Rd O'SULLIVAN BEACH 5166 ASSESSMENT NUMBER 2	
ASSESSMENT NUMBERS MAY BE FOUND ON E. & W. S. WATER & SEWERAGE ACCOUNT	PLACE 3	ASSESSMENT NUMBER 3	
	PLACE 4	ASSESSMENT NUMBER 4	
	PLACE 5	ASSESSMENT NUMBER 5	
PERSON TO BE CONTACTED FOR ENQUIRIES		NAME GAVIN ASIKAS PLANT CHEMIST	TEL. NO. (08) - 301 3200
PRESCRIBED FEE	$	27	

SIGNATURE

DATE 9 / 5 / 94

K. G. FOGGO

NAME

M. R. HARVEY
MANAGER
MATERIALS RECYCLING AND WASTE

SECOND SCHEDULE
PRESCRIBED WASTE

Acids and acidic solutions
Adhesives (excluding solid inert polymeric materials)
Alkali metals and alkaline earth metals
Alkalis and alkaline solutions
Antimony and antimony compounds and solutions
Arsenic and arsenic compounds and solutions
Asbestos
Barium compounds and solutions
Beryllium and beryllium compounds
Boron and boron compounds
Cadmium and cadmium compounds and solutions
Calcium carbide
Carbon disulphide
Carcinogens, teratogens and mutagens
Chlorates
Chromium compounds and solutions
Copper compounds and solutions
Cyanides or cyanide solutions and cyanide complexes
Cytotoxic wastes
Dangerous substances within the meaning of the Dangerous Substances Act, 1979
Distillation residues
Fluoride compounds
Halogens
Heterocyclic organic compounds containing oxygen, nitrogen or sulphur
Hydrocarbons and their oxygen, nitrogen and sulphur compounds (excluding oils)
Isocyanate compounds (excluding solid inert polymeric materials)
Laboratory chemicals
Lead compounds and solutions
Lime sludges or slurries
Manganese compounds
Medical Wastes
Mercaptans
Mercury, mercury compounds and equipment containing mercury
Metal finishing effluent and residues
Nickel compounds and solutions
Nitrates
Oil Refinery wastes
Organic halogen compounds (excluding solid inert polymeric materials)
Organic phosphates
Organic solvents
Organometallic residues
Oxidizing agents
Paint sludges and residues
Perchlorates
Peroxides
Pesticides (including herbicides & fungicides)
Pharmaceutical wastes and residues
Phenolic compounds (excluding solid inert polymeric materials)
Phosphorus and its compounds
Polychlorinated biphenyls
Poisons within the meaning of the Drugs Act, 1908
Reactive chemicals
Reducing agents
Selenium and selenium compounds and solutions
Silver compounds and solutions
Solvent recovery residues
Sulphides and sulphide solutions
Surfactants
Thallium and thallium compounds and solutions
Timber preservative residues
Vanadium compounds
Zinc compounds and solutions

TYPE OF INDUSTRIAL OR COMMERCIAL PROCESS OR TEACHING OR RESEARCH ACTIVITY METAL CONSUMER GOODS / TUBE MANUFACTURING

PRESCRIBED WASTE PRODUCED	FORM OF WASTE		
	SOLID	LIQUID	SLUDGE
POWDER COATING WASTE	✓		
ORGANIC PHOSPHATES		✓	
OIL/WATER MIXES		✓	
SOLVENT		✓	

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

GENERAL CONDITIONS OF LICENCE APPLYING TO PRODUCERS OF PRESCRIBED WASTES

1. The licensee shall not cause or permit the prescribed waste to be stored, contained, treated or disposed of in a manner that causes or threatens to cause:

   (i) a nuisance or offensive condition;
   (ii) conditions injurious to health or safety;
   (iii) damage to the environment.

2. The licensee shall ensure that:

   (i) each container of prescribed waste stored upon his or her premises shall be marked to identify the waste contained therein.

   (ii) each container of prescribed waste removed from his or her premises shall display safety warnings required by State or Commonwealth legislation or in accordance with the Australian Code for the Transport of Dangerous Goods.

3. The licensee shall ensure that only a transporter possessing a current licence granted by the South Australian Waste Management Commission for the transport of prescribed waste within the State shall be used for the removal of the waste from the licensee's premises.

4. The licensee shall take reasonable steps to ensure that prescribed waste does not come into direct contact with soil.

5. The licensee shall ensure that no prescribed waste enters or continues to enter any sewerage system or stormwater drain.

6. Before the loading of the prescribed waste for removal, the licensee shall advise the transporter of the nature of the waste, hazards associated with the waste and any precautions which need to be taken during the collection, transportation or disposal of the said prescribed waste.

7. The licensee shall co-operate with the transporter to ensure that loading operations are carried out in such a way so as to prevent spillage of the prescribed waste.

8. The licensee shall ensure that a facility or equipment is available for the containment and recovery of any spillage at the loading point.

9. The licensee shall not cause or permit the mixing of the liquid prescribed waste with solid prescribed waste or any other material unless approved in writing by the Commission.

10. The licensee shall not cause or permit the mixing of incompatible prescribed waste.

11. The licensee shall give prior notification to the Commission of any substantial variations to the information submitted in the Annual Return completed in accordance with Section 25 of the Waste Management Act.

12. The licensee shall maintain, in respect of prescribed waste production, such records and in such manner as the Commission may require or approve.

13. Those records specified in Condition 10 shall be accessible to and on demand by Authorised Officers appointed under the Waste Management Act.

14. The licensee shall ensure that a Waste Disposal Notice is properly completed before prescribed waste is transported off-site for treatment (including recycling), storage or disposal

    A Waste Disposal Notice shall be completed in accordance with requirements set out in Attachment A to these Conditions of licence.

15. The licensee shall ensure that all relevant operating personnel are aware of these conditions.

23 May 1991

WASTE DISPOSAL NOTICE

Condition 12 states:

"The licensee shall ensure that a Waste Disposal Notice is properly completed before prescribed waste is transported off-site for treatment (including recycling), storage or disposal ...."

A Waste Disposal Notice is properly completed by undertaking the following steps:

1. The licensee must designate on the Waste Disposal Notice one licensed waste depot which is permitted to receive the waste.

2. The Waste Disposal Notice must contain all of the following information:

   2.1 the producer's name,
   2.2 postal address,
   2.3 person to contact in the event of enquiries,
   2.4 the producer's licence number,
   2.5 the place at which waste produced,
   2.6 a description of the waste,
   2.7 pH of the waste (if appropriate),
   2.8 the amount of waste in tonnes, kilolitres or cubic metres,
   2.9 any hazards associated with the waste,
   2.10 the intended disposal route.

3. The waste shall be coded as follows:

   LIST A - UN Number as specified in Australian Code for the Transport of Dangerous Goods by Road and Rail.

   LIST B - Class Number as specified in Australian Code for the Transport of Dangerous Goods by Road and Rail.

   LIST C - Physical and chemical identification of waste as specified in Commission Technical Bulletin No. 4.

   LIST D - The type of activity in which the producer is engaged as specified in Commission Technical Bulletin No. 4.

   LIST E - Waste contaminants as specified in Commission Technical Bulletin No. 4.

4. The licensee shall ensure that:

   4.1 The Waste Disposal Notice is signed by hand and the date of the collection of the waste is entered in Part A.

4.2 The handwritten signature and date of collection of the waste is entered in Part B by the waste transporter.

4.3 The green copy of the Waste Disposal Notice is retained by the licensee for no less than 12 months.

4.4 Part D of the Waste Disposal Notice is posted or otherwise sent to the South Australian Waste Management Commission within seven days of collection of the waste.

4.5 The white, yellow and blue copies of the Waste Disposal Notice are given to the transporter who collects the waste at the time of collection.

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

Waste Management Act, 1987

PRESCRIBED WASTE LICENCE

The person named hereunder is licensed under Division IV of the Waste Management Act to carry on an industrial or commercial process or teaching or research activity in the course of which prescribed waste in produced

LICENSEE: HILLS INDUSTRIES LTD

LICENCE NUMBER: P0107

M. D. MADIGAN
DIRECTOR

HILLS INDUSTRIES LTD
PO Box 69
Edwardstown 5039

PGPWAST2,PSPRODU2

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

South Australian Waste Management Commission Act, 1979

LICENCE COVERING THE PRODUCTION OF WASTES OF A PRESCRIBED KIND

HILLS INDUSTRIES LTD
PO Box 69
Edwardstown 5039

*AMENDED LICENCE

The Person described hereunder has been licensed under the provisions of Part III of the South Australian Waste Management Commission Act 1979. This licence remains in force for a period of one year from the date of grant subject to the Licensee's compliance with the provisions of the Act, regulations and conditions of licence.

1. The General Conditions applicable to this licence are attached.

You are asked to read the Conditions of Licence carefully and are required to comply with them throughout the term of the licence.

LICENCE NUMBER: P0107

EXPIRY DATE: 02/05/89

LICENSEE: HILLS INDUSTRIES LTD

ADDRESS OF PREMISES AT WHICH PRESCRIBED WASTE IS PRODUCED:

29 Morrow Road
O'Sullivan Beach 5156

944 South Road
Edwardstown 5039

R. H. MADDOCKS
DIRECTOR

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

South Australian Waste Management Commission Act, 1979

LICENCE COVERING THE PRODUCTION OF WASTES OF A PRESCRIBED KIND

HILLS INDUSTRIES LTD
PO Box 69
Edwardstown 5039

The Person described hereunder has been licensed under the provisions of Part III of the South Australian Waste Management Commission Act 1979. This licence remains in force for a period of one year from the date of grant subject to the Licensee's compliance with the provisions of the Act, regulations and conditions of licence.

1. The General Conditions applicable to this licence are attached.

You are asked to read the Conditions of Licence carefully and are required to comply with them throughout the term of the licence.

LICENCE NUMBER: P0107

EXPIRY DATE: 02/05/89

LICENSEE: HILLS INDUSTRIES LTD

ADDRESS OF PREMISES AT WHICH PRESCRIBED WASTE IS PRODUCED: 29 Morrow Road
O'Sullivan Beach 5166

R. H. MADDOCKS
DIRECTOR

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

South Australian Waste Management Commission Act, 1979

(Sections 26 (1) (a) and 27 (3) (a))

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION
REC'D - 5 MAR 1987
REFERRED TO HQ $20-00

APPLICATION FOR LICENCE/RENEWAL OF LICENCE COVERING THE PRODUCTION OF WASTES OF A PRESCRIBED KIND*

TO: *The Director*
South Australian Waste Management Commission
GPO Box 2607
Adelaide 5001

I hereby apply for **(renewal of) a licence in respect of the production of wastes of a prescribed kind.

FULL NAME OF APPLICANT (block letters please)	HILLS INDUSTRIES LTD	
POSTAL ADDRESS OF APPLICANT	P.O. Box 69 CLARENCE GARDENS	Postcode 5039
PERSON TO BE CONTACTED FOR ENQUIRIES	Name: TREVOR GREEN Address: ~~[illegible]~~ AS ABOVE	Telephone Numbers Bus. 2973888 A.H. 2727320
THIS APPLICATION IS IN RESPECT OF	An Existing Operation ☑ A Proposed Operation ☐ (Please tick appropriate box)	P0107 2/5/87

* Seventh Schedule to the Waste Management Regulations, 1980
** Delete if not applicable.

SEVENTH SCHEDULE

Prescribed Waste

Acids and acid solutions—
- Alkylation acid
- Battery acid

Mineral acid—
- Fluorsilicic acid
- Hydrochloric acid
- Hydrofluoric acid
- Nitric acid
- Phosphoric acid
- Sulphuric acid
- Pickling acid
- Wool carbonizing residues

Organic acids—
- Acetic acid

Alkali and alkaline earth metals
Alkalies and alkaline solutions—
- Ammoniacal solutions
- Caustic soda or sodium hydroxide
- Lime slurries
- Soda ash or sodium carbonate
- Sodium phosphate or polyphosphate
- Sodium sulphide solutions

Antimony—Compounds and preparations
Arsenic—Compounds and preparations
Asbestos wastes
Bags—Contaminated with materials in this list
Bacterial wastes—
- Industrial sludges
- Pathogenic wastes

Biocides and contaminated containers
Bleaching powders and solutions
Boron and compounds
Borates
Cadmium compounds
Calcium carbide
Carbon disulphide
Cattle dips and residues
Carbonization liquors (wood or coal distillation)
Chlorine
Chlorinated organic materials—
- Carbon tetrachloride
- Chlorine trifluoride
- Ethylene dichloride, lights and heavies
- Chlorinated hydrocarbon insecticides
- Trichloroethylene
- Plasticisers

Chromium compounds
- Chromates
- Chromic acid

Copper compounds
Cyanides—
- Case hardening residues
- Plating residues

Dangerous substances under the provision of the Dangerous Substances Act Regulations, 1979-1980
Dimethoate
Dimethyl aniline
Disinfectants
Drugs—
- Drug containers (contaminated)
- Drug residues

Dyestuffs
Explosives (wastes), including "slurry" explosives, ammonium nitrate
Ethyl nitrite
Fenezaflor
Fluorine and compounds
Fumigants and contaminated containers
Germicides and contaminated containers
Halogens
Herbicides and contaminated containers

Hydrocarbons—
- Lubricating oil
- Light oils
- Solvents

Insecticides and contaminated containers
Isocyanates
Lead compounds
Lime slurries
Manganese compounds
Mercury and compounds
Mineral spirits
Monosulfiram
Motor fuel additives and residues
Nickel compounds
Nitrates
Nitrocellulose residues
Nitromethane

Oils—
- Cutting
- Hydrocarbon
- Lubricating
- Natural

Organic phosphates
Oxidizing agents—
- Chlorates
- Chromates
- Nitrates
- Perchlorates
- Permanganates
- Peroxides

Pesticides and contaminated containers
Peroxides
Pharmaceutical wastes and residues
Phenol and phenolic compounds
Phosphorus and phosphorus residues
Phosphorus trichloride
Pickling acids and solutions
Poisons (any material which would require to be labelled under Schedules 1-7 of the Poisons Regulations under the Food & Drugs Act 1908-1976)
Propyl nitrate
Selenium compounds
Sheep dips and residues
Solvents—
- Hydrocarbon
- Flammable

Strychnine
Sulphide solutions
Surfactants—
- Biodegradable
- Non-biodegradable

Tetraethyl lead residues
Tetramethyl lead residues
Tetranitromethane
Timber preservatives
Thallium and compounds
Turpentine residues
Vaccines (viable or expired)
Vanadium compounds
Weedicides and contaminated containers
Zinc compounds

Please provide the following details about waste produced of the kind specified in the Seventh Schedule to the Waste Management Regulations, 1980

PRESCRIBED WASTE (Please use a separate line for each prescribed waste.)	FORM OF WASTE (tick appropriate column)			QUANTITY OF WASTE PRODUCED EACH YEAR		NAME AND ADDRESS OF PREMISES IN WHICH PRESCRIBED WASTE IS PRODUCED	INDICATE PROCESS RESULTING IN PRODUCTION OF WASTE	PLEASE PROVIDE FOLLOWING INFORMATION BY PLACING TICK IN APPROPRIATE COLUMN				
	Solid	Liquid	Sludge	tonnes	litres			On-site treatment	On-site disposal	Disposal by own trucks	Disposal by private contractors	Other
CYANIDE		✓			68000	HILLS INDUSTRIES LTD EDWARDSTOWN	PLATING				✓	
HYDROCHLORIC ACID		✓			55000	"	PICKLING				✓	
CHROMATES		✓			28000	"	PLATING/ALODINE.				✓	
PAINT STRIPPER		✓			1000	"	PAINTING				✓	
PAINT THINNERS		✓			14000	"	"				✓	
PERCHLOR		✓			5000	"	DEGREASING				✓	RECYCLE
WATER SOLUBLE OIL		✓			120000	HILLS IND. LTD O'SULLIVAN BEACH	TUBE MAKING				✓	
PHOSPHATE SLUDGE			✓		33000	HILLS IND. LTD EDWARDSTOWN	PHOSPHATING				✓	

Please Print Name and Address below.

HILLS INDUSTRIES LTD
944 SOUTH RD
EDWARDSTOWN
5039

Licence Fee of $20-00 enclosed

I hereby certify that to the best of my knowledge the information provided in this application is correct.

Signature of Applicant: CHEMIST

Date: 3/3/87

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

South Australian Waste Management Commission Act, 1979-1980

LICENCE COVERING THE PRODUCTION OF WASTES OF A PRESCRIBED KIND

The person described hereunder has been licensed under the provisions of Part III of the South Australian Waste Management Commission Act 1979. This licence remains in force for a period of one year from the date of grant subject to the occupier's compliance with the provisions of the Act, Regulations and conditions specified below.

R.H. MADDOCKS
DIRECTOR

LICENCE NUMBER	0107	DATE OF GRANT	3.5.85
		EXPIRY DATE	2.5.86
NAME OF PERSON	Hills Industries Ltd		
ADDRESS OF PREMISES IN WHICH PRESCRIBED WASTE PRODUCED	944 South Rd Edwardstown 29 Morrow Rd O'Sullivan Beach		
TYPE OF PRESCRIBED WASTE	Tetrachlorethylene sludge Acid solutions - H_2SO_4, HCl, H_2CrO_4 Lime Alkaline solutions Paint stripper Paint thinners Water soluble oil		

CONDITIONS

1. The General Conditions applicable to this Licence Covering the Production of Wastes of a Prescribed Kind are as attached.

~~The Special Conditions applicable to this Licence Covering the Production of Wastes of a Prescribed Kind are as attached.~~

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

Waste Management Act, 1987

PRESCRIBED WASTE LICENCE

The person named hereunder is licensed under Division IV of the Waste Management Act to carry on an industrial or commercial process or teaching or research activity in the course of which prescribed waste in produced

LICENSEE: WALKER AUSTRALIA PTY LTD

LICENCE NUMBER: P0245

M. D. MADIGAN
DIRECTOR

WALKER AUSTRALIA PTY LTD
PO Box 195
Christies Beach 5165

PGPWAST3,PSPRODU2

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

G.P.O. BOX 2607 ADELAIDE 5001

APPLICATION/ANNUAL RETURN PRESCRIBED WASTE LICENCE

WALKER AUSTRALIA PTY LTD
PO Box 195
Christies Beach 5165

OFFICE USE ONLY

CHEQUE $ 25 00

RECEIVED 6/1/92

CHECKED

SECT. 90

I wish to advise that the annual fee for the licence referred to above is now due. Please complete both sides of the form, sign and return it to this office with the prescribed fee.

In the event of a variation in licence details, please amend the form before it is returned.

PLEASE COMPLETE BOTH SIDES OF THIS FORM

LICENCE NUMBER (OFFICE USE ONLY)		P0245	**PAYMENT OF FEE DUE BY**	31/01/92
LICENSEE		WALKER AUSTRALIA PTY LTD		
PLACE(S) AT WHICH THE WASTE IS GENERATED	**PLACE 1**	29 Morrow Road O'Sullivan Beach ASSESSMENT NUMBER 1		
	PLACE 2	ASSESSMENT NUMBER 2		
ASSESSMENT NUMBERS MAY BE FOUND ON E. & W. S. WATER & SEWERAGE ACCOUNT	**PLACE 3**	ASSESSMENT NUMBER 3		
	PLACE 4	ASSESSMENT NUMBER 4		
	PLACE 5	ASSESSMENT NUMBER 5		
PERSON TO BE CONTACTED FOR ENQUIRIES		NAME	TEL. NO.	
PRESCRIBED FEE	$	25		

WALKER AUST P/L

SIGNATURE

R.T. BARNARD
NAME

M.D. Madigan
M.D. MADIGAN
DIRECTOR

DATE 15/1/92.

SECOND SCHEDULE
PRESCRIBED WASTE

Acids and acidic solutions
Adhesives (excluding solid inert polymeric materials)
Alkali metals and alkaline earth metals
Alkalis and alkaline solutions
Antimony and antimony compounds and solutions
Arsenic and arsenic compounds and solutions
Asbestos
Barium compounds and solutions
Beryllium and beryllium compounds
Boron and boron compounds
Cadmium and cadmium compounds and solutions
Calcium carbide
Carbon disulphide
Carcinogens, teratogens and mutagens
Chlorates
Chromium compounds and solutions
Copper compounds and solutions
Cyanides or cyanide solutions and cyanide complexes
Cytotoxic wastes
Dangerous substances within the meaning of the Dangerous Substances Act, 1979
Distillation residues
Fluoride compounds
Halogens
Heterocyclic organic compounds containing oxygen, nitrogen or sulphur
Hydrocarbons and their oxygen, nitrogen and sulphur compounds (excluding oils)
Isocyanate compounds (excluding solid inert polymeric materials)
Laboratory chemicals
Lead compounds and solutions
Lime sludges or slurries
Manganese compounds
Medical Wastes
Mercaptans
Mercury, mercury compounds and equipment containing mercury
Metal finishing effluent and residues
Nickel compounds and solutions
Nitrates
Oil Refinery wastes
Organic halogen compounds (excluding solid inert polymeric materials)
Organic phosphates
Organic solvents
Organometallic residues
Oxidizing agents
Paint sludges and residues
Perchlorates
Peroxides
Pesticides (including herbicides & fungicides)
Pharmaceutical wastes and residues
Phenolic compounds (excluding solid inert polymeric materials)
Phosphorus and its compounds
Polychlorinated biphenyls
Poisons within the meaning of the Drugs Act, 1908
Reactive chemicals
Reducing agents
Selenium and selenium compounds and solutions
Silver compounds and solutions
Solvent recovery residues
Sulphides and sulphide solutions
Surfactants
Thallium and thallium compounds and solutions
Timber preservative residues
Vanadium compounds
Zinc compounds and solutions

TYPE OF INDUSTRIAL OR COMMERCIAL PROCESS .....
OR TEACHING OR RESEARCH ACTIVITY

PRESCRIBED WASTE PRODUCED	FORM OF WASTE		
	SOLID	LIQUID	SLUDGE

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

GENERAL CONDITIONS OF LICENCE APPLYING TO PRODUCERS OF PRESCRIBED WASTES

1. The licensee shall not cause or permit the prescribed waste to be stored, contained, treated or disposed of in a manner that causes or threatens to cause:

   (i) a nuisance or offensive condition;
   (ii) conditions injurious to health or safety;
   (iii) damage to the environment.

2. The licensee shall ensure that:

   (i) each container of prescribed waste stored upon his or her premises shall be marked to identify the waste contained therein.

   (ii) each container of prescribed waste removed from his or her premises shall display safety warnings required by State or Commonwealth legislation or in accordance with the Australian Code for the Transport of Dangerous Goods.

3. The licensee shall ensure that only a transporter possessing a current licence granted by the South Australian Waste Management Commission for the transport of prescribed waste within the State shall be used for the removal of the waste from the licensee's premises.

4. The licensee shall take reasonable steps to ensure that prescribed waste does not come into direct contact with soil.

5. The licensee shall ensure that no prescribed waste enters or continues to enter any sewerage system or stormwater drain.

6. Before the loading of the prescribed waste for removal, the licensee shall advise the transporter of the nature of the waste, hazards associated with the waste and any precautions which need to be taken during the collection, transportation or disposal of the said prescribed waste.

7. The licensee shall co-operate with the transporter to ensure that loading operations are carried out in such a way so as to prevent spillage of the prescribed waste.

8. The licensee shall ensure that a facility or equipment is available for the containment and recovery of any spillage at the loading point.

9. The licensee shall not cause or permit the mixing of the liquid prescribed waste with solid prescribed waste or any other material unless approved in writing by the Commission.

10. The licensee shall not cause or permit the mixing of incompatible prescribed waste.

11. The licensee shall give prior notification to the Commission of any substantial variations to the information submitted in the Annual Return completed in accordance with Section 25 of the Waste Management Act.

12. The licensee shall maintain, in respect of prescribed waste production, such records and in such manner as the Commission may require or approve.

13. Those records specified in Condition 10 shall be accessible to and on demand by Authorised Officers appointed under the Waste Management Act.

14. The licensee shall ensure that a Waste Disposal Notice is properly completed before prescribed waste is transported off-site for treatment (including recycling), storage or disposal

    A Waste Disposal Notice shall be completed in accordance with requirements set out in Attachment A to these Conditions of licence.

15. The licensee shall ensure that all relevant operating personnel are aware of these conditions.

23 May 1991

WASTE DISPOSAL NOTICE

Condition 12 states:

> "The licensee shall ensure that a Waste Disposal Notice is properly completed before prescribed waste is transported off-site for treatment (including recycling), storage or disposal ...."

A Waste Disposal Notice is properly completed by undertaking the following steps:

1. The licensee must designate on the Waste Disposal Notice one licensed waste depot which is permitted to receive the waste.

2. The Waste Disposal Notice must contain all of the following information:

   2.1 the producer's name,
   2.2 postal address,
   2.3 person to contact in the event of enquiries,
   2.4 the producer's licence number,
   2.5 the place at which waste produced,
   2.6 a description of the waste,
   2.7 pH of the waste (if appropriate),
   2.8 the amount of waste in tonnes, kilolitres or cubic metres,
   2.9 any hazards associated with the waste,
   2.10 the intended disposal route.

3. The waste shall be coded as follows:

   LIST A - UN Number as specified in Australian Code for the Transport of Dangerous Goods by Road and Rail.

   LIST B - Class Number as specified in Australian Code for the Transport of Dangerous Goods by Road and Rail.

   LIST C - Physical and chemical identification of waste as specified in Commission Technical Bulletin No. 4.

   LIST D - The type of activity in which the producer is engaged as specified in Commission Technical Bulletin No. 4.

   LIST E - Waste contaminants as specified in Commission Technical Bulletin No. 4.

4. The licensee shall ensure that:

   4.1 The Waste Disposal Notice is signed by hand and the date of the collection of the waste is entered in Part A.

4.2 The handwritten signature and date of collection of the waste is entered in Part B by the waste transporter.

4.3 The green copy of the Waste Disposal Notice is retained by the licensee for no less than 12 months.

4.4 Part D of the Waste Disposal Notice is posted or otherwise sent to the South Australian Waste Management Commission within seven days of collection of the waste.

4.5 The white, yellow and blue copies of the Waste Disposal Notice are given to the transporter who collects the waste at the time of collection.

PGPWASTE

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

GENERAL CONDITIONS OF LICENCE APPLYING TO PRODUCERS OF PRESCRIBED WASTES

1. The licensee shall not cause or permit the prescribed waste to be stored, contained, treated or disposed of in a manner that causes or threatens to cause:

   (i) a nuisance or offensive condition;
   (ii) conditions injurious to health or safety;
   (iii) damage to the environment.

2. The licensee shall ensure that:

   (i) each container of prescribed waste stored upon his or her premises shall be marked to identify the waste contained therein.

   (ii) each container of prescribed waste removed from his or her premises shall display safety warnings required by State or Commonwealth legislation or in accordance with the Australian Code for the Transport of Dangerous Goods.

3. The licensee shall ensure that only a transporter possessing a current licence granted by the South Australian Waste Management Commission for the transport of prescribed waste within the State shall be used for the removal of the waste from the licensee's premises.

4. Before the loading of the prescribed waste for removal, the licensee shall advise the transporter of the nature of the waste, hazards associated with the waste and any precautions which need to be taken during the collection, transportation or disposal of the said prescribed waste.

5. The licensee shall co-operate with the transporter to ensure that loading operations are carried out in such a way so as to prevent spillage of the prescribed waste.

6. The licensee shall ensure that a facility is available for the containment and recovery of any spillage at the loading point.

7. The licensee shall not cause or permit the mixing of the liquid prescribed waste with solid prescribed waste or any other material unless approved in writing by the Commission.

8. The licensee shall not cause or permit the mixing of incompatible prescribed waste.

9. The licensee shall give prior notification to the Commission of any substantial variations to the information submitted in the Annual Return completed in accordance with Section 25 of the Waste Management Act.

10. The licensee shall maintain, in respect of prescribed waste production, such records and in such manner as the Commission may require or approve.

11. Those records specified in Condition 10 shall be accessible to and on demand by Authorised Officers appointed under the Waste Management Act.

12. The licensee shall ensure that a properly completed Waste Disposal Notice is dispatched with every load of prescribed waste removed from the licensee's premises.

22nd September, 1988

PSPRODU2

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

SPECIAL CONDITIONS OF LICENCE APPLYING TO PRODUCERS OF PRESCRIBED WASTE

The licensee shall direct all acid and alkali wastes and neutralized sludges containing chromium, zinc, copper, nickel, cadmium, silver and lead for disposal to a depot licensed by the South Australian Waste Management Commission to accept those type of wastes.

25.1.90

SOUTH AUSTRALIAN WASTE MANAGEMENT COMMISSION

G.P.O. BOX 2607 ADELAIDE 5001

APPLICATION/ANNUAL RETURN — LICENCE COVERING PRODUCTION OF WASTE OF A PRESCRIBED KIND

FOR OFFICE USE ONLY

File No. WMC 18/91

Cheque $ 20-00

Received 20.12.90

Checking Officer

I wish to advise that the annual fee for the licence referred to above will shortly require payment. Please complete both sides of the form, sign and return it to this office with the prescribed fee before the date specified. In the event of a variation in licence details, please amend the form before it is returned.

New

incorrect - should be P0245

Please return by

Prescribed Fee $

P0245

LICENCE NUMBER	~~P0425~~ EXPIRY DATE
NAME OF LICENSEE (BUSINESS OR COMPANY NAME)	WALKER AUSTRALIA PTY LTD
POSTAL ADDRESS OF LICENSEE	PO BOX 195 CHRISTIES BEACH 5165
ADDRESS AT WHICH THE WASTE IS GENERATED	29 MORROW ROAD O'SULLIVAN BEACH 5166
PERSON TO BE CONTACTED FOR ENQUIRIES	TREVOR HATWELL
TELEPHONE NUMBER	08 3848333

PLEASE PROVIDE INFORMATION REGARDING GENERATION AND DISPOSAL OF WASTES ON THE OTHER SIDE OF THIS FORM.

PCPWATE
PSPRODUZ

T. Hatwell
SIGNATURE

T.J. HATWELL
NAME

M.D. Madigan
M.D. MADIGAN
DIRECTOR

DATE 17 / 12 / 90

SECOND SCHEDULE
PRESCRIBED WASTE

Acids and acidic solutions
Adhesives (excluding solid inert polymeric materials)
Alkali metals and alkaline earth metals
Alkalis and alkaline solutions
Antimony and antimony compounds and solutions
Arsenic and arsenic compounds and solutions
Asbestos
Barium compounds and solutions
Beryllium and beryllium compounds
Biocides
Boron and boron compounds
Cadmium and cadmium compounds and solutions
Calcium carbide
Carbon disulphide
Carcinogens, teratogens and mutagens
Chlorates
Chromium compounds and solutions
Copper compounds and solutions
Cyanides or cyanide solutions and cyanide complexes
Cytotoxic wastes
Dangerous substances within the meaning of the Dangerous Substances Act, 1979
Distillation residues
Dyestuffs
Fluoride compounds
Halogens
Heterocyclic organic compounds containing oxygen, nitrogen or sulphur
Hydrocarbons and their oxygen, nitrogen and sulphur compounds
Infectious wastes
Inks
Isocyanate compounds (excluding solid inert polymeric materials)
Laboratory chemicals
Lead compounds and solutions
Lime sludges or slurries
Manganese compounds
Mercaptans
Mercury, mercury compounds and equipment containing mercury
Metal finishing effluent and residues
Nickel compounds and solutions
Nitrates
Oils
Oil Refinery wastes
Organic halogen compounds (excluding solid inert polymeric materials)
Organic phosphates
Organic solvents
Organometallic residues
Oxidizing agents
Paint sludges and residues
Pathological wastes
Perchlorates
Peroxides
Pesticides
Pharmaceutical wastes and residues
Phenolic compounds (excluding solid inert polymeric materials)
Phosphorus and its compounds
Polychlorinated biphenyls
Poisons within the meaning of the Drugs Act, 1908
Reactive chemicals
Reducing agents
Selenium and selenium compounds and solutions
Silver compounds and solutions
Solvent recovery residues
Sulphides and sulphide solutions
Surfactants
Thallium and thallium compounds and solutions
Timber preservative residues
Vanadium compounds
Zinc compounds and solutions

PRESCRIBED WASTE	FORM OF WASTE			QUANITY OF WASTE PRODUCED ANNUALLY			INDICATE PROCESS RESULTING IN PRODUCTION OF WASTE	METHOD OF WASTE DISPOSAL		
	SOLID	LIQUID	SLUDGE	TONNE	K/LITRE	M^3		ONSITE TREAT.	ONSITE DISP.	OFFSITE DISP.
ALKALIS AND ALKALINE SOLUTIONS					7.5		component washing operation			
OILS					1.0		hydraulic press operation oil change over			
PAINT SLUDGES AND RESIDUES			0		36		water wall spray paint booth			

APPENDIX F

SAFEWORK SA INFORMATION

Government of South Australia
SafeWork SA

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255
Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

5 August 2020

Ms Jennifer Catherine
WSP Australia Pty Ltd
Level 1
1 King William Street
ADELAIDE SA 5000

jennifer.catherine@wsp.com

Dear Ms Catherine

DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 64 BADEN TERRACE, O'SULLIVAN BEACH SA 5166

Further to your application for a Dangerous Substance Search dated 30 July 2020 received for the abovementioned site, I advise that there are no current or historical records for this site.

Yours sincerely

Manager, Education
SAFEWORK SA

Government of South Australia
SafeWork SA

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255
Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

5 August 2020

Ms Jennifer Catherine
WSP Australia Pty Ltd
Level 1
1 King William Street
ADELAIDE SA 5000

jennifer.catherine@wsp.com

Dear Ms Catherine

DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 36-70 GUMERACHA ROAD, O'SULLIVAN BEACH SA 5166

Further to your application for a Dangerous Substance Search dated 30 July 2020 received for the abovementioned site, I advise that there are no current or historical records for this site.

Yours sincerely

Manager, Education
SAFEWORK SA

APPENDIX G

BOREHOLE LOGS

TEST PIT ENVIRONMENTAL LOG

TEST PIT NO.

BH01

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Hand Auger**

Surface RL:

Co-ords: **E 270372 N 6110770**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		BH01_0.0-0.1 PID=0.3 ppm	J			FILL: Clayey SILT, low plasticity, dark brown, moist, with organic rootlets.	M			
	0.20					Calcrete material.	D			
	0.25				CL-ML	Silty CLAY, medium plasticity, pale brown, with Calcareous material, dry.				
		BH01_0.4-0.5 PID=0.3 ppm	J							
		BH01_0.75-0.85 PID=0.2 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

© WSP Australia Pty Ltd. Version 5.1 ENVIRONMENTAL TEST PIT LOG O'SULLIVAN BEACH LOGS.GPJ YH2006.GDT 18-8-20

TEST PIT NO.

BH02

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Hand Auger**

Surface RL:

Co-ords: **E 270398 N 6110764**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		BH01_0.0-0.1 PID=0.3 ppm	J			FILL: Clayey SILT, low plasticity, dark brown, with trace calcareous material, moist.	M			
	0.10					Calcrete material.				
	0.15				CL-ML	Silty CLAY, medium plasticity, black-dark brown, with Calcareous material, moist.				
	0.35				CL	Calcareous CLAY, medium plasticity, pale brown-white, moist.				
		BH01_0.4-0.5 PID=0.1 ppm	J							
		BH01_0.9-1.0 PID=0.1 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

© WSP Australia Pty Ltd. Version 5.1 ENVIRONMENTAL TEST PIT LOG O'SULLIVAN BEACH LOGS.GPJ YH2006.GDT 18-8-20

TEST PIT ENVIRONMENTAL LOG

TEST PIT NO.

BH03

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Hand Auger**

Surface RL:

Co-ords: **E 270430 N 6110772**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		BH03_0.0-0.1J				FILL: Clayey SILT, low plasticity, dark brown, with trace gravels, moist.	M			
	0.15					Calcrete material.	D			
	0.20				CL-ML	Silty CLAY, low-medium plasticity, black-dark brown, with Calcareous material, dry.				
	0.35				CL	Calcareous CLAY, medium plasticity, pale brown-white, dry.				
		BH03_0.4-0.5J								
	BH03_0.6-0.75/QC01JC-QC02JC									
						END OF TEST PIT AT 0.75 m				
	1									
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP01

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**5-5-20**
Test Pit Location:	**Baden Terrace, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270321 N 6111104**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP01_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium plasticity, black-grey, with rootlets, moist.	M			
	0.10				CL-ML	Silty CLAY, medium plasticity, brown-black, with calcareous material, with minor medium-course grained gravels, moist.				
		TP01_0.3-0.4 PID=0.2 ppm	J							
	0.40				CL-ML	As above but cream-light brown, with minor fine grained gravels.				
		TP01_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP02

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Baden Terrace, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270391 N 6111112**

Test Pit Information				Field Material Description					
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP02_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium plasticity, black-grey, with rootlets, moist.	M			
	0.30				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with minor fine grained gravels, moist.				
		TP02_0.4-0.5 PID=0 ppm	J							
		TP02_0.9-1.0/QC01-QC02 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP03

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Baden Terrace, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270407 N 6111059**

Test Pit Information				Field Material Description					
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP03_0.0-0.1 PID=0 ppm	J			FILL: Clayey SILT, high plasticity, black-grey, with rootlets, moist.	M			
	0.30				CL-ML	Silty CLAY, high plasticity, pale brown, with calcareous material, moist.				
		TP03_0.4-0.5 PID=0 ppm	J							
		TP03_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP04

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Baden Terrace, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270350 N 6111080**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP04_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with fine grained gravels, moist, soft.				
		TP04_0.4-0.5 PID=0 ppm	J							
		TP04_0.9-1.0 PID=0 ppm	J							
	1									
						END OF TEST PIT AT 1.10 m				
	2									

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TEST PIT NO.

TP05

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Baden Terrace, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270374 N 6111046**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP05_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, low plasticity, black-grey, with rootlets, moist.	M			
	0.30				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with fine grained gravels, dry.	D			
		TP05_0.4-0.5/QC03-QC04 PID=0 ppm	J							
		TP05_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

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TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP06

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Baden Terrace, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270341 N 6111020**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP06_0.0-0.1 PID=0 ppm	J&B			FILL: Clayey SILT, low plasticity, black-grey, with rootlets, moist.	M			
	0.30				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with fine grained gravels, moist.				
		TP06_0.4-0.5 PID=0 ppm	J							
	1	TP06_1.0-1.1 PID=0 ppm	J							
						END OF TEST PIT AT 1.10 m				
	2									

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TEST PIT ENVIRONMENTAL LOG

TEST PIT NO.

TP07

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270341 N 6110948**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP07_0.0-0.1 PID=0 ppm	J			FILL: Clayey SILT, low plasticity, black-grey, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with medium-coarse grained gravels, with rootlets, moist.				
	0.30				CL-ML	As above but with fine-medium grained gravels.				
		TP07_0.4-0.5 PID=0 ppm	J							
		TP07_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

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TEST PIT NO.

TP08

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270409 N 6110981**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP08_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with medium-coarse grained gravels, moist.				
	0.30				CL-ML	As above but with fine-medium grained gravels.				
		TP08_0.4-0.5 PID=0 ppm	J							
		TP08_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP09

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270402 N 6110925**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP09_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets, moist.	M			
	0.30	TP09_0.4-0.5 PID=0 ppm	J		CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with medium-coarse grained gravels, moist.				
	0.90	TP09_0.9-1.0 PID=0 ppm	J		CL-ML	As above but with fine-medium grained gravels.				
	1					END OF TEST PIT AT 1.10 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP10

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270420 N 6110868**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP10_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, high plasticity, black-grey, with medium-coarse grained gravels, with rootlets, moist. warning tape encountered, excavation terminated.	M			
	1					END OF TEST PIT AT 0.20 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT ENVIRONMENTAL LOG

TEST PIT NO.

TP10A

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270420 N 6110868**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP10A_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, high plasticity, black-grey, with medium-coarse grained gravels, with rootlets, moist.	M			
	0.30	TP10A_0.3-0.4 PID=0 ppm	J		CL-ML	Silty CLAY, high plasticity, pale brown, with calcareous material, with fine-medium grained gravels, moist.				
		TP10A_0.9-1.0/QC05-QC06 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP11

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270343 N 6110886**

Test Pit Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP11_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium plasticity, black-grey, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, low plasticity, pale brown, with calcareous material, with medium-coarse grained gravels, moist.				
	0.30				CL-ML	As above but with fine-medium grained gravels.				
		TP11_0.4-0.5 PID=0 ppm	J							
		TP11_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP12

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**20-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**20-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270346 N 6110817**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP12_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with rootlets, moist.	M			
	0.30				SM	Silty SAND, pale brown-cream, with calcareous material, with medium-coarse grained gravels, dry.	D			
	0.40	TP12_0.4-0.5 PID=0 ppm	J		GM	Silty GRAVEL, brown mottled white, medium-coarse grained, with calcareous material, dry.				
		TP12_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP13

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270396 N 6110794**

Test Pit Information				Field Material Description					
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP13_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, low plasticity, black-grey, with fine-medium grained gravels, with rootlets and trace calcareous material, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with minor fine grained gravels, moist.				
		TP13_0.4-0.5 PID=0 ppm	J							
		TP13_0.9-1.0 PID=0 ppm	J							
	1									
		TP13_1.4-1.5 PID=0 ppm	J							
	1.50				CL-ML	As above but dark brown.				
		TP13_1.9-2.0/QC07-QC08 PID=0 ppm	J							
	2									
		TP13_2.1-2.2 PID=0 ppm	J							
						END OF TEST PIT AT 2.20 m				

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP14

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270418 N 6110824**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP14_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with fine-medium grained gravels, moist.				
		TP14_0.4-0.5 PID=0 ppm	J							
		TP14_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP15

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270430 N 6110754**

Test Pit Information				Field Material Description					
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP15_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, pale brown, with calcareous material, with fine-medium grained gravels, moist.				
		TP15_0.4-0.5 PID=0 ppm	J							
		TP15_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP16

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270353 N 6110728**

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP16_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, brown, with calcareous material, with minor fine grained gravels.				
		TP16_0.4-0.5 PID=0 ppm	J							
	1	TP16_1.0-1.1 PID=0 ppm	J							
	1.80				CL-ML	As above but dark brown.				
		TP16_1.9-2.0/QC09-QC10 PID=0 ppm	J							
	2					END OF TEST PIT AT 2.00 m				

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP17

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270345 N 6110646**

Test Pit Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP17_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, high plasticity, brown mottled white, moist, soft.	M			
	0.30				CL-ML	Silty CLAY, low plasticity, brown mottled black, moist, soft.				
		TP17_0.4-0.5 PID=0 ppm	J							
		TP17_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP18

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270387 N 6110659**

Test Pit Information				Field Material Description					
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP18_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, brown, with calcareous material, with minor fine grained gravels, moist.				
		TP18_0.4-0.5 PID=0 ppm	J							
		TP18_0.9-1.0 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP19

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270419 N 6110696**

Test Pit Information				Field Material Description					
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP19_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets, moist.	M			
	0.20				CL-ML	Silty CLAY, medium plasticity, brown, with calcareous material, with minor medium-coarse grained gravels, moist.				
		TP19_0.4-0.5 PID=0 ppm	J							
	0.90	TP19_0.9-1.0 PID=0 ppm	J			As above but with fine grained gravels.				
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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TEST PIT NO.

TP20

SHEET 1 OF 1

TEST PIT ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**21-7-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**21-7-20**
Test Pit Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	

Excavation Method: **Excavation**

Surface RL:

Co-ords: **E 270448 N 6110700**

Test Pit Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		TP20_0.0-0.1 PID=0 ppm	J&B			FILL: Silty CLAY, medium plasticity, black-grey, with fine-medium grained gravels, with rootlets and red brick, moist.	M			
	0.30				CL-ML	Silty CLAY, medium plasticity, brown, with calcareous material, with minor medium-coarse grained gravels, moist.				
		TP20_0.4-0.5 PID=0 ppm	J							
	0.70				CL-ML	As above but with fine grained gravels.				
		TP20_0.9-1.0/QC11-QC12 PID=0 ppm	J							
	1					END OF TEST PIT AT 1.00 m				
	2									

This test pit log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.
BH01B
SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270430 N 6110773**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA								FILL: Silty CLAY, medium-high plasticity, dark grey-brown, with fine-medium grained gravels.	M		
			0.15	BH01B_0.15-0.2 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, dark brown, with calcareous material, with trace fine-medium grained gravels.	D		
			0.30	BH01B_0.3-0.4 PID=0 ppm	J		CL-ML	As above, but pale brown.			
PT			1	BH01B_1.0-1.1 PID=0.1 ppm	J						
			1.80	BH01B_1.8-1.9 PID=0.1 ppm	J		CL-ML	As above, but dark brown, with trace calcareous material.			
			2								
				BH01B_2.8-3.0/QC01 PID=0.1 ppm	J						
			3					END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH02B

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270408 N 6110763**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH02B_0.1-0.25 PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey-brown, with fine-medium grained gravels, with trace rootlets, moist.	M		
			0.25	BH02B_0.25-0.35/QC02 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with calcareous material, moist.			
				BH02B_0.9-1.0 PID=0 ppm	J						
PT			1								
			2								
			2.30	BH02B_2.3-2.4 PID=0.1 ppm	J		CL-ML	As above, but high plasticity, dark brown mottled black, with trace calcareous material.			
				BH02B_2.9-3.0 PID=0.1 ppm	J						
			3					END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG

BH03B

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270378 N 6110765**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH03B_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with trace rootlets, moist.	M		
			0.20	BH03B_0.2-0.3 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with calcareous material, dry.	D		
			1								
PT			1.10	BH03B_1.1-1.2/QC03 PID=0 ppm	J		CL-ML	As above, but brown mottled orange-grey, with trace calcareous material, stiff.			
			2.00 2	BH03B_2.0-2.1 PID=0 ppm	J		CL-ML	As above, but dark brown mottled red.			
			3	BH03B_2.9-3.0 PID=0.1 ppm	J			END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH04B

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270345 N 6110763**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH04B_0.0-0.1 PID=0.1 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with trace rootlets, with trace calcareous material, moist.	M		
			0.30	BH04B_0.3-0.4/QC04 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with calcareous material, moist.			
PT			1	BH04B_1.0-1.1 PID=0 ppm	J						
			2								
			2.10	BH04B_2.1-2.2 PID=0 ppm	J		CL-ML	As above, but high plasticity, dark brown, with trace calcareous material, stiff.			
			3	BH04B_2.9-3.0 PID=0 ppm	J			END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH05B

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270333 N 6110969**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA			BH05B_0.0-0.1	PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with trace rootlets, moist.	M		
			0.25 BH05B_0.25-0.35/QC05	PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with trace fine-medium grained gravels, with calcareous material, dry.	D		
PT			1 BH05B_0.9-1.0	PID=0 ppm	J						
			1.75 BH05B_1.75-1.85	PID=0 ppm	J		CL-ML	As above, but dark brown, with trace calcareous material, stiff.			
			2								
			BH05B_2.9-3.0/QC06	PID=0 ppm	J						
			3					END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.
BH06B
SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270357 N 6110965**

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 RL(m)	4 DEPTH(m)	5 FIELD TEST	6 SAMPLE	7 GRAPHIC LOG	8 USC SYMBOL	9 SOIL/ROCK MATERIAL FIELD DESCRIPTION	10 MOISTURE	11 RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	12 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA					BH06B_0.0-0.1 PID=0.1 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with rootlets, with trace calcareous material, moist.	M		
				0.20	BH06B_0.2-0.3 PID=0.2 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with trace fine-medium grained gravels, with calcareous material, moist.			
PT				1								
				1.30	BH06B_1.3-1.4 PID=0.1 ppm	J		CL-ML	As above, but dark brown, with trace calcareous material.			
				2								
					BH06B_2.2-2.3 PID=0.4 ppm	J						
					BH06B_2.8-3.0/QC07 PID=0.3 ppm	J						
				3					END OF BOREHOLE AT 3.00 m			
				4								

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG

BH07B

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270382 N 6110972**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA			0.10	BH07B_0.0-0.1 PID=0.2 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with rootlets, moist.	M		
				BH07B_0.1-0.2 PID=0.2 ppm	J			As above, but pale brown.			
			0.70	BH07B_0.7-0.8 PID=0.2 ppm	J			FILL: Clayey GRAVEL medium- high plasticity, pale brown-grey, with medium-coarse grained gravels.			
								END OF BOREHOLE AT 0.80 m			Bore hole terminated at 0.8m due to deeper fill layer and to minimise the risk of drilling into underground pipe.
			1								
			2								
			3								
			4								

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BOREHOLE NO.

BH08B

SHEET 1 OF 1

BOREHOLE ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270393 N 6110969**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH08B_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with rootlets, dry.	D		
			0.10	BH08B_0.1-0.2 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with trace fine-medium grained gravels, with calcareous material, dry.			
PT			1								
			1.40	BH08B_1.4-1.6/QC08 PID=0 ppm	J		CL-ML	As above, but dark brown, with trace calcareous material.			
			2								
				BH08B_2.4-2.5 PID=0.1 ppm	J						
				BH08B_2.9-3.0 PID=0 ppm	J						
			3					END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE NO.

BH09B

SHEET 1 OF 1

BOREHOLE ENVIRONMENTAL LOG

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270340 N 6110965**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH09B_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with rootlets, dry.	D		
			0.25	BH09B_0.25-0.35/QC09 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with trace fine-medium grained gravels, with calcareous material, dry.			
PT			1								
			1.60	BH09B_1.6-1.7 PID=0 ppm	J		CL-ML	As above, but dark brown, with trace calcareous material, stiff.			
			2								
				BH09B_2.2-2.3 PID=0.1 ppm	J						
				BH09B_2.9-3.0 PID=0.1 ppm	J						
			3					END OF BOREHOLE AT 3.00 m			
			4								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH10B

SHEET 1 OF 1

Client:	**Kambitsis Group**	Date Commenced:	**8-9-20**
Project:	**O'Sullivan Beach Soil Investigation**	Date Completed:	**8-9-20**
Borehole Location:	**Gumeracha Road, O'Sullivan Beach**	Recorded By:	**MG**
Project Number:	**PS120574**	Log Checked By:	**AD**

Drill Model/Mounting:	**Drill rig**	Hole Angle:	**-90°**	Surface RL:	
Borehole Diameter:	**50 mm**	Bearing:	**---**	Co-ords:	**E 270331 N 6110992**

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH10B_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with rootlets, dry.	D		
			0.20	BH10B_0.2-0.3 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale grey, with trace fine-medium grained gravels, with calcareous material, dry.			
			0.40	BH10B_0.4-0.5 PID=0 ppm	J		CL-ML	As above, but pale brown.			
PT			1								
			1.70	BH10B_1.7-1.8 PID=0 ppm	J		CL-ML	As above, but dark brown mottled red-orange, with trace calcareous material, stiff.			
			2								
				BH10B_2.5-2.6 PID=0 ppm	J						
			3	BH10B_3.0-3.1 PID=0 ppm	J						
				BH10B_3.8-4.0/QC10 PID=0 ppm	J						
			4					END OF BOREHOLE AT 4.00 m			

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BOREHOLE NO.

BH11B

SHEET 1 OF 1

BOREHOLE ENVIRONMENTAL LOG

Client:	Kambitsis Group	Date Commenced:	8-9-20
Project:	O'Sullivan Beach Soil Investigation	Date Completed:	8-9-20
Borehole Location:	Gumeracha Road, O'Sullivan Beach	Recorded By:	MG
Project Number:	PS120574	Log Checked By:	AD

Drill Model/Mounting:	Drill rig	Hole Angle:	-90°	Surface RL:	
Borehole Diameter:	50 mm	Bearing:	---	Co-ords:	E 270380 N 6110995

Borehole Information (1–6) | **Field Material Description** (7–12)

1 METHOD	2 SUPPORT	3 WATER	4 RL(m) / DEPTH(m)	5 FIELD TEST	6 SAMPLE	7 GRAPHIC LOG	8 USC SYMBOL	9 SOIL/ROCK MATERIAL FIELD DESCRIPTION	10 MOISTURE	11 RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	12 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA				BH11B_0.0-0.1 PID=0 ppm	J			FILL: Silty CLAY, medium-high plasticity, dark grey, with fine-medium grained gravels, with trace calcareous material, with rootlets, dry.	D		
			0.15	BH11B_0.15-0.25 PID=0 ppm	J		CL-ML	Silty CLAY, medium-high plasticity, pale brown, with trace fine-medium grained gravels, with calcareous material, dry.			
PT			1								
			1.30	BH11B_1.3-1.4 PID=0 ppm	J		CL-ML	As above, but dark brown.			
			2								
			2.10	BH11B_2.1-2.2 PID=0 ppm	J		CL-ML	As above, but dark brown mottled red, stiff.			
			3	BH11B_3.1-3.2 PID=0 ppm	J						
				BH11B_3.5-3.7/QC1 PID=0 ppm	J						
			4	BH11B_3.9-4.0 PID=0 ppm	J						
								END OF BOREHOLE AT 4.00 m			

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Explanatory Notes — Soil Description

In engineering terms soil includes every type of uncemented or partially cemented inorganic material found in the ground. In practice, if the material can be remoulded by hand in its field condition or in water it is described as a soil. The dominant soil constituent is given in capital letters, with secondary textures in lower case. The dominant feature is assessed from the Unified Soil Classification system and a soil symbol is used to define a soil layer as follows:

UNIFIED SOIL CLASSIFICATION

The appropriate symbols are selected on the result of visual examination, field tests and available laboratory tests, such as, sieve analysis, liquid limit and plasticity index.

USC Symbol	Description
GW	Well graded gravel
GP	Poorly graded gravel
GM	Silty gravel
GC	Clayey gravel
SW	Well graded sand
SP	Poorly graded sand
SM	Silty sand
SC	Clayey sand
ML	Silt of low plasticity
CL	Clay of low plasticity
OL	Organic soil of low plasticity
MH	Silt of high plasticity
CH	Clay of high plasticity
OH	Organic soil of high plasticity
Pt	Peaty Soil

MOISTURE CONDITION

Dry - Cohesive soils are friable or powdery
Cohesionless soil grains are free-running

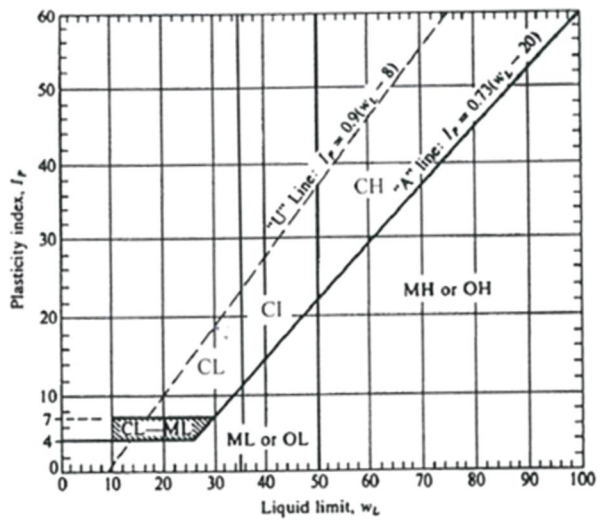
Moist - Soil feels cool, darkened in colour
Cohesive soils can be moulded
Cohesionless soil grains tend to adhere

Wet - Cohesive soils usually weakened
Free water forms on hands when handling

For cohesive soils the following codes may also be used:

MC>PL Moisture Content greater than the Plastic Limit.
MC~PL Moisture Content near the Plastic Limit.
MC<PL Moisture Content less than the Plastic Limit.

PLASTICITY



The potential for soil to undergo change in volume with moisture change is assessed from its degree of plasticity. The classification of the degree of plasticity in terms of the Liquid Limit (LL) is as follows:

Description of Plasticity	LL (%)
Low	<35
Medium or Intermediate	35 to 50
High	>50

COHESIVE SOILS - CONSISTENCY

The consistency of a cohesive soil is defined by descriptive terminology such as very soft, soft, firm, stiff, very stiff and hard. These terms are assessed by the shear strength of the soil as observed visually, by the pocket penetrometer values and by resistance to deformation to hand moulding.

A Pocket Penetrometer may be used in the field or the laboratory to provide approximate assessment of unconfined compressive strength of cohesive soils. The values are recorded in kPa, as follows:

Strength	Symbol	Pocket Penetrometer Reading (kPa)
Very Soft	VS	< 25
Soft	S	20 to 50
Firm	F	50 to 100
Stiff	St	100 to 200
Very Stiff	VSt	200 to 400
Hard	H	> 400

COHESIONLESS SOILS - RELATIVE DENSITY

Relative density terms such as very loose, loose, medium, dense and very dense are used to describe silty and sandy material, and these are usually based on resistance to drilling penetration or the Standard Penetration Test (SPT) 'N' values. Other condition terms, such as friable, powdery or crumbly may also be used.

The Standard Penetration Test (SPT) is carried out in accordance with AS 1289, 6.3.1. For completed tests the number of blows required to drive the split spoon sampler 300 mm is recorded as the N value. For incomplete tests the number of blows and the penetration beyond the seating depth of 150 mm are recorded. If the 150 mm seating penetration is not achieved the number of blows to achieve the measured penetration is recorded. SPT correlations may be subject to corrections for overburden pressure and equipment type.

Term	Symbol	Density Index	N Value (blows /0.3 m)	DCPT (blows /100m
Very Loose	VL	0 to 15	0 to 4	0 to 1
Loose	L	15 to 35	4 to 10	1 to 2
Medium Dense	MD	35 to 65	10 to 30	2 to 5
Dense	D	65 to 85	30 to 50	5 to 10
Very Dense	VD	>85	>50	>10

COHESIONLESS SOILS - PARTICLE SIZE TERMS

Name	Subdivision	Size
Boulders Cobbles		>200mm 63mm to 200mm
Gravel	coarse medium fine	20mm to 63mm 6mm to 20mm 2.36mm to 6mm
Sand	coarse medium fine	600mm to 2.36mm 200mm to 600mm 75mm to 200mm

Explanatory Notes — Rock Description

The rock is described with strength and weathering symbols as shown below. Other features such as bedding and dip angle are given.

ROCK QUALITY

The fracture spacing is shown where applicable and the Rock Quality Designation (RQD) where:

$$\text{RQD (\%)} = \frac{\text{Sum of Axial lengths of core > 100mm long}}{\text{total length considered}}$$

ROCK STRENGTH

Rock strength is described using AS1726 & ISRM - Commission on Standardisation of Laboratory & Field Tests, "Suggested method of determining the Uniaxial Compressive Strength of Rock materials & the Point Load Index", as follows:

Term	Symbol	Point Load Index $Is_{(50)}$ (MPa)
Extremely Low	EL	<0.03
Very Low	VL	0.03 to 0.1
Low	L	0.1 to 0.3
Medium	M	0.3 to 1
High	H	1 to 3
Very High	VH	3 to 10
Extremely High	EH	>10

● Diametral Point Load Index test

■ Axial Point Load Index test

ROCK MATERIAL WEATHERING

Rock weathering is described using the following abbreviations and definitions used in AS1726.

Term	Symbol	Definition
Residual soil	RS	Soil developed on extremely weathered rock, the mass structure & substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered	EW	Rock is weathered to such an extent that it has 'soil' properties, ie: it either disintegrates or can be remoulded in water, but the texture of original rock is evident.
Highly weather	HW	Rock substance affected by weathering to the extent that limonite staining or bleaching affects the whole of the rock substance and other signs of chemical or physical decomposition are evident.
Distinctly weathered	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately weathered	MW	Rock substance affected by weathering to the extent that staining extends throughout the whole of the rock substance and the original colour of the fresh rock is no longer recognisable
Slightly weathered	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh	FR	Rock shows no sign of decomposition or staining.

If differentiation between highly and moderately weathered rock can not be determined, then distinctly weathered is used which complies to terms described in Australian Standard AS1726.

DEFECT SPACING/BEDDING THICKNESS

Measured at right angles to defects of same set or bedding.

Term	Defect Spacing	Bedding
Extremely closely spaced	<6 mm 6 to 20 mm	Thinly Laminated Laminated
Very closely spaced	20 to 60 mm	Very Thin
Closely spaced	0.06 to 0.2 m	Thin
Moderately widely spaced	0.2 to 0.6 m	Medium
Widely spaced	0.6 to 2 m	Thick
Very widely spaced	>2 m	Very Thick

DEFECT DESCRIPTION

Symbol	Term
Bg	Bedding
Pt	Parting
F	Fault
C	Cleavage
Jt	Joint
SZ	Shear Zone
Se	Seam
Vn	Vein
DB	Drill Break

PLANARITY/ROUGHNESS

Planarity	Description
Pl	Planar
Un	Undulating
Ir	Irregular
St	Stepped
Roughness	**Description**
Sm	Smooth
Ro	Rough
Po	Polished
Sl	Slickensided

The inclination if defects are measured from the perpendicular to the core axis.

DRILLING/EXCAVATION METHODS

Symbol	Term
AS	Auger Screwing
BH	Backhoe
CT	Cable Tool Rig
DT	Diatube
EE	Existing Excavation/Cutting
EX	Excavator
HA	Hand Auger
JET	Jetting
NMCL	Diamond Core
NQ/HQ/PQ	Diamond Core – wireline
PC	Percussion
PT	Push Tube
RAB	Rotary Air Blast
RC	Reverse Circulation
S	Sonic drill
VB	Vibrocoring
WB	Washbore with blade
WR	Washbore with roller (tricone)

NFGWE **No Free Groundwater Encountered**

The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.

WATER SYMBOLS AND DEFINITIONS

▽ **Water level at date shown**

Partial water loss **Water inflow**

◀ **Complete water loss**

Graphic Symbols for Soils & Rocks

Typical symbols for soils and rocks are as follows. Combinations of these symbols may be used to indicate mixed materials such as clayey sand.

Soil Symbols

Main components

- CLAY
- SILT
- SAND
- GRAVEL
- BOULDERS / COBBLES
- TOPSOIL
- PEAT

Minor Components

- Clayey
- Silty
- Sandy
- Gravelly

Other

- FILL
- BITUMEN
- CONCRETE

Rock Symbols

Sedimentary Rocks

- SANDSTONE
- SILTSTONE
- CLAYSTONE, MUDSTONE
- SHALE
- LAMINITE
- COAL
- LIMESTONE
- CONGLOMERATE

Igneous Rocks

- GRANITE
- BASALT
- UNDIFFERENTIATED IGNEOUS

Metamorphic Rocks

- SLATE, PHYLLITE, SCHIST
- GNEISS
- QUARTZITE

NFGWE No Free Groundwater Encountered: The borehole/test pit was dry soon after excavation; however groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/test pit been left open for a longer period.

These tables are an extract from LANDSLIDE RISK MANAGEMENT CONCEPTS AND GUIDELINES as presented in Australian Geomechanics, Vol. 35, No. 1, 2000 which discusses the matter more fully.

APPENDIX H

LABORATORY REPORTS

CHAIN OF CUSTODY RECORD

☐ **Sydney Laboratory** Unit F3 Eld.F 16 Mars Road Lane Cove West NSW 2066

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project №	PS120574	Project Manager	Shya Jackson
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Jennifer Catherine				
Phone №	.0061884054339				
Special Directions					
Purchase Order					
Quote ID №	200716WSPS				

Sampler(s)	JC/MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; SHR.AUADLLABresults@wsp.com

Analyses: Where metals are requested please specify "Total" or "Filtered". SUITE codes must be used to attract SUITE pricing

Containers: Change container type & size if necessary.

Required Turnaround Time (TAT): Default will be 5 days if not ticked.

☐ Overnight (reporting by 9am)◆ (*Surcharge will apply)
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3 days ◆
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R2@ NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRH C6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	BH01_0.0-0.1	20/07/20	S																1		
2	BH01_0.4-0.5	20/07/20	S				X												1		
3	BH01_0.75-0.85	20/07/20	S																1		
4	BH02_0.0-0.1	20/07/20	S				X												1		
5	BH02_0.4-0.5	20/07/20	S																1		
6	BH02_0.9-1.0	20/07/20	S																1		
7	BH03_0.0-0.1	20/07/20	S																1		
8	BH03_0.4-0.5	20/07/20	S							X									1		
9	BH03_0.60-0.75	20/07/20	S																1		
10	TP01_0.0-0.1	20/07/20	S																1		
11	TP01_0.3-0.4	20/07/20	S	X			X												1		
12	TP01_0.9-1.0	20/07/20	S																1		
13	TP02_0.0-0.1	20/07/20	S																1		
14	TP02_0.4-0.5	20/07/20	S																1		
15	TP02_0.9-1.0	20/07/20	S	X															1		
16	TP03_0.0-0.1	20/07/20	S	X															1		
17	TP03_0.4-0.5	20/07/20	S																1		
18	TP03_0.9-1.0	20/07/20	S																1		

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Imprest
23/7/20.

CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
EnvirosSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project №	PS120574	Project Manager	Shya Jackson
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Jennifer Catherine				
Phone №	0061884054339				
Special Directions					
Purchase Order					
Quote ID №	200716WSPS				

Sampler(s)	JC/MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; SHR.AUADLLABresults@wsp.com

Containers (Change container type & size if necessary)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked)

*Surcharge will apply
☐ Overnight (reporting by 9am)*
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3 days ◆
☑ 5 days (Standard)
☐ Other( )

Analyses: Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attach SUITE prices.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R22 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
19	TP04_0.0-0.1	20/07/20	S	X															1	1	
20	TP04_0.4-0.5	20/07/20	S																1		
21	TP04_0.9-1.0	20/07/20	S																1		
22	TP05_0.0-0.1	20/07/20	S																1	1	
23	TP05_0.4-0.5	20/07/20	S						X										1		
24	TP05_0.9-1.0	20/07/20	S							X									1		
25	TP06_0.0-0.1	20/07/20	S																1	1	
26	TP06_0.4-0.5	20/07/20	S																1		
27	TP06_1.0-1.1	20/07/20	S	X															1		
28	TP07_0.0-0.1	20/07/20	S						X										1		
29	TP07_0.5-0.6	20/07/20	S																1		
30	TP07_0.9-1.0	20/07/20	S																1		
31	TP08_0.0-0.1	20/07/20	S			X													1	1	
32	TP08_0.4-0.5	20/07/20	S																1		
33	TP08_0.9-1.0	20/07/20	S																1		
34	TP09_0.0-0.1	20/07/20	S						X										1	1	
35	TP09_0.4-0.5	20/07/20	S																1		
36	TP09_0.9-1.0	20/07/20	S																1		

733450
23/7/20

CHAIN OF CUSTODY RECORD

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172

☐ Perth Laboratory
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6 Monterey Road Dandenong South VIC 3175
EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project №	PS120574	Project Manager	Shya Jackson
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach	EDD Format (Field, Equis, etc)	Esdat
Contact Name	Jennifer Catherine				
Phone №	0061884054339				
Special Directions					
Purchase Order					
Quote ID №	200716WSPS				

Sampler(s)	JC/MG	
Handed over by	MG	
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; SHR.AUADLLABresults@wsp.com	

Containers (Change container type if more if necessary)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked)

*Surcharge will apply
☐ Overnight (reporting by 9am)*
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3 days ◆
☑ 5 days (Standard)
☐ Other( )

Analyses (Where metals are requested please specify "Total" or "dissolved". SUITE code must be used to direct SUITE testing)

№	Client Sample ID	Sampled Date/Time d/m/yy hr:min	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R2 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
37	TP10_0.0-0.1	20/07/20	S																1	1	
38	TP10A_0.0-0.1	20/07/20	S																1	1	
39	TP10A_0.3-0.4	20/07/20	S	X															1		
40	TP10A_0.9-1.0	20/07/20	S				X												1		
41	TP11_0.0-0.1	20/07/20	S																1		
42	TP11_0.4-0.5	20/07/20	S			X													1		
43	TP11_0.9-1.0	20/07/20	S																1		
44	TP12_0.0-0.1	20/07/20	S						X										1	1	
45	TP12_0.4-0.5	20/07/20	S																1		
46	TP12_0.9-1.0	20/07/20	S																1		
47	TP13_0.0-0.1	21/07/20	S																1	1	
48	TP13_0.4-0.5	21/07/20	S																1		
49	TP13_0.9-1.0	21/07/20	S																1		
50	TP13_1.4-1.5	21/07/20	S			X													1		
51	TP13_1.9-2.0	21/07/20	S				X												1		
52	TP14_0.0-0.1	21/07/20	S	X															1		
53	TP14_0.4-0.5	21/07/20	S				X												1		
54	TP14_0.9-1.0	21/07/20	S																1		

23/7/20

733 480

CHAIN OF CUSTODY RECORD

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172

☐ Perth Laboratory

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175

Company	WSP Australia Pty Limited
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia
Contact Name	Jennifer Catherine
Phone №	0061884054339
Special Directions	
Purchase Order	
Quote ID №	200716WSPS

Project №	PS120574
Project Name	O'Sullivan Beach
Project Manager	Shya Jackson
EDD Format (Esdat, Ecosoft etc)	Esdat
Sampler(s)	JC/MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; SHR.AUADLLABresults@wsp.com

Analyses — Where metals are requested, please specify "Total" or "Filtered". SATE code must be used to default SATE pricing.

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not timed.

*Surcharge will apply
☐ Overnight (reporting by 9am)*
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3 days ◆
☑ 5 days (Standard)
☐ Other(

№	Client Sample ID	Sampled Date/Time d/d/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R20 NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs	Asbestos ID (presence/absence)	B13 +B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
55	TP15_0.0-0.1	21/07/20	S						X										1	1	
56	TP15_0.4-0.5	21/07/20	S																1		
57	TP15_0.9-1.0	21/07/20	S																1		
58	TP16_0.0-0.1	21/07/20	S																1		
59	TP16_0.4-0.5	21/07/20	S																1		
60	TP16_1.0-1.1	21/07/20	S																1		
61	TP16_1.9-2.0	21/07/20	S	X			X												1		
62	TP17_0.0-0.1	21/07/20	S																1	1	
63	TP17_0.4-0.5	21/07/20	S																1		
64	TP17_0.9-1.0	21/07/20	S			X	X												1		
65	TP18_0.0-0.1	21/07/20	S			X													1	1	
66	TP18_0.4-0.5	21/07/20	S																1		
67	TP18_0.9-1.0	21/07/20	S																1		
68	TP19_0.0-0.1	21/07/20	S																1		
69	TP19_0.4-0.5	21/07/20	S																1		
70	TP19_0.9-1.0	21/07/20	S	X															1	1	
71	TP20_0.0-0.1	21/07/20	S																1	1	
72	TP20_0.4-0.5	21/07/20	S	X															1		

733480
23/7/20

CHAIN OF CUSTODY RECORD

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
Email: EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
Email: EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project No	PS120574
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach
Contact Name	Jennifer Catherine	Project Manager	Shya Jackson
Phone No	0061884054339	EDD Format (Excel, Esdat, etc)	Esdat
Special Directions		Sampler(s)	JC/MG
Purchase Order		Handed over by	MG
Quote ID No	200716WSPS	Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; SHR.AUADILLABresults@wsp.com

Analysis (Where metals are requested, please specify "Total" or "Filtered". SUFFIX Code must be used to direct SUITE pricing)

Containers (Change container type if sure if necessary.)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked)

*Surcharge will apply
☐ Overnight (reporting by 9am)*
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3 days ◆
☑ 5 days (Standard)
☐ Other( )

No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Soil (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R2 NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
73	TP20_0.9-1.0	21/07/20	S																1		
74	QC01_JC	20/07/20	S																1		
75	QC02_JC	20/07/20	S																1		
76	QC01	20/07/20	S																1		
77	QC02	20/07/20	S																1		
78	QC03	20/07/20	S						X										1		
79	QC04	20/07/20	S	X															1		Please forward to ALS
80	QC05	20/07/20	S																1		
81	QC06	20/07/20	S																1		
82	QC07	21/07/20	S				X												1		
83	QC08	21/07/20	S																1		
84	QC09	21/07/20	S																1		
85	QC10	21/07/20	S																1		
86	QC11	21/07/20	S																1		
87	QC12	21/07/20	S																1		
88	RB01	20/07/20	W			X	X							1	1	2					
89	RB02	21/07/20	W			X	X							1	1	2					
90	TB01	21/07/20	W								X					1					
Add new rows		Total Counts		11		7	11		6	2	1			2	2	5		67	13		

CHAIN OF CUSTODY RECORD

☐ **Sydney Laboratory**
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066

☐ **Brisbane Laboratory**
Unit 1 21 Smallwood Place Murarrie QLD 4172

☐ **Perth Laboratory**
2 31 Leach Highway Kewdale WA 6105

☐ **Melbourne Laboratory**
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia
Contact Name	Jennifer Catherine
Phone №	0061884054339
Special Directions	
Purchase Order	
Quote ID №	200716WSPS

Project №	PS120574
Project Name	O'Sullivan Beach
Project Manager	Shya Jackson
EDD Format	Esdat

Sampler(s)	JC/MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; SHR.AUADLLABresults@wsp.com

Analyses
- M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
- R21 - NEPM Screen Basic Suite
- B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
- VOCs
- Asbestos ID (presence/absence)
- B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
- R21 - NEPM soil classification
- BTEXN and TRHC6-C10
- hold

Containers
- 500mL Plastic
- 250mL Plastic
- 60mL Plastic
- 200mL Amber Glass
- 40mL VOA vial
- 500mL PFAS Bottle
- Jar (Glass or HDPE)
- Other (Asbestos AS4964, WA Guidelines)

Required Turnaround Time (TAT)
Default will be 5 days if not ticked.
◆Surcharge will apply
- ☐ Overnight (reporting by 9am)◆
- ☐ Same day ◆
- ☐ 1 day ◆
- ☐ 2 days ◆
- ☐ 3 days ◆
- ☑ 5 days (Standard)
- ☐ Other(

№	Client Sample ID	Sampled Date/Time	Matrix Solid (S) Water (W)	Sample Comments / Dangerous Goods Hazard Warning

Method of Shipment	Courier (#	Hand Delivered	Postal	Name	Signature	Date	Time

Eurofins | mgt Laboratory Use Only							
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date	Time	Temperature	
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date	Time	Report №	

Eurofins Environment Testing Australia Pty Ltd trading as Eurofins | mgt

#AU_CAU001_EnviroSampleVic

From: Catherine, Jennifer <Jennifer.Catherine@wsp.com>
Sent: Thursday, 23 July 2020 8:26 AM
To: Michael Cassidy
Cc: Ghaly, Maximus; Jackson, Shya; #AU_CAU001_EnviroSampleVic; Catherine Wilson
Subject: RE: PS120574 - soils samples dispatched from Adelaide
Attachments: COC_PS120574.pdf

Hi Michael,

COC attached.

Kind regards,

Jennifer Catherine
Environmental Scientist

T: +61 8 8405 4339

Jennifer.Catherine@wsp.com

WSP Australia Pty Limited
Level 1
1 King William Street
Adelaide, SA
5000 Australia

wsp.com

From: Michael Cassidy <MichaelCassidy@eurofins.com>
Sent: Wednesday, 22 July 2020 7:30 AM
To: Catherine, Jennifer <Jennifer.Catherine@wsp.com>
Cc: Ghaly, Maximus <Maximus.Ghaly@wsp.com>; Jackson, Shya <Shya.Jackson@wsp.com>; EnviroSampleVic@eurofins.com; Catherine Wilson <CatherineWilson@eurofins.com>
Subject: RE: PS120574 - soils samples dispatched from Adelaide

Hi Jennifer,

Thanks for the heads up, we'll look out for it later today,

@Catherine, FYI,

Thanks,

Kind Regards,

Michael Cassidy

Phone: 8564 5940
Mobile: 0498 700 069
Email : MichaelCassidy@eurofins.com

From: Catherine, Jennifer <Jennifer.Catherine@wsp.com>
Sent: Wednesday, 22 July 2020 7:16 AM
To: Michael Cassidy <MichaelCassidy@eurofins.com>
Cc: Ghaly, Maximus <Maximus.Ghaly@wsp.com>; Jackson, Shya <Shya.Jackson@wsp.com>
Subject: PS120574 - soils samples dispatched from Adelaide

EXTERNAL EMAIL*

Hi Michael,

Just a heads-up that soils samples were dispatched from Adelaide yesterday. I'll email you the COC later on today.

Kind regards,

Jennifer Catherine
Environmental Scientist

T: +61 8 8405 4339

Jennifer.Catherine@wsp.com

WSP Australia Pty Limited
Level 1
1 King William Street
Adelaide, SA
5000 Australia

wsp.com

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#AU_CAU001_EnviroSampleVic

From: Michael Cassidy
Sent: Friday, 24 July 2020 10:20 AM
To: #AU_CAU001_EnviroSampleVic
Cc: Catherine Wilson
Subject: FW: Eurofins Sample Receipt Advice - Report 733480 : Site O''SULLIVAN BEACH (PS120574)
Attachments: 733480_COC.pdf; 733480_sample_receipt_coc.pdf; 733480_summary.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Steve,

Can you please get this testing added on?

Thanks,

Kind Regards,

Michael Cassidy

Phone: 8564 5940
Mobile: 0498 700 069
Email : MichaelCassidy@eurofins.com

From: Catherine, Jennifer <Jennifer.Catherine@wsp.com>
Sent: Friday, 24 July 2020 10:18 AM
To: Michael Cassidy <MichaelCassidy@eurofins.com>
Cc: Jackson, Shya <Shya.Jackson@wsp.com>
Subject: FW: Eurofins Sample Receipt Advice - Report 733480 : Site O''SULLIVAN BEACH (PS120574)

EXTERNAL EMAIL*

Hi Michael,

Can you please add the following testing to this batch:

- **R20 - NEPM Screen HILs Basic Suite** for samples BH03_0.0-0-1 and TP20_0.0-0.1
- **Asbestos ID (presence/absence)** for samples: TP05_0.0-0.1; TP09_0.0-0.1; TP10_0.0-0.1; TP12_0.0-0.1; TP14_0.0-0.1; TP15_0.0-0.1; TP18_0.0-0.1 and TP20_0.0-0.1.

Prices as per quote **200716WSPS**.

Also regarding the Sample Receipt Advice notes, were the samples bags recorded as extra (TP04, TP05, TP06, TP08, TP09, TP10, TP10A, TP12, TP13, TP15, TP17, TP18, TP20 BAGS) referring to the samples listed as 'other' in the containers section on the COC?

Kind regards,

eurofins | Environment Testing

Melbourne
6 Monterey Road
Dandenong South Vic 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**WSP Australia P/L SA**
Contact name:	Shya Jackson
Project name:	O"SULLIVAN BEACH
Project ID:	PS120574
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jul 23, 2020 8:26 AM
Eurofins reference:	**733480**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☑ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

SPLIT SEND TO ALS. TP04,TP05,TP06,TP08,TP09,TP10,TP10A,TP12,TP13,TP15,TP17,TP18,TP20 BAGS RECEIVED EXTRA AND ON HOLD.

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : +61 3 8564 5000 or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Shya Jackson - sjackson@pb.com.au.

eurofins | Environment Testing

ABN – 50 005 085 521 web : www.eurofins.com.au e.mail : EnviroSales@eurofins.com

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
Adelaide
SA 5000

Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 30, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH01_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37686				X	X				
2	BH02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37687				X	X				
3	BH03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37688					X	X			
4	TP01_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37689		X		X	X				
5	TP02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37690		X			X				
6	TP03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37691		X			X				
7	TP04_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37692		X			X				
8	TP05_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37693			X		X			X	
9	TP05_0.9-1.5	Jul 20, 2020		Soil	M20-Jl37694					X	X			
10	TP06_1.0-1.1	Jul 20, 2020		Soil	M20-Jl37695		X			X				

eurofins | Environment Testing

ABN – 50 005 085 521 web : www.eurofins.com.au e.mail : EnviroSales@eurofins.com

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
Adelaide
SA 5000

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 30, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
11	TP08_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37696					X		X		
12	TP09_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37697			X		X			X	
13	TP10A_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37698		X			X				
14	TP10A_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37699				X	X				
15	TP11_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37700					X		X		
16	TP12_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37701			X		X			X	
17	TP13_1.4-1.5	Jul 20, 2020		Soil	M20-Jl37702					X		X		
18	TP13_1.9-2.0	Jul 20, 2020		Soil	M20-Jl37703				X	X				
19	TP14_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37704		X			X				
20	TP14_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37705				X	X				
21	TP15_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37706			X		X			X	
22	TP16_1.9-2.0	Jul 20, 2020		Soil	M20-Jl37707		X		X	X				
23	TP17_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37708				X	X		X		

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Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
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Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 30, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
24	TP18_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37709					X		X		
25	TP19_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37710		X			X				
26	TP20_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37711		X			X				
27	QC03	Jul 20, 2020		Soil	M20-Jl37712			X		X			X	
28	QC07	Jul 20, 2020		Soil	M20-Jl37713				X	X				
29	RB01	Jul 20, 2020		Water	M20-Jl37714				X			X		
30	RB02	Jul 20, 2020		Water	M20-Jl37715				X			X		
31	TB01	Jul 20, 2020		Water	M20-Jl37716									X
32	TP07_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37717			X		X			X	
33	BH01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37718	X								
34	BH01_0.75-0.85	Jul 20, 2020		Soil	M20-Jl37719	X								
35	BH02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37720	X								

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
36	BH02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37721	X								
37	BH03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37722	X								
38	BH03_0.60-0.75	Jul 20, 2020		Soil	M20-Jl37723	X								
39	TP01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37724	X								
40	TP01_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37725	X								
41	TP02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37726	X								
42	TP02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37727	X								
43	TP03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37728	X								
44	TP03_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37729	X								
45	TP04_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37730	X								
46	TP04_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37731	X								
47	TP05_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37732	X								

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
48	TP06_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37733	X								
49	TP06_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37734	X								
50	TP07_0.5-0.6	Jul 20, 2020		Soil	M20-Jl37735	X								
51	TP07_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37736	X								
52	TP08_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37737	X								
53	TP08_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37738	X								
54	TP09_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37739	X								
55	TP09_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37740	X								
56	TP10_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37741	X								
57	TP10A_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37742	X								
58	TP11_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37743	X								
59	TP11_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37744	X								
60	TP12_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37745	X								

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Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
61	TP12_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37746	X								
62	TP13_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37747	X								
63	TP13_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37748	X								
64	TP13_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37749	X								
65	TP14_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37750	X								
66	TP15_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37751	X								
67	TP15_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37752	X								
68	TP16_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37753	X								
69	TP16_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37754	X								
70	TP16_1.0-1.1	Jul 20, 2020		Soil	M20-Jl37755	X								
71	TP17_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37756	X								
72	TP17_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37757	X								
73	TP18_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37758	X								

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Eurofins Analytical Services Manager : Michael Cassidy

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
74	TP18_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37759	X								
75	TP19_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37760	X								
76	TP19_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37761	X								
77	TP20_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37762	X								
78	TP20_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37763	X								
79	QC01_JC	Jul 20, 2020		Soil	M20-Jl37764	X								
80	QC02_JC	Jul 20, 2020		Soil	M20-Jl37765	X								
81	QC01	Jul 20, 2020		Soil	M20-Jl37766	X								
82	QC02	Jul 20, 2020		Soil	M20-Jl37767	X								
83	QC05	Jul 20, 2020		Soil	M20-Jl37768	X								
84	QC06	Jul 20, 2020		Soil	M20-Jl37769	X								
85	QC08	Jul 20, 2020		Soil	M20-Jl37770	X								
86	QC09	Jul 20, 2020		Soil	M20-Jl37771	X								

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
87	QCO10	Jul 20, 2020		Soil	M20-Jl37772	X								
88	QCO11	Jul 20, 2020		Soil	M20-Jl37773	X								
89	QCO12	Jul 20, 2020		Soil	M20-Jl37774	X								
90	TP3_2.1-2.2	Jul 20, 2020		Soil	M20-Jl37775	X								
91	TP04	Jul 20, 2020		Soil	M20-Jl37903	X								
92	TP05	Jul 20, 2020		Soil	M20-Jl37904	X								
93	TP06	Jul 20, 2020		Soil	M20-Jl37905	X								
94	TP08	Jul 20, 2020		Soil	M20-Jl37906	X								
95	TP09	Jul 20, 2020		Soil	M20-Jl37907	X								
96	TP10	Jul 20, 2020		Soil	M20-Jl37908	X								
97	TP10A	Jul 20, 2020		Soil	M20-Jl37909	X								
98	TP12	Jul 20, 2020		Soil	M20-Jl37910	X								
99	TP13	Jul 20, 2020		Soil	M20-Jl37911	X								

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Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794											X			
Perth Laboratory - NATA Site # 23736														
100	TP15	Jul 20, 2020		Soil	M20-Jl37912	X								
101	TP17	Jul 20, 2020		Soil	M20-Jl37913	X								
102	TP18	Jul 20, 2020		Soil	M20-Jl37914	X								
103	TP20	Jul 20, 2020		Soil	M20-Jl37915	X								
Test Counts						71	10	6	11	29	2	7	6	1

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

WSP Australia P/L SA
Level 16, 1 King William St
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SA 5000

Attention:	Shya Jackson
Report	733480-AID
Project Name	O'SULLIVAN BEACH
Project ID	PS120574
Received Date	Jul 23, 2020
Date Reported	Jul 28, 2020

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Project Name O'SULLIVAN BEACH
Project ID PS120574
Date Sampled Jul 20, 2020 to Jul 21, 2020
Report 733480-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP09_0.0-0.1	20-JI37697	Jul 20, 2020	Approximate Sample 73g Sample consisted of: Brown coarse-grained clayey soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP12_0.0-0.1	20-JI37701	Jul 20, 2020	Approximate Sample 68g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP14_0.0-0.1	20-JI37704	Jul 21, 2020	Approximate Sample 45g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP15_0.0-0.1	20-JI37706	Jul 21, 2020	Approximate Sample 74g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP18_0.0-0.1	20-JI37709	Jul 21, 2020	Approximate Sample 42g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP05_0.0-0.1	20-JI37732	Jul 20, 2020	Approximate Sample 72g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP10_0.0-0.1	20-JI37741	Jul 20, 2020	Approximate Sample 96g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP20_0.0-0.1	20-JI37762	Jul 21, 2020	Approximate Sample 55g Sample consisted of: Brown coarse-grained clayey soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Jul 24, 2020	Indefinite

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Received: Jul 23, 2020 8:26 AM
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Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	BH01_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37686					X	X					
2	BH02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37687					X	X					
3	BH03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37688						X		X			
4	TP01_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37689			X		X	X					
5	TP02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37690			X			X					
6	TP03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37691			X			X					
7	TP04_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37692			X			X					
8	TP05_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37693				X		X				X	
9	TP05_0.9-1.5	Jul 20, 2020		Soil	M20-Jl37694						X		X			
10	TP06_1.0-1.1	Jul 20, 2020		Soil	M20-Jl37695			X			X					

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Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
11	TP08_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37696						X			X		
12	TP09_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37697	X			X		X				X	
13	TP10A_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37698			X			X					
14	TP10A_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37699					X	X					
15	TP11_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37700						X			X		
16	TP12_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37701	X			X		X				X	
17	TP13_1.4-1.5	Jul 21, 2020		Soil	M20-Jl37702						X			X		
18	TP13_1.9-2.0	Jul 21, 2020		Soil	M20-Jl37703					X	X					
19	TP14_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37704	X		X			X					
20	TP14_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37705					X	X					
21	TP15_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37706	X			X		X				X	
22	TP16_1.9-2.0	Jul 21, 2020		Soil	M20-Jl37707			X		X	X					
23	TP17_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37708					X	X			X		

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Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
24	TP18_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37709	X					X			X		
25	TP19_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37710			X			X					
26	TP20_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37711			X			X					
27	QC03	Jul 20, 2020		Soil	M20-Jl37712				X		X				X	
28	QC07	Jul 21, 2020		Soil	M20-Jl37713					X	X					
29	RB01	Jul 20, 2020		Water	M20-Jl37714					X				X		
30	RB02	Jul 21, 2020		Water	M20-Jl37715					X				X		
31	TB01	Jul 21, 2020		Water	M20-Jl37716											X
32	TP07_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37717				X		X				X	
33	BH01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37718		X									
34	BH01_0.75-0.85	Jul 20, 2020		Soil	M20-Jl37719		X									
35	BH02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37720		X									

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Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
36	BH02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37721		X									
37	BH03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37722						X	X				
38	BH03_0.60-0.75	Jul 20, 2020		Soil	M20-Jl37723		X									
39	TP01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37724		X									
40	TP01_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37725		X									
41	TP02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37726		X									
42	TP02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37727		X									
43	TP03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37728		X									
44	TP03_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37729		X									
45	TP04_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37730		X									
46	TP04_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37731		X									
47	TP05_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37732	X										

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Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
48	TP06_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37733		X									
49	TP06_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37734		X									
50	TP07_0.5-0.6	Jul 20, 2020		Soil	M20-Jl37735		X									
51	TP07_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37736		X									
52	TP08_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37737		X									
53	TP08_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37738		X									
54	TP09_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37739		X									
55	TP09_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37740		X									
56	TP10_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37741	X										
57	TP10A_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37742		X									
58	TP11_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37743		X									
59	TP11_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37744		X									
60	TP12_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37745		X									

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Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
61	TP12_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37746		X									
62	TP13_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37747		X									
63	TP13_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37748		X									
64	TP13_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37749		X									
65	TP14_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37750		X									
66	TP15_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37751		X									
67	TP15_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37752		X									
68	TP16_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37753		X									
69	TP16_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37754		X									
70	TP16_1.0-1.1	Jul 21, 2020		Soil	M20-Jl37755		X									
71	TP17_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37756		X									
72	TP17_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37757		X									
73	TP18_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37758		X									

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Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
74	TP18_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37759		X									
75	TP19_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37760		X									
76	TP19_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37761		X									
77	TP20_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37762	X					X	X				
78	TP20_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37763		X									
79	QC01_JC	Jul 20, 2020		Soil	M20-Jl37764		X									
80	QC02_JC	Jul 20, 2020		Soil	M20-Jl37765		X									
81	QC01	Jul 20, 2020		Soil	M20-Jl37766		X									
82	QC02	Jul 20, 2020		Soil	M20-Jl37767		X									
83	QC05	Jul 20, 2020		Soil	M20-Jl37768		X									
84	QC06	Jul 20, 2020		Soil	M20-Jl37769		X									
85	QC08	Jul 21, 2020		Soil	M20-Jl37770		X									
86	QC09	Jul 21, 2020		Soil	M20-Jl37771		X									

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Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 30, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
87	QC010	Jul 21, 2020		Soil	M20-JI37772		X									
88	QC011	Jul 21, 2020		Soil	M20-JI37773		X									
89	QC012	Jul 21, 2020		Soil	M20-JI37774		X									
90	TP3_2.1-2.2	Jul 20, 2020		Soil	M20-JI37775		X									
91	TP04	Jul 20, 2020		Soil	M20-JI37903		X									
92	TP05	Jul 20, 2020		Soil	M20-JI37904		X									
93	TP06	Jul 20, 2020		Soil	M20-JI37905		X									
94	TP08	Jul 20, 2020		Soil	M20-JI37906		X									
95	TP09	Jul 20, 2020		Soil	M20-JI37907		X									
96	TP10	Jul 20, 2020		Soil	M20-JI37908		X									
97	TP10A	Jul 20, 2020		Soil	M20-JI37909		X									
98	TP12	Jul 20, 2020		Soil	M20-JI37910		X									
99	TP13	Jul 20, 2020		Soil	M20-JI37911		X									

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Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
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Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 30, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X										
Brisbane Laboratory - NATA Site # 20794													X			
Perth Laboratory - NATA Site # 23736																
100	TP15	Jul 20, 2020		Soil	M20-Jl37912		X									
101	TP17	Jul 20, 2020		Soil	M20-Jl37913		X									
102	TP18	Jul 20, 2020		Soil	M20-Jl37914		X									
103	TP20	Jul 20, 2020		Soil	M20-Jl37915		X									
Test Counts						8	67	10	6	11	31	2	2	7	6	1

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

WSP Australia P/L SA
Level 16, 1 King William St
Adelaide
SA 5000

Attention: **Shya Jackson**

Report **733480-S**
Project name O'SULLIVAN BEACH
Project ID PS120574
Received Date Jul 23, 2020

Client Sample ID			**BH01_0.4-0.5**	**BH02_0.0-0.1**	**BH03_0.4-0.5**	**TP01_0.3-0.4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M20-JI37686**	**M20-JI37687**	**M20-JI37688**	**M20-JI37689**
Date Sampled			**Jul 20, 2020**	**Jul 20, 2020**	**Jul 20, 2020**	**Jul 20, 2020**
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5

Client Sample ID			BH01_0.4-0.5	BH02_0.0-0.1	BH03_0.4-0.5	TP01_0.3-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37686	M20-JI37687	M20-JI37688	M20-JI37689
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromochloromethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Styrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
4-Bromofluorobenzene (surr.)	1	%	42	48	-	53
Toluene-d8 (surr.)	1	%	60	67	-	77
% Moisture	1	%	16	18	12	16
% Clay	1	%	-	-	10	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	310	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	-	-	8.6	-
Total Organic Carbon	0.1	%	-	-	0.6	-
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	2.4
Cadmium	0.4	mg/kg	-	-	-	< 0.4
Chromium	5	mg/kg	-	-	-	21
Copper	5	mg/kg	-	-	-	9.3
Iron	20	mg/kg	-	-	7300	-
Lead	5	mg/kg	-	-	-	8.9
Mercury	0.1	mg/kg	-	-	-	< 0.1
Nickel	5	mg/kg	-	-	-	13
Zinc	5	mg/kg	-	-	-	20
Heavy Metals						
Iron (%)	0.01	%	-	-	0.73	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	-	39	-

Client Sample ID			TP02_0.9-1.0	TP03_0.0-0.1	TP04_0.0-0.1	TP05_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37690	M20-JI37691	M20-JI37692	M20-JI37693
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
% Moisture	1	%	14	18	17	12
Heavy Metals						
Arsenic	2	mg/kg	6.7	2.4	3.3	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	22	32	8.2
Copper	5	mg/kg	6.4	11	16	5.6
Lead	5	mg/kg	8.0	8.7	13	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	10	14	19	6.5
Zinc	5	mg/kg	15	19	38	6.4
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5

Client Sample ID			TP02_0.9-1.0	TP03_0.0-0.1	TP04_0.0-0.1	TP05_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37690	M20-Jl37691	M20-Jl37692	M20-Jl37693
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	76
p-Terphenyl-d14 (surr.)	1	%	-	-	-	81
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	66
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	93
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	66
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	93

Client Sample ID			TP02_0.9-1.0	TP03_0.0-0.1	TP04_0.0-0.1	TP05_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37690	M20-JI37691	M20-JI37692	M20-JI37693
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	10	mg/kg	-	-	-	< 10
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	41

Client Sample ID			TP05_0.9-1.5	TP06_1.0-1.1	TP08_0.0-0.1	TP09_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37694	M20-JI37695	M20-JI37696	M20-JI37697
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
% Moisture	1	%	12	13	14	14
% Clay	1	%	13	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	140	-	-	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	8.2	-	-	-
Total Organic Carbon	0.1	%	1.2	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	-	2.7	2.8	3.0
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	18	29	27
Copper	5	mg/kg	-	8.8	13	14
Iron	20	mg/kg	9800	-	-	-
Lead	5	mg/kg	-	7.0	12	17
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	-	14	16	18
Zinc	5	mg/kg	-	18	25	100
Heavy Metals						
Iron (%)	0.01	%	0.98	-	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	38	-	-	-

Client Sample ID			TP05_0.9-1.5	TP06_1.0-1.1	TP08_0.0-0.1	TP09_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37694	M20-JI37695	M20-JI37696	M20-JI37697
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	100	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	97	70
p-Terphenyl-d14 (surr.)	1	%	-	-	102	68

Client Sample ID			TP05_0.9-1.5	TP06_1.0-1.1	TP08_0.0-0.1	TP09_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37694	M20-JI37695	M20-JI37696	M20-JI37697
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	57
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	97
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	57
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	97
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	10	mg/kg	-	-	-	< 10
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1

Client Sample ID			TP05_0.9-1.5	TP06_1.0-1.1	TP08_0.0-0.1	TP09_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37694	M20-JI37695	M20-JI37696	M20-JI37697
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	31

Client Sample ID			TP10A_0.3-0.4	TP10A_0.9-1.0	TP11_0.4-0.5	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37698	M20-JI37699	M20-JI37700	M20-JI37701
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	-	-
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	-	-
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	-	-
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	-	-
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	-	-
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	-	-
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	-	-
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	-	-
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	-	-
2-Propanone (Acetone)	0.5	mg/kg	-	< 0.5	-	-
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	-	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	-	-
Allyl chloride	0.5	mg/kg	-	< 0.5	-	-
Benzene	0.1	mg/kg	-	< 0.1	-	-
Bromobenzene	0.5	mg/kg	-	< 0.5	-	-
Bromochloromethane	0.5	mg/kg	-	< 0.5	-	-
Bromodichloromethane	0.5	mg/kg	-	< 0.5	-	-
Bromoform	0.5	mg/kg	-	< 0.5	-	-
Bromomethane	0.5	mg/kg	-	< 0.5	-	-
Carbon disulfide	0.5	mg/kg	-	< 0.5	-	-
Carbon Tetrachloride	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			TP10A_0.3-0.4	TP10A_0.9-1.0	TP11_0.4-0.5	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37698	M20-JI37699	M20-JI37700	M20-JI37701
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
Chlorobenzene	0.5	mg/kg	-	< 0.5	-	-
Chloroethane	0.5	mg/kg	-	< 0.5	-	-
Chloroform	0.5	mg/kg	-	< 0.5	-	-
Chloromethane	0.5	mg/kg	-	< 0.5	-	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	-	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	-	-
Dibromochloromethane	0.5	mg/kg	-	< 0.5	-	-
Dibromomethane	0.5	mg/kg	-	< 0.5	-	-
Dichlorodifluoromethane	0.5	mg/kg	-	< 0.5	-	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	-
Iodomethane	0.5	mg/kg	-	< 0.5	-	-
Isopropyl benzene (Cumene)	0.5	mg/kg	-	< 0.5	-	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	-
Methylene Chloride	0.5	mg/kg	-	< 0.5	-	-
o-Xylene	0.1	mg/kg	-	< 0.1	-	-
Styrene	0.5	mg/kg	-	< 0.5	-	-
Tetrachloroethene	0.5	mg/kg	-	< 0.5	-	-
Toluene	0.1	mg/kg	-	< 0.1	-	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	-	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	-	-
Trichloroethene	0.5	mg/kg	-	< 0.5	-	-
Trichlorofluoromethane	0.5	mg/kg	-	< 0.5	-	-
Vinyl chloride	0.5	mg/kg	-	< 0.5	-	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	-
Total MAH*	0.5	mg/kg	-	< 0.5	-	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	< 0.5	-	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	< 0.5	-	-
4-Bromofluorobenzene (surr.)	1	%	-	106	-	-
Toluene-d8 (surr.)	1	%	-	94	-	-
% Moisture	1	%	16	14	13	17
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	< 2	5.4
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	12	-	9.9	31
Copper	5	mg/kg	6.6	-	< 5	12
Lead	5	mg/kg	< 5	-	< 5	9.6
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Nickel	5	mg/kg	9.2	-	7.6	18
Zinc	5	mg/kg	13	-	6.9	24
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	< 50

Client Sample ID			TP10A_0.3-0.4	TP10A_0.9-1.0	TP11_0.4-0.5	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37698	M20-JI37699	M20-JI37700	M20-JI37701
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	82	88
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	120	84
p-Terphenyl-d14 (surr.)	1	%	-	-	120	94
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			TP10A_0.3-0.4	TP10A_0.9-1.0	TP11_0.4-0.5	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37698	M20-JI37699	M20-JI37700	M20-JI37701
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	92
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	109
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	92
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	109
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	10	mg/kg	-	-	-	< 10
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20

Client Sample ID			TP10A_0.3-0.4	TP10A_0.9-1.0	TP11_0.4-0.5	TP12_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37698	M20-JI37699	M20-JI37700	M20-JI37701
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 20, 2020	Jul 20, 2020
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	36

Client Sample ID			TP13_1.4-1.5	TP13_1.9-2.0	TP14_0.0-0.1	TP14_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37702	M20-JI37703	M20-JI37704	M20-JI37705
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	-	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	-	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	-	< 0.5	-	< 0.5
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	-	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	-	< 0.5
Allyl chloride	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Bromobenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
Bromochloromethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Bromodichloromethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Bromoform	0.5	mg/kg	-	< 0.5	-	< 0.5
Bromomethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Carbon disulfide	0.5	mg/kg	-	< 0.5	-	< 0.5
Carbon Tetrachloride	0.5	mg/kg	-	< 0.5	-	< 0.5
Chlorobenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chloroethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Chloroform	0.5	mg/kg	-	< 0.5	-	< 0.5
Chloromethane	0.5	mg/kg	-	< 0.5	-	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	-	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibromochloromethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibromomethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	-	< 0.5	-	< 0.5

Client Sample ID			TP13_1.4-1.5	TP13_1.9-2.0	TP14_0.0-0.1	TP14_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37702	M20-Jl37703	M20-Jl37704	M20-Jl37705
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Iodomethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	-	< 0.5	-	< 0.5
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
Methylene Chloride	0.5	mg/kg	-	< 0.5	-	< 0.5
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Styrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Tetrachloroethene	0.5	mg/kg	-	< 0.5	-	< 0.5
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	-	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	-	< 0.5
Trichloroethene	0.5	mg/kg	-	< 0.5	-	< 0.5
Trichlorofluoromethane	0.5	mg/kg	-	< 0.5	-	< 0.5
Vinyl chloride	0.5	mg/kg	-	< 0.5	-	< 0.5
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
Total MAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	< 0.5	-	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	< 0.5	-	< 0.5
4-Bromofluorobenzene (surr.)	1	%	-	100	-	94
Toluene-d8 (surr.)	1	%	-	89	-	83
% Moisture	1	%	12	12	13	14
Heavy Metals						
Arsenic	2	mg/kg	2.4	-	4.7	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	13	-	24	-
Copper	5	mg/kg	5.5	-	13	-
Lead	5	mg/kg	< 5	-	24	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	9.3	-	21	-
Zinc	5	mg/kg	11	-	140	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	78	-	-	-

Client Sample ID			TP13_1.4-1.5	TP13_1.9-2.0	TP14_0.0-0.1	TP14_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37702	M20-JI37703	M20-JI37704	M20-JI37705
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	102	-	-	-
p-Terphenyl-d14 (surr.)	1	%	105	-	-	-

Client Sample ID			TP15_0.0-0.1	TP16_1.9-2.0	TP17_0.9-1.0	TP18_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37706	M20-JI37707	M20-JI37708	M20-JI37709
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	-

Client Sample ID			TP15_0.0-0.1	TP16_1.9-2.0	TP17_0.9-1.0	TP18_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37706	M20-Jl37707	M20-Jl37708	M20-Jl37709
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Propanone (Acetone)	0.5	mg/kg	-	< 0.5	< 0.5	-
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	< 0.5	-
Allyl chloride	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Bromobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromoform	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromomethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Carbon disulfide	0.5	mg/kg	-	< 0.5	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	< 0.5	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
Chloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Chloroform	0.5	mg/kg	-	< 0.5	< 0.5	-
Chloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5	-
Dibromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Dibromomethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Iodomethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Isopropyl benzene (Cumene)	0.5	mg/kg	-	< 0.5	< 0.5	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
Methylene Chloride	0.5	mg/kg	-	< 0.5	< 0.5	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Styrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5	-
Trichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Vinyl chloride	0.5	mg/kg	-	< 0.5	< 0.5	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	-
Total MAH*	0.5	mg/kg	-	< 0.5	< 0.5	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	< 0.5	< 0.5	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	< 0.5	< 0.5	-
4-Bromofluorobenzene (surr.)	1	%	-	98	100	-
Toluene-d8 (surr.)	1	%	-	87	90	-
% Moisture	1	%	13	11	18	15

Client Sample ID			TP15_0.0-0.1	TP16_1.9-2.0	TP17_0.9-1.0	TP18_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-JI37706	M20-JI37707	M20-JI37708	M20-JI37709
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	2.9	6.6	5.8	5.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	26	9.0	26	21
Copper	5	mg/kg	13	< 5	5.8	18
Lead	5	mg/kg	11	< 5	30	83
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	17	5.2	17	12
Zinc	5	mg/kg	27	7.3	19	100
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	-	< 50	240
TRH C29-C36	50	mg/kg	< 50	-	< 50	130
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	370
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	82	-	100	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100	310
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	310
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	8.4
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	8.4
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	8.4
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	0.7
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	1.9
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	4.8
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	5.9
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	4.1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	2.8
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	4.3
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	4.2
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	0.9
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	14
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	2.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			TP15_0.0-0.1	TP16_1.9-2.0	TP17_0.9-1.0	TP18_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37706	M20-Jl37707	M20-Jl37708	M20-Jl37709
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	8.1
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	12
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	66.2
2-Fluorobiphenyl (surr.)	1	%	106	-	110	93
p-Terphenyl-d14 (surr.)	1	%	146	-	128	103
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	126	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	103	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	-	-
Total PCB*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	126	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	103	-	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	-
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	-	-

Client Sample ID			TP15_0.0-0.1	TP16_1.9-2.0	TP17_0.9-1.0	TP18_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37706	M20-Jl37707	M20-Jl37708	M20-Jl37709
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-	-
Tetrachlorophenols - Total	10	mg/kg	< 10	-	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	-
2-Nitrophenol	1.0	mg/kg	< 1	-	-	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	-
4-Nitrophenol	5	mg/kg	< 5	-	-	-
Dinoseb	20	mg/kg	< 20	-	-	-
Phenol	0.5	mg/kg	< 0.5	-	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	-
Phenol-d6 (surr.)	1	%	50	-	-	-

Client Sample ID			TP19_0.9-1.0	TP20_0.4-0.5	QC03	QC07
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37710	M20-Jl37711	M20-Jl37712	M20-Jl37713
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1-Dichloroethene	0.5	mg/kg	-	-	-	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	-	< 0.5
1.2-Dibromoethane	0.5	mg/kg	-	-	-	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1.2-Dichloroethane	0.5	mg/kg	-	-	-	< 0.5
1.2-Dichloropropane	0.5	mg/kg	-	-	-	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	-	-	-	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	-	-	-	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
1.3-Dichloropropane	0.5	mg/kg	-	-	-	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	-	-	-	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	-	-	-	< 0.5
2-Butanone (MEK)	0.5	mg/kg	-	-	-	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	-	-	-	< 0.5
4-Chlorotoluene	0.5	mg/kg	-	-	-	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	-	-	< 0.5
Allyl chloride	0.5	mg/kg	-	-	-	< 0.5
Benzene	0.1	mg/kg	-	-	-	< 0.1
Bromobenzene	0.5	mg/kg	-	-	-	< 0.5

Client Sample ID			TP19_0.9-1.0	TP20_0.4-0.5	QC03	QC07
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37710	M20-Jl37711	M20-Jl37712	M20-Jl37713
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
Bromochloromethane	0.5	mg/kg	-	-	-	< 0.5
Bromodichloromethane	0.5	mg/kg	-	-	-	< 0.5
Bromoform	0.5	mg/kg	-	-	-	< 0.5
Bromomethane	0.5	mg/kg	-	-	-	< 0.5
Carbon disulfide	0.5	mg/kg	-	-	-	< 0.5
Carbon Tetrachloride	0.5	mg/kg	-	-	-	< 0.5
Chlorobenzene	0.5	mg/kg	-	-	-	< 0.5
Chloroethane	0.5	mg/kg	-	-	-	< 0.5
Chloroform	0.5	mg/kg	-	-	-	< 0.5
Chloromethane	0.5	mg/kg	-	-	-	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	-	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	-	< 0.5
Dibromochloromethane	0.5	mg/kg	-	-	-	< 0.5
Dibromomethane	0.5	mg/kg	-	-	-	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	-	-	-	< 0.5
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
Iodomethane	0.5	mg/kg	-	-	-	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	-	-	-	< 0.5
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
Methylene Chloride	0.5	mg/kg	-	-	-	< 0.5
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Styrene	0.5	mg/kg	-	-	-	< 0.5
Tetrachloroethene	0.5	mg/kg	-	-	-	< 0.5
Toluene	0.1	mg/kg	-	-	-	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	-	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	-	< 0.5
Trichloroethene	0.5	mg/kg	-	-	-	< 0.5
Trichlorofluoromethane	0.5	mg/kg	-	-	-	< 0.5
Vinyl chloride	0.5	mg/kg	-	-	-	< 0.5
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
Total MAH*	0.5	mg/kg	-	-	-	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	-	-	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	-	-	< 0.5
4-Bromofluorobenzene (surr.)	1	%	-	-	-	103
Toluene-d8 (surr.)	1	%	-	-	-	93
% Moisture	1	%	14	13	13	12
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	2.5	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	13	9.1	13	-
Copper	5	mg/kg	5.4	< 5	9.0	-
Lead	5	mg/kg	< 5	< 5	< 5	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	11	9.2	11	-
Zinc	5	mg/kg	10	7.1	11	-

Client Sample ID			TP19_0.9-1.0	TP20_0.4-0.5	QC03	QC07
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37710	M20-Jl37711	M20-Jl37712	M20-Jl37713
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	105	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	-
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	-
Anthracene	0.5	mg/kg	-	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Chrysene	0.5	mg/kg	-	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Phenanthrene	0.5	mg/kg	-	-	< 0.5	-
Pyrene	0.5	mg/kg	-	-	< 0.5	-
Total PAH*	0.5	mg/kg	-	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	-	65	-
p-Terphenyl-d14 (surr.)	1	%	-	-	68	-

Client Sample ID			TP19_0.9-1.0	TP20_0.4-0.5	QC03	QC07
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37710	M20-Jl37711	M20-Jl37712	M20-Jl37713
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	61	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	90	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	-
Total PCB*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	61	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	90	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.4.6-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1	mg/kg	-	-	< 1	-
Pentachlorophenol	1	mg/kg	-	-	< 1	-
Tetrachlorophenols - Total	10	mg/kg	-	-	< 10	-
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	-

Client Sample ID			TP19_0.9-1.0	TP20_0.4-0.5	QC03	QC07
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37710	M20-Jl37711	M20-Jl37712	M20-Jl37713
Date Sampled			Jul 21, 2020	Jul 21, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
2-Nitrophenol	1.0	mg/kg	-	-	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-
4-Nitrophenol	5	mg/kg	-	-	< 5	-
Dinoseb	20	mg/kg	-	-	< 20	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	-
Phenol-d6 (surr.)	1	%	-	-	39	-

Client Sample ID			TP07_0.0-0.1	BH03_0.0-0.1	TP20_0.0-0.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37717	M20-Jl37722	M20-Jl37762
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit			
% Moisture	1	%	17	12	16
Chromium (hexavalent)	1	mg/kg	-	< 1	< 1
Cyanide (free)	5	mg/kg	-	< 5	< 5
Heavy Metals					
Arsenic	2	mg/kg	3.1	4.3	5.9
Beryllium	2	mg/kg	-	< 2	< 2
Boron	10	mg/kg	-	43	26
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	30	26	20
Cobalt	5	mg/kg	-	7.9	5.8
Copper	5	mg/kg	15	12	13
Lead	5	mg/kg	11	13	52
Manganese	5	mg/kg	-	360	280
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	18	15	11
Selenium	2	mg/kg	-	< 2	< 2
Zinc	5	mg/kg	26	26	100
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	37
TRH C15-C28	50	mg/kg	< 50	< 50	300
TRH C29-C36	50	mg/kg	< 50	< 50	260
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	597
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Client Sample ID			TP07_0.0-0.1	BH03_0.0-0.1	TP20_0.0-0.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37717	M20-Jl37722	M20-Jl37762
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit			
BTEX					
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	85	87	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	91
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	91
TRH >C16-C34	100	mg/kg	< 100	< 100	410
TRH >C34-C40	100	mg/kg	< 100	< 100	190
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	691
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	2.2
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	2.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	2.7
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	1.7
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	1.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	1.3
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	1.2
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	1.3
Chrysene	0.5	mg/kg	< 0.5	< 0.5	1.4
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	4.2
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.9
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	3.2
Pyrene	0.5	mg/kg	< 0.5	< 0.5	4.0
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	20.9
2-Fluorobiphenyl (surr.)	1	%	69	77	62
p-Terphenyl-d14 (surr.)	1	%	68	96	71
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-

Client Sample ID			TP07_0.0-0.1	BH03_0.0-0.1	TP20_0.0-0.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37717	M20-Jl37722	M20-Jl37762
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit			
Organochlorine Pesticides					
Endrin ketone	0.05	mg/kg	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-
Toxaphene	1	mg/kg	< 1	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	60	-	-
Tetrachloro-m-xylene (surr.)	1	%	91	-	-
Bifenthrin	0.05	mg/kg	-	< 0.05	< 0.05
Polychlorinated Biphenyls					
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	60	117	78
Tetrachloro-m-xylene (surr.)	1	%	91	86	66
Phenols (Halogenated)					
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-
Tetrachlorophenols - Total	10	mg/kg	< 10	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	-	-
Phenols (non-Halogenated)					
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-
2-Nitrophenol	1.0	mg/kg	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	< 5	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-
4-Nitrophenol	5	mg/kg	< 5	-	-
Dinoseb	20	mg/kg	< 20	-	-
Phenol	0.5	mg/kg	< 0.5	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-
Phenol-d6 (surr.)	1	%	29	-	-
Organophosphorus Pesticides					
Chlorpyrifos	0.2	mg/kg	-	< 0.2	< 0.2

Client Sample ID			TP07_0.0-0.1	BH03_0.0-0.1	TP20_0.0-0.1
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M20-Jl37717	M20-Jl37722	M20-Jl37762
Date Sampled			Jul 20, 2020	Jul 20, 2020	Jul 21, 2020
Test/Reference	LOR	Unit			
Triazines					
Atrazine	0.2	mg/kg	-	< 0.2	< 0.2
NEPM 2013 Acid Herbicides					
Picloram	0.5	mg/kg	-	< 0.5	< 0.5
2.4-D	0.5	mg/kg	-	< 0.5	< 0.5
2.4.5-T	0.5	mg/kg	-	< 0.5	< 0.5
MCPA	0.5	mg/kg	-	< 0.5	< 0.5
MCPB	0.5	mg/kg	-	< 0.5	< 0.5
Mecoprop	0.5	mg/kg	-	< 0.5	< 0.5
Warfarin (surr.)	1	%	-	97	88
NEPM 2013 Organochlorine Pesticides					
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05
Mirex	0.01	mg/kg	-	< 0.01	< 0.01
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	-	< 0.05	< 0.05
Toxaphene	1	mg/kg	-	< 1	< 1
Dibutylchlorendate (surr.)	1	%	-	117	78
Tetrachloro-m-xylene (surr.)	1	%	-	86	66
NEPM 2013 Phenols					
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	< 0.4
Pentachlorophenol	1	mg/kg	-	< 1	< 1
Phenol	0.5	mg/kg	-	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	-	114	78

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Volatile Organics	Melbourne	Jul 24, 2020	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
% Moisture	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-GEN-7080 Moisture			
NEPM Screen for Soil Classification			
% Clay	Brisbane	Jul 28, 2020	0 Days
- Method: LTM-GEN-7040			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Jul 24, 2020	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	Melbourne	Jul 24, 2020	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Jul 25, 2020	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Heavy Metals	Melbourne	Jul 24, 2020	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Cation Exchange Capacity	Melbourne	Jul 25, 2020	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding Methyl Mercury/PBDE			
Chromium (hexavalent)	Melbourne	Jul 24, 2020	28 Days
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (free)	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
NEPM 2013 Metals : Metals M12	Melbourne	Jul 24, 2020	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Organochlorine Pesticides	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Jul 24, 2020	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
Organophosphorus Pesticides	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)			
Triazines	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2210 Triazine Herbicides in Soil and Water by GC-MS/MS			
NEPM 2013 Acid Herbicides	Melbourne	Jul 24, 2020	14 Days
- Method: MGT 530			
NEPM 2013 Organochlorine Pesticides	Melbourne	Jul 24, 2020	14 Days
- Method: USEPA 8081 Organochlorine Pesticides			
NEPM 2013 Phenols	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Eurofins Suite B7A			
Metals M8	Melbourne	Jul 24, 2020	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 24, 2020	
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Jul 24, 2020	14 Days

Description	Testing Site	Extracted	Holding Time
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
BTEX	Melbourne	Jul 24, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			

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Received: Jul 23, 2020 8:26 AM
Due: Jul 28, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	BH01_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37686				X	X					
2	BH02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37687				X	X					
3	BH03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37688					X		X			
4	TP01_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37689		X		X	X					
5	TP02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37690		X			X					
6	TP03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37691		X			X					
7	TP04_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37692		X			X					
8	TP05_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37693			X		X				X	
9	TP05_0.9-1.5	Jul 20, 2020		Soil	M20-Jl37694					X		X			
10	TP06_1.0-1.1	Jul 20, 2020		Soil	M20-Jl37695		X			X					

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Project Name: O'SULLIVAN BEACH
Project ID: PS120574

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Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
11	TP08_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37696					X			X		
12	TP09_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37697			X		X				X	
13	TP10A_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37698		X			X					
14	TP10A_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37699				X	X					
15	TP11_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37700					X			X		
16	TP12_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37701			X		X				X	
17	TP13_1.4-1.5	Jul 21, 2020		Soil	M20-Jl37702					X			X		
18	TP13_1.9-2.0	Jul 21, 2020		Soil	M20-Jl37703				X	X					
19	TP14_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37704		X			X					
20	TP14_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37705				X	X					
21	TP15_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37706			X		X				X	
22	TP16_1.9-2.0	Jul 21, 2020		Soil	M20-Jl37707		X		X	X					
23	TP17_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37708				X	X			X		

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Report #: 733480
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Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 28, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
24	TP18_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37709					X			X		
25	TP19_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37710		X			X					
26	TP20_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37711		X			X					
27	QC03	Jul 20, 2020		Soil	M20-Jl37712			X		X				X	
28	QC07	Jul 21, 2020		Soil	M20-Jl37713				X	X					
29	RB01	Jul 20, 2020		Water	M20-Jl37714				X				X		
30	RB02	Jul 21, 2020		Water	M20-Jl37715				X				X		
31	TB01	Jul 21, 2020		Water	M20-Jl37716										X
32	TP07_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37717			X		X				X	
33	BH01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37718	X									
34	BH01_0.75-0.85	Jul 20, 2020		Soil	M20-Jl37719	X									
35	BH02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37720	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
36	BH02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37721	X									
37	BH03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37722					X	X				
38	BH03_0.60-0.75	Jul 20, 2020		Soil	M20-Jl37723	X									
39	TP01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37724	X									
40	TP01_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37725	X									
41	TP02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37726	X									
42	TP02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37727	X									
43	TP03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37728	X									
44	TP03_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37729	X									
45	TP04_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37730	X									
46	TP04_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37731	X									
47	TP05_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37732	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
48	TP06_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37733	X									
49	TP06_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37734	X									
50	TP07_0.5-0.6	Jul 20, 2020		Soil	M20-Jl37735	X									
51	TP07_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37736	X									
52	TP08_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37737	X									
53	TP08_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37738	X									
54	TP09_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37739	X									
55	TP09_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37740	X									
56	TP10_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37741	X									
57	TP10A_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37742	X									
58	TP11_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37743	X									
59	TP11_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37744	X									
60	TP12_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37745	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
61	TP12_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37746	X									
62	TP13_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37747	X									
63	TP13_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37748	X									
64	TP13_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37749	X									
65	TP14_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37750	X									
66	TP15_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37751	X									
67	TP15_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37752	X									
68	TP16_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37753	X									
69	TP16_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37754	X									
70	TP16_1.0-1.1	Jul 21, 2020		Soil	M20-Jl37755	X									
71	TP17_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37756	X									
72	TP17_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37757	X									
73	TP18_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37758	X									

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Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
74	TP18_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37759	X									
75	TP19_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37760	X									
76	TP19_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37761	X									
77	TP20_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37762					X	X				
78	TP20_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37763	X									
79	QC01_JC	Jul 20, 2020		Soil	M20-Jl37764	X									
80	QC02_JC	Jul 20, 2020		Soil	M20-Jl37765	X									
81	QC01	Jul 20, 2020		Soil	M20-Jl37766	X									
82	QC02	Jul 20, 2020		Soil	M20-Jl37767	X									
83	QC05	Jul 20, 2020		Soil	M20-Jl37768	X									
84	QC06	Jul 20, 2020		Soil	M20-Jl37769	X									
85	QC08	Jul 21, 2020		Soil	M20-Jl37770	X									
86	QC09	Jul 21, 2020		Soil	M20-Jl37771	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
87	QC010	Jul 21, 2020		Soil	M20-Jl37772	X									
88	QC011	Jul 21, 2020		Soil	M20-Jl37773	X									
89	QC012	Jul 21, 2020		Soil	M20-Jl37774	X									
90	TP3_2.1-2.2	Jul 20, 2020		Soil	M20-Jl37775	X									
91	TP04	Jul 20, 2020		Soil	M20-Jl37903	X									
92	TP05	Jul 20, 2020		Soil	M20-Jl37904	X									
93	TP06	Jul 20, 2020		Soil	M20-Jl37905	X									
94	TP08	Jul 20, 2020		Soil	M20-Jl37906	X									
95	TP09	Jul 20, 2020		Soil	M20-Jl37907	X									
96	TP10	Jul 20, 2020		Soil	M20-Jl37908	X									
97	TP10A	Jul 20, 2020		Soil	M20-Jl37909	X									
98	TP12	Jul 20, 2020		Soil	M20-Jl37910	X									
99	TP13	Jul 20, 2020		Soil	M20-Jl37911	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
100	TP15	Jul 20, 2020		Soil	M20-Jl37912	X									
101	TP17	Jul 20, 2020		Soil	M20-Jl37913	X									
102	TP18	Jul 20, 2020		Soil	M20-Jl37914	X									
103	TP20	Jul 20, 2020		Soil	M20-Jl37915	X									
Test Counts						69	10	6	11	31	2	2	7	6	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Total Organic Carbon	%	< 0.1			0.1	Pass	
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Iron	mg/kg	< 20			20	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Heavy Metals							
Iron (%)	%	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Bifenthrin	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Triazines							
Atrazine	mg/kg	< 0.2			0.2	Pass	
Method Blank							
NEPM 2013 Acid Herbicides							
Picloram	mg/kg	< 0.5			0.5	Pass	
2.4-D	mg/kg	< 0.5			0.5	Pass	
2.4.5-T	mg/kg	< 0.5			0.5	Pass	
MCPA	mg/kg	< 0.5			0.5	Pass	
MCPB	mg/kg	< 0.5			0.5	Pass	
Mecoprop	mg/kg	< 0.5			0.5	Pass	
Method Blank							
NEPM 2013 Organochlorine Pesticides							
Mirex	mg/kg	< 0.01			0.01	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	88			70-130	Pass	
1.1.1-Trichloroethane	%	80			70-130	Pass	
1.2-Dichlorobenzene	%	101			70-130	Pass	
1.2-Dichloroethane	%	99			70-130	Pass	
Benzene	%	93			70-130	Pass	
Ethylbenzene	%	116			70-130	Pass	
m&p-Xylenes	%	118			70-130	Pass	
Toluene	%	112			70-130	Pass	
Trichloroethene	%	86			70-130	Pass	
Xylenes - Total*	%	120			70-130	Pass	
LCS - % Recovery							
% Clay	%	83			70-130	Pass	
Total Organic Carbon	%	108			70-130	Pass	
Chromium (hexavalent)	%	109			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Beryllium	%	98			80-120	Pass	
Boron	%	100			80-120	Pass	
Cadmium	%	98			80-120	Pass	
Chromium	%	105			80-120	Pass	
Cobalt	%	105			80-120	Pass	
Copper	%	105			80-120	Pass	
Iron	%	105			80-120	Pass	
Lead	%	107			80-120	Pass	
Manganese	%	102			80-120	Pass	
Mercury	%	100			80-120	Pass	
Nickel	%	100			80-120	Pass	
Selenium	%	105			80-120	Pass	
Zinc	%	100			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	116			70-130	Pass	
TRH C10-C14	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	84			70-130	Pass	
TRH C6-C10	%	115			70-130	Pass	
TRH >C10-C16	%	96			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	73			70-130	Pass	
Acenaphthylene	%	72			70-130	Pass	
Anthracene	%	82			70-130	Pass	
Benz(a)anthracene	%	89			70-130	Pass	
Benzo(a)pyrene	%	81			70-130	Pass	
Benzo(b&j)fluoranthene	%	72			70-130	Pass	
Benzo(g.h.i)perylene	%	77			70-130	Pass	
Benzo(k)fluoranthene	%	89			70-130	Pass	
Chrysene	%	97			70-130	Pass	
Dibenz(a.h)anthracene	%	84			70-130	Pass	
Fluoranthene	%	71			70-130	Pass	
Fluorene	%	74			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	86			70-130	Pass	
Phenanthrene	%	83			70-130	Pass	
Pyrene	%	70			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	97			70-130	Pass	
4.4'-DDD	%	108			70-130	Pass	
4.4'-DDE	%	77			70-130	Pass	
4.4'-DDT	%	80			70-130	Pass	
a-BHC	%	76			70-130	Pass	
Aldrin	%	94			70-130	Pass	
b-BHC	%	86			70-130	Pass	
d-BHC	%	76			70-130	Pass	
Dieldrin	%	107			70-130	Pass	
Endosulfan I	%	76			70-130	Pass	
Endosulfan II	%	110			70-130	Pass	
Endosulfan sulphate	%	89			70-130	Pass	
Endrin	%	108			70-130	Pass	
Endrin aldehyde	%	87			70-130	Pass	
Endrin ketone	%	86			70-130	Pass	
g-BHC (Lindane)	%	86			70-130	Pass	
Heptachlor	%	89			70-130	Pass	
Heptachlor epoxide	%	107			70-130	Pass	
Hexachlorobenzene	%	83			70-130	Pass	
Methoxychlor	%	70			70-130	Pass	
Bifenthrin	%	94			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	98			70-130	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenols (Halogenated)									
2-Chlorophenol			%	87			30-130	Pass	
2.4-Dichlorophenol			%	83			30-130	Pass	
2.4.5-Trichlorophenol			%	113			30-130	Pass	
2.4.6-Trichlorophenol			%	87			30-130	Pass	
2.6-Dichlorophenol			%	88			30-130	Pass	
4-Chloro-3-methylphenol			%	109			30-130	Pass	
Pentachlorophenol			%	86			30-130	Pass	
Tetrachlorophenols - Total			%	120			30-130	Pass	
LCS - % Recovery									
Phenols (non-Halogenated)									
2-Cyclohexyl-4.6-dinitrophenol			%	76			30-130	Pass	
2-Methyl-4.6-dinitrophenol			%	114			30-130	Pass	
2-Methylphenol (o-Cresol)			%	102			30-130	Pass	
2-Nitrophenol			%	107			30-130	Pass	
2.4-Dimethylphenol			%	101			30-130	Pass	
2.4-Dinitrophenol			%	71			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)			%	105			30-130	Pass	
4-Nitrophenol			%	91			30-130	Pass	
Dinoseb			%	122			30-130	Pass	
Phenol			%	99			30-130	Pass	
LCS - % Recovery									
NEPM 2013 Acid Herbicides									
Picloram			%	120			70-130	Pass	
2.4-D			%	103			70-130	Pass	
2.4.5-T			%	109			70-130	Pass	
MCPA			%	98			70-130	Pass	
MCPB			%	103			70-130	Pass	
Mecoprop			%	99			70-130	Pass	
LCS - % Recovery									
NEPM 2013 Organochlorine Pesticides									
Mirex			%	77			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	P20-JI33738	NCP	%	121			70-130	Pass	
1.1.1-Trichloroethane	P20-JI33738	NCP	%	111			70-130	Pass	
1.2-Dichlorobenzene	P20-JI33738	NCP	%	89			70-130	Pass	
1.2-Dichloroethane	P20-JI33738	NCP	%	122			70-130	Pass	
Trichloroethene	P20-JI33738	NCP	%	76			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B20-JI34787	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B20-JI34787	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B20-JI34799	NCP	%	87			70-130	Pass	
Acenaphthylene	B20-JI34799	NCP	%	87			70-130	Pass	
Anthracene	B20-JI34799	NCP	%	107			70-130	Pass	
Benz(a)anthracene	B20-JI34799	NCP	%	113			70-130	Pass	
Benzo(a)pyrene	B20-JI34799	NCP	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	B20-JI34799	NCP	%	89			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(g.h.i)perylene	B20-JI34799	NCP	%	97			70-130	Pass	
Benzo(k)fluoranthene	B20-JI34799	NCP	%	112			70-130	Pass	
Chrysene	B20-JI34799	NCP	%	123			70-130	Pass	
Dibenz(a.h)anthracene	B20-JI34799	NCP	%	105			70-130	Pass	
Fluoranthene	B20-JI34799	NCP	%	83			70-130	Pass	
Fluorene	B20-JI34799	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B20-JI34799	NCP	%	111			70-130	Pass	
Naphthalene	B20-JI34799	NCP	%	103			70-130	Pass	
Phenanthrene	B20-JI34799	NCP	%	97			70-130	Pass	
Pyrene	B20-JI34799	NCP	%	82			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	B20-JI38412	NCP	%	96			70-130	Pass	
Aroclor-1260	B20-JI38412	NCP	%	110			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	B20-JI34799	NCP	%	64			30-130	Pass	
2.4-Dichlorophenol	B20-JI34799	NCP	%	66			30-130	Pass	
2.4.5-Trichlorophenol	B20-JI34799	NCP	%	46			30-130	Pass	
2.4.6-Trichlorophenol	B20-JI34799	NCP	%	67			30-130	Pass	
2.6-Dichlorophenol	B20-JI34799	NCP	%	68			30-130	Pass	
4-Chloro-3-methylphenol	B20-JI34799	NCP	%	92			30-130	Pass	
Pentachlorophenol	B20-JI34799	NCP	%	67			30-130	Pass	
Tetrachlorophenols - Total	B20-JI34799	NCP	%	112			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	B20-JI34799	NCP	%	42			30-130	Pass	
2-Methyl-4.6-dinitrophenol	B20-JI34799	NCP	%	61			30-130	Pass	
2-Methylphenol (o-Cresol)	B20-JI34799	NCP	%	86			30-130	Pass	
2-Nitrophenol	B20-JI34799	NCP	%	78			30-130	Pass	
2.4-Dimethylphenol	B20-JI34799	NCP	%	98			30-130	Pass	
2.4-Dinitrophenol	B20-JI34799	NCP	%	33			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	B20-JI34799	NCP	%	91			30-130	Pass	
4-Nitrophenol	B20-JI34799	NCP	%	61			30-130	Pass	
Dinoseb	B20-JI34799	NCP	%	97			30-130	Pass	
Phenol	B20-JI34799	NCP	%	77			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M20-JI37695	CP	%	89			75-125	Pass	
Beryllium	M20-JI37695	CP	%	86			75-125	Pass	
Boron	M20-JI37695	CP	%	94			75-125	Pass	
Cadmium	M20-JI37695	CP	%	98			75-125	Pass	
Chromium	M20-JI37695	CP	%	91			75-125	Pass	
Cobalt	M20-JI37695	CP	%	88			75-125	Pass	
Copper	M20-JI37695	CP	%	88			75-125	Pass	
Lead	M20-JI37695	CP	%	89			75-125	Pass	
Mercury	M20-JI37695	CP	%	98			75-125	Pass	
Nickel	M20-JI37695	CP	%	84			75-125	Pass	
Selenium	M20-JI37695	CP	%	97			75-125	Pass	
Zinc	M20-JI37695	CP	%	84			75-125	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
Benzene	M20-JI37696	CP	%	93			70-130	Pass	
Ethylbenzene	M20-JI37696	CP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	M20-JI37696	CP	%	103			70-130	Pass	
o-Xylene	M20-JI37696	CP	%	107			70-130	Pass	
Toluene	M20-JI37696	CP	%	118			70-130	Pass	
Xylenes - Total*	M20-JI37696	CP	%	104			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M20-JI37696	CP	%	111			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M20-JI37696	CP	%	89			70-130	Pass	
TRH C6-C10	M20-JI37696	CP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M20-JI37708	CP	%	95			75-125	Pass	
Beryllium	M20-JI37708	CP	%	109			75-125	Pass	
Boron	M20-JI37708	CP	%	130			75-125	Fail	Q08
Cadmium	M20-JI37708	CP	%	92			75-125	Pass	
Chromium	M20-JI37708	CP	%	98			75-125	Pass	
Cobalt	M20-JI37708	CP	%	105			75-125	Pass	
Copper	M20-JI37708	CP	%	98			75-125	Pass	
Lead	M20-JI37708	CP	%	98			75-125	Pass	
Mercury	M20-JI37708	CP	%	89			75-125	Pass	
Nickel	M20-JI37708	CP	%	97			75-125	Pass	
Selenium	M20-JI37708	CP	%	106			75-125	Pass	
Zinc	M20-JI37708	CP	%	95			75-125	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M20-JI32427	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Beryllium	M20-JI38728	NCP	%	112			75-125	Pass	
Boron	M20-JI38728	NCP	%	102			75-125	Pass	
Selenium	M20-JI38728	NCP	%	101			75-125	Pass	
Spike - % Recovery									
NEPM 2013 Acid Herbicides				Result 1					
Picloram	P20-JI33739	NCP	%	92			70-130	Pass	
2.4-D	P20-JI33739	NCP	%	81			70-130	Pass	
MCPA	P20-JI33739	NCP	%	82			70-130	Pass	
MCPB	P20-JI33739	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M20-JI37762	CP	%	103			70-130	Pass	
4.4'-DDD	M20-JI37762	CP	%	89			70-130	Pass	
4.4'-DDE	M20-JI37762	CP	%	83			70-130	Pass	
4.4'-DDT	M20-JI37762	CP	%	89			70-130	Pass	
a-BHC	M20-JI37762	CP	%	76			70-130	Pass	
Aldrin	M20-JI37762	CP	%	71			70-130	Pass	
b-BHC	M20-JI37762	CP	%	105			70-130	Pass	
d-BHC	M20-JI37762	CP	%	71			70-130	Pass	
Dieldrin	M20-JI37762	CP	%	76			70-130	Pass	
Endosulfan I	M20-JI37762	CP	%	78			70-130	Pass	
Endosulfan II	M20-JI37762	CP	%	81			70-130	Pass	
Endosulfan sulphate	M20-JI37762	CP	%	71			70-130	Pass	
Endrin	M20-JI37762	CP	%	74			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	M20-Jl37762	CP	%	99			70-130	Pass	
Endrin ketone	M20-Jl37762	CP	%	90			70-130	Pass	
g-BHC (Lindane)	M20-Jl37762	CP	%	99			70-130	Pass	
Heptachlor	M20-Jl37762	CP	%	82			70-130	Pass	
Heptachlor epoxide	M20-Jl37762	CP	%	105			70-130	Pass	
Hexachlorobenzene	M20-Jl37762	CP	%	97			70-130	Pass	
Methoxychlor	M20-Jl37762	CP	%	75			70-130	Pass	
Bifenthrin	M20-Jl37762	CP	%	97			70-130	Pass	
Spike - % Recovery									
NEPM 2013 Organochlorine Pesticides				Result 1					
Mirex	M20-Jl37762	CP	%	84			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
% Clay	M20-Jl37688	CP	%	10	10	9.0	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	M20-Jl37688	CP	uS/cm	310	310	<1	30%	Pass	
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	M20-Jl37688	CP	pH Units	8.6	8.6	pass	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M20-Jl37692	CP	%	17	17	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Benzene	M20-Jl37693	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M20-Jl37693	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M20-Jl37693	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M20-Jl37693	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M20-Jl37693	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	M20-Jl37693	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M20-Jl37693	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M20-Jl37693	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M20-Jl37693	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Toxaphene	M20-Jl38255	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M20-Jl38255	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M20-Jl37694	CP	mg/kg	2.7	2.4	11	30%	Pass	
Beryllium	M20-Jl37694	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M20-Jl37694	CP	mg/kg	33	35	6.0	30%	Pass	
Cadmium	M20-Jl37694	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M20-Jl37694	CP	mg/kg	14	13	13	30%	Pass	
Cobalt	M20-Jl37694	CP	mg/kg	5.5	< 5	29	30%	Pass	
Copper	M20-Jl37694	CP	mg/kg	9.4	8.5	10	30%	Pass	
Iron	M20-Jl37694	CP	mg/kg	9800	8600	13	30%	Pass	
Lead	M20-Jl37694	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	M20-Jl37694	CP	mg/kg	150	120	19	30%	Pass	
Mercury	M20-Jl37694	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M20-Jl37694	CP	mg/kg	12	10	17	30%	Pass	
Selenium	M20-Jl37694	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M20-Jl37694	CP	mg/kg	12	10	15	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron (%)	M20-Jl37694	CP	%	0.98	0.86	13	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M20-Jl37695	CP	mg/kg	2.7	2.7	1.0	30%	Pass	
Beryllium	M20-Jl37695	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M20-Jl37695	CP	mg/kg	46	46	1.0	30%	Pass	
Cadmium	M20-Jl37695	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M20-Jl37695	CP	mg/kg	18	18	3.0	30%	Pass	
Cobalt	M20-Jl37695	CP	mg/kg	6.5	6.6	3.0	30%	Pass	
Copper	M20-Jl37695	CP	mg/kg	8.8	9.1	3.0	30%	Pass	
Lead	M20-Jl37695	CP	mg/kg	7.0	7.1	2.0	30%	Pass	
Manganese	M20-Jl37695	CP	mg/kg	300	310	2.0	30%	Pass	
Mercury	M20-Jl37695	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M20-Jl37695	CP	mg/kg	14	14	3.0	30%	Pass	
Selenium	M20-Jl37695	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M20-Jl37695	CP	mg/kg	18	19	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M20-Jl37702	CP	%	12	11	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M20-Jl37707	CP	mg/kg	6.6	12	59	30%	Fail	Q15
Beryllium	M20-Jl37707	CP	mg/kg	< 2	2.3	51	30%	Fail	Q15
Boron	M20-Jl37707	CP	mg/kg	33	75	79	30%	Fail	Q15
Cadmium	M20-Jl37707	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M20-Jl37707	CP	mg/kg	9.0	21	78	30%	Fail	Q15
Copper	M20-Jl37707	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M20-Jl37707	CP	mg/kg	< 5	13	87	30%	Fail	Q15
Mercury	M20-Jl37707	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M20-Jl37707	CP	mg/kg	5.2	13	83	30%	Fail	Q15
Selenium	M20-Jl37707	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M20-Jl37707	CP	mg/kg	7.3	16	76	30%	Fail	Q15
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1.2-Trichloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	M20-Jl37708	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	M20-Jl37708	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	M20-Jl37708	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	M20-Jl37708	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Styrene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	M20-Jl37708	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1.2-Dichloroethene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total*	M20-Jl37708	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M20-Jl37708	CP	mg/kg	5.8	5.8	1.0	30%	Pass	
Beryllium	M20-Jl37708	CP	mg/kg	2.7	2.7	4.0	30%	Pass	
Boron	M20-Jl37708	CP	mg/kg	120	130	3.0	30%	Pass	
Cadmium	M20-Jl37708	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M20-Jl37708	CP	mg/kg	26	26	1.0	30%	Pass	
Cobalt	M20-Jl37708	CP	mg/kg	25	24	1.0	30%	Pass	
Copper	M20-Jl37708	CP	mg/kg	5.8	5.8	<1	30%	Pass	
Lead	M20-Jl37708	CP	mg/kg	30	30	1.0	30%	Pass	
Manganese	M20-Jl37708	CP	mg/kg	500	490	<1	30%	Pass	
Mercury	M20-Jl37708	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M20-Jl37708	CP	mg/kg	17	17	1.0	30%	Pass	
Selenium	M20-Jl37708	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M20-Jl37708	CP	mg/kg	19	20	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M20-Jl37708	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M20-Jl37708	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M20-Jl37708	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M20-Jl37708	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M20-Jl37708	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M20-Jl37708	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M20-Jl37708	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M20-Jl37708	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M20-Jl37708	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M20-Jl37712	CP	%	13	13	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	P20-Jl35456	NCP	mg/kg	9.7	9.9	2.3	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M20-Jl37722	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bifenthrin	M20-Jl37722	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M20-Jl37722	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M20-Jl37722	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M20-Jl37722	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M20-Jl37722	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M20-Jl37722	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M20-Jl37722	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M20-Jl37722	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M20-Jl37722	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M20-Jl37722	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M20-Jl37722	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M20-Jl37722	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M20-Jl37722	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M20-Jl37722	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Chlorpyrifos	M20-Jl37722	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M20-Jl37722	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
NEPM 2013 Acid Herbicides				Result 1	Result 2	RPD			
Picloram	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-D	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-T	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
MCPA	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
MCPB	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Mecoprop	M20-Jl37722	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Mirex	M20-Jl37722	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M20-Jl37762	CP	mg/kg	5.9	7.0	16	30%	Pass	
Beryllium	M20-Jl37762	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M20-Jl37762	CP	mg/kg	26	31	17	30%	Pass	
Cadmium	M20-Jl37762	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M20-Jl37762	CP	mg/kg	20	21	5.0	30%	Pass	
Cobalt	M20-Jl37762	CP	mg/kg	5.8	5.8	1.0	30%	Pass	
Copper	M20-Jl37762	CP	mg/kg	13	12	8.0	30%	Pass	
Lead	M20-Jl37762	CP	mg/kg	52	54	4.0	30%	Pass	
Manganese	M20-Jl37762	CP	mg/kg	280	330	16	30%	Pass	
Mercury	M20-Jl37762	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M20-Jl37762	CP	mg/kg	11	12	6.0	30%	Pass	
Selenium	M20-Jl37762	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M20-Jl37762	CP	mg/kg	100	99	4.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Michael Cassidy	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

WSP Australia P/L SA
Level 16, 1 King William St
Adelaide
SA 5000

Attention: **Shya Jackson**

Report **733480-W**
Project name O'SULLIVAN BEACH
Project ID PS120574
Received Date Jul 23, 2020

Client Sample ID			**RB01**	**RB02**	**TB01**
Sample Matrix			**Water**	**Water**	**Water**
Eurofins Sample No.			**M20-JI37714**	**M20-JI37715**	**M20-JI37716**
Date Sampled			**Jul 20, 2020**	**Jul 21, 2020**	**Jul 21, 2020**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	-
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	96	105	125
Volatile Organics					
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	-
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	-
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	-
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	-
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	-
2-Propanone (Acetone)	0.001	mg/L	< 0.001	< 0.001	-
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	-
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	-
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	-

Client Sample ID			RB01	RB02	TB01
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M20-JI37714	M20-JI37715	M20-JI37716
Date Sampled			Jul 20, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit			
Volatile Organics					
Benzene	0.001	mg/L	< 0.001	< 0.001	-
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	-
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	-
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	-
Bromoform	0.001	mg/L	< 0.001	< 0.001	-
Bromomethane	0.001	mg/L	< 0.001	< 0.001	-
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	-
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	-
Chloroethane	0.001	mg/L	< 0.001	< 0.001	-
Chloroform	0.005	mg/L	< 0.005	< 0.005	-
Chloromethane	0.001	mg/L	< 0.001	< 0.001	-
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	-
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	-
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	-
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	-
Iodomethane	0.001	mg/L	< 0.001	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	-
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	-
Styrene	0.001	mg/L	< 0.001	< 0.001	-
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	-
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	-
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	-
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	-
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	-
Total MAH*	0.003	mg/L	< 0.003	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	96	105	-
Toluene-d8 (surr.)	1	%	99	102	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	-

Client Sample ID			RB01	RB02	TB01
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M20-JI37714	M20-JI37715	M20-JI37716
Date Sampled			Jul 20, 2020	Jul 21, 2020	Jul 21, 2020
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	69	96	-
p-Terphenyl-d14 (surr.)	1	%	77	115	-
Heavy Metals					
Arsenic	0.001	mg/L	< 0.001	< 0.001	-
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	-
Chromium	0.001	mg/L	< 0.001	< 0.001	-
Copper	0.001	mg/L	< 0.001	< 0.001	-
Lead	0.001	mg/L	< 0.001	< 0.001	-
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	< 0.001	< 0.001	-
Zinc	0.005	mg/L	< 0.005	< 0.005	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 23, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jul 23, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 23, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Jul 23, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B7A			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 23, 2020	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jul 23, 2020	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Jul 23, 2020	180 Days
- Method:			
Volatile Organics	Melbourne	Jul 23, 2020	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			

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Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 28, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	BH01_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37686				X	X					
2	BH02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37687				X	X					
3	BH03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37688					X		X			
4	TP01_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37689		X		X	X					
5	TP02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37690		X			X					
6	TP03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37691		X			X					
7	TP04_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37692		X			X					
8	TP05_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37693			X		X				X	
9	TP05_0.9-1.5	Jul 20, 2020		Soil	M20-Jl37694					X		X			
10	TP06_1.0-1.1	Jul 20, 2020		Soil	M20-Jl37695		X			X					

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
11	TP08_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37696					X			X		
12	TP09_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37697			X		X				X	
13	TP10A_0.3-0.4	Jul 20, 2020		Soil	M20-Jl37698		X			X					
14	TP10A_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37699				X	X					
15	TP11_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37700					X			X		
16	TP12_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37701			X		X				X	
17	TP13_1.4-1.5	Jul 21, 2020		Soil	M20-Jl37702					X			X		
18	TP13_1.9-2.0	Jul 21, 2020		Soil	M20-Jl37703				X	X					
19	TP14_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37704		X			X					
20	TP14_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37705				X	X					
21	TP15_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37706			X		X				X	
22	TP16_1.9-2.0	Jul 21, 2020		Soil	M20-Jl37707		X		X	X					
23	TP17_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37708				X	X			X		

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
24	TP18_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37709					X			X		
25	TP19_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37710		X			X					
26	TP20_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37711		X			X					
27	QC03	Jul 20, 2020		Soil	M20-Jl37712			X		X				X	
28	QC07	Jul 21, 2020		Soil	M20-Jl37713				X	X					
29	RB01	Jul 20, 2020		Water	M20-Jl37714				X				X		
30	RB02	Jul 21, 2020		Water	M20-Jl37715				X				X		
31	TB01	Jul 21, 2020		Water	M20-Jl37716										X
32	TP07_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37717			X		X				X	
33	BH01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37718	X									
34	BH01_0.75-0.85	Jul 20, 2020		Soil	M20-Jl37719	X									
35	BH02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37720	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
36	BH02_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37721	X									
37	BH03_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37722					X	X				
38	BH03_0.60-0.75	Jul 20, 2020		Soil	M20-Jl37723	X									
39	TP01_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37724	X									
40	TP01_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37725	X									
41	TP02_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37726	X									
42	TP02_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37727	X									
43	TP03_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37728	X									
44	TP03_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37729	X									
45	TP04_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37730	X									
46	TP04_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37731	X									
47	TP05_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37732	X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
48	TP06_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37733	X									
49	TP06_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37734	X									
50	TP07_0.5-0.6	Jul 20, 2020		Soil	M20-Jl37735	X									
51	TP07_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37736	X									
52	TP08_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37737	X									
53	TP08_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37738	X									
54	TP09_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37739	X									
55	TP09_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37740	X									
56	TP10_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37741	X									
57	TP10A_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37742	X									
58	TP11_0.0-0.1	Jul 20, 2020		Soil	M20-Jl37743	X									
59	TP11_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37744	X									
60	TP12_0.4-0.5	Jul 20, 2020		Soil	M20-Jl37745	X									

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Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
61	TP12_0.9-1.0	Jul 20, 2020		Soil	M20-Jl37746	X									
62	TP13_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37747	X									
63	TP13_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37748	X									
64	TP13_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37749	X									
65	TP14_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37750	X									
66	TP15_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37751	X									
67	TP15_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37752	X									
68	TP16_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37753	X									
69	TP16_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37754	X									
70	TP16_1.0-1.1	Jul 21, 2020		Soil	M20-Jl37755	X									
71	TP17_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37756	X									
72	TP17_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37757	X									
73	TP18_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37758	X									

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Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
74	TP18_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37759	X									
75	TP19_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37760	X									
76	TP19_0.4-0.5	Jul 21, 2020		Soil	M20-Jl37761	X									
77	TP20_0.0-0.1	Jul 21, 2020		Soil	M20-Jl37762					X	X				
78	TP20_0.9-1.0	Jul 21, 2020		Soil	M20-Jl37763	X									
79	QC01_JC	Jul 20, 2020		Soil	M20-Jl37764	X									
80	QC02_JC	Jul 20, 2020		Soil	M20-Jl37765	X									
81	QC01	Jul 20, 2020		Soil	M20-Jl37766	X									
82	QC02	Jul 20, 2020		Soil	M20-Jl37767	X									
83	QC05	Jul 20, 2020		Soil	M20-Jl37768	X									
84	QC06	Jul 20, 2020		Soil	M20-Jl37769	X									
85	QC08	Jul 21, 2020		Soil	M20-Jl37770	X									
86	QC09	Jul 21, 2020		Soil	M20-Jl37771	X									

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IANZ # 1290

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Address: Level 16, 1 King William St
Adelaide
SA 5000

Order No.:
Report #: 733480
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Jul 23, 2020 8:26 AM
Due: Jul 28, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
87	QC010	Jul 21, 2020		Soil	M20-Jl37772	X									
88	QC011	Jul 21, 2020		Soil	M20-Jl37773	X									
89	QC012	Jul 21, 2020		Soil	M20-Jl37774	X									
90	TP3_2.1-2.2	Jul 20, 2020		Soil	M20-Jl37775	X									
91	TP04	Jul 20, 2020		Soil	M20-Jl37903	X									
92	TP05	Jul 20, 2020		Soil	M20-Jl37904	X									
93	TP06	Jul 20, 2020		Soil	M20-Jl37905	X									
94	TP08	Jul 20, 2020		Soil	M20-Jl37906	X									
95	TP09	Jul 20, 2020		Soil	M20-Jl37907	X									
96	TP10	Jul 20, 2020		Soil	M20-Jl37908	X									
97	TP10A	Jul 20, 2020		Soil	M20-Jl37909	X									
98	TP12	Jul 20, 2020		Soil	M20-Jl37910	X									
99	TP13	Jul 20, 2020		Soil	M20-Jl37911	X									

eurofins | Environment Testing

ABN – 50 005 085 521 web : www.eurofins.com.au e.mail : EnviroSales@eurofins.com

Australia

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NATA # 1261 Site # 20794

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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
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Sample Detail						HOLD	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins Suite B7	Eurofins Suite B7A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794												X			
Perth Laboratory - NATA Site # 23736															
100	TP15	Jul 20, 2020		Soil	M20-Jl37912	X									
101	TP17	Jul 20, 2020		Soil	M20-Jl37913	X									
102	TP18	Jul 20, 2020		Soil	M20-Jl37914	X									
103	TP20	Jul 20, 2020		Soil	M20-Jl37915	X									
Test Counts						69	10	6	11	31	2	2	7	6	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions									
TRH C6-C9			%	109			70-130	Pass	
LCS - % Recovery									
BTEX									
Benzene			%	96			70-130	Pass	
Toluene			%	105			70-130	Pass	
Ethylbenzene			%	94			70-130	Pass	
m&p-Xylenes			%	123			70-130	Pass	
Xylenes - Total*			%	119			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	118			70-130	Pass	
TRH C6-C10			%	121			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M20-Jl35418	NCP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M20-Jl38759	NCP	%	102			70-130	Pass	
Toluene	M20-Jl38759	NCP	%	109			70-130	Pass	
Ethylbenzene	M20-Jl38759	NCP	%	102			70-130	Pass	
m&p-Xylenes	M20-Jl38759	NCP	%	104			70-130	Pass	
o-Xylene	M20-Jl38759	NCP	%	109			70-130	Pass	
Xylenes - Total*	M20-Jl38759	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M20-Jl38759	NCP	%	93			70-130	Pass	
1.1.1-Trichloroethane	M20-Jl38759	NCP	%	95			70-130	Pass	
1.2-Dichlorobenzene	M20-Jl38759	NCP	%	103			70-130	Pass	
1.2-Dichloroethane	M20-Jl38759	NCP	%	102			70-130	Pass	
Trichloroethene	M20-Jl38759	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M20-Jl38759	NCP	%	98			70-130	Pass	
TRH C6-C10	M20-Jl38759	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M20-Jl31949	NCP	%	97			70-130	Pass	
Acenaphthylene	M20-Jl31949	NCP	%	97			70-130	Pass	
Anthracene	M20-Jl31949	NCP	%	103			70-130	Pass	
Benz(a)anthracene	B20-Jl35776	NCP	%	115			70-130	Pass	
Benzo(a)pyrene	B20-Jl35776	NCP	%	119			70-130	Pass	
Benzo(b&j)fluoranthene	B20-Jl35776	NCP	%	108			70-130	Pass	
Benzo(g.h.i)perylene	B20-Jl35776	NCP	%	105			70-130	Pass	
Benzo(k)fluoranthene	B20-Jl35776	NCP	%	88			70-130	Pass	
Chrysene	M20-Jl31949	NCP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	M20-Jl31949	NCP	%	96			70-130	Pass	
Fluoranthene	M20-Jl31949	NCP	%	97			70-130	Pass	
Fluorene	M20-Jl31949	NCP	%	96			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	M20-Jl31949	NCP	%	100			70-130	Pass	
Naphthalene	M20-Jl31949	NCP	%	96			70-130	Pass	
Phenanthrene	M20-Jl31949	NCP	%	106			70-130	Pass	
Pyrene	M20-Jl31949	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M20-Jl36195	NCP	%	100			75-125	Pass	
Cadmium	M20-Jl36195	NCP	%	106			75-125	Pass	
Chromium	M20-Jl36195	NCP	%	104			75-125	Pass	
Copper	M20-Jl36195	NCP	%	101			75-125	Pass	
Lead	M20-Jl36195	NCP	%	106			75-125	Pass	
Mercury	M20-Jl36195	NCP	%	110			75-125	Pass	
Nickel	M20-Jl36195	NCP	%	99			75-125	Pass	
Zinc	M20-Jl36195	NCP	%	104			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M20-Jl39129	NCP	%	98			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M20-Jl35417	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M20-Jl35417	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M20-Jl35417	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M20-Jl35417	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M20-Jl35417	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M20-Jl35417	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M20-Jl31968	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M20-Jl36242	NCP	mg/L	0.002	0.002	7.0	30%	Pass	
Cadmium	M20-Jl36242	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M20-Jl36242	NCP	mg/L	0.002	0.002	10	30%	Pass	
Copper	M20-Jl36242	NCP	mg/L	0.004	0.004	1.0	30%	Pass	
Lead	M20-Jl36242	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M20-Jl36242	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	M20-Jl36242	NCP	mg/L	0.003	0.004	2.0	30%	Pass	
Zinc	M20-Jl36242	NCP	mg/L	0.011	0.011	2.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M20-Jl38761	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M20-Jl38761	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M20-Jl38761	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M20-Jl38761	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M20-Jl38761	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M20-Jl38761	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M20-Jl38761	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M20-Jl38761	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M20-Jl38761	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Michael Cassidy	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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#AU_CAU001_EnviroSampleVic

From: Michael Cassidy
Sent: Monday, 3 August 2020 3:18 PM
To: #AU_CAU001_EnviroSampleVic
Subject: ADDITIONAL ANALYSIS FW: Eurofins Sample Receipt Advice - Report 733480 : Site O"SULLIVAN BEACH (PS120574)

Thanks Canh,

Kind Regards,

Michael Cassidy

Jake 3/8
~~733480~~
735555

Phone: 8564 5940
Mobile: 0498 700 069
Email : MichaelCassidy@eurofins.com

From: Catherine, Jennifer <Jennifer.Catherine@wsp.com>
Sent: Monday, 3 August 2020 3:17 PM
To: Michael Cassidy <MichaelCassidy@eurofins.com>
Cc: Jackson, Shya <Shya.Jackson@wsp.com>
Subject: RE: Eurofins Sample Receipt Advice - Report 733480 : Site O"SULLIVAN BEACH (PS120574)

EXTERNAL EMAIL*

Hi Michael,

We require further testing done for this batch as follows:
- Zinc for samples TP09_0.4-0.5 and TP14_0.4-0.5
- PAHs for samples TP18_0.4-0.5 and TP20_0.4-0.5

Standard TAT and prices as per quote **200716WSPS**. Thank you.

J137739 - HT385
J137705 - GT467
J137758 - HT386
J137711 - GT468

Kind regards,
Jennifer

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NATA # 1261 Site # 20794

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Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**WSP Australia P/L SA**
Contact name:	Jennifer Catherine
Project name:	O"SULLIVAN BEACH
Project ID:	PS120574
Turnaround time:	5 Day
Date/Time received:	Aug 3, 2020 3:17 PM
Eurofins reference:	**735555**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples, please contact your Analytical Sales Manager:

Michael Cassidy on Phone : +61 3 8564 5000 or by email: MichaelCassidy@eurofins.com

Results will be delivered electronically via email to Jennifer Catherine - jennifer.catherine@wsp.com.

eurofins | Environment Testing

ABN: 50 005 085 521 web: www.eurofins.com.au e.mail: EnviroSales@eurofins.com

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Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
Adelaide
SA 5000

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 735555
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Aug 3, 2020 3:17 PM
Due: Aug 7, 2020
Priority: 5 Day
Contact Name: Jennifer Catherine

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Zinc	Polycyclic Aromatic Hydrocarbons	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Newcastle Laboratory								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	TP09_0.4-0.5	Jul 20, 2020		Soil	M20-Au01265	X		X
2	TP14_0.4-0.5	Jul 20, 2020		Soil	M20-Au01266	X		X
3	TP18_0.4-0.5	Jul 20, 2020		Soil	M20-Au01267		X	X
4	TP20_0.4-0.5	Jul 20, 2020		Soil	M20-Au01268		X	X
Test Counts						2	2	4

eurofins | Environment Testing

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

WSP Australia P/L SA
Level 16, 1 King William St
Adelaide
SA 5000

Attention: **Jennifer Catherine**

Report **735555-S**
Project name O'SULLIVAN BEACH
Project ID PS120574
Received Date Aug 03, 2020

Client Sample ID			**TP09_0.4-0.5**	**TP14_0.4-0.5**	**TP18_0.4-0.5**	**TP20_0.4-0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M20-Au01265**	**M20-Au01266**	**M20-Au01267**	**M20-Au01268**
Date Sampled			**Jul 20, 2020**	**Jul 20, 2020**	**Jul 20, 2020**	**Jul 20, 2020**
Test/Reference	LOR	Unit				
Heavy Metals						
Zinc	5	mg/kg	20	29	-	-
% Moisture	1	%	13	14	11	12
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	78	83
p-Terphenyl-d14 (surr.)	1	%	-	-	98	97

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Heavy Metals	Melbourne	Aug 03, 2020	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Polycyclic Aromatic Hydrocarbons	Melbourne	Aug 03, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Melbourne	Aug 03, 2020	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

ABN: 50 005 085 521 web: www.eurofins.com.au e.mail: EnviroSales@eurofins.com

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Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

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PO Box 60 Wickham 2293
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Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
Adelaide
SA 5000

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 735555
Phone: 08 8405 4300
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Received: Aug 3, 2020 3:17 PM
Due: Aug 7, 2020
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Contact Name: Jennifer Catherine

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Zinc	Polycyclic Aromatic Hydrocarbons	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
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No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	TP09_0.4-0.5	Jul 20, 2020		Soil	M20-Au01265	X		X
2	TP14_0.4-0.5	Jul 20, 2020		Soil	M20-Au01266	X		X
3	TP18_0.4-0.5	Jul 20, 2020		Soil	M20-Au01267		X	X
4	TP20_0.4-0.5	Jul 20, 2020		Soil	M20-Au01268		X	X
Test Counts						2	2	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Zinc			mg/kg	< 5			5	Pass	
Method Blank									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene			mg/kg	< 0.5			0.5	Pass	
Acenaphthylene			mg/kg	< 0.5			0.5	Pass	
Anthracene			mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene			mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene			mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene			mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene			mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene			mg/kg	< 0.5			0.5	Pass	
Chrysene			mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene			mg/kg	< 0.5			0.5	Pass	
Fluoranthene			mg/kg	< 0.5			0.5	Pass	
Fluorene			mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene			mg/kg	< 0.5			0.5	Pass	
Naphthalene			mg/kg	< 0.5			0.5	Pass	
Phenanthrene			mg/kg	< 0.5			0.5	Pass	
Pyrene			mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery									
Heavy Metals									
Zinc			%	101			80-120	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene			%	87			70-130	Pass	
Acenaphthylene			%	89			70-130	Pass	
Anthracene			%	75			70-130	Pass	
Benz(a)anthracene			%	94			70-130	Pass	
Benzo(a)pyrene			%	81			70-130	Pass	
Benzo(b&j)fluoranthene			%	76			70-130	Pass	
Benzo(g.h.i)perylene			%	72			70-130	Pass	
Benzo(k)fluoranthene			%	80			70-130	Pass	
Chrysene			%	74			70-130	Pass	
Dibenz(a.h)anthracene			%	72			70-130	Pass	
Fluoranthene			%	74			70-130	Pass	
Fluorene			%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	75			70-130	Pass	
Naphthalene			%	87			70-130	Pass	
Phenanthrene			%	74			70-130	Pass	
Pyrene			%	72			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Zinc	M20-Au01884	NCP	%	99			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M20-Jl52903	NCP	%	81			70-130	Pass	
Acenaphthylene	M20-Jl52903	NCP	%	80			70-130	Pass	
Anthracene	M20-Jl52903	NCP	%	73			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	M20-Jl52903	NCP	%	94			70-130	Pass	
Benzo(a)pyrene	M20-Jl52903	NCP	%	84			70-130	Pass	
Benzo(b&j)fluoranthene	M20-Jl52903	NCP	%	73			70-130	Pass	
Benzo(g.h.i)perylene	M20-Jl52903	NCP	%	84			70-130	Pass	
Benzo(k)fluoranthene	M20-Jl52903	NCP	%	82			70-130	Pass	
Chrysene	M20-Jl52903	NCP	%	74			70-130	Pass	
Dibenz(a.h)anthracene	M20-Jl52903	NCP	%	72			70-130	Pass	
Fluoranthene	M20-Jl52903	NCP	%	71			70-130	Pass	
Fluorene	M20-Jl52903	NCP	%	78			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M20-Jl52903	NCP	%	76			70-130	Pass	
Naphthalene	M20-Jl52903	NCP	%	80			70-130	Pass	
Phenanthrene	M20-Jl52903	NCP	%	74			70-130	Pass	
Pyrene	M20-Jl52903	NCP	%	77			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Zinc	M20-Au01883	NCP	mg/kg	29	29	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M20-Au01255	NCP	%	26	26	1.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M20-Jl52835	NCP	mg/kg	2.2	2.0	10	30%	Pass	
Acenaphthylene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M20-Jl52835	NCP	mg/kg	0.7	0.9	22	30%	Pass	
Benz(a)anthracene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M20-Jl52835	NCP	mg/kg	1.1	1.2	15	30%	Pass	
Fluorene	M20-Jl52835	NCP	mg/kg	2.3	2.5	7.0	30%	Pass	
Indeno(1.2.3-cd)pyrene	M20-Jl52835	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M20-Jl52835	NCP	mg/kg	5.8	3.5	49	30%	Fail	Q15
Phenanthrene	M20-Jl52835	NCP	mg/kg	3.4	4.0	17	30%	Pass	
Pyrene	M20-Jl52835	NCP	mg/kg	0.9	1.0	13	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Michael Cassidy	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2012924**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: SHYA JACKSON	Contact	: Graeme Jablonskas
Address	: GPO BOX 398 ADELAIDE SA, AUSTRALIA 5001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: shya.jackson@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9609
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: PS120574	Page	: 1 of 2
Order number	: ----	Quote number	: ES2019PARBRISA0001 (EN/008/18 B)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: O'Sullivan Beach		
Sampler	: MG		

Dates

Date Samples Received	: 24-Jul-2020 09:30	Issue Date	: 25-Jul-2020
Client Requested Due Date	: 31-Jul-2020	Scheduled Reporting Date	: **31-Jul-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.6°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample(s) received in non-ALS container(s).**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-02 8 Metals (incl. Digestion)
EM2012924-001	20-Jul-2020 00:00	QC04	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	AU.AccountsPayable@wsp.com
ALL REPORT		
- *AU Certificate of Analysis - NATA (COA)	Email	shr.auadllabresults@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	shr.auadllabresults@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	shr.auadllabresults@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	shr.auadllabresults@wsp.com
- Chain of Custody (CoC) (COC)	Email	shr.auadllabresults@wsp.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	shr.auadllabresults@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	shr.auadllabresults@wsp.com
JENNIFER CATHERINE		
- *AU Certificate of Analysis - NATA (COA)	Email	jennifer.catherine@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jennifer.catherine@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jennifer.catherine@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jennifer.catherine@wsp.com
- Chain of Custody (CoC) (COC)	Email	jennifer.catherine@wsp.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	jennifer.catherine@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	jennifer.catherine@wsp.com
SHYA JACKSON		
- *AU Certificate of Analysis - NATA (COA)	Email	shya.jackson@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	shya.jackson@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	shya.jackson@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	shya.jackson@wsp.com
- Chain of Custody (CoC) (COC)	Email	shya.jackson@wsp.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	shya.jackson@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	shya.jackson@wsp.com

CHAIN OF CUSTODY

ADDRESS:	WSP Level 1 1 King William St, Adelaide SA 5001	LABORATORY:	ALS	Format Required: ESDAT	RELINQUISHED: MG DATE: 21/07/2020 TIME:
		ADDRESS:	4 Westall Road Springvale VIC 3121	email address: SHR.AUadllabresults@wsp.com; Jennifer.Catherine@wsp.com; shya.jackson@wsp.com	RECEIVED BY: TIME: DATE: TIME:
				TURNAROUND DETAILS (mark box)	RELINQUISHED:
				X Standard - 5 days	DATE: TIME:
PHONE NO:	08 84054300	PHONE NO:	03 8549 9600	Non standard (see comr	RECEIVED BY:
FAX NO:	08 8405 4301	FAX NO:	03 8549 9601		DATE: TIME:
WSP PROJECT NO: PS120574		WSP Project Manager: Shya Jackson			Custody Seal ? Y N NA
SITE NAME: O'Sullivan Beach		SAMPLERS: Max Ghaly			Samples Cold ? Y N NA
EN-008-18					
COMMENTS:	Sample sent via Eurofins				

Environmental Division
Melbourne
Work Order Reference
EM2012924

Telephone : + 61-3-8549 9600

ANALYSIS REQUIRED - mark box for each individual analyte type required

LAB ID	SAMPLE ID	DATE dd/mm/yy	MATRIX	Jar 250 mL						S-02: 8 metals				Comments
1	QC04	20/07/2020	S	1						X				
TOTAL				1	0	0	0	0	0	1	0	0	0	0

Received: 21/7 9:30 Carrier:
C/note:
Temp: 6.6 °C Seal: Y / N
Ice / Icebricks / NA

ALS

Niki Papastergiou

From:	Catherine, Jennifer <Jennifer.Catherine@wsp.com>
Sent:	Friday, 24 July 2020 11:09 AM
To:	COC Melbourne
Cc:	Graeme Jablonskas
Subject:	[EXTERNAL] - FW: PS120574 - inter-lab duplicate soil sample COC
Attachments:	PS120574_COC_ALS.pdf

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi there,

Please see below. Thank you.

Kind regards,

Jennifer Catherine
Environmental Scientist

T: +61 8 8405 4339

Jennifer.Catherine@wsp.com

WSP Australia Pty Limited
Level 1
1 King William Street
Adelaide, SA
5000 Australia

wsp.com

From: Catherine, Jennifer
Sent: Friday, 24 July 2020 10:33 AM
To: Graeme.Jablonskas@alsglobal.com
Subject: PS120574 - inter-lab duplicate soil sample COC

Hi Graeme,

I hope this email finds you well.

Please find attached the COC for the duplicate sample dispatched from Eurofins.

Kind regards,

Jennifer Catherine
Environmental Scientist

T: +61 8 8405 4339

Jennifer.Catherine@wsp.com

WSP Australia Pty Limited
Level 1
1 King William Street
Adelaide, SA
5000 Australia

wsp.com

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2012924**	Page	: 1 of 2
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: SHYA JACKSON	Contact	: Graeme Jablonskas
Address	: GPO BOX 398 ADELAIDE SA, AUSTRALIA 5001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9609
Project	: PS120574	Date Samples Received	: 24-Jul-2020 09:30
Order number	: ----	Date Analysis Commenced	: 27-Jul-2020
C-O-C number	: ----	Issue Date	: 31-Jul-2020 09:32
Sampler	: MG		
Site	: O'Sullivan Beach		
Quote number	: EN/008/18 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC04	----	----	----	----
			Client sampling date / time	20-Jul-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2012924-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**12.1**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**15**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**11**	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**11**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**14**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EM2012924**	Page	: 1 of 3
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: SHYA JACKSON	Contact	: Graeme Jablonskas
Address	: GPO BOX 398 ADELAIDE SA, AUSTRALIA 5001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9609
Project	: PS120574	Date Samples Received	: 24-Jul-2020
Order number	: ----	Date Analysis Commenced	: 27-Jul-2020
C-O-C number	: ----	Issue Date	: 31-Jul-2020
Sampler	: MG		
Site	: O'Sullivan Beach		
Quote number	: EN/008/18 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3168330)									
EM2013065-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	14	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	10	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	12	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	33	31	7.02	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	116	102	13.1	0% - 20%
EM2012843-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	11	30.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3162485)									
EM2012727-001	Anonymous	EA055: Moisture Content	----	0.1	%	7.2	7.8	7.60	No Limit
EM2012889-002	Anonymous	EA055: Moisture Content	----	0.1	%	27.5	28.1	2.06	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3168331)									
EM2012843-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3168330)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.6	78.5	107
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.8	76.2	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.2	77.7	110
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	102	78.1	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	89.3	78.4	106
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	79.9	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	92.2	79.1	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3168331)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.9	76.9	110

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3168330)							
EM2012843-022	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.6	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.1	84.0	116
		EG005T: Chromium	7440-47-3	50 mg/kg	103	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	105	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	92.6	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	98.5	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	87.8	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3168331)							
EM2012843-022	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	112	76.0	116

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2012924**	Page	: 1 of 4
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: SHYA JACKSON	Telephone	: +6138549 9609
Project	: PS120574	Date Samples Received	: 24-Jul-2020
Site	: O'Sullivan Beach	Issue Date	: 31-Jul-2020
Sampler	: MG	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QC04	**20-Jul-2020**	**----**	----	----	**27-Jul-2020**	03-Aug-2020	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QC04	**20-Jul-2020**	**29-Jul-2020**	16-Jan-2021	✓	**29-Jul-2020**	16-Jan-2021	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QC04	**20-Jul-2020**	**29-Jul-2020**	17-Aug-2020	✓	**30-Jul-2020**	17-Aug-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN 50 005 085 521

- ☐ Sydney Laboratory — Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066 — 02 9900 8400 — EnviroSampleNSW@eurofins.com
- ☐ Brisbane Laboratory — Unit 1 21 Smallwood Place Murarrie QLD 4172 — 07 3902 4600 — EnviroSampleQLD@eurofins.com
- ☐ Perth Laboratory — Unit 2 91 Leach Highway Kewdale WA 6105 — 08 9251 9600 — EnviroSampleWA@eurofins.com
- ☐ Melbourne Laboratory — 6 Monterey Road Dandenong South VIC 3175 — 03 8564 5000 — EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project Nº	PS120574
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach
Contact Name	Maximus Ghaly		
Phone Nº	433961712		
Special Directions			
Purchase Order			
Quote ID Nº	200716WSPS		

Project Manager	Shya Jackson
EDD Format (ESdat, EQuIS etc)	Esdat
Sampler(s)	MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; maximus.ghaly@wsp.com SHR.AUADLLABresults@wsp.com

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE codes must be used to select SUITE pricing.

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked. *Surcharge will apply

☐ Overnight (reporting by 9am)* ☐ Same day ◆ ☐ 1 day ◆ ☐ 2 days ◆ ☐ 3 days ◆ ☑ 5 days (Standard) ☐ Other( )

Nº	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs including chlorinates	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	BH01B_0.15-0.2	8/09/20	S									X							1		
2	BH01B_0.3-0.4	8/09/20	S									X							1		
3	BH01B_1.0-1.1	8/09/20	S									X							1		
4	BH01B_1.8-1.9	8/09/20	S				X												1		
5	BH01B_2.8-3.0	8/09/20	S									X							1		
6	BH02B_0.1-0.25	8/09/20	S									X							1		
7	BH02B_0.25-0.35	8/09/20	S									X							1		
8	BH02B_0.9-1.0	8/09/20	S									X							1		
9	BH02B_2.3-2.4	8/09/20	S									X							1		
10	BH02B_2.9-3.0	8/09/20	S				X												1		
11	BH03B_0.0-0.1	8/09/20	S									X							1		
12	BH03B_0.2-0.3	8/09/20	S									X							1		
13	BH03B_1.1-1.2	8/09/20	S									X							1		
14	BH03B_2.0-2.1	8/09/20	S									X							1		#743032
15	BH03B_2.9-3.0	8/09/20	S				X												1		Parkmed
16	BH04B_0.0-0.1	8/09/20	S				X												1		
17	BH04B_0.3-0.4	8/09/20	S									X							1		

CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN 50 005 085 521

- ☐ Sydney Laboratory — Unit F3 Bld F, 16 Mars Road, Lane Cove West NSW 2066; 02 9900 8400; EnviroSampleNSW@eurofins.com
- ☐ Brisbane Laboratory — Unit 1 21 Smallwood Place Murarrie QLD 4172; 07 3902 4600; EnviroSampleQLD@eurofins.com
- ☐ Perth Laboratory — Unit 2 81 Leach Highway Kewdale WA 6105; 08 9251 9600; EnviroSampleWA@eurofins.com
- ☐ Melbourne Laboratory — 5 Monterey Road Dandenong South VIC 3175; 03 8564 5000; EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project №	PS120574
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach
Contact Name	Maximus Ghaly		
Phone №	433961712		
Special Directions			
Purchase Order			
Quote ID №	200716WSPS		

Project Manager	Shya Jackson
EDD Format (Esdat, EDMS etc)	Esdat

Sampler(s)	MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; maximus.ghaly@wsp.com SHR.AUADLLABresults@wsp.com

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not based.

- ☐ Overnight (reporting by 9am) ◆
- ☐ Same day ◆
- ☐ 1 day ◆
- ☐ 2 days ◆
- ☐ 3 days ◆
- ☑ 5 days (Standard)
- ☐ Other( )

◆Surcharge will apply

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to extract SUITE prices.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs including chlorinates	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
18	BH04B_1.0-1.1	8/09/20	S									X							1		
19	BH04B_2.1-2.2	8/09/20	S									X							1		
20	BH04B_2.9-3.0	8/09/20	S									X							1		
21	BH05B_0.0-0.1	8/09/20	S									X							1		
22	BH05B_0.25-0.35	8/09/20	S									X							1		
23	BH05B_0.9-1.0	8/09/20	S									X							1		
24	BH05B_1.75-1.85	8/09/20	S				X												1		
25	BH05B_2.9-3.0	8/09/20	S									X							1		
26	BH06B_0.0-0.1	8/09/20	S									X							1		
27	BH06B_0.2-0.3	8/09/20	S									X							1		
28	BH06B_1.3-1.4	8/09/20	S									X							1		
29	BH06B_2.2-2.3	8/09/20	S				X												1		
30	BH06B_2.8-3.0	8/09/20	S				X												1		
31	BH07B_0.0-0.1	8/09/20	S									X							1		
32	BH07B_0.1-0.2	8/09/20	S									X							1		
33	BH07B_0.7-0.8	8/09/20	S				X												1		
34	BH08B_0.0-0.1	8/09/20	S									X							1		

#743032
Pallmal

CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN: 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 5600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 31 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project №	PS120574	Project Manager	Shya Jackson
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Maximus Ghaly				
Phone №	433961712				
Special Directions					
Purchase Order					
Quote ID №	200716WSPS				

Sampler(s)	MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; maximus.ghaly@wsp.com SHR.AUADLLABresults@wsp.com

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked.

- ☐ Overnight (reporting by 9am)◆
- ☐ Same day ◆
- ☐ 1 day ◆
- ☐ 2 days ◆
- ☐ 3 days ◆
- ☑ 5 days (Standard)
- ☐ Other

◆Surcharge will apply

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs including chlorinates	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
35	BH08B_0.1-0.2	8/09/20	S									X							1		
36	BH08B_1.4-1.6	8/09/20	S									X							1		
37	BH08B_2.4-2.5	8/09/20	S				X												1		
38	BH08B_2.9-3.0	8/09/20	S									X							1		
39	BH09B_0.0-0.1	8/09/20	S									X							1		
40	BH09B_0.25-0.35	8/09/20	S									X							1		
41	BH09B_1.6-1.7	8/09/20	S									X							1		
42	BH09B_2.2-2.3	8/09/20	S				X												1		
43	BH09B_2.9-3.0	8/09/20	S									X							1		
44	BH10B_0.0-0.1	8/09/20	S									X							1		
45	BH10B_0.2-0.3	8/09/20	S									X							1		
46	BH10B_0.4-0.5	8/09/20	S									X							1		
47	BH10B_1.7-1.8	8/09/20	S									X							1		
48	BH10B_2.5-2.6	8/09/20	S									X							1		
49	BH10B_3.0-3.1	8/09/20	S									X							1		
50	BH10B_3.8-4.0	8/09/20	S				X												1		
51	BH11B_0.0-0.1	8/09/20	S									X							1		

#743032
Pa&Email

CHAIN OF CUSTODY RECORD

Eurofins Limit: ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F, 16 Mark Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project №	PS120574	Project Manager	Shya Jackson
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach	EDD Format (Esdat, Equis etc)	Esdat
Contact Name	Maximus Ghaly				
Phone №	433961712				
Special Directions					
Purchase Order					
Quote ID №	200716WSPS				

Sampler(s)	MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; maximus.ghaly@wsp.com SHR.AUADLLABresults@wsp.com

Required Turnaround Time (TAT) — Default will be 5 days if not ticked.
*Surcharge will apply
☐ Overnight (reporting by 9am)*
☐ Same day ◆ ☐ 1 day ◆
☐ 2 days ◆ ☐ 3 days ◆
☑ 5 days (Standard)
☐ Other

Analyses — Where matrix are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs including chlorinates	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	800mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
52	BH11B_0.15-0.25	8/09/20	S									X							1		
53	BH11B_1.3-1.4	8/09/20	S				X												1		
54	BH11B_2.1-2.2	8/09/20	S									X							1		
55	BH11B_3.1-3.2	8/09/20	S									X							1		
56	BH11B_3.5-3.7	8/09/20	S									X							1		
57	BH11B_3.9-4.0	8/09/20	S									X							1		
58	QC01	8/09/20	S									X							1		
59	QC02	8/09/20	S									X							1		
60	QC03	8/09/20	S									X							1		
61	QC04	8/09/20	S									X							1		
62	QC05	8/09/20	S									X							1		
63	QC06	8/09/20	S									X							1		
64	QC07	8/09/20	S				X												1	Please forward to ALS	
65	QC08	8/09/20	S									X							1		
66	QC09	8/09/20	S									X							1	#743032	
67	QC10	8/09/20	S									X							1	Parimal	
68	QC11	8/09/20	S									X							1		

CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN 50 005 085 521

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Company	WSP Australia Pty Limited	Project №	PS120574	Project Manager	Shya Jackson
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach	EDD Format (Esdat, EQuIS etc)	Esdat
Contact Name	Maximus Ghaly				
Phone №	433961712				
Special Directions					
Purchase Order					
Quote ID №	200716WSPS				

Sampler(s)	MG
Handed over by	MG
Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; maximus.ghaly@wsp.com SHR.AUADLLABresults@wsp.com

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to select SUITE pricing.

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked. ♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day ♦ ☐ 1 day ♦
☐ 2 days ♦ ☐ 3 days ♦
☒ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs including chlorinates	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
69	RB01B	8/09/20	W				X								1	1	2				
70	TB01B	8/09/20	W								X						1				
Add new rows	Total Counts						14				1	55			1	1	3		68		

Method of Shipment	Courier #	Hand Delivered	Postal	Name	Signature	Date	Time

Eurofins | mgt Laboratory Use Only										
Received By	Paegunal	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	09/09	Time	12:15pm	Temperature	
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

Eurofins Environment Testing Australia Pty Ltd trading as Eurofins | mgt

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request

#743032
Paegunal 4

eurofins | Environment Testing

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

WSP Australia P/L SA
Level 16, 1 King William St
Adelaide
SA 5000

Attention: **Shya Jackson**

Report **743032-S**
Project name O'SULLIVAN BEACH
Project ID PS120574
Received Date Sep 09, 2020

Client Sample ID			**BH01B_1.8-1.9**	**BH02B_2.9-3.0**	**BH03B_2.9-3.0**	**BH04B_0.0-0.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M20-Se16360**	**M20-Se16361**	**M20-Se16362**	**M20-Se16363**
Date Sampled			**Sep 08, 2020**	**Sep 08, 2020**	**Sep 08, 2020**	**Sep 08, 2020**
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH01B_1.8-1.9	BH02B_2.9-3.0	BH03B_2.9-3.0	BH04B_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Se16360	M20-Se16361	M20-Se16362	M20-Se16363
Date Sampled			Sep 08, 2020	Sep 08, 2020	Sep 08, 2020	Sep 08, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	137	126	149	146
Toluene-d8 (surr.)	1	%	96	87	104	101
% Moisture	1	%	13	13	15	10.0

Client Sample ID			BH05B_1.75-1.85	BH06B_2.2-2.3	BH06B_2.8-3.0	BH07B_0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Se16364	M20-Se16365	M20-Se16366	M20-Se16367
Date Sampled			Sep 08, 2020	Sep 08, 2020	Sep 08, 2020	Sep 08, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH05B_1.75-1.85	BH06B_2.2-2.3	BH06B_2.8-3.0	BH07B_0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Se16364	M20-Se16365	M20-Se16366	M20-Se16367
Date Sampled			Sep 08, 2020	Sep 08, 2020	Sep 08, 2020	Sep 08, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	142	62	63	68
Toluene-d8 (surr.)	1	%	98	61	62	67
% Moisture	1	%	12	13	9.9	16

Client Sample ID			BH08B_2.4-2.5	BH09B_2.2-2.3	BH10B_3.8-4.0	BH11B_1.3-1.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M20-Se16368	M20-Se16369	M20-Se16370	M20-Se16371
Date Sampled			Sep 08, 2020	Sep 08, 2020	Sep 08, 2020	Sep 08, 2020
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH08B_2.4-2.5	BH09B_2.2-2.3	BH10B_3.8-4.0	BH11B_1.3-1.4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M20-Se16368**	**M20-Se16369**	**M20-Se16370**	**M20-Se16371**
Date Sampled			**Sep 08, 2020**	**Sep 08, 2020**	**Sep 08, 2020**	**Sep 08, 2020**
Test/Reference	LOR	Unit				
Volatile Organics						
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	69	74	141	131
Toluene-d8 (surr.)	1	%	74	78	94	137
% Moisture	1	%	13	14	10	13

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Volatile Organics	Melbourne	Sep 10, 2020	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
% Moisture	Melbourne	Sep 09, 2020	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name:	WSP Australia P/L SA	**Order No.:**		**Received:**	Sep 9, 2020 12:15 PM
Address:	Level 16, 1 King William St Adelaide SA 5000	**Report #:**	743032	**Due:**	Sep 16, 2020
		Phone:	08 8405 4300	**Priority:**	5 Day
		Fax:	08 8405 4301	**Contact Name:**	Shya Jackson
Project Name:	O'SULLIVAN BEACH				
Project ID:	PS120574				

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
Newcastle Laboratory									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH01B_1.8-1.9	Sep 08, 2020		Soil	M20-Se16360		X	X	
2	BH02B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16361		X	X	
3	BH03B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16362		X	X	
4	BH04B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16363		X	X	
5	BH05B_1.75-1.85	Sep 08, 2020		Soil	M20-Se16364		X	X	
6	BH06B_2.2-	Sep 08, 2020		Soil	M20-Se16365		X	X	

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Company Name: WSP Australia P/L SA
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Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 743032
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Sep 9, 2020 12:15 PM
Due: Sep 16, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	2.3								
7	BH06B_2.8-3.0	Sep 08, 2020		Soil	M20-Se16366		X	X	
8	BH07B_0.7-0.8	Sep 08, 2020		Soil	M20-Se16367		X	X	
9	BH08B_2.4-2.5	Sep 08, 2020		Soil	M20-Se16368		X	X	
10	BH09B_2.2-2.3	Sep 08, 2020		Soil	M20-Se16369		X	X	
11	BH10B_3.8-4.0	Sep 08, 2020		Soil	M20-Se16370		X	X	
12	BH11B_1.3-1.4	Sep 08, 2020		Soil	M20-Se16371		X	X	
13	RB01B	Sep 08, 2020		Water	M20-Se16372		X		
14	TB01B	Sep 08, 2020		Water	M20-Se16373				X

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Rolleston, Christchurch 7675
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IANZ # 1290

Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
Adelaide
SA 5000

Order No.:
Report #: 743032
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Sep 9, 2020 12:15 PM
Due: Sep 16, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
15	BH01B_0.15-0.2	Sep 08, 2020		Soil	M20-Se16374	X			
16	BH01B_0.3-0.4	Sep 08, 2020		Soil	M20-Se16375	X			
17	BH01B_1.0-1.1	Sep 08, 2020		Soil	M20-Se16376	X			
18	BH01B_2.8-3.0	Sep 08, 2020		Soil	M20-Se16377	X			
19	BH02B_0.1-0.25	Sep 08, 2020		Soil	M20-Se16378	X			
20	BH02B_0.25-0.35	Sep 08, 2020		Soil	M20-Se16379	X			
21	BH02B_0.9-1.0	Sep 08, 2020		Soil	M20-Se16380	X			
22	BH02B_2.3-	Sep 08, 2020		Soil	M20-Se16381	X			

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Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
Adelaide
SA 5000

Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 743032
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Sep 9, 2020 12:15 PM
Due: Sep 16, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

	Sample Detail					HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	2.4								
23	BH03B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16382	X			
24	BH03B_0.2-0.3	Sep 08, 2020		Soil	M20-Se16383	X			
25	BH03B_1.1-1.2	Sep 08, 2020		Soil	M20-Se16384	X			
26	BH03B_2.0-2.1	Sep 08, 2020		Soil	M20-Se16385	X			
27	BH04B_0.3-0.4	Sep 08, 2020		Soil	M20-Se16386	X			
28	BH04B_1.0-1.1	Sep 08, 2020		Soil	M20-Se16387	X			
29	BH04B_2.1-2.2	Sep 08, 2020		Soil	M20-Se16388	X			

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Perth Laboratory - NATA Site # 23736									
30	BH04B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16389	X			
31	BH05B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16390	X			
32	BH05B_0.25-0.35	Sep 08, 2020		Soil	M20-Se16391	X			
33	BH05B_0.9-1.0	Sep 08, 2020		Soil	M20-Se16392	X			
34	BH05B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16393	X			
35	BH06B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16394	X			
36	BH06B_0.2-0.3	Sep 08, 2020		Soil	M20-Se16395	X			
37	BH06B_1.3-	Sep 08, 2020		Soil	M20-Se16396	X			

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Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	1.4								
38	BH07B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16397	X			
39	BH07B_0.1-0.2	Sep 08, 2020		Soil	M20-Se16398	X			
40	BH08B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16399	X			
41	BH08B_0.1-0.2	Sep 08, 2020		Soil	M20-Se16400	X			
42	BH08B_1.4-1.6	Sep 08, 2020		Soil	M20-Se16401	X			
43	BH08B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16402	X			
44	BH09B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16403	X			

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
45	BH09B_0.25-0.35	Sep 08, 2020		Soil	M20-Se16404	X			
46	BH09B_1.6-1.7	Sep 08, 2020		Soil	M20-Se16405	X			
47	BH09B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16406	X			
48	BH10B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16407	X			
49	BH10B_0.2-0.3	Sep 08, 2020		Soil	M20-Se16408	X			
50	BH10B_0.4-0.5	Sep 08, 2020		Soil	M20-Se16409	X			
51	BH10B_1.7-1.8	Sep 08, 2020		Soil	M20-Se16410	X			
52	BH10B_2.5-	Sep 08, 2020		Soil	M20-Se16411	X			

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Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	2.6								
53	BH10B_3.0-3.1	Sep 08, 2020		Soil	M20-Se16412	X			
54	BH11B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16413	X			
55	BH11B_0.15-0.25	Sep 08, 2020		Soil	M20-Se16414	X			
56	BH11B_2.1-2.2	Sep 08, 2020		Soil	M20-Se16415	X			
57	BH11B_3.1-3.2	Sep 08, 2020		Soil	M20-Se16416	X			
58	BH11B_3.5-3.7	Sep 08, 2020		Soil	M20-Se16417	X			
59	BH11B_3.9-4.0	Sep 08, 2020		Soil	M20-Se16418	X			

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Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
60	QC01	Sep 08, 2020		Soil	M20-Se16419	X			
61	QC02	Sep 08, 2020		Soil	M20-Se16420	X			
62	QC03	Sep 08, 2020		Soil	M20-Se16421	X			
63	QC04	Sep 08, 2020		Soil	M20-Se16422	X			
64	QC05	Sep 08, 2020		Soil	M20-Se16423	X			
65	QC06	Sep 08, 2020		Soil	M20-Se16424	X			
66	QC08	Sep 08, 2020		Soil	M20-Se16425	X			
67	QC09	Sep 08, 2020		Soil	M20-Se16426	X			
68	QC10	Sep 08, 2020		Soil	M20-Se16427	X			
69	QC11	Sep 08, 2020		Soil	M20-Se16428	X			
Test Counts						55	13	12	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichlorofluoromethane			mg/kg	< 0.5			0.5	Pass	
Vinyl chloride			mg/kg	< 0.5			0.5	Pass	
Xylenes - Total*			mg/kg	< 0.3			0.3	Pass	
LCS - % Recovery									
Volatile Organics									
1.1-Dichloroethene			%	96			70-130	Pass	
1.1.1-Trichloroethane			%	79			70-130	Pass	
1.2-Dichlorobenzene			%	81			70-130	Pass	
1.2-Dichloroethane			%	92			70-130	Pass	
Benzene			%	93			70-130	Pass	
Ethylbenzene			%	87			70-130	Pass	
m&p-Xylenes			%	84			70-130	Pass	
Toluene			%	81			70-130	Pass	
Trichloroethene			%	81			70-130	Pass	
Xylenes - Total*			%	85			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M20-Se16361	CP	%	101			70-130	Pass	
1.1.1-Trichloroethane	M20-Se16361	CP	%	83			70-130	Pass	
1.2-Dichlorobenzene	M20-Se16361	CP	%	84			70-130	Pass	
1.2-Dichloroethane	M20-Se16361	CP	%	95			70-130	Pass	
Benzene	M20-Se16361	CP	%	98			70-130	Pass	
Ethylbenzene	M20-Se16361	CP	%	95			70-130	Pass	
m&p-Xylenes	M20-Se16361	CP	%	91			70-130	Pass	
o-Xylene	M20-Se16361	CP	%	95			70-130	Pass	
Toluene	M20-Se16361	CP	%	87			70-130	Pass	
Trichloroethene	M20-Se16361	CP	%	85			70-130	Pass	
Xylenes - Total*	M20-Se16361	CP	%	93			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Benzene	M20-Se16360	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	M20-Se16360	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	M20-Se16360	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	M20-Se16360	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Styrene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	M20-Se16360	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1.2-Dichloroethene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M20-Se16360	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total*	M20-Se16360	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M20-Se16369	CP	%	14	14	3.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Michael Cassidy	Analytical Services Manager
Harry Bacalis	Senior Analyst-Volatile (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

WSP Australia P/L SA
Level 16, 1 King William St
Adelaide
SA 5000

Attention: **Shya Jackson**

Report **743032-W**
Project name O'SULLIVAN BEACH
Project ID PS120574
Received Date Sep 09, 2020

Client Sample ID			**RB01B**	**TB01B**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**M20-Se16372**	**M20-Se16373**
Date Sampled			**Sep 08, 2020**	**Sep 08, 2020**
Test/Reference	LOR	Unit		
Volatile Organics				
1.1-Dichloroethane	0.001	mg/L	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	-
1.3-Dichloropropane	0.001	mg/L	< 0.001	-
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	-
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	-
2-Butanone (MEK)	0.001	mg/L	< 0.001	-
2-Propanone (Acetone)	0.001	mg/L	< 0.001	-
4-Chlorotoluene	0.001	mg/L	< 0.001	-
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	-
Allyl chloride	0.001	mg/L	< 0.001	-
Benzene	0.001	mg/L	< 0.001	-
Bromobenzene	0.001	mg/L	< 0.001	-
Bromochloromethane	0.001	mg/L	< 0.001	-
Bromodichloromethane	0.001	mg/L	< 0.001	-
Bromoform	0.001	mg/L	< 0.001	-
Bromomethane	0.001	mg/L	< 0.001	-
Carbon disulfide	0.001	mg/L	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	-
Chlorobenzene	0.001	mg/L	< 0.001	-
Chloroethane	0.001	mg/L	< 0.001	-
Chloroform	0.005	mg/L	< 0.005	-
Chloromethane	0.001	mg/L	< 0.001	-
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	-

Client Sample ID			RB01B	TB01B
Sample Matrix			Water	Water
Eurofins Sample No.			M20-Se16372	M20-Se16373
Date Sampled			Sep 08, 2020	Sep 08, 2020
Test/Reference	LOR	Unit		
Volatile Organics				
Dibromochloromethane	0.001	mg/L	< 0.001	-
Dibromomethane	0.001	mg/L	< 0.001	-
Dichlorodifluoromethane	0.001	mg/L	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	-
Iodomethane	0.001	mg/L	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	-
Methylene Chloride	0.001	mg/L	< 0.001	-
o-Xylene	0.001	mg/L	< 0.001	-
Styrene	0.001	mg/L	< 0.001	-
Tetrachloroethene	0.001	mg/L	< 0.001	-
Toluene	0.001	mg/L	< 0.001	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	-
Trichloroethene	0.001	mg/L	< 0.001	-
Trichlorofluoromethane	0.001	mg/L	< 0.001	-
Vinyl chloride	0.001	mg/L	< 0.001	-
Xylenes - Total*	0.003	mg/L	< 0.003	-
Total MAH*	0.003	mg/L	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	85	-
Toluene-d8 (surr.)	1	%	92	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	-	< 0.01
TRH C6-C10	0.02	mg/L	-	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	< 0.02
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	-	< 0.02
BTEX				
Benzene	0.001	mg/L	-	< 0.001
Toluene	0.001	mg/L	-	< 0.001
Ethylbenzene	0.001	mg/L	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002
o-Xylene	0.001	mg/L	-	< 0.001
Xylenes - Total*	0.003	mg/L	-	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	89

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Volatile Organics	Melbourne	Sep 10, 2020	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
Total Recoverable Hydrocarbons	Melbourne	Sep 10, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 10, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Sep 10, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			

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Company Name:	WSP Australia P/L SA	**Order No.:**		**Received:**	Sep 9, 2020 12:15 PM
Address:	Level 16, 1 King William St Adelaide SA 5000	**Report #:**	743032	**Due:**	Sep 16, 2020
		Phone:	08 8405 4300	**Priority:**	5 Day
		Fax:	08 8405 4301	**Contact Name:**	Shya Jackson
Project Name:	O'SULLIVAN BEACH				
Project ID:	PS120574				

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
Newcastle Laboratory									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH01B_1.8-1.9	Sep 08, 2020		Soil	M20-Se16360		X	X	
2	BH02B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16361		X	X	
3	BH03B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16362		X	X	
4	BH04B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16363		X	X	
5	BH05B_1.75-1.85	Sep 08, 2020		Soil	M20-Se16364		X	X	
6	BH06B_2.2-	Sep 08, 2020		Soil	M20-Se16365		X	X	

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Company Name: WSP Australia P/L SA
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Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 743032
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Sep 9, 2020 12:15 PM
Due: Sep 16, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	2.3								
7	BH06B_2.8-3.0	Sep 08, 2020		Soil	M20-Se16366		X	X	
8	BH07B_0.7-0.8	Sep 08, 2020		Soil	M20-Se16367		X	X	
9	BH08B_2.4-2.5	Sep 08, 2020		Soil	M20-Se16368		X	X	
10	BH09B_2.2-2.3	Sep 08, 2020		Soil	M20-Se16369		X	X	
11	BH10B_3.8-4.0	Sep 08, 2020		Soil	M20-Se16370		X	X	
12	BH11B_1.3-1.4	Sep 08, 2020		Soil	M20-Se16371		X	X	
13	RB01B	Sep 08, 2020		Water	M20-Se16372		X		
14	TB01B	Sep 08, 2020		Water	M20-Se16373				X

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Company Name: WSP Australia P/L SA
Address: Level 16, 1 King William St
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Project Name: O'SULLIVAN BEACH
Project ID: PS120574

Order No.:
Report #: 743032
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Sep 9, 2020 12:15 PM
Due: Sep 16, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
15	BH01B_0.15-0.2	Sep 08, 2020		Soil	M20-Se16374	X			
16	BH01B_0.3-0.4	Sep 08, 2020		Soil	M20-Se16375	X			
17	BH01B_1.0-1.1	Sep 08, 2020		Soil	M20-Se16376	X			
18	BH01B_2.8-3.0	Sep 08, 2020		Soil	M20-Se16377	X			
19	BH02B_0.1-0.25	Sep 08, 2020		Soil	M20-Se16378	X			
20	BH02B_0.25-0.35	Sep 08, 2020		Soil	M20-Se16379	X			
21	BH02B_0.9-1.0	Sep 08, 2020		Soil	M20-Se16380	X			
22	BH02B_2.3-	Sep 08, 2020		Soil	M20-Se16381	X			

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Report #: 743032
Phone: 08 8405 4300
Fax: 08 8405 4301

Received: Sep 9, 2020 12:15 PM
Due: Sep 16, 2020
Priority: 5 Day
Contact Name: Shya Jackson

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Volatile Organics	Moisture Set	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	2.4								
23	BH03B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16382	X			
24	BH03B_0.2-0.3	Sep 08, 2020		Soil	M20-Se16383	X			
25	BH03B_1.1-1.2	Sep 08, 2020		Soil	M20-Se16384	X			
26	BH03B_2.0-2.1	Sep 08, 2020		Soil	M20-Se16385	X			
27	BH04B_0.3-0.4	Sep 08, 2020		Soil	M20-Se16386	X			
28	BH04B_1.0-1.1	Sep 08, 2020		Soil	M20-Se16387	X			
29	BH04B_2.1-2.2	Sep 08, 2020		Soil	M20-Se16388	X			

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Project ID: PS120574

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Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
30	BH04B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16389	X			
31	BH05B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16390	X			
32	BH05B_0.25-0.35	Sep 08, 2020		Soil	M20-Se16391	X			
33	BH05B_0.9-1.0	Sep 08, 2020		Soil	M20-Se16392	X			
34	BH05B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16393	X			
35	BH06B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16394	X			
36	BH06B_0.2-0.3	Sep 08, 2020		Soil	M20-Se16395	X			
37	BH06B_1.3-	Sep 08, 2020		Soil	M20-Se16396	X			

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Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	1.4								
38	BH07B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16397	X			
39	BH07B_0.1-0.2	Sep 08, 2020		Soil	M20-Se16398	X			
40	BH08B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16399	X			
41	BH08B_0.1-0.2	Sep 08, 2020		Soil	M20-Se16400	X			
42	BH08B_1.4-1.6	Sep 08, 2020		Soil	M20-Se16401	X			
43	BH08B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16402	X			
44	BH09B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16403	X			

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
45	BH09B_0.25-0.35	Sep 08, 2020		Soil	M20-Se16404	X			
46	BH09B_1.6-1.7	Sep 08, 2020		Soil	M20-Se16405	X			
47	BH09B_2.9-3.0	Sep 08, 2020		Soil	M20-Se16406	X			
48	BH10B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16407	X			
49	BH10B_0.2-0.3	Sep 08, 2020		Soil	M20-Se16408	X			
50	BH10B_0.4-0.5	Sep 08, 2020		Soil	M20-Se16409	X			
51	BH10B_1.7-1.8	Sep 08, 2020		Soil	M20-Se16410	X			
52	BH10B_2.5-	Sep 08, 2020		Soil	M20-Se16411	X			

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Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
	2.6								
53	BH10B_3.0-3.1	Sep 08, 2020		Soil	M20-Se16412	X			
54	BH11B_0.0-0.1	Sep 08, 2020		Soil	M20-Se16413	X			
55	BH11B_0.15-0.25	Sep 08, 2020		Soil	M20-Se16414	X			
56	BH11B_2.1-2.2	Sep 08, 2020		Soil	M20-Se16415	X			
57	BH11B_3.1-3.2	Sep 08, 2020		Soil	M20-Se16416	X			
58	BH11B_3.5-3.7	Sep 08, 2020		Soil	M20-Se16417	X			
59	BH11B_3.9-4.0	Sep 08, 2020		Soil	M20-Se16418	X			

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Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
60	QC01	Sep 08, 2020		Soil	M20-Se16419	X			
61	QC02	Sep 08, 2020		Soil	M20-Se16420	X			
62	QC03	Sep 08, 2020		Soil	M20-Se16421	X			
63	QC04	Sep 08, 2020		Soil	M20-Se16422	X			
64	QC05	Sep 08, 2020		Soil	M20-Se16423	X			
65	QC06	Sep 08, 2020		Soil	M20-Se16424	X			
66	QC08	Sep 08, 2020		Soil	M20-Se16425	X			
67	QC09	Sep 08, 2020		Soil	M20-Se16426	X			
68	QC10	Sep 08, 2020		Soil	M20-Se16427	X			
69	QC11	Sep 08, 2020		Soil	M20-Se16428	X			
Test Counts						55	13	12	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichlorofluoromethane			mg/L	< 0.001			0.001	Pass	
Vinyl chloride			mg/L	< 0.001			0.001	Pass	
Xylenes - Total*			mg/L	< 0.003			0.003	Pass	
Method Blank									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			mg/L	< 0.01			0.01	Pass	
TRH C6-C10			mg/L	< 0.02			0.02	Pass	
Method Blank									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions									
TRH C6-C9			mg/L	< 0.02			0.02	Pass	
LCS - % Recovery									
Volatile Organics									
1.1-Dichloroethene			%	98			70-130	Pass	
1.1.1-Trichloroethane			%	84			70-130	Pass	
1.2-Dichlorobenzene			%	73			70-130	Pass	
1.2-Dichloroethane			%	91			70-130	Pass	
Benzene			%	94			70-130	Pass	
Ethylbenzene			%	74			70-130	Pass	
m&p-Xylenes			%	71			70-130	Pass	
Toluene			%	83			70-130	Pass	
Trichloroethene			%	82			70-130	Pass	
Xylenes - Total*			%	72			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	100			70-130	Pass	
TRH C6-C10			%	107			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions									
TRH C6-C9			%	109			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Volatile Organics				Result 1					
Benzene	M20-Se18130	NCP	%	92			70-130	Pass	
Ethylbenzene	M20-Se18130	NCP	%	87			70-130	Pass	
m&p-Xylenes	M20-Se18130	NCP	%	89			70-130	Pass	
o-Xylene	M20-Se18130	NCP	%	83			70-130	Pass	
Toluene	M20-Se18130	NCP	%	80			70-130	Pass	
Xylenes - Total*	M20-Se18130	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M20-Se18130	NCP	%	75			70-130	Pass	
TRH C6-C10	M20-Se18130	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M20-Se18130	NCP	%	106			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Benzene	M20-Se18246	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M20-Se18246	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M20-Se18246	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M20-Se18246	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M20-Se18246	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M20-Se18246	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M20-Se18246	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M20-Se18246	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M20-Se18246	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Michael Cassidy	Analytical Services Manager
Harry Bacalis	Senior Analyst-Volatile (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 31 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	WSP Australia Pty Limited	Project Nº	PS120574
Address	Level 1 1 King William Street Adelaide, SA 5000 Australia	Project Name	O'Sullivan Beach
Contact Name	Maximus Ghaly	Project Manager	Shya Jackson
Phone Nº	433961712	EDD Format (Esdat, EDUS etc)	Esdat
Special Directions		Sampler(s)	MG
Purchase Order		Handed over by	MG
Quote ID Nº	200716WSPS	Email for Results	jennifer.catherine@wsp.com; shya.jackson@wsp.com; maximus.ghaly@wsp.com; SHR.AUADLLABresults@wsp.com

Analysis: Where metals are requested please specify "Total" or "Filtered". SulfTE code must be used to amend SUITE profile.

Containers: Change container type & size if necessary.

Required Turnaround Time (TAT): Default will be 5 days if not ticked

- ☐ Overnight (reporting by 9am)◆
- ☐ Same day ◆ ☐ 1 day ◆
- ☐ 2 days ◆ ☐ 3 days ◆
- ☒ 5 days (Standard)
- ☐ Other

◆Surcharge will apply

Sample Comments / Dangerous Goods Hazard Warning

Nº	Client Sample ID	Sampled Date/Time d/m/yy hh:mm	Matrix Solid (S) Water (W)	M8 - metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM Screen Basic Suite	B7 - TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	VOCs including chlorinates	Asbestos ID (presence/absence)	B13 + B7A - OCP, PCB and TRH, BTEXN, PAH, Phenols, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	R21 - NEPM soil classification	BTEXN and TRHC6-C10	hold	500mL Plastic	250mL Plastic	60mL Plastic	200mL Amber Glass	40mL VOA vial	800mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)
52	BH11B_0.15-0.25	8/09/20	S									X							1	
53	BH11B_1.3-1.4	8/09/20	S				X												1	
54	BH11B_2.1-2.2	8/09/20	S									X							1	
55	BH11B_3.1-3.2	8/09/20	S									X							1	
56	BH11B_3.5-3.7	8/09/20	S									X							1	
57	BH11B_3.9-4.0	8/09/20	S									X							1	
58	QC01	8/09/20	S									X							1	
59	QC02	8/09/20	S									X							1	
60	QC03	8/09/20	S									X							1	
61	QC04	8/09/20	S									X							1	
62	QC05	8/09/20	S									X							1	
63	QC06	8/09/20	S									X							1	
64	QC07	8/09/20	S				X												1	
65	QC08	8/09/20	S									X							1	
66	QC09	8/09/20	S									X							1	
67	QC10	8/09/20	S									X							1	
68	QC11	8/09/20	S									X							1	

Please forward to ALS

Environmental Division
Melbourne
Work Order Reference
EM2015752

Telephone : + 61-3-8549 9600

Received: 11/9/20 9:32 Carrier: Couriers
C/note:
Temp: 6.7 °C Seal: Y (N)
Ice / Icebricks / NA

(ALS)

#743032
Padmal

Relinq NM 11/9 7AM

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2015752**	Page	: 1 of 6
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS SHYA JACKSON	Contact	: Graeme Jablonskas
Address	: GPO BOX 398 ADELAIDE SA, AUSTRALIA 5001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 08 8405 4300	Telephone	: +6138549 9609
Project	: PS120574	Date Samples Received	: 11-Sep-2020 09:00
Order number	: ----	Date Analysis Commenced	: 14-Sep-2020
C-O-C number	: ----	Issue Date	: 17-Sep-2020 14:58
Sampler	: MG		
Site	: ----		
Quote number	: EN/008/20		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC07	----	----	----	----
			Client sampling date / time	08-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2015752-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	11.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC07	----	----	----	----
			Client sampling date / time	08-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2015752-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC07	----	----	----	----
			Client sampling date / time	08-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2015752-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	**92.4**	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	**93.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	**93.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	62	122
Toluene-D8	2037-26-5	64	120
4-Bromofluorobenzene	460-00-4	66	124

QUALITY CONTROL REPORT

Work Order	: **EM2015752**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS SHYA JACKSON	Contact	: Graeme Jablonskas
Address	: GPO BOX 398 ADELAIDE SA, AUSTRALIA 5001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 08 8405 4300	Telephone	: +6138549 9609
Project	: PS120574	Date Samples Received	: 11-Sep-2020
Order number	: ----	Date Analysis Commenced	: 14-Sep-2020
C-O-C number	: ----	Issue Date	: 17-Sep-2020
Sampler	: MG		
Site	: ----		
Quote number	: EN/008/20		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3254066)									
EM2015675-001	Anonymous	EA055: Moisture Content	----	0.1	%	6.3	7.3	14.5	No Limit
EM2015778-001	Anonymous	EA055: Moisture Content	----	0.1	%	17.5	16.3	7.18	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM2015792-033	Anonymous	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3256132) - continued									
EM2015792-033	Anonymous	EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EM2015792-033	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM2015792-033	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM2015792-033	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3256132) - continued									
EM2015752-001	QC07	EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EM2015792-033	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3256132) - continued									
EM2015792-033	Anonymous	EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM2015792-033	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM2015792-033	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 3256132)									
EM2015752-001	QC07	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM2015792-033	Anonymous	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3256132)								
EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.3	69.9	120
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.4	70.9	115
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.6	69.8	114
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.2	69.2	118
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	88.7	69.8	115
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.6	73.2	119
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	91.2	66.5	114
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	85.6	56.8	107
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	85.0	61.2	106
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	85.1	58.4	109
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	84.2	60.2	107
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	87.0	62.4	108
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	59.1	111
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	79.1	51.1	109
EP074B: Oxygenated Compounds (QCLot: 3256132)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	88.4	61.9	127
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	66.3	61.2	128
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	91.1	63.2	137
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	76.5	65.0	128
EP074C: Sulfonated Compounds (QCLot: 3256132)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	93.0	48.5	121
EP074D: Fumigants (QCLot: 3256132)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	92.8	61.4	115
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	93.8	70.1	113
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	91.8	63.2	107
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	89.2	64.8	107
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	93.8	68.3	110
EP074E: Halogenated Aliphatic Compounds (QCLot: 3256132)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	56.6	26.0	137
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	68.2	49.4	140
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	75.5	46.0	138
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	67.9	39.1	127
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	82.0	59.2	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 3256132) - continued								
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	79.9	60.1	123
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	92.1	61.7	119
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	# 30.5	47.0	125
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	93.0	63.6	115
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	93.9	68.0	116
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	93.6	71.0	118
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	89.6	62.4	115
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	88.8	60.3	117
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.3	57.7	112
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	94.4	73.0	116
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	90.3	65.5	117
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	91.4	69.8	111
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	94.8	75.6	115
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	97.7	74.5	116
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	88.5	62.6	116
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	87.6	63.2	105
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	88.4	57.5	112
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	79.5	57.8	109
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	93.4	72.3	127
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	95.9	72.8	119
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	79.8	59.0	100
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	83.7	60.8	104
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	84.9	54.1	132
EP074F: Halogenated Aromatic Compounds (QCLot: 3256132)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	93.6	72.8	112
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	89.5	67.1	110
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	87.0	64.4	108
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	86.7	62.2	107
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	85.0	64.6	113
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	87.5	66.1	119
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	87.1	72.4	110
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	81.9	52.3	120
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	82.1	65.0	119
EP074G: Trihalomethanes (QCLot: 3256132)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	92.8	71.8	116
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	87.6	67.2	111
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	86.3	65.4	105
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	82.1	60.5	104

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP074H: Naphthalene (QCLot: 3256132)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	91.9	69.9	115

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3256132)							
EM2015792-026	Anonymous	EP074: Benzene	71-43-2	2 mg/kg	108	51.0	137
		EP074: Toluene	108-88-3	2 mg/kg	109	59.0	141
EP074E: Halogenated Aliphatic Compounds (QCLot: 3256132)							
EM2015792-026	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	2 mg/kg	116	29.0	141
		EP074: Trichloroethene	79-01-6	2 mg/kg	98.3	50.0	126
EP074F: Halogenated Aromatic Compounds (QCLot: 3256132)							
EM2015792-026	Anonymous	EP074: Chlorobenzene	108-90-7	2 mg/kg	107	65.0	133

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2015752**	Page	: 1 of 5
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS SHYA JACKSON	Telephone	: +6138549 9609
Project	: PS120574	Date Samples Received	: 11-Sep-2020
Site	: ----	Issue Date	: 17-Sep-2020
Sampler	: MG	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP074E: Halogenated Aliphatic Compounds	QC-3256132-001	----	**Iodomethane**	74-88-4	30.5 %	47.0-125%	**Recovery less than lower control limit**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) QC07	**08-Sep-2020**	**----**	----	----	**14-Sep-2020**	22-Sep-2020	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074)							
QC07	**08-Sep-2020**	**15-Sep-2020**	15-Sep-2020	✓	**15-Sep-2020**	15-Sep-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

ABOUT US

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