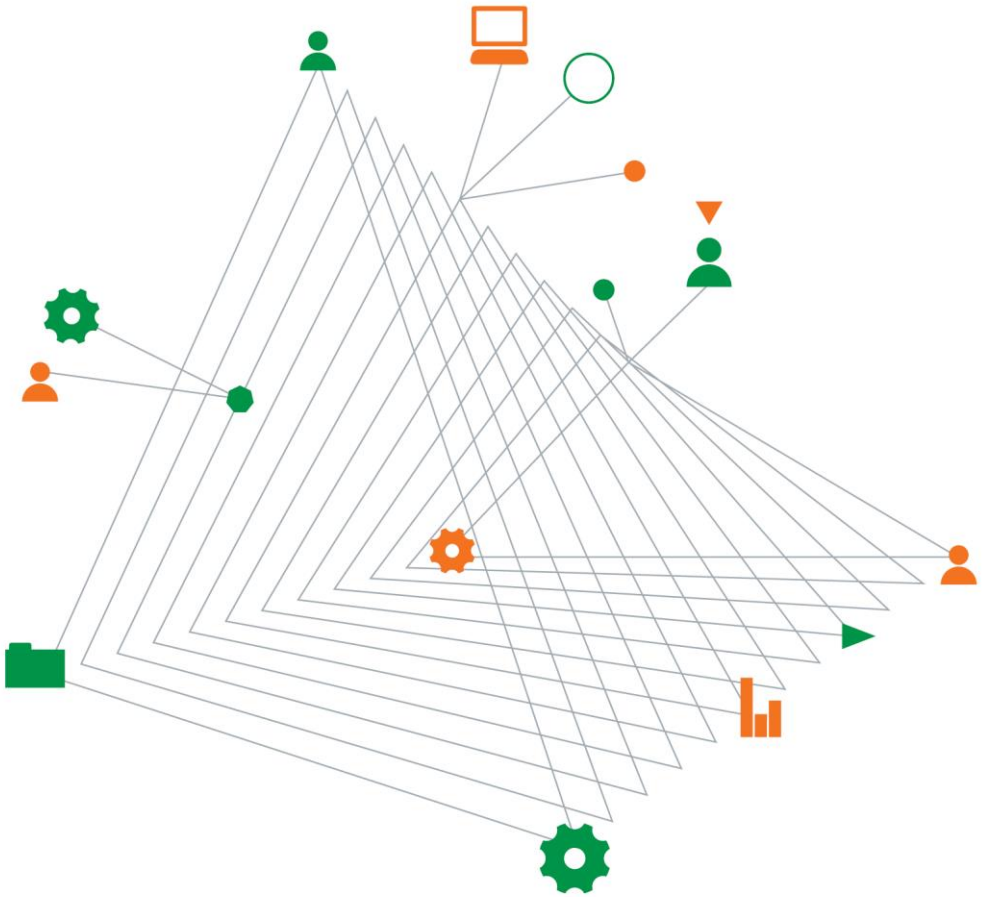
Lake Macquarie City Council

Preliminary Contamination Assessment

Lot 53 DP 1162234, Windale, NSW, 2306

8 February 2018



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Preliminary Contamination Assessment

Prepared for
Lake Macquarie City Council

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Executive summary

Lake Macquarie City Council are in the process of re-zoning Lot 53 DP 1162234 in Windale NSW 2306 (the site).The site is open space and bushland and is used as public reserve which it has been for the past approximately 45 years. A review of available information indicates that the site was cleared between 1954 and 1965 and based on the weight of evidence it is likely that some form of mining infrastructure was located on site up until early 1970s. The exact nature of the site activities from late 1880s to 1970s are unknown.

The results of the PSI carried out on the subject lot slated for rezoning by the Lake Macquarie City Council (LMCC) identified no significant chemical contamination or evidence of chemical contamination across the lot extents to be rezoned. The limited assessment of soils (four surface samples including sampling of fill materials) undertaken by Coffey shows no indication of contamination in either the fill or natural soils with the exception of the location containing the drum where TRH is elevated but not above the site assessment criteria. Given the nature of the activity, observations and limited assessment carried out at AEC's the risk of further contamination is judged to be low.

Based on the assessment undertaken and observations made, with the removal of solid waste, the site should be suitable for the proposed rezoning. Further assessments or investigation may be warranted should development works in the rezoned areas be considered.

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Appendices

Abbreviations

AEC	Area of Environmental Concern
AHD	Australian Height Datum
ASS	Acid Sulfate Soils
bgs	below ground surface
COC	Chemical of Concern
CSM	Conceptual Site Model
NSW EPA	Environmental Protection Authority of New South Wales
NSW OEH	Office of Environment and Heritage of New South Wales
PCA	Phase 1 Preliminary Contamination Assessment

1. Introduction

1.1. General

Lake Macquarie City Council (LMCC) are in the process of re-zoning Lot 53 DP 1162234 in Windale NSW 2306 (the site). The location of the site is shown on Figure 1. The site is approximately 0.5 ha and comprises a mixture of land uses including (RE1) Public Recreation, (E2) Environmental Conservation and (R2) Low Density Residential.

LMCC has requested Coffey to conduct a Preliminary Contamination Assessment (PCA) to fulfil due diligence requirements, prior to rezoning. The purpose of the investigations is to inform LMCC of identifiable potential contamination issues at the site, and their possible significance.

This report was prepared in accordance with the relevant sections of Chapter 3 in Schedule B2, Guideline on Site Characterisation, in the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM 1999 amended 2013).

1.2. Objectives

The objectives of the PCA were to:

- Identify evidence of potentially contaminating activities that may be currently occurring or has historically occurred on the site;
- Identify Areas of Environmental Concern (AEC's) and Chemicals of Potential Concern (COPC's) for the site, and develop a preliminary conceptual site model (CSM);
- Undertake a limited sampling and analysis program to initially assess the sub-surface environmental status; and
- Provide recommendations for further assessment and or management, as required.

1.3. Scope of works

In order to achieve the above objectives, the following scope of works was undertaken:

- A historical review of past activities at the site with the potential to cause contamination, including:
  - A review of published information and readily available information held in file by Coffey related to soils, geology and hydrogeology;
  - A review of previous site ownership (land titles search) for the lot comprising the site;
  - A review of selected readily available historical aerial photography imagery over the past 62 years;
  - A review of the Section 149 Planning Certificates held by Council for the lot comprising the site;
  - A review of NSW Environmental Protection Authority (EPA) notices under the Contaminated Land Management Act (1997) and a search of NSW Office of Water for records for nearby registered groundwater bores; and
  - Review and collation of the above information and identification of potential AECs and COPCs for the site.
  - A site walkover of the site to help identify AECs and potential COCs;
  - Collection and analysis of four sub-surface soil samples; and

- Preparation of this report.

2. Site description

2.1. Site location and identification

General site information is provided below in Table 1.

Table 1 - Summary of site details

Site Address	Lot 53, DP1162234, Windale, NSW 2306
Approximate Site Area	0.5 ha
Title Identification Details	Lot 53, DP1162234
Current Land Zoning	According to the Section 149 Report from the Lake Macquarie City Council, the site is zoned as: • E2 Environmental Conservation • R2 Low Density Residential • RE1 Public Recreation
Current Land use	Grassed open space
Proposed Land use	R2 Low Density Residential and E2 Environmental Conservation
Adjoining Site Uses	• North – Residential, South Street and bushland • South – Former nursey and residential • East – Pacific Highway and bushland; and • West – Low density residential
Site Coordinates	The centre of the site is located approximately at 33.00025947, 151.684405495

2.2. Site observations

A Coffey scientist visited the site on 11 January 2018. Site photographs were taken during the visit, and are shown in Appendix A.

Observations made during the site walkover included:

- The site as surrounded on two sides by high density public housing with bushland forming the eastern and southern boundaries. A small portion of the north east boundary was adjacent to the Pacific Highway;
- The site consisted of a grassed public reserve, cul-de-sac and bushland;
- The site was observed to slope to the south towards Frazer Gully and to the east towards the Pacific Highway;
- Frazer Gully was located in the southern portion of the site and observed to flow from west to east. Frazer Gully was noted to be without human modifications and overgrown with vegetation (see photo 10 in appendix A);

- Possible fill had been placed in the western portion of the site as the developed areas were raised higher than the surrounding areas;
- The bushland located in the southern portion of the site contained various household wastes discarded over several years including baby strollers and motor vehicle parts (see photos 3 & 4 in Appendix A;
- A rusted out petroleum tank (approximately 200-220L) was also observed in bushland;
- A number of sewage and electrical pits were observed across the site along with a stormwater drain in the southern portion of the site.

2.3. Site topography and drainage

Available topographic information indicates the site's topography is relatively level, with an approximate elevation of 10 m Australian Height datum (AHD).

During the site walkover carried out on 11 January 2018, the site surface appeared to be relatively flat with a slight downward slope from the west to the east. Remnant vegetation comprising the site was mainly grass and trees located within the public reserve.

Rain falling on the site is expected to infiltrate into the site soils. Excess run-off would be channelled to the onsite stormwater drains (drain located in the southern portion of the site). Stormwater draining from the site is anticipated to flow to the south towards Frazer Gully located in the southern portion of the site. Frazer Gully discharges into Croker's Creek which eventually discharges to Jewells Swamp located about 400m to the east.

2.4. Geology and soils

Reference to the 1:100,000 scale Newcastle Coalfields Regional Geology Map indicates that the site is underlain by the late Permian, Newcastle Coal Measures Subgroup consisting of sandstone, conglomerate, shale, tuff and coal (Pn). These rocks typically weather to clays, sandy clays and clayey sands.

2.5. Acid sulfate soils

Reference to the Swansea 1:25,000 Acid Sulfate Soil Risk Map indicates that the site is located in an area of no known occurrence of acid sulfate soils (ASS).

2.6. Hydrogeology

Groundwater beneath the site is anticipated be present at depths between 5 and 10 metres below ground surface (bgs). Regional groundwater flow direction is anticipated to follow the general slope of the region to the east and discharge to Frazer Gully located in the southern portion of the site. Frazer Gully discharges into Croker's Creek which eventually discharges to Jewells Swamp located about 400m to the east.

A search of the NSW Office of Water for registered groundwater bores located within a 500 m radius of the site was undertaken. The search revealed that there are zero bores registered within this radius.

3. Site history review

3.1. Information sources

A site history review was undertaken as part of the PCA, and included:

- An historical title search dating back 134 years;
- A review of aerial photography from the past 64 years;
- A review of the Section 149 Planning Certificate for the site held by Council; and
- A review of NSW EPA notices applying to the site and nearby properties.

The information provided from the above reviews is summarised in the sections below.

3.2. Historical titles search

A search of historical titles for the site was undertaken by Advanced Legal Searchers Pty Ltd. A list of past registered proprietors for the lot was obtained dating back to 1884. The results of the search are included in Appendix B and presented below in Table 2.

Table 2 - Summary of historical titles

Date	Part	Proprietor	Inferred Land Use
1884 – 1887	A & B	Margaret Croker, wife of William Croker, landholder	-
1887 – 1933	A & B	The Scottish Australian Mining Company Limited	-
1933 – 1941	A & B	The Broken Hill Proprietary Company Limited	-
1941 – 1961	A & B	Thomas Jack, fruit merchant	-
1961 – 1970	B	Ruby Irene Brown, married woman	-
1961 - 1963	A	Gladys Jane Jack, widow	-
1970 – 1974	B	Joseph Ewald Guenther Wild, and Hans Dieter Wild, masseur	-
1963 – 1975	A	Roderick Skinner McIntosh, real estate agent and Margaret Alice McIntosh, his wife	-
1975 – 1988	A	The Housing Commission of New South Wales	Government
1974 – 1988	B	The Housing Commission of New South Wales	Government
1988 – to date	A & B	New South Wales Land and Housing Corporation	Government

The historical titles search indicated that the site was owned by a mix of private and commercial owners from 1884 to 1975. From late 1880s to the early 1940s the site was under the control of mining companies and may have been part of a larger mine lease. From 1974 to date the site has been owned by the NSW state government.

3.3. Aerial photograph review

Aerial photographs of the site were purchased from Lotsearch Pty Limited and assessed by a Coffey Environmental Scientist. The results of the aerial photograph review are summarised below in Table 3. The aerial photographs are presented in Appendix C.

Table 3 - Aerial photograph review

Date	Site	Surrounding Land
1954	The site has been partially cleared with two structures evident, one in the north east corner and another in the middle of the site The remainder of the site is covered in trees.	Medium density houses are present to the north west of the site. Some low density houses are present to the south and north east of the site. The Pacific Highway has been constructed. The remainder of the surrounding areas is open bushland.
1965	The southern portion of the site has been cleared of trees. Access track has been made to the middle structure from the Pacific Highway and an access track has been made to the south.	Significant development has occurred to the west with high density houses added and commercial properties added north east and south of the site. Duplication of the Pacific Highway has begun to the east of the site. Windale sporting fields have been constructed to the north of the site. South Street has been extended along the northern boundary of the site to join up with the Pacific Highway.
1976	The structures have been removed and the site appears to be unused.	A commercial development has been completed to the south west of the site. Commercial properties have been added to the north east of the site.
1984	The site appears to be largely unchanged since 1976.	The present day public housing has been constructed directly to the west of the site. The surrounding areas remain relatively unchanged to the previous aerial.
1993	There appears to be more vegetation in the southern portions with the north being largely unchanged since 1984	The surrounding areas remain relatively unchanged to the previous aerial.
2004	More vegetation has grown in the north of the site and the south appears to be largely unchanged since 1993	The surrounding areas remain relatively unchanged to the previous aerial.
2018	Vegetation covers a large portion of the site in both the north and south.	The commercial property to the south west of the site has been demolished in preparation for a medium density residential development. The nursey directly to the south of the site has also been decommissioned. The Bennett's Green commercial/industrial development has been extended.

3.4. Section 149 planning certificate

A copy of the Section 149 Certificates for the site were obtained from Lake Macquarie City Council with copies of the certificates provided in Appendix D. Table 4 (below) summarises the information contained within the certificate.

Table 4 - Information from section 149 planning certificate

Zoning	Critical Habitats	Conservation Areas	Hazard Risk Restrictions	Mine Subsidence Issues	Flooding Issues
E2 Environmental Conservation R2 Low Density Residential RE1 Public Recreation	None	None	Bushfire, Acid Sulfate Soils Landslip/subsidence Flood Risk	The land is within a proclaimed mine subsidence district under the Mine Subsidence Compensation Act 1961.	Development on this land or part of the land for any other purpose is subject to flood related development controls

In relation to matters arising under the Contaminated Land Management (CLM) Act 1997, there are no prescribed matters noted.

3.5. NSW EPA records

A search of the NSW EPA database revealed that there are eight properties registered within the Lake Macquarie City Council Local Government Area as having current and/or former notices. Table 5 (below) summarises the information contained on the EPA website.

Table 5: Summary of NSW EPA Listed Contaminated Sites

Address	Use	Location from site
Off Creek Reserve Road, Boolaroo	Cockle Creek and Cockle Bay Sediments	8 kms north west
13 Main Street, Boolaroo	Incitec Pivot	8 kms north west
Lake Road, Boolaroo	Pasminco Cockle Creek Smelter	8 kms north west
81 Pacific Highway, Charlestown	Caltex Service Station	4 kms north
91-93 Pacific Highway, Charlestown	Caltex Woolworths	4 kms north
555-565 Pacific Highway, Crangan Bay	Big T Road House	20 kms south
770-772 Pacific Highway Marks Point	Former Mobil Service Station (now 7-Eleven)	8.5 kms south
21 Racecourse Road, Teralba	Scrap Metal Yard	8.5 kms west

Based on the distances from the site of the eight properties listed, it is considered unlikely that contamination on these properties would pose a risk to the site.

3.6. Summary of site history

The information obtained from the site history has been summarised below:

- The site was part of mining lease from the late 1880s to the early 1940s.
- Partial clearing and use of the site was probably related to mining activities and ceased in sometime in the late 1960s early 1970s;
- Since 1975, the site has remained vacant until the present day;
- Planning certificates and databases maintained by the NSW EPA indicate that that the site and land immediately surrounding the site has not been subject to notices issued under the Contaminated Land Management Act 1997.

3.7. Gaps in the site history

The following information sources were referred to for this assessment:

- NSW EPA;
- Planning certificate provided by LMCC;
- Historical land titles search conducted between 1884 and 2018;
- Aerial photographs and Google Earth images provided for the period between 1954 and 2016; and
- Observations made in the field during the site walkover.

The use of the site when owned by the mining companies is unknown but based on the weight of evidence it is likely that some form of mining infrastructure was located on site up until early 1970s. The exact nature of the site activities from late 1880s to 1970s are unknown.

The observations made during the site walkover were generally consistent with the recent aerial photographs.

The period between aerial photographs reviewed ranged between one and 11 years. It is considered however that major land use changes have been encapsulated in the review of aerial photographs and this is not considered to be a significant data gap.

Planning certificates supplied by LMCC were consistent with those provided within public registers maintained by the NSW EPA with regard to notices and orders issued under the Contaminated Land Management Act 1997.

The origin and quality of fill present on site is not known.

4. Preliminary conceptual site model

Based on the site history review and site walkover, a preliminary conceptual site model (CSM) has been developed.

4.1. Potential areas and chemicals of environmental concern

Table 6 (below) shows the AECs and associated COCs identified.

Table 6 - Potential areas and chemicals of environmental concern

AEC	Potentially Contaminating Activity	Potential COCs	Likelihood of Contamination*	Comments
1 (Entire Site)	Potentially impacted fill of unknown origin	Heavy metals, TRH, BTEX, PAH, OCP, OPP	Low to medium	Fill material is present across the site.
2 (Localised storage container)	Leakage of petroleum from drum	TRH, BTEX,	Low to Medium	Petroleum drum found within vegetation.
Previous use as a mine or mine related activity	Impact from hazardous building materials (asbestos and lead), possible leaks of oil and fuel	Heavy metals TRH BTEX PAH, and asbestos	Low	Previous Ownership by mining companies and unexplained activities up till early 1970s

*Notes: * = This is a qualitative assessment of the probability of contamination being detected at the potential AEC. Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc; BTEX - Benzene, Toluene, Ethylbenzene and Xylenes; TRH - Total Recoverable Hydrocarbons; PAH - Polycyclic Aromatic Hydrocarbons; OCP - Organochlorine Pesticides; OPP - Organophosphorous Pesticides; PCB - Polychlorinated Biphenyls; VOC - Volatile Organic Compounds; SVOC - Semi-volatile Organic Compounds*

4.2. Potentially affected media, receptors and transport mechanisms

Table 7 summarised the potentially affected media, key potential receptors and transport mechanisms.

Table 7 - Summary of potentially affected media, key receptors and transport mechanisms

Consideration	Information
Potentially Affected Media	Shallow soil – fill material and upper layers of natural residual soil.

Potential Transport Mechanisms & Exposure Pathways	Dermal contact with contaminated soil Ingestion of contaminated soil Vapour/gas inhalation Inhalation of airborne dusts and fibres Infiltration and leaching generation from unsaturated soils Lateral and vertical groundwater migration
Potential Receptors of Contamination	***Construction/maintenance workers*** Potential exposure via direct vapour inhalation Potential exposure via dermal contact with soil and ingestion of soil. Potential exposure via secondary inhalation of airborne dusts. ***Future Site Users*** Potential exposure via dermal contact, and ingestion/inhalation of soil and dust. Contact with groundwater is considered unlikely for the proposed site user given potable water will be supplied by reticulated water supply. ***Groundwater*** Contaminants could leach from soils into groundwater. ***Surface Water – Frazer Gully*** Lateral transport of groundwater and discharge at the nearest surface water receptor – Frazer Gully

4.3. Potential and complete exposure pathways

Table 8 summarises the identified key potential exposure pathways.

Table 8 - Key potential exposure pathways

Receptor	Exposure Pathway	Comment
Construction/ Maintenance Workers	Complete	There is a potential for workers conducting subsurface works to be exposed to soils containing potential contaminants via dermal contact, ingestion and inhalation pathways.
Future site users	Complete	There is a potential for future site users to be exposed to soils containing potential contaminants via dermal contact, ingestion and inhalation pathways.
Groundwater	Partially complete	Given the shallow depth to groundwater which is approximately is 5 to 10mbgs, the path may be complete (a full soil profile was not completed)
Surface Water	Complete	Given the slope of the site and the potential for run off to Frazer Gully, which runs through the southern portion of the site, a complete exposure pathway exists

5. Fieldwork and laboratory testing

Fieldwork activities were undertaken at the site on 11 January 2018 and 5 February 2018 to further assess the identified plausible potentially complete exposure pathways set out in Table 7. Sampling was to be completed if any AECs were identified on the site. A rusted diesel drum was found discarded in vegetation and a surface soil sample (0.0-0.1mbgs) LMCC-W1 was collected from beside the drum. Three surface samples were collected on the 5 February 2018 with two samples, LMCC-W2 and LMCC-W3 collected to assess the potential fill and LMCC-W4 to assess the impact of a former housing structure.

5.1. Scope of works

The following scope of works was undertaken:

- One surface sample (LMCC-W1) was collected in an area where a rusted steel oil drum was located;
- Two surface samples (LMCC-W2 and LMCC-W3) were collected to assess possible fill in the areas to be rezoned;
- One surface sample (LMCC-W4) was collected to assess the potential impact of the former house located in the vicinity of Frazer Gully;
- Visual and olfactory observations were noted on the field screening sheets. Soil samples were collected using a fresh pair of disposable nitrile gloves to prevent cross contamination. Soil samples were placed in clean, laboratory-supplied acid washed glass jars and stored on ice and in a cooler while on-site and in transit to the analytical laboratories; and
- The soil samples wer submitted selectively for laboratory analysis for identified COPC's including heavy metals, TRH, BTEX, PAHs, OCPs and heavy metals including (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury. Nickel and Zinc.

6. Investigation levels

The screening criteria have been derived on the basis of conservative assumptions relating to land use, receptor behaviour, site, building and soil characteristics.

Soil analytical results have been compared against ASC NEPM (2013) health investigation levels (HILs) HIL-A & B 'Residential' based on assumptions regarding exposure settings related to non-sensitive land use.

Discussion of results has also been related to the ASC NEPM (2013) Health Screening Levels (HSLs) (derived from CRC CARE HSLs (CRC CARE, 2011)) for vapour intrusion for further evaluation of potential risks to human health resulting from intrusion of hydrocarbon vapours emanating from soil impacts at the site. HSLs have been adopted based on the potential receptors, subsurface lithology and depth of impacts to soil.

To facilitate screening against HILs and HSLs relevant to the site, the following have been included in the soil analytical data table (Table 1):

- ASC NEPM (2013) Health Investigation Levels, HIL- A and B, Residential;
- ASC NEPM (2013) Soil HSLs for Vapour Intrusion, HSL- A/B Residential, Sand, 0 to <1m;

The soil screening assessment criteria are for comparative purposes only and should not be regarded as "clean-up" levels.

7. Investigation results

7.1. Sub surface conditions

Soil encountered at the surface soil location consisted primarily of gravelly sand fill material in the upper 0 – 0.1m bgs and brown in colour. No staining was observed in any of the samples taken.

7.2. Analytical results

7.2.1. Quality assurance/ quality control

In order to assess field quality assurance / quality control (QA/QC) procedures, one duplicate sample (QC1) was collected and analysed with primary sample LMCC-W1. The results of the field duplicate sampling are presented in Table LR2 (attached). The results of the field duplicate sampling indicated that Relative Percentage Differences (RPD's) were recorded below the relevant acceptance limit criteria with the exception of lead, zinc and a number of TRH fractions. The RPD exceedances are likely attributed to the distribution of the contaminants within the fill material and are not considered to affect the usability of the results. The variability observed in some samples is not considered to substantially affect the conclusions of this assessment, as concentrations were within expected ranges.

The laboratory conducted internal quality control using laboratory duplicates, spikes and method blanks. The laboratory internal quality control showed duplicates within laboratory acceptable limits. The method blank results were recorded below the laboratory limit of reporting, and spike recoveries within control limits. Based on the review of the QA/QC data, it is considered that the soil results are likely to be representative of conditions at the sampling locations at the time of sampling and are suitable for use in this waste classification assessment.

7.2.2. Analytical laboratories

Samples were forwarded to Eurofins MGT Environmental Testing Australia Pty Ltd (Eurofins); National Association of Testing Authority (NATA) accredited for all analyses requested.

7.2.3. Soil analytical results

Soil analytical results and comparisons to the screening assessment criteria are presented in Table LR1. Laboratory certificates of analysis and chain of custody (COC) documentation with analysis requests are provided in Appendix E. Concentrations of COPC's, in each sample tested, were measured below the relevant NEPM 2013 HIL A & B /HSL A/B Residential Guidelines.

8. Conclusions and recommendations

The results of the PSI carried out on the subject lot slated for rezoning by the Lake Macquarie City Council (LMCC) identified no significant chemical contamination or evidence of chemical contamination across the lot extents to be rezoned. The limited assessment of soils (four surface sample including sampling of fill materials) undertaken by Coffey shows no indication of contamination in either the fill or natural soils with the exception of the location containing the drum where TRH is elevated but not above the site assessment criteria. Given the nature of the activity, observations and limited assessment carried out, the risk of further contamination is judged to be low.

There does remain some uncertainty associated with the extent and quality of fill across the site as we did not employ a sample density that met the NSW sampling guidelines (more typically utilised in a Detailed Site Assessment). Based on the observations made within the areas identified for rezoning and the limited sampling conducted, the site should be suitable for the proposed rezoning. Further assessments or investigation may be warranted should development works in the rezoned areas be considered.

This report must be read in conjunction with the attached “Important Information about your Coffey Environmental Report”.

9. Limitations

In preparing this report, current guidelines for assessment and management of contaminated land were followed. This work has been conducted in good faith in accordance with Coffey's understanding of the client's brief and general accepted practice for environmental consulting.

This report was prepared for Lake Macquarie City Council, with the objectives of identifying potentially contaminating activities that are currently being performed on the site and that may have been performed on the site in the past, assessing Areas of Environmental Concern (AECs) and Chemicals of Potential Concern (COPCs) for the site, and providing recommendations for further assessment and or management (if required). No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

This report does not provide information or recommendations related to mine subsidence or geotechnical interpretation.

10. References

Advanced Legal Searchers Pty Ltd (2018) Historical Titles Search for Lot 53 DP 1662234, Windale, NSW, 2306.

Lot Search Pty Ltd (2018) Aerial Photography for Lot 53 DP 1662234, Windale, NSW, 2306 (1954, 1965, 1976, 1984, 1993, 2004, 2018).

Department of Mineral Resources (1995) Newcastle Coalfield Regional 1:100 000 Geology Map, Edition 1, Map Number 9231 and part of 9131, 9132 and 9232..

Lake Macquarie City Council (2018) Section 149 Planning Certificate, Lot 53 DP 1662234, Windale, NSW, 2306 dated 25 January 2018.

Land and Property Information (2001) 1:25,000 Topographic Map, Edition 3.

NSW Office of Water (2018) Groundwater Bore Search, accessed from http://allwaterdata.water.nsw.gov.au/water.stm

NSW EPA (2018) Register of Contaminated Sites: Windale Local Government Area, accessed from http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx

NSW OEH (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites, OEH 2011/0650, ISBN 0 7310 3892 4, Office of Environment and Heritage, Sydney.

Important information about your Coffey Environmental Report

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but

steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

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Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

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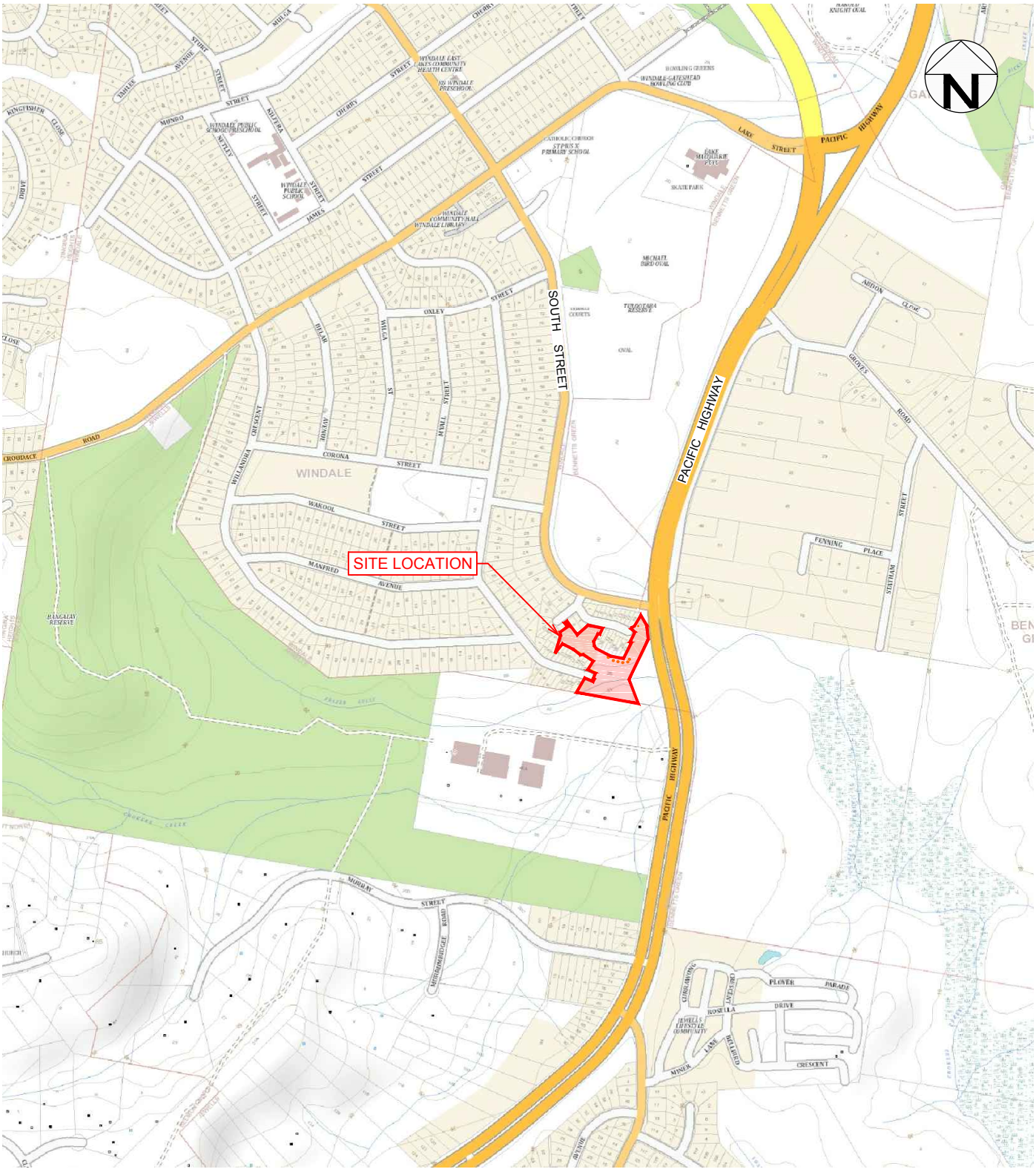
Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

Figures



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Scale (metres) 1:10000

drawn	SB / AW
approved	-
date	9 / 02 / 18
scale	AS SHOWN
original size	A4

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client: LAKE MACQUARIE CITY COUNCIL (LMCC)

project: PHASE 1 CONTAMINATION ASSESSMENT
CNR OF SOUTH STREET & PACIFIC HIGHWAY
WINDALE, NSW

title: SITE LOCATION PLAN

project no: 754-NTLEN213403-AA | figure no: FIGURE 1 | rev: A

PLOT DATE: 9/02/2018 2:29:54 PM DWG FILE: F:\1. PROJECTS\1. SYDENEN\VOTHER OFFICES\NTL-EN\NTLEN213403\CAD\754-NTLEN213403-AA.DWG

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

10 0 10 30 50

Scale (metres) 1:1000

drawn	SB / AW
approved	-
date	9 / 02 / 18
scale	AS SHOWN
original size	A3

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client: LAKE MACQUARIE CITY COUNCIL (LMCC)

project: PHASE 1 CONTAMINATION ASSESSMENT
CNR OF SOUTH STREET & PACIFIC HIGHWAY
WINDALE, NSW

title: SITE FEATURES PLAN

project no: 754-NTLEN213403-AA | figure no: FIGURE 2 | rev: A

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Tables

Table LR01 - Analytical Results
NTLEN213403
Lake Macquarie City Council Windale

						Sample ID	LMCC-W1	LMCC-W2	LMCC-W3	LMCC-W4
						Sample date	11/01/2018	5/02/2018	5/02/2018	5/02/2018
Anaylytes		**Units**	**EQL**	NEPM 2013 HILs Residential A Soil	NEPM 2013 HILs Residential B Soil	NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion 0 to <1m, Sand				
BTEX	Benzene	mg/kg	0.1			0.5	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1			55	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1			160	<0.1	<0.1	<0.1	<0.1
	Xylene (m & p)	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2
	Xylene (o)	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1
	Xylene Total	mg/kg	0.3			40	<0.3	<0.3	<0.3	<0.3
	C6-C10 less BTEX (F1)	mg/kg	20			45	<20	<20	<20	<20
Halogenated Phenols	tetrachlorophenols	mg/kg	1				<1	<1	<1	<1
Metals	Arsenic	mg/kg	2	100	500		2	2.9	4.2	4.2
	Cadmium	mg/kg	0.4	20	150		<0.4	0.6	<0.4	<0.4
	Chromium	mg/kg	5				<5	18	9.7	<5
	Copper	mg/kg	5	6000	30000		7.2	12	5.9	7.7
	Lead	mg/kg	5	300	1200		26	29	16	31
	Mercury	mg/kg	0.1	40	120		<0.1	<0.1	<0.1	<0.1
	Nickel	mg/kg	5	400	1200		<5	15	5.8	<5
	Zinc	mg/kg	5	7400	60000		56	74	42	94
OCP	4,4-DDE	mg/kg	0.05				<0.05	-	-	-
	a-BHC	mg/kg	0.05				<0.05	-	-	-
	Aldrin	mg/kg	0.05				<0.05	-	-	-
	Aldrin + Dieldrin	mg/kg	0.05	6	10		<0.05	-	-	-
	b-BHC	mg/kg	0.05				<0.05	-	-	-
	Chlordane	mg/kg	0.1	50	90		<0.1	-	-	-
	d-BHC	mg/kg	0.05				<0.05	-	-	-
	DDD	mg/kg	0.05				<0.05	-	-	-
	DDT	mg/kg	0.05				<0.05	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	240	600		<0.05	-	-	-
	Dieldrin	mg/kg	0.05				<0.05	-	-	-
	Endosulfan I	mg/kg	0.05				<0.05	-	-	-
	Endosulfan II	mg/kg	0.05				<0.05	-	-	-
	Endosulfan sulphate	mg/kg	0.05				<0.05	-	-	-
	Endrin	mg/kg	0.05	10	20		<0.05	-	-	-
	Endrin aldehyde	mg/kg	0.05				<0.05	-	-	-
	Endrin ketone	mg/kg	0.05				<0.05	-	-	-
	g-BHC (Lindane)	mg/kg	0.05				<0.05	-	-	-
	Heptachlor	mg/kg	0.05	6	10		<0.05	-	-	-
	Heptachlor epoxide	mg/kg	0.05				<0.05	-	-	-
	Hexachlorobenzene	mg/kg	0.05	10	15		<0.05	-	-	-
	Methoxychlor	mg/kg	0.05	300	500		<0.05	-	-	-
	Toxaphene	mg/kg	1	20	30		<1	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.1				<0.1	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.1				<0.1	-	-	-
OPP	Azinophos methyl	mg/kg	0.2				<0.2	-	-	-
	Bolstar (Sulprofos)	mg/kg	0.2				<0.2	-	-	-
	Chlorfenvinphos	mg/kg	0.2				<0.2	-	-	-
	Chlorpyrifos	mg/kg	0.2	160	340		<0.2	-	-	-
	Chlorpyrifos-methyl	mg/kg	0.2				<0.2	-	-	-
	Coumaphos	mg/kg	2				<2	-	-	-
	Demeton-O	mg/kg	0.2				<0.2	-	-	-
	Demeton-S	mg/kg	0.2				<0.2	-	-	-
	Diazinon	mg/kg	0.2				<0.2	-	-	-
	Dichlorvos	mg/kg	0.2				<0.2	-	-	-
	Dimethoate	mg/kg	0.2				<0.2	-	-	-
	Disulfoton	mg/kg	0.2				<0.2	-	-	-
	Ethion	mg/kg	0.2				<0.2	-	-	-
	Ethoprop	mg/kg	0.2				<0.2	-	-	-
	Fenitrothion	mg/kg	0.2				<0.2	-	-	-
	Fensulfothion	mg/kg	0.2				<0.2	-	-	-
	Fenthion	mg/kg	0.2				<0.2	-	-	-
	Malathion	mg/kg	0.2				<0.2	-	-	-
	Merphos	mg/kg	0.2				<0.2	-	-	-
	Methyl parathion	mg/kg	0.2				<0.2	-	-	-
	Mevinphos (Phosdrin)	mg/kg	0.2				<0.2	-	-	-
	Monocrotophos	mg/kg	2				<2	-	-	-
	Naled (Dibrom)	mg/kg	0.2				<0.2	-	-	-
	Omethoate	mg/kg	2				<2	-	-	-
	Parathion	mg/kg	0.2				<0.2	-	-	-
	Phorate	mg/kg	0.2				<0.2	-	-	-
	Pyrazophos	mg/kg	0.2				<0.2	-	-	-
	Ronnel	mg/kg	0.2				<0.2	-	-	-
	Terbufos	mg/kg	0.2				<0.2	-	-	-
	Trichloronate	mg/kg	0.2				<0.2	-	-	-
	Tetrachlorvinphos	mg/kg	0.2				<0.2	-	-	-
	Tokuthion	mg/kg	0.2				<0.2	-	-	-
PAH	Acenaphthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Benzo(a)anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5				0.6	0.6	0.6	0.6
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5				1.2	1.2	1.2	1.2
	Benzo(g,h,i)perylene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5			3	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5

Table LR01 - Analytical Results
NTLEN213403
Lake Macquarie City Council Windale

	Pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	Total PAHs	mg/kg	0.5	300	400		<0.5	<0.5	<0.5	<0.5
Pesticides	Pirimiphos-methyl	mg/kg	0.2				<0.2	-	-	-
Phenol	2,4,5-trichlorophenol	mg/kg	1				<1	<1	<1	<1
	2,4,6-trichlorophenol	mg/kg	1				<1	<1	<1	<1
	2,4-dichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	2,4-dinitrophenol	mg/kg	5				<5	<5	<5	<5
	2,6-dichlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	2-chlorophenol	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5
	2-methylphenol	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2
	2-nitrophenol	mg/kg	1				<1	<1	<1	<1
	3-&4-methylphenol	mg/kg	0.4				<0.4	<0.4	<0.4	<0.4
	4,6-Dinitro-2-methylphenol	mg/kg	5				<5	<5	<5	<5
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20				<20	<20	<20	<20
	4-chloro-3-methylphenol	mg/kg	1				<1	<1	<1	<1
	4-nitrophenol	mg/kg	5				<5	<5	<5	<5
	Dinoseb	mg/kg	20				<20	<20	<20	<20
	Pentachlorophenol	mg/kg	1	100	130		<1	<1	<1	<1
	Phenol	mg/kg	0.5	3000	45000		<0.5	<0.5	<0.5	<0.5
	Phenols (Total Halogenated)	mg/kg	1				<1	<1	<1	<1
	Phenols (Total Non Halogenated)	mg/kg	20				<20	<20	<20	<20
SVOCs	EPN	mg/kg	0.2				<0.2	-	-	-
TPH	F2-NAPHTHALENE	mg/kg	50			110	71	<50	<50	<50
	C6 - C9	mg/kg	20				<20	<20	<20	<20
	C10 - C14	mg/kg	20				70	<20	<20	<20
	C15 - C28	mg/kg	50				540	100	150	<50
	C29 - C36	mg/kg	50				1200	100	130	92
	C10 - C36 (Sum of total)	mg/kg	50				1810	200	280	92
	C10-C16	mg/kg	50				71	<50	<50	<50
	C16-C34	mg/kg	100				1400	120	210	100
	C34-C40	mg/kg	100				480	<100	<100	<100
	C6 - C10	mg/kg	20				<20	<20	<20	<20

Result	Exceeds NEPM 2013 HILs Residential A Soil guidelines
Result	Exceeds NEPM 2013 HILs Residential B Soil guidelines
Result	Exceeds NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion 0 to <1m, Sand guidelines

Table LR02 - QA QC NTLEN213403 Lake Macquarie City Council Windale

Sample ID	LMCC-W1	QC1	RPD
Sample date	11/01/2018	11/01/2018	

Analytes		Units	EQL			
BTEX	Benzene	mg/kg	0.1	<0.1	<0.1	0
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	0
	Toluene	mg/kg	0.1	<0.1	<0.1	0
	Xylene (m & p)	mg/kg	0.2	<0.2	<0.2	0
	Xylene (o)	mg/kg	0.1	<0.1	<0.1	0
	Xylene Total	mg/kg	0.3	<0.3	<0.3	0
	C6-C10 less BTEX (F1)	mg/kg	20	<20.0	<20.0	0
Halogenated Phenols	tetrachlorophenols	mg/kg	1	<1.0	<1.0	0
Metals	Arsenic	mg/kg	2	**2.0**	**2.8**	**33**
	Cadmium	mg/kg	0.4	<0.4	0.5	22
	Chromium	mg/kg	5	<5.0	5.1	2
	Copper	mg/kg	5	**7.2**	**12.0**	**50**
	Lead	mg/kg	5	**26.0**	**37.0**	**35**
	Mercury	mg/kg	0.1	<0.1	<0.1	0
	Nickel	mg/kg	5	<5.0	<5.0	0
	Zinc	mg/kg	5	**56.0**	**91.0**	**48**
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0
	a-BHC	mg/kg	0.05	<0.05	<0.05	0
	Aldrin	mg/kg	0.05	<0.05	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0
	Chlordane	mg/kg	0.1	<0.1	<0.1	0
	d-BHC	mg/kg	0.05	<0.05	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0
	DDT	mg/kg	0.05	<0.05	<0.05	0
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	0
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	0
	Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	0
	Endrin	mg/kg	0.05	<0.05	<0.05	0
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0
	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0
	Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	0
	Methoxychlor	mg/kg	0.05	<0.05	<0.05	0
	Toxaphene	mg/kg	1	<1.0	<1.0	0
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.1	<0.1	<0.1	0
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.1	<0.1	<0.1	0
OPP	Azinophos methyl	mg/kg	0.2	<0.2	<0.2	0
	Bolstar (Sulprofos)	mg/kg	0.2	<0.2	<0.2	0
	Chlorfenvinphos	mg/kg	0.2	<0.2	<0.2	0
	Chlorpyrifos	mg/kg	0.2	<0.2	<0.2	0
	Chlorpyrifos-methyl	mg/kg	0.2	<0.2	<0.2	0
	Coumaphos	mg/kg	2	<2.0	<2.0	0
	Demeton-O	mg/kg	0.2	<0.2	<0.2	0
	Demeton-S	mg/kg	0.2	<0.2	<0.2	0
	Diazinon	mg/kg	0.2	<0.2	<0.2	0
	Dichlorvos	mg/kg	0.2	<0.2	<0.2	0
	Dimethoate	mg/kg	0.2	<0.2	<0.2	0
	Disulfoton	mg/kg	0.2	<0.2	<0.2	0
	Ethion	mg/kg	0.2	<0.2	<0.2	0
	Ethoprop	mg/kg	0.2	<0.2	<0.2	0
	Fenitrothion	mg/kg	0.2	<0.2	<0.2	0
	Fensulfothion	mg/kg	0.2	<0.2	<0.2	0
	Fenthion	mg/kg	0.2	<0.2	<0.2	0
	Malathion	mg/kg	0.2	<0.2	<0.2	0
	Merphos	mg/kg	0.2	<0.2	<0.2	0
	Methyl parathion	mg/kg	0.2	<0.2	<0.2	0
	Mevinphos (Phosdrin)	mg/kg	0.2	<0.2	<0.2	0
	Monocrotophos	mg/kg	2	<2.0	<2.0	0
	Naled (Dibrom)	mg/kg	0.2	<0.2	<0.2	0
	Omethoate	mg/kg	2	<2.0	<2.0	0
	Parathion	mg/kg	0.2	<0.2	<0.2	0
	Phorate	mg/kg	0.2	<0.2	<0.2	0
	Pyrazophos	mg/kg	0.2	<0.2	<0.2	0
	Ronnel	mg/kg	0.2	<0.2	<0.2	0

	Terbufos	mg/kg	0.2	<0.2	<0.2	0
	Trichloronate	mg/kg	0.2	<0.2	<0.2	0
	Tetrachlorvinphos	mg/kg	0.2	<0.2	<0.2	0
	Tokuthion	mg/kg	0.2	<0.2	<0.2	0
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)anthracene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	0.6	0.6	0
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	1.2	1.2	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0
	Benzo[b+j]fluoranthene	mg/kg	0.5	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0
	Total PAHs	mg/kg	0.5	<0.5	<0.5	0
Pesticides	Pirimiphos-methyl	mg/kg	0.2	<0.2	<0.2	0
Phenol	2,4,5-trichlorophenol	mg/kg	1	<1.0	<1.0	0
	2,4,6-trichlorophenol	mg/kg	1	<1.0	<1.0	0
	2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0
	2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	0
	2,4-dinitrophenol	mg/kg	5	<5.0	<5.0	0
	2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	0
	2-chlorophenol	mg/kg	0.5	<0.5	<0.5	0
	2-methylphenol	mg/kg	0.2	<0.2	<0.2	0
	2-nitrophenol	mg/kg	1	<1.0	<1.0	0
	3-&4-methylphenol	mg/kg	0.4	<0.4	<0.4	0
	4,6-Dinitro-2-methylphenol	mg/kg	5	<5.0	<5.0	0
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	<20.0	<20.0	0
	4-chloro-3-methylphenol	mg/kg	1	<1.0	<1.0	0
	4-nitrophenol	mg/kg	5	<5.0	<5.0	0
	Dinoseb	mg/kg	20	<20.0	<20.0	0
	Pentachlorophenol	mg/kg	1	<1.0	<1.0	0
	Phenol	mg/kg	0.5	<0.5	<0.5	0
	Phenols (Total Halogenated)	mg/kg	1	<1.0	<1.0	0
	Phenols (Total Non Halogenated)	mg/kg	20	<20.0	<20.0	0
SVOCs	EPN	mg/kg	0.2	<0.2	<0.2	0
TPH	F2-NAPHTHALENE	mg/kg	50	**71.0**	**94.0**	**28**
	C6 - C9	mg/kg	20	<20.0	<20.0	0
	C10 - C14	mg/kg	20	**70.0**	**54.0**	**26**
	C15 - C28	mg/kg	50	540.0	590.0	9
	C29 - C36	mg/kg	50	1200.0	1300.0	8
	C10 - C36 (Sum of total)	mg/kg	50	1810.0	1944.0	7
	C10-C16	mg/kg	50	**71.0**	**94.0**	**28**
	C16-C34	mg/kg	100	1400.0	1500.0	7
	C34-C40	mg/kg	100	**480.0**	**710.0**	**39**
	C6 - C10	mg/kg	20	<20.0	<20.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 25 (0-10 x EQL); 25 (10-20 x EQL); 10 (> 20 x EQL

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories.

Any methods in the row header relate to those used in the primary laboratory

Appendix A - Photographs

Photo 1: Looking south west across the site towards Yertala Close

Photo 2: Looking south across the site towards Frazer Gully with the Pacific Highway to the east

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**
approved	**PW**		project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**		title:	**SITE PHOTOGRAPHS**
scale	**NTS**		project no: **754-NTLEN213403**	photo no: **1 & 2**
original size	**A4**			

Photo 3: Car tyres and household waste located in bush east of Yertala Close

Photo 4: Rusted petroleum drum and car body located in bushland south of the public housing

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**
approved	**PW**		project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**		title:	**SITE PHOTOGRAPHS**
scale	**NTS**		project no: **754-NTLEN213403**	photo no: **3 & 4**
original size	**A4**			

Photo 5: Public reserve looking north west

Photo 6: Frazer Gully looking south west

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**
approved	**PW**		project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**		title:	**SITE PHOTOGRAPHS**
scale	**NTS**		project no: **754-NTLEN213403**	photo no: **5 & 6**
original size	**A4**			

Photo 7: Looking west from the public reserve to Yertala Close

Photo 8: Looking north east towards the Pacific Highway. Rubbish and two stormwater pits are in the foreground

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**	
approved	**PW**		project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**	
date	**30/01/2018**		title:	**SITE PHOTOGRAPHS**	
scale	**NTS**		project no:	**754-NTLEN213403**	photo no: **7 & 8**
original	**A4**				

Photo 9: Subsurface soil at location LMCC-W2 location

Photo 10: Frazer Gully looking east

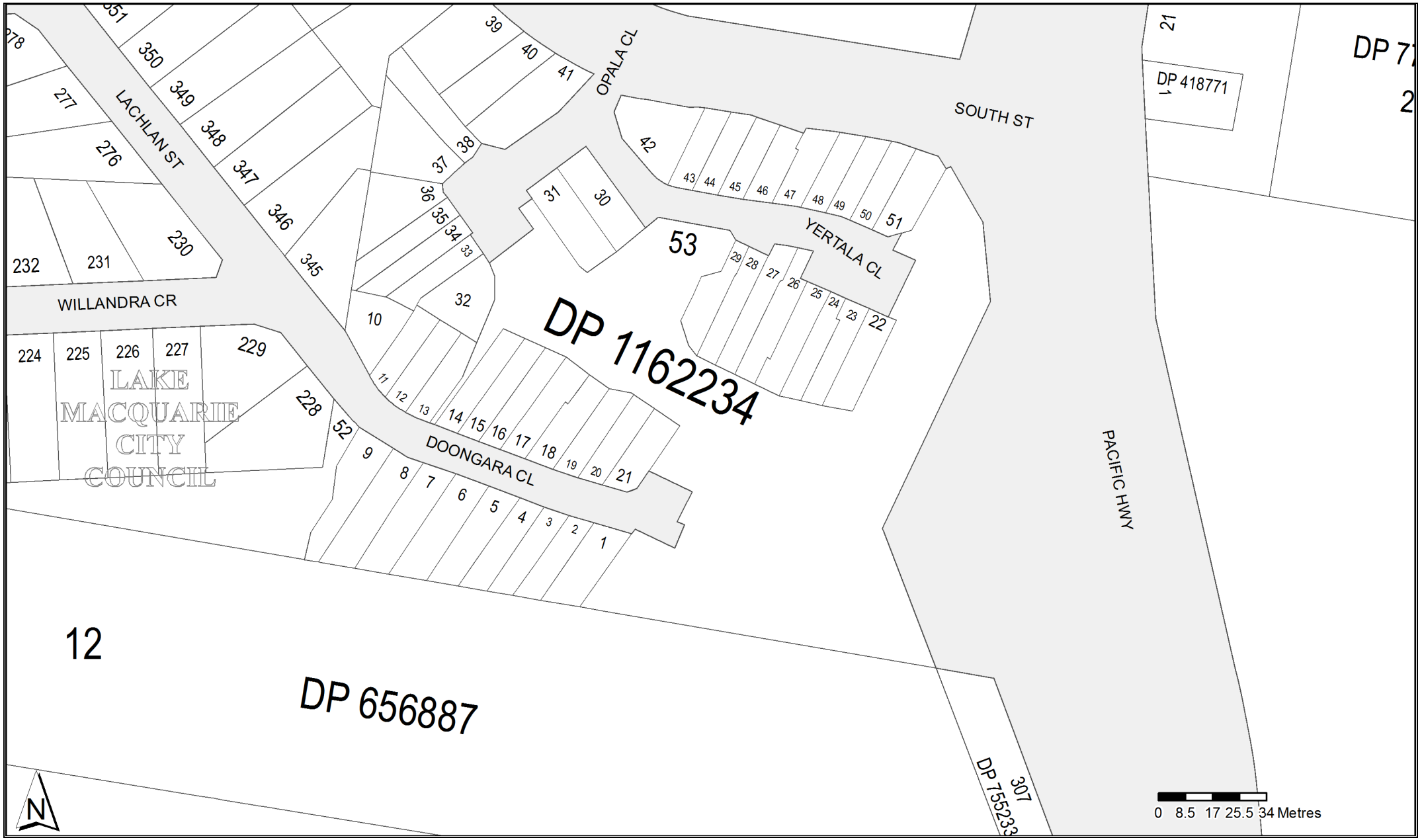
drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**	
approved	**PW**		project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**	
date	**30/01/2018**		title:	**SITE PHOTOGRAPHS**	
scale	**NTS**		project no:	**754-NTLEN213403**	photo no: **9 & 10**
original	**A4**				

Appendix B – Historical Titles Search

Cadastral Records Enquiry Report : Lot 53 DP 1162234

Ref : Advance Legal Searchers Pty Ltd

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



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

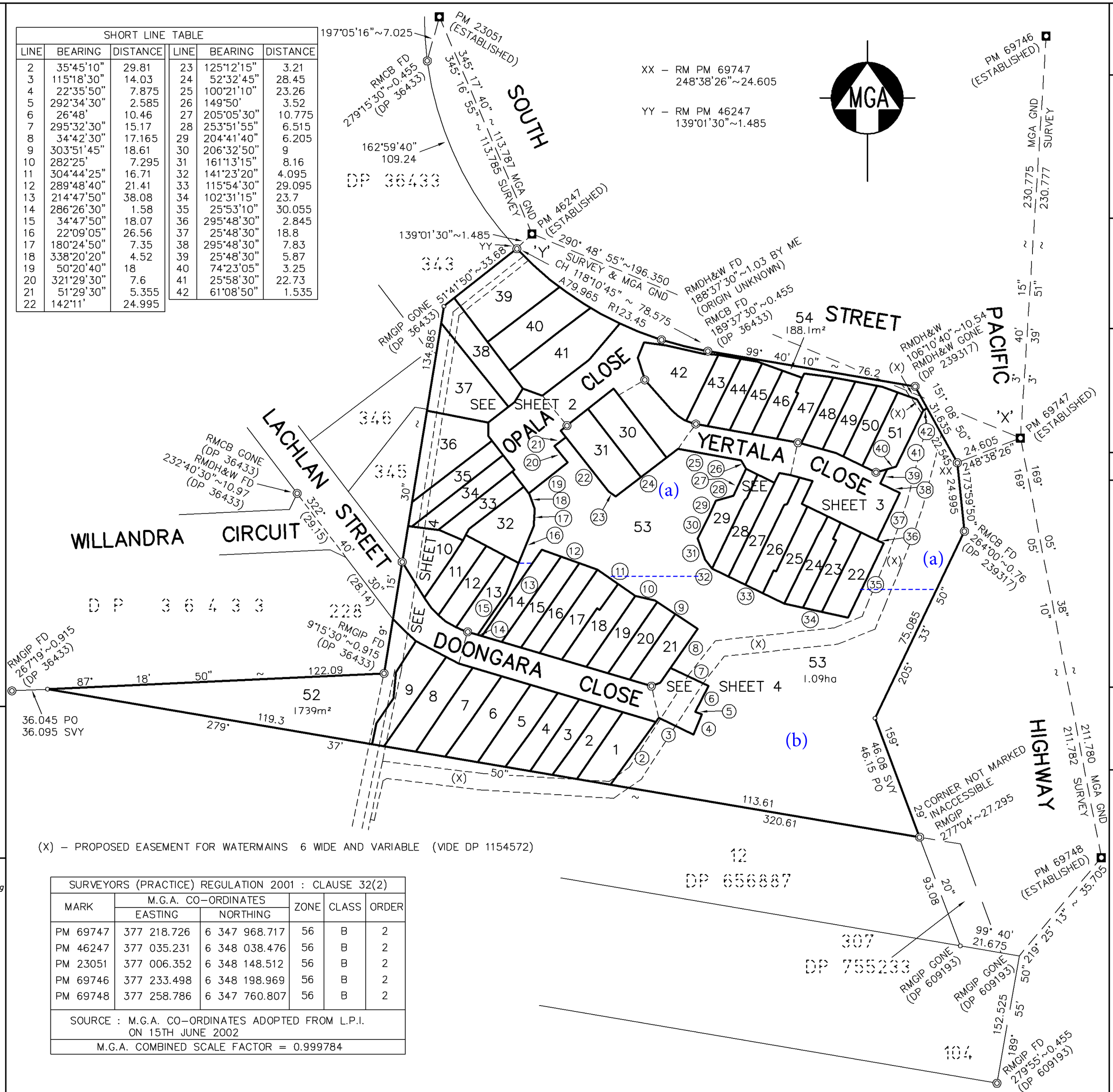
	Status	Surv/Comp	Purpose
DP656887			
Lot(s): 12			
DP1154572	REGISTERED	SURVEY	EASEMENT
DP1162234			
Lot(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53			
DP17387	HISTORICAL	SURVEY	UNRESEARCHED
DP1154572	REGISTERED	SURVEY	EASEMENT
Lot(s): 38, 39, 40, 41			
DP36433	HISTORICAL	SURVEY	UNRESEARCHED
DP1196652			
Lot(s): 4			
DP609193	HISTORICAL	SURVEY	SUBDIVISION
DP1235894	REGISTERED	SURVEY	EASEMENT
DP1214343			
Lot(s): 3			
DP1013486	HISTORICAL	SURVEY	ROADS ACT, 1993

Plan	Surv/Comp	Purpose
DP36433	SURVEY	UNRESEARCHED
DP418771	SURVEY	UNRESEARCHED
DP656887	COMPILATION	DEPARTMENTAL
DP726268	COMPILATION	CROWN FOLIO CREATION
DP755233	COMPILATION	CROWN ADMIN NO.
DP775913	SURVEY	SUBDIVISION
DP1162234	SURVEY	SUBDIVISION
DP1196652	SURVEY	SUBDIVISION
DP1214343	SURVEY	SUBDIVISION

SIGNATURES, AND SEALS ONLY

FOR SIGNATURES, SEALS
AND CERTIFICATES
SEE SIGNATURE FORM

SHORT LINE TABLE					
LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
2	35°45'10"	29.81	23	125°12'15"	3.21
3	115°18'30"	14.03	24	52°32'45"	28.45
4	22°35'50"	7.875	25	100°21'10"	23.26
5	292°34'30"	2.585	26	149°50'	3.52
6	26°48'	10.46	27	205°05'30"	10.775
7	295°32'30"	15.17	28	253°51'55"	6.515
8	34°42'30"	17.165	29	204°41'40"	6.205
9	303°51'45"	18.61	30	206°32'50"	9
10	282°25'	7.295	31	161°13'15"	8.16
11	304°44'25"	16.71	32	141°23'20"	4.095
12	289°48'40"	21.41	33	115°54'30"	29.095
13	214°47'50"	38.08	34	102°31'15"	23.7
14	286°26'30"	1.58	35	25°53'10"	30.055
15	34°47'50"	18.07	36	295°48'30"	2.845
16	22°09'05"	26.56	37	25°48'30"	18.8
17	180°24'50"	7.35	38	295°48'30"	7.83
18	338°20'20"	4.52	39	25°48'30"	5.87
19	50°20'40"	18	40	74°23'05"	3.25
20	321°29'30"	7.6	41	25°58'30"	22.73
21	51°29'30"	5.355	42	61°08'50"	1.535
22	142°11'	24.995			



XX – RM PM 69747
248°38'26"~24.605

YY – RM PM 46247
139°01'30"~1.485

(X) – PROPOSED EASEMENT FOR WATERMAINS 6 WIDE AND VARIABLE (VIDE DP 1154572)

SURVEYORS (PRACTICE) REGULATION 2001 : CLAUSE 32(2)					
MARK	M.G.A. CO-ORDINATES		ZONE	CLASS	ORDER
	EASTING	NORTHING			
PM 69747	377 218.726	6 347 968.717	56	B	2
PM 46247	377 035.231	6 348 038.476	56	B	2
PM 23051	377 006.352	6 348 148.512	56	B	2
PM 69746	377 233.498	6 348 198.969	56	B	2
PM 69748	377 258.786	6 347 760.807	56	B	2
SOURCE : M.G.A. CO-ORDINATES ADOPTED FROM L.P.I. ON 15TH JUNE 2002					
M.G.A. COMBINED SCALE FACTOR = 0.999784					

Department of Lands Approval

I ..... in approving this plan certify
(Authorised Officer)

that all necessary approvals in regard to the allocation of the land shown hereon have been given .

Signature : SEE SIGNATURE FORM

Date : .....

File Number : .....

Office : .....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed

..... set out herein
* (insert "subdivision" or "new road")

SEE SIGNATURE FORM
* Authorised Person/General Manager/Accredited Certifier

Consent Authority : .....

Date of Endorsement : .....

Accreditation No. : .....

Subdivision Certificate No. .....

File No. : .....

Note :
When the plan is to be lodged electronically in the Land Titles Office it should include a signature in an electronic or digital format approved by the Registrar-General.

* Delete whichever is inapplicable

DP1162234

Registered : 2.5.2011 *

Title System : TORRENS

Purpose : SUBDIVISION

Ref. Map : U6342-41

Last Plan : DP17387, DP36433

PLAN OF SUBDIVISION OF
PART LOTS 10 & 11
DP 17387 AND LOT 344
DP 36433

Lengths are in metres. Reduction Ratio 1 : 1000

L.G.A. : LAKE MACQUARIE

Locality : WINDALE

Parish : KAHIBAH

County : NORTHUMBERLAND

This is sheet 1 of my plan in 4 sheets
(Delete if inapplicable)

Survey Certificate

Surveyors (Practice) Regulation 2001

I, ANDREW MARK HOLMES

of RPS AUSTRALIA EAST PTY LTD
241 DENISON STREET , BROADMEADOW

a surveyor registered under the Surveyors Act, 1929 hereby certify that the survey represented in this plan is accurate , has been made in accordance with the Surveyors (Practice) Regulation, 2001 and was completed on 31ST JULY 2002

The survey relates to lots 1 – 54

(here specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

(Signature) SEE SIGNATURE FORM Dated :
Surveyor registered under the Surveyors Act 1929

Datum Line : 'X'~'Y'

Type : Urban/~~Rural~~

Plans used in preparation of Survey/~~Compilation.~~

DP 17387 DP 507389
DP 609193 DP 604308
DP 239317 DP 513328
DP 36433

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

SEE SIGNATURE FORM

*OFFICE USE ONLY

SURVEYOR'S REFERENCE : 105794-8 NEWC

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Filename : 105794-8 NEWC

PLAN FORM 3 (APPROVED FORM 5) To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP1162234

ePlan

(Q) LAND EXCLUDES MINERALS - S.141 PUBLIC WORKS ACT, 1912
(P) LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

RM PM 46247
139°01'30"~1.485

SOUTH STREET

RMDH&W FD (UNIDENTIFIED) 188°37'30"~1.03 BY ME
RMCB FD 189°37'30"~0.455 (DP 36433)

RMGIP GONE (DP 36433)

CLOSE (VARIABLE WIDTH)

YERTALA CLOSE (VAR. WIDTH)

OPALA

SEE SHEET 3

SEE SHEET 4

ONE STOREY BK RESIDENCE
TWO STOREY BK RESIDENCE
WEST FACE OF WALL
EAST FACE OF WALL
SOUTH FACE OF WALL
FENCE POST
APPROXIMATE POSITION OF STORMWATER PIPES NOT AN EASEMENT
WALL 0.1
WALL 0.2
WALL 0.195
WALL 0.9
POST 0.1
POST 0.2
POST 0.32
POST 0.37
POST 0.48
POST 0.52
POST 0.67
POST 0.05
CP

39	618.7m²	40	448.9m²
38	365.9m²	41	546.2m²
37	541.4m²	30	369.8m²
36	487.9m²	31	386.7m²
35	272.9m²	32	366.8m²
34	262.8m²	33	222.4m²
42		43	
44		45	
53		54	188.1m²

SHORT LINE TABLE

LINE	BEARING	DISTANCE
47	22°28'	1.875

SCHEDULE OF REFERENCE MARKS

MARK	BEARING	DISTANCE	TYPE
A	111°24'30"	8.45, 13.11	DH&W's
B	59°41'50"	2.63, 7.975	DH&W's
C	35°47'30"	3.43, 9.23	DH&W's
F	140°34'40"	3.695, 9.75	DH&W's

SHEDULE OF CURVED BOUNDARIES

LINE	CHORD BEARING	CHORD DISTANCE	ARC	RADIUS
43	311°53'55"	20.82	20.845	123.45
44	303°54'55"	13.55	13.555	123.45
45	297°57'40"	12.1	12.105	123.45
46	291°24'35"	16.115	16.125	123.45
48	283°38'45"	17.32	17.335	123.45

CP – CARPORT
L25 – POOL FENCE 25 YEARS OLD
M25 – METAL FENCE 25 YEARS OLD
P25 – PALING FENCE 25 YEARS OLD
ALL BUILDINGS AND STRUCTURES APPROXIMATELY 25 YEARS OLD

(A) – EASEMENT FOR PIPELINE 3.66 WIDE (L998328 & VIDE DP 507389)
(B) – EASEMENT FOR WATERMAIN 2.34 WIDE (S220451 VIDE DP 604308)
(C) – EASEMENT FOR WATER PIPE 3.66 WIDE (K703049 VIDE DP 513328)
(D) – EASEMENT FOR SUPPORT, OVERHANG & REPAIRS 0.3 WIDE
(F) – EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 4.77 WIDE
(G) – EASEMENT FOR DRAINAGE OF WATER OVER EXISTING LINE OF PIPES (APPROXIMATE POSITION)

MGA

DP1162234

Registered 2.5.2011

This is sheet 2 of my plan in 4 sheets dated 31ST JULY 2002

SEE SIGNATURE FORM

Surveyor registered under Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

SEE SIGNATURE FORM

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2.

*OFFICE USE ONLY

Reduction Ratio 1 : 250

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE : 105794–8 NEWC

Filename : 105794–8 NEWC

(D) – EASEMENT FOR SUPPORT, OVERHANG & REPAIRS 0.3 WIDE
(E) – EASEMENT FOR SUPPORT, OVERHANG & REPAIRS 0.4 WIDE
(F) – EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 4.77 WIDE
(G) – EASEMENT FOR DRAINAGE OF WATER OVER EXISTING LINE OF PIPES (APPROXIMATE POSITION)
(H) – EASEMENT FOR SERVICES OVER EXISTING LINE OF CABLES (APPROXIMATE POSITION)

CNM – DENOTES CORNER NOT MARKED
CP – CARPORT
DH – DRILLHOLE IN BRICK PIER

M5 – METAL FENCE 5 YEARS OLD
P5 – PALING FENCE 5 YEARS OLD
P25 – PALING FENCE 25 YEARS OLD
ALL BUILDINGS AND STRUCTURES APPROXIMATELY 25 YEARS OLD

MGA

SOUTH

STREET

PACIFIC HIGHWAY

YERTALA CLOSE

(VARIABLE WIDTH)

RMDH&W FD (UNIDENTIFIED) 188°37'30"~1.03 BY ME
RMCB FD 189°57'30"~0.455 (DP 36433)

RMDH&WING 106°10'40"~10.54

54 188.1m²
42 473.2m²
43 211.5m²
44 212.0m²
45 205.7m²
46 212.5m²
47 241.3m²
48 211.2m²
49 216.0m²
50 227.4m²
51 315.9m²
53
22 292.8m²
23 235.7m²
24 223.3m²
25 286.5m²
26 311.3m²
27 296.6m²
28 254.1m²
29 263.7m²
30
31
SEE SHEET 2

EDGE PIER
FENCE POST
ONE STOREY BK RESIDENCE
TWO STOREY BK RESIDENCE
WALL 0.05
WALL 0.94
WALL 1.0
WALL 0.2
WALL 0.99
WALL 0.03
DRILLHOLE
POST 0.32
CP
NAIL

SCHEDULE OF REFERENCE MARKS			
MARK	BEARING	DISTANCE	TYPE
A	111°24'30"	8.45,13.11	DH&W's
B	59°41'50"	2.63, 7.975	DH&W's
C	35°47'30"	3.43, 9.23	DH&W's
D	12°48'30"	3.595, 9.065	DH&W's
E	13°55'10"	2.01, 17.18	DH&W's

SHORT LINE TABLE		
LINE	BEARING	DISTANCE
42	61°08'50"	1.535
47	22°28'	1.875

SHEDULE OF CURVED BOUNDARIES				
	CHORD			
LINE	BEARING	DISTANCE	ARC	RADIUS
48	283°38'45"	17.32	17.335	123.45
49	306°27'35"	6.235	6.28	15
50	287°24'30"	3.685	3.695	15

(X) – PROPOSED EASEMENT FOR WATERMAINS 6 WIDE AND VARIABLE (VIDE DP 1154572)

DP1162234

Registered 2.5.2011

This is sheet 3 of my plan in 4 sheets dated 31ST JULY 2002

SEE SIGNATURE FORM

Surveyor registered under Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

SEE SIGNATURE FORM

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2.

*OFFICE USE ONLY

Reduction Ratio 1 : 250

PLAN FORM 3 (APPROVED FORM 5) To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP1162234

ePlan

DP1162234

Registered 2.5.2011

This is sheet 4 of my plan in 4 sheets dated 31ST JULY 2002

SEE SIGNATURE FORM

Surveyor registered under Surveying Act, 2002

This is sheet of my plan of sheets covered by Subdivision Certificate No. of

SEE SIGNATURE FORM

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2.

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APPROXIMATE POSITION OF STORMWATER PIPES NOT AN EASEMENT

(X) – PROPOSED EASEMENT FOR WATERMAINS 6 WIDE AND VARIABLE (VIDE DP 1154572)

LACHLAN STREET

DOONGARA CLOSE (12 WIDE & VARIABLE)

SHEDULE OF CURVED BOUNDARIES				
	CHORD			
LINE	BEARING	DISTANCE	ARC	RADIUS
9	312°06'	4.055	4.055	44
11	304°18'45"	7.785	7.815	27
12	320°31'05"	7.435	7.46	27
13	291°13'55"	4.51	4.515	27

SCHEDULE OF REFERENCE MARKS			
MARK	BEARING	DISTANCE	TYPE
G	9°15'30"	5.155, 15.545	DH&W's FD DP 36433
H	15°48'20"	2.89, 8.555	DH&W's
J	347°17'10"	2.93, 10.21	DH&W's

CNM – DENOTES CORNER NOT MARKED
CP – CARPORT
M25 – METAL FENCE 25 YEARS OLD
P25 – PALING FENCE 25 YEARS OLD
S25 – SLAT FENCE 25 YEARS OLD
ALL BUILDINGS AND STRUCTURES APPROXIMATELY 25 YEARS OLD

(A) – EASEMENT FOR PIPELINE 3.66 WIDE (L998328 & VIDE DP 507389)
(B) – EASEMENT FOR WATERMAIN 2.34 WIDE (S220451 VIDE DP 604308)
(D) – EASEMENT FOR SUPPORT, OVERHANG & REPAIRS 0.3 WIDE
(G) – EASEMENT FOR DRAINAGE OF WATER OVER EXISTING LINE OF PIPES (APPROXIMATE POSITION)
(H) – EASEMENT FOR PIPELINE 3.66 WIDE (J523718 VIDE DP 507389)
(J) – EASEMENT FOR WATERMAIN (VIDE DP 604308)

Reduction Ratio 1 : 250

Plan Drawing only to appear in this space

filename : 105794–8 NEWC

SURVEYOR'S REFERENCE : 105794–8 NEWC

PLAN FORM 6

ePlan

CERTIFICATES, SIGNATURES AND SEALS

Sheet 1 of 2 sheet(s)

PLAN OF SUBDIVISION OF
PART LOTS 10 & 11
DP 17387 AND LOT 344
DP 36433

* DP1162234

Registered : 2.5.2011

*OFFICE USE ONLY

Surveyors (Practice) Regulation 2001

I ANDREW MARK HOLMES

of RPS AUSTRALIA EAST PTY LTD
241 DENISON STREET , BROADMEADOW

a surveyor registered under the Surveyors Act, 1929 hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation, 2001 and was completed on : 31ST JULY 2002

The survey relates to
lots 1 – 54

(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature : A M Holmes *Dated :* 29/11/2010
Surveyor registered under the Surveyors Act 1929

Datum Line : X – Y
Type : Urban/~~Rural~~

Crown Lands NSW/Western Lands Office Approval

I ..... *in approving this plan certify*
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown herein have been given

Signature : .....
Date : .....
File Number : .....
Office : .....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed

Subdivision ..... *set out herein*
** (insert "subdivision" or "new road")*

C. Field
** Authorised Person/~~General Manager~~/~~Accredited Certifier~~*

Consent Authority : Lake Macquarie Council
Date of Endorsement : 23 December 2010
Accreditation No. : .....
Subdivision Certificate No : SC/96/2010
File No. : DA/429/1997

* Delete whichever is inapplicable

SIGNATURES, SEALS and STATEMENTS of intention to dedicate public roads or to create public reserves and drainage reserves.

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919, AS AMENDED IT IS INTENDED TO CREATE :

1. EASEMENT FOR SUPPORT, OVERHANG & REPAIRS 0.3 WIDE
2. EASEMENT FOR SUPPORT, OVERHANG & REPAIRS 0.4 WIDE
3. EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 4.77 WIDE
4. EASEMENT FOR DRAINAGE OF WATER OVER EXISTING LINE OF PIPES (APPROXIMATE POSITION)
5. EASEMENT FOR SERVICES OVER EXISTING LINE OF CABLES (APPROXIMATE POSITION)
6. RESTRICTION AS TO USER
7. RESTRICTION AS TO USER

IT IS INTENDED TO DEDICATE OPALA CLOSE, YERTALA CLOSE, DOONGARA CLOSE*AND LOT 54 TO THE PUBLIC AS ROAD

* SUBJECT TO THE EXISTING EASEMENT FOR WATERMAIN 2.34 WIDE (DP 604308) AND EASEMENT FOR PIPELINE 3.66 WIDE (DP 507389)

SIGNED SEALED AND DELIVERED
for and on behalf of EnergyAustralia
by KATHERINE MARGARET GUNTON
its duly constituted Attorney pursuant
to Power of Attorney registered
Book 4528 No. 401

K. Gunton — Attorney

Witness

Use PLAN FORM 6A for additional certificates, signatures and seals

SURVEYOR'S REFERENCE : 105794–8 NEWC

3A (Annexure Sheet) DP1162234 easing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 2 sheet(s)

PLAN OF SUBDIVISION OF PART LOTS 10 & 11 DP 17387 AND LOT 344 DP36433

* DP1162234

* **Registered:** 2.5.2011

Subdivision Certificate No: SC/96/2010

Date of Endorsement: 23.12.2010

SIGNED BY ME BRETT LAURENCE WOOD AS A DELEGATE OF THE NEW SOUTH WALES LAND AND HOUSING CORPORATION AND I HEREBY CERTIFY THAT I HAVE NO NOTICE OF REVOCATION OF SUCH DELEGATION.

BRETT LAURENCE WOOD

SURVEYOR'S REFERENCE: 105794-8 NEWC

* AUTHORISED SIGNATURE

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 53/1162234

SEARCH DATE	TIME	EDITION NO	DATE
22/1/2018	2:52 PM	2	3/9/2016

LAND

LOT 53 IN DEPOSITED PLAN 1162234
AT WINDALE
LOCAL GOVERNMENT AREA LAKE MACQUARIE
PARISH OF KAHIBAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1162234

FIRST SCHEDULE

NEW SOUTH WALES LAND AND HOUSING CORPORATION

SECOND SCHEDULE (2 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 AK693151 EASEMENT FOR WATERMAINS 6 WIDE AND VARIABLE AFFECTING THE PART DESIGNATED (X) IN DP1162234

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 22/1/2018

Appendix C – Aerial Photographs

Approximate Site Boundary

drawn	**MPW**		client:	**Lake Macquarie City Council**
approved		coffey A TETRA TECH COMPANY	project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**		title:	**2018 AERIAL PHOTOGRAPH**
scale	**NTS**		project no: **754-NTLEN213403**	figure no: **2018**
original size	**A4**			

Approximate Site Boundary

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**	
approved			project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**	
date	**30/01/2018**		title:	**2004 AERIAL PHOTOGRAPH**	
scale	**NTS**		project no:	**754-NTLEN213403**	figure no: **2004**
original	**A4**				

Approximate Site Boundary

drawn	**MPW**		client: **Lake Macquarie City Council**	
approved		coffey A TETRA TECH COMPANY	project: **Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**	
date	**30/01/2018**		title: **1993 AERIAL PHOTOGRAPH**	
scale	**NTS**		project no: **754-NTLEN213403**	figure no: **1993**
original size	**A4**			

Approximate Site Boundary

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**
approved			project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**		title:	**1984 AERIAL PHOTOGRAPH**
scale	**NTS**		project no: **754-NTLEN213403**	figure no: **1984**
original size	**A4**			

Approximate Site Boundary

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**
approved			project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**			
scale	**NTS**		title:	**1976 AERIAL PHOTOGRAPH**
original size	**A4**		project no: **754-NTLEN213403**	figure no: **1976**

Approximate Site Boundary

drawn	**MPW**	coffey A TETRA TECH COMPANY	client:	**Lake Macquarie City Council**
approved			project:	**Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**
date	**30/01/2018**		title:	**1954 AERIAL PHOTOGRAPH**
scale	**NTS**		project no: **754-NTLEN213403**	figure no: **1954**
original size	**A4**			

Approximate Site Boundary

drawn	**MPW**		client: **Lake Macquarie City Council**	
approved		coffey A TETRA TECH COMPANY	project: **Preliminary Contamination Assessment Lot 53 DP 1162234, Windale, NSW 2306**	
date	**30/01/2018**		title: **1965 AERIAL PHOTOGRAPH**	
scale	**NTS**		project no: **754-NTLEN213403**	figure no: **1965**
original size	**A4**			

Appendix D – Section 149 Planning Certificate

Lake Macquarie City Council

25 January 2018

COFFEY SERVICES AUSTRALIA PTY LTD
19 Warabrook Blvd
WARABROOK NSW 2304

Our Ref:115643
Your Ref:
NTLEN213403:65364
ABN 81 065 027 868

SECTION 149 PLANNING CERTIFICATE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Fee Paid: 133.00

Receipt No: 9648004

Receipt Date: 24 January 2018

DESCRIPTION OF LAND

Address: 2B Yertala Close, WINDALE NSW 2306

Lot Details: Lot 53 DP 1162234

Parish: Kahibah

County: Northumberland

For: MORVEN CAMERON
GENERAL MANAGER

Our Ref: Your Ref:

ADVICE PROVIDED IN ACCORDANCE WITH SECTION 149(2)

1 Names of Relevant Planning Instruments and Development Control Plans

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Lake Macquarie Local Environmental Plan 2014

State Environmental Planning Policy No. 21 – Caravan Parks

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

State Environmental Planning Policy No. 55 – Remediation of Land

State Environmental Planning Policy No. 64 – Advertising and Signage

State Environmental Planning Policy No. 44 – Koala Habitat Protection

State Environmental Planning Policy No. 62 - Sustainable Aquaculture

State Environmental Planning Policy No. 36 – Manufactured Homes Estates (except as maybe excluded by Clause 6 of the SEPP)

State Environmental Planning Policy No. 50 – Canal Estate Development

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy - (Housing for Seniors or People with a Disability) 2004 (This SEPP applies to the land to the extent provided by Clause 4 of the SEPP)

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Lake Macquarie Local Environmental Plan 2014 (Amendment No. F2014/01451)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016

Draft Coastal Management State Environmental Planning Policy 2016 (part of lot)

(3) The name of each development control plan that applies to the carrying out of development on the land.

Lake Macquarie Development Control Plan 2014

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a Draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

(1) The following answers (a) to (h) relate to the instrument (see 1(1) above).

(a) (i) The identity of the zone applying to the land.

E2 Environmental Conservation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2; Home occupations

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Bed and breakfast accommodation; Boat sheds; Building identification signs; Business identification signs; Car parks; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Home-based child care; Home

businesses; Information and education facilities; Recreation areas; Roads; Water recreation structures

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted Premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; and any other development not specified in item (ii) or (iii)

(i) The identity of the zone applying to the land.

R2 Low Density Residential

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2; Home-based child care; Home occupations

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Bed and breakfast accommodation; Boarding houses; Boat sheds; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health consulting rooms; Home businesses; Home industries; Hostels; Kiosks; Neighbourhood shops; Places of public worship; Recreation areas; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Sewage reticulation systems; Sewage treatment plants; Shop top housing; Water recreation structures; Water recycling facilities; Water supply systems

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Any other development not specified in item (ii) or (iii)

(i) The identity of the zone applying to the land.

RE1 Public Recreation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Crematoria; Educational establishments; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Kiosks; Marinas; Markets; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Sewage reticulation systems; Sewage treatment plants; Signage; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Any development not specified in item (ii) or (iii)

NOTE: **The advice in sections (a) above relates only to restrictions that apply by virtue of the zones indicated. The Lake Macquarie LEP 2014 includes additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

Yes, there are development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

Minimum lot size of 40 ha. Refer to Clause 4.2A of LMLEP 2014 for further information.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

Yes

(e) Whether an item of environmental heritage (however described) is situated on the land.

Local Environmental Plan 2014 Schedule 5 Part 1 Heritage Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 1 Heritage items.

Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas.

Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites.

Local Environmental Plan 2014 Schedule 5 Part 4 Landscape Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 4 Landscape items.

Local Environmental Plan 2004 Schedule 4 Part 1 Heritage Items

There are no heritage items listed for this land within Local Environmental Plan 2004 Schedule 4 Part 1.

Local Environmental Plan 2004 Part 11 Clause 150 Environmental Heritage

There are no heritage items listed for this land within Local Environmental Plan 2004 Part 11 Clause 150 – South Wallarah Peninsula.

NOTE: **An item of environmental heritage, namely Aboriginal heritage, listed within the Aboriginal Heritage Information Management System (AHIMS), may affect the land. The applicant should contact the Office of Environment and Heritage (OEH) for more information.**

(2) The following answers relate to the Draft Instrument (see 1(2) above).

(a) Nil

NOTE: **The advice in section (a) above relates only to restrictions that apply by virtue of the zones indicated. The Draft instrument may include additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

No

(e) Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), and 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

General Housing Code

Note: If a lot is not specifically listed in this section then, complying development

under the General Housing Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the General Housing Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

Note: If the lot is only affected by the "heritage conservation area" exemption, then complying development under the General Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:
The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

•

Housing Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under the Housing Alterations Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Housing Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

•

Commercial and Industrial Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under the Commercial and Industrial Alterations Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Commercial and Industrial Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific

land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

•

Commercial and Industrial (New Buildings and Additions) Code

Note: If a lot is not specifically listed in this section then, complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

•

Subdivisions Code

Note: If a lot is not specifically listed in this section then, complying development under the Subdivisions Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Subdivisions Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

•

Rural Housing Code

Note: If a lot is not specifically listed in this section then, complying development under the Rural Housing Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Rural Housing Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Rural Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:
The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

•

General Development Code

Note: If a lot is not specifically listed in this section then, complying development under the General Development Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the General Development Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

•

Demolition Code

Note: If a lot is not specifically listed in this section then, complying development under the Demolition Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Demolition Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of

high aboriginal cultural significance.

•

Fire Safety Code

Note: If a lot is not specifically listed in this section then, complying development under the Fire Safety Code **MAY** be carried out on any part of that lot.

Lot 53 DP 1162234

Complying development under the Fire Safety Code **MAY NOT** be carried out on part of the land because the lot is partly affected by specific lot exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high aboriginal cultural significance.

•

4 Coastal Protection

Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the Council has been so notified by the Department of Public Works.

No

4A Information relating to beaches and coasts

1 Whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

Nil

2 (a) Whether the council has been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land)

Nil

(b) If works have been so placed — whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

Nil

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Nil

NOTE: "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

The land is within a proclaimed Mine Subsidence District under the *Mine Subsidence Compensation Act 1961*. The approval of the Mines Subsidence Board is required for all subdivision and building, except for certain minor structures. Surface development controls are in place to prevent damage from old, current, or future mining. It is strongly recommended prospective purchasers consult with the Mine Subsidence Board regarding mine subsidence and any surface development guidelines. The Board can assist with information, mine subsidence, and advise whether existing structures comply with the requirements of the *Act.*

6 Road widening and road realignment

Whether the land is affected by any road widening or realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.

No

(b) any environmental planning instrument.

No

(c) any resolution of the Council.

No, other road widening proposals may affect this land and if so, will be noted on the SECTION 149(5) certificate.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(i) adopted by the Council, or

(ii) adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council,

that restricts the development of the land because of the likelihood of:

(a) land slip or subsidence

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by Council's geotechnical areas map. The map is available for viewing at the Council. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(b) bushfire

Yes

(c) tidal inundation

No

(d) acid sulfate soils

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by the Acid Sulfate Soils Map. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(e) contaminated or potentially contaminated land

Council has adopted a policy that may restrict the development of Contaminated or Potentially Contaminated land. This policy is implemented when zoning, development, or land use changes are proposed. Council does not hold sufficient information about previous use of the land to determine whether the land is contaminated. Consideration of Council's adopted Policy located in the applicable DCP noted in Clause 1(3) above, and the application of provisions under relevant State legislation is recommended.

(f) any other risk (other than flooding).

No

NOTE: **The absence of a council policy restricting development of the land by reason of a particular natural hazard does not mean that the risk from that hazard is non-existent.**

7A Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Yes

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

Yes

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

ADVICE: Further information on the development restriction mentioned, may be obtained from Council upon application for a “Flood Certificate” or “Flood/Tidal Inundation Certificate”.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

Yes

9 Contributions Plans

The name of each contributions plan applying to the land.

Lake Macquarie City Council Development Contributions Plan - Charlestown Contributions Catchment - 2015

9A Biodiversity Certified Land

This land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10 Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A Native vegetation clearing set asides

The land does not contain a set aside area under section 60ZC of the Local Land Services Act 2013.

11 Bush Fire Prone Land

Note: If a lot is not specifically listed in this section then, **NONE** of that lot is bush fire prone land.

Lot 53 DP 1162234 **-** SOME of the land is bush fire prone land.

NOTE: The Lake Macquarie Bush Fire Prone Land Map can be inspected at Council's Administration Building during normal office hours or contact Council on 02 4921 0333.

12 Property Vegetation Plans

The land IS NOT subject to a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

NOTE: The advice provided in this section is based on notification by the Hunter Local Land Services of the approval of a plan. Further information about property vegetation plans should be obtained from that Authority.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Has an order been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

15 Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(b) Any terms of a kind referred to in clause 18 (2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

Nil

16 Site compatibility certificates for infrastructure

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

17 Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(2) Any terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

Nil

18 Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

Nil

(2) The date of any subdivision order that applies to the land.

Not Applicable

Note Words and expressions used in this clause have the same meaning as they have in Part 16C of Environmental Planning and Assessment Regulation 2000.

19 Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land.

No

(a) The matter certified by the certificate

Not Applicable

(b) The date on which the certificate ceases to be current

Not Applicable

(c) A copy of the certificate (if any) may be obtained from the head office of the

Department of Planning and Infrastructure.

Note A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division

No. Council **has not** been notified that a residential premises erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

NOTE: The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

Matters arising under the Contaminated Land Management Act 1997 (s59 (2))

(a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

(b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

(d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

NOTE: **Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of the Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.**

Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009

Council has not been provided with an exemption or authorisation by the Co-ordinator General under the Act.

ADVICE PROVIDED IN ACCORDANCE WITH SECTION 149(5)

NOTE: SECTION 149(6) OF THE ACT STATES THAT A COUNCIL SHALL NOT INCUR ANY LIABILITY IN RESPECT OF ANY ADVICE PROVIDED IN GOOD FAITH PURSUANT TO SECTION 149(5).

21 Clearing and lopping of trees

The land is NOT affected by the requirements, under Lake Macquarie Local Environmental Plan 2014 and Lake Macquarie Local Environmental Plan 2004, for the clearing and lopping of trees.

22 Easements

The land is NOT affected by a proposed easement in favour of Lake Macquarie City Council.

As to affectation by existing easements, a search of the relevant Title of the land should be undertaken.

23 Outstanding Notice/Order

The land is NOT AFFECTED by an outstanding notice/order issued under either:

Notice/Order – Local Government Act, 1993

Notice/Order – Environmental Planning & Assessment Act, 1979

Notice/Order - Swimming Pools Act, 1992

Notice/Order – Noxious Weeds Act, 1993

Notice/Order – Protection of the Environment Operations Act, 1997

24 Earthquake

An earthquake was experienced throughout most of the city area on 28/12/89. Prospective purchasers should make their own enquiries as to whether buildings/structures on the land sustained any structural damage.

25 Lifestyle 2030

Council has prepared a strategy to provide direction for future land use planning, urban design and development of the City until the year 2030. A copy of "Lifestyle 2030 - A Strategy for Our Future" is available from Council.

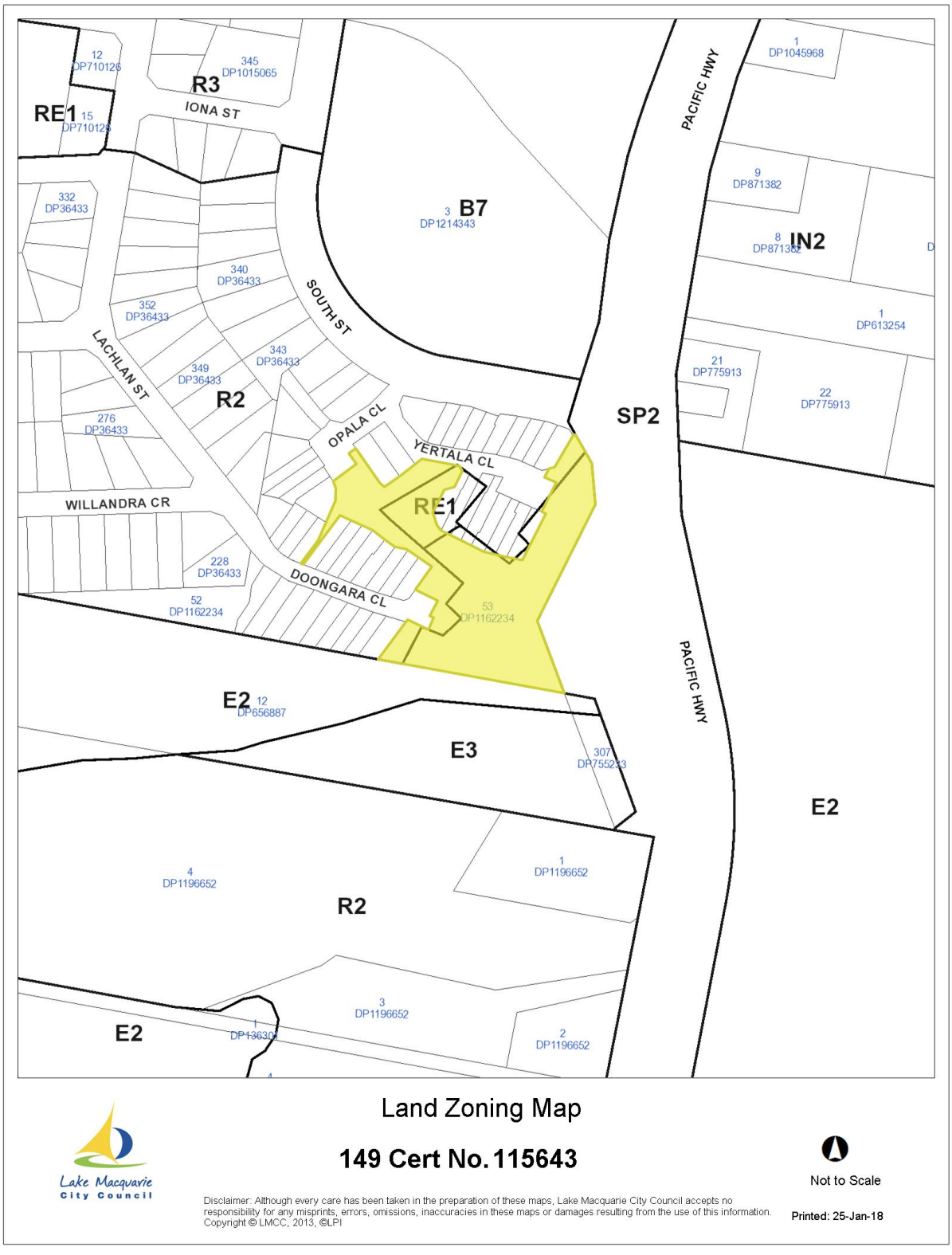
26 Voluntary Planning Agreement

The land is not affected by a Voluntary Planning Agreement.

Attachments:

Land Zoning Map

Land Zoning Map



Appendix E - Chain of Custody Documentation and Laboratory Certificates of Analysis

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1 5465

coffey

Consigning Office: WARNBROOK

Report Results to: sean.blackford Mobile: 0418 549 796 Email: sean.blackford@coffey.com

Invoices to: WORK-GEN-ADMIN. Phone: 0434 376 146 Email: micheal.p.wright@coffey.com

Project No: NTLEN213403 Task No: LAB

Project Name: LMCC-WINDALE Laboratory: EUROFINS MGT

Sampler's Name: S. BLACKFORD Project Manager: P. WRIGHT

Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B7A	B1K	NOTES
	LMCC-W1	11/1	PM	SOIL	J	Std	X	X	
	QC1	1	1	1	1	1	X	X	

RELINQUISHED BY

Name: SEAN BLACKFORD Date: 12/01/17

Coffey Environments Time:

Name: Date:

Company: Time:

RECEIVED BY

Name: SUE Date: 12/1/18

Company: Time: 2:30PM

Name: Amy Date: 15/1/18

Company: EPMGT 580387 Time: 9:04

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐

All Documentation is in Proper Order ☐

Samples Received Properly Chilled ☐

Lab. Ref/Batch No.

*Container Type & Preservation Codes: **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock Bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative, **OP** - Other Preservative

eurofins | mgt

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Sean Blackford
Project name:	LMCC-WINDALE
Project ID:	NTLEN213403
COC number:	5465
Turn around time:	5 Day
Date/Time received:	Jan 12, 2018 2:30 PM
Eurofins | mgt reference:	**580387**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 19.3 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Sean Blackford - sean.blackford@coffey.com.

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: LMCC-WINDALE
Project ID: NTLEN213403

Order No.:
Report #: 580387
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Jan 12, 2018 2:30 PM
Due: Jan 19, 2018
Priority: 5 Day
Contact Name: Sean Blackford

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Eurofins | mgt Suite B14	Moisture Set	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	LMCC-W1	Jan 11, 2018		Soil	M18-Ja08407	X	X	X
2	QC1	Jan 11, 2018		Soil	M18-Ja08408	X	X	X
Test Counts						2	2	2

Certificate of Analysis

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Sean Blackford**

Report **580387-S**
Project name LMCC-WINDALE
Project ID NTLEN213403
Received Date Jan 12, 2018

Client Sample ID			**LMCC-W1**	**QC1**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Ja08407**	**M18-Ja08408**
Date Sampled			**Jan 11, 2018**	**Jan 11, 2018**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	70	54
TRH C15-C28	50	mg/kg	540	590
TRH C29-C36	50	mg/kg	1200	1300
TRH C10-36 (Total)	50	mg/kg	1810	1944
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	112	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	71	94
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	71	94
TRH >C16-C34	100	mg/kg	1400	1500
TRH >C34-C40	100	mg/kg	480	710
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			LMCC-W1	QC1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			M18-Ja08407	M18-Ja08408
Date Sampled			Jan 11, 2018	Jan 11, 2018
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	83	72
p-Terphenyl-d14 (surr.)	1	%	81	74
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	101	143
Tetrachloro-m-xylene (surr.)	1	%	143	60
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2

Client Sample ID			LMCC-W1	QC1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			M18-Ja08407	M18-Ja08408
Date Sampled			Jan 11, 2018	Jan 11, 2018
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Disulfoton	0.2	mg/kg	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	93	92
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4.5-Trichlorophenol	1.0	mg/kg	< 1	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	< 1
Pentachlorophenol	1.0	mg/kg	< 1	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20
Phenol-d6 (surr.)	1	%	82	77

Client Sample ID			LMCC-W1	QC1
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Ja08407**	**M18-Ja08408**
Date Sampled			**Jan 11, 2018**	**Jan 11, 2018**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	2.0	2.8
Cadmium	0.4	mg/kg	< 0.4	0.5
Chromium	5	mg/kg	< 5	5.1
Copper	5	mg/kg	7.2	12
Lead	5	mg/kg	26	37
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	56	91
% Moisture	1	%	21	25

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jan 18, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
BTEX	Melbourne	Jan 18, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jan 18, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jan 18, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jan 18, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (Halogenated)	Melbourne	Jan 18, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	Jan 18, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Metals M8	Melbourne	Jan 18, 2018	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Eurofins | mgt Suite B14			
Organochlorine Pesticides	Melbourne	Jan 18, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Jan 18, 2018	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
% Moisture	Melbourne	Jan 15, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN– 50 005 085 521
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web : www.eurofins.com.au

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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Coffey Environments P/L N'castle	**Order No.:**		**Received:**	Jan 12, 2018 2:30 PM
Address:	Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304	**Report #:**	580387	**Due:**	Jan 19, 2018
		Phone:	02 4016 2300	**Priority:**	5 Day
		Fax:	02 4016 2380	**Contact Name:**	Sean Blackford
Project Name:	LMCC-WINDALE				
Project ID:	NTLEN213403				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Eurofins | mgt Suite B14	Moisture Set	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	LMCC-W1	Jan 11, 2018		Soil	M18-Ja08407	X	X	X
2	QC1	Jan 11, 2018		Soil	M18-Ja08408	X	X	X
Test Counts						2	2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	123			70-130	Pass	
TRH C10-C14	%	102			70-130	Pass	
LCS - % Recovery							
BTEX							
Toluene	%	112			70-130	Pass	
Xylenes - Total	%	108			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	84			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	90			70-130	Pass	
Acenaphthylene	%	93			70-130	Pass	
Anthracene	%	82			70-130	Pass	
Benz(a)anthracene	%	94			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	90			70-130	Pass	
Benzo(k)fluoranthene	%	84			70-130	Pass	
Chrysene	%	95			70-130	Pass	
Dibenz(a.h)anthracene	%	98			70-130	Pass	
Fluoranthene	%	87			70-130	Pass	
Fluorene	%	93			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	95			70-130	Pass	
Naphthalene	%	96			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	89			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Organochlorine Pesticides							
4.4'-DDD	%	115			70-130	Pass	
4.4'-DDE	%	111			70-130	Pass	
4.4'-DDT	%	92			70-130	Pass	
a-BHC	%	105			70-130	Pass	
Aldrin	%	107			70-130	Pass	
b-BHC	%	102			70-130	Pass	
d-BHC	%	105			70-130	Pass	
Dieldrin	%	109			70-130	Pass	
Endosulfan I	%	108			70-130	Pass	
Endosulfan II	%	108			70-130	Pass	
Endosulfan sulphate	%	106			70-130	Pass	
Endrin	%	120			70-130	Pass	
Endrin aldehyde	%	99			70-130	Pass	
Endrin ketone	%	100			70-130	Pass	
g-BHC (Lindane)	%	106			70-130	Pass	
Heptachlor	%	107			70-130	Pass	
Heptachlor epoxide	%	108			70-130	Pass	
Hexachlorobenzene	%	101			70-130	Pass	
Methoxychlor	%	93			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	76			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Ethion	%	91			70-130	Pass	
Fenitrothion	%	72			70-130	Pass	
Methyl parathion	%	73			70-130	Pass	
Mevinphos	%	97			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	94			30-130	Pass	
2.4-Dichlorophenol	%	84			30-130	Pass	
2.4.5-Trichlorophenol	%	92			30-130	Pass	
2.4.6-Trichlorophenol	%	71			30-130	Pass	
2.6-Dichlorophenol	%	92			30-130	Pass	
4-Chloro-3-methylphenol	%	86			30-130	Pass	
Pentachlorophenol	%	64			30-130	Pass	
Tetrachlorophenols - Total	%	48			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	39			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	53			30-130	Pass	
2-Methylphenol (o-Cresol)	%	88			30-130	Pass	
2-Nitrophenol	%	67			30-130	Pass	
2.4-Dimethylphenol	%	46			30-130	Pass	
2.4-Dinitrophenol	%	40			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	83			30-130	Pass	
4-Nitrophenol	%	62			30-130	Pass	
Dinoseb	%	47			30-130	Pass	
Phenol	%	96			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	116			80-120	Pass	
Cadmium	%	105			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium			%	107			80-120	Pass	
Copper			%	104			80-120	Pass	
Lead			%	102			80-120	Pass	
Mercury			%	109			75-125	Pass	
Nickel			%	105			80-120	Pass	
Zinc			%	111			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Ja08396	NCP	%	100			70-130	Pass	
TRH C10-C14	M18-Ja08397	NCP	%	98			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Ja08396	NCP	%	91			70-130	Pass	
Toluene	M18-Ja08396	NCP	%	100			70-130	Pass	
Ethylbenzene	M18-Ja08396	NCP	%	98			70-130	Pass	
m&p-Xylenes	M18-Ja08396	NCP	%	102			70-130	Pass	
o-Xylene	M18-Ja08396	NCP	%	97			70-130	Pass	
Xylenes - Total	M18-Ja08396	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Ja08396	NCP	%	84			70-130	Pass	
TRH C6-C10	M18-Ja08396	NCP	%	100			70-130	Pass	
TRH >C10-C16	M18-Ja08397	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Ja08396	NCP	%	86			70-130	Pass	
Acenaphthylene	M18-Ja08396	NCP	%	91			70-130	Pass	
Anthracene	M18-Ja08396	NCP	%	90			70-130	Pass	
Benz(a)anthracene	M18-Ja08396	NCP	%	88			70-130	Pass	
Benzo(a)pyrene	M18-Ja08396	NCP	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Ja08396	NCP	%	98			70-130	Pass	
Benzo(g.h.i)perylene	M18-Ja08396	NCP	%	81			70-130	Pass	
Benzo(k)fluoranthene	M18-Ja08396	NCP	%	98			70-130	Pass	
Chrysene	M18-Ja08396	NCP	%	89			70-130	Pass	
Dibenz(a.h)anthracene	M18-Ja08396	NCP	%	87			70-130	Pass	
Fluoranthene	M18-Ja08396	NCP	%	83			70-130	Pass	
Fluorene	M18-Ja08396	NCP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Ja08396	NCP	%	85			70-130	Pass	
Naphthalene	M18-Ja08396	NCP	%	97			70-130	Pass	
Phenanthrene	M18-Ja08396	NCP	%	88			70-130	Pass	
Pyrene	M18-Ja08396	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M18-Ja07085	NCP	%	94			70-130	Pass	
4.4'-DDE	M18-Ja07085	NCP	%	88			70-130	Pass	
4.4'-DDT	M18-Ja07133	NCP	%	83			70-130	Pass	
a-BHC	M18-Ja07085	NCP	%	82			70-130	Pass	
Aldrin	M18-Ja07085	NCP	%	84			70-130	Pass	
b-BHC	M18-Ja07085	NCP	%	81			70-130	Pass	
d-BHC	M18-Ja07085	NCP	%	76			70-130	Pass	
Dieldrin	M18-Ja07085	NCP	%	86			70-130	Pass	
Endosulfan I	M18-Ja07085	NCP	%	85			70-130	Pass	
Endosulfan II	M18-Ja07085	NCP	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	M18-Ja07085	NCP	%	71			70-130	Pass	
Endrin	M18-Ja07085	NCP	%	90			70-130	Pass	
Endrin aldehyde	M18-Ja07085	NCP	%	81			70-130	Pass	
Endrin ketone	M18-Ja07085	NCP	%	72			70-130	Pass	
g-BHC (Lindane)	M18-Ja07085	NCP	%	81			70-130	Pass	
Heptachlor	M18-Ja07085	NCP	%	78			70-130	Pass	
Heptachlor epoxide	M18-Ja07085	NCP	%	86			70-130	Pass	
Hexachlorobenzene	M18-Ja07085	NCP	%	81			70-130	Pass	
Methoxychlor	M18-Ja07133	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M18-Ja08396	NCP	%	77			70-130	Pass	
Dimethoate	M18-Ja08396	NCP	%	72			70-130	Pass	
Ethion	M18-Ja08396	NCP	%	84			70-130	Pass	
Fenitrothion	M18-Ja08396	NCP	%	72			70-130	Pass	
Methyl parathion	M18-Ja08396	NCP	%	72			70-130	Pass	
Mevinphos	M18-Ja08396	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Ja08396	NCP	%	90			30-130	Pass	
2.4-Dichlorophenol	M18-Ja08396	NCP	%	80			30-130	Pass	
2.4.5-Trichlorophenol	M18-Ja08396	NCP	%	91			30-130	Pass	
2.4.6-Trichlorophenol	M18-Ja08396	NCP	%	73			30-130	Pass	
2.6-Dichlorophenol	M18-Ja08396	NCP	%	90			30-130	Pass	
4-Chloro-3-methylphenol	M18-Ja08396	NCP	%	81			30-130	Pass	
Pentachlorophenol	M18-Ja08396	NCP	%	82			30-130	Pass	
Tetrachlorophenols - Total	M18-Ja08396	NCP	%	52			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M18-Ja08396	NCP	%	39			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M18-Ja08396	NCP	%	57			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-Ja08396	NCP	%	87			30-130	Pass	
2-Nitrophenol	M18-Ja08396	NCP	%	67			30-130	Pass	
2.4-Dimethylphenol	M18-Ja08396	NCP	%	65			30-130	Pass	
2.4-Dinitrophenol	M18-Ja08396	NCP	%	91			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Ja08396	NCP	%	82			30-130	Pass	
4-Nitrophenol	M18-Ja08396	NCP	%	63			30-130	Pass	
Dinoseb	M18-Ja08396	NCP	%	53			30-130	Pass	
Phenol	M18-Ja08396	NCP	%	95			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Ja08396	NCP	%	111			75-125	Pass	
Cadmium	M18-Ja08396	NCP	%	108			75-125	Pass	
Chromium	M18-Ja08396	NCP	%	107			75-125	Pass	
Copper	M18-Ja08396	NCP	%	106			75-125	Pass	
Mercury	M18-Ja08396	NCP	%	113			70-130	Pass	
Nickel	M18-Ja08396	NCP	%	106			75-125	Pass	
Zinc	M18-Ja08396	NCP	%	120			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Ja08395	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Ja08396	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Ja08396	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Ja08396	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Ja08395	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Ja08395	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Ja08395	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Ja08395	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Ja08395	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Ja08395	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Ja08395	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Ja08396	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Ja08396	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-Ja08396	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-Ja07084	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M18-Ja07084	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M18-Ja07084	NCP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M18-Ja08395	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M18-Ja08395	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M18-Ja08395	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M18-Ja08395	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S18-Ja05985	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S18-Ja05985	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S18-Ja05985	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S18-Ja05985	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S18-Ja05985	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S18-Ja05985	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S18-Ja05985	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S18-Ja05985	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S18-Ja05985	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S18-Ja05985	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S18-Ja05985	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S18-Ja05985	NCP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
Dinoseb	S18-Ja05985	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S18-Ja05985	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Ja08396	NCP	mg/kg	4.1	4.1	<1	30%	Pass	
Cadmium	M18-Ja08396	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Ja08396	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M18-Ja08396	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M18-Ja08396	NCP	mg/kg	19	20	1.0	30%	Pass	
Mercury	M18-Ja08396	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-Ja08396	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M18-Ja08396	NCP	mg/kg	31	31	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Ja08400	NCP	%	25	23	9.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1 — 5474

coffey

Consigning Office: Warabrook

Report Results to: P. Wright / M. Wright Mobile: Email: Michael.p.wright @coffey.com

Invoices to: Newcastle Admin Phone: 0240162300 Email: Paul.Wright @coffey.com

Project No: 754-NTLEN213403 Task No: Laboratory.

Project Name: LMCC Windale Laboratory: Eurofins

Sampler's Name: M. Wright Project Manager: P. Wright

Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)
	LMCC - ~~BH~~ W2	5.2.18	Am	Soil	J	~~STD~~
	LMCC - W3	↓	↓	↓	↓	↓
	LMCC - W4	↓	↓	↓	↓	↓

Suite B7A

NOTES

* 48h TAT.

RELINQUISHED BY			RECEIVED BY		
Name:	Date:	→	Name: SUE	Date: 5/2/18	
Coffey Environments	Time:		Company:	Time: 2-30PM	
Name:	Date:	→	Name:	Date: 6/2	
Company:	Time:		Company: GE	Time: 11:27	

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐

All Documentation is in Proper Order ☐

Samples Received Properly Chilled ☐

Lab. Ref/Batch No. SB3345

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock Bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative, **OP** - Other Preservative

eurofins | mgt

Melbourne
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Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Paul Wright
Project name:	LMCC WINDALE
Project ID:	754-NTLEN213403
COC number:	Not provided
Turn around time:	2 Day
Date/Time received:	Feb 6, 2018 11:27 AM
Eurofins | mgt reference:	**583345**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 12.8 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Paul Wright - paul.wright@coffey.com.

eurofins | mgt

ABN– 50 005 085 521
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web : www.eurofins.com.au

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NATA # 1261 Site # 20794

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: LMCC WINDALE
Project ID: 754-NTLEN213403

Order No.:
Report #: 583345
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Feb 6, 2018 11:27 AM
Due: Feb 8, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	LMCC-W2	Feb 05, 2018		Soil	M18-Fe05353	X	X
2	LMCC-W3	Feb 05, 2018		Soil	M18-Fe05354	X	X
3	LMCC-W4	Feb 05, 2018		Soil	M18-Fe05355	X	X
Test Counts						3	3

Certificate of Analysis

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Paul Wright**

Report **583345-S**
Project name LMCC WINDALE
Project ID 754-NTLEN213403
Received Date Feb 06, 2018

Client Sample ID			**LMCC-W2**	**LMCC-W3**	**LMCC-W4**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Fe05353**	**M18-Fe05354**	**M18-Fe05355**
Date Sampled			**Feb 05, 2018**	**Feb 05, 2018**	**Feb 05, 2018**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	100	150	< 50
TRH C29-C36	50	mg/kg	100	130	92
TRH C10-36 (Total)	50	mg/kg	200	280	92
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	75	89	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	120	210	100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5

Client Sample ID			LMCC-W2	LMCC-W3	LMCC-W4
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Fe05353**	**M18-Fe05354**	**M18-Fe05355**
Date Sampled			**Feb 05, 2018**	**Feb 05, 2018**	**Feb 05, 2018**
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	77	88	79
p-Terphenyl-d14 (surr.)	1	%	78	78	74
Phenols (Halogenated)					
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	< 1	< 1
Pentachlorophenol	1.0	mg/kg	< 1	< 1	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1
Phenols (non-Halogenated)					
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	81	95	87
Heavy Metals					
Arsenic	2	mg/kg	2.9	4.2	4.2
Cadmium	0.4	mg/kg	0.6	< 0.4	< 0.4
Chromium	5	mg/kg	18	9.7	< 5
Copper	5	mg/kg	12	5.9	7.7
Lead	5	mg/kg	29	16	31
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	15	5.8	< 5
Zinc	5	mg/kg	74	42	94
% Moisture	1	%	15	14	11

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 06, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
BTEX	Melbourne	Feb 06, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 06, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 06, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 06, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (Halogenated)	Melbourne	Feb 06, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	Feb 06, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Metals M8	Melbourne	Feb 06, 2018	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Feb 06, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: LMCC WINDALE
Project ID: 754-NTLEN213403

Order No.:
Report #: 583345
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Feb 6, 2018 11:27 AM
Due: Feb 8, 2018
Priority: 2 Day
Contact Name: Paul Wright

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	LMCC-W2	Feb 05, 2018		Soil	M18-Fe05353	X	X
2	LMCC-W3	Feb 05, 2018		Soil	M18-Fe05354	X	X
3	LMCC-W4	Feb 05, 2018		Soil	M18-Fe05355	X	X
Test Counts						3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	88			70-130	Pass	
TRH C10-C14	%	86			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	81			70-130	Pass	
Toluene	%	86			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	81			70-130	Pass	
Xylenes - Total	%	81			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	80			70-130	Pass	
TRH C6-C10	%	83			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	97			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	99			70-130	Pass	
Benz(a)anthracene	%	104			70-130	Pass	
Benzo(a)pyrene	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	%	98			70-130	Pass	
Benzo(g.h.i)perylene	%	118			70-130	Pass	
Benzo(k)fluoranthene	%	93			70-130	Pass	
Chrysene	%	92			70-130	Pass	
Dibenz(a.h)anthracene	%	92			70-130	Pass	
Fluoranthene	%	90			70-130	Pass	
Fluorene	%	99			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	97			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	
Pyrene	%	87			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenols (Halogenated)							
2-Chlorophenol	%	89			30-130	Pass	
2.4-Dichlorophenol	%	90			30-130	Pass	
2.4.5-Trichlorophenol	%	87			30-130	Pass	
2.4.6-Trichlorophenol	%	97			30-130	Pass	
2.6-Dichlorophenol	%	87			30-130	Pass	
4-Chloro-3-methylphenol	%	92			30-130	Pass	
Pentachlorophenol	%	68			30-130	Pass	
Tetrachlorophenols - Total	%	101			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	53			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	53			30-130	Pass	
2-Methylphenol (o-Cresol)	%	87			30-130	Pass	
2-Nitrophenol	%	97			30-130	Pass	
2.4-Dimethylphenol	%	93			30-130	Pass	
2.4-Dinitrophenol	%	39			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	87			30-130	Pass	
4-Nitrophenol	%	74			30-130	Pass	
Dinoseb	%	84			30-130	Pass	
Phenol	%	81			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	106			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	111			80-120	Pass	
Mercury	%	102			75-125	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	96			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Fe05993	NCP	%	86			70-130	Pass	
TRH C10-C14	B18-Fe00485	NCP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Fe05993	NCP	%	74			70-130	Pass	
Toluene	M18-Fe05993	NCP	%	85			70-130	Pass	
Ethylbenzene	M18-Fe05993	NCP	%	92			70-130	Pass	
m&p-Xylenes	M18-Fe05993	NCP	%	92			70-130	Pass	
o-Xylene	M18-Fe05993	NCP	%	91			70-130	Pass	
Xylenes - Total	M18-Fe05993	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Fe05993	NCP	%	104			70-130	Pass	
TRH C6-C10	M18-Fe05993	NCP	%	82			70-130	Pass	
TRH >C10-C16	B18-Fe00485	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Fe04355	NCP	%	81			70-130	Pass	
Acenaphthylene	M18-Fe04355	NCP	%	96			70-130	Pass	
Anthracene	M18-Fe04355	NCP	%	93			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	M18-Fe04355	NCP	%	118			70-130	Pass	
Benzo(a)pyrene	M18-Fe04355	NCP	%	99			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Fe04355	NCP	%	108			70-130	Pass	
Benzo(g.h.i)perylene	M18-Fe04355	NCP	%	123			70-130	Pass	
Benzo(k)fluoranthene	M18-Fe04355	NCP	%	79			70-130	Pass	
Chrysene	M18-Fe04355	NCP	%	98			70-130	Pass	
Dibenz(a.h)anthracene	M18-Fe04355	NCP	%	110			70-130	Pass	
Fluoranthene	M18-Fe04355	NCP	%	107			70-130	Pass	
Fluorene	M18-Fe04355	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Fe04355	NCP	%	120			70-130	Pass	
Naphthalene	M18-Fe04355	NCP	%	78			70-130	Pass	
Phenanthrene	M18-Fe04355	NCP	%	125			70-130	Pass	
Pyrene	M18-Fe04355	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Fe04355	NCP	%	104			30-130	Pass	
2.4-Dichlorophenol	M18-Fe04355	NCP	%	103			30-130	Pass	
2.4.5-Trichlorophenol	M18-Fe04355	NCP	%	102			30-130	Pass	
2.4.6-Trichlorophenol	M18-Fe04355	NCP	%	92			30-130	Pass	
2.6-Dichlorophenol	M18-Fe04355	NCP	%	100			30-130	Pass	
4-Chloro-3-methylphenol	M18-Fe04355	NCP	%	108			30-130	Pass	
Tetrachlorophenols - Total	M18-Fe04355	NCP	%	61			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M18-Fe04355	NCP	%	68			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M18-Fe04355	NCP	%	41			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-Fe04355	NCP	%	103			30-130	Pass	
2-Nitrophenol	M18-Fe04355	NCP	%	109			30-130	Pass	
2.4-Dimethylphenol	M18-Fe04355	NCP	%	111			30-130	Pass	
2.4-Dinitrophenol	M18-Fe04355	NCP	%	52			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Fe04355	NCP	%	104			30-130	Pass	
4-Nitrophenol	M18-Fe04355	NCP	%	93			30-130	Pass	
Dinoseb	M18-Fe04355	NCP	%	85			30-130	Pass	
Phenol	M18-Fe04355	NCP	%	95			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Fe05539	NCP	%	88			75-125	Pass	
Cadmium	M18-Fe05539	NCP	%	92			75-125	Pass	
Chromium	M18-Fe05539	NCP	%	93			75-125	Pass	
Copper	M18-Fe05539	NCP	%	89			75-125	Pass	
Lead	M18-Fe05539	NCP	%	99			75-125	Pass	
Mercury	M18-Fe05539	NCP	%	95			70-130	Pass	
Nickel	M18-Fe05539	NCP	%	89			75-125	Pass	
Zinc	M18-Fe05539	NCP	%	86			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Fe05992	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Fe05798	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Fe05798	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Fe05798	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Fe05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Fe05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Fe05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Fe05992	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Fe05992	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Fe05992	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Fe05992	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Fe05992	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Fe05798	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Fe05798	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-Fe05798	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	B18-Ja26446	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	B18-Ja26446	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	B18-Ja26446	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	B18-Ja26446	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	B18-Ja26446	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	B18-Ja26446	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	B18-Ja26446	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	B18-Ja26446	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	B18-Ja26446	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	B18-Ja26446	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	B18-Ja26446	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	B18-Ja26446	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	B18-Ja26446	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	B18-Ja26446	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Fe05538	NCP	mg/kg	13	13	1.0	30%	Pass	
Cadmium	M18-Fe05538	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Fe05538	NCP	mg/kg	45	49	8.0	30%	Pass	
Copper	M18-Fe05538	NCP	mg/kg	< 5	5.4	8.0	30%	Pass	
Lead	M18-Fe05538	NCP	mg/kg	14	16	12	30%	Pass	
Mercury	M18-Fe05538	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-Fe05538	NCP	mg/kg	13	15	13	30%	Pass	
Zinc	M18-Fe05538	NCP	mg/kg	14	14	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Fe05538	NCP	%	19	20	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

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Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
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Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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