Photograph 5 **Date:** 18/08/2019	Montessori School South face soil sample.

Photograph 6 **Date:** 18/08/2019	Montessori School South face – close up of a soil sample

Photograph 7 **Date:** 18/08/2019	Montessori School South face soil sample .

Photograph 8 **Date:** 18/08/2019	Montessori School south face soil sample

ATTACHMENT B

Sample Receipt Advice, COC Documentation and Laboratory Reports

DOCUMENT 53

SAMPLE RECEIPT ADVICE

SE196644

CLIENT DETAILS

Contact	
Client	Robson Environmental Pty Ltd
Address	140 Gladstone Street, FYSHWICK PO Box 112, FYSHWICK ACT 2609
Telephone	
Facsimile	
Email	
Project	**T01035 SA**
Order Number	**T01035**
Samples	4

LABORATORY DETA LS

Manager	
Laboratory	
Address	
Telephone	
Facsimile	
Email	
Samples Received	Tue 20/8/2019
Report Due	Wed 21/8/2019
	SE196644

SUBMISSION DETAILS

This is to confirm that 4 samples were received on Tuesday 20/8/2019. Results are expected to be ready by COB Wednesday 21/8/2019.
Please quote when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider		Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	4 Soil
Date documentation received	20/8/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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

COMMENTS

1 water sample has been placed on hold as no tests have been assigned for it. This sample will not be processed.

SAMPLE RECEIPT ADVICE

SE196644

CLIENT DETAILS

Client Robson Environmental Pty Ltd

Project T01035 SA

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	Total Recoverable Elements in Soil/Waste
001	SS 25 0.0-0.2	1	1
002	SS 26 0.0-0.2	1	1
003	SS 27 0.0.-0.2	1	1
004	QC 01 0.0-0.2	1	1

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

Robson ENVIRONMENTAL

Occupational Hygiene
Health Safety &
Environmental Consulting

CHAIN OF CUSTODY FORM

Quote No. : LVM1DX

Job No. : T01035

From: Robson Environmental Pty Ltd
PO Box 112 Fyshwick ACT 2609
140 Gladstone Street
Fyshwick ACT 2609
ABN: 55 008 660 900

Contact: [redacted]
Phone:
Mobile:
Fax:
Email: results@robsonenviro.com.au

Client Information: ACT PG

Site Address: YARRALUMLA PS

Sampled by: [redacted]

Job Name: SA

ESDAT Files YES
NEPM Report YES

Required Turnaround Time:
24hr [X] 48hr [ ] 5 days [ ]
36hr [ ] 72hr [ ]

To: [redacted]
Contact: [redacted]
Phone:
Mobile
Fax:
Email:

Lab ID	Sample ID	Sample Depth	Date Sampled	Sample Location	No. of Sample Jars	Sample Type	Sample Preservation (Ice, Acid, Ambient)	Analysis Required: LEAD (Pb)	Comments
1	SS 25	0.0-0.2	18.08.14	EAST GB. SOUTH	1	SOIL	AMBIENT	X	
2	SS 26	↓	↓	EAST GB. CENTRAL	1	SOIL	AMBIENT	X	
3	SS 27			EAST G.B NORTH	1	SOIL	AMBIENT	X	
4	QC 01			EAST GB C. NORTH	1	SOIL	AMBIENT	X	
	R01								

[redacted]

Relinquished by: [redacted]	Date: 14/08/2014		Time: 2pm	Received by: [redacted]	Time: 20/8/14 @ 11 am 13°C
Relinquished by:	Date:		Time:	Received by:	Time:
Relinquished by:	Date:		Time:	Received by:	Time:

CL6: TRH, BTEX & Pb
CL2: 8 Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
CL15: TRH, BTEX, PAH, Phenols, OC, OP, PCB & 8 Heavy Metals
RS3: TRH, BTEX, PAH, Phenols, OC, PCB & 8 Heavy Metals
Mirco 2: E.Coli, Faecal Coliforms, Total Coliforms
CL4: TRH C_6-C_9 and BTEX

[redacted]

ANALYTICAL REPORT

Accreditation No. [redacted]

CLIENT DETAILS

Contact	[redacted]
Client	Robson Environmental Pty Ltd
Address	140 Gladstone Street, FYSHWICK PO Box 112, FYSHWICK ACT 2609
Telephone	[redacted]
Facsimile	
Email	
Project	**T01035 SA**
Order Number	**T01035**
Samples	4

LABORATORY DETAILS

Manager	[redacted]
Laboratory	
Address	
Telephone	[redacted]
Facsimile	
Email	[redacted]
[redacted]	**SE196644 R0**
Date Received	20/8/2019
Date Reported	21/8/2019

COMMENTS

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

SIGNATORIES

[redacted]

Senior Chemist

[redacted]

ANALYTICAL RESULTS

SE196644 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 20/8/2019

PARAMETER	UOM	LOR	SS 25 0.0-0.2 SOIL - 18/8/2019 SE196644.001	SS 26 0.0-0.2 SOIL - 18/8/2019 SE196644.002	SS 27 0.0.-0.2 SOIL - 18/8/2019 SE196644.003	QC 01 0.0-0.2 SOIL - 18/8/2019 SE196644.004
Lead, Pb	mg/kg	1	19	31	130	31

ANALYTICAL RESULTS

SE196644 R0

Moisture Content [AN002] Tested: 20/8/2019

PARAMETER	UOM	LOR	SS 25 0.0-0.2 SOIL - 18/8/2019 SE196644.001	SS 26 0.0-0.2 SOIL - 18/8/2019 SE196644.002	SS 27 0.0.-0.2 SOIL - 18/8/2019 SE196644.003	QC 01 0.0-0.2 SOIL - 18/8/2019 SE196644.004
% Moisture	%w/w	0.5	8.2	13.0	18.0	12.6

[redacted]

METHOD SUMMARY

SE196644 R0

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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

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

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

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

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

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

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

The QC and MU criteria are subject to internal review according to the [redacted] QAQC plan and may be provided on request or alternatively can be found here: [redacted]

This document is issued by the Company under its General Conditions of Service accessible at [redacted]
Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This report must not be reproduced, except in full.

[redacted]

STATEMENT OF QA/QC PERFORMANCE

SE196644 R0

CLIENT DETAILS		LABORATORY DETAILS	
Contact	[redacted]	Manager	[redacted]
Client	Robson Environmental Pty Ltd	Laboratory	
Address	140 Gladstone Street, FYSHWICK PO Box 112, FYSHWICK ACT 2609	Address	
Telephone	[redacted]	Telephone	[redacted]
Facsimile		Facsimile	
Email		Email	
Project	**T01035 SA**	[redacted]	**SE196644 R0**
Order Number	**T01035**	Date Received	20 Aug 2019
Samples	4	Date Reported	21 Aug 2019

COMMENTS

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

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

All Data Quality Objectives were met (within the [redacted] laboratory).

SAMPLE SUMMARY

[redacted]

HOLDING TIME SUMMARY

SE196644 R0

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

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

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS 25 0.0-0.2	SE196644.001	LB181353	18 Aug 2019	20 Aug 2019	01 Sep 2019	20 Aug 2019	25 Aug 2019	21 Aug 2019
SS 26 0.0-0.2	SE196644.002	LB181353	18 Aug 2019	20 Aug 2019	01 Sep 2019	20 Aug 2019	25 Aug 2019	21 Aug 2019
SS 27 0.0.-0.2	SE196644.003	LB181353	18 Aug 2019	20 Aug 2019	01 Sep 2019	20 Aug 2019	25 Aug 2019	21 Aug 2019
QC 01 0.0-0.2	SE196644.004	LB181353	18 Aug 2019	20 Aug 2019	01 Sep 2019	20 Aug 2019	25 Aug 2019	21 Aug 2019

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS 25 0.0-0.2	SE196644.001	LB181345	18 Aug 2019	20 Aug 2019	14 Feb 2020	20 Aug 2019	14 Feb 2020	21 Aug 2019
SS 26 0.0-0.2	SE196644.002	LB181345	18 Aug 2019	20 Aug 2019	14 Feb 2020	20 Aug 2019	14 Feb 2020	21 Aug 2019
SS 27 0.0.-0.2	SE196644.003	LB181345	18 Aug 2019	20 Aug 2019	14 Feb 2020	20 Aug 2019	14 Feb 2020	21 Aug 2019
QC 01 0.0-0.2	SE196644.004	LB181345	18 Aug 2019	20 Aug 2019	14 Feb 2020	20 Aug 2019	14 Feb 2020	21 Aug 2019

SURROGATES

SE196644 R0

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

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

No surrogates were required for this job.

METHOD BLANKS

SE196644 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2 5 times the statistically determined method detection limit (MDL).

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

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

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

Sample Number	Parameter	Units	LOR	Result
LB181345.001	Lead, Pb	mg/kg	1	<1

DUPLICATES

SE196644 R0

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

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

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

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

No duplicates were required for this job.

[redacted]

LABORATORY CONTROL SAMPLES

SE196644 R0

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

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

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB181345.002	Lead, Pb	mg/kg	1	95	107.87	79 - 120	88

[redacted]

MATRIX SPIKES

SE196644 R0

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

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

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE196644.001	LB181345.004	Lead, Pb	mg/kg	1	60	19	50	81

MATRIX SPIKE DUPLICATES

SE196644 R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

FOOTNOTES

SE196644 R0

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the QA/QC plan and may be provided on request or alternatively can be found here:

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

DOCUMENT 53

SAMPLE RECEIPT ADVICE

SE197178

CLIENT DETAILS

Contact	
Client	Robson Environmental Pty Ltd
Address	140 Gladstone Street, FYSHWICK PO Box 112, FYSHWICK ACT 2609
Telephone	
Facsimile	
Email	
Project	**T01035 Lead in Paint Assessment**
Order Number	**T01035**
Samples	11

LABORATORY DETA LS

Manager	
Laboratory	
Address	
Telephone	
Facsimile	
Email	
Samples Received	Tue 3/9/2019
Report Due	Thu 5/9/2019
	SE197178

SUBMISSION DETAILS

This is to confirm that 11 samples were received on Tuesday 3/9/2019. Results are expected to be ready by COB Thursday 5/9/2019. Please quote hen making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider		Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	10 Soil
Date documentation received	3/9/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	17.4°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

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

COMMENTS

SAMPLE RECEIPT ADVICE

SE197178

CLIENT DETAILS

Client: Robson Environmental Pty Ltd

Project: T01035 Lead in Paint Assessment

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	Total Recoverable Elements in Soil/Waste	Trace Metals (Dissolved) in Water by ICPMS
001	Pb-25	1	1	-
002	Pb-26	1	1	-
003	Pb-27	1	1	-
004	Pb-28	1	1	-
005	Pb-29	1	1	-
006	Pb-30	1	1	-
007	Pb-31	1	1	-
008	Pb-32	1	1	-
009	Pb-33	1	1	-
010	QC01	1	1	-
011	R01	-	-	1

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

Robson ENVIRONMENTAL

Occupational Hygiene Health Safety & Environmental Consulting

CHAIN OF CUSTODY FORM

Job No. : T01035

From: Robson Environmental Pty Ltd
PO Box 112 Fyshwick ACT 2609
140 Gladstone Street
Fyshwick ACT 2609
ABN: 55 008 660 900

Contact: [redacted]
Phone:
Mobile:
Fax:
Email: results@robsonenviro.com.au

Client Information: ACT Property Group

Site Address: Yarralumla Primary School

Sampled by: [redacted]

Job Name: Lead in Paint Assessment

ESDAT Files Required **YES**

Required Turnaround Time:
24hr [ ] 48hr [X] 5-7 days [ ]
36hr [ ] 72hr [ ]

To: [redacted]

Contact: [redacted]
Phone:
Mobile:
Fax:
Email:

Analysis Required

Lab ID	Sample ID	Sample Depth	Date Sampled	Sample Location	No. of Sample Jars	Sample Type	Sample Preservation (Ice, Acid, Ambient)	Lead (Pb)	Comments
1	Pb-25		1/09/2019		1	Soil	Ambient	X	
2	Pb-26		1/09/2019		1	Soil	Ambient	X	
3	Pb-27		1/09/2019		1	Soil	Ambient	X	
4	Pb-28		1/09/2019		1	Soil	Ambient	X	
5	Pb-29		1/09/2019		1	Soil	Ambient	X	
6	Pb-30		1/09/2019		1	Soil	Ambient	X	
7	Pb-31		1/09/2019		1	Soil	Ambient	X	
8	Pb-32		1/09/2019		1	Soil	Ambient	X	
9	Pb-33		1/09/2019		1	Soil	Ambient	X	
10	QC01		1/09/2019		1	Soil	Ambient	X	
11	R01		1/09/2019		1	Water	Ambient	X	

[redacted]

Relinquished by: [redacted]	Date: 2/09/2019	Time: 2pm	Received by: [redacted]	Time: 3/9/19 10.45pm	
Relinquished by:	Date:	Time:	Received by:	Time:	
Relinquished by:	Date:	Time:	Received by:	Time:	

CL6: TRH, BTEX & Pb
CL15: TRH, BTEX, PAH, Phenols, OC, OP, PCB & 8 Heavy Metals
Mirco 2: E.Coli, Faecal Coliforms, Total Coliforms
CL2: 8 Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, H
RS3: TRH, BTEX, PAH, Phenols, OC, PCB & 8 Heavy Metals
CL4: TRH C_6-C_9 and BTEX

DOCUMENT 53

[redacted]

ANALYTICAL REPORT

Accreditation No. [redacted]

CLIENT DETAILS

Contact	[redacted]
Client	Robson Environmental Pty Ltd
Address	140 Gladstone Street, FYSHWICK PO Box 112, FYSHWICK ACT 2609
Telephone	[redacted]
Facsimile	
Email	
Project	**T01035 Lead in Paint Assessment**
Order Number	**T01035**
Samples	11

LABORATORY DETAILS

Manager	[redacted]
Laboratory	
Address	
Telephone	[redacted]
Facsimile	
Email	
	[redacted] **SE197178 R1**
Date Received	3/9/2019
Date Reported	24/9/2019

COMMENTS

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

This report cancels and supersedes the report No. [redacted] issued by [redacted] Health and Safety due to modifying the sample ID on samples .001 to .009.

SIGNATORIES

[redacted]

[redacted]

[redacted]

ANALYTICAL RESULTS

SE197178 R1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 3/9/2019

PARAMETER	UOM	LOR	SS28 SOIL - 1/9/2019 SE197178.001	SS29 SOIL - 1/9/2019 SE197178.002	SS30 SOIL - 1/9/2019 SE197178.003	SS31 SOIL - 1/9/2019 SE197178.004	SS32 SOIL - 1/9/2019 SE197178.005
Lead, Pb	mg/kg	1	190	99	62	74	17

PARAMETER	UOM	LOR	SS33 SOIL - 1/9/2019 SE197178.006	SS34 SOIL - 1/9/2019 SE197178.007	SS35 SOIL - 1/9/2019 SE197178.008	SS36 SOIL - 1/9/2019 SE197178.009	QC01 SOIL - 1/9/2019 SE197178.010
Lead, Pb	mg/kg	1	93	74	40	50	70

ANALYTICAL RESULTS

SE197178 R1

Moisture Content [AN002] Tested: 3/9/2019

PARAMETER	UOM	LOR	SS28 SOIL - 1/9/2019 SE197178.001	SS29 SOIL - 1/9/2019 SE197178.002	SS30 SOIL - 1/9/2019 SE197178.003	SS31 SOIL - 1/9/2019 SE197178.004	SS32 SOIL - 1/9/2019 SE197178.005
% Moisture	%w/w	0.5	5.4	6.4	5.5	6.9	9.1

PARAMETER	UOM	LOR	SS33 SOIL - 1/9/2019 SE197178.006	SS34 SOIL - 1/9/2019 SE197178.007	SS35 SOIL - 1/9/2019 SE197178.008	SS36 SOIL - 1/9/2019 SE197178.009	QC01 SOIL - 1/9/2019 SE197178.010
% Moisture	%w/w	0.5	10.6	10.1	9.7	8.8	6.9

ANALYTICAL RESULTS

SE197178 R1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 4/9/2019

PARAMETER	UOM	LOR	R01 WATER - 1/9/2019 SE197178.011
Lead, Pb	µg/L	1	<1

[redacted]

METHOD SUMMARY

SE197178 R1

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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

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

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

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

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

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

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

The QC and MU criteria are subject to internal review according to the [redacted] QAQC plan and may be provided on request or alternatively can be found here [redacted]

This document is issued by the Company under its General Conditions of Service accessible at [redacted]
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[redacted]

STATEMENT OF QA/QC PERFORMANCE

SE197178 R1

CLIENT DETAILS		LABORATORY DETAILS	
Contact	[redacted]	Manager	[redacted]
Client	Robson Environmental Pty Ltd	Laboratory	
Address	140 Gladstone Street, FYSHWICK PO Box 112, FYSHWICK ACT 2609	Address	
Telephone	[redacted]	Telephone	[redacted]
Facsimile		Facsimile	
Email		Email	
Project	**T01035 Lead in Paint Assessment**	[redacted]	**SE197178 R1**
Order Number	**T01035**	Date Received	03 Sep 2019
Samples	11	Date Reported	24 Sep 2019

COMMENTS

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

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

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

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

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	[redacted]	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	10 Soil, 1 Water
Date documentation received	3/9/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	17.4°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

[redacted]

HOLDING TIME SUMMARY

SE197178 R1

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

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

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS28	SE197178.001	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS29	SE197178.002	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS30	SE197178.003	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS31	SE197178.004	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS32	SE197178.005	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS33	SE197178.006	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS34	SE197178.007	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS35	SE197178.008	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
SS36	SE197178.009	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019
QC01	SE197178.010	LB182349	01 Sep 2019	03 Sep 2019	15 Sep 2019	03 Sep 2019	08 Sep 2019	04 Sep 2019

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS28	SE197178.001	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS29	SE197178.002	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS30	SE197178.003	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS31	SE197178.004	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS32	SE197178.005	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS33	SE197178.006	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS34	SE197178.007	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS35	SE197178.008	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
SS36	SE197178.009	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019
QC01	SE197178.010	LB182341	01 Sep 2019	03 Sep 2019	28 Feb 2020	03 Sep 2019	28 Feb 2020	04 Sep 2019

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
R01	SE197178.011	LB182375	01 Sep 2019	03 Sep 2019	28 Feb 2020	04 Sep 2019	28 Feb 2020	04 Sep 2019

SURROGATES

SE197178 R1

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

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

No surrogates were required for this job.

METHOD BLANKS

SE197178 R1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2 5 times the statistically determined method detection limit (MDL).

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

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

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

Sample Number	Parameter	Units	LOR	Result
LB182341.001	Lead, Pb	mg/kg	1	<1

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB182375.001	Lead, Pb	µg/L	1	<1

DUPLICATES

SE197178 R1

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

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

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

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE197178.010	LB182349.011	% Moisture	%w/w	0.5	6.9	7.2	44	3

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE197178.008	LB182341.014	Lead, Pb	mg/kg	1	40	21	33	63 ②
SE197178.010	LB182341.017	Lead, Pb	mg/kg	1	70	74	31	6

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE197189.001	LB182375.018	Lead, Pb	µg/L	1	<1	<1	200	0

[redacted]

LABORATORY CONTROL SAMPLES

SE197178 R1

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the [redacted] For more information refer to the footnotes in the concluding page of this report.

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

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB182341.002	Lead, Pb	mg/kg	1	99	89.9	80 - 120	92

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB182375.002	Lead, Pb	µg/L	1	21	20	80 - 120	107

[redacted]

MATRIX SPIKES

SE197178 R1

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

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

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE197173.001	LB182341.004	Lead, Pb	mg/kg	1	450	500	50	-119 ⑨

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE197169.001	LB182375.004	Lead, Pb	µg/L	1	21	<1	20	102

MATRIX SPIKE DUPLICATES

SE197178 R1

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

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

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

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

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

No matrix spike duplicates were required for this job.

FOOTNOTES

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the QA/QC plan and may be provided on request or alternatively can be found here:

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

Document Reference: T01035_EAR_SA_Lead_20191018

Evan Byrne
ACT Property Group

225 Canberra Avenue,
Fyshwick, ACT 2609.

Evan.Byrne@act.gov.au

Friday, 18 October 2019

Dear Evan,

Re: T01035 – Lead in Soil Assessment – Yarralumla Primary School 24 Loftus street Yarralumla ACT 2600 (Block 12 Section 82 Yarralumla ACT 2600).

INTRODUCTION

ACT Property Group engaged Robson Environmental Pty Ltd (Robson) in September 2019 to undertake an assessment of soil for potential lead contamination in the playground area north of the Montessori School building located at Loftus street Yarralumla ACT 2600, herein referred to as 'the site'. The location of the site is shown on **Figure 1**.

It is understood that there is known lead based paint (greater than 0.1 percent weight/weight (%w/w) on certain buildings on the site. This paint had been assessed as being in a poor condition (flaking) and it has been recommended that the paint be removed to reduce exposure risk. On completion of abatement it has been requested that the soil within the footprint of the remediation activity be assessed for potential lead contamination.

OBJECTIVE

The objective of the assessment documented within this letter report was to assess the soil for potential lead contamination to determine the potential lead exposure risk to occupants of the site.

SCOPE OF WORK

The scope of work undertaken for the soil assessment included the following:

- Preparation of a safe work method statement (SWMS) for works on the site;
- Mobilisation of a suitably qualified environmental consultant (SQEC) to locate the sample locations and with the use of a stainless steel shovel collect near surface soil samples;
- In total three (3) sample locations were selected across the site to determine whether lead contamination was present within the footprint of the remediation activity;
- Based on the known source of the lead contamination (exterior paint on the buildings) the soil samples were taken from a depth of 0.0-0.2 meters below ground level (mbgl).
- The soil samples were submitted to National Association of Testing Authorities (NATA) accredited laboratory. Laboratory analysis of the soil samples included the following:
    - Analysis of three (3) primary soil samples; one (1) sample per location;
    - All primary samples were analysed for lead;

  - As part of the QA/QC program the analysis of one (1) duplicate sample was collected for analysis;
  - The duplicate was analysed as per the primary samples.
- Review and interpretation of field and laboratory results;
- Preparation of this assessment report detailing the findings of the soil assessment.

ADOPTED ASSESSMENT CRITERIA

The purpose of this soil assessment was to assess the soil for potential lead contamination. Therefore, the surface soil has been assessed against the criteria presented in the National Environment Protection Council (NEPC, 1999) '*National Environment Protection (Assessment of Site Contamination) Measure 1999*' as amended in May 2013 (ASC NEPM, 2013) for both health-based investigation levels (HIL) as well as ecological investigation levels (EIL) for the protection of terrestrial ecosystems.

As a conservative approach it is considered that the most applicable criteria to assess the potential risk to human health from contaminant concentrations are the ASC NEPM (2013) HIL 'A' '*Residential with garden accessible soil (home grown produce less than 10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools*' criteria.

The ASC NEPM (2013) indicates that the EIL should generally be applied to contaminants in the top 2 meters of soil at the finished surface/ground level for generic land use settings, therefore the ASC NEPM (2013) EIL urban residential/public open space criteria have also been considered.

SAMPLING METHODOLOGY

The sampling and assessment works were undertaken in accordance with the following the following ACT legislation and ACT EPA endorsed guidelines:

- *ACT Environment Protection Act 1997;*
- *ACT Environment Protection Regulation 2005;*
- Work Health and Safety Act 2011;
- Work Health and Safety Regulation 2011;
- ACT EPA (2017) *'Contaminated Sites – Environment Protection Policy';*
- Australian Standard AS4361.2-2017 '*Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings';*
- Australian Standard AS4482.1-2005 '*Guide to the sampling and investigation of potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*';
- NSW EPA (1995) '*Sampling Design Guidelines*'.
- National Environment Protection Council (NEPC, 1999) '*National Environment Protection (Assessment of Site Contamination) Measure 1999*', amended 2013, herein referred to as the ASC NEPM (2013).

The number of sample locations required to assess the site was based on the area of the playground area north of the Montessori School or where the presence of paint flakes had been observed on the soil surface. Due to the linear nature of the assessment area Robson

considers a sampling density of one (1) sample every 5 linear meters (lm) appropriate for purposes of this assessment.

- The playground area north of the Montessori School had an area of concern spanning approximately fifteen (15) lm so three (3) soil samples were taken;

Soil samples were collected in general accordance with Robson SOP '*Soil Sampling and Logging*' (EAR-SOP003). At each location, primary soil samples were collected at the near surface (0.0-0.2 mbgl); the targeted depth.

Each sample was collected from the stainlesfs steel shovel using a new, clean pair of nitrile gloves. Soil samples were placed into a clean laboratory-supplied glass jar marked with unique sample identification and sealed with a Teflon-lined screw cap, and immediately placed into a container for transport to a National Association of Testing Authorities (NATA) accredited laboratory. Chain of custody (COC) documentation was completed and accompanied the samples to the laboratory.

For quality assurance/quality control (QA/QC) purposes, one (1) duplicate sample was collected and analysed at a minimum rate of 1 in 20 samples. The duplicate sample was submitted to the primary laboratory and used to assess the reproducibility of the sampling and analytical methods. The QA/QC samples were labelled with no reference to the primary sample on the sample container or COCs to ensure the analytical results were not biased by the laboratories.

It is noted that a rinsate sample was not deemed necessary for this assessment as each sample was taken with a clean pair of nitrate gloves and with reusable equipment.

FIELDWORK AND OBSERVATIONS

A SQEC from Robson undertook the fieldwork on 7 September 2019. The sample locations are shown on **Figure 2** and the field observations are summarised below and photographs are shown in **Attachment A**.

- SS37 to SS39 were located in the playground area north of the Montessori School;

The soil present within the sample locations was observed to be fill and comprised of a dry silty sand, brown, loose with some rootlets and organic matter.

There were no odours or visual indications of contamination including asbestos containing material (ACM) observed.

A total of three (3) primary soil samples were collected from near the surface (0.0 – 0.2) at each location.

The QA/QC sample collected for the assessment included the following:

- Sample QC01 which is a duplicate of primary sample SS39 (0.0-0.2);

LABORATORY ANALYSIS

The primary samples and the duplicate were submitted to [redacted] which is NATA accredited for the analysis performed.

All samples were analysed for lead.

Analytical Results

The analytical results are summarised in **Table 1** and the sample receipts, COC documentation and certified laboratory analytical reports are included in **Attachment B**.

In summary, the surface soil samples analysed returned lead concentrations below the ASC NEPM (2013) HIL 'A' and EIL residential and urban open space criteria of 300 milligrams per kilogram (mg/kg) and 1100 mg/kg respectively (most sensitive). The lead concentration in soil samples analysed ranged from 14 to 21 mg/kg.

QUALITY ASSURANCE AND QUALITY CONTROL RESULTS (QA/QC)

Field QA/QC

As indicated previously, a duplicate sample was collected and analysed to assess the reproducibility of the sampling procedures and the laboratory analytical methods used. This was assessed via calculation of the Relative Percentage Difference (RPD) for a primary soil sample and the corresponding field duplicate sample. The calculation of the RPDs is a method of normalising two (2) values and allows a comparison between values and represents the differences between the primary and QC sample, divided by the average of the two (2) results expressed as a percentage. The RPD is calculated using the following formula:

$$RPD = \frac{\text{Result No. 1} - \text{Result No. 2} \times 100}{\text{Mean result}}$$

Calculated RPD results would be considered acceptable when the value is less than 50 %. Also, when the analyte concentration is less than five (5) times the laboratory LOR any RPD is considered acceptable. Should the RPD value exceed 50%, then further investigation to the cause of the difference between the primary and QC results would be undertaken.

The analytical results and calculation of the RPDs for the duplicate pairs are presented in **Table 1 and 2.**

Laboratory QA/QC

The results of the laboratory internal quality control program are included along with the laboratory reports in **Attachment B**. The acceptable limits for the laboratory QA/QC are presented below in **Table A**.