

ALS Laboratory: EB Brisbane

EMAIL INVOICES TO:

DATE TIME:

Other comments:

/ EB2023BRICIT0002

EMAIL INVOICES TO:

ANALYSIS REQUIRED

CLIENT: BRICIT - BRISBANE CITY COUNCIL

PROJECT: Sherwood Arboretum

SITE: Sherwood Arboretum

ORDER NO: 123

PROJECT MANAGER:
PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: [REDACTED]
QUOTE NO: EB23BRICIT0002

SAMPLER MOBILE:
/ EB2023BRICIT0002

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?

Free ice / frozen ice bricks present upon receipt?

Random Sample Temperature on Receipt:

Other comments:

Yes No N/A

Yes No N/A

°C

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
DATE TIME:		DATE TIME:		DATE TIME:		DATE TIME:	
002	BH-02_0.00-6.00	Soil Glass Jar - Unpreserved	150 mL	00261122120101	Orange	No	
002	BH-02_0.00-6.00	Soil Glass Jar - Unpreserved	150 mL	00261122120330	Orange	No	
002	BH-02_0.00-6.00	Soil Glass Jar - Unpreserved	150 mL	00261122120326	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120338	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120306	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120343	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120349	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120318	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120323	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120319	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120890	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120778	Orange	No	
003	BH-03_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120846	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120849	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120743	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120763	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00260621011918	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00260621011911	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00260621011927	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120789	Orange	No	
004	BH-04_0.00-4.00	Soil Glass Jar - Unpreserved	150 mL	00261122120745	Orange	No	

Total Bottle Count: ALS: 47, Non ALS: 3



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2317032**

Client : **BRISBANE CITY COUNCIL**

Contact : [REDACTED]

Address :

Laboratory : **Environmental Division Brisbane**

Contact : [REDACTED]

Address : **2 Byth Street Stafford QLD Australia
4053**

E-mail : [REDACTED]

Telephone : **+61 07** [REDACTED]

Facsimile : **+61 07** [REDACTED]

E-mail : [REDACTED]

Telephone : **+61 7** [REDACTED]

Facsimile : **+61-7** [REDACTED]

Project : **GK15 - Sherwood Arboretum & Secret
Forest**

Page : **1 of 5**

Order number : **123**

Quote number : **EB2023BRICIT0002
(EB23BRICIT0002)**

C-O-C number : **53175**

QC Level : **NEPM 2013 B3 & ALS QC Standard**

Site : **Sherwood Arboretum**

Sampler : **SCOTT WATSON**

Dates

Date Samples Received : **08-Jun-2023 12:30**

Issue Date : **09-Jun-2023**

Client Requested Due
Date : **15-Jun-2023**

Scheduled Reporting Date : **15-Jun-2023**

Delivery Details

Mode of Delivery : **Carrier**

Security Seal : **Intact.**

No. of coolers/boxes : **3**

Temperature : **0.6°C, 1.0°C, 1.1°C - Ice
present**

Receipt Detail : **MEDIUM ESKY**

No. of samples received / analysed : **56 / 8**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please be advised; ALS received container labelled "BH02_4.8-5.0", ALS has identified this as 'BH02_4.8-4.5' on the Chain of Custody. If this is incorrect please contact client services at ALSEnviro.Brisbane@alsglobal.com**
- **Please be advised; Sample labelled "BH01_2.8-3" was received broken and was discarded as sample volume was compromised. If you have any questions please contact client services at ALSEnviro.Brisbane@alsglobal.com**
- **An extra sample/s were received labelled as "BH01_3.3-3.5" (ALS #47), "BH01_6.6-6.8" (ALS #48), "BH01_7.2-7.3" (ALS #49), "BH01_7.6-7.8" (ALS #50), "BH02_4.6-4.8" (ALS #51), "BH02_5.0-5.2" (ALS #52), "BH02_5.6-5.8" (ALS #53), "BH04_2.5-2.7" (ALS #54), "BH04_3.1-3.3" (ALS #55), and "BH04_3.6-3.8" (ALS #56) have been placed on hold. If testing is required on this sample, please contact ALS Client Services at ALSEnviro.Brisbane@alsglobal.com**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - IN-4S pH plus EC (1:5)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-4S NO2 and NO3
EB2317032-001	06-Jun-2023 00:00	BH01_0-0.2	✓				
EB2317032-002	06-Jun-2023 00:00	BH01_0.3-0.5		✓	✓	✓	✓
EB2317032-003	06-Jun-2023 00:00	BH01_0.8-1		✓	✓	✓	✓
EB2317032-004	06-Jun-2023 00:00	BH01_1.3-1.5	✓				
EB2317032-005	06-Jun-2023 00:00	BH01_1.8-2		✓	✓	✓	✓
EB2317032-006	06-Jun-2023 00:00	BH01_2.3-2.5		✓	✓	✓	✓
EB2317032-007	06-Jun-2023 00:00	BH01_3.8-4	✓				
EB2317032-008	06-Jun-2023 00:00	BH01_4.3-4.5	✓				
EB2317032-009	06-Jun-2023 00:00	BH01_4.8-5	✓				
EB2317032-010	06-Jun-2023 00:00	BH01_5.3-5.5	✓				
EB2317032-011	06-Jun-2023 00:00	BH01_5.8-6	✓				
EB2317032-012	06-Jun-2023 00:00	BH01_6.3-6.5	✓				
EB2317032-013	06-Jun-2023 00:00	BH01_6.8-7	✓				
EB2317032-014	06-Jun-2023 00:00	BH01_7.3-7.5	✓				
EB2317032-015	06-Jun-2023 00:00	BH01_7.8-8	✓				
EB2317032-016	06-Jun-2023 00:00	BH02_0-0.2	✓				
EB2317032-017	06-Jun-2023 00:00	BH02_0.3-0.5		✓	✓	✓	✓
EB2317032-018	06-Jun-2023 00:00	BH02_0.8-1		✓	✓	✓	✓
EB2317032-019	06-Jun-2023 00:00	BH02_1.3-1.5	✓				
EB2317032-020	06-Jun-2023 00:00	BH02_1.8-2		✓	✓	✓	✓
EB2317032-021	06-Jun-2023 00:00	BH02_2.3-2.5	✓				
EB2317032-022	06-Jun-2023 00:00	BH02_2.8-3		✓	✓	✓	✓
EB2317032-023	06-Jun-2023 00:00	BH02_3.3-3.5	✓				
EB2317032-024	06-Jun-2023 00:00	BH02_3.8-4	✓				
EB2317032-025	06-Jun-2023 00:00	BH02_4.3-4.5	✓				
EB2317032-026	06-Jun-2023 00:00	BH02_4.8-5.0	✓				
EB2317032-027	06-Jun-2023 00:00	BH02_5.3-5.5	✓				
EB2317032-028	06-Jun-2023 00:00	BH02_5.8-6	✓				
EB2317032-029	06-Jun-2023 00:00	BH03_0-0.2	✓				
EB2317032-030	06-Jun-2023 00:00	BH03_0.3-0.5	✓				
EB2317032-031	06-Jun-2023 00:00	BH03_0.8-1	✓				
EB2317032-032	06-Jun-2023 00:00	BH03_1.3-1.5	✓				
EB2317032-033	06-Jun-2023 00:00	BH03_1.8-2	✓				
EB2317032-034	06-Jun-2023 00:00	BH03_2.3-2.5	✓				
EB2317032-035	06-Jun-2023 00:00	BH03_2.8-3	✓				



			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - IN-4S pH plus EC (1:5)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-4S NO2 and NO3
EB2317032-036	06-Jun-2023 00:00	BH03_3.3-3.5	✓				
EB2317032-037	06-Jun-2023 00:00	BH03_3.8-4	✓				
EB2317032-038	06-Jun-2023 00:00	BH04_0-0.2	✓				
EB2317032-039	06-Jun-2023 00:00	BH04_0.3-0.5	✓				
EB2317032-040	06-Jun-2023 00:00	BH04_0.8-1	✓				
EB2317032-041	06-Jun-2023 00:00	BH04_1.3-1.5	✓				
EB2317032-042	06-Jun-2023 00:00	BH04_1.8-2	✓				
EB2317032-043	06-Jun-2023 00:00	BH04_2.3-2.5	✓				
EB2317032-044	06-Jun-2023 00:00	BH04_2.8-3	✓				
EB2317032-045	06-Jun-2023 00:00	BH04_3.3-3.5	✓				
EB2317032-046	06-Jun-2023 00:00	BH04_3.8-4	✓				
EB2317032-047	06-Jun-2023 00:00	BH01_3.3-3.5	✓				
EB2317032-048	06-Jun-2023 00:00	BH01_6.6-6.8	✓				
EB2317032-049	06-Jun-2023 00:00	BH01_7.2-7.3	✓				
EB2317032-050	06-Jun-2023 00:00	BH01_7.6-7.8	✓				
EB2317032-051	06-Jun-2023 00:00	BH02_4.6-4.8	✓				
EB2317032-052	06-Jun-2023 00:00	BH02_5.0-5.2	✓				
EB2317032-053	06-Jun-2023 00:00	BH02_5.6-5.8	✓				
EB2317032-054	06-Jun-2023 00:00	BH04_2.5-2.7	✓				
EB2317032-055	06-Jun-2023 00:00	BH04_3.1-3.3	✓				
EB2317032-056	06-Jun-2023 00:00	BH04_3.6-3.8	✓				

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

ACCOUNTS PAYABLE (Invoice)

- A4 - AU Tax Invoice (INV)

Email

Email

Email

Email

Email

Email

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Email

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CERTIFICATE OF ANALYSIS

Work Order	: EB2317032	Page	: 1 of 4
Client	: BRISBANE CITY COUNCIL	Laboratory	: Environmental Division Brisbane
Contact	: [REDACTED]	Contact	: Carsten Enrich
Address	: [REDACTED]	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 (0) [REDACTED]	Telephone	: +61 7 3552 8616
Project	: GK15 - Sherwood Arboretum & Secret Forest	Date Samples Received	: 08-Jun-2023 12:30
Order number	: 123	Date Analysis Commenced	: 12-Jun-2023
C-O-C number	: 53175	Issue Date	: 15-Jun-2023 14:57
Sampler	: [REDACTED]		
Site	: Sherwood Arboretum		
Quote number	: EB23BRICIT0002		
No. of samples received	: 56		
No. of samples analysed	: 8		



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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	Position	Accreditation Category
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



Page : 2 of 4
Work Order : EB2317032
Client : BRISBANE CITY COUNCIL
Project : GK15 - Sherwood Arboretum & Secret Forest

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH01_0.3-0.5		BH01_0.8-1		BH01_1.8-2		BH01_2.3-2.5		BH02_0.3-0.5	
Compound	CAS Number	Sampling date / time		Result		Result		Result		Result		Result	
		LOR	Unit										
EA002: pH 1:5 (Soils)													
pH Value	---	0.1	pH Unit	5.3		5.3		7.2		7.4		7.2	
EA010: Conductivity (1:5)													
Electrical Conductivity @ 25°C	---	1	µS/cm	73		145		540		1020		154	
EA055: Moisture Content (Dried @ 105-110°C)													
Moisture Content	---	1.0	%	12.8		11.9		14.3		18.8		15.5	
ED093S: Soluble Major Cations													
Calcium	7440-70-2	10	mg/kg	<10		<10		<10		10		<10	
Magnesium	7439-95-4	10	mg/kg	<10		<10		<10		20		<10	
Sodium	7440-23-5	10	mg/kg	70		130		510		1090		140	
Potassium	7440-09-7	10	mg/kg	<10		<10		<10		<10		<10	
EK057G: Nitrite as N by Discrete Analyser													
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1		<0.1		<0.1		<0.1		0.1	
EK058G: Nitrate as N by Discrete Analyser													
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.4		0.1		0.2		0.3		0.5	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser													
Nitrite + Nitrate as N (Sol.)	---	0.1	mg/kg	0.4		0.1		0.2		0.3		0.6	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID			
Compound	CAS Number	Sampling date / time		Unit	
		LOR			
		Result			
EA002: pH 1:5 (Soils)					
pH Value	----	0.1	pH Unit	5.8	BH02_0.8-1 06-Jun-2023 00:00 EB2317032-018 Result
EA010: Conductivity (1:5)					
Electrical Conductivity @ 25°C	----	1	µS/cm	1660	BH02_1.8-2 06-Jun-2023 00:00 EB2317032-020 Result
EA055: Moisture Content (Dried @ 105-110°C)					
Moisture Content	----	1.0	%	20.3	BH02_2.8-3 06-Jun-2023 00:00 EB2317032-022 Result
ED093S: Soluble Major Cations					
Calcium	7440-70-2	10	mg/kg	210	10
Magnesium	7439-95-4	10	mg/kg	220	10
Sodium	7440-23-5	10	mg/kg	1650	220
Potassium	7440-09-7	10	mg/kg	<10	10
EK057G: Nitrite as N by Discrete Analyser					
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser					
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.5	0.3
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser					
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.5	0.3



QUALITY CONTROL REPORT

Work Order	: EB2317032	Page	: 1 of 3
Client	: BRISBANE CITY COUNCIL	Laboratory	: Environmental Division Brisbane
Contact	: [REDACTED]	Contact	: Carsten Emrich
Address	: [REDACTED]	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 [REDACTED]	Telephone	: +61 7 3552 8616
Project	: GK15 - Sherwood Arboretum & Secret Forest	Date Samples Received	: 08-Jun-2023
Order number	: 123	Date Analysis Commenced	: 12-Jun-2023
C-O-C number	: 53175	Issue Date	: 15-Jun-2023
Sampler	: [REDACTED]		
Site	: Sherwood Arboretum		
Quote number	: EB23BRICIT0002		
No. of samples received	: 56		
No. of samples analysed	: 8		



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ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	Position	Accreditation Category
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



Page : 2 of 3
Work Order : EB2317032
Client : BRISBANE CITY COUNCIL
Project : GK15 - Sherwood Arboretum & Secret Forest

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA002: pH 1:5 (Soils) (QC Lot: 5104933)									
EB2315710-005	Anonymous	EA002: pH Value	-----	0.1	pH Unit	10.0	10.0	0.0	0% - 20%
EB2317261-001	Anonymous	EA002: pH Value	-----	0.1	pH Unit	5.2	5.5	5.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5104934)									
EB2315710-005	Anonymous	EA010: Electrical Conductivity @ 25°C	-----	1	µS/cm	304	295	3.0	0% - 20%
EB2317261-011	Anonymous	EA010: Electrical Conductivity @ 25°C	-----	1	µS/cm	129	140	8.4	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5104943)									
EB2317032-002	BH01_0.3-0.5	EA055: Moisture Content	-----	0.1	%	12.8	13.5	4.8	0% - 50%
EB2317261-003	Anonymous	EA055: Moisture Content	-----	0.1	%	31.7	30.4	4.0	0% - 20%
ED093S: Soluble Major Cations (QC Lot: 5104936)									
EB2315710-005	Anonymous	ED093S: Calcium	7440-70-2	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	280	270	5.0	0% - 20%
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Calcium	7440-70-2	10	mg/kg	10	<10	0.0	No Limit
EB2317261-001	Anonymous	ED093S: Magnesium	7439-95-4	10	mg/kg	10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	260	240	9.8	0% - 20%
		ED093S: Potassium	7440-09-7	10	mg/kg	60	50	22.5	No Limit
		EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5104937)							
EB2317032-002	BH01_0.3-0.5	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5104938)									
EB2317032-002	BH01_0.3-0.5	EK059G: Nitrite + Nitrate as N (Sol.)	-----	0.1	mg/kg	0.4	0.2	68.1	No Limit



Page : 3 of 3
Work Order : EB2317032
Client : BRISBANE CITY COUNCIL
Project : GK15 - Sherwood Arboretum & Secret Forest

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report		Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)		
EA002: pH 1:5 (Soils) (QCLot: 5104933)	----	----	pH Unit	----	4 pH Unit	101	98.0	102	
EA002: pH Value				----	7 pH Unit	100	98.0	102	
EA010: Conductivity (1:5) (QCLot: 5104934)									
EA010: Electrical Conductivity @ 25 °C	----	1	µS/cm	<1	1412 µS/cm	99.6	97.0	103	
ED093S: Soluble Major Cations (QCLot: 5104936)									
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	104	80.0	120	
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	104	80.0	120	
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	93.7	80.0	120	
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	92.9	80.0	120	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5104937)									
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	84.6	83.0	111	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5104938)									
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	95.8	83.2	111	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5104937)							
EB2317032-003	BH01_0.8-1	EK057G: Nitrite as N (Sol.)	14797-65-0	2 mg/kg	96.7	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5104938)							
EB2317032-003	BH01_0.8-1	EK059G: Nitrite + Nitrate as N (Sol.)	----	2 mg/kg	105	70.0	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB2317032	Page	: 1 of 5
Client	: BRISBANE CITY COUNCIL	Laboratory	: Environmental Division Brisbane
Contact	: [REDACTED]	Telephone	: +61 7 3552 8616
Project	: GK15 - Sherwood Arboretum & Secret Forest	Date Samples Received	: 08-Jun-2023
Site	: Sherwood Arboretum	Issue Date	: 15-Jun-2023
Sampler	: [REDACTED]	No. of samples received	: 56
Order number	: 123	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- NO Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation		Analysis		
Container / Client Sample ID(s)	Date extracted		Due for extraction	Date analysed	Due for analysis	Evaluation	
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) BH01_0.3-0.5, BH01_1.8-2, BH02_0.3-0.5, BH02_1.8-2,	BH01_0.8-1, BH01_2.3-2.5, BH02_0.8-1, BH02_2.8-3	06-Jun-2023	13-Jun-2023	13-Jun-2023	14-Jun-2023	✓	
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) BH01_0.3-0.5, BH01_1.8-2, BH02_0.3-0.5, BH02_1.8-2,	BH01_0.8-1, BH01_2.3-2.5, BH02_0.8-1, BH02_2.8-3	06-Jun-2023	13-Jun-2023	13-Jun-2023	11-Jul-2023	✓	
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) BH01_0.3-0.5, BH01_1.8-2, BH02_0.3-0.5, BH02_1.8-2,	BH01_0.8-1, BH01_2.3-2.5, BH02_0.8-1, BH02_2.8-3	06-Jun-2023	--	----	12-Jun-2023	20-Jun-2023	✓
ED093S: Soluble Major Cations							
Soil Glass Jar - Unpreserved (ED093S) BH01_0.3-0.5, BH01_1.8-2, BH02_0.3-0.5, BH02_1.8-2,	BH01_0.8-1, BH01_2.3-2.5, BH02_0.8-1, BH02_2.8-3	06-Jun-2023	13-Jun-2023	03-Dec-2023	14-Jun-2023	03-Dec-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK057G) BH01_0.3-0.5, BH01_1.8-2, BH02_0.3-0.5, BH02_1.8-2,	BH01_0.8-1, BH01_2.3-2.5, BH02_0.8-1, BH02_2.8-3	06-Jun-2023	13-Jun-2023	13-Jun-2023	14-Jun-2023	15-Jun-2023	✓



Matrix: SOIL		Evaluation: x = Holding time breach ; ✓ = Within holding time.					
Method	Sample Date	Extraction / Preparation		Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G)							
BH01_0.3-0.5,							
BH01_1.8-2,							
BH02_0.3-0.5,							
BH02_1.8-2,							
	BH01_0.8-1,						
	BH01_2.3-2.5,						
	BH02_0.8-1,						
	BH02_2.8-3						
	06-Jun-2023	13-Jun-2023	04-Jul-2023	✓	14-Jun-2023	15-Jun-2023	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: SOIL

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Method	Count		Rate (%)		Evaluation	Quality Control Specification
Analytical Methods			QC	Regular	Actual	Expected		
Laboratory Duplicates (DUP)								
Cations - soluble by ICP-AES	ED093S	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Electrical Conductivity (1:5)	EA010	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
pH (1:5)	EA002	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Laboratory Control Samples (LCS)								
Cations - soluble by ICP-AES	ED093S	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Electrical Conductivity (1:5)	EA010	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
pH (1:5)	EA002	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Method Blanks (MB)								
Cations - soluble by ICP-AES	ED093S	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Electrical Conductivity (1:5)	EA010	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Matrix Spikes (MS)								
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
NEPM 2013 B3 & ALS QC Standard								
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard	



Page : 5 of 5
Work Order : EB2317032
Client : BRISBANE CITY COUNCIL
Project : GK15 - Sherwood Arboretum & Secret Forest

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H ⁺ . pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

TURNAROUND REQUIREMENTS:

5 Days

LABORATORY USE ONLY (Circle)

Biohazard info:

[illegible]

Free ice / frozen ice bricks present upon receipt?

	Yes	No	N/A
--	-----	----	-----

CONTACT PH: SAMPLER MOBILE:
QUOTE NO: EB23BRICIT0002 / EB2023BRICIT0002

۲

PRIMARY SAMPLER:
EMAIL REPORTS TO:

/ EB2023ERICIT0002

EMAIL INVOICES TO:

SAMPLE DETAILS

ANALYSIS REQUIRED

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Table 2: Groundwater - Extended Water Suite GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	MW-1		12/06/2023 11:30 AM	WATER	ALS: 6 Non ALS: 0	No	X	NT-4S Nitrates & Nitrites	
002	MW-2		12/06/2023 12:15 AM	WATER	ALS: 5 Non ALS: 0	No	X	NT-4S Nitrates & Nitrites	
003	MW-3		12/06/2023 01:45 PM	WATER	ALS: 5 Non ALS: 0	No	X	NT-4S Nitrates & Nitrites	
004	MW-4		12/06/2023 02:00 PM	WATER	ALS: 5 Non ALS: 0	No	X	NT-4S Nitrates & Nitrites	

Environmental Division
Brisbane
Work Order - Reference
EB2317736



Telephone: + 61-7-3243 7222



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2317736**

Client : **BRISBANE CITY COUNCIL**

Contact : [REDACTED]

Address : [REDACTED]

Laboratory : **Environmental Division Brisbane**

Contact : [REDACTED]

Address : **2 Byth Street Stafford QLD Australia 4053**

E-mail : [REDACTED]

Telephone : [REDACTED]

E-mail : [REDACTED]

Telephone : [REDACTED]

Project : **Sherwood Arboretum & Secret Forest**

Order number : [REDACTED]

Page : **1 of 3**

Quote number : **EB2023BRICIT0002**

(EB23BRICIT0002)

C-O-C number : **53536**

QC Level : **NEPM 2013 B3 & ALS QC Standard**

Site : **Sherwood Arboretum & Secret Forest**

Sampler : [REDACTED]

Dates

Date Samples Received : **13-Jun-2023 10:10**

Issue Date : **13-Jun-2023**

Client Requested Due Date : **19-Jun-2023**

Scheduled Reporting Date : **19-Jun-2023**

Delivery Details

Mode of Delivery : **Client Drop Off**

Security Seal : **Not Available**

No. of coolers/boxes : **1**

Temperature : **-0.4°C - Ice present**

Receipt Detail : **ESKY**

No. of samples received / analysed : **4 / 4**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - NT-04 Nitrite and Nitrate	WATER - NT-14 Extended Water Suite B
EB2317736-001	12-Jun-2023 11:30	MW-1	✓	✓
EB2317736-002	12-Jun-2023 00:15	MW-2	✓	✓
EB2317736-003	12-Jun-2023 13:45	MW-3	✓	✓
EB2317736-004	12-Jun-2023 14:00	MW-4	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
Client Sample ID(s)							
EA005-P: pH by Auto Titrator							
MW-1	Clear Plastic Bottle - Natural	----	12-Jun-2023	13-Jun-2023	✗	----	----
MW-2	Clear Plastic Bottle - Natural	----	12-Jun-2023	13-Jun-2023	✗	----	----
MW-3	Clear Plastic Bottle - Natural	----	12-Jun-2023	13-Jun-2023	✗	----	----
MW-4	Clear Plastic Bottle - Natural	----	12-Jun-2023	13-Jun-2023	✗	----	----



Requested Deliverables

ACCOUNTS PAYABLE (Invoice)

- A4 - AU Tax Invoice (INV)

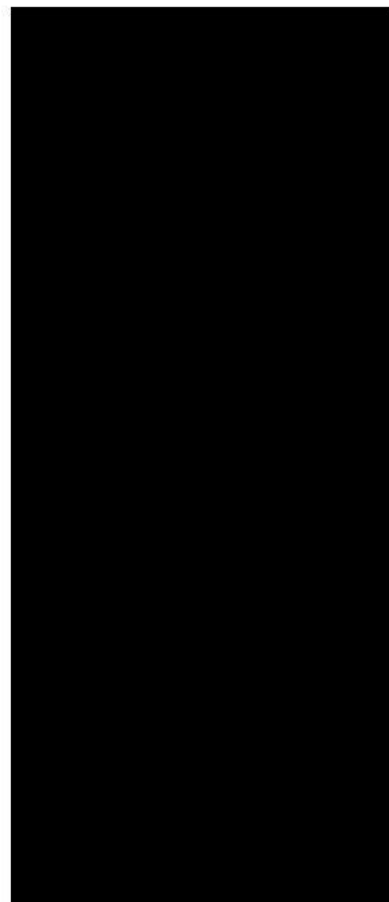
Email accountspayable@brisbane.qld.gov.au

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CERTIFICATE OF ANALYSIS

Work Order : **EB2317736**
Client : **BRISBANE CITY COUNCIL**
Contact : **[REDACTED]**
Address : **[REDACTED]**
Telephone : **[REDACTED]**
Project : **Sherwood Arboretum & Secret Forest**
Order number : **4400529397**
C-O-C number : **53536**
Sampler : **[REDACTED]**
Quote number : **Sherwood Arboretum & Secret Forest**
No. of samples received : **EB23BRICIT0002**
No. of samples analysed : **4**
No. of samples analysed : **4**

Page : 1 of 4
Laboratory : Environmental Division Brisbane
Contact : Carsten Enrich
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61 7 3552 8616
Date Samples Received : 13-Jun-2023 10:10
Date Analysis Commenced : 13-Jun-2023
Issue Date : 19-Jun-2023 09:37



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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	Position	Accreditation Category
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



Page : 2 of 4
Work Order : EB2317736
Client : BRISBANE CITY COUNCIL
Project : Sherwood Arboretum & Secret Forest

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- It is recognised that EK059G (Nitrite + Nitrate) is less than EK057G (Nitrite) for sample MW-4 (EB2317736-004). However, the difference is within experimental variation of the methods.
- EK061G (Total Kjeldahl Nitrogen as N): Sample MW-1 (EB2317736-001) was diluted due to matrix interference. LOR adjusted accordingly.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO₂ and Fluoride to the Anions.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.