Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Site Investigation (Contamination)

Proposed Rezoning
87 Oakdale Road, Gateshead

Prepared for
Oakdale Group Pty Ltd

Project 102219.00
February 2021

Douglas Partners
Geotechnics / Environment / Groundwater

Document History

Document details

Project No.	102219.00	Document No.	R.001.Rev1
Document title	Report on Preliminary Site Investigation (Contamination) Proposed Rezoning		
Site address	87 Oakdale Road, Gateshead		
Report prepared for	Oakdale Group Pty Ltd		
File name	102219.00.R.001.Rev1.docx		

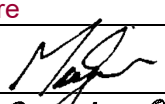
Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Michael Gawn	Chris Bozinovski	8 January 2021
Revision 1	Michael Gawn	Chris Bozinovski	5 February 2021

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0	1	0	Doug Crane, Oakdale Group Pty Ltd
Revision 1	1	0	Doug Crane, Oakdale Group Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		5 February 2021
Reviewer		5 February 2021

bsi. ISO 9001 Quality Management
FS 604853

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
15 Callistemon Close
Warabrook NSW 2304
PO Box 324
Hunter Region Mail Centre NSW 2310
Phone (02) 4960 9600

Table of Contents

Page

1. Introduction 1
2. Proposed Development 1
3. Scope of Work 1
4. Site Information 2
5. Environmental Setting 3
   - 5.1 Topography 3
   - 5.2 Soil Landscape 3
   - 5.3 Site Geology 4
   - 5.4 Acid Sulfate Soils 4
   - 5.5 Surface Water and Groundwater 4
6. Site History 5
   - 6.1 Extent of Site History Review 5
   - 6.2 Historical Title Search 5
   - 6.3 Review of Historical Aerial Photos 6
   - 6.4 NSW EPA Search 9
   - 6.5 Relevant Previous Reports 9
   - 6.6 Discussion with Site Owner 10
   - 6.7 Council DA Search 10
   - 6.8 Site History Integrity Assessment 10
   - 6.9 Summary of Site History 10
7. Site Condition 11
8. Preliminary Conceptual Site Model 14
9. Sampling and Analysis Quality Plan 15
   - 9.1 Data Quality Objectives 15
   - 9.2 Soil Sampling Rationale 15
10. Site Assessment Criteria 16
11. Field Work Methods 16
12. Results 17
    - 12.1 Field Work Results 17
    - 12.2 Contaminant Observations 18
13. Laboratory Testing 19

14. Discussion 20
14.1 Soils 20
14.2 Data Quality Assurance and Quality Control 20
15. Conclusions and Recommendations 20
16. References 21
17. Limitations 22

Appendix A: About this Report
Sampling Methods
Soil Descriptions
Symbols and Abbreviations
Appendix B: Test Pit Logs – Pits 1 to 6
Appendix C: Derivation of Site Acceptance Criteria
Data Quality Objectives
Appendix D: Tables D1 and D2: Summary of Laboratory Testing Results
Laboratory Report Sheets
Chain of Custody
Sample Receipts
Appendix E: Quality Assurance/Quality Control Assessment
Appendix F: Titles Search Results
Appendix G: Drawing 1 – Test Location Plan

Report on Preliminary Site Investigation (Contamination)
Proposed Rezoning
87 Oakdale Road, Gateshead

1. Introduction

Douglas Partners Pty Ltd (DP) has been engaged by Oakdale Group Pty Ltd to complete this preliminary site investigation (contamination) for a proposed rezoning at 87 Oakdale Road, Gateshead (the site). The site is shown on Drawing 1, Appendix G.

The objective of the PSI was to assess the suitability of the site for the proposed light industrial development and to comment on the need for further investigation and/or management (if required). It is understood that the report will be used to support a development application for the proposed light industrial development.

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

2. Proposed Development

It is understood that it is proposed to rezone the site from Zone 3 - Environmental Management to Zone IN2 – Light Industrial. Details of the proposed light industrial development were not known at the time of preparing this report.

3. Scope of Work

The scope of work included a preliminary site investigation (PSI) with limited targeted, near surface soils sampling.

The investigation comprised the following:

- Review of available published information on the site, including geological, topographical and acid sulfate soil maps;
- Brief review of previous investigations conducted in the vicinity of the site by DP;

- Brief site history review to assess the potential for contamination at the site comprising a review of in-house aerial photograph records, search of registered groundwater bores in the area, historical title deeds search, Council search and a NSW EPA search;
- Site inspection to identify areas of potential contamination and assess current site condition;
- Preparation of a preliminary Conceptual Site Model (CSM);
- Excavation of six test pits (Pits 1 to 6) to depths ranging from 1.0 m to 2.2 m.
- Collection of soil samples from test pits at regular depth intervals for identification and testing purposes under contamination sampling protocols;
- Laboratory testing for potential contaminants on selected soil samples retrieved from test pits; and
- Preparation of this report presenting the findings of assessment.

4. Site Information

Site Address	87 Oakdale Road, Gateshead
Legal Description	Lot 100 Deposited Plan 717604
Area	1.34 hectares
Zoning	Zone E3 Environmental Management
Local Council Area	Lake Macquarie City Council
Current Use	Vacant
Surrounding Uses	North – Timbered bushland East – Timbered bushland South – Oakdale Road, with bushland beyond West – Garden Nursery (Poppy's On Oakdale)

The site boundary is shown on **Figure 1**.

Figure 1: Site Location (site boundary in red)

5. Environmental Setting

5.1 Topography

The general landform in the area around the site falls to the west at slopes of about 5° and is generally planar in shape.

Within the site, the ground surface falls from about RL 52m AHD along the eastern boundary to about RL 34 m AHD in the north-western corner.

5.2 Soil Landscape

Published mapping indicates that the site contains soils of the Gateshead Erosional Soil Landscape Group, which are characterised by moderately deep podzolic and soloth soils on conglomerate crests and sideslopes.

5.3 Site Geology

Published mapping indicates that the site is underlain by the Kahibah Formation which is typically characterised by polymictic conglomerate, sandstone, shale and tuff (refer Figure 2).

Figure 2: Geological mapping of the site and surrounding areas (site is red polygon)

5.4 Acid Sulfate Soils

Published acid sulfate soils risk mapping indicates that the site is mapped as having no known occurrence of acid sulfate soils.

5.5 Surface Water and Groundwater

No surface water bodies or watercourse pass through the site. The nearest mapped watercourse is located approximately 150 m to the north which discharges to Bulls Creek to the west.

A search of the publicly available registered groundwater bore database did not reveal any registered bores within 500 m of the site or between the site and the nearest watercourses to the north, south and west.

Based on the site and regional topography, it is anticipated that surface water from the site would flow to the west and then eventually into the mapped water courses to the north and south of the site.

6. Site History

6.1 Extent of Site History Review

The site history review comprised the following:

- Search for historical title deeds;
- Review of historical aerial photos;
- Searches with the NSW Environmental Protection Authority (EPA);
- Review of client supplied and DP held information; and
- Discussion with site owner.

It is noted that the history review excluded a dangerous goods search.

6.2 Historical Title Search

A historic title deeds search was carried out by Info Search Pty Ltd to obtain ownership and occupancy information including company names and the occupations of individuals, the results of which are provided in Appendix F and summarised in Table 1 below. The title information can assist in the identification of previous land uses by the company names or the site owners and can, therefore, assist in establishing whether there were potentially contaminating activities occurring at the site. The searches indicate that the site have generally been in private hands, with the owners occupations listed as being orchardist as well as occupations which are unrelated to the land.

Table 1: Historical Title Search – Lot 100 in D.P. 7171604

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available
23.03.1906 (1906 to 1964)	William Henry Anderson (Miner) Frederick Anderson (Miner)
07.12.1964 (1964 to 1964)	Edith May Doss (Widow)
07.12.1964 (1964 to 1968)	Eileen Florence Rouse (Married Woman)
18.11.1968 (1968 to 1969)	Henry John Wilkins (Labourer)
14.08.1969 (1969 to 2002)	John Eric Mantle (Carrying Contractor) Patricia Mary Mantle (Married Woman)
09.12.2002 (2002 to 2003)	Dajco Pty Limited
28.04.2003 (2003 to 2009)	Gregory Kenneth Strong Sharon Anne Strong Dajco Pty Limited
23.01.2009 (2009 to date)	# Douglas Charles Crane

Notes to Table 1:

# Denotes Current Registered Proprietor

No easements or leases were found in the search.

6.3 Review of Historical Aerial Photos

Several historical aerial photographs were obtained from public databases. The historical aerial photos reviewed for the assessment are presented in Table 2 together with the main observations.

Table 2: Historical Aerial Photo Review

Year of Photo	Scale (Colour)	Main Observations
1955	1:30,000 (B&W)	The site is covered with bushland.
1966	1:38,000 (B&W)	The site appears to be a combination of grass covered with some bare earth areas. Scattered trees are visible (refer Figure 3).
1976	1:25,000 (colour)	The site is grass covered with some scattered trees.
1984	1:40,000 (B&W)	Grass covered with some scattered trees. It is noted the alignment of Oakdale Road has altered since the 1976 image.
1993	1:25,000 (colour)	The site is in a similar condition to the 1984 image.
1996	1:16,000 (colour)	The site is in a similar condition to the 1993 image.
10/1/2007 Google Earth	Not to scale (Colour)	The site is grass covered and appears to have a track (possibly motorbike track) visible in the image.
28/9/2009 Google Earth	Not to scale (Colour)	It appears that the site has been levelled/cleared, with brown surface soil visible in the image.
17/9/2010 Google Earth	Not to scale (Colour)	Fill appears to have been placed in the western area of the site (refer Figure 4). It appears that the site may have been used for temporary storage.
22/10/2012 Google Earth	Not to scale (Colour)	Additional fill appears to have been placed in the western area of the site (refer Figure 5).
18/1/2017 Google Earth	Not to scale (Colour)	It appears that the western area of the site has been subject to earthworks as the site appears to have been graded.

Figure 3: 1966 aerial image (site is red polygon)

Figure 4: Google Earth image taken 17 September 2010, showing storage on site and fill placed in western area

Figure 5: Google Earth image taken 22 October 2012 (showing fill has been placed on western part of site

6.4 NSW EPA Search

A review of the NSW EPA public registers indicated the following:

- The site is not on the NSW EPA Contaminated Land Management Register;
- The site is not on the list of contaminated sites notified to NSW EPA;
- The site is not on the Protection of the Environment Operations Act list of environmental licences, notices etc. It is noted that a licence is noted for a site approximately 500 m to the north-west (Boral Resources); and
- The site is not listed on the NSW cattle dip registers.

6.5 Relevant Previous Reports

DP has undertaken a previous investigation immediately to the west of the site (DP, 2004). Conditions encountered included generally sandy clay and clayey sand residual soils, although it is noted up to 1.2 m of fill containing bottles and steel was encountered in a pit near the north-western boundary of the subject site.

Based on a brief review of the JW Planning Proposal document, it is understood that the site may have been used for temporary storage of building and construction equipment.

6.6 Discussion with Site Owner

Based on a discussion with the site owner, Mr Doug Crane, who has been familiar with the site for about 30 years the following is understood:

- The fill within the site has generally come from operations of Planalec, which is an electrical cabling company and hence have likely come from excess spoil from trenching activities from multiple sites/sources;
- Temporary storage within the site was generally limited to machinery like tractors and bobcats from the adjacent nursery operation. No maintenance of such machinery was undertaken on the site;
- Some partial erection / storage of scaffolding has also been undertaken on the site.

6.7 Council DA Search

A search of the Lake Macquarie City Council DA tracker revealed the following:

- DA at 87 Oakdale Road, Gateshead in 1998 for an owners residence, caretakers residence and horse stables;
- A change of use application in 1999 (change of use Brothel);
- DA at 83 Oakdale Road, Gateshead for a commercial nursery and landscape business in 2006; and
- DA in 2020 for a Re-zoning from zone E3 Environmental Management to Zone IN2 Light Industrial.

6.8 Site History Integrity Assessment

The information used to establish the history of the site was sourced from reputable and reliable reference documents, many of which were official records held by Government departments/agencies. The databases maintained by various Government agencies potentially can contain high quality information, but some of these do not contain any data at all.

In particular, aerial photographs provide information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events, such as flooding.

6.9 Summary of Site History

The site history information suggests that the site was primarily cleared bushland over the last 50 years although some fill has been placed in the central western area of the site (since about 2009). Some temporary storage of equipment also appears to have occurred. Some possible agricultural usage of the site also appears to have occurred.

7. Site Condition

A site inspection was undertaken on 7 December 2020 by an experienced engineer from DP.

The main features and observations made of the site during the inspection are discussed below. The location and orientation of the figures below are also shown on Drawing 1:

- The majority of the site is a cleared paddock, which slopes down to the west and contains a few scattered trees (refer Figure 6 and Figure 7);
- Dense grass was present over the bulk of the surface;

Figure 6: Looking east from entrance of site

Figure 7: Looking north within eastern part of the site

- Some fill has been placed within the south-western part of the site (refer Figure 8) based on the observed landform;
- Based on observations at the surface and the site topography, the fill generally forms a relatively flat area which extends from the gate adjacent to Oakdale Road and covers an area of approximately 50 m by 30 m (refer Drawing 1, Figure 8 and Figure 9);

Figure 8: Looking south from western-central area of the site (note fill stockpiles)

Figure 9: View looking north from near main entrance gate of filled area

- The depth of fill appears to increase to the south although it is anticipated to be highly variable with a number of semi-detached stockpiles present within this area;

- Concrete and steel was exposed in some locations (localised stockpiles) across this area of the site (refer Figure 10);

Figure 10: Concrete pieces and metal exposed in one of the stockpiles present on the site

- Residual clay soils were exposed within an existing access track along the southern boundary of the site (refer Figure 11);

Figure 11: Residual clay soils exposed in access track along southern boundary of site

Observed fill areas within the site were generally evidenced by changes in the natural landform (ie stockpiles, hummocky surface) and changes to surface vegetation. It is noted, however, that the extent of fill was difficult to assess due to the presence of dense vegetation at the surface. Additional areas of fill within the site therefore cannot be precluded.

8. Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future ie: it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

Potential Sources

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

- S1: Imported Fill: Associated with levelling of part of the site with COPC including TRH, BTEX, PAH, metals, pesticides, PCB, asbestos;
- S2: Possible former agricultural use, with COPC including pesticides, TRH, BTEX, PAH and metals;
- S3: Former storage of equipment on site with possible COPC including asbestos, PCBs and metals;
- S4: Localised opportunistic dumping during progressive earthworks, with COPC including TRH, BTEX, PAH, metals, pesticides, PCB and asbestos.

Potential Receptors

The following potential human receptors have been identified:

- R1: Current users and public;
- R2: Construction and maintenance workers;
- R3: End users (following rezoning); and
- R4: Adjacent site users.

The following potential environmental receptors have been identified:

- R5: Groundwater; and
- R6: Terrestrial ecology.

Potential Pathways

The following potential pathways have been identified:

- P1: Ingestion and dermal contact;
- P2: Inhalation of dust and/or vapours;
- P3: Surface water run-off;
- P4: Leaching of contaminants and vertical migration into groundwater;
- P5: Lateral migration of groundwater providing base flow to water bodies; and
- P6: Contact with terrestrial ecology.

Summary of Potentially Complete Exposure Pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 to S4) and receptors (R1 to R6) are provided in Table 3 below.

Table 3: Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1: Fill: Associated with levelling of the site (TRH, BTEX, PAH, Metals, Pesticides, PCB, asbestos). S2: Possible former agricultural use, including orchards (pesticides, TRH, BTEX, PAH and metals). S3: Storage of equipment / machinery on site (TRH, BTEX, PAH, Metals, Pesticides, PCB and asbestos) S4: Localised opportunistic dumping / previous placement of fill (TRH, BTEX, PAH, Metals, Pesticides, PCB and asbestos).	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours. P3: Surface water run-off. P4: Leaching of contaminants and vertical migration into groundwater. P5: Lateral migration of groundwater providing base flow to water bodies. P6: Contact with terrestrial ecology.	R1: Current users. R2: Construction and maintenance workers. R3: End users. R4: Adjacent site users. R5: Groundwater. R6: Terrestrial ecology.	An intrusive investigation is recommended to assess possible contamination including testing of the soils.

9. Sampling and Analysis Quality Plan

9.1 Data Quality Objectives

The DSI was devised with reference to the seven-step data quality objective process which is provided in Appendix B Schedule B2, NEPC (2013). The DQO process is outlined in Appendix C.

9.2 Soil Sampling Rationale

Based on the CSM and DQO, a broad-grid based sampling rationale was conducted across the site including targeted sampling within the area of previous disturbance (i.e. fill area). The number of sampling points undertaken for the PSI was less than the recommended number of sampling points required for site characterisation as required by *Contaminated Sites: Sampling Design Guidelines* (NSW EPA 1995). This systematic sampling regime was considered appropriate for the purpose of the current preliminary assessment.

Locations were based on site history information and the CSM with the rationale provided below. Pit locations are shown on Drawing 1, in Appendix G.

The rationale for the proposed locations area as follows:

Pits 1 and 2	Within area which has received fill based on review of historical photos and site observations.
Pits 3 to 6	General locations across the proposed development area.

Soil samples were generally collected from each test pit at depths of approximately 0.05 m, 0.5 m, 1.0 m and every 0.5 m thereafter, and changes in lithology or signs of contamination.

The general sampling methods are described in the field work methodology in Section 11.

10. Site Assessment Criteria

The site assessment criteria (SAC) applied in the current investigation are informed by the CSM (Section 8) which identified human and environmental receptors to potential contamination on the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic commercial / industrial land use scenario. The derivation of the SAC is included in Appendix C and the adopted SAC are listed on the summary analytical results tables in Appendix D.

11. Field Work Methods

Field work was undertaken on 7 and 8 December 2020 and comprised the following:

- Walkover assessment by an experienced engineer; and
- Excavation of six test pits (Pits 1 to 6).

The pits were excavated using a 5 tonne excavator fitted with a 400 mm bucket. The pits were taken to depths ranging from 1.0 m to 2.2 m.

Soil samples were collected from the pits at regular depth intervals for identification purposes and possible laboratory testing. The general sampling procedure comprised:

- Decontamination of all sampling equipment (where used) using a 3% solution of phosphate free detergent (Decon 90) and tap water prior to collecting each sample;
- The use of new disposable gloves for each sampling event;
- Transfer of samples into laboratory-prepared jars and capping immediately;
- Collection of replicate samples for Quality Assurance / Quality Control (QA / QC) purposes;
- Collection of replicate soil samples in zip-lock plastic bags at each depth for Photo-ionisation Detector (PID) screening;

- Labelling of sample containers with individual and unique identification, including project number, sample location and sample depth;
- Placement of the sample jars and replicate sample bags into a cooled, insulated and sealed container with ice for transport to the laboratory; and
- Use of chain of custody (C-O-C) documentation ensuring that sample tracking and custody could be cross-checked at any point in the transfer of samples from the field to the laboratory. Copies of the completed forms are provided in Appendix D.

Replicates for all soil samples were collected in plastic bags and allowed to equilibrate under ambient temperatures before screening for TOPIC using a PID. The PID was calibrated each day prior to use using ambient air as the "zero" air (0.0 ppm) and isobutylene at a concentration of 100 ppm as the calibration "span" gas.

The test locations were set out by a geotechnical engineer from DP. The engineer also logged the subsurface conditions encountered at each test location and collected samples for subsequent laboratory testing and identification purposes. Each test position (Easting and Northing to GDA 94) was recorded using a differential GPS receiver (accuracy of about +/- 0.1 m) and is shown on the attached logs.

The approximate location of the pits is shown on Drawing 1 in Appendix G.

Table 4, below, provides a summary of field work for the investigation.

Table 4: Summary of Field Investigations

Pit	Easting	Northing	Surface Level (m AHD)[(a)]	Termination Depth (m)	Depth of Fill (m)
1	378883	6348833	40.4	2.1	1.6
2	378878	6348873	38.2	2.2	1.0
3	378854	6348847	36.3	1.1	NE
4	378862	6348873	36.1	1.0	NE
5	378912	6348839	41.9	1.1	NE
6	378969	6348849	48.1	1.2	0.3

Notes to Table 4:

a surface levels recorded from differential GPS unit and are approximate only

12. Results

12.1 Field Work Results

The subsurface conditions encountered in the pits undertaken for the investigation are presented in detail in the test pit logs in Appendix B. These should be read in conjunction with the accompanying general notes in Appendix A which explain the descriptive terms and classification methods used in the logs.

The subsurface conditions encountered in the pits were divided into the following main geotechnical units, as follows:

- Unit 1 FILL – comprising silty clay, sand or gravelly sand with some anthropogenic inclusions;
- Unit 2 SANDY SILT or SILTY SAND – brown or grey brown, low plasticity with trace rootlets at some locations;
- Unit 3 Residual CLAY – pale brown mottled red/grey.

The subsurface conditions encountered in the pits are summarised in Table 5 below.

Table 5: Summary of Subsurface Conditions – Depth Range of Each Unit

Pit	Depth Range of Each Unit (m)		
	Unit 1	Unit 2	Unit 3
	Fill	Sandy Silt or Silty Sand	Residual Clay
1	0.0 – 1.6	NE	1.6 – 2.1
2	0.0 – 1.0	1.0 – 1.3	1.3 – 2.2
3	NE	0.0 – 0.3	0.3 – 1.1
4	NE	0.0 – 0.3	0.3 – 1.0
5	NE	0.0 – 0.3	0.3 – 1.1
6	0.0 – 0.3	0.3 – 0.4	0.4 – 1.2

Notes to Table 5:
NE – Not encountered

No free groundwater was observed in the pits while they remained open. It should be noted that groundwater levels are affected by factors such as climatic conditions and soil permeability and will therefore vary with time.

12.2 Contaminant Observations

Observations of potential contamination during field work for the assessment are summarised below in Table 6.

Table 6: Potential Contaminant Observations within Test Pits

Potential Contaminant Observation	Test Pit / Depth Range / Area
Brick Fragments, Ceramic, Plastic, Timber	Pit 1 to 1.6 m depth Pit 2 to 1 m depth
Coal Pieces	Pit 1 to 0.6 m depth Pit 6 to 0.3 m depth
Fibro Fragment (Possible asbestos containing material – ACM)	Encountered at 0.3 m depth in Pit 1
Cables / Wiring	Noted in pit wall at 1.1 m in Pit 1

The bonded fibro fragment was generally observed to be in sound condition.

It is noted that the concrete was generally encountered within stockpiles at the surface.

There were no obvious indications of gross contamination based on visual or olfactory evidence (eg: staining, odours, free phase product) to suggest the presence of contamination within the soils observed in the test pits for this investigation.

The results of PID screening on soil samples are shown on the logs in Appendix B. PID screening suggested the absence of gross volatile hydrocarbon impact (i.e. <1 ppm) in the samples screened.

13. Laboratory Testing

Laboratory testing was undertaken by Envirolab Services, a National Association of Testing Authorities, Australia (NATA) registered laboratory.

The detailed results of chemical analysis on the tested samples together with the chain of custody and sample receipt information are presented in the laboratory report sheets in Appendix D, and are summarised in Tables D1 and D2 in Appendix D.

Soil samples were selected for analysis on the basis of the likely presence of contamination, based on material type, visual or olfactory evidence of possible contamination (i.e. odour or staining), proximity to a known source of contamination, and whether generally representative of soil/fill conditions.

A total of ten (10) (including one field duplicate) samples were selected for analysis for the following potential contaminants:

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, iron and manganese);
- Total recoverable hydrocarbons (TRH), benzene, toluene, ethyl benzene, xylene (BTEX);
- Polycyclic aromatic hydrocarbons (PAH);
- Polychlorinated biphenyls (PCBs);
- Organochlorine (OCP) and organophosphate (OPP) pesticides; and
- Asbestos.

One sample of fibrous sheeting was also testing for the presence of asbestos.

14. Discussion

14.1 Soils

Ten (10) soil samples (including one field replicate) were analysed for the suite of testing outlined in Section 13. The results were compared against NEPM for Health Based Investigation / Screening Levels, Ecological Investigation / Screening Levels, Total Petroleum Hydrocarbon Management Limits for a commercial land use as discussed in Section 10.

All samples tested were below the relevant criteria for:

- Health investigation and screening levels;
- Environmental investigation levels; and
- Total petroleum hydrocarbon management limits.

The analytical results for all contaminants tested / contaminant(s) in all samples were below the adopted SAC for commercial/industrial landuse.

Asbestos was not detected in the soil samples submitted for testing. It is noted, however, that the sample of fibrous material (ie bonded fibro fragment) retrieved from Pit 1 was confirmed to contain both Chrysotile and Crocidolite asbestos (ie bonded asbestos containing material – ACM).

It is noted that anthropogenic inclusions including building wastes were observed in fill materials within the site suggesting the possible presence of hazardous building materials (HBM). A fibro fragment (ACM) was observed within fill at Pit 1. The presence of further HBM including ACM therefore cannot be precluded within fill materials or in unobserved or untested parts of the site. The extent of fill or presence of HBM within the site has not been assessed in this PSI.

14.2 Data Quality Assurance and Quality Control

The data quality assurance and quality control (QA/QC) results are included in Appendix E. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

15. Conclusions and Recommendations

The results of the desktop assessment and site inspection indicate that a number of potential contaminating activities have occurred at the site as follows;

- Importation of fill within the site;
- Possible hazardous building materials including asbestos within fill (as encountered in Pit 1);

- Possible pesticide/chemical application during the former agricultural use; and
- Opportunistic dumping of materials potentially containing contamination.

Fill was encountered within some of the pits to up to 1.6 m, primarily in the central western area of the site. It is noted that the fill was predominantly described as silty clay, sand or gravelly sand and contained anthropogenic inclusions. The estimated area of fill based on the results of the assessment is shown on Drawing 1. It is noted that this area is approximate only. Additional fill materials may be present across the site. It is also noted that there was limited information regarding the source and composition of fill materials. Variable fill materials may therefore be present within the site.

Limited testing within the existing fill and natural soils returned chemical concentrations below the adopted site assessment criteria for the intended commercial/industrial land use.

The laboratory results were generally consistent with the visual and olfactory "screening" that suggested the absence of gross chemical contamination within the test pits.

A fragment of bonded asbestos containing material (ACM) was encountered within one of the pits (Pit 1 at 0.3 m depth) within the fill. No asbestos fines were present in the soil samples tested. The identification of anthropogenic materials at the ground surface and within the fill encountered in the pits together with the presence of this fragment of bonded asbestos indicates that there is a risk of HBM in unobserved or untested parts of the site.

Therefore, it is recommended that additional investigations are undertaken prior to development / construction being undertaken on the site to better assess the contamination status and extent of fill/stockpile material within the site. Further sampling and testing on fill materials including sieving for ACM is recommended to confirm remediation requirements (if any).

It is recommended that once additional investigation is completed a specific remediation action plan (RAP) (or earthworks management plan) is developed to manage the excavation, handling and classification of materials that require off-site disposal/reuse during site development.

It is also recommended that the RAP incorporates an unexpected finds protocol (UFP) to establish a strategy / management procedure to be followed during construction works, should unexpected finds of contamination be uncovered.

Based on the results of the PSI it is considered that the site can be made suitable for the proposed commercial development (from a site contamination standpoint) subject to the above actions.

16. References

CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene.* Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

DP. (2004). *Report on Geotechnical Investigation, Proposed Nursery/Landscape Business, 83 Oakdale Road, Gateshead, Project 39057.* Douglas Partners Pty Ltd.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013.* National Environment Protection Council.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (1995). *Contaminated Sites, Sampling Design Guidelines.* NSW Environment Protection Authority.

NSW EPA. (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* NSW Environmental Protection Authority.

NSW EPA. (2014a). *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014, The Excavated Natural Material Order 2014.* NSW Envrionmental Protection Agency.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land.* Contaminated Land Guidelines: NSW Environment Protection Authority.

17. Limitations

Douglas Partners (DP) has prepared this report for this project at 87 Oakdale Road, Gateshead in accordance with DP's proposal NCL200671 dated 28 October 2020 and acceptance received from Doug Crane of Oakdale Group Pty Ltd dated 17 November 2020. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Oakdale Group Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos in the form of a bonded fibro fragment (ie ACM) has been detected by observation and by laboratory analysis in fill materials at the site. Building demolition materials such as brick fragments, timber, ceramic and plastic, were observed in previous below-ground filling together with dumped concrete materials at the surface. These are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints (as discussed above) or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

About this Report
Sampling Methods
Soil Descriptions
Symbols and Abbreviations

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are generally based on Australian Standard AS1726:2017, Geotechnical Site Investigations. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	19 - 63
Medium gravel	6.7 - 19
Fine gravel	2.36 – 6.7
Coarse sand	0.6 - 2.36
Medium sand	0.21 - 0.6
Fine sand	0.075 - 0.21

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

The proportions of secondary constituents of soils are described as follows:

In fine grained soils (>35% fines)

Term	Proportion of sand or gravel	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	>30%	Sandy Clay
With	15 – 30%	Clay with sand
Trace	0 - 15%	Clay with trace sand

In coarse grained soils (>65% coarse)
- with clays or silts

Term	Proportion of fines	Example
And	Specify	Sand (70%) and Clay (30%)
Adjective	>12%	Clayey Sand
With	5 - 12%	Sand with clay
Trace	0 - 5%	Sand with trace clay

In coarse grained soils (>65% coarse)
- with coarser fraction

Term	Proportion of coarser fraction	Example
And	Specify	Sand (60%) and Gravel (40%)
Adjective	>30%	Gravelly Sand
With	15 - 30%	Sand with gravel
Trace	0 - 15%	Sand with trace gravel

The presence of cobbles and boulders shall be specifically noted by beginning the description with ‘Mix of Soil and Cobbles/Boulders’ with the word order indicating the dominant first and the proportion of cobbles and boulders described together.

Soil Descriptions

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very stiff	VSt	100 - 200
Hard	H	>200
Friable	Fr	-

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	Density Index (%)
Very loose	VL	<15
Loose	L	15-35
Medium dense	MD	35-65
Dense	D	65-85
Very dense	VD	>85

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Extremely weathered material – formed from in-situ weathering of geological formations. Has soil strength but retains the structure or fabric of the parent rock;
- Alluvial soil – deposited by streams and rivers;
- Estuarine soil – deposited in coastal estuaries;
- Marine soil – deposited in a marine environment;
- Lacustrine soil – deposited in freshwater lakes;
- Aeolian soil – carried and deposited by wind;
- Colluvial soil – soil and rock debris transported down slopes by gravity;
- Topsoil – mantle of surface soil, often with high levels of organic material.
- Fill – any material which has been moved by man.

Moisture Condition – Coarse Grained Soils

For coarse grained soils the moisture condition should be described by appearance and feel using the following terms:

- Dry (D) Non-cohesive and free-running.
- Moist (M) Soil feels cool, darkened in colour.
  Soil tends to stick together.
  Sand forms weak ball but breaks easily.
- Wet (W) Soil feels cool, darkened in colour.
  Soil tends to stick together, free water forms when handling.

Moisture Condition – Fine Grained Soils

For fine grained soils the assessment of moisture content is relative to their plastic limit or liquid limit, as follows:

- 'Moist, dry of plastic limit' or 'w <PL' (i.e. hard and friable or powdery).
- 'Moist, near plastic limit' or 'w ≈ PL (i.e. soil can be moulded at moisture content approximately equal to the plastic limit).
- 'Moist, wet of plastic limit' or 'w >PL' (i.e. soils usually weakened and free water forms on the hands when handling).
- 'Wet' or 'w ≈LL' (i.e. near the liquid limit).
- 'Wet' or 'w >LL' (i.e. wet of the liquid limit).

Symbols & Abbreviations

Douglas Partners

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

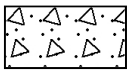
Symbols & Abbreviations

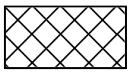
Graphic Symbols for Soil and Rock

General


Asphalt


Road base

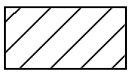

Concrete

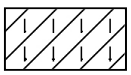

Filling

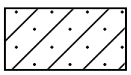
Soils


Topsoil

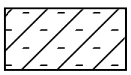

Peat

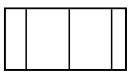

Clay

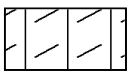

Silty clay

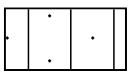

Sandy clay

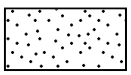

Gravelly clay

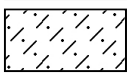

Shaly clay

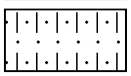

Silt


Clayey silt


Sandy silt

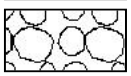

Sand

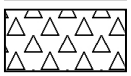

Clayey sand


Silty sand


Gravel

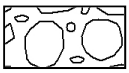

Sandy gravel


Cobbles, boulders

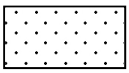

Talus

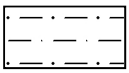
Sedimentary Rocks

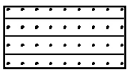

Boulder conglomerate

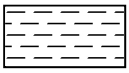

Conglomerate


Conglomeratic sandstone

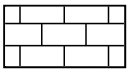

Sandstone


Siltstone

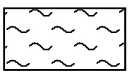

Laminite

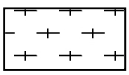

Mudstone, claystone, shale


Coal


Limestone

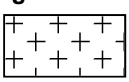
Metamorphic Rocks

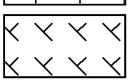

Slate, phyllite, schist

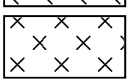

Gneiss

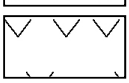

Quartzite

Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

Appendix B

Test Pit Logs – Pits 1 to 6

TEST PIT LOG

CLIENT: Oakdale Road Pty Ltd
PROJECT: Proposed Re-Zoning
LOCATION: 87 Oakdale Road, Gateshead

SURFACE LEVEL: 40.4 AHD
EASTING: 378883.4
NORTHING: 6348833.7

PIT No: 1
PROJECT No: 102219.00
DATE: 8/12/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
40		FILL / SILTY CLAY (CL) - Low plasticity, brown with fine to medium subangular gravels, trace brick, ceramic, coal, plastic, W<PL		D	0.05	E	PID <1		
		At 0.3m, fibro fragment		D	0.3	E	PID <1		
				D	0.5	E	PID <1		
	0.6	FILL / SAND (SP) - Fine to medium grained, brown with silt, trace fine to coarse subangular to subrounded gravels, brick wood, plastic, moist							
	1			D	1.0	E	PID <1		1
39		At 1.1m, cables / wiring from pit wall							
				D	1.5	E	PID <1		
	1.6	CLAY (CH) - High plasticity, pale brown mottled red-grey, trace rootlets, W<PL							
	2			D	2.0	E	PID <1		2
	2.1	Pit discontinued at 2.1m, limit of investigation							
38									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Kobelco 5T Excavator with 400mm bucket

LOGGED: Kramer

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Co-ordinates and elevation using differential GPS unit

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Oakdale Road Pty Ltd
PROJECT: Proposed Re-Zoning
LOCATION: 87 Oakdale Road, Gateshead

SURFACE LEVEL: 38.2 AHD
EASTING: 378878.6
NORTHING: 6348873.2

PIT No: 2
PROJECT No: 102219.00
DATE: 8/12/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
38		FILL / GRAVELLY SAND (SP) - Fine to medium grained, brown with fine to coarse subangular gravels, trace ceramic, plastic, moist		D	0.05	E	PID <1		
				D	0.5	E	PID <1		
	1 1.0	SANDY SILT (ML) - Low plasticity, brown mottled grey, trace fine to medium rounded gravels, W<PL		D	1.0	E	PID <1		1
37				D	1.2	E	PID <1		
	1.3	CLAY (CH) - High plasticity, red mottled pale brown, trace rootlets, W<PL		D	1.5	E	PID <1		
	2			D	2.0	E	PID <1		2
36	2.2	Pit discontinued at 2.2m, limit of investigation							

RIG: Kobelco 5T Excavator with 400mm bucket

LOGGED: Kramer

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Co-ordinates and elevation using differential GPS unit

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Oakdale Road Pty Ltd
PROJECT: Proposed Re-Zoning
LOCATION: 87 Oakdale Road, Gateshead

SURFACE LEVEL: 36.3 AHD
EASTING: 378854.7
NORTHING: 6348847

PIT No: 3
PROJECT No: 102219.00
DATE: 8/12/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
36	0.3	SILTY SAND (SP) - Fine to medium grained, pale brown, trace rootlets, moist		D	0.05	E	PID <1		
		CLAY (CH) - High plasticity, brown mottled red with sand, trace rootlets, W<PL		D	0.5	E	PID <1		
	1			D	1.0	E	PID <1		1
35	1.1	Pit discontinued at 1.1m, limit of investigation							
	2								2
34									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Kobelco 5T Excavator with 400mm bucket

LOGGED: Kramer

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Co-ordinates and elevation using differential GPS unit

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Oakdale Road Pty Ltd
PROJECT: Proposed Re-Zoning
LOCATION: 87 Oakdale Road, Gateshead

SURFACE LEVEL: 36.1 AHD
EASTING: 378862.5
NORTHING: 6348873.4

PIT No: 4
PROJECT No: 102219.00
DATE: 8/12/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
36		SANDY SILT (ML) - Low plasticity, brown, with fine to medium grained sand, trace rootlets, W<PL		D	0.05	E	PID <1		
	0.3	CLAY (CH) - High plasticity, red mottled pale brown, pale grey, trace rootlets, W<PL		D	0.5	E	PID <1		
		From 0.9m, grading to rock		D	0.9	E	PID <1		
	1 1.0	Pit discontinued at 1.0m, limit of investigation							1
35									
	2								2
34									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Kobelco 5T Excavator with 400mm bucket

LOGGED: Kramer

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Co-ordinates and elevation using differential GPS unit

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Oakdale Road Pty Ltd
PROJECT: Proposed Re-Zoning
LOCATION: 87 Oakdale Road, Gateshead

SURFACE LEVEL: 41.9 AHD
EASTING: 378912.3
NORTHING: 6348839.4

PIT No: 5
PROJECT No: 102219.00
DATE: 8/12/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
41	0.3	SILTY SAND (SP) - Fine to medium grained, brown, trace rootlets, moist		D	0.05	E	PID <1		
		CLAY (CH) - High plasticity, pale brown mottled red-grey, trace rootlets, W<PL		D	0.5	E	PID <1		
	1			D	1.0	E	PID <1		1
	1.1	Pit discontinued at 1.1m, limit of investigation							
40	2								2
39									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Kobelco 5T Excavator with 400mm bucket

LOGGED: Kramer

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Co-ordinates and elevation using differential GPS unit

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Oakdale Road Pty Ltd
PROJECT: Proposed Re-Zoning
LOCATION: 87 Oakdale Road, Gateshead

SURFACE LEVEL: 48.1 AHD
EASTING: 378969.5
NORTHING: 6348849.4

PIT No: 6
PROJECT No: 102219.00
DATE: 8/12/2020
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
48		FILL / SILTY CLAY (CL) - Low plasticity, brown, trace rootlets, coal, coal reject, W<PL		D	0.05	E	PID <1		
	0.3	SANDY SILT (ML) - Low plasticity, brown with fine to medium grained sand, trace rootlets, W<PL		D	0.35	E	PID <1		
	0.4	CLAY (CH) - High plasticity, pale brown mottled red-grey, trace rootlets, W<PL		D	0.5	E	PID <1		
	1			D	1.0	E	PID <1		1
47									
	1.2	Pit discontinued at 1.2m, limit of investigation							
	2								2
46									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: Kobelco 5T Excavator with 400mm bucket

LOGGED: Kramer

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Co-ordinates and elevation using differential GPS unit

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

Appendix C

Derivation of Site Acceptance Criteria
Data Quality Objectives

Derivation Site Assessment Criteria

C.1 Introduction

The proposed development includes the rezoning of the site from Environmental Management to Commercial Landuse.

The assessment and characterisation of the material on the site and the results of laboratory testing have been compared to the following guidelines:

- National Environmental Protection Council (NEPC), “National Environmental Protection (Assessment of Site Contamination) Measures” (NEPM), 1999 (amended 2013) (NEPC, 2013);

For comparison to the NEPM guidelines, the investigation and screening levels applied in the current investigation comprise levels adopted for a commercial land use scenario (HIL-D, HSL-D and commercial).

C.2 Health Investigation and Screening Levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of contamination at the site. The adopted soil HIL and HSL for the potential contaminants of concern are presented in Table C1.

Table C1: HIL and HSL in mg/kg Unless Otherwise Indicated

Contaminants		HIL-D	HSL-D[4]
Metals	Arsenic	3000	NC
	Cadmium	900	NC
	Chromium (VI)	3600	NC
	Copper	240000	NC
	Lead	1500	NC
	Manganese	60000	NC
	Mercury (inorganic)	730	NC
	Nickel	6000	NC
	Zinc	400000	NC
PAH	Benzo(a)pyrene TEQ[1]	40	NC
	Naphthalene	NC	NL
	Total PAH	4000	NC
TRH	C6 – C10 (less BTEX) [F1]	NC	250 – 310
	>C10-C16 (less Naphthalene) [F2]	NC	NL
	>C16-C34 [F3]	NC	NC
	>C34-C40 [F4]	NC	NC
BTEX	Benzene	NC	3 – 4
	Toluene	NC	NL
	Ethylbenzene	NC	NL
	Xylenes	NC	NL - 230
OCP	Aldrin + Dieldrin	45	NC
	Chlordane	530	NC
	DDT+DDE+DDD	3600	NC
	Endosulfan	2000	NC
	Endrin	100	NC
	Heptachlor	50	NC
	HCB	80	NC
	Methoxychlor	2500	NC
OPP	Chlorpyrifos	2000	NC
PCB[2]		7	NC

Notes to Table C1:

1 Sum of carcinogenic PAHs

2 Non dioxin-like PCBs only.

3 The soil saturation concentration (Csat) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'.

4 The HSL have been calculated for a potential vapour intrusion pathway, and a variable soil texture from a conservative sand soil to clay (based on nature of filling) and an assumed depth to contamination of 0 m to <1 .

NC – No Criteria.

NL – Non limiting

As shown in Table C1 the adopted HSLs are predicated on a potential vapour intrusion pathway. Although possible direct contact pathways are present at the site, and construction worker receptors, the corresponding HSLs are significantly higher than those for the vapour intrusion pathway and are therefore not drivers for further assessment and / or remediation. As such the direct contact and intrusive maintenance worker HSLs have not been listed.

C.3 Ecological Investigation Levels

EIL and Added Contaminant Limits (ACLs), where appropriate, have been derived in NEPC (2013) for only a short list of contaminants comprising As, Cu, Cr (III), DDT, naphthalene, Ni, Pb and Zn. The adopted EIL, derived using the *Interactive (Excel) Calculation Spreadsheet* (Standing Council on Environment and Water (SCEW) website (http://www.scew.gov.au/node/941)) are shown in the following Table C2.

Table C2: EIL in mg/kg

Analyte		EIL (Commercial)	Comments
Metals	Arsenic	160	**Adopted parameters** pH = 4 CEC = 10 $cmol_c/kg$]; assumed clay content [varies from 10% to 50% based on soil texture encountered] Organic content 1% "Aged" (>2 years) source of contamination Low traffic volumes in NSW
	Copper	75	
	Nickel	290	
	Chromium III	670 - 1100	
	Lead	1800	
	Zinc	210	
PAH	Naphthalene	370	
OCP	DDT	640	

C.4 Ecological Screening Levels

ESL are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESL are shown in the following Table C3.

Table C3: ESL in mg/kg

Analyte		ESL[1] Commercial/Industrial)	Comments
TRH	C6 – C10 (less BTEX) [F1]	215*	All ESLs are low reliability apart from those marked with * which are moderate reliability
	>C10-C16 (less Naphthalene) [F2]	170*	
	>C16-C34 [F3]	1700 – 2500	
	>C34-C40 [F4]	3300 – 6600	
BTEX	Benzene	75 – 95	
	Toluene	135	
	Ethylbenzene	165 – 185	
	Xylenes	95 - 180	
PAH	Benzo(a)pyrene	1.4	

Notes to Table C3:

1. The ESL have been calculated for a coarse soil based on a range of soil texture from a conservative sand soil to a fine clay soil (based on the nature of the fill and natural soils) and commercial and industrial.

C.5 Management Limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards;
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

The adopted management limits from Schedule B1 of NEPC (2013) are shown in the following Table C4.

Table C4: Management Limits in mg/kg

Analyte		Management Limit	
TRH	$C_6 – C_{10}$ (F1) #	NC	The management limits have been calculated for a range of soil texture from a conservative coarse sand to clay texture
	$>C_{10}-C_{16}$ (F2) #	700 – 800	
	$>C_{16}-C_{34}$ (F3)	3500 – 5000	
	$>C_{34}-C_{40}$ (F4)	10000	

Notes to Table C4:

Separate management limits for BTEX and naphthalene are not available hence these have not been subtracted from the relevant fractions to obtain F1 and F2

C.7 Asbestos In Soil

Asbestos only poses a risk to human health when asbestos fibres are made airborne and inhaled. If asbestos is bound in a matrix such as cement or resin, it is not readily made airborne except through substantial physical damage. Bonded ACM in sound condition represents a low human health risk, whilst both Fibrous Asbestos (FA) and Asbestos Fines (AF) materials have the potential to generate, or be associated with, free asbestos fibres. Consequently, FA and AF must be carefully managed to prevent the release of asbestos fibres into the air.

A detailed asbestos assessment was not undertaken as part of these works. Therefore the presence or absence of asbestos at a limit of reporting of 0.1 g/kg has been adopted for this assessment as an initial screen.

Data Quality Objectives (DQOs)

The scope of the PSI was devised generally in accordance with the seven step data quality objective (DQO) process, as documented in Appendix B, Schedule B2, National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure 2013 (NEPC 2013). The DQO process is outlined in Table C5.

Table C5: Data Quality Objectives

DQO	Achievement Evaluation Procedure
Step 1 – State the problem	Possible presence, extent and level of contamination.
Step 2 – Identify the decision	Assess whether the site is suitable for the intended land use from a contamination perspective. Refer Section C1 to C7 for adopted site assessment criteria.
Step 3 - Identify the inputs to the decision	Site history review from previous investigation. Selection of appropriate contaminants of concern. Field and laboratory QA/QC data to assess the suitability of the environmental data for the assessment.
Step 4 – Define the Boundary of the Assessment	As defined in Section 4 and shown on Drawing 1.
Step 5 – Develop of decision rule	Selected soil samples were analysed for the contaminants of concern as outlined in Section 8. The field and laboratory data was assessed as reliable by reference to the Data Quality Indicators (DQI) as outlined in Step 7.
Step 6 – Specify the acceptance criteria	The site assessment criteria was developed through reference to NEPC 1999 (amended 2013). The acceptance limits for laboratory QA/QC parameters were based on the laboratory reported acceptance limits and those stated in NEPC 1999.
Step 7 – Optimise the design for obtaining data	Design was optimised by the development of a plan for sample collection, handling and analysis, including undertaking quality assurance and quality control measures to allow assessment of the suitability of the data collected. Measurement to assess the project DQOs using data quality indicators (DQIs) as follows: **Completeness** – completion of field and laboratory chain of custody documentation, use of experienced field staff, compliance with holding times and documentation correct. **Comparability** – consistent sampling procedures, use of NATA certified laboratory and experienced field staff. **Representativeness** – appropriate media sampled. **Precision** - Analysis of field and laboratory replicates and achievement of acceptable RPDs, acceptable levels for laboratory QC criteria. **Accuracy** – Analysis of field duplicates, matrix spikes and surrogate spikes.

Appendix D

Tables D1 and D2: Summary of Laboratory Testing Results
Laboratory Report Sheets
Chain of Custody
Sample Receipts

Douglas Partners
Geotechnics | Environment | Groundwater

Table D1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals										TRH						BTEX				PAH		
			Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Manganese	Iron	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ
		PQL	4	0.4	1	1	1	0.1	1	1	1	10	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
6/0.05	0 m	08/12/2020	5	<0.4	13	17	40	<0.1	4	82	170	13000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
1/0.05	0 m	08/12/2020	5	<0.4	43	16	43	<0.1	10	79	1400	18000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.5	0.6
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	250 215	NC 170	NC 2500	NC 6600	4 95	NL 135	NL 185	NL 95	NL 370	NC 1.4	40 NC
1/0.5	0 m	08/12/2020	5	<0.4	10	22	40	<0.1	8	160	230	14000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.4	0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	250 215	NC 170	NC 2500	NC 6600	4 95	NL 135	NL 185	NL 95	NL 370	NC 1.4	40 NC
D2	0 m	08/12/2020	4	<0.4	8	16	36	<0.1	7	71	160	10000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	250 215	NC 170	NC 2500	NC 6600	4 95	NL 135	NL 185	NL 95	NL 370	NC 1.4	40 NC
1/1.0	0 m	08/12/2020	4	<0.4	11	19	22	<0.1	8	90	250	9000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.07	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
1/2.0	0 m	08/12/2020	8	<0.4	45	<1	6	<0.1	2	4	7	45000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5
			3000 160	900 NC	3600 1100	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	360 215	NC 170	NC 2500	NC 6600	4 95	NL 135	NL 185	NL 95	NL 370	NC 1.4	40 NC
2/0.05	0 m	08/12/2020	6	<0.4	8	12	14	<0.1	6	190	170	18000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
2/0.5	0 m	08/12/2020	5	<0.4	10	13	15	<0.1	8	190	190	15000	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.1	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
2/1.2	0 m	08/12/2020	<4	<0.4	6	4	17	<0.1	1	15	20	7500	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
5/0.05	0 m	08/12/2020	<4	<0.4	11	2	8	<0.1	<1	16	19	9700	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
1/0.3F	0 m	08/12/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC
1/0.3F (500ml)	0 m	08/12/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
			3000 160	900 NC	3600 670	240000 75	1500 1800	730 NC	6000 290	400000 210	60000 NC	NC NC	NC NC	NC NC	260 215	NC 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected at the reporting limit

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL D (undefined), HSL D (undefined), DC HSL D (undefined)
EIL/ESL	NEPC, Schedule B1 - EIL C/Ind (undefined), ESL C/Ind (undefined)
ML	NEPC, Schedule B1 - ML C/Ind (undefined)
a	QA/QC replicate of sample listed directly below the primary sample
b	Reported naphthalene laboratory result obtained from BTEXN suite
c	Criteria applies to DDT only

Douglas Partners
Geotechnics | Environment | Groundwater

Table D2: Summary of Laboratory Results – OCP, OPP, PCB, Asbestos, Asbestos

			OCP											OPP	PCB	Asbestos			Asbestos						
			DDT+DDE+DDD [c]	DDD	DDE	DDT	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Total PCB	Asbestos ID in soil >0.1g/kg	Trace Analysis	Asbestos (50 g)	Asbestos ID in soil >0.1g/kg	Trace Analysis	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Asbestos (500 ml)
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1										<0.001	0.001
Sample ID	Depth	Sample Date	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	-	-	-	-	-	-	g	g	%(w/w)	-
6/0.05	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
1/0.05	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
1/0.5	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
D2	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
1/1.0	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
1/2.0	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
2/0.05	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
2/0.5	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
2/1.2	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
5/0.05	0 m	08/12/2020	<0.1 3600 NC	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
1/0.3F	0 m	08/12/2020	NT 3600 NC	NT NC NC	NT NC NC	NT NC 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT 2000 NC	NT 7 NC	NT	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
1/0.3F (500ml)	0 m	08/12/2020	NT 3600 NC	NT NC NC	NT NC NC	NT NC 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT 2000 NC	NT 7 NC	NT	NT	NT	NAD	NAD	NAD	NT	NT	NAD	NAD

Lab result
HIL/HSL value | EIL/ESL value

HIL/HSL exceedance | EIL/ESL exceedance | HIL/HSL and EIL/ESL exceedance | ML exceedance | ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected at the reporting limit

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL D (undefined), HSL D (undefined), DC HSL D (undefined)
EIL/ESL	NEPC, Schedule B1 - EIL C/Ind (undefined), ESL C/Ind (undefined)
ML	NEPC, Schedule B1 - ML C/Ind (undefined)
a	QA/QC replicate of sample listed directly below the primary sample
b	Reported naphthalene laboratory result obtained from BTEXN suite
c	Criteria applies to DDT only

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 257905

Client Details

Client	Douglas Partners Newcastle
Attention	Michael Gawn
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**102219.00, Gateshead**
Number of Samples	28 Soil, 1 Material
Date samples received	10/12/2020
Date completed instructions received	10/12/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	17/12/2020
Date of Issue	16/12/2020

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Asbestos Approved By
Analysed by Asbestos Approved Identifier: Nyovan Moonean, Panika Wongchanda
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Metals Supervisor
Josh Williams, Senior Chemist
Loren Bardwell, Senior Chemist
Lucy Zhu, Asbestos Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	113	106	105	107	109

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	107	107	112	108	110

svTRH (C10-C40) in Soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	87	85	106	85	87

svTRH (C10-C40) in Soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	87	99	85	91	91

PAHs in Soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.4	0.3	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	1.0	0.8	0.1	<0.1	<0.1
Pyrene	mg/kg	1.0	0.8	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.4	0.4	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.5	0.4	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.7	0.7	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.5	0.4	0.07	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3	0.2	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	0.4	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	5.3	4.4	0.3	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.6	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.7	0.6	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.7	0.6	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	89	93	94	101	97

PAHs in Soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0.3	0.4
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	0.3	<0.1	<0.1	0.6	0.7
Pyrene	mg/kg	0.3	<0.1	<0.1	0.6	0.7
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0.3	0.3
Chrysene	mg/kg	0.1	<0.1	<0.1	0.3	0.4
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	0.5	0.6
Benzo(a)pyrene	mg/kg	0.1	<0.05	<0.05	0.3	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	0.2	0.3
Total +ve PAH's	mg/kg	1.4	<0.05	<0.05	3.4	3.9
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Surrogate p-Terphenyl-d14	%	92	93	94	129	100

Organochlorine Pesticides in soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	97	96	104	97

Organochlorine Pesticides in soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	99	95	127	98

Organophosphorus Pesticides in Soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	97	96	104	97

Organophosphorus Pesticides in Soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	99	95	127	98

PCBs in Soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	97	96	104	97

PCBs in Soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	99	95	127	98

Acid Extractable metals in soil						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Arsenic	mg/kg	5	5	4	8	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	43	10	11	45	8
Copper	mg/kg	16	22	19	<1	12
Lead	mg/kg	43	40	22	6	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	8	8	2	6
Zinc	mg/kg	79	160	90	4	190
Iron	mg/kg	18,000	14,000	9,000	45,000	18,000
Manganese	mg/kg	1,400	230	250	7	170

Acid Extractable metals in soil						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Arsenic	mg/kg	5	<4	<4	5	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	6	11	13	8
Copper	mg/kg	13	4	2	17	16
Lead	mg/kg	15	17	8	40	36
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	1	<1	4	7
Zinc	mg/kg	190	15	16	82	71
Iron	mg/kg	15,000	7,500	9,700	13,000	10,000
Manganese	mg/kg	190	20	19	170	160

Acid Extractable metals in soil		
Our Reference		257905-30
Your Reference	UNITS	1/0.05 - [TRIPLICATE]
Date Sampled		08/12/2020
Type of sample		Soil
Date prepared	-	11/12/2020
Date analysed	-	11/12/2020
Arsenic	mg/kg	6
Cadmium	mg/kg	<0.4
Chromium	mg/kg	15
Copper	mg/kg	23
Lead	mg/kg	110
Mercury	mg/kg	<0.1
Nickel	mg/kg	9
Zinc	mg/kg	130
Iron	mg/kg	15,000
Manganese	mg/kg	500

Moisture						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
Moisture	%	8.0	7.7	24	18	8.1

Moisture						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
Date analysed	-	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
Moisture	%	6.4	13	9.5	13	7.5

Asbestos ID - soils						
Our Reference		257905-1	257905-2	257905-3	257905-4	257905-5
Your Reference	UNITS	1/0.05	1/0.5	1/1.0	1/2.0	2/0.05
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 25g	Approx. 30g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Red coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		257905-6	257905-7	257905-8	257905-9	257905-10
Your Reference	UNITS	2/0.5	2/1.2	5/0.05	6/0.05	D2
Date Sampled		08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
Sample mass tested	g	Approx. 30g	Approx. 30g	Approx. 35g	Approx. 30g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils NEPM		
Our Reference		257905-12
Your Reference	UNITS	1/0.3F (500ml)
Date Sampled		08/12/2020
Type of sample		Soil
Date analysed	-	11/12/2020
Sample mass tested	g	906.04
Sample Description	-	Grey coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos#1	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	–
FA and AF Estimation*	g	–
FA and AF Estimation*#2	%(w/w)	<0.001

Asbestos ID - materials		
Our Reference		257905-11
Your Reference	UNITS	1/0.3F
Date Sampled		08/12/2020
Type of sample		Material
Date analysed	-	11/12/2020
Mass / Dimension of Sample	-	55x33x5mm
Sample Description	-	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Crocidolite asbestos detected
Trace Analysis	-	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date extracted	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			14/12/2020	1	14/12/2020	14/12/2020		14/12/2020	14/12/2020
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	114	106
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	114	106
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	118	110
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	110	103
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	114	105
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	114	105
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	111	102
naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	112	1	113	108	5	112	107

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date extracted	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	112	134
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	84	109
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	77	134
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	112	134
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	84	109
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	77	134
Surrogate o-Terphenyl	%		Org-020	77	1	87	100	14	124	85

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date extracted	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	90
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	108
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	95
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	0.4	0.2	67	97	93
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	1.0	0.6	50	96	97
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	1.0	0.6	50	100	106
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	0.4	0.3	29	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	0.5	0.3	50	124	127
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	0.7	0.5	33	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	0.5	0.3	50	97	98
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	0.3	0.2	40	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	0.4	0.3	29	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	102	1	89	97	9	98	93

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date extracted	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99	96
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	92
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	95
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	94
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	97
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99	97
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	111	97
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	114	107
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	95
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	103
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	102	1	89	98	10	99	94

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date extracted	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	125	129
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	104
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	103
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	84
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	113	111
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	100
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	119	117
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	102	1	89	98	10	99	94

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date extracted	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	100	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	102	1	89	98	10	99	94

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	257905-2
Date prepared	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Date analysed	-			11/12/2020	1	11/12/2020	11/12/2020		11/12/2020	11/12/2020
Arsenic	mg/kg	4	Metals-020	<4	1	5	6	18	99	94
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	96	82
Chromium	mg/kg	1	Metals-020	<1	1	43	18	82	98	87
Copper	mg/kg	1	Metals-020	<1	1	16	20	22	101	108
Lead	mg/kg	1	Metals-020	<1	1	43	47	9	100	98
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	104	104
Nickel	mg/kg	1	Metals-020	<1	1	10	11	10	99	85
Zinc	mg/kg	1	Metals-020	<1	1	79	99	22	100	#
Iron	mg/kg	10	Metals-020	<10	1	18000	18000	0	106	##
Manganese	mg/kg	1	Metals-020	<1	1	1400	750	60	103	##

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples 257915-1 to 10 were sub-sampled from jars provided by the client.

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 257905-1 for Cr and Mn. Therefore a triplicate result has been issued as laboratory sample number 257905-30.
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.
- ## Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of sample 257905-1

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	102219.00	**Suburb:**	Gateshead	**To:**	Envirolab
Project Name:	Proposed Rezoning	**Order Number**			
Project Manager:	Michael Gawn	**Sampler:**	Josh Kramer	**Attn:**	Jacinta
Emails:	ichael.gawn@douglaspartners.com.a			**Phone:**	299103200
Date Required:	Standard ☐ (samples have already been dispatch to Envirolab)			**Email:**	JHurst@envirolab.com.au
Prior Storage:	☐ Fridge	Do samples contain 'potential' HBM?	Yes ☐	No ☐	(If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Heavy Metals	OCP/OPP PCB	TRH and BTEX	PAH	Total Phenols	Asbestos 500 ml	Asbestos ID			Notes/preservation
1 / 0.05	1	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
1 / 0.5	2	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
1 / 1.0	3	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
1 / 2.0	4	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
2 / 0.05	5	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
2 / 0.5	6	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
2 / 1.2	7	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
5 / 0.05	8	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
6 / 0.05	9	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
D2	10	12/08/20	S	G	•	•	•	•						Combo 6A plus 2 metals
1 / 0.3F	~~AE~~ 11	12/08/20	t	P							•			
1 / 0.3F (500ml)	12	12/08/20	S	P						•				
Extras														
PQL (S) mg/kg														**ANZECC PQLs req'd for all water analytes** ☐

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: ~~257605~~
Date Received: 12/8/20
Time Received: 10:35
Received By: Helen
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 12HM unless specified here: As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Fe, Mn

Lab Report/Reference No:

Total number of samples in container: Note **Relinquished by:** JK **Transported to laboratory by:**

Send Results to: Douglas Partners Pty Ltd **Address:** **Phone:** **Fax:**

Signed: **Received by:** **Date & Time:** 10/12/20 1035

Extras

257905

#	Date	sample type	sample ID
13	8/12/20	Soil	1/1.5
14			2/1.0
15			2/1.5
16			2/2.0
17			3/ 0.05
18			3/0.5
19			3/1.0
20			4/ ~~0~~0.05
21			4/0.5
22			4/0.9
23			5/0.5
24			5/1.0
25			6/0.35
26			6/0.5
27			6/1.0
28			~~6/~~ D1/SRK
29			D3/SRK

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Michael Gawn

Sample Login Details

Your reference	102219.00, Gateshead
Envirolab Reference	257905
Date Sample Received	10/12/2020
Date Instructions Received	10/12/2020
Date Results Expected to be Reported	17/12/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	28 Soil, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Asbestos ID - soils NEPM	Asbestos ID - materials	On Hold
1/0.05	✓	✓	✓	✓	✓	✓	✓	✓			
1/0.5	✓	✓	✓	✓	✓	✓	✓	✓			
1/1.0	✓	✓	✓	✓	✓	✓	✓	✓			
1/2.0	✓	✓	✓	✓	✓	✓	✓	✓			
2/0.05	✓	✓	✓	✓	✓	✓	✓	✓			
2/0.5	✓	✓	✓	✓	✓	✓	✓	✓			
2/1.2	✓	✓	✓	✓	✓	✓	✓	✓			
5/0.05	✓	✓	✓	✓	✓	✓	✓	✓			
6/0.05	✓	✓	✓	✓	✓	✓	✓	✓			
D2	✓	✓	✓	✓	✓	✓	✓	✓			
1/0.3F										✓	
1/0.3F (500ml)									✓		
1/1.5											✓
2/1.0											✓
2/1.5											✓
2/2.0											✓
3/0.05											✓
3/0.5											✓
3/1.0											✓
4/0.05											✓
4/0.5											✓
4/0.9											✓
5/0.5											✓
5/1.0											✓
6/0.35											✓
6/0.5											✓
6/1.0											✓
D1/JRK											✓
D3/JRK											✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Douglas Partners
Geotechnics / Environment / Groundwater

Appendix E

Quality Assurance/Quality Control Assessment

Quality Assurance / Quality Control Assessment
Report on Preliminary Site Investigation for Contamination
Proposed Rezoning, 87 Oakdale Road, Gateshead

Quality Assurance (QA) was maintained by:

- Compliance with a Project Quality Plan written for the objectives of the study;
- Using qualified engineers/scientists to undertake the field supervision and sampling;
- Following the Douglas Partners Pty Ltd (DP) operating procedures for sampling, field testing and decontamination as presented in Table E1;
- Using NATA registered laboratories for sample testing that generally utilise standard laboratory methods of the US EPA, the APHA and NSW EPA.

Table E1: Field Procedures

Abbreviation	Procedure Name
FPM LOG	Logging
FPM DECONT	Decontamination of Personnel and Equipment
FPM ENVID	Sample Identification, Handling, Transport and Storage of Contamination Samples
FPM PIDETC	Operation of Field Analysers
FPM ENVSAMP	Sampling of Contaminated Soils

Note to Table E1:
From DP Field Procedures Manual

Quality Control (QC) of the laboratory programme was achieved by the following means:

- Field duplicates - specific samples were split in the field, placed in separate containers and labelled with different sample numbers, and sent to the laboratory for analysis;
- Method blanks - the laboratory ran reagent blanks to confirm the equipment and standards used were uncontaminated;
- Laboratory replicates - the laboratory split samples internally and conducted tests on separate extracts;
- Laboratory spikes - samples were spiked by the laboratory with a known concentration of contaminants and subsequently tested for percent recovery.

Discussion

A. Check Replicate

The Relative Percent Difference (RPD) between replicate results is used as a measure of laboratory reproducibility and is given by the following:

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

The RPD can have a value between 0% and 200%. An RPD data quality objective of up to 50% is generally considered to be acceptable for organic analysis, and 35% for inorganics (ie Metals).

A summary of the results of the replicate QA/QC testing is provided in Table QA1.

RPDs for replicates ranged were within the acceptance limits (0% to 40%). A slightly higher RPD was recorded for Zinc (77%) however as the concentrations were generally low for zinc this is considered acceptable. The results are therefore considered acceptable.

B. Method Blanks

All method blanks returned results lower than the laboratory detection limit and are therefore considered acceptable.

D. Laboratory Replicates

The average RPD for individual contaminants were within the laboratory acceptance limits.

E. Laboratory Spikes

Recoveries in the order of 70% to 130% are generally considered to be acceptable for inorganic material and 60% to 140% for organic material. The average percent recoveries for individual contaminants were within the quality control objectives. The results should however be qualified and may slightly under-estimate or over-estimate contaminant concentrations in certain samples (i.e. biased low or high respectively).

F. Sample Holding Times

No samples were analysed outside the recommended holding times and is therefore considered acceptable.

Conclusions

The accuracy and precision of the soil testing procedures, as inferred by the laboratory QA/QC data is considered to be of sufficient standard to allow the data reported to be used in interpret site contamination conditions.

Table QA1: Relative Percentage Difference Results – Intra-laboratory Replicates

			Metals									TRH						BTEX				PAH			OCP														OPP	PCB	Asbestos			Asbestos						
			Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Manganese	TRH C6 - C10	TRH >C10-C16	F1 [(C6-C10)-BTEX]	F2 [>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	DDT+DDE+DDD [c]	DDD	DDE	DDT	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyrifos	Total PCB	Asbestos ID in soil <0.1g/kg	Trace Analysis	Asbestos (50 g)	Asbestos ID in soil >0.1g/kg	Trace Analysis	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Asbestos (500 ml)
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	-	-	-	-	-	g	g	%(w/w)	-
D2	0 m	08/12/2020	4	<0.4	8	16	36	<0.1	7	71	160	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
102.5	0 m	08/12/2020	5	<0.4	10	22	40	<0.1	8	160	230	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.4	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD	NT	NT	NT	NT	NT	NT	NT
		Difference	1	0	2	6	4	0	1	89	70	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	NaN	NaN	NaN	-	-	-	-	-	-	-
		RPD	22%	0%	22%	**32%**	11%	0%	13%	**77%**	**36%**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	NaN%	NaN%	NaN%	-	-	-	-	-	-	-

Results expressed in mg/L unless otherwise stated

NA - Not Applicable

NC - No Criteria

NT - Not Tested

PQL - Practical Quantitation Limits

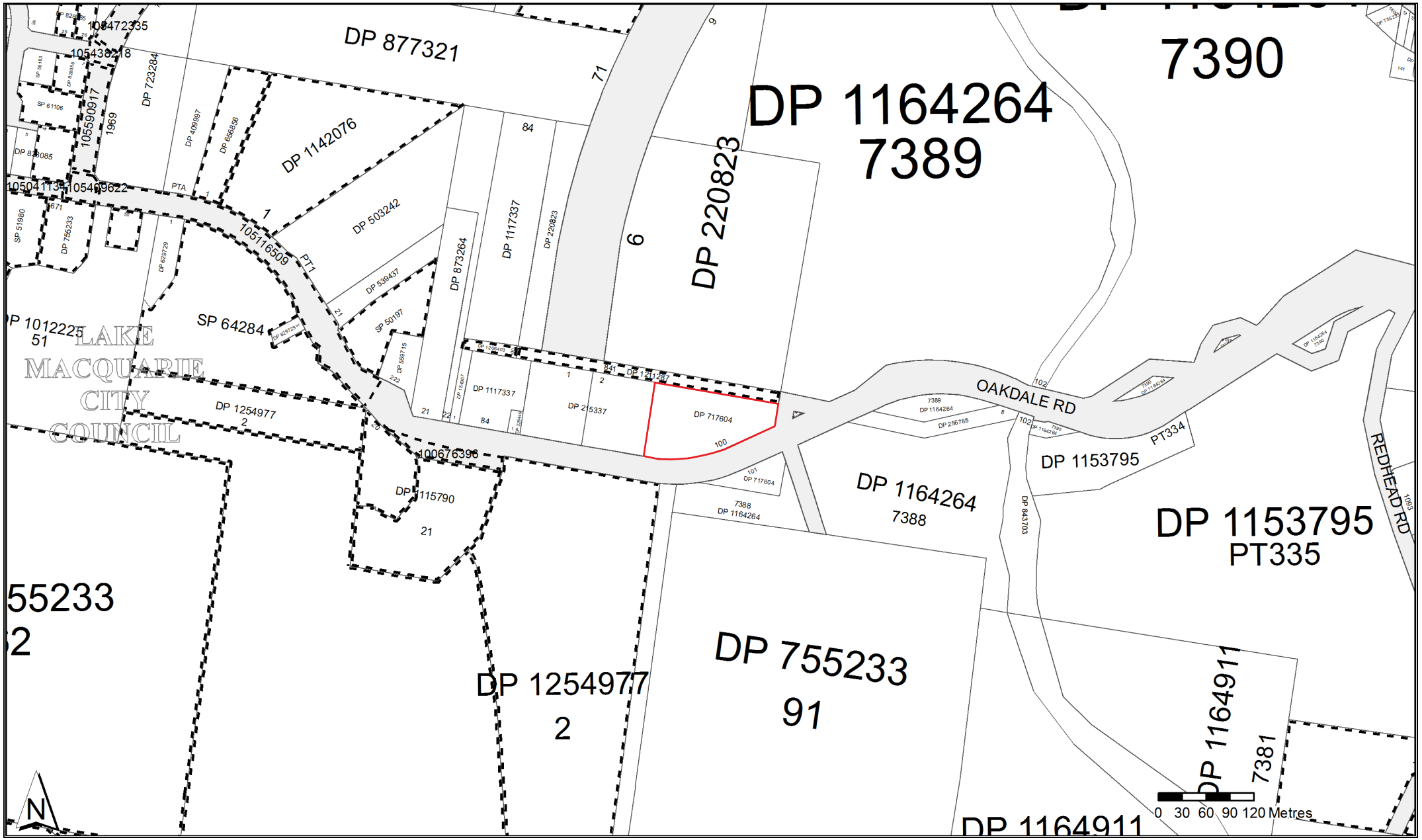
Appendix F

Titles Search Results

Cadastral Records Enquiry Report : Lot 100 DP 717604

Ref : Gateshead 87 Oakdale Road

Locality : GATESHEAD
Parish : KAHIBAH
LGA : LAKE MACQUARIE
County : NORTHUMBERLAND



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

[redacted]

TIFICATE OF TITLE

PERTY ACT, 1900, as amended.

09457250

M

NEW SOUTH WALES

(For Grant and title reference prior to first edition see Deposited Plan.)

Vol. 9457 Fol. 250

1st Edition issued 17-6-1963.

CANCELLED

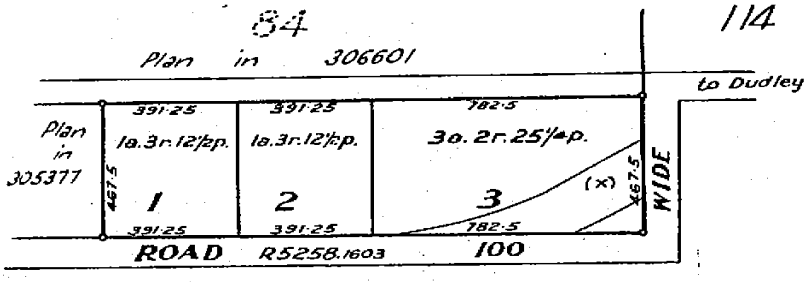
(Page 1) Vol. 9457 Fol. 250

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness B Bailey

Registrar-General.

PLAN SHOWING LOCATION OF LAND



(X) ROAD (LOT 1 IN DP. 256785) 2963m² - 5730644

ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 3 in Deposited Plan 215337s in the Shire of Lake Macquarie Parish of Kahibah and County of Northumberland excepting thereout the minerals reserved by the Crown Grant.

FIRST SCHEDULE (Continued overleaf)

~~WILLIAM HENRY ANDERSON and FREDERICK ANDERSON, both of Dudley, Miners, as Joint Tenants.~~

Registrar General.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Deposited Plan.

Registrar General.

Vol. 9457 Fol 250

ST 1609 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
~~Ethel May Dodds of Charlestown Widow~~		~~K915770~~	~~1960~~		
~~Eileen Florence Rouse wife of Daniel Rouse of Gateshead~~	~~Transmission~~	~~K918769~~	~~7.12.1968~~	~~18.4.1963~~	Jameson
~~Henry John Wilkins of Charlestown Labourer~~	~~Transfer~~	~~K918771~~	~~7.12.1960~~	~~18.11.1968~~	Jameson
John Eric Mantle of Barnsley, Carrying Contractor and Patricia Mary Mantle his wife as joint tenants	Transfer	L525390	24.7.1961	14.8.1969	Jameson

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
Mortgage	N443713	18.10.1972	to Rural Bank of New South Wales	18.9.1973	Jameson			
~~Caveat~~	~~P248227~~			~~16-5-1975~~	Jameson	Withdrawn	W66651	
S730644	Resumption. The land so indicated in the plan hereon being Lot 1 in DP 256785 is now Public Road exclusive of the land below a depth of 15.24 metres from the surface. Registered ~~2.15.11.198~~ 15-12-1981							
			DP 717604 Registered 12-12-1985 This folio is cancelled as to whole/[redacted] upon c... of computer folios for lots 100/101 ex. road in ... abovementioned plan.					
			The residue of land in this folio comprises road.					

(Page 2 of 2 pages)

FORM No. 184A

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

K918771 N443713 P248227 Lot 1 DP 256785 Resumed to a depth of 15.24 metres declared Public Roadwide Gaz 4-8-1981 Fol 4350 S730644 (of part) 85M300000 CT 27/9/85 DP 717604 W66651 WD

R.P.3

...re lodgment at the Land Titles Office.

APPLICATION TO BE REGISTERED UNDER THE REAL PROPERTY ACT, 1900 AH 10 04
(SECTION 94), AS PROPRIETOR BY TRANSMISSION.

REGISTRAR-GENERAL · NEW SOUTH WALES

DUTY PAID

Fees:	£	s.	d
Certificate ...			
Lodgment ...			
Endorsements			
Total ...	£	9	.00

10.1.68

I/We (a) EDITH MAY DODDS of [illegible] Pacific Highway, Charlestown in the State of New South Wales, Widow

K 918770

Typing or handwriting in this application should not extend into any margin. Handwriting should be clear and legible and in permanent black 'non-copying ink.

(a) Full Christian name(s), surname(s) and postal address(es) and also occupation(s).

(b) If a less estate, alter to accord with the fact.

(c) Where the deeds are very numerous, a fuller schedule may be made an annexure.

(d) Executor, *or* administrator, *or* trustee, *or* devisee, or as case may be—adding any necessary information or particulars. Applicants should not claim as "executor *and* devisee" or "executor *and* trustee."

(e) Strike out inappropriate words.

(f) If there be any contract, mortgage, lease or other interest affecting the land, add the words "except as follows," and insert full particulars thereof in the space provided or in an annexure or separate statutory declaration. Unregistered instruments should be produced for inspection.

(g) See "Hints."

(h) See Note C.

(i) Here state nature of other documents lodged, *e.g.*, declarations as to identity, &c.

(j) If made outside the State, strike out "Oaths Act, 1900–1953," and insert reference to local Act.

(k) CAUTION.—Any person falsely or negligently certifying is liable to a penalty not exceeding £50. See Sec. 117 of R. P. Act, 1900.

(l) This Declaration must be attested by the Registrar-General or Deputy Registrar-General, or a Notary Public, or by a Justice of the Peace, or by a Commissioner for Affidavits. [This applies only to declarations made within the State.] If made outside the State, the declaration should be made according to the law of the State in which it is made, and before a person authorised by that law to take declarations.

do solemnly and sincerely declare that I/we believe myself/ourselves to be entitled for an estate (in fee simple) (b) to the land described in the following Certificates of Title and Crown Grants held by Henry William Anderson late of Dudley, Miner and Frederick Anderson late of Dudley, Miner both deceased as Joint tenants late of

(c) Vol.	Fol.	Vol.	Fol.	Vol.	Fol.	Vol.	Fol.	Vol.	Fol.	Vol.	Fol.
9457	248	9457	250								

N.S.W. Land Registry Services
E.H.W. ANDERSON
REGISTRATION PROPOSED
2 2
1 OCT 1964

deceased :—

lodged herewith I/we having become so entitled as (d) devisee of the will of the said Henry William Anderson who survived the said Frederick Anderson and

Will / Estate of the said deceased who died on the 16th day of December, 19 51, and (e) Probate (No. 388297) / Letters of Administration (No.) of whose Will / Estate dated 19th Nov. 1951 was granted to Ernest Law Dodds and Edith May Dodds on the 9th day of April, 1952. In further verification whereof I/we have deposited the abovementioned deeds and also the documents mentioned in the schedule hereunder.

I/We also declare that no other person is within my/our knowledge entitled to any estate or interest in the said land :—(f)

SCHEDULE OF DOCUMENTS DEPOSITED.

1. (e) Probate of the will of the said deceased.
2. (g) Office copy of the said will.
3. (e) Federal Commissioner's Receipt for payment of estate duty; or Evidence that the Estate is not liable therefor. (see Note A)
4. (h) Declaration negativing any application under the Testator's Family Maintenance and Guardianship of Infants Act, 1916-1954.
5. (i) Declaration of identity of the said Henry William Anderson

Received Documents Nos. and 2 Grants/C's. T.

Receiving Clerk

AND I/WE MAKE THIS SOLEMN DECLARATION conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900–1953 (j)

(k) I/We also certify that this application is correct for the purposes of the Real Property Act, 1900.

(l) MADE and subscribed by the abovenamed

EDITH MAY DODDS

at Wiseman

the Seventh day of December 19 64.

in the presence of—

M E Donnelly JP
Clerk
Newcastle

E M Dodds

Signature(s) of Applicant(s).

ALL BLANKS SHOULD BE RULED BEFORE SIGNING.

The Justice of the Peace or other person who attests the application should initial all alterations.

CAUTION.—This application is in form a statutory declaration, and applicants are reminded that, by virtue of the provisions of the Crimes Act, 1900, the penalties of perjury are attached to a false declaration concerning any matter or procedure under the Act. The utmost care is therefore necessary in framing (or reading over if the form be filled up by an Attorney) every particular statement therein.
It is further provided by Section 126 of the Real Property Act, 1900, that any applicant procuring a Certificate through any fraud, error, omission, misrepresentation or misdescription will, notwithstanding the issue of such Certificate, remain liable for damages to any person thereby prejudiced. And any person who fraudulently procures, assists in fraudulently procuring, or is privy to the fraudulent procurement of any Certificate of Title is declared guilty of a misdemeanour and liable to a penalty not exceeding £500, or imprisonment not exceeding three years, and any Certificate thereby procured is rendered void as between all parties or privies to the fraud.

(See back for "Hints.")

No alterations should be made by erasure. The words rejected should be scored through with the pen, and those substituted written over them, the alteration being verified by signature or initials in the margin, or noticed in the attestation.

St 701 K 978

ATTENTION IS DIRECTED TO THE HINTS ON THE BACK HEREOF.

H 13542

K 918770

No. _____ APPLICATION BY TRANSMISSION.

Lodged by MORRIS, HAYES & EDGAR
LAW STATIONERS
67 CASTLEREAGH STREET
SYDNEY BW 9282

LEAVE THESE SPACES FOR DEPARTMENTAL USE

INDEXED

PARTICULARS ENTERED in REGISTER BOOK
Volume 9407 Folio 244 & 200.

Checked by

the 18th day of April 1968,
at 12 o'clock in the _____ noon.

Signed by

Registrar-General.

CERTIFICATE OF TITLE, dated the _____ day of _____ 19____, issued :—
Volume _____ Folio _____

HINTS FOR APPLICANTS.

(A) APPLICATION BY EXECUTORS OR ADMINISTRATORS.

1. There should be lodged with the application :—
   (a) The Probate or Letters of Administration.
   (b) The Certificates of Title or Grants.
2. Evidence should be lodged with the application :—
   (a) Of the payment of Federal Estate Duty, or—
   (b) *That the Estate is not liable to duty, or* —
   (c) (From the Federal Commissioner of Taxation) that sufficient security is held for the payment of the duty.
   If this cannot be furnished, the application will be allowed to proceed subject to a Caveat as in 3 (b) being entered. (See Note A.)
   (d) (In appropriate cases) that Double Probate has not been applied for.
3. A Caveat will be entered to prevent dealings :—
   (a) Not in accordance with the powers and duties of such executor or administrator, and
   (b) In contravention of the Estate Duty Assessment Act (Federal) (unless evidence of payment or non-liability has been furnished).

The fee (£1/10/0 and 5/- for every extra folium) for such Caveat should be paid at the time of lodging the application.

(B) APPLICATION BY DEVISEE.

1. There should be lodged with the application :—
   (a) The Probate or Letters of Administration, c.t.a.
   (b) The Certificates of Title or Grants.
   (c) The duly stamped consent of the executor or administrator, whose signature should be witnessed, where the applicant is not such executor or administrator.
2. Evidence should be lodged with the application :—
   (a) Of the payment of Federal Estate Duty, or—
   (b) That the Estate is not liable to duty, or—
   (c) (From the Federal Commissioner of Taxation) that sufficient security is held for the payment of the duty.
   (d) (In appropriate cases) that Double Probate has not been applied for.
   (e) Of the payment or release of any legacy charged on subject land or the determination of any rights under the will in any person other than the applicant. (See "General" under "Receipts, Consents, &c.")
   (f) Of the identity, where not evident, of the land devised with that applied for. (See Note D.)
   (g) Of the identity, where not evident, of the devisee with the applicant.
   (h) *That the title is not affected or liable to be affected by any Order* under the Testator's Family Maintenance and Guardianship of Infants Act, 1916–1954. (See Note C.)
   (i) That the applicant is not a bankrupt, and has not assigned or encumbered his interest.

(C) APPLICATION BY PERSONS CLAIMING UNDER AN INTESTACY

1. There should be lodged with the application :—
   (a) The Letters of Administration.
   (b) The Certificates of Title or Grants.
   (c) The duly stamped consent of the administrator, whose signature should be witnessed.
   (d) A certificate of death of the deceased.
2. Evidence should be lodged :—
   (a) Of the payment of Federal Estate Duty, or—
   (b) That the Estate is not liable to duty, or—
   (c) (From the Federal Commissioner of Taxation) that sufficient security is held for the payment of the duty.
   (d) That the applicant is not a bankrupt, and has not assigned or encumbered his interest.
   (e) Of facts showing that the applicants are the only persons entitled in distribution to the estate of the intestate. (See Notes C and E.) (See also Section 61A Wills, Probate and Administration Act, 1898–1954 as to persons dying on or after 1st January, 1955).

GENERAL.

1. Such other evidence as the case may require should also be lodged.

Caveats and Office Copies of Wills.

2. When a transfer of the whole of the land in the application is lodged therewith a caveat, as in A 3 (a), will not be entered. In applications by trustees an office copy of the will should be lodged.

Statutory Declarations.

3. Declarants should fully state their means of knowledge of the facts declared to, and where the facts are not within their own knowledge they should fully state the sources of their information and belief.
Facts, and not inferences, should be declared to.
Declarations made outside the State of New South Wales should be made under the law of the State in which they are made and before a person authorised by that law to take declarations.
Declarations should be signed on each page by the declarant and the person before whom made, and should be suitably endorsed.

Receipts, Consents, &c.

4. Receipts for legacies and consents and similar documents lodged in support of applications should be accompanied by evidence as to the identity of the person signing, and that he had attained the age of twenty-one years at the date of such signing.

Applications by Persons not Resident in New South Wales.

5. See Section 94 (7) of the Real Property Act, 1900.
They will also be received, if declared at the place where the applicant resides in accordance with the law relating to statutory declarations of the State where made before a person authorised by that law to take declarations.

Alterations.

6. In no case can any alteration, however trifling, be allowed to be made after the application has been declared unless all parties re-sign and re-declare the same. If it is discovered that any alterations are necessary the applicant may make a statutory declaration setting out in what manner he desires the application to be altered, which declaration will then (unless the Registrar-General considers that a fresh application ought to be made) be read as one with the application.

Fees.

7. Application by (a) any persons other than executors, administrators or trustees, £2/10/0, and an additional £1/0/0 for each such applicant after the first; (b) executors, administrators or trustees, £2/0/0. For every extra memorial 5/- and for every new Certificate of Title, with one simple diagram, £2/10/0.
These are in addition to the fees mentioned above.

NOTES.

NOTE A.

Federal Estate Duty.

The caveat referred to in Hint A 3 (b) above will not be entered—

(a) where two or more years have elapsed since the death of the registered proprietor;

(b) When the Probate or Letters of Administration shows that the gross value of the estate in New South Wales did not exceed £2,500, or where the whole of the estate passes to the widow, widower, *children or grandchildren, £5,000, and in either case evidence is furnished that the deceased did* not leave any assets outside the State ; or

(c) when a receipt for payment of duty is furnished, or the Probate or Letters of Administration bears a Certificate by the Federal Commissioner of Taxation that duty has been paid or that the estate is exempt from duty; or

(d) when the Federal Commissioner of Taxation certifies that he holds sufficient security for the payment of the duty.

NOTE B.

Evidence of Payment of Debts, Funeral and Testamentary or Administrative Expenses is not usually required with an application by an executor or administrator or with an application by a beneficiary on which is endorsed the consent of the executor or administrator.

NOTE C.

Testator's Family Maintenance and Guardianship of Infants' Act, 1916–1954.

An application by a devisee under the will of a testator who died since 7th October, 1915, should be accompanied by a statutory declaration by the executor that he has not received notice of an application under the said Act, or a statutory declaration showing that search in the Equity Office discloses that no proceedings under the said Act have been taken in respect of the will of the deceased. In the latter case the declaration should show the date of search.

A similar declaration showing the result of search in the Equity Office will be required in the case of a distribution of the estate of *a male intestate who died on or after 1st January, 1939, unless evidence is* furnished that there is no person by whom or on whose behalf an application could be made under Section 3(1A) of the above Act.

NOTE D.

Evidence as to Identity of Land.

All facts which are necessary to establish this identity should be fully set out, and might advantageously be illustrated by a sketch in appropriate cases.

Where the testator had not, at the date of his will or codicil, as the case may be, any land in the locality or street mentioned in the devise other than that included in the application, proof of this will usually be sufficient.

Any surveyor's plans or certificates in the applicant's possession which would assist in identification might be lodged with the application.

NOTE E.

Suggestions showing the nature of Evidence necessary to prove who are entitled in certain cases in Distribution to the Estate of an Intestate. [See requirement underlined.]

1. When the applicant claims as the widow or widower of an intestate who died on or after 13th June, 1893, it will be necessary to prove—
   (a) the marriage of the applicant to the intestate;
   (b) that the intestate was never previously married, or if he or she were, the determination of such marriage.
   (c) that there were not any children of the said marriage or marriages, or if there were that they all *predeceased the intestate without leaving children or remoter issue surviving him or her;*
   (d) that the net value of the estate in New South Wales did not exceed (1) £500 as to persons dying before 1st January, 1939 and (2) £1,000 as to persons dying on or after 1st January, 1939, (3) £3,000 as to persons dying on or after 1st January, 1955.
2. When the applicants claim as the children of the intestate it will be necessary to prove—
   (a) the marriage of the intestate with applicants' mother or father, as the case may be;
   (b) that the father or mother of the applicants predeceased the intestate;
   (c) that the intestate was only once married, or if more than once, the determination of all marriages and that the applicants are the only children of such marriage or marriages.

(All the children should be accounted for, and if any predeceased the intestate, it should be shown that he or she did not leave any child or more remote issue who survived the intestate.)

3. When the applicant claims as the father of the intestate it will be necessary to prove—
   (a) the marriage of the applicant to the intestate's mother;
   (b) that the intestate was a child of such marriage;
   (c) that intestate did not leave any widow or widower or issue.
   (d) that the intestate's mother predeceased him (if the intestate died on or after 1st January, 1955).
4. When the applicant claims as the mother of the intestate, it will be necessary to prove—
   (a) the marriage of the applicant to the intestate's father;
   (b) that the intestate was a child of such marriage;
   (c) that the intestate's father predeceased him;
   (d) that the intestate did not leave any brothers or sisters or children of brothers or sisters;
   (e) that the intestate did not leave any widow or widower or issue.
5. When the applicants claim as the brothers or sisters of the intestate, it will be necessary to prove—
   (a) the marriage or marriages of the intestate's parents;
   (b) that the intestate was a child of one of such marriages;
   (c) that the intestate's father and mother predeceased him;
   (d) *that the applicants are all the children of such marriages who survived the intestate;*
   (e) that the intestate did not leave any widow or widower or issue:
   (f) that no brother or sister predeceased intestate leaving children who survived him.

The evidence to prove who are the persons entitled in distribution to the estate of an intestate or other matters of pedigree should extend to all facts necessary for the purpose, and in each of the above cases evidence should also be furnished that no person is entitled under the Legitimation Act, 1902, or the Child Welfare Act, 1939, to share in the estate of the deceased.

Bald statements that persons named are the next of kin of the intestate and the like are useless.

As far as possible the evidence should be established by certificates of birth, marriage, or death, verified by statutory declaration.

In those cases in which certificates cannot be obtained, copies, verified by statutory declaration, of entries in family bibles should, if possible, be supplied, and evidence should be furnished by statutory declarations of persons who can speak of the facts of their own knowledge or who can depose to statements made by deceased relatives of the persons whose estate is the subject of claim.

41257 1.58 K976 St 701—W A. H. Pettifer, Government Printer

11.50 RELODGED
9 APR 1968

STATUTORY DECLARATION

D 4/4

I, DESOLIE ANNE BARTER of Charlestown in the State of New South Wales do solemnly and sincerely declare as follows:

1. I am the Executrix of the Will of Edith May Dodds late of Charlestown in the State of New South Wales, who died on or about the Sixth day of October, 1967.

2. I am informed by my Solicitors and verily believe that the said Edith May Dodds signed two Transmission Applications on the 17th December, 1964, requesting Transmission of two separate parcels of land being Lots 2 and 3 to Harold Henry Anderson and Henry John Williams respectively, such land being referred to as Lots 2 and 3 on Plan lodged with Transfer No. H446157, and part of the land in Certificate of Title Volume 1516 Folio 206 in the Parish of Kahibah, County of Northumberland.

3. I say to the best of my information, knowledge and belief that neither the said Edith May Dodds in her life time or myself as her Executrix, have received Notice of any claim by any person, to any portion of the Estate of the late William Henry Anderson deceased or any Application under the Testator's Family Maintenance and Guardianship of Infants Act, 1916-1954, and to the best of such information, knowledge and belief, the position as to the various interested persons in such Estate remains the same as at the time of the signing of the Transmission Application by the said Edith May Dodds.

DATED this 26th day of March 1968.

AND I MAKE this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

SIGNED: D. A. Barter WITNESS: J. Bergman J.P

R.P.3

This form should be marked by the Commissioner of Stamp Duties before lodgment at the Land Titles Office.

No.______

APPLICATION TO BE REGISTERED UNDER THE REAL PROPERTY ACT 1900 (SECTION 94), AS PROPRIETOR BY TRANSMISSION.

REGISTRAR-GENERAL NEW SOUTH WALES

DUTY PAID

I/We (a)

EILEEN FLORENCE ROUSE of ... wife of Daniel Rouse of the same place

D

K 918769

D4/4

Fees:	£	s.	d.
Certificate ...	:	:	
Lodgment ...	:	:	
Endorsements	:	:	
Total		8.00	

TO. 1. 68

RELODGED -9 APR 1968 11.50

Typing or handwriting in this application should not extend into any margin. Handwriting should be clear and legible and in permanent black non-copying ink.

do solemnly and sincerely declare that I/~~we~~ believe myself/~~ourselves~~ to be entitled for an estate (in fee simple)(b) to the land described in the following Certificates of Title and Crown Grants held by Henry William Anderson late of Dudley, Miner and Frederick Anderson late of Dudly miner, both deceased as joint tenants late of deceased:—

(c) Vol.	Fol.	Vol.	Fol.	Vol.	Fol.	Vol.	Fol.	Vol.	Fol.	Vol.	Fol.
9457	249										

lodged herewith I/~~we~~ having become so entitled as(d) Transferee from the said William Henry Anderson under Instrument of Transfer dated 22nd January, 1954, ~~Henry~~ William Henry Anderson having survived the said Frederick Anderson and ~~the said~~ Anderson ~~Henry William Anderson~~ being identical with and one and the same person as Henry William Anderson who ~~...~~ died on the sixteenth day of December, 1951, and (e) Probate (No. 388297) of whose Will dated 19th Nov. 1951 was ~~Letters of Administration (No. ...) of whose Estate were~~ granted to Ernest Law Dodds & Edith May Dodds on the 9th day of April 1952. In further verification whereof I/we have deposited the abovementioned deeds and also the documents mentioned in the schedule hereunder.

I/We also declare that no other person is within my/our knowledge entitled to any estate or interest in the said land:—(f)

SCHEDULE OF DOCUMENTS DEPOSITED.

1. (c) ~~Probate of the will of the said deceased.~~ Letters of administration of the Estate of the said deceased.
2. (g) Office copy of the said will.
3. (e) Federal Commissioner's Receipt for payment of estate duty; or Evidence that the Estate is not liable therefor. (see Note A)
4. (h) Declaration negativing any application under the Testator's Family Maintenance and Guardianship of Infants Act, 1916-1954.
5. (i) Declaration of Sydney Stirling Mitchell
6. Declaration of Eileen Florence Rouse. as for No. 4.
7. Declaration of Edith May Dodds (2)
8. Transfer produced as evidence
9. Office Copy of Will

Received Documents Nos. 5 to 9 and 1 Grants/C's. T.

Receiving Clerk

AND I/WE MAKE THIS SOLEMN DECLARATION conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900-1953(j)

(k) I/We also certify that this application is correct for the purposes of the Real Property Act, 1900.

Re-made and re-subscribed by the said abovenamed
(l) MADE and subscribed by the abovenamed
EILEEN FLORENCE ROUSE
at Gateshead
the seventh day of December, 1964
in the presence of— Maurice Henry ... J.P.

Eileen F. Rouse

Signature(s) of Applicant(s).

Eileen F. Rouse

This 5th day of March, 1968.

I, EDITH MAY DODDS surviving executrix of the Will of Henry William Anderson hereby consent to this application

E M Dodds

McDonnell J.P.

(a) Full Christian name(s), surname(s) and postal address(es) and also occupation(s).
(b) If a less estate, alter to accord with the fact.
(c) Where the deeds are very numerous, a fuller schedule may be made an annexure.
(d) Executor, or administrator, or trustee, or devisee, or as case may be—adding any necessary information or particulars. Applicants should not claim as "executor and devisee" or "executor and trustee."
(e) Strike out inappropriate words.
(f) If there be any contract, mortgage, lease or other interest affecting the land, add the words "except as follows," and insert full particulars thereof in the space provided or in an annexure or separate statutory declaration. Unregistered instruments should be produced for inspection.
(g) See "Hints."
(h) See Note C.
(i) Here state nature of other documents lodged, e.g., declarations as to identity, &c.
(j) If made outside the State, strike out "Oaths Act, 1900-1953," and insert reference to local Act.
(k) CAUTION.—Any person falsely or negligently certifying is liable to a penalty not exceeding £50. See Sec. 117 of R. P. Act, 1900.
(l) This Declaration must be attested by the Registrar-General or Deputy Registrar-General, or a Notary Public, or by a Justice of the Peace, or by a Commissioner for Affidavits. [This applies only to declarations made within the State.] If made outside the State, the declaration should be made according to the law of the State in which it is made, and before a person authorised by that law to take declarations.

ATTENTION IS DIRECTED TO THE HINTS ON THE BACK HEREOF.

ALL BLANKS SHOULD BE RULED BEFORE SIGNING.

The Justice of the Peace or other person who attests the application should initial all alterations.

CAUTION.—This application is in form a statutory declaration, and applicants are reminded that, by virtue of the provisions of the Crimes Act, 1900, the penalties of perjury are attached to a false declaration concerning any matter or procedure under the Act. The utmost care is therefore necessary in framing (or reading over if the form be filled up by an Attorney) every particular statement therein.
It is further provided by Section 126 of the Real Property Act, 1900, that any applicant procuring a Certificate through any fraud, error, omission, misrepresentation or misdescription will, notwithstanding the issue of such Certificate, remain liable for damages to any person thereby prejudiced. And any person who fraudulently procures, assists in fraudulently procuring, or is privy to the fraudulent procurement of any Certificate of Title is declared guilty of a misdemeanour and liable to a penalty not exceeding £500, or imprisonment not exceeding three years, and any Certificate thereby procured is rendered void as between all parties or privies to the fraud.

(See back for "Hints.")

No alterations should be made by erasure. The words rejected should be scored through with the pen, and those substituted written over them, the alteration being verified by signature or initials in the margin, or noticed in the attestation.

St 701 K 976

B 713540

K 918769

No._____ APPLICATION BY TRANSMISSION.

Lodged by MORRIS HAYES & EDGAR
LAW STATIONERS
SYDNEY BW 9262

LEAVE THESE SPACES FOR DEPARTMENTAL USE.

INDEXED

PARTICULARS ENTERED in REGISTER BOOK
Volume 9457 Folio 249.

Checked by
RL
B25

the 13th day of April 1968,
at 12 o'clock in the ____ noon.

Signed by
K

Registrar-General.

CERTIFICATE OF TITLE, dated the_____day
of_____19____, issued:—
Volume_____Folio_____

HINTS FOR APPLICANTS.

(A) APPLICATION BY EXECUTORS OR ADMINISTRATORS.

1. There should be lodged with the application :—
   (*a*) The Probate or Letters of Administration.
   (*b*) The Certificates of Title or Grants.
2. Evidence should be lodged with the application :—
   (*a*) Of the payment of Federal Estate Duty, or—
   (*b*) That the Estate is not liable to duty, or—
   (*c*) (From the Federal Commissioner of Taxation) that sufficient security is held for the payment of the duty.
   If this cannot be furnished, the application will be allowed to proceed subject to a Caveat as in 3 (*b*) being entered. (See Note A.)
   (*d*) (In appropriate cases) that Double Probate has not been applied for.
3. A Caveat will be entered to prevent dealings :—
   (*a*) Not in accordance with the powers and duties of such executor or administrator, and
   (*b*) In contravention of the Estate Duty Assessment Act (Federal) (unless evidence of payment or non-liability has been furnished).

The fee (£1/10/0 and 5/- for every extra folium) for such Caveat should be paid at the time of lodging the application.

(B) APPLICATION BY DEVISEE.

1. There should be lodged with the application :—
   (*a*) The Probate or Letters of Administration, c.t.a.
   (*b*) The Certificates of Title or Grants.
   (*c*) The duly stamped consent of the executor or administrator, whose signature should be witnessed, where the applicant is not such executor or administrator.
2. Evidence should be lodged with the application :—
   (*a*) Of the payment of Federal Estate Duty, or—
   (*b*) That the Estate is not liable to duty, or—
   (*c*) (From the Federal Commissioner of Taxation) that sufficient security is held for the payment of the duty.
   (*d*) (In appropriate cases) that Double Probate has not been applied for.
   (*e*) Of the payment or release of any legacy charged on subject land or the determination of any rights under the will in any person other than the applicant. (See "General" under "Receipts, Consents, &c.")
   (*f*) Of the identity, where not evident, of the land devised with that applied for. (See Note D.)
   (*g*) Of the identity, where not evident, of the devisee with the applicant.
   (*h*) That the title is not affected or liable to be affected by any Order under the Testator's Family Maintenance and Guardianship of *Infants Act*, 1916–1954. (*See Note C.*)
   (*i*) That the applicant is not a bankrupt, and has not assigned or encumbered his interest.

(C) APPLICATION BY PERSONS CLAIMING UNDER AN INTESTACY.

1. There should be lodged with the application :—
   (*a*) The Letters of Administration.
   (*b*) The Certificates of Title or Grants.
   (*c*) *The duly stamped consent of the administrator, whose signature* should be witnessed.
   (*d*) A certificate of death of the deceased.
2. Evidence should be lodged :—
   (*a*) *Of the payment of Federal Estate Duty, or*—
   (*b*) That the Estate is not liable to duty, or—
   (*c*) (From the Federal Commissioner of Taxation) that sufficient security is held for the payment of the duty.
   (*d*) That the applicant is not a bankrupt, and has not assigned or encumbered his interest.
   (*e*) Of facts showing that the applicants are the only persons entitled in distribution to the estate of the intestate. (See Notes C and E.) (See also Section 61A *Wills, Probate and Administration Act*, 1898–1954 as to persons dying on or after 1st January, 1955).

GENERAL.

1. Such other evidence as the case may require should also be lodged.

Caveats and Office Copies of Wills.

2. When a transfer of the whole of the land in the application is lodged therewith a caveat, as in A 3 (*a*), will not be entered. In applications by trustees an office copy of the will should be lodged.

Statutory Declarations.

3. Declarants should fully state their means of knowledge of the facts declared to, and where the facts are not within their own knowledge they should fully state the sources of their information and belief.
Facts, and not inferences, should be declared to.
Declarations made outside the State of New South Wales should be made under the law of the State in which they are made and before a person *authorised by that law to take declarations.*
Declarations should be signed on each page by the declarant and the person before whom made, and should be suitably endorsed.

Receipts, Consents, &c.

4. Receipts for legacies and consents and similar documents lodged in support of applications should be accompanied by evidence as to the identity of the person signing, and that he had attained the age of twenty-one years at the date of such signing.

Applications by Persons not Resident in New South Wales.

5. See Section 94 (7) of the Real Property Act, 1900.

They will also be received, if declared at the place where the applicant resides in accordance with the law relating to statutory declarations of the State where made before a person authorised by that law to take declarations.

Alterations.

6. *In no case can any alteration, however trifling,* be allowed to be made after the application has been declared unless all parties re-sign and re-declare the same. If it is discovered that any alterations are necessary the applicant may make a statutory declaration setting out in what manner he desires the application to be altered, which declaration will then (unless the Registrar-General considers that a fresh application ought to be made) be read as one with the application.

Fees.

7. Application by (*a*) any persons other than executors, administrators or trustees, £2/10/0, and an additional £1/0/0 for each such applicant after the first; (*b*) executors, administrators or trustees, £2/0/0. For every extra memorial 5/- and for every new Certificate of Title, with one simple diagram, £2/10/0.

These are in addition to the fees mentioned above.

NOTES.

NOTE A.

Federal Estate Duty.

The caveat referred to in Hint A 3 (*b*) above will not be entered—

(*a*) where two or more years have elapsed since the death of the registered proprietor;

(*b*) When the Probate or Letters of Administration shows that the gross value of the estate in New South Wales did not exceed £2,500, or where the whole of the estate passes to the widow, widower, children or grandchildren, £5,000, and in either case evidence is furnishd that the deceased did not leave any assets outside the State; or

(*c*) when a receipt for payment of duty is furnished, or the Probate or Letters of Administration bears a Certificate by the Federal Commissioner of Taxation that duty has been paid or that the estate is exempt from duty; or

(*d*) when the Federal Commissioner of Taxation certifies that he holds sufficient security for the payment of the duty.

NOTE B.

Evidence of Payment of Debts, Funeral and Testamentary or Administrative Expenses is not usually required with an application by an executor or administrator or with an application by a beneficiary on which is endorsed the consent of the executor or administrator.

NOTE C.

Testator's Family Maintenance and Guardianship of Infants' Act, 1916-1954.

An application by a devisee under the will of a testator who died since 7th October, 1915, should be accompanied by a statutory declaration by the executor that he has not received notice of an application under the said Act, or a statutory declaration showing that search in the Equity Office discloses that no proceedings under the said Act have been taken in respect of the will of the deceased. In the latter case the declaration should show the date of search.

A similar declaration showing the result of search in the Equity Office will be required in the case of a distribution of the estate of a male intestate who died on or after 1st January, 1939, unless evidence is furnished that there is no person by whom or on whose behalf an application could be made under Section 3(1A) of the above Act.

NOTE D.

Evidence as to Identity of Land.

All facts which are necessary to establish this identity should be fully set out, and might advantageously be illustrated by a sketch in appropriate cases.

Where the testator had not, at the date of his will or codicil, as the case may be, any land in the locality or street mentioned in the devise other than that included in the application, proof of this will usually be sufficient.

Any surveyor's plans or certificates in the applicant's possession which would assist in identification might be lodged with the application.

NOTE E.

Suggestions showing the nature of Evidence necessary to prove who are entitled in certain cases in Distribution to the Estate of an Intestate. [See requirement underlined.]

1. When the applicant claims as the widow or widower of an intestate who died on or after 13th June, 1893, it will be necessary to prove—
   (*a*) the marriage of the applicant to the intestate;
   (*b*) that the intestate was never previously married, or if he or she were, the determination of such marriage.
   (*c*) that there were not any children of the said marriage or marriages, or if there were that they all predeceased the intestate without leaving children or remoter issue surviving him or her;
   (*d*) that the net value of the estate in New South Wales did not exceed (1) £500 as to persons dying *before 1st January, 1939 and (2) £1,000 as to persons dying on or after 1st January, 1939,* (3) £3,000 as to persons dying on or after 1st January, 1955.
2. When the applicants claim as the children of the intestate it will be necessary to prove—
   (*a*) the marriage of the intestate with applicants' mother or father, as the case may be;
   (*b*) that the father or mother of the applicants predeceased the intestate;
   (*c*) that the intestate was only once married, or if more than once, the determination of all marriages and that the applicants are the only children of such marriage or marriages,

(All the children should be accounted for, and if any predeceased the intestate, it should be shown that he or she did not leave any child or more remote issue who survived the intestate.)

3. When the applicant claims as the father of the intestate it will be necessary to prove—
   (*a*) the marriage of the applicant to the intestate's mother;
   (*b*) that the intestate was a child of such marriage;
   (*c*) that intestate did not leave any widow or widower or issue.
   (*d*) that the intestate's mother predeceased him (*if the intestate died on or after 1st January, 1955*).
4. When the applicant claims as the mother of the intestate, it will be necessary to prove—
   (*a*) the marriage of the applicant to the intestate's father;
   (*b*) that the intestate was a child of such marriage;
   (*c*) *that the intestate's father predeceased him;*
   (*d*) that the intestate did not leave any brothers or sisters or children of brothers or sisters;
   (*e*) that the intestate did not leave any widow or widower or issue.
5. When the applicants claim as the brothers or sisters of the intestate, it will be necessary to prove—
   (*a*) the marriage or marriages of the intestate's parents;
   (*b*) that the intestate was a child of one of such marriages;
   (*c*) that the intestate's father and mother predeceased him;
   (*d*) that the applicants are all the children of such marriages who survived the intestate;
   (*e*) that the intestate did not leave any widow or widower or issue;
   (*f*) that no brother or sister predeceased *intestate leaving children who survived him.*

The evidence to prove who are the persons entitled in distribution to the estate of an intestate or other matters of pedigree should extend to all facts necessary for the purpose, and in each of the above cases evidence should also be furnished that no person is entitled under the Legitimation Act, 1902, or the Child Welfare Act, 1939, to share in the estate of the deceased.

Bald statements that persons named are the next of kin of the intestate and the like are useless.

As far as possible the evidence should be established by certificates of birth, marriage, or death, verified by statutory declaration.

In those cases in which certificates cannot be obtained, copies, verified by statutory declaration, of entries in family bibles should, if possible, be supplied, and evidence should be furnished by statutory declarations of persons who can speak of the facts of their own knowledge or who can depose to statements made by deceased relatives of the persons whose estate is the subject of claim.

41257 1.58 K976 St 701—W A. H. Pettifer, Government Printer

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
1/12/2020 11:15AM

FOLIO: 100/717604

First Title(s): VOL 1302 FOL 77
Prior Title(s): VOL 9457 FOL 250

Recorded	Number	Type of Instrument	C.T. Issue
13/12/1985	DP717604	DEPOSITED PLAN	FOLIO CREATED EDITION 1
9/12/2002	9198331	DISCHARGE OF MORTGAGE	
9/12/2002	9198332	TRANSFER	
9/12/2002	9198333	MORTGAGE	EDITION 2
28/4/2003	9556920	DISCHARGE OF MORTGAGE	
28/4/2003	9556921	TRANSFER	EDITION 3
10/12/2008	AE382602	CAVEAT	
23/1/2009	AE459683	TRANSFER	
23/1/2009	AE459684	MORTGAGE	EDITION 4
25/6/2010	AF582161	CAVEAT	
23/9/2010	AF777302	WITHDRAWAL OF CAVEAT	
21/7/2011	AG384553	CAVEAT	
12/8/2011	AG429762	WITHDRAWAL OF CAVEAT	
24/11/2014	AJ63191	CAVEAT	
27/11/2014	AJ71696	WITHDRAWAL OF CAVEAT	
15/6/2015	AJ559471	CAVEAT	
17/6/2015	AJ574170	CAVEAT	
22/6/2015	AJ580597	WITHDRAWAL OF CAVEAT	
24/6/2015	AJ596384	DISCHARGE OF MORTGAGE	
24/6/2015	AJ596386	MORTGAGE	EDITION 5
27/6/2018	AN445577	TRANSFER OF MORTGAGE	EDITION 6
14/6/2019	AP321413	DISCHARGE OF MORTGAGE	
14/6/2019	AP321414	MORTGAGE	EDITION 7

END OF PAGE 1 - CONTINUED OVER

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
1/12/2020 11:15AM

FOLIO: 100/717604 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
			CORD ISSUED

*** END OF SEARCH ***

Form: 01T
Licence: 01-08-067
Licensee: Midware Systems
Turnbull Hill Lawyers

TRANSFER

New South Wales
Real Property Act 1900

9198332M

PRIVACY NOTE: this information is legally required and will OFFICE OF STATE REVENUE (N.S.

STAMP DUTY

Office of State Revenue use only
CLIENT No. 27093
STAMP DUTY $2.00
TRANSACTION No. 024705
STAMP No. 856
SIGNATURE
DATE 22/11/2002
ASSESSMENT DETAILS:

(A) TORRENS TITLE

If appropriate, specify the part transferred
Folio Identifier 100/717604 (1)

(B) LODGED BY

Delivery Box	Name, Address or DX and Telephone	CODE
	NATIONAL AUSTRALIA BANK 197 Prospect Highway Seven Hills NSW 2147 Reference (optional): 15A Fax: 8825 0404 52JC6102	T TW (Sheriff)

(C) TRANSFEROR

JOHN ERIC MANTLE and PATRICIA MARY MANTLE

(D) CONSIDERATION The transferor acknowledges receipt of the consideration of $ 400,000.00 and as regards

(E) ESTATE the land specified above transfers to the transferee an estate in fee simple.

(F) SHARE TRANSFERRED

(G) Encumbrances (if applicable):

(H) TRANSFEREE

DAJCO PTY LIMITED (1)

(I) TENANCY: ϕ

(J) DATE ..... / ..... / .....

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:

Name of witness: GRAHAM ROSS BERRYMAN

Address of witness: SOLICITOR CHARLESTOWN

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of transferor:

J & anmantle
P. M. Mantle.

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: BRIAN WILLIAM DENNIS
Signatory's capacity: Licensed Conveyancer

ϕ ACN 008 008 864

All handwriting must be in block capitals.

Number additional pages sequentially

Form: 01T
Release: 2.1
www.lpi.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

9556921X

PRIVACY NOTE: this information is legally required and will

STAMP DUTY

OFFICE OF STATE REVENUE (N.S.W. TREASURY)
Office of State Revenue use only
CLIENT No. 3123330 STAMP No. 238
STAMP DUTY #2 — SIGNATURE
TRANSACTION No. 131.8218 DATE 12.3.2003
ASSESSMENT DETAILS:

(A) **TORRENS TITLE** 100/717604

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
106G	LAWPOINT DX 885 SYDNEY PH: 239 4999 Reference: Conv. H - Strong	T TW (Sheriff)

(C) **TRANSFEROR**
DAJCO PTY LIMITED
ACN 068 008864

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 200,000.00 and as regards

(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED** ONE HALF SHARE

(G) Encumbrances (if applicable):

(H) **TRANSFEREE**
GREGORY KENNETH STRONG & SHARON ANNE STRONG
AS JOINT TENANTS AS TO ONE HALF SHARE

(I) **TENANCY:** Tenants in Common in Equal Shares

(J) **DATE** 15 · 04 · 2003

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:

Name of witness:
Address of witness:
P. Mackenzie
PAUL MCKENZIE
DIRECTOR

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of transferor:

DAJCO PTY. LIMITED A.C.N. 068 008 864 Common Seal

P. Mackenzie
PAUL MCKENZIE - Director
W. Mackenzie WENDY MCKENZIE - SECRETARY

Certified for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: TONY MORRIS
Signatory's capacity: transferee's licensed conveyancer

All handwriting must be in block capitals.

Form: 01T
Release: 3.4
www.lands.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

AE459683D

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the collection of the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 105523 231
Duty: 2.00 Trans No: S276839
Post details:

(A) **FOLIO OF THE REGISTER** 100/717604

(B) **LODGED BY**

Document Collection Box	Name, Address or DX, Telephone, and LLPN if any	CODES
545D	LLPN: 123397E JOHN McLAREN & CO. Reference: AVG:KMT:84069:CRANE	T TW (Sheriff)

(C) **TRANSFEROR** DAJCO PTY LIMITED ACN 068 008864 AND GREGORY KENNETH STRONG AND SHARON ANNE STRONG

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 500,000.00 and as regards

(E) **ESTATE** the above folio of the Register transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** DOUGLAS CHARLES CRANE

(I) **TENANCY:**

DATE

(J) Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Corporation: DAJCO Pty Limited ACN 086 008 864
Authority: SECTION 127 CORPORATIONS ACT 2001

Signature of authorised person:
Name of authorised person: Paul Aston McKenzie
Office held: Sole Director & Secretary

Signature of authorised person:
Name of authorised person:
Office held:

AND SEE ANNEXURE A TO TRANSFER

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:
Name of witness: MARK EVANS
Address of witness: 7/87 FREDERICK ST MEREWETHER

Certified correct for the purposes of the Real Property Act 1900 by the transferee.

Signature of transferee:
BRIAN BLAKEMORE
Solicitor for TRANSFEREE

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.
0709

DEPARTMENT OF LANDS
LAND AND PROPERTY INFORMATION DIVISION

AE382602

Annexure A to Transfer

Parties: DAJCO Pty limited ACN 068 008 864 and Gregory Kenneth Strong & Sharon Anne Strong (TRANSFEROR) and Douglas Charles CRANE (TRANSFEREE

Dated

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am satisfied, signed this instrument in my presence.

Signature of witness:

Name of witness: MARK EVANS

Address of witness 7/87 FREDERICK ST MERRYMERRER

Certified correct for the purposes of the Real Property Act 1900 by the transferor:

Signature of transferor:

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 100/717604

SEARCH DATE	TIME	EDITION NO	DATE
1/12/2020	11:14 AM	7	14/6/2019

NO CERTIFICATE OF TITLE HAS ISSUED FOR THE CURRENT EDITION OF THIS FOLIO.
CONTROL OF THE RIGHT TO DEAL IS HELD BY NATIONAL AUSTRALIA BANK LIMITED.

LAND

LOT 100 IN DEPOSITED PLAN 717604
AT GATESHEAD
LOCAL GOVERNMENT AREA LAKE MACQUARIE
PARISH OF KAHIBAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP717604

FIRST SCHEDULE

DOUGLAS CHARLES CRANE (T AE459683)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 AP321414 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

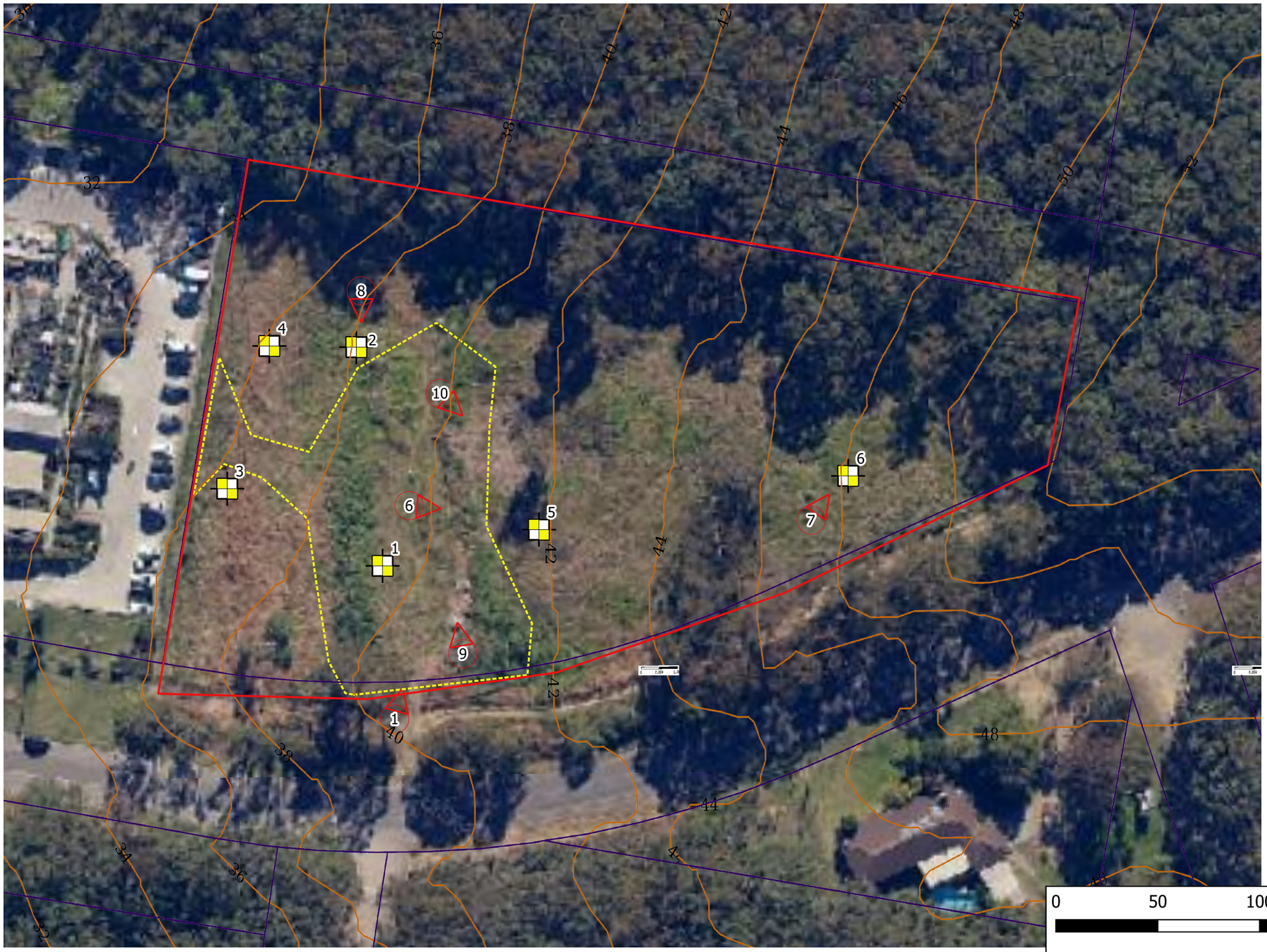
NOTATIONS

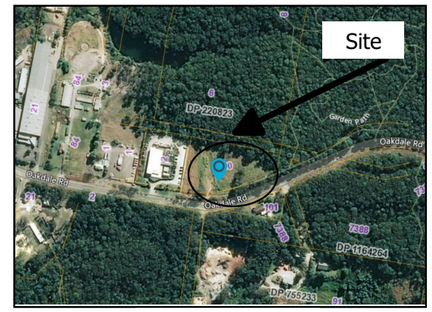
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Appendix G

Drawing 1 – Test Location Plan





Site Location

Legend

- site boundary
- Test Pit Locations
- Possible Approximate Area of Fill
- Approximate location and orientations of figures in report

0 50 100 150 200 m

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	Oakdale Group Pty Ltd		
OFFICE:	Newcastle	DRAWN BY:	MPG
SCALE:	1:750 @ A3	DATE:	07.January.2021

TITLE: **Test Location Plan**
Preliminary Site Investigation for Contamination
87 Oakdale Road, Gateshead, NSW

N

Project:	102219.00
DRAWING No:	1
REVISION:	0