

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1827443</b>	<b>Page</b>	<b>: 1 of 5</b>
<b>Client</b>	<b>: WARRUMBUNGL SHIRE COUNCIL</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: Mr Andrew Milford</b>	<b>Contact</b>	<b>: Customer Services ES</b>
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<b>Project</b>	<b>: ----</b>	<b>Date Samples Received</b>	<b>: 17-Sep-2018</b>
<b>Order number</b>	<b>:</b>	<b>Date Analysis Commenced</b>	<b>: 18-Sep-2018</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 21-Sep-2018</b>
<b>Sampler</b>	<b>: Andrew Park</b>		
<b>Site</b>	<b>: ----</b>		
<b>Quote number</b>	<b>: BLANKET QUOTE</b>		
<b>No. of samples received</b>	<b>: 8</b>		
<b>No. of samples analysed</b>	<b>: 8</b>		



Accreditation No. 825  
Accredited for compliance with  
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

- Key :
- Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
  - CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
  - LOR = Limit of reporting
  - RPD = Relative Percentage Difference
  - # = Indicates failed QC

### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002: pH 1:5 (Soils) (QC Lot: 1936505)</b>									
ES1826044-014	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.3	6.2	0.00	0% - 20%
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EA002: pH Value	----	0.1	pH Unit	5.9	5.8	0.00	0% - 20%
<b>EA010: Conductivity (1:5) (QC Lot: 1936506)</b>									
ES1827452-003	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	226	226	0.00	0% - 20%
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	30	25	19.8	0% - 20%
<b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1937913)</b>									
ES1827252-003	Anonymous	EA055: Moisture Content	----	0.1	%	2.7	3.1	12.5	No Limit
ES1827443-008	NATIVE GROVE CEMETERY POINT 4 300MM	EA055: Moisture Content	----	0.1	%	3.4	2.9	16.7	No Limit
<b>ED005: Exchange Acidity (QC Lot: 1941869)</b>									
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	ED005: Exchangeable Aluminium	----	0.1	meq/100g	0.6	0.6	0.00	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 1941868)</b>									
ES1826044-014	Anonymous	ED007: Exchangeable Sodium Percent	----	0.1	%	5.7	5.7	0.00	0% - 20%
		ED007: Exchangeable Calcium	----	0.1	meq/100g	4.6	4.5	0.00	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.7	2.6	0.00	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.00	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.00	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	7.9	7.8	0.00	0% - 20%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.00	No Limit
ES1827443-004	NATIVE GROVE CEMETERY POINT 2 300MM	ED007: Exchangeable Sodium Percent	----	0.1	%	5.7	5.4	5.40	0% - 20%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>ED007: Exchangeable Cations (QC Lot: 1941868) - continued</b>									
ES1827443-004	NATIVE GROVE CEMETERY POINT 2 300MM	ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	<0.1	0.00	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.8	0.8	0.00	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.00	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.00	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	1.0	1.0	0.00	0% - 50%
		ED007: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.00	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1936507)</b>									
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.5	1.5	0.00	No Limit
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1941121)</b>									
ES1827443-008	NATIVE GROVE CEMETERY POINT 4 300MM	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	180	160	9.14	No Limit
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	530	590	11.4	0% - 20%
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1941120)</b>									
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK067G: Total Phosphorus as P	----	2	mg/kg	270	312	14.4	0% - 20%
<b>EK072: Phosphate Sorption Capacity (QC Lot: 1936514)</b>									
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK072: Phosphate Sorption Capacity	----	250	mg P sorbed/kg	780	868	10.7	No Limit
<b>EP004: Organic Matter (QC Lot: 1938595)</b>									
ES1827187-008	Anonymous	EP004: Total Organic Carbon	----	0.5	%	1.2	1.3	0.00	No Limit
ES1827187-017	Anonymous	EP004: Total Organic Carbon	----	0.5	%	0.6	0.6	0.00	No Limit
<b>EP004: Organic Matter (QC Lot: 1938596)</b>									
ES1827616-001	Anonymous	EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.00	No Limit





Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1936507)</b>							
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK059G: Nitrite + Nitrate as N (Sol.)	----	12.5 mg/kg	109	70	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1941121)</b>							
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	89.1	70	130
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1941120)</b>							
ES1827443-001	NATIVE GROVE CEMETERY POINT 1 150MM	EK067G: Total Phosphorus as P	----	100 mg/kg	79.4	70	130
<b>EP004: Organic Matter (QCLot: 1938595)</b>							
ES1827187-008	Anonymous	EP004: Total Organic Carbon	----	0.36 %	83.1	70	130
<b>EP004: Organic Matter (QCLot: 1938596)</b>							
ES1827616-001	Anonymous	EP004: Total Organic Carbon	----	0.28 %	83.2	70	130