PRELIMINARY SITE INVESTIGATION (PSI)

53 MCAULEYS LANE, MYOCUM, NEW SOUTH WALES

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16 October 2020

REVISION HISTORY:

Revision	Description	Distributed to	Date
Rev.0	PSI Report	Mr Dwayne Roberts	16 October 2020

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ABBREVIATIONS

AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
AS	Australian Standard
BGS	Below Ground Surface
BH	Bore Hole
COPC	Contaminants of Potential Concern
CSI Aus	Contaminated Site Investigations Australia
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
GPR	Ground Penetrating Radar
HDPE	High Density Polyethylene
HIL	Health Investigation Level
HSL	Health Screening Level
IP	Interface Probe
LNAPL	Light Non-Aqueous Phase Liquid
MAH	Monocyclic Aromatic Hydrocarbon
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionisation Detector
RPD	Relative Percentage Difference
QA	Quality Assurance
QC	Quality Control
RAP	Remediation Action Plan
SAQP	Sampling Analysis and Quality Plan
SVB	Soil Vapour Bore
TDS	Total Dissolved Solid
TOC	Top of Casing
TPH	Total Petroleum Hydrocarbon
TRH	Total Recoverable Hydrocarbon
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VOC	Volatile Organic Compound
XRF	X-Ray Fluorescence Analyser

1 Introduction

Contaminated Site Investigations Australia Pty Ltd (CSI Aus) was commissioned by Ardill Payne and Partners, to conduct a Preliminary Site Investigation (PSI) at the rural property located at 53 McAuleys Lane, Myocum, New South Wales (the site).

The site is currently a large rural lot with a residential dwelling and associated sheds and buildings. The new owner intends to rezone the site to R5 (large residential lots) and subdivide the site into 40 individual allotments.

The proposed sub-division and rezoning of the site has triggered the need for the PSI under State Environmental Planning Policy No. 55 Remediation of Land (SEPP 55). This report outlines the findings of the PSI.

1.1 Objectives

The objective of the PSI is to identify potential contamination of surface soils or potentially contaminating historical activities at the site and make an assessment of the site's suitability for residential use, or establish if further investigation is required. This objective will be met via desktop research of government resources, a site visit and walk-over, surface soil sampling and subsequent laboratory analysis.

1.2 Scope of Works

The following scope of work was undertaken by CSI Aus, in accordance with NSW EPA guidelines and Byron Shire Councils specifications:

- Desktop assessment of site location, setting and historical use;
- Review of available historical aerial photography and historical title searches;
- Site visit and walk-over (see photos in report);
- Collection of nine primary soil samples (three samples from each of the three Lots) to assess for contaminants of potential concern (COPC);
- Chain of Custody documentation;
- Analysis of samples via a NATA accredited laboratory; and
- Preparation of this PSI report.

2 Site Information

2.1 Site Identification

The site is located approximately 2.5 kilometers south east of the township of Mullumbimby, in a predominantly rural area. General site information is presented in Table 1 below, and site layout and setting is presented in Appendix 1, Figure 1.

Table 1 General Site Information	
Site Address:	53 McAuleys Lane, Myocum, NSW 2481
Formal ID:	Lot 8/DP589795, Parish of Brunswick, County of Rous
Municipality	Byron Shire Council
Site Area:	Approximately 34.82 ha
Site Owner:	Balance Design Consultants Limited
Land Description:	Largely cleared rural property with undulating hills, surface water bodies and two residential dwellings, one towards the most elevated portion of the site and one within 200m of McAuleys Lane. The site has aspects in all directions and has been used for cattle farming in the past. The property is fenced and has a small cattle crush.
Current Zoning:	Rural Landscape RU2
Current Site Use:	At the time of the site visit, the property was being used as a rural residential property. Livestock were not present.
Proposed Site Use:	Subdivision for residential use (R5 Large Lot Residential)
Adjoining Land Uses:	**North:** Rural/agriculture and residential **East:** Rural/agriculture and residential **South:** Rural/agriculture and residential **West:** Rural/agriculture and residential

2.2 Regional Setting

The site is located at approximately 35 to 61m AHD and slopes radially in all directions from the crest, which is in the centre of the southern portion of the site. The landscape has low gently undulating to rolling rises and hills on plateau surfaces of the Lismore Basalts geological formation. The area has been extensively cleared during early settlement times and was previously closed-forest (Big Scrub). The nearest surface water body is Kings Creek located approximately 600m northeast of the site. The site does have a creek and chain-of-ponds in the northern portion which flows offsite to the east. The property is approximately 3.8 kilometers inland from the coast in the northern rivers area of NSW.

2.3 Geology/Soils

A review of the NSW Environment online mapping service indicates that the site is considered to be low probability for potential acid sulphate soils. Soil mapping for the site identifies the predominant soil type as “Wollongbar” which is typical of the region and the underlying Lismore Basalts. This soil landscape covers the northern 80% of the site. This soil type can be quite deep (>200cm) and well-draining as it has a low moisture

holding capacity. The crests and side slopes tend to have a shallower soil profile and potential for mottled clay lenses. pH of the soil is typically 4.0 – 5.0.

The site soils were relatively uniform in lithology and consisted of a firm dark reddish-brown clay loam (Krasnozems also known as Ferrosols) consistent with the Environment NSW soil maps. The southern 20% of the site is mapped as the "Billinudgel" soil landscape and this was observed during the site visit for the soil sample MYL4 which was distinctly different in physical properties from the soil on the northern portion. The Billinudgel soil profile is a lighter brown loose clay loam with hydrophobic properties and was crumbly as it was dry and very fine. pH of the soil is typically 5.0 – 5.5.

Shallow soils were high in organic material in the form of grass rootlets. No visual or olfactory indicators of soil contamination were identified from the site visit conducted during September 2020.

A total of nine primary soil samples and one duplicate were collected from surface soils and submitted for analysis by a NATA accredited laboratory. See Section 6 for summary results and Appendix B for laboratory reports. Sample locations and identification are presented in Appendix 1, Figure 2.

2.4 Site Visit and Observations

A site visit and walk-over was conducted by Dane Egelton of CSI Aus on 14 September 2020. The property has two residential dwellings and associated sheds, chook pens etc. A small cattle crush is present in the centre of the site.

The majority of each of the proposed lots is cleared of original native vegetation (Big Scrub) with only sparse mature vegetation remaining along fence lines, water courses and around the existing dwellings. The remainder of the property is vacant and grass covered.

There were no visual or olfactory indicators of industrial activities that would potentially cause contamination of the site soils or underlying groundwater. *Note*: groundwater was not assessed during this PSI.

The site surface was free of demolition and/or construction waste at the time of the site inspection. The property extremities (gullies and boundary fences) and close to existing dwellings were not physically assessed.

PHOTOGRAPH 1
CURRENT SITE LAYOUT AND SETTING – VIEW FROM PROPOSED LOT 2 LOOKING EAST

PHOTOGRAPH 2
CURRENT SITE LAYOUT AND SETTING – VIEW FROM PROPOSED LOT 2 LOOKING WEST

PHOTOGRAPH 3
CATTLE HOLDING PEN AND CATTLE CRUSH

3 Historical Information

3.1 Title Search

Limited information on previous site use and ownership was obtained from the NSW Land Registry Services. The land appears to have only be used for farming since the title was first created.

See Appendix 3 for historical land title documents and as summarised below.

Table 2 Historical Title Search

Date	Information
29/7/1908	Grant of land purchased by the Bank of NSW (196 pounds, 15 Shillings). Parcel of land was ~196 acres and encompasses the lots to the north of current titles and also Mullumbimby Rd. Vol 1894 Fol 227.
9/5/1911	Transfer of title to William Amos Bassett (**farmer**)
10/5/1911	Transfer of title to Archibald Henderson Senior. Deed was cancelled and title issued as Vol 2213 Fol 126
?	Transfer of title to Geoffrey Arthur Henderson and Harry Berton Henderson (joint tenants) - **Farmers**. Vol 4923 Fol 220
19/3/1937	Title was cancelled under the public roads act (Mullimbimby Rd) and split into new titles. Vol 4923 Fol 220
27/4/1938	New title assigned to Geoffrey and Harry Henderson
8/7/1976	Certificate of title issued to? Copy of document is not legible
23/6/1977	Deposited plan created - 589795
11/8/1977	Alan Phillip Dixon (**Farmer**) and wife Margaret Dixon of North Tumbulgum Joint Tenants
26/6/1977	Vol 13354 Fol 139 was cancelled
23/10/1979	John Zeigler Huie and Beverley Ann Yeomans of Watsons Bay (50% share each) tenancy in common
23/8/1988	Title converted to computer folio
13/6/1989	Transfer
20/8/1991	Mortgage
14/6/1994	Local Government area amendment
7/6/1999	Transfer of mortgage
15/7/2013	Transfer of mortgage
15/9/2018	Department Dealing
8/2/2019	Transfer of mortgage

3.2 Aerial Photography

The NSW Government Spatial Services Portal was viewed to identify historical aerial photographs that captured the site over time. From the available photographs, five were obtained for the years 1958, 1966, 1971, 1987, and 1997 to assess the land use activities that may be visually obvious. These photos are presented in Figures 3 to 7 within Appendix 1.

In summary, the land use and layout has not changed significantly between the 1958 aerial photograph and the site walk over conducted in September 2020. In the 1958 photograph it appears a residential dwelling is present in the northern portion of the site near the entrance driveway, in this location a house is still present today.

1958 – 1966: No significant change onsite.
1966 – 1971: No significant change onsite.
1971 – 1987: The creek flowing east through the property has been dammed creating two surface water bodies. Some agriculture or landscaping is observed in the northern corner of the site adjacent to McAuleys Lane. In the elevated southern portion of the site a few linear vegetation patterns have emerged, tree planting? Potentially some quarrying activities offsite to the east are visible.
1987 – 1997: Vegetation observed in the previous photo has matured and the remainder of the site is relatively unchanged. Quarrying activities? offsite to the east have expanded and are clearly visible.

3.3 Cattle Dip Search Results

The Byron Shire Council mapping tool was viewed to identify any cattle dips that may have been on the site. The site of investigation did not have any, however, two were observed offsite to the east and west. The distance between these dips and the site would exclude the likely risk of soil contamination from onsite migration.

No cattle dips or similar structures were observed during site visit.

4 Contaminants

4.1 Possible Sources of Contamination

With the site's previous use as residential and cattle farming, the only identified potential source of contamination has been identified as:

- Agriculture

4.2 Contaminants of Potential Concern (COPC)

Based on the review of the site history, contaminants of potential concern in surface soils are considered to include:

- Pesticides (Organochlorine and Organophosphate OCP/OPP)
- Heavy Metals/Metalloids (Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead and Zinc)

Following a desktop review of site history and a site visit, there are no impacts expected on groundwater at the site resulting from previous use, and therefore, soil vapour and groundwater were not investigated (or considered necessary) as part of this PSI.

5 Guidelines/Criteria

The soil analytical results have been assessed with regard to the suitability of the site for the proposed residential subdivision. The following receptors have been identified as requiring protection:

- Human Health - Future occupants of the residential development
- Maintenance of Modified Ecosystems

The adopted guidelines associated with the protection of each identified receptor are detailed in the following sections. The guidelines have been sourced from the National Environment Protection Measure - Assessment of Site Contamination, as amended in 2013 (NEPM). The NEPM presents a range of guidelines applicable for the protection of receptors associated with land uses.

It is emphasised within the NEPM that the purpose of the guidelines is to provide a basis whereby the chemical profile for a site may be screened to identify conditions that may warrant further consideration of risks to human health or the environment. Therefore, the guidelines do not represent values above which remedial action or other site management measure would be required. Rather, the adopted guidelines provide an appropriate basis for identifying conditions which do not warrant any further consideration.

5.1 Ecological Criteria

The NEPM defines Ecological Investigation Levels (EILs) based on land use and soil properties (pH, cation exchange capacity, and clay content). As no assessment of soil properties has been undertaken at the site, the most conservative criteria have been adopted for the land use setting 'Residential/Public Open Space'. In addition to

the EILs, the NEPM defines Ecological Screening Levels (ESLs) for hydrocarbons, based on the land use and soil type. The selected ESLs have been adopted for the land use 'Urban Residential/Public Open Space'. The selected soil texture 'fine' has been adopted as the site uppermost geology consists predominantly of clay loam.

5.2 Human Health Criteria

The NEPM provides Health-based Investigation Levels (HILs) and Health Screening Levels (HSLs) for a range of different land uses and soil types. The human health criteria for the site have been adopted for the land use setting 'Residential A', which includes garden accessible soil for home grown produce of <10% fruit and vegetable intake (no poultry). The selected soil texture 'clay' has been adopted as the site uppermost geology consists predominantly of clay loam.

TABLE 3 Assessment Criteria

Element / Compound	Health-based Investigation Levels (mg/kg)			
	1*. Residential A	Residential B	Recreational C	Commercial/Industrial D
Metals				
Arsenic	100	500	300	3,000
Cadmium	20	150	90	900
Chromium (VI)	100	500	300	3,600
Copper	6,000	30,000	17,000	240,000
Lead	300	1,200	600	1,500
Nickel	400	1,200	1,200	6,000
Zinc	7,400	60,000	30,000	40,000
Mercury	40	120	80	730
Organochlorine Pesticides				
DDT+DDE+DDD	240	600	400	3600
Aldrin & Dieldrin	6	10	10	45
Chlordane	50	90	70	530
Endosulfan	270	400	340	2,000
Endrin	10	20	20	100
Heptachlor	6	10	10	50
HCB	10	15	10	80
Methoxychlor	300	500	400	2,500
Toxaphene	20	30	30	160

Notes: * NEPC (2013) – Interim Health Investigation Levels. Residential Setting A (Low density residential) is the appropriate criteria for this assessment

5.3 Data Quality Objectives

Data quality objectives (DQOs) were developed to define the type and quality of data required to achieve the potential soil contamination assessment and, if required, remediation investigation objectives. Development of the DQOs was based on guidelines in the US EPA *Guidance for the Data Quality Objectives Process* (2000), and with reference to relevant guidelines published by the NSW EPA (1997 and 1998), ANZECC 2000, and NEPC 2013, which define minimum data requirements and quality control procedures.

The DQO process comprises a seven-step planning approach. Using this approach, CSI Aus has developed the sampling design for data collection activities that support the objectives of the soil investigation and facilitate decision-making. Table 4 below lists the seven steps and identifies the sections within this report that addresses those steps.

TABLE 4 Data Quality Objectives Process

DQO Step	Discussion and Detailed description
1. Define the problem	A SEPP 55 investigation has been triggered by BSC for the rezoning. Assessment of site history and limited soil sample data from the site proposed to be rezoned. Soil data has not previously been obtained at the site and site history indicates rural and residential use only.
2. Identify the decision	If identified COPC are detected in surface soils exceed Tier 1 or Tier 2 Risk Assessment Criteria. If the 95% UCL does not exceed Tier 1 and/or Tier 2 Risk Assessment Criteria a human health pathway is considered to not exist.
3. Identify the inputs of the decision	Correct collection of soil samples, sample preservation and use of a NATA accredited laboratory. Surface soil samples collected from nine locations selected randomly and judgmentally across the site. Analysis of soil samples for 8 common heavy metals and persistent pesticides Tier 1, and if required Tier 2 Risk Assessment.
4. Define the investigation boundaries	The property boundary outlined in Section 2 Table 1.
5. Develop a decision rule – analytical approach	Acceptable limits for analytical approach are presented in Data Quality Indicators Table 5 below. The analytical method can achieve detection limits below Tier 1 Risk Assessment Criteria.
6. Specify tolerable limits on decision errors	The limits on decision errors expressed as per cent error for the investigative activities should be no greater than 10 per cent. The aggregate sampling and analysis error may be greater, but error resulting from sampling procedures or the nature of the sample matrix is not quantifiable. By implementing statistically valid sampling plan and adopting the 95% UCL to compare against the Tier 1 / 2 Risk Assessment Criteria we have adopted a 5% level of significance, i.e. adopting a 5% probability we will make the wrong decision (Type 1 / Type 2 error). The data must fall within the range of DQIs to be considered reliable.
7. Optimise the design for obtaining data	Presented in Sections 6 &7 of this PSI. All available resources were used to collate historical data. Physical data was obtained by soil sampling and analysis, onsite inspection by certified and experienced staff.

5.4 Data Quality indicators

Quality Assurance and Quality Control QA/QC is tested by review of data against Data Quality Indicators (DQIs) to ensure data precision, accuracy, representativeness, comparability and completeness. A summary of DQIs for samples to be collected as part of the investigation are presented in the table below:

TABLE 5 Data Quality Indicators

Data Quality Objectives	Frequency	Data Quality Indicator
Precision		
Duplicate samples	1 per 10 samples	RPD <50%
Accuracy		
Laboratory control samples	1 per day	General analytes recovery of 70–130%
Analysis blank	1 per day or batch	Non-detect
Representativeness		
Samples analysed within specified holding times	Soil Samples	<30 days. Within specific analyte holding times
Samples transported under COC conditions	N/A	All samples will be transported under chain of custody documentation
Reliability of field measured data	N/A	N/A
Comparability		
Industry best practice for all sample media	All samples, all analytes	Experienced staff
Consistent sampling techniques	All samples all analytes	Same staff and method for the project
Appropriate laboratory reporting limits	All samples, all analytes	PQL's must be below the adopted criteria
Completeness		
Appropriate sample design to meet objectives	N/A	PSI does not require analytical data because it is primarily a desktop assessment. For completeness surface soil sampling has been conducted based on site history review and site visit.

5.5 Field Data QA/QC Acceptance Criteria

For all samples, field sample QA/QC was conducted in accordance with AS 4482.1–2005 (Australian Standard, 2005) and consist of the following:

- AS 4482.1–2005 (Australian Standard, 2005) indicates an acceptable RPD range of 30-50%, and that the variation can be expected to be higher for organic analysis than inorganics, and for low concentrations of analytes.
- Field and Laboratory Quality Control/Quality Assurance (QA/QC) procedures were conducted in accordance with NEPC (2013) and AS 4482.1–2005.

All soil samples were collected in new sample media jars provided by the laboratory and the soil sampling trowel was thoroughly washed between sample locations to prevent cross contamination. Samples were not composited but rather individual samples taken from each location identified in Figure 2.

The acceptance criteria for QA/QC samples are detailed in Table 5 above:

5.6 Laboratory QA/QC

- At least one analysis blank per batch
- Duplicate analysis at a rate of one per batch or one per ten samples, whichever is smaller
- Laboratory Control Samples at a rate of one per batch

The nominated laboratory must comply with the minimum QA procedures documented in Schedule B(3) in NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure and include, but not be limited to:

- Matrix spikes, and
- Surrogate Spikes

A review of SGS's quality report in Appendix 2 indicates that all QA procedures were satisfactory and no significant outliers were reported.

In the event the acceptance criteria are not met, the variation is taken into consideration and its implications assessed in regard to the context of the investigation.

5.7 Transporting Samples

Before sample transportation, appropriate methods for test specific handling requirements were reviewed. Samples were transported and delivered within documented holding times using ice bricks to preserve samples. To avoid breakages, all glass containers were well cushioned. Samples were transported under chain of custody documentation directly to the laboratory. The original chain-of-custody record accompanied the samples to the analytical laboratory, see Appendix 3.

5.8 Sampling Rationale

The desktop assessment did not identify any activities or previous site uses that would indicate the potential for contamination of soils or groundwater. As a secondary line of evidence to make an assessment of the sites' contamination status and suitability for residential use, nine primary soil samples were collected and analysed for completeness. If these samples detect concentrations of the COPC above the residential criteria, further investigation would be required.

Surface soil sample locations have been randomly selected and judgementally selected (cattle crush) to target the portion of the site to be developed for residential dwellings. Given the site history did not identify cattle dips, fuel

tanks, industrial activities or other likely contamination sources, a small number of soil samples were obtained from across the site for spatial coverage.

Sample identification is as follows;

- MYL2 = Myocum Lot 2 (proposed lot number from which the sample was taken). Randomly selected and spread across the property for coverage.
- CY = Cattle yard, this sample was judgementally selected and collected from inside the cattle crush to assess if metals or pesticides had been introduced to the soils. See Figure 2 in Appendix 1 for sample locations.

6 Results

The results for soil analysis have been summarised in Table 6 below. Laboratory certificate of analysis and QA/QC assessment is provided at the end of this report in Appendix 2.

TABLE 6 Soil Analytical Results Summary

Analyte	Criteria 1,2,3		Concentrations in mg/kg									
		PQL	MYL4	MYL2	MYL31	MYL30	MYL12	MYL15	CY	CY DUP	MYL23	MYL40
Arsenic	*100*	2	2	5	9	7	6	7	5	4	2	5
Cadmium	*20*	0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	*100*	2	3.7	17	18	45	32	22	45	45	57	38
Copper	*6,000*	2	2.1	6.6	0.6	1.7	0.9	1.3	2.6	2.1	1.1	6.7
Lead	*300*	2	4	12	12	14	12	11	11	9	7	13
Nickel	*400*	2	0.6	0.8	0.8	4.9	3.9	9.4	11	12	11	13
Zinc	*7,400*	2	<2	70	6	29	22	32	36	33	33	93
Mercury	*40*	0.05	<0.05	<0.05	0.12	0.10	0.19	0.15	0.18	0.17	0.13	0.10
OCP/OPP - 37 compounds	*7-260*	1-1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes: NEPC (2013) – Interim Health Investigation Levels. Residential Setting A. (Low density residential).
ND = Non-Detect
OCP/OPP = Organochlorine and Organophosphate Pesticides

6.1 Discussion

The site history information did not identify likely contaminating activities. As can be seen from the results summary table above, there were no exceedances of the residential criteria or the more sensitive ecological criteria and all results for the compounds tested were either non-detect (OC/OP pesticides, and cadmium) or

below the human health investigation limits (metals). The collection of further data is not considered to be warranted and the surface of the site is free of contamination in the areas sampled.

6.2 QA/QC

CSI Aus has completed a review of the Quality Assurance (QA) steps and Quality Control (QC) results, according to the data quality objectives defined in Section 5.6 and the following documents:

- NEPC, National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council (1999)
- US EPA Guidance on Environmental Data Verification and Data Validation (2002)

These documents include examining holding times, laboratory accreditation, sample preservation methods, a review of field quality control sample results and a review of laboratory quality control sample results.

SGS Australia (Sydney laboratory) was the chosen NATA accredited laboratory for soil analysis. The primary sample was identified as CY and the duplicate was identified as CY Dup. As can be seen from Table 6 below, all relative percentage difference (RPD) values met the +/-50% acceptance criteria.

TABLE 6 RPD Values

Compound	CY	CY Dup	Relative Percentage Difference (%)
Arsenic	5	4	22.2
Cadmium	<0.3	<0.3	ND
Chromium	45	45	0.0
Copper	2.6	2.1	21.3
Lead	11	9	20.0
Nickel	11	12	-8.7
Zinc	36	33	8.7
Mercury	0.18	0.17	5.7
OCP	ND	ND	0.0
OPP	ND	ND	0.0

Good agreement between primary and duplicate samples indicates appropriate sampling technique in the field and appropriate quality control in the laboratory. Based on the DQI criteria being met, all analytical data collected in this investigation is considered to be representative of site conditions at the time of sampling and satisfactory for use in this assessment.

7 Concluding Comments

CSI Aus has undertaken a Preliminary Site Investigation at 53 McAuleys Lane, Myocum to assess the contamination status of the site under SEPP 55. A desktop review of available information and a site visit did *NOT* identify evidence of previous development or activities on the site that would suggest potentially contaminating activities had taken place within the area of focus. Analytical results from surface soils indicated all of the compounds tested returned concentrations that were below the adopted criteria for residential use.

Based on the sample data collected (nine primary surface soil samples) and the absence of contamination at the site, no further investigation is deemed warranted. A review of laboratory data against the data quality indicators outlined in this report, demonstrates that the data is representative and satisfactory for use in the assessment.

Therefore, the site is considered to be suitable for its intended use.

7.1 Unexpected Finds

During the construction phase of development (roads, sub-terranean services infrastructure and general earthworks), *if* unexpected finds are uncovered (old pipe work, storage tanks etc) work should cease until an experienced environmental scientist can inspect the material and make an assessment of the significance for site contamination. This would include any human-made structures uncovered during development. This PSI has been limited to desktop study and minor surface soil sampling.

8 Limitations

The findings of this report are based on the objectives and scope of work outlined above. CSI Aus performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment industry. No warranties or guarantees, express or implied, are made. Subject to the scope of work, CSI Aus' assessment is limited strictly to identifying typical environmental conditions associated with the subject property and does not include evaluation of any other issues.

This report does not comment on any regulatory obligations based on the findings, for which a legal opinion should be sought. This report relates only to the objectives and scope of work stated, and does not relate to any other works undertaken for the Client.

The report and conclusions are based on the information obtained at the time of the assessment. Changes to the subsurface conditions may occur subsequent to the investigation described herein, through natural process or through the intentional or accidental addition of contaminants, and these conditions may change with space and time.

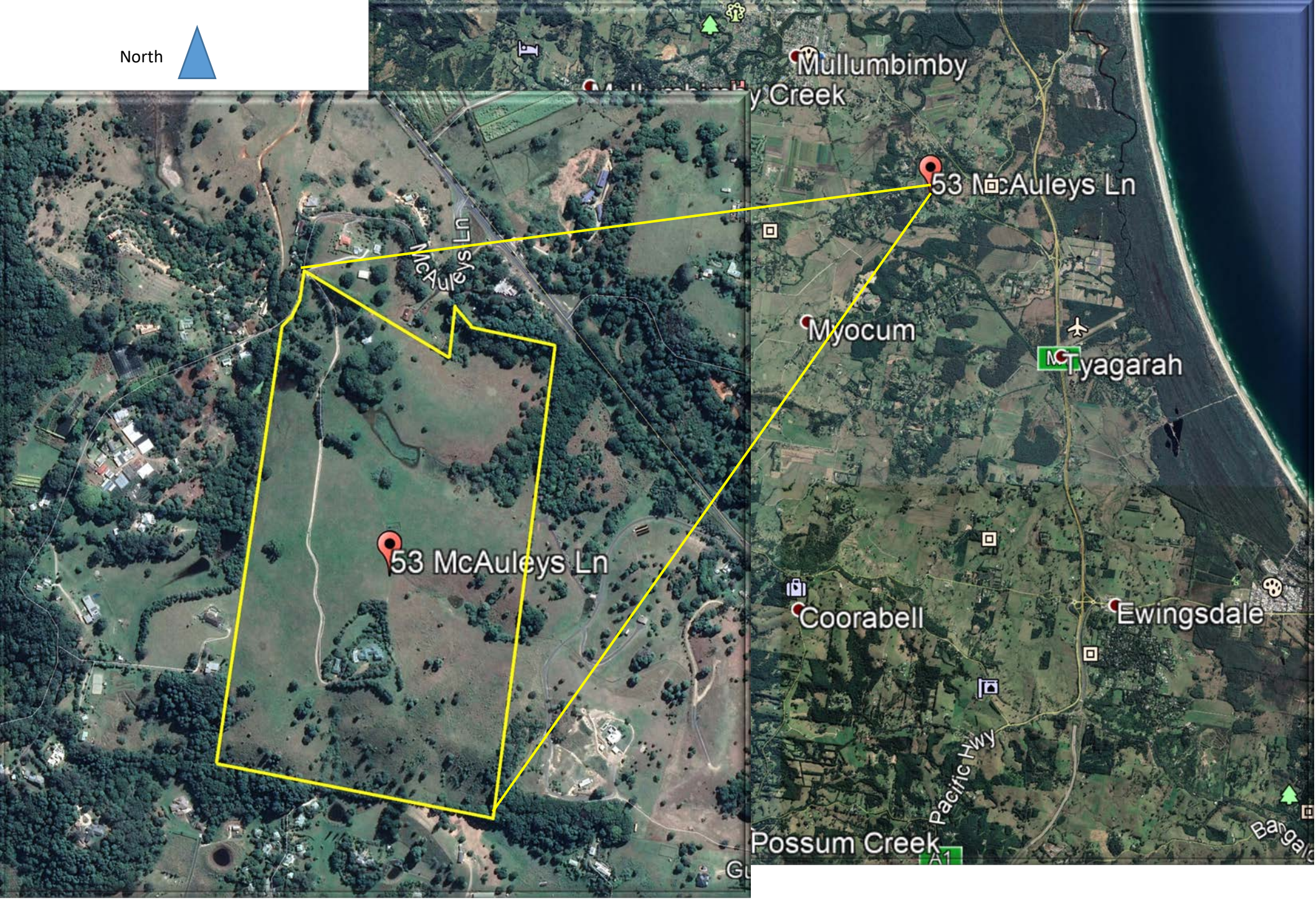
The site history, and associated uses, areas of use, and potential contaminants, were determined based on the activities described in the scope of work. Additional site history information held by the Client, regulatory authorities, or in the public domain, which was not provided to CSI Aus or was not sourced by CSI Aus under the scope of work, may identify additional uses, areas of use and/or potential contaminants. The information sources referenced have been used to determine site history and desktop information regarding local subsurface conditions. While CSI Aus has used reasonable care to avoid reliance on data and information that is inaccurate or unsuitable, CSI Aus is not able to verify the accuracy or completeness of all information and data made available.

Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history, and which may not be expected at the site. The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a warranty or guarantee that such materials do not exist on the site. If additional certainty is required, additional site history or desktop studies, or environmental sampling and analysis, should be commissioned.

The results of this assessment are based upon site inspection and fieldwork conducted by CSI Aus personnel and information provided by the Client. Samples were collected at specific locations and should be considered to be an approximation of the condition of the sample. All conclusions regarding the property area are the professional opinions of CSI Aus personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability have been made, CSI Aus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, information from sources outside of CSI Aus. CSI Aus accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

APPENDIX 1 – FIGURES



Report Number	2218
Project ID	Myocum
Date	12 October 2020

CSI Australia
CONTAMINATED SITE INVESTIGATIONS

Figure 1:
Site Location & Setting

CSI Australia CONTAMINATED SITE INVESTIGATIONS	**Report Number**	2218
	Project ID	Myocum
	Date	12/10/2020

Figure 2: Sample Locations

North

Report Number	2218
Project ID	Myocum
Date	12 October 2020

CSI Australia
CONTAMINATED SITE INVESTIGATIONS

Figure 3:
1958 Aerial Photo

North

Report Number	2218
Project ID	Myocum
Date	12 October 2020

Figure 4: 1966 Aerial Photo

North

Report Number	2218
Project ID	Myocum
Date	12 October 2020

Figure 5: 1971 Aerial Photo

North

Report Number	2218
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Figure 6: 1987 Aerial Photo

North

Report Number	2218
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Figure 7: 1997 Aerial Photo

APPENDIX 2 – LABORATORY REPORTS

CHAIN OF CUSTODY & ANALYSIS REQUEST

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Contaminated Site Investigations Australia Pty Ltd

Company Name:	CSI Australia P/L	Project Name/No:	~~0111 Evans Head~~ 2218 Myocum
Address:	933 Wardell Rd Meerschaum Vale	Purchase Order No:	
		Results Required By:	Normal TAT
		Telephone:	0499 859 528
Contact Name:	Dane Egelton	Facsimile:	
		Email Results:	dane@csiaus.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	~~TBT,DBT &MBT~~	~~TCLP Extration~~	~~Organotins on TCLP~~	Metals (8)	OCP/OPP
MYL4	14/9/20	1		X	✓	✓	•			✓	✓
MYL2		2				1				✓	✓
MYL31		3				1				✓	✓
MYL30		4				1				✓	✓
MYL12		5				1				✓	✓
MYL15		6				1				✓	✓
CY		7				1				✓	✓
CY Dup		8				1				✓	✓ Duplicate
MYL23	↓	9		↓		✓				✓	✓

SGS EHS Sydney COC

SE211193

Relinquished By: Dane Egelton	Date/Time: 14/9/20 4pm	Received By:	Date/Time 16/09/20 @ 9:25
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments		

CHAIN OF CUSTODY & ANALYSIS REQUEST

Contaminated Site Investigations Australia Pty Ltd

Company Name:	CSI Australia P/L	Project Name/No:	~~0111 Evans Head~~ 2218 Myocum
Address:	933 Wardell Rd Meerschaum Vale	Purchase Order No:	
		Results Required By:	Normal TAT
		Telephone:	0499 859 528
Contact Name:	Dane Egelton	Facsimile:	
		Email Results:	dane@csiaus.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	~~FBT DBT &MBT~~	~~TCLP Extration~~	~~Organotins on TCLP~~	Metals (8)	OCP/OPP
MYL40	14/9/20	10		X		1	●			✓	✓

Relinquished By: D. Egelton	Date/Time: 14/9/20 4pm	Received By:	Date/Time 16/09/20 @ 9:25
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes/ No)	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments		

SAMPLE RECEIPT ADVICE

SE211193

CLIENT DETAILS

Contact	DANE EGELTON
Client	CSI AUSTRALIA
Address	PO BOX 389 ALSTONVILLE NSW 2477
Telephone	(Not specified)
Facsimile	(Not specified)
Email	dane@csiaus.com.au
Project	**2218 Myocum**
Order Number	(Not specified)
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 16/9/2020
Report Due	Wed 23/9/2020
SGS Reference	**SE211193**

SUBMISSION DETAILS

This is to confirm that 10 samples were received on Wednesday 16/9/2020. Results are expected to be ready by COB Wednesday 23/9/2020. Please quote SGS reference SE211193 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	10 Soil
Date documentation received	16/9/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE211193

CLIENT DETAILS

Client CSI AUSTRALIA

Project 2218 Myocum

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content	OC Pesticides in Soil	OP Pesticides in Soil	Total Recoverable Elements in Soil/Waste
001	MYL4	1	1	29	14	7
002	MYL2	1	1	29	14	7
003	MYL31	1	1	29	14	7
004	MYL30	1	1	29	14	7
005	MYL12	1	1	29	14	7
006	MYL15	1	1	29	14	7
007	CY	1	1	29	14	7
008	CY DUP	1	1	29	14	7
009	MYL23	1	1	29	14	7
010	MYL40	1	1	29	14	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	DANE EGELTON	Manager	Huong Crawford
Client	CSI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	PO BOX 389 ALSTONVILLE NSW 2477	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	(Not specified)	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	dane@csiaus.com.au	Email	au.environmental.sydney@sgs.com
Project	**2218 Myocum**	SGS Reference	**SE211193 R0**
Order Number	(Not specified)	Date Received	16 Sep 2020
Samples	10	Date Reported	22 Sep 2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Organic Chemist/Metals Chemis

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Parameter	Units	LOR	Sample Number: SE211193.001 Sample Matrix: Soil Sample Date: 14 Sep 2020 Sample Name: MYL4	SE211193.002 Soil 14 Sep 2020 MYL2	SE211193.003 Soil 14 Sep 2020 MYL31	SE211193.004 Soil 14 Sep 2020 MYL30
OC Pesticides in Soil Method: AN420 Tested: 18/9/2020						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	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
Aldrin	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
Delta BHC	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
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
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
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-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
Endrin Aldehyde	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
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**101**	**97**	**95**	**102**
OP Pesticides in Soil Method: AN420 Tested: 18/9/2020						
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	**99**	**98**	**99**	**94**
d14-p-terphenyl (Surrogate)	%	-	**84**	**87**	**86**	**85**
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/9/2020						
Arsenic, As	mg/kg	1	**2**	**5**	**9**	**7**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**3.7**	**17**	**18**	**45**
Copper, Cu	mg/kg	0.5	**2.1**	**6.6**	**0.6**	**1.7**
Nickel, Ni	mg/kg	0.5	**0.6**	**0.8**	**0.8**	**4.9**
Lead, Pb	mg/kg	1	**4**	**12**	**12**	**14**
Zinc, Zn	mg/kg	2	<2	**70**	**6**	**29**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE211193.001 Soil 14 Sep 2020 MYL4	SE211193.002 Soil 14 Sep 2020 MYL2	SE211193.003 Soil 14 Sep 2020 MYL31	SE211193.004 Soil 14 Sep 2020 MYL30
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/9/2020 (continued)							
Mercury in Soil Method: AN312 Tested: 16/9/2020							
Mercury	mg/kg	0.05		<0.05	<0.05	**0.12**	**0.10**
Moisture Content Method: AN002 Tested: 18/9/2020							
% Moisture	%w/w	1		**12.2**	**36.8**	**17.2**	**30.8**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE211193.005 Soil 14 Sep 2020 MYL12	SE211193.006 Soil 14 Sep 2020 MYL15	SE211193.007 Soil 14 Sep 2020 CY	SE211193.008 Soil 14 Sep 2020 CY DUP
OC Pesticides in Soil Method: AN420 Tested: 18/9/2020							
Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Lindane	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
Aldrin	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
Delta BHC	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
o,p'-DDE	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
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
trans-Nonachlor	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
p,p'-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
Endrin Aldehyde	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
Endrin Ketone	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1		<1	<1	<1	<1
Surrogates							
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		**99**	**96**	**99**	**99**
OP Pesticides in Soil Method: AN420 Tested: 18/9/2020							
Dichlorvos	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7		<1.7	<1.7	<1.7	<1.7
Surrogates							
2-fluorobiphenyl (Surrogate)	%	-		**96**	**95**	**89**	**90**
d14-p-terphenyl (Surrogate)	%	-		**84**	**89**	**85**	**83**
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/9/2020							
Arsenic, As	mg/kg	1		**6**	**7**	**5**	**4**
Cadmium, Cd	mg/kg	0.3		<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5		**32**	**22**	**45**	**45**
Copper, Cu	mg/kg	0.5		**0.9**	**1.3**	**2.6**	**2.1**
Nickel, Ni	mg/kg	0.5		**3.9**	**9.4**	**11**	**12**
Lead, Pb	mg/kg	1		**12**	**11**	**11**	**9**
Zinc, Zn	mg/kg	2		**22**	**32**	**36**	**33**

Parameter	Units	LOR	Sample Number: SE211193.005 Sample Matrix: Soil Sample Date: 14 Sep 2020 Sample Name: MYL12	SE211193.006 Soil 14 Sep 2020 MYL15	SE211193.007 Soil 14 Sep 2020 CY	SE211193.008 Soil 14 Sep 2020 CY DUP
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/9/2020 (continued)						
Mercury in Soil Method: AN312 Tested: 16/9/2020						
Mercury	mg/kg	0.05	**0.19**	**0.15**	**0.18**	**0.17**
Moisture Content Method: AN002 Tested: 18/9/2020						
% Moisture	%w/w	1	**31.5**	**20.6**	**21.6**	**23.8**

Parameter	Units	LOR	Sample Number: SE211193.009 Sample Matrix: Soil Sample Date: 14 Sep 2020 Sample Name: MYL23	Sample Number: SE211193.010 Sample Matrix: Soil Sample Date: 14 Sep 2020 Sample Name: MYL40
OC Pesticides in Soil Method: AN420 Tested: 18/9/2020				
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1
Surrogates				
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**101**	**103**
OP Pesticides in Soil Method: AN420 Tested: 18/9/2020				
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7
Surrogates				
2-fluorobiphenyl (Surrogate)	%	-	**94**	**95**
d14-p-terphenyl (Surrogate)	%	-	**84**	**81**

Parameter	Units	LOR	Sample Number: SE211193.009 Sample Matrix: Soil Sample Date: 14 Sep 2020 Sample Name: MYL23	Sample Number: SE211193.010 Sample Matrix: Soil Sample Date: 14 Sep 2020 Sample Name: MYL40
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/9/2020				
Arsenic, As	mg/kg	1	**2**	**5**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**57**	**38**
Copper, Cu	mg/kg	0.5	**1.1**	**6.7**
Nickel, Ni	mg/kg	0.5	**11**	**13**
Lead, Pb	mg/kg	1	**7**	**13**
Zinc, Zn	mg/kg	2	**33**	**93**
Mercury in Soil Method: AN312 Tested: 16/9/2020				
Mercury	mg/kg	0.05	**0.13**	**0.10**
Moisture Content Method: AN002 Tested: 18/9/2020				
% Moisture	%w/w	1	**29.4**	**29.6**

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB209282	mg/kg	0.05	<0.05	0 - 6%	105%	86%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB209436	%w/w	1	2 - 8%

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Hexachlorobenzene (HCB)	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Alpha BHC	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Lindane	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Heptachlor	LB209434	mg/kg	0.1	<0.1	0%	86%	116%
Aldrin	LB209434	mg/kg	0.1	<0.1	0%	90%	103%
Beta BHC	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Delta BHC	LB209434	mg/kg	0.1	<0.1	0%	89%	102%
Heptachlor epoxide	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDE	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Endosulfan	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
Gamma Chlordane	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Chlordane	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
trans-Nonachlor	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDE	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Dieldrin	LB209434	mg/kg	0.2	<0.2	0%	88%	100%
Endrin	LB209434	mg/kg	0.2	<0.2	0%	87%	107%
o,p'-DDD	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDT	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Beta Endosulfan	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
p,p'-DDD	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDT	LB209434	mg/kg	0.1	<0.1	0%	62%	91%
Endosulfan sulphate	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Aldehyde	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Methoxychlor	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Ketone	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Isodrin	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Mirex	LB209434	mg/kg	0.1	<0.1	0%	NA	NA
Total CLP OC Pesticides	LB209434	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB209434	%	-	92%	4 - 5%	93%	103%

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dichlorvos	LB209434	mg/kg	0.5	<0.5	0%	110%	104%
Dimethoate	LB209434	mg/kg	0.5	<0.5	0%	NA	NA
Diazinon (Dimpylate)	LB209434	mg/kg	0.5	<0.5	0%	98%	101%
Fenitrothion	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
Malathion	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB209434	mg/kg	0.2	<0.2	0%	108%	110%
Parathion-ethyl (Parathion)	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
Bromophos Ethyl	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
Methidathion	LB209434	mg/kg	0.5	<0.5	0%	NA	NA
Ethion	LB209434	mg/kg	0.2	<0.2	0%	68%	74%
Azinphos-methyl (Guthion)	LB209434	mg/kg	0.2	<0.2	0%	NA	NA
Total OP Pesticides*	LB209434	mg/kg	1.7	<1.7	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
2-fluorobiphenyl (Surrogate)	LB209434	%	-	97%	8%	89%	94%
d14-p-terphenyl (Surrogate)	LB209434	%	-	91%	8%	72%	79%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB209277	mg/kg	1	<1	3 - 10%	100%	96%
Cadmium, Cd	LB209277	mg/kg	0.3	<0.3	0 - 7%	92%	85%
Chromium, Cr	LB209277	mg/kg	0.5	<0.5	5 - 10%	101%	101%
Copper, Cu	LB209277	mg/kg	0.5	<0.5	4 - 5%	101%	97%
Nickel, Ni	LB209277	mg/kg	0.5	<0.5	3 - 5%	100%	97%
Lead, Pb	LB209277	mg/kg	1	<1	3 - 18%	103%	99%
Zinc, Zn	LB209277	mg/kg	2	<2	9 - 44%	101%	97%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE211193 R0

CLIENT DETAILS

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Telephone	(Not specified)
Facsimile	(Not specified)
Email	dane@csiaus.com.au
Project	**2218 Myocum**
Order Number	(Not specified)
Samples	10

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE211193 R0**
Date Received	16 Sep 2020
Date Reported	22 Sep 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	10 Soil
Date documentation received	16/9/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE211193 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MYL4	SE211193.001	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL2	SE211193.002	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL31	SE211193.003	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL30	SE211193.004	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL12	SE211193.005	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL15	SE211193.006	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
CY	SE211193.007	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
CY DUP	SE211193.008	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL23	SE211193.009	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020
MYL40	SE211193.010	LB209282	14 Sep 2020	16 Sep 2020	12 Oct 2020	16 Sep 2020	12 Oct 2020	21 Sep 2020

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MYL4	SE211193.001	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL2	SE211193.002	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL31	SE211193.003	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL30	SE211193.004	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL12	SE211193.005	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL15	SE211193.006	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
CY	SE211193.007	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
CY DUP	SE211193.008	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL23	SE211193.009	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020
MYL40	SE211193.010	LB209436	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	23 Sep 2020	21 Sep 2020

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MYL4	SE211193.001	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL2	SE211193.002	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL31	SE211193.003	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL30	SE211193.004	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL12	SE211193.005	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL15	SE211193.006	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
CY	SE211193.007	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
CY DUP	SE211193.008	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL23	SE211193.009	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020
MYL40	SE211193.010	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	22 Sep 2020

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MYL4	SE211193.001	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL2	SE211193.002	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL31	SE211193.003	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL30	SE211193.004	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL12	SE211193.005	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL15	SE211193.006	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
CY	SE211193.007	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
CY DUP	SE211193.008	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL23	SE211193.009	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020
MYL40	SE211193.010	LB209434	14 Sep 2020	16 Sep 2020	28 Sep 2020	18 Sep 2020	28 Oct 2020	21 Sep 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MYL4	SE211193.001	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL2	SE211193.002	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL31	SE211193.003	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL30	SE211193.004	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL12	SE211193.005	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL15	SE211193.006	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
CY	SE211193.007	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
CY DUP	SE211193.008	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL23	SE211193.009	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020
MYL40	SE211193.010	LB209277	14 Sep 2020	16 Sep 2020	13 Mar 2021	16 Sep 2020	13 Mar 2021	21 Sep 2020

HOLDING TIME SUMMARY

SE211193 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	MYL4	SE211193.001	%	60 - 130%	101
	MYL2	SE211193.002	%	60 - 130%	97
	MYL31	SE211193.003	%	60 - 130%	95
	MYL30	SE211193.004	%	60 - 130%	102
	MYL12	SE211193.005	%	60 - 130%	99
	MYL15	SE211193.006	%	60 - 130%	96
	CY	SE211193.007	%	60 - 130%	99
	CY DUP	SE211193.008	%	60 - 130%	99
	MYL23	SE211193.009	%	60 - 130%	101
	MYL40	SE211193.010	%	60 - 130%	103

OP Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	MYL4	SE211193.001	%	60 - 130%	99
	MYL2	SE211193.002	%	60 - 130%	98
	MYL31	SE211193.003	%	60 - 130%	99
	MYL30	SE211193.004	%	60 - 130%	94
	MYL12	SE211193.005	%	60 - 130%	96
	MYL15	SE211193.006	%	60 - 130%	95
	CY	SE211193.007	%	60 - 130%	89
	CY DUP	SE211193.008	%	60 - 130%	90
	MYL23	SE211193.009	%	60 - 130%	94
	MYL40	SE211193.010	%	60 - 130%	95
d14-p-terphenyl (Surrogate)	MYL4	SE211193.001	%	60 - 130%	84
	MYL2	SE211193.002	%	60 - 130%	87
	MYL31	SE211193.003	%	60 - 130%	86
	MYL30	SE211193.004	%	60 - 130%	85
	MYL12	SE211193.005	%	60 - 130%	84
	MYL15	SE211193.006	%	60 - 130%	89
	CY	SE211193.007	%	60 - 130%	85
	CY DUP	SE211193.008	%	60 - 130%	83
	MYL23	SE211193.009	%	60 - 130%	84
	MYL40	SE211193.010	%	60 - 130%	81

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB209282.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB209434.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	92

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB209434.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	97
		d14-p-terphenyl (Surrogate)	%	-	91

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB209277.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE211193.010	LB209282.014	Mercury	mg/kg	0.05	0.10	0.11	79	6
SE211210.001	LB209282.019	Mercury	mg/kg	0.05	0.0189541197	0.0309373072	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE211193.002	LB209436.011	% Moisture	%w/w	1	36.8	36.1	33	2
SE211260.066	LB209436.022	% Moisture	%w/w	1	19.3254329990	7.7800616649	35	8
SE211260.069	LB209436.026	% Moisture	%w/w	1	28.9575289578	27.3764258555	34	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE211193.006	LB209434.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	30	5
SE211193.010	LB209434.031		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE211193.010	LB209434.031		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	30	4

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE211193.006	LB209434.029		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	8
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE211193.010	LB209277.014	Arsenic, As	mg/kg	1	5	6	49	10
		Cadmium, Cd	mg/kg	0.3	<0.3	0.3	139	7
		Chromium, Cr	mg/kg	0.5	38	37	31	5
		Copper, Cu	mg/kg	0.5	6.7	6.4	38	4
		Nickel, Ni	mg/kg	0.5	13	13	34	3
		Lead, Pb	mg/kg	1	13	11	38	18
		Zinc, Zn	mg/kg	2	93	60	33	44 ②
SE211210.001	LB209277.024	Arsenic, As	mg/kg	1	9.3889939661	9.6499646774	41	3
		Cadmium, Cd	mg/kg	0.3	0.0499709909	0.0777327419	200	0
		Chromium, Cr	mg/kg	0.5	11.2157113019	2.3600107258	34	10
		Copper, Cu	mg/kg	0.5	10.5388315154	1.0456207258	35	5
		Nickel, Ni	mg/kg	0.5	2.6827860292	2.8160452419	48	5
		Lead, Pb	mg/kg	1	14.1190763518	13.6602675	37	3
		Zinc, Zn	mg/kg	2	13.4866152239	4.7576115322	44	9

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB209282.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	105

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB209434.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	86
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	90
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	89
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	88
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	87
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	62
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB209434.002		Dichlorvos	mg/kg	0.5	2.2	2	60 - 140	110
		Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	98
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	2	60 - 140	108
		Ethion	mg/kg	0.2	1.4	2	60 - 140	68
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB209277.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	100
	Cadmium, Cd	mg/kg	0.3	5.0	5.41	80 - 120	92
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	101
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	101
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	100
	Lead, Pb	mg/kg	1	92	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	270	273	80 - 120	101

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE211193.001	LB209282.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	86

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE211289.001	LB209434.030		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	-	-
			Alpha BHC	mg/kg	0.1	<0.1	0	-	-
			Lindane	mg/kg	0.1	<0.1	0	-	-
			Heptachlor	mg/kg	0.1	0.2	0	0.2	116
			Aldrin	mg/kg	0.1	0.2	0	0.2	103
			Beta BHC	mg/kg	0.1	<0.1	0	-	-
			Delta BHC	mg/kg	0.1	0.2	0	0.2	102
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	0	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	0	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	0	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Dieldrin	mg/kg	0.2	0.2	0	0.2	100
			Endrin	mg/kg	0.2	0.2	0	0.2	107
			o,p'-DDD	mg/kg	0.1	<0.1	0	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	0	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	0	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	0	-	-
			p,p'-DDT	mg/kg	0.1	0.2	0	0.2	91
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	-	-
			Methoxychlor	mg/kg	0.1	<0.1	0	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	0	-	-
			Isodrin	mg/kg	0.1	<0.1	0	-	-
			Mirex	mg/kg	0.1	<0.1	0	-	-
			Total CLP OC Pesticides	mg/kg	1	1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.161	-	103

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE211290.002	LB209434.028		Dichlorvos	mg/kg	0.5	2.1	0	2	104
			Dimethoate	mg/kg	0.5	<0.5	0	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.0	0.02092063837	2	101
			Fenitrothion	mg/kg	0.2	<0.2	0.00561558003	-	-
			Malathion	mg/kg	0.2	<0.2	0	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	0	2	110
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	-	-
			Methidathion	mg/kg	0.5	<0.5	0	-	-
			Ethion	mg/kg	0.2	1.5	0.00129300984	2	74
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.00227157492	-	-
			Total OP Pesticides*	mg/kg	1.7	7.8	0	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49171949662	-	94
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.38907454989	-	79

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE211193.001	LB209277.004	Arsenic, As	mg/kg	1	50	2	50	96
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	85
		Chromium, Cr	mg/kg	0.5	54	3.7	50	101
		Copper, Cu	mg/kg	0.5	51	2.1	50	97
		Nickel, Ni	mg/kg	0.5	49	0.6	50	97
		Lead, Pb	mg/kg	1	54	4	50	99
		Zinc, Zn	mg/kg	2	50	<2	50	97

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

APPENDIX 3 – HISTORICAL TITLE SEARCH INFORMATION

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 8/589795

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2020	12:23 PM	6	8/2/2019

LAND

LOT 8 IN DEPOSITED PLAN 589795
LOCAL GOVERNMENT AREA BYRON
PARISH OF BRUNSWICK COUNTY OF ROUS
TITLE DIAGRAM DP589795

FIRST SCHEDULE

BALANCE DESIGN CONSULTANTS LIMITED (T AP51494)

SECOND SCHEDULE (1 NOTIFICATION)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

HAZ-MARK- PRINTED ON 12/10/2020

Level 4, 122 Castlereagh Street, Sydney 2000 | DX 1078 SYDNEY | GPO Box 96, Sydney 2001
Ph: 02 92615211 Fax: 02 92647752 | R Hazlett & Co. ABN 20 104 470 340 | www.hazlett.com.au

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
12/10/2020 2:35PM

FOLIO: 8/589795

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 13354 FOL 139

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
23/8/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
13/6/1989	Y423021	DISCHARGE OF MORTGAGE	
13/6/1989	Y423022	TRANSFER	EDITION 1
20/8/1991	Z859223	MORTGAGE	EDITION 2
14/6/1994		AMENDMENT: LOCAL GOVT AREA	
7/6/1999	5883551	DISCHARGE OF MORTGAGE	
7/6/1999	5883552	TRANSFER	
7/6/1999	5883553	MORTGAGE	EDITION 3
15/7/2013	AH876864	DISCHARGE OF MORTGAGE	
15/7/2013	AH876865	MORTGAGE	EDITION 4
15/9/2018	AN713159	DEPARTMENTAL DEALING	EDITION 5 CORD ISSUED
8/2/2019	AP51493	DISCHARGE OF MORTGAGE	
8/2/2019	AP51494	TRANSFER	EDITION 6

*** END OF SEARCH ***

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13086146

CERTIFICATE OF TITLE

NEW SOUTH WALES

[redacted] PROPERTY ACT, 1900

Vol. 13086 Fol. 146

Crown Grants Vol.1894 Fol.227
Vol.4923 Fol.220

Prior Title Vol.12944 Fol.83

EDITION ISSUED

8 7 1976

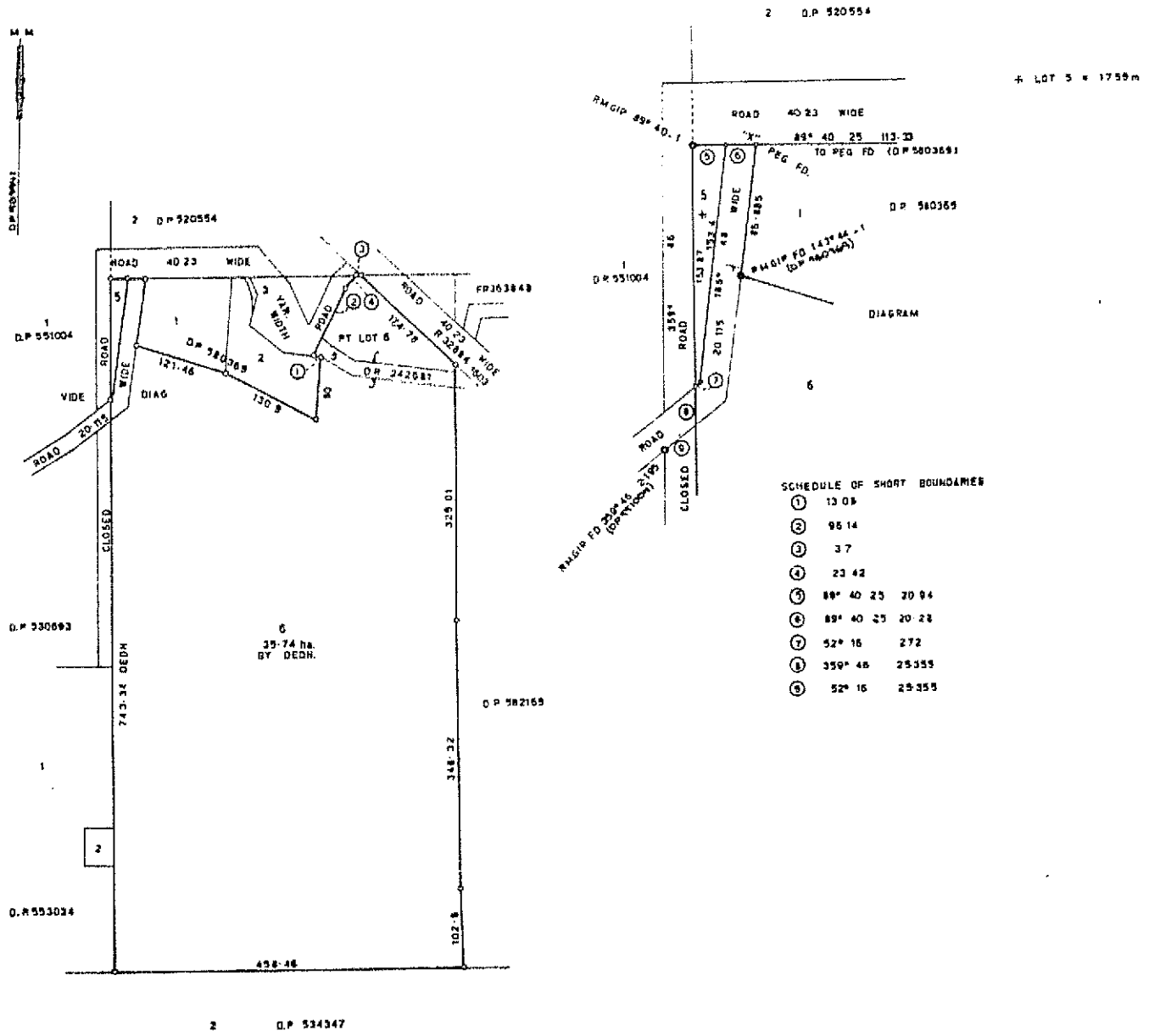
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Registrar General.

(Page 1) Vol. 13086 Fol. 146

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 6 in Deposited Plan 583941 at Mullumbimby in the Shire of Byron Parish of Brunswick and County of Rous. EXCEPTING THEREOUT the minerals reserved by the Crown Grants.

FIRST SCHEDULE

HARRY BERTIN HENDERSON of Mullumbimby, Farmer.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

Vol. 13086 Fol. 146

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Whole Title Particulars of Title have issued on 23-6-77 for lot 1 on Deposited Plan 589795 and Section Lot 7 & 8 Vol 133574 Fols 134+135 and part Lot					

NEW CERTIFICATE(S) OF TITLE ISSUING ON DP 589795
NO DEALING TO BE ENTERED WITHOUT REFERENCE TO SURVEY BUILDING BLOCK

REGISTRAR GENERAL

CT 13-6-77

DP 589795 1/5/6

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		

(Page 2 of 2 pages)

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

[redacted]ICATE OF TITLE

NEW SOUTH WALES

[redacted] PROPERTY ACT, 1900

Vol. 13354 Fol. 139

Crown Grant Vol. 1894 Fol.227

Prior Title Vol.13086 Fol.146

CANCELLED EDITION ISSUED

23 6 1977

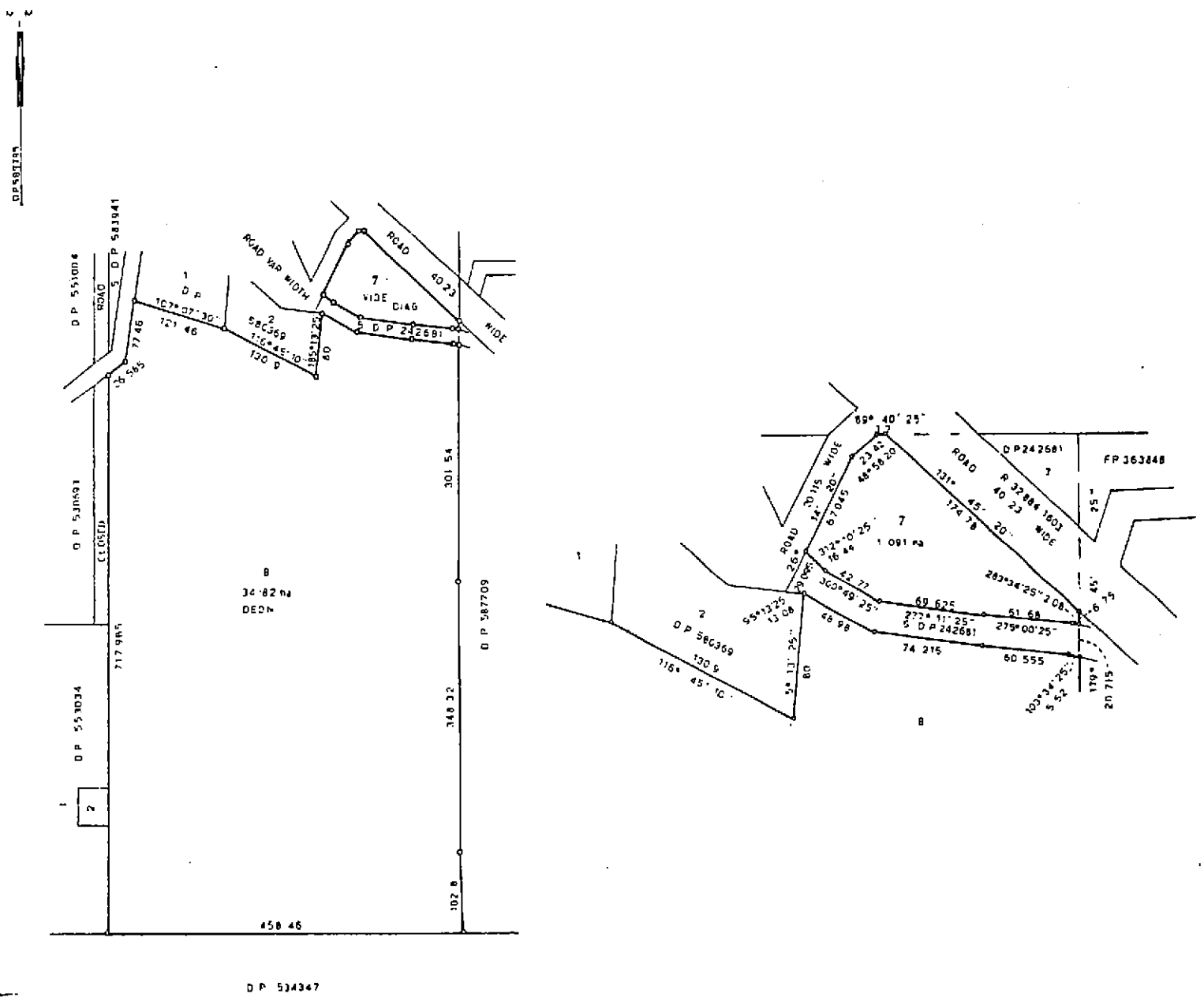
SEE AUTO FOLIO

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.

Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 8 in Deposited Plan 589795 in the Shire of Byron Parish of Brunswick and County of Rous. EXCEPTING THEREOUT the minerals reserved by the Crown Grant.

FIRST SCHEDULE

~~HARRY BERTIN HENDERSON of Mullumbimby, Farmer~~.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Vol. 13354 Fol. 139

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Alan Philip Dixon, of North Tumbulgum, Farmer and Margaret Dixon, his wife, as joint tenants~~	~~Transfer~~	~~Q264579~~	~~------~~	~~11-8-1977~~	
John Zeigler Huie of Watsons Bay, Gentleman in ½ share and Beverley Ann Yeomans of Watsons Bay, Investor in ½ share, tenancy in common	Transfer	R488725	------	23-10-1979	

SEE AUTO FOLIO

CANCELLED

Q264579 te 540 m CT 14-12-77 Q512779 R488723 - 40 - 57 - 56

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	~~Q264580~~	~~------~~	~~to Harry Bertin Henderson, of Mullumbimby, Farmer.~~	~~11-8-1977~~		Discharged	R488724	
~~Mortgage~~	~~Q512779~~	~~------~~	~~to Bank of New South Wales.~~	~~10-1-1978~~		Discharged	R488723	
Mortgage	R488726 P	------	to Bank of New South Wales	23-10-1979				

M

(Page 2 of 2 pages)

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

No. 1937/3114

State of New South Wales

[LAND GRANT]

Free.

N.S.W. DEPARTMENT 27 AP 38 U OF STAMP DUTIES

REGISTER BOOK
VOL. 4923 FOL. 220

CANCELLED R

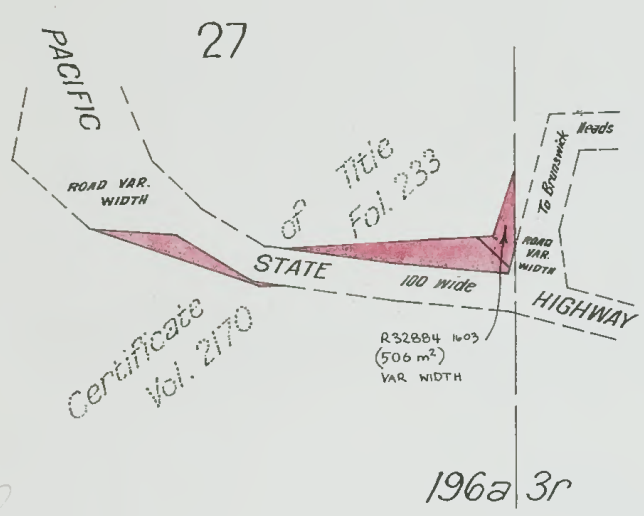
GRANT OF LAND AS COMPENSATION FOR LAND RESUMED FOR A PUBLIC ROAD.

(UNDER THE PUBLIC ROADS ACT 1902.)

GEORGE VI, by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India:—
TO ALL to whom these Presents shall come, Greeting:—

Whereas by a Notification of Resumption published in the *Gazette* on the nineteenth day of March 1937 certain Land therein mentioned was resumed under the powers conferred by the Public Roads Act 1902 from ARTHUR BERTIN HENDERSON of Mullumbimby in Our State of New South Wales Farmer who held the same in fee simple **And Whereas** it has been agreed that the Land hereinafter described shall be granted in accordance with the provisions of the said Act in fee simple to the said ARTHUR BERTIN HENDERSON in part as compensation for the Land so resumed as aforesaid **Now Know Ye** That in consideration of the premises WE for Us Our Heirs and Successors Do HEREBY GRANT unto the said ARTHUR BERTIN HENDERSON his Heirs and Assigns subject to the Reservations and Exceptions hereinafter contained ALL THAT Piece or Parcel of Land in Our said State containing by Admeasurement two roods be the same more or less situated in the County of Rous Parish of Brunswick Byron Shire

PART THEREOF Being the closed part of the road one chain wide originally reserved through portion twenty seven of one hundred and ninety six acres three roods and adjoining the South Western side of the Pacific State Highway of variable width and thence one chain wide as now surveyed AND ALSO OTHER PART THEREOF Being the closed part of the road one chain wide originally reserved through portion twenty seven aforesaid and extending from the Eastern boundary of the land comprised in Certificate of Title Volume 2170 Folio 233 in a South Westerly direction along the North Western side of the road of variable width to Brunswick Heads as now surveyed and thence in a Westerly direction along the North Eastern side of the Pacific State Highway one chain wide as now surveyed



— Total Area 2r. —
Scale 4 Chains to an Inch

As per Plan in the margin hereof With all the Rights and Appurtenances whatsoever thereto belonging **To Hold** the same unto the said ARTHUR BERTIN HENDERSON his Heirs and Assigns for ever **Provided Nevertheless** AND WE DO HEREBY RESERVE AND EXCEPT unto Us Our Heirs and Successors all minerals which the said Land contains with full power and authority for Us Our Heirs and Successors and such person or persons as shall from time to time be authorised by Us or them to enter upon the said Land and to search for mine dig and remove the said minerals **And also** all such parts and so much of the said Land as may hereafter be required for public ways viaducts canals railways tramways dams sewers or drains in over and through the same to be set out by Our Governor for the time-being of Our said State or some person by him authorised in that respect **And also** all sand clay stone gravel and indigenous timber and all other materials the natural produce of the said Land which may be required at any time hereafter for the construction and repair of any public ways bridges or canals or for naval purposes or railways and tramways or any fences embankments viaducts dams sewers or drains necessary for the same together with the right of taking and removing all such materials by such person or persons as may be authorised in that behalf by the Governor aforesaid **Provided Lastly** AND WE DO HEREBY RESERVE for Us Our Heirs and Successors and for Our Governor as aforesaid by such person or persons as shall be by Us them or him authorised in that behalf full power to make and conduct through in under upon or over the said Land or any portion thereof all public ways viaducts railways tramways canals and all common or public drains and sewers which may be deemed expedient And the right of full and free ingress egress and regress into out of and upon the said land for the several purposes aforesaid or any of them **In Testimony Whereof** We have caused this Our Grant to be Sealed with the Seal of Our said State

Witness Our Right Trusty and Well-beloved JOHN DE VERE, BARON WAKEHURST, Knight Commander of Our Most Distinguished Order of Saint Michael and Saint George, Captain in the Reserve of Officers of Our Territorial Army, Governor of Our State of New South Wales and its Dependencies in the Commonwealth of Australia, at Sydney in Our said State, this nineteenth day of April in the second year of Our Reign, and in the year of Our Lord one thousand nine hundred and thirty-eight.

Wakehurst

Governor.

SE 6040

RECORDED and ENROLLED in the Registrar General's Office, at Sydney, in New South Wales, this 27th day of April 1938.

Registrar General.

Geoffrey Arthur Henderson and Harry Berkin Henderson both of Yullumbimby, are Farmers as joint tenants now the registered proprietors of the land within described.

See Section 94 Application No. H131792

Entered 27th April 1959

REGISTRAR GENERAL

Harry Berkin Henderson both of Yullumbimby, Farmer is now the registered proprietor of the land within described.

See TRANSFER No. H131793 dated 24th December 1958.

Entered 27th April 1959.

REGISTRAR GENERAL

No. M855731 Resumption of land for Public Road Notice in Government Gazette dated 28th July 1972 Folio 3045 whereby and by operation of the Public Roads Act. of 1902 the road shown in the plan catalogued R 32884 - 1603 in the Department of Lands and shown as firm lines and notation (606 m²) - var width on the plan hereon was declared to be a Public Road.
Registered 14th December 1972.

REGISTRAR GENERAL

NEW CERTIFICATE(S) OF TITLE ISSUING ON DP580369
NO DEALING TO BE REGISTERED WITHOUT REFERENCE TO SURVEY DRAFTING BRANCH.

This deed is cancelled as to Part

New Certificates of Title have Issued on 4-12-1975

for lots in Deposited Plan No. 580369 as follows:-

Lots 1 to 4 Vol. 12944 Fol. 80-83 respectively.

REGISTRAR GENERAL

The residue of land in this folio comprises road

REGISTRAR GENERAL

H131792 TR
Pt T

M855731 (Part) N/R

DP580369
14/11/75

No. 1908 / 3230

State of New South Wales.

[LAND GRANT.] B

19.3.8

NEW SOUTH WALES One pound STAMP DUTY

REGISTER BOOK, VOL. 1894 FOL. 227

81 7481

L.P. 81 4 Murwillumbah.

CANCELLED

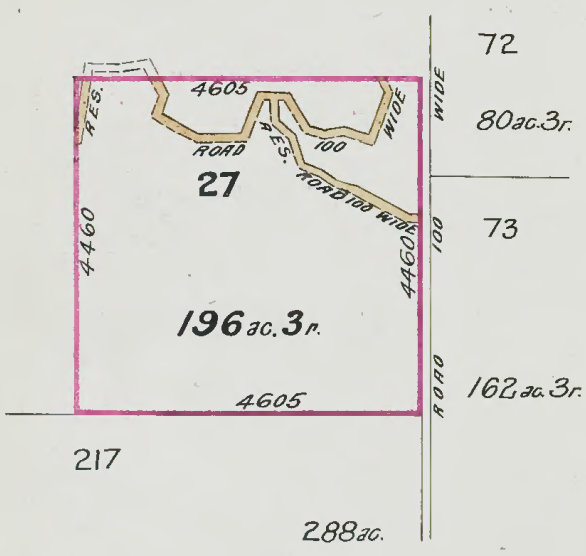
N.S.W. DEPARTMENT 28 7 1908 - X OF STAMP DUTIES

GRANT OF LAND PURCHASED BY CONDITIONAL SALE WITHOUT COMPETITION.

(UNDER THE CROWN LANDS ALIENATION ACT OF 1861.)

EDWARD VII, by the Grace of God, of the United Kingdom of Great Britain and Ireland, King, Defender of the Faith, and so forth:—
TO ALL to whom these Presents shall come, Greeting:—

WHEREAS The Bank of New South Wales hereinafter called the said Bank ~~in Our State of New South Wales~~, claims to be entitled, in respect of a purchase by Conditional Sale, without competition, under the 13th Section of the Crown Lands Alienation Act of 1861, to the Parcel of Land hereinafter described; and the declaration , as by law required, has been made, and the Minister for the time being charged with the administration of the public lands is satisfied that all things required by law to be done to entitle the said Bank to a grant of the fee simple of the said Lands, subject to the Reservations hereinafter contained, have been done and performed: **And Whereas** the sum of One hundred and ninety six pounds fifteen shillings sterling, being the purchase money payable for the said Land, has been duly paid into the Office of the Treasurer of Our said State: **Now Know Ye**, That for and in consideration of the said sum, for and on Our behalf well and truly paid into the Treasury of Our said State, before these Presents are issued, and of all and singular the premises, We, for Us, Our Heirs and Successors, Do HEREBY GRANT unto the said Bank and its ~~Heirs and~~ Assigns, subject to the several and respective Reservations hereinafter mentioned, ALL THAT piece or parcel of land in Our said State, containing by Admeasurement One hundred and ninety six acres three roods be the same more or less, situated in the County of Rous and Parish of Brunswick



Scale. 20 Chains to an Inch.

Portion 27

Commencing on the Western side of a road one chain wide at the North Eastern corner of portion two hundred and seventeen of two hundred and eighty eight acres and bounded thence on the East by that road dividing it from portions seventy three and seventy two of one hundred and sixty two acres three roods and eighty acres three roods respectively bearing North forty four chains sixty links on the North by a line bearing West forty six chains five links on the West by a line bearing South forty four chains sixty links and on the South by part of the Northern boundary of portion two hundred and seventeen aforesaid bearing East forty six chains five links to the point of commencement. Exclusively of a road one chain wide passing through this land in a South Easterly direction thence in a South Westerly direction thence generally in a Westerly direction and thence generally in a North Westerly direction again of that road in a Southerly and thence in a South Westerly direction and of a road one chain wide from that road generally in a South Easterly direction the areas of which have been deducted from the total area.

As per plan in the margin hereof: with all the Rights and Appurtenances whatsoever thereto belonging: **To Hold** unto the said Bank and its ~~Heirs and~~ Assigns for ever: Subject, nevertheless, to the several and respective Reservations hereinafter contained, that is to say: **Provided Nevertheless**, And WE DO HEREBY RESERVE unto Us, Our Heirs and Successors, all Minerals which the said Land contains, with full power and authority for Us, Our Heirs and Successors, and such person or persons as may from time to time be authorised by Us, Our Heirs and Successors, or by the Governor for the time being of Our said State, to enter upon the said Land, and to search for, mine, dig, and remove the said Minerals, with full right of ingress, egress, and regress, for the purposes aforesaid: **Provided Also**, AND WE DO HEREBY FURTHER EXCEPT AND RESERVE unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for a Public Way, or Public Ways, Canals, or Railroads, in, over, and through the same, to be set out by Our Governor for the time being of Our said State, or some person by him authorised in that respect: AND ALSO all Sand, Clay, Stone, Gravel, and Indigenous Timber, and all other Materials, the natural produce of the said Land, which may be required at any time or times hereafter by the Government of Our said State, for the construction and repair of any Public Ways, Bridges, or Canals, or for Naval Purposes, or Railroads, or any Fences, Embankments, Dams, Sewers, or Drains, necessary for the same, together with the right of taking and removing all such materials; AND ALSO the right of full and free ingress, egress, and regress, into, out of, and upon the said Land, for the several purposes aforesaid, or any of them: **In Testimony Whereof**, We have caused this Our Grant to be Sealed with the Seal of Our said State.

WITNESS Our Trusty and Well-beloved SIR HARRY HOLDSWORTH RAWSON, *Admiral in Our Royal Navy, Knight Grand Cross of Our Most Honorable Order of the Bath, Our Governor of Our State of New South Wales and its Dependencies, in the Commonwealth of Australia, at Sydney, in Our said State, this* fourth *day of* July *in the* eighth *year of Our Reign, and in the year of Our Lord One thousand nine hundred and* eight

H. Rawson

Governor.

RECORDED and ENROLLED in the Registrar General's Office, at Sydney, in New South Wales, this 29th day of July 1908.

Deputy Registrar General.

No 613354 TRANSFER DATED 9th May 1911
FROM THE within NAMED The Bank of New South Wales To William Amos Bassett of Mullumbimby, Dairy farmer OF THE LAND within DESCRIBED
PRODUCED & ENTERED 3rd July 1911
AT 4 O'CLOCK IN THE after NOON
REGISTRAR GENERAL

No 613355 TRANSFER DATED 10th May 1911
FROM THE within NAMED William Amos Bassett To Archibald Henderson Senior of Part Por 27 OF THE LAND within DESCRIBED
PRODUCED & ENTERED 3rd July 1911
AT 4 O'CLOCK IN THE after NOON
Cancelled & Certificate of Title issued Vol 2170 Fol 233
REGISTRAR GENERAL

This Deed is Cancelled and Certificate of Title issued
Vol 2213 Fol 126 for Residue
025309
Registrar General.