Network Geotechnics Pty Ltd

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THE TURNBULL GROUP

PROPOSED STAGE 2 & 3 RESIDENTIAL SUBDIVISION

LOT 1 DP1045990 PRINCES HWY, DOLPHIN POINT

PRELIMINARY CONTAMINATION ASSESSMENT

REPORT G25192/1-B AUGUST 2006

Network Geotechnics Pty Ltd

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G25192/1-B VdS:KW
17th August 2006

The Turnbull Group
Suite 1, 1 Ridge Street
NORTH SYDNEY NSW 2060

Attention: Sandra Bailey

Dear Sir

Re: Proposed Stages 2 & 3 Residential Subdivision, Lot 1 DP1045990, Princes Highway, Dolphin Point: Preliminary Contamination Assessment.

Please find enclosed our report on preliminary contamination studies undertaken for the above project.

The report presents the results of a site history search, limited field and laboratory testing, provides description of surface and subsurface conditions and an assessment of the suitability of the site for proposed development in regards to contamination issues.

Please contact Mr Gary Peake or the undesigned if you require further assistance.

For and on behalf of
Network Geotechnics Pty Ltd

R J King *BE (Civil)*
Principal Geotechnical Engineer

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EXECUTIVE SUMMARY

Title:	Proposed Residential Subdivision at Lot 1 DP1045590 Princes Highway, Dolphin Point (Stage 2 and 3)
Principal:	Elderslie Property Investment Pty Ltd.
Aim of Study:	Preliminary Site contamination assessment in accordance with the provisions of SEPP55.
The Site:	The site covers a total area of 48.585ha bound by Princes Highway to the north-west, Dolphin Point Road to the east and Barnunji State Recreation Area to the east, south and west.
Nature of Development:	Proposed development is programmed to be in five stages. Stage 1 comprised 71 residential lot subdivision covering about 9.96ha which is now completed and lots are being sold. Stage 2 is proposed to include 134 residential lots covering 15.22ha. Stage 3 covering an area of about 4.98ha is proposed to include 25 residential lots. Stage 4 is proposed to be commercial/retail area and Stage 5 is proposed as passive recreation area.
Previous Studies:	Previous studies available for reference included a preliminary environmental assessment prepared by The Turnbull Group and a preliminary contamination assessment for Stage 3 development prepared by Network Geotechnics. The latter included a historical data review (title records and aerial photographs), a walkover assessment and preliminary sampling and testing. This investigation found a relatively low potential for contamination arising out of occasional previous crop cultivation and possible contamination in dam sediments.
Current Study:	The current investigation comprised a review of previous investigation results and a program of subsurface exploration including 10 boreholes and testing of soil samples for contamination assessment. Soil samples were also tested to assess the presence of acid sulphate soils (Potential Acid Sulphate Soils - PASS and Actual Acid Sulphate Soils - AASS). Walkover assessment and historical search did not reveal a potential risk of site contamination. Soil samples tested did not record heavy metal and pesticide contamination above the health based guidelines. It is considered likely that any site contamination would be localised and would not affect the proposed Stage 2

and 3 developments. Potential contamination hot spots may include dam floors, areas immediately downstream of dams and areas occupied by past and present structures (sheds, cottages, etc). Any such contamination could be investigated during construction of the subdivision and remediated as a part of normal construction activities. It is considered that no further contamination investigation or remedial action plan would be required prior to construction of Stage 2 & 3.

The area proposed for Stage 2 and 3 development mainly occupies relatively high ground above RL 4m AHD. Acid sulphate soils are usually not expected at such elevations. A small area close to the north-east boundary of Stage 2 may be low lying and if excavation below about RL 3.5m is proposed, an acid sulphate management plan may be required.

1.0 INTRODUCTION

The Turnbull Group commissioned Network Geotechnics Pty Ltd to undertake a Phase 1 Preliminary Contamination Assessment to assess the likelihood of contamination of surface and subsurface soils at the site of a proposed Stage 2 and Stage 3 Residential Subdivision at Burrill Lake (Dolphin Point). Proposed development includes about 134 residential lots in Stage 2 and 25 residential lots in Stage 3 and a road network including a collector road. The site is located as shown on the attached Drawing G25192/1-1.

The site is identified as Part of Lot 1 in DP1045990 which is situated between Dolphin Point Road to the east, Barnunj State Recreation Area to the west and south and east, Princes Highway to the north-west and north. The site for the proposed Stage 2 development occupies the southern portion of Lot 1 and covers an area of 15.22ha. Stage 3 occupies the north-western portion of Lot 1 and covers about 4.98ha.

It is understood that future project development would include Stage 4, mainly commercial and retail developments within Lot 2 DP1045990 and Stage 5 comprising a passive recreational areas. Proposed staging is shown in Drawing No G25192/1-4 attached.

The investigation was undertaken generally in accordance with our Proposal GC2006/38 of 21/3/06 and subsequent Addendum GC2006/38-A of 20/4/06. This report describes investigation procedures and presents the results of the preliminary contamination study, together with comment, discussion and recommendations.

This report should be read in conjunction with the attached General Notes.

2.0 SCOPE OF WORK

The objective of this Preliminary Contamination Assessment was to assess surface and subsurface conditions at the site in relation to suitability of the site for the proposed residential land use. The scope of work undertaken to achieve the objective included:

- Assessment of previous site use based on a review of historical aerial photographs, land titles record search and review of other documentation.
- Review of regional geology.
- Design and implementation of a preliminary field sampling and laboratory testing program.
- Sampling and testing for assessment of potential for acid sulphate soils.
- Preparation of a report presenting the results of the assessment of potential soil contamination at the site.

3.0 SITE IDENTIFICATION

The site identification details are summarised below:

Site Owner:	Dolphin Point Developments Pty Ltd
Site Address:	Princes Highway, Burrill Lake
Lot & Deposited Plan:	Lot 1 in DP1045990
Local Government Authority:	Shoalhaven City Council
Current Zoning:	Open Space - Recreation B (Private) 6(b) [deferred Residential 2(c)].
Proposed Zoning:	Residential 2(c)
Site Area:	20.20ha (Stage 2 & 3)
Surface Levels:	Approx RL 4.0 to 11.0m AHD
Site Locality Plan:	Refer to G25192/1-1
Site Layout Plan:	Refer to G25192/1-3

The portion of Lot 1 proposed for Stage 2 residential development is situated within regionally gently undulating terrain and, in particular, occupies north facing 2° to 3° slopes of a low ridgeline. The portion of lot proposed for stage 3 development occupies east facing 2° to 3° slope western.

The site is currently vacant and the ground surface comprises mostly grassed Silty SAND topsoil.

A natural drainage gully is located in between Stage 2 and 3 areas and drains to a large dam located to the north of the Stage 2 area. A second natural drainage gully lies inside the eastern boundary and drains to the wetland area below the dam to the north-east.

4.0 SITE HISTORY

4.1 Aerial Photographs

Aerial photographs were reviewed as part of the assessment of site history. The following information was obtained:

February 1950 (B&W)

The proposed Stage 2 and 3 area appears mostly vegetated with trees which are more dense along the southern drainage line. The drainage line appears to originate from a localised clearing within the Barnunj State Recreation Area (BSRA) to the west which is elsewhere occupied by trees. A prominent unsealed track lies along the western boundary of Stages 1 to 3. A faint unsealed track appears to lie along the eastern side of Stage 3 from Stage 1 which was partially cleared. There is some rural development near the highway within the area now occupied by Stage 1.

Areas to the east and south appeared heavily vegetated.

November 1959 (B&W)

The Stage 2 and 3 area and adjacent areas to the north, east and south appear similar to the 1950 photo. The BSRA appears to have been cleared since 1950 and replanted with small trees.

18/3/67 (B&W)

The entire site appears mostly cleared, exposing patches of probable grass and sand. Some trees remain along the drainage lines. Large areas within the site to north and south have been stripped, exposing probable sand. The area to the east has been lightly cleared exposing grass and trees.

The BSRA has become more vegetated and some unsealed tracks are visible to the west of Stage 3.

20/1/79 (B&W)

The site is vacant and appears grassed. A faint unsealed track still exists near the eastern boundary. Drainage lines were seen as prominent and appeared to discharge into a small to medium dam situated some 60 to 100m to the east of Stage 3.

The BSRA appears more vegetated since 1967 and the tracks have overgrown.

2/10/87 (B&W)

The appear similar to 1979 photo and the drainage lines appear less vegetated. The adjacent area to the north appears to be cropped. Several small cleared areas appeared within the Stage 3 area.

The BSRA appears more vegetated than the 1979 photo.

4/2/01 (Colour)

The site appears mostly grassed. The drainage lines are evident by a strip of trees and greener grass beside a narrow gully. A small dam near the north-west corner of Stage 2 is visible. The BSRA appears heavily vegetated. The site appears to have been used for grazing cattle.

Figures 1 & 6 of an Environmental Assessment Report by The Turnbull Group (2005) show the dam to the east of Stage 3 to be about 4 times larger than that which appeared in the above photographs and to extend close to the eastern boundary. Road construction has been completed within the Stage 1 site within the adjacent northern area.

4.2 Land Title Search

An historical land title search was carried out on our behalf by the NSW Land Titles Office. A summary of land title transactions revealed by our search is listed below:

Lot 1 in DP1045990

Date	Owner
2/3/1990	Dolphins Point Developments Pty Ltd (previously named Navmead P/L)
6/7/1989	Navmead Pty Ltd
20/2/1981	Malcomn Douglas Dingley
20/6/1955	Olivett Kathleen Dingley of Burrill Lake (Married Woman)

1/6/1951	Ngawl Gilles Dean (Widow) & Perpetual Trustee Company (Limited)
8/6/1942	George Dean of Wahroonga (Company Director)
4/8/1927	James Jonas of Burrill Lake (Farmer)
19/9/1924	Henry John Blackwall of Milton (Merchant)
11/9/1924	James Jonas of Burrill Lake (Farmer)
9/5/1889	George Ireland – Grant of Land Purchase

4.3 Review of Other Documentation

An Environmental Assessment Report by The Turnbull Group (2005) discusses clearing within the majority of the site (Lots 1 & 2) for previous agricultural activities which included a dairy and occasional crop cultivation in the lower lying areas near the wetland.

4.4 Summary of Historical Site Use

The search of historical site information has indicated the following:

- Between 1889 and 1955 the site had been owned by five private holders including a farmer, merchant, company director and widow. Previously, mostly heavily vegetated with trees, the Stage 1 to 3 sites were cleared sometime between 1959 and 1967 whilst under ownership by Olivett Kathleen Dingley (Married Woman), who also had the dam constructed to the east of the site sometime between 1967 and 1979.

- The Barnunj State Recreation Area to the west was cleared of trees sometime between 1950 and 1959 and has since been replanted and allowed to re-establish.

- The adjacent site to the north (Stage 1) appeared to be cropped sometime between 1981 and 1987 under ownership of Malcomn Douglas Dingley.

- The dam to the east was enlarged and the small dam within the north-west of Stage 3 possibly formed sometime between 2001 and 2005 during ownership by Dolphins Point Developers.

4.5 Potential Contamination Sources

No obvious onsite or off-site contamination sources were observed.

Potential contamination of surface and subsurface soils from previous and current land use was considered to include possible occasional crop cultivation on or adjacent to the Stage 3 site. Contaminants of concern were assessed to be heavy metals and organochlorine and organophosphate pesticides.

Migration of contaminants can occur in permeable subsoil and man made and natural drainage structures. Natural drainage gullies lie within site boundaries. The northern gully contains a small dam at its north-west end which receives stormwater flow from the Pacific Highway via a table drain along the western side of Stage 1. The extent of contamination migration is dependent on the hydrological environment and the chemical and physical characteristics of the contaminants. Subsurface drilling carried out for this investigation indicated Silty SAND/Clayey SAND alluvium to about 1.1m depth underlain by Sandy CLAY/Clayey SAND residual soils. Any

migration of contaminants would likely be within the more permeable upper alluvium.

4.6 Potential Receptors

The main potential contamination receptors are considered to include:

- Workers, site occupants and visitors who may come in contact with soil or airborne dust during or after future subdivision construction.
- The downstream wetland.

4.7 Contaminant Laydown & Transport Mechanisms

At this site, mobile contaminants would be expected to move down slowly through the Silty SAND topsoil and underlying alluvial soils and migrate laterally over higher clay content soils downslope from the source.

The movements of contaminants would be expected to be associated with groundwater flow (if present) towards the east.

An enquiry with the Department of Infrastructure, Planning and Natural Resources (Sydney-South Coast Region) indicated that on 6/12/05 there were two domestic groundwater bores within a 1km radius of the site. Groundwater bore GW031493 is situated along Dolphin Point Road to the south-east of the site and GW104109 is situated north of the Princes Highway. The drillers record for GW031493 indicates sand and silt to the full 7m depth of the bore. There was no water quality data available with the borehole information.

5.0 FIELDWORK

Fieldwork for Stage 3 was carried out on 30/11/05 and included a site inspection by our Principal Geotechnical Engineer and grab sampling at seven locations to depths of 0.15m. Approximate sample locations are shown on Drawing No G25192/1-2 attached.

Fieldwork for Stage 2 was carried out on 17/5/06 and included a site inspection, machine augering 10 holes to a maximum investigation depth of 3m, sampling within these holes for Potential Acid Sulphate Soils and near surface sampling at five locations (ES1 to ES5) to depths of 0.3m.

The site inspection was carried out by our Engineering Geologist who recorded site observations, selected the borehole locations, carried out soil sampling and prepared field logs of the boreholes.

Approximate sample locations are shown on the attached Drawing G25192/1-3.

Boreholes BH1 to BH10 drilled mainly within the Stage 2 area encountered subsurface conditions that may be generalised as follows:

Layer	*Description*	*Depth to Base of Layer (m)*
TOPSOIL:	Sandy SILT/Silty SAND, low plasticity, fine to medium grained	0.1 - 0.4
ALLUVIUM:	Silty SAND/Clayey SAND/Sandy CLAY, fine to medium grained, low plasticity, grey (BH1 to BH6 only)	0.2 - 1.1
ALLUVIUM:	Silty SAND/Clayey SAND/Sandy CLAY/CLAY, fine to medium grained, grey (BH7 to BH10 only)	2.2 - >3.0
RESIDUAL:	Sandy CLAY/Clayey SAND, medium plasticity, fine to medium grained sand	>3.0

Field investigation results are included in Appendix A.

Groundwater was encountered during drilling in BH2 and BH3 at 0.86m and 2.6m depths respectively. However, it should be noted that groundwater levels may fluctuate with variation of rainfall, drainage and other factors.

6.0 SITE CONDITIONS

Geological maps of the area indicate the site to be underlain by Shoalhaven Group Wandrawandian Siltstone and Conjola Formation which typically consists of siltstone, silty sandstone, sandstone and conglomerate. The above formations are usually overlain by sandy topsoil and predominantly clayey residual soils. Quaternary alluvium which typically consists of gravel, sand, silt and clay is indicated to the east of the site.

7.0 SAMPLING & ANALYSIS PLAN & SAMPLING METHODOLOGY

The NSW EPA Sampling Design Guidelines (1995) for contaminated site investigations state a minimum of 55 evenly spaced sampling points for a 5ha site. The Guidelines are commonly used during Phase 2 Detailed Investigations.

Based on the site history and findings of the walkover assessment, the potential for contamination was assessed to be low. Potential sources of contamination were considered to be pesticide and heavy metal contamination due to growing of crops and possible runoff from adjacent Princes Highway.

Six grab samples were taken on a systematic sampling plan across the Stage 3 site and the seventh sample was taken from the inlet area of the small dam within the north-west corner of the site.

Five more soil samples were collected from boreholes drilled within the Stage 2 area from up to 0.3m depth.

Grab samples were obtained using a hand auger. Soil samples were obtained directly from the auger. The auger was decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water. Sampling personnel used disposable NLYEX gloves during sampling activities.

All samples were placed in glass jars with plastic caps and Teflon seals with minimum headspace. During the investigation, samples were preserved by immediate storage in a laboratory supplied esky with ice. Each sample was labelled with job number G28192/1, the sample location and date. All samples were recorded on the Chain of Custody (COC) record stored in our office file.

On completion of fieldwork, the samples were delivered under cold storage conditions to a NATA registered laboratory for analysis for heavy metals, organo chlorine pesticides (OC) and organo phosphate pesticides (OP) under Standard COC procedures.

Thirty-four (34) soil samples were collected for acid sulphate screening tests and tested in NG Tuggerah Laboratory. Three of the samples indicated to be actual or potential acid sulphate soils were tested for chromium reducible sulphur and actual acidity. Laboratory results are presented in Appendix B.

8.0 BASIS FOR ASSESSMENT CRITERIA

The soil investigation levels adopted for this investigation are derived from the NSW EPA Contaminated sites: Guidelines for the NSW Site Auditor Scheme (1998) publication.

The above publication includes health based investigation levels (HIL) for residential with accessible soil (NEHF A) sites and HIL's were used to compare levels of heavy metals and OC/OP pesticides.

The above criteria are provided in the attached Table A – Summary of Laboratory Results.

9.0 RESULTS OF INVESTIGATION

9.1 Stage 3

Laboratory testing comprising heavy metals and OC/OP pesticides were carried out on one discrete sample as follows:

Location	Depth (m)	Soil Type
#7	0.0 – 0.15	Silty SAND & Sandy Silty CLAY

Laboratory testing comprising the same analytes were carried out on two composite samples as follows:

Composite Sample	Discrete Samples	Depth (m)
C1	#1, #2, #3	0.0 – 0.15
C2	#4, #5, #6	0.0 – 0.15

The laboratory test results are summarised in Table A attached and analysis reports are presented in Appendix B. The results of the analysis are discussed below. The soil investigation levels (SIL) for this study are referred to in Section 8.0.

Heavy Metals (As, Cd, Cr, Ca, pB, Ni, Zn, Hg)

Both composite samples and the discrete sample tested were below the SIL.

OC Pesticides

Both composite samples and the discrete sample tested were below the SIL and practical qualification limits (PQL) of the laboratory method.

OP Pesticides

Both composite samples and the discrete sample tested were below the PQL which is the adopted SIL for this analyte.

9.2 Stage 2

9.2.1 Contamination Testing

Five soil samples collected from ES1 to ES5 were tested for heavy metals and OC/OP pesticides. The test results are included in Appendix B and are summarised in Table B attached. The results are discussed below.

Heavy Metals (As, Cd, Cr, Pb, Ni, Zn, Hg)

All test results were either less than laboratory detection limit or less than health based guidelines for residential development.

OC/OP Pesticide

All results were below laboratory detection limits.

9.2.2 Acid Sulphate Soil Tests

Thirty-four soil samples were tested for pH in water (H_2O) and hydrogen peroxide (H_2O_2). Test results are included in Table C attached. NSW Acid Sulphate Management Advisory Committee guidelines state that pH in water less than 4 units and pH in hydrogen peroxide less than 3 would indicate actual acidity and potential acidity respectively. Samples collected from BH1 to BH10 except those from BH8, indicated pH >4.0 in water and pH >3.0 in hydrogen peroxide. These soils are not considered to be actual or potential acid sulphate soils.

Soil samples collected from BH8 indicated pH <3 in hydrogen peroxide indicating a potential for acid generation upon oxidation.

Three soil samples were tested for Chromium Reducible Sulphur and Total Actual Acidity (TAA) in EAL Laboratory at Southern Cross University. One sample (BH8 depth 0.9-1.0m) indicated to contain 0.428% of chromium reducible sulphur (Scr) compared with 0.03% acceptable value for coarse grained soils. The other two

samples recorded Scr and TAA below the applicable guidelines. TAA and Scr results are included in Appendix B.

BH8 was located in the north-eastern boundary of Stage 2 within the low lying area of the site. Based on visual assessment and contour maps, the ground surface level at BH8 is estimated to be about RL 3.5m AHD. Therefore, it is considered likely that excavation of alluvial soils below about RL 3.5m would require acid sulphate management plan. The management plan should include environmental controls for excavation and treatment of acid sulphate soils and validation. It is likely that about 20t of pure lime will be required to treat 1000t of acid sulphate soils excavated. However, at this stage, it is not clear whether Stage 2 would contain low lying areas. If Stage 2 occupies areas higher than about RL 3.5m and no excavation is proposed below this level, it is assessed that no acid sulphate management plan would be required.

10.0 SITE CHARACTERISATION

Based on the assessed previous site use and the above preliminary field and laboratory testing, the site is considered unlikely to contain contamination which would limit its suitability for residential development.

11.0 CONCLUSIONS & RECOMMENDATIONS

The Preliminary Contamination Assessment undertaken for the proposed Stage 2 and Stage 3 areas within Lot 1 DP1045990 Princes Highway, Dolphin Point was intended to assess the suitability of the site for the proposed land use in terms of contamination issues.

The proposed development includes about 169 residential lots and a local road network.

The preliminary investigation included site inspection, review of historical site use, review of local geology and subsurface investigation including drilling 10 boreholes. Historical information of the site and surrounding areas indicated that the site was densely vegetated with trees prior to clearing sometime between 1959 and 1967. Occasional crop cultivation may have since occurred on this and adjacent stages. Sampling of near surface soils was subsequently undertaken at seven locations across Stage 3 and at five locations in Stage 2.

The laboratory tests on the samples included heavy metals and OC/OP pesticides. The analysis indicated all sample levels below laboratory detection limits or health based investigation levels.

Acid sulphate soil tests were carried out on 34 samples collected from 10 boreholes. All samples tested, except alluvial soils from BH8 located within the low lying area adjacent to wetlands, were found not to be Potential or Actual Acid Sulphate Soils. Soils at BH8 were assessed to be Potential Acid Sulphate Soil. An Acid Sulphate Management Plan needs to be developed and implemented if any excavation below about RL 3.5m is to be carried out.

In view of the above, it is assessed that the site for proposed Stage 2 and 3 development is suitable for residential development in regards to contamination issues. Notwithstanding, it is recommended that further environmental assessment

of the small dam be carried out during subdivision earthworks. Assessment should include water and sediment quality prior to offsite discharge of retained water and/or removal or onsite use of sediments from the dam.

For and on behalf of
Network Geotechnics Pty Ltd

Per. V W de Silva *BSc(Eng), MEng, SMIE Aust, CPEng, NPER*
Senior Geotechnical Engineer

Reviewed by

R J King *BE (Civil)*
Principal Geotechnical Engineer

Network Geotechnics Pty Ltd

GENERAL NOTES

GENERAL

Geotechnical reports present the results of investigations carried out for a specific project and usually for a specific phase of the project (e.g. preliminary design). The report may not be relevant for other phases of the project (e.g. construction), or where project details change.

SOIL AND ROCK DESCRIPTIONS

Soil and rock descriptions are based on AS 1726 – 1993, using visual and tactile assessment except at discrete locations where field and / or laboratory tests have been carried out. Refer to the terms and symbols sheet for definitions.

GROUNDWATER

The water levels indicated on the logs are taken at the time of measurement and depending on material permeability may not reflect the actual groundwater level at those specific locations. Also, groundwater levels can vary with time due to seasonal or tidal fluctuations and construction activities.

INTERPRETATION OF RESULTS

The discussion and recommendations in the accompanying report are based on extrapolation / interpolation from data obtained at discrete locations. The actual interface between the materials may be far more gradual or abrupt than indicated. Also, actual conditions in areas not sampled may differ from those predicted.

CHANGE IN CONDITIONS

Subsurface conditions can change with time and can vary between test locations. Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations can also affect subsurface conditions.

REPRODUCTION OF REPORTS

 Where information from the accompanying report is to be included in contract documents or engineering specification for the project, the entire report should be included in order to minimise the likelihood of misinterpretation from logs.

FURTHER ADVICE

Network Geotechnics would be pleased to further discuss how any of the above issues could affect your specific project. We would also be pleased to provide further advice or assistance including:

- assessment of suitability of designs and construction techniques;
- contract documentation and specification;
- construction control testing (earthworks, pavement materials, concrete);
- construction advice (foundation assessments, excavation support).

Table A Summary of Laboratory Results Proposed Stage 3

COMPOSITE #	SAMPLE #'S	HEAVY METALS								OCP's				OPP'S
		As	Cd	Cr	Cu	pB	Ni	Zn	Hg	Aldrin + Dieldrin	Chlordane	Heptochlor	DDE+DD+ DDD	
C1	#1, #2, #3	<5	<1	6	<5	<5	<2	<5	<0.1	<0.1	<0.05	<0.05	<0.3	nd
C2	#4,#5, #6	<5	<1	5	<5	<5	<2	<5	<0.1	<0.1	<0.05	<0.05	<0.3	nd
-	#7	<5	<1	12	12	10	4	26	<0.1	<0.1	<0.05	<0.05	<0.3	nd
NSW EPA SIL (RESIDENTIAL WITH ACCESSIBLE SOIL)- NEHF A: DISCRETE		100	20	100	1000	300	600	7000	15	10	50	10	200	l.d.l
COMPOSITE OF 3		33	6.7	33	333	100	200	2333	5	3.3	16.6	3.3	66.6	l.d.l.

Notes:

1. *nd denotes not detected*
2. *l.d.l. denotes laboratory detection limit*

Table B Summary of Laboratory Results Proposed Stage 2

SAMPLE #'S	HEAVY METALS								OCP's				OPP'S
	As	Cd	Cr	Cu	pB	Ni	Zn	Hg	Aldrin + Dieldrin	Chlordane	Heptochlor	DDE+DD+ DDD	
ES1	<5	<1	6	<5	9	<2	<5	<0.1	<0.1	<0.05	<0.05	<0.3	nd
ES2	<5	<1	12	<5	12	<2	<5	<0.1	<0.1	<0.05	>0.05	<0.3	nd
ES3	<5	<1	15	<5	14	<2	8	<0.1	<0.1	<0.05	<0.05	<0.3	nd
ES4	<5	<1	13	<5	16	4	12	<0.1	<0.1	<0.05	<0.05	<0.3	nd
ES5	<5	<1	9	<5	6	<2	6	<0.1	<0.1	<0.05	<0.05	<0.3	nd
NSW EPA SIL (RESIDENTIAL WITH ACCESSIBLE SOIL)-NEHF A: DISCRETE	100	20	100	1000	300	600	7000	15	10	50	10	200	l.d.l

Notes:

3. *nd denotes not detected*
4. *l.d.l. denotes laboratory detection limit*

Table C Acid Sulphate Screening Test pH in H_2O & H_2O_2

Location	Depth (m)	H_2O	H_2O_2
BH1	0.4 – 0.5	8.4	3.7
	0.9 – 1.0	8.1	4.4
	1.4 – 1.5	7.5	4.1
BH2	0.4 – 0.5	7.6	4.2
	0.9 – 1.0	7.3	4.6
	1.4 – 1.5	6.8	4.4
	1.9 – 2.0	6.5	3.9
	2.4 – 2.5	6.5	3.7
BH3	0.4 – 0.5	6.1	3.7
	0.9 – 1.0	6.1	4.4
	1.4 – 1.5	6.0	4.3
	1.9 – 2.0	6.2	4.2
	2.4 – 2.5	6.3	4.1
	2.9 – 3.0	6.2	4.1
BH4	0.4 – 0.5	6.1	3.7
	0.9 – 1.0	5.7	4.2
	1.4 – 1.5	5.6	4.2
	1.9 – 2.0	5.8	3.9
BH6	0.4 – 0.5	5.6	3.1
	0.9 – 1.0	5.4	4.8
	1.4 – 1.5	5.4	4.2
BH7	0.4 – 0.5	4.6	3.3
	0.9 – 1.0	6.5	4.9
	1.4 – 1.5	6.5	5.2
	1.9 – 2.0	6.9	5.0
BH8	0.4 – 0.5	6.7	-
	0.9 – 1.0	6.6	2.7
	1.4 – 1.5	6.8	2.0
	1.9 – 2.0	6.8	2.0
	2.4 – 2.5	6.7	2.5
BH10	1.4 – 1.6	6.9	4.7
	1.9 – 2.0	6.8	4.7
	2.4 – 2.5	6.9	5.2
	2.9 – 3.0	6.7	5.7

Note: *pH measured using pH Scan 2 probe*

APPENDIX A

Borehole Logs BH1 to BH10
Terms & Symbols

BOREHOLE LOG

Network Geotechnics Pty Ltd

ACN 089 211 561
6/8 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH1
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267361E 6080061N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments: notes, structure, and additional observations
ADT	None Encountered					ML	Sandy SILT low to medium plasticity, black-brown, fine to medium sand	>Wp	-	TOPSOIL
						SM	Silty SAND fine to medium grained, grey, low plasticity fines	M	-	ALLUVIUM
				1.0		CL/SC	Clayey SAND/Sandy CLAY fine to coarse sand, orange-brown becomign grey below 1.6m depth, medium plasticity			RESIDUAL
				2.0			BH1 Terminated at 1.9 m			
				3.0						
				4.0						
				5.0						
				6.0						
				7.0						

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 069 211 561
6/6 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH2
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267294E 6080068N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments / notes, structure, and additional observations
ADT	▽			0.0		CL	Sandy Silty CLAY medium plasticity, black-brown, fine sand	>Wp	-	TOPSOIL/ALLUVIUM
						CL/SC	Sandy CLAY/Clayey SAND medium plasticity, grey, fine to medium sand			ALLUVIUM
				1.0		CL/SC	Sandy CLAY/Clayey SAND medium plasticity, grey mottled orange below 1.5m depth, fine to medium sand			RESIDUAL
				2.0						
				2.5			BH2 Terminated at 2.5 m			
				3.0						
				4.0						
				5.0						
				6.0						
				7.0						

EHOLE LOG G25192-1.GPJ NETWORK GEOTECHNICS PTY LTD.GDT 30/5/06

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 069 211 561
6/6 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH3
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
Rl. Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267310E 6080059N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments, notes, structure, and additional observations
ADT		D				ML	Sandy SILT low plasticity, black-brown, fine sand	>Wp	-	TOPSOIL
		D				SM	Silty SAND fine to medium grained, grey, low plasticity fines	M	-	ALLUVIUM
		D		1.0		CL	Clayey SAND/Sandy CLAY medium plasticity, orange-brown, fine to medium sand			RESIDUAL
	▽	D		2.0		SC	Clayey SAND fine to coarse sand, grey, low to medium plasticity fines			
		D		3.0			BH3 Terminated at 3 m			
				4.0						
				5.0						
				6.0						
				7.0						

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 069 211 561
6/8 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH4
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267266E 6080029N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc.	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments / notes, structure, and additional observations
ADT	None Encountered					SM	Silty SAND fine to medium grained, black-brown, low plasticity fines	M	-	TOPSOIL
							Clayey Silty SAND fine to medium grained, grey some orange mottling below 0.7m depth, low to medium plasticity fines			ALLUVIUM
				1.0		CL	Sandy CLAY medium plasticity, orange-brown, fine to medium sand	≥Wp	-	RESIDUAL
				2.0		SC	Clayey SAND fine to coarse grained, grey, low to medium plasticity fines	M		
							BH4 Terminated at 2.3 m			
				3.0						
				4.0						
				5.0						
				6.0						
				7.0						

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 089 211 561
6/6 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH5
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267398E 6080043N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments / notes, structure, and additional observations
ADT	None Encountered					SM	Silty SAND fine to medium sand, black-brown, low plasticity fines	-	-	TOPSOIL
						SC	Clayey SAND fine to coarse grained, orange-brown, low to medium plasticity fines, trace fine gravel			RESIDUAL
				1.0			BH5 Terminated at 0.35 m			Refusal on rock
				2.0						
				3.0						
				4.0						
				5.0						
				6.0						
				7.0						

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 069 211 661
6/6 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH6
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267458E 6080011N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments / notes, structure, and additional observations
ADT	None Encountered					SP	Silty SAND fine to medium grained, black-brown, low plasticity fines	M	-	TOPSOIL
						SP	SAND medium grained, pale grey, trace orange clay at 0.6m depth	D/M	-	AEOLEAN
				1.0		SC/CL	Clayey SAND/Sandy CLAY medium plasticity, grey, fine to medium sand	≥Wp	-	ALLUVIUM
						SC	Clayey SAND fine to coarse grained, pale grey, medium plasticity fines			RESIDUAL
				2.0			BH6 Terminated at 1.8 m			
				3.0						
				4.0						
				5.0						
				6.0						
				7.0						

Network Geotechnics Pty Ltd
ACN 069 211 561
6/8 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

BOREHOLE LOG

Job No:	G25192/1
Hole No:	BH7
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267549E 6079958N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments, notes, structure, and additional observations
ADT	None Encountered					SM	Silty SAND fine to medium grained, brown, low plasticity fines	M	-	TOPSOIL
						CL/SC	Sandy CLAY medium plasticity, orange-brown, fine to medium sand	≥Wp	-	ALLUVIUM
				1.0		CL/CH	Sandy CLAY medium to high plasticity, grey, fine sand			
				2.0		SC	Clayey SAND fine to medium grained, grey, trace low to medium plasticity fines	W	-	
				3.0		CL	Sandy CLAY medium plasticity, grey mottled orange, fine sand	≥Wp	-	
							BH7 Terminated at 3 m			
				4.0						
				5.0						
				6.0						
				7.0						

Network Geotechnics Pty Ltd

ACN 089 211 561
6/6 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

BOREHOLE LOG

Job No:	G25192/1
Hole No:	BH8
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267453E 6080086N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments, notes, structure, and additional observations
ADT	None Encountered	D				CL	Sandy Silty CLAY medium plasticity, brown, fine sand	>Wp	-	ALLUVIUM/TOPSOIL
		D				SP	SAND medium grained, grey, trace low plasticity fines	M	-	ALLUVIUM
		D		1.0				W		
		D								
		D		2.0						
		D				CL	Sandy CLAY medium plasticity, grey, fine sand	>Wp	-	
		D		3.0		SP	Clayey SAND medium to coarse sand, grey, low to medium plasticity fines	W		
							BH8 Terminated at 3 m			
				4.0						
				5.0						
				6.0						
				7.0						

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 069 211 561
6/6 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH9
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1046990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267456E 6080087N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments; notes, structure, and additional observations
ADT	None Encountered	D				ML	Sandy SILT low plasticity, black-brown, fine sand	>Wp	-	TOPSOIL
		D				SM	Silty SAND fine to medium sand, grey, low plasticity fines	M	-	ALLUVIUM
		D		1.0		SC/CL	Sandy CLAY/Clayey SAND fine to medium grained, orange-brown, medium plasticity fines			
							BH9 Terminated at 1.6 m			
				2.0						
				3.0						
				4.0						
				5.0						
				6.0						
				7.0						

BOREHOLE LOG

Network Geotechnics Pty Ltd
ACN 069 211 661
6/8 Morton Close
TUGGERAH NSW 2259
02 4351 6200
02 4351 6300

Job No:	G25192/1
Hole No:	BH10
Sheet:	PAGE 1 / 1
Started:	17/05/06
Finished:	17/05/06
Logged:	TS
Checked:	TS
RL Surface:	-
Datum:	-

Client: THE TURNBULL GROUP

Project: PROPOSED STAGE 2 RESIDENTIAL SUBDIVISION

Location: LOT 1 DP1045990 PRINCES HIGHWAY, BURRILL LAKE
GPS 267265E, 6080094N

Equipment Type: SKID STEER DRILL RIG

Borehole Diameter: -mm (I.D.)-mm (O.D.) Inclination: deg Bearing:

method	water	samples, tests etc	DCP Blows per 150 mm	depth (m)	graphic log	USCS symbol	Material Description	Moisture condition	Consistency/ relative density	comments notes, structure, and additional observations
ADT	None Encountered	D				ML	Sandy SILT low plasticity, pale grey-brown, fine sand	<Wp	-	TOPSOIL
						CL	Sandy Silty CLAY low to medium plasticity, orange-brown, fine to medium sand			SLOPEWASH/ALLUVIUM
		D		1.0		CL/CH	CLAY medium to high plasticity, dark grey	<Wp	-	ALLUVIUM
		D		2.0		SP	SAND medium grained, grey	W	-	
		D		3.0		CL/CH	CLAY medium to high plasticity, grey some orange mottling	Approx Wp	-	RESIDUAL
							BH10 Terminated at 3 m			
				4.0						
				5.0						
				6.0						
				7.0						

Network Geotechnics Pty Ltd

TERMS AND SYMBOLS

SOIL DESCRIPTIONS

Moisture Condition

D	Dry
M	Moist
W	Wet
Wp	Plastic Limit
Wl	Liquid Limit
MC	Moisture Content

Consistency		Qu (kPa)
VS	Very Soft	<25
S	Soft	25 – 50
F	Firm	50 – 100
St	Stiff	100 – 200
VSt	Very Stiff	200 – 400
H	Hard	>400
Fb	Friable	

Density Index		I_D (%)
VL	Very Loose	< 15
L	Loose	15 – 35
MD	Medium Dense	35 – 65
D	Dense	65 – 85
VD	Very Dense	> 85

ROCK DESCRIPTIONS

Weathering

Rs	Residual Soil
XW	Extremely Weathered
HW	Highly Weathered
MW	Moderately Weathered
DW	Distinctly Weathered
SW	Slightly Weathered
FR	Fresh

(DW covers both HW & MW)

Strength		Is (50) MPa
EL	Extremely Low	< 0.03
VL	Very Low	0.03 – 0.1
L	Low	0.1 – 0.3
M	Medium	0.3 – 1
H	High	1 – 3
VH	Very High	3 – 10
EH	Extremely High	> 10

Structure	Spacing
Thinly Laminated	< 6mm
Laminated	6 – 20mm
Very thinly bedded	20 – 60mm
Thinly bedded	60 – 200mm
Medium bedded	0.2 – 0.6m
Thickly bedded	0.6 – 2.0m
Very thickly bedded	> 2.0m

NOTE: Soil And rock descriptions are based on AS 1726 - 1993

Natural Fractures

Type		Shape	
JT	Joint	pl	Planar
BP	Bedding plane	cu	Curved
SM	Seam	un	Undulose
FZ	Fractured zone	st	Stepped
SZ	Shear zone	ir	Irregular
VN	Vein		

Infill or Coating		Roughness	
Cn	Clean	pol	Polished
Cl	Clay	slk	Slickensided
Ca	Calcite	smo	Smooth
Fe	Iron oxide	rou	Rough
Mi	Micaceous	vro	Very rough
Qz	Quartz		

EXCAVATION/DRILLING METHOD AND CASING

BH	Backhoe/excavator bucket
NE	Natural exposure
HE	Hand excavation
AS	Auger Screwing *
AD	Auger Drilling *
R	Roller/Tricone
W	Washbore
	** denotes bit shown by suffix*
B	Blank Bit
V	"V" Shaped Bit
T	Tungsten Carbide Bit
NMLC	NMLC Core Drilling
NQ/HQ	Wireline Core Drilling
C	Casing
M	Mud

SAMPLES/TESTS

B	Bulk sample
D	Disturbed sample
U50	Thin-walled tube sample (50mm diameter)
PP	Pocket penetrometer (kPa)
N*	SPT (blows per 300mm)
	**denotes sample taken*
Nc	SPT with solid cone
R	SPT refusal

VANE SHEAR TESTS

su	Vane shear strength Peak/residual (kPa) and Vane size (mm)

WATER MEASUREMENTS

▽	Water level
▲—	Water inflow
—▲	Water outflow

APPENDIX B

Laboratory Test Results

ALS Batch No ES0510236 - Stage 3
ALS Batch No ES0606080 - Stage 2
EAL Batch E5750 Stage 3 Acid Sulphate Test Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Client	: NETWORK GEOTECHNICS PTY LTD	Laboratory	: ALS Environmental Sydney	Page	: 1 of 5
Contact	: MR GARY PEAKE	Contact	: Greg Vogel	Work Order	: ES0510236
Address	: 6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164		
E-mail	: gosnetgeo@bigpond.com	E-mail	: Greg.Vogel@alsenviro.com		
Telephone	: 02 4351 6200	Telephone	: 61-2-87848555		
Facsimile	: 02 4351 6300	Facsimile	: 61-2-87848500		
Project	: G25192/1 Lot 1 DP1045990	Quote number	: SY/405/02	Date received	: 1 Dec 2005
Order number	: - Not provided -			Date issued	: 8 Dec 2005
C-O-C number	: - Not provided -			No. of samples	- Received : 9
Site	: - Not provided -				Analysed : 3

ALSE - Excellence in Analytical Testing

NATA Accredited Laboratory 825

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Accredited for compliance with ISO/IEC 17025.

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Position	Department
Peter Dickenson	Senior Spectroscopist	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi		Organics - NATA 10911 (Sydney)

ALS Environmental

Comments

his report for the ALSE reference ES0510236 supersedes any previous reports with this reference. Results apply to the samples as submitted. All pages of this report have been checked and pproved for release.

his report contains the following information:

- **Analytical results for samples submitted**

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample xtracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified SEPA limits). Where LOR of reported result differ from standard LOR, this may be due to high moisture, reduced sample amount or matrix interference. When date(s) and/or time(s) are nown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number, LOR = Limit of Reporting. * Indicates illed Surrogate Recoveries.

- **Surrogate control limits**

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house rocedure 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 erein. Reference methods from which ALSE methods are based are provided in parenthesis.

ALS Environmental

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: C1 Sample Matrix Type / Description: SOIL Sample Date / Time: 30 Nov 2005 11:00 Laboratory Sample ID: ES0510236-001	Client Sample ID: C2 Sample Matrix Type / Description: SOIL Sample Date / Time: 30 Nov 2005 11:00 Laboratory Sample ID: ES0510236-002	Client Sample ID: #7 Sample Matrix Type / Description: SOIL Sample Date / Time: 30 Nov 2005 15:00 Laboratory Sample ID: ES0510236-003		
EA055: Moisture Content								
Moisture Content (dried @ 103°C)			%	13.9	15.2	32.7		
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2		mg/kg	<5	<5	<5		
Cadmium	7440-43-9		mg/kg	<1	<1	<1		
Chromium	7440-47-3		mg/kg	6	5	12		
Copper	7440-50-8		mg/kg	<5	<5	12		
Lead	7439-92-1		mg/kg	<5	<5	10		
Nickel	7440-02-0		mg/kg	<2	<2	4		
Zinc	7440-66-6		mg/kg	<5	<5	26		
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6		mg/kg	<0.1	<0.1	<0.1		
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6		mg/kg	<0.05	<0.05	<0.05		
Hexachlorobenzene (HCB)	118-74-1		mg/kg	<0.05	<0.05	<0.05		
beta-BHC	319-85-7		mg/kg	<0.05	<0.05	<0.05		
gamma-BHC	58-89-9		mg/kg	<0.05	<0.05	<0.05		
delta-BHC	319-86-8		mg/kg	<0.05	<0.05	<0.05		
Heptachlor	76-44-8		mg/kg	<0.05	<0.05	<0.05		
Aldrin	309-00-2		mg/kg	<0.05	<0.05	<0.05		
Heptachlor epoxide	1024-57-3		mg/kg	<0.05	<0.05	<0.05		
trans-Chlordane	5103-74-2		mg/kg	<0.05	<0.05	<0.05		
alpha-Endosulfan	959-98-8		mg/kg	<0.05	<0.05	<0.05		
cis-Chlordane	5103-71-9		mg/kg	<0.05	<0.05	<0.05		
Dieldrin	60-57-1		mg/kg	<0.05	<0.05	<0.05		
4,4'-DDE	72-55-9		mg/kg	<0.05	<0.05	<0.05		
Endrin	72-20-8		mg/kg	<0.05	<0.05	<0.05		
beta-Endosulfan	33213-65-9		mg/kg	<0.05	<0.05	<0.05		
4,4'-DDD	72-54-8		mg/kg	<0.05	<0.05	<0.05		
Endrin aldehyde	7421-93-4		mg/kg	<0.05	<0.05	<0.05		
Endosulfan sulfate	1031-07-8		mg/kg	<0.05	<0.05	<0.05		
4,4'-DDT	50-29-3		mg/kg	<0.2	<0.2	<0.2		
Endrin ketone	53494-70-5		mg/kg	<0.05	<0.05	<0.05		
Methoxychlor	72-43-5		mg/kg	<0.2	<0.2	<0.2		
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7		mg/kg	<0.05	<0.05	<0.05		
Demeton-S-methyl	919-86-8		mg/kg	<0.05	<0.05	<0.05		
Monocrotophos	6923-22-4		mg/kg	<0.2	<0.2	<0.2		

ALS Environmental

Analytical Results

	Client Sample ID :	C1	C2	#7		
	Sample Matrix Type / Description :	SOIL	SOIL	SOIL		
	Sample Date / Time :	30 Nov 2005 11:00	30 Nov 2005 11:00	30 Nov 2005 15:00		
	Laboratory Sample ID :	ES0510236-001	ES0510236-002	ES0510236-003		
Analyte	CAS number	LOR	Units			
EP068B: Organophosphorus Pesticides (OP)						
Dimethoate	60-51-5		mg/kg	<0.05	<0.05	<0.05		
Diazinon	333-41-5		mg/kg	<0.05	<0.05	<0.05		
Chlorpyrifos-methyl	5598-13-0		mg/kg	<0.05	<0.05	<0.05		
Parathion-methyl	298-00-0		mg/kg	<0.2	<0.2	<0.2		
Malathion	121-75-5		mg/kg	<0.05	<0.05	<0.05		
Fenthion	55-38-9		mg/kg	<0.05	<0.05	<0.05		
Chlorpyrifos	2921-88-2		mg/kg	<0.05	<0.05	<0.05		
Parathion	56-38-2		mg/kg	<0.2	<0.2	<0.2		
Pirimphos-ethyl	23505-41-1		mg/kg	<0.05	<0.05	<0.05		
Chlorfenvinphos	470-90-6		mg/kg	<0.05	<0.05	<0.05		
Bromophos-ethyl	4824-78-6		mg/kg	<0.05	<0.05	<0.05		
Fenamiphos	22224-92-6		mg/kg	<0.05	<0.05	<0.05		
Prothiofos	34643-46-4		mg/kg	<0.05	<0.05	<0.05		
Ethion	563-12-2		mg/kg	<0.05	<0.05	<0.05		
Carbophenothion	786-19-6		mg/kg	<0.05	<0.05	<0.05		
Azinphos Methyl	86-50-0		mg/kg	<0.05	<0.05	<0.05		
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE		0.1	%	51.5	38.0	65.0		
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	80.0	60.0	118		

ALS Environmental

Surrogate Control Limits

Matrix Type: SOIL - Surrogate Control Limits

Method name	Analyte name	Surrogate Control Limits	
		Lower Limit	Upper Limit
EP068: Pesticides by GC/MS			
EP068S: Organochlorine Pesticide Surrogate	Dibromo-DDE	10	136
EP068T: Organophosphorus Pesticide Surrogate	DEF	10	136

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Client	:	NETWORK GEOTECHNICS PTY LTD	Laboratory	:	ALS Environmental Sydney	Page	: 1 of 5
Contact	:	MR GARY PEAKE	Contact	:	Greg Vogel		
Address	:	6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	:	277-289 Woodpark Road Smithfield NSW Australia 2164	Work order	: ES0510236
						Amendment No.	:
Project	:	G25192/1 Lot 1 DP1045990	Quote number	:	SY/405/02	Date received	: 1 Dec 2005
Order number	:	- Not provided -				Date issued	: 8 Dec 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	gosnetgeo@bigpond.com	E-mail	:	Greg.Vogel@alsenviro.com	No. of samples	
Telephone	:	02 4351 6200	Telephone	:	61-2-87848555	Received	: 9
Facsimile	:	02 4351 6300	Facsimile	:	61-2-87848500	Analysed	: 3

This Interpretive Quality Control Report was issued on 8 Dec 2005 for the ALS work order reference ES0510236 and supersedes any previous reports with this reference.
This report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Type Frequency Compliance
- Summary of all Quality Control Outliers
- Brief Method Summaries

Interpretive Quality Control Report - Analysis Holding Time

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time from extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken from the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

Matrix Type: SOIL

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EA055-103: Moisture Content							
Soil Glass Jar - Unpreserved #7	30 Nov 2005	—	—	—	6 Dec 2005	7 Dec 2005	Pass
Soil Glass Jar - Unpreserved C1, C2	30 Nov 2005	—	—	—	7 Dec 2005	7 Dec 2005	Pass
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved C1, C2, #7	30 Nov 2005	7 Dec 2005	29 May 2006	Pass	8 Dec 2005	29 May 2006	Pass
EG035T: Total Mercury by FIMS							
Soil Glass Jar - Unpreserved C1, C2, #7	30 Nov 2005	7 Dec 2005	28 Dec 2005	Pass	8 Dec 2005	28 Dec 2005	Pass
EP068: Pesticides by GCMS							
Soil Glass Jar - Unpreserved #7	30 Nov 2005	5 Dec 2005	14 Dec 2005	Pass	6 Dec 2005	14 Jan 2006	Pass
Soil Glass Jar - Unpreserved C1, C2	30 Nov 2005	7 Dec 2005	14 Dec 2005	Pass	7 Dec 2005	16 Jan 2006	Pass

Interpretive Quality Control Report - Frequency of Quality Control Samples

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

Matrix Type: SOIL

Frequency of Quality Control Samples

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
EA055-103: Moisture Content	4	31	12.9	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG005T: Total Metals by ICP-AES	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Laboratory Control Samples (LCS)					
EG005T: Total Metals by ICP-AES	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	2	18	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Method Blanks (MB)					
EG005T: Total Metals by ICP-AES	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	2	18	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Matrix Spikes (MS)					
EG005T: Total Metals by ICP-AES	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	2	18	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Interpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

Matrix Type: SOIL

Summary of Outliers - Quality Control Samples

ALS QC Lot	Matrix Type	Laboratory Sample ID	Client Sample ID	Analyte	Data	Limits	Comment
Laboratory Control Samples (LCS)							
EP068A: Organochlorine Pesticides (OC)	SOIL	157715-002	---	beta-BHC	111 %	73.1-110 %	Recovery greater than upper control limit
EP068A: Organochlorine Pesticides (OC)	SOIL	159547-002	---	alpha-BHC	109 %	77.5-109 %	Recovery greater than upper control limit
Matrix Spikes (MS)							
EP068A: Organochlorine Pesticides (OC)	SOIL	ES0510190-001	Anonymous	4,4'-DDT	58.0 %	67.12-118.	Recovery less than lower data quality objective

- For all matrices, no RPD recovery outliers occur for the duplicate analysis.
- For all matrices, no method blank result outliers occur.

Surrogates

- For all matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time

The following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

- No holding time outliers occur.

Outliers : Frequency of Quality Control Samples

The following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- No frequency outliers occur.

Method Reference Summary

he analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure are employed in the bsence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported herein. Reference methods from which ALSE methods are ased are provided in parenthesis.

latrix Type: SOIL

Method Reference Summary

Preparation Methods

EN69 : Hot Block Digest for metals in soils sediments and sludges - USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)

ORG17A : Tumbler Extraction of Solids (Option A - Concentrating) - In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Analytical Methods

EA055-103 : Moisture Content - A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (1999) Schedule B(3) (Method 102)

EG005T : Total Metals by ICP-AES - (APHA 20th ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. 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 (1999) Schedule B(3)

EG035T : Total Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-Injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the extract. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve.

EP068 : Pesticides by GCMS - (USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)

ALS Environmental

QUALITY CONTROL REPORT

Client	: NETWORK GEOTECHNICS PTY LTD	Laboratory	: ALS Environmental Sydney	Page	:	1 of 14	
Contact	: MR GARY PEAKE	Contact	: Greg Vogel				
Address	: 6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164	Work order	:	ES0510236	
				Amendment No.	:		
Project	: G25192/1 Lot 1 DP1045990	Quote number	: SY/405/02	Date received	:	1 Dec 2005	
Order number	: - Not provided -			Date issued	:	8 Dec 2005	
C-O-C number	: - Not provided -						
Site	: - Not provided -						
E-mail	: gosnetgeo@bigpond.com	E-mail	: Greg.Vogel@alsenviro.com	No. of samples			
Telephone	: 02 4351 6200	Telephone	: 61-2-87848555	Received	:	9	
Facsimile	: 02 4351 6300	Facsimile	: 61-2-87848500	Analysed	:	3	

This final report for the ALSE work order reference ES0510236 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

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Accredited for compliance with ISO/IEC 17025

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

The quality control term **Laboratory Duplicate** refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity.
Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations: LOR = Limit of Reporting, RPD = Relative Percent Difference.*
Indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) 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%

Matrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EA055: Moisture Content						
EA055: Moisture Content - (QC Lot: 147012)				%	%	%
ES0510230-003	Anonymous	Moisture Content (dried @ 103°C)	1.0 %	20.8	19.9	4.0
ES0510230-017	Anonymous	Moisture Content (dried @ 103°C)	1.0 %	14.7	14.2	3.9
EA055: Moisture Content - (QC Lot: 147525)				%	%	%
ES0510217-021	Anonymous	Moisture Content (dried @ 103°C)	1.0 %	<1.0	<1.0	0.0
ES0510279-002	Anonymous	Moisture Content (dried @ 103°C)	1.0 %	19.5	19.4	0.6
EG005T: Total Metals by ICP-AES						
EG005T: Total Metals by ICP-AES - (QC Lot: 147555)				mg/kg	mg/kg	%
ES0510236-001	C1	Arsenic	5 mg/kg	<5	<5	0.0
		Cadmium	1 mg/kg	<1	<1	0.0
		Chromium	2 mg/kg	6	4	30.6
		Copper	5 mg/kg	<5	<5	0.0
		Lead	5 mg/kg	<5	<5	0.0
		Nickel	2 mg/kg	<2	<2	0.0
		Zinc	5 mg/kg	<5	<5	0.0
ES0510366-001	Anonymous	Arsenic	5 mg/kg	11	12	9.4
		Cadmium	1 mg/kg	<1	<1	0.0
		Chromium	2 mg/kg	5	6	0.0
		Copper	5 mg/kg	<5	<5	0.0
		Lead	5 mg/kg	<5	<5	0.0
		Nickel	2 mg/kg	<2	<2	0.0
		Zinc	5 mg/kg	<5	<5	0.0
EG035T: Total Mercury by FIMS						
EG035T: Total Mercury by FIMS - (QC Lot: 147556)				mg/kg	mg/kg	%
ES0510236-001	C1	Mercury	0.1 mg/kg	<0.1	<0.1	0.0
ES0510366-001	Anonymous	Mercury	0.1 mg/kg	<0.1	<0.1	0.0

Matrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP068A: Organochlorine Pesticides (OC)						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 145769)				mg/kg	mg/kg	%
ES0510190-001	Anonymous	alpha-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Hexachlorobenzene (HCB)	0.05 mg/kg	<0.05	<0.05	0.0
		beta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		gamma-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		delta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor	0.05 mg/kg	<0.05	<0.05	0.0
		Aldrin	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor epoxide	0.05 mg/kg	<0.05	<0.05	0.0
		trans-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		alpha-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		cis-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		Dieldrin	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDE	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin	0.05 mg/kg	<0.05	<0.05	0.0
		beta-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDD	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin aldehyde	0.05 mg/kg	<0.05	<0.05	0.0
		Endosulfan sulfate	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDT	0.2 mg/kg	<0.2	<0.2	0.0
		Endrin ketone	0.05 mg/kg	<0.05	<0.05	0.0
		Methoxychlor	0.2 mg/kg	<0.2	<0.2	0.0
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 147251)				mg/kg	mg/kg	%
ES0510381-011	Anonymous	alpha-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Hexachlorobenzene (HCB)	0.05 mg/kg	<0.05	<0.05	0.0
		beta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		gamma-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		delta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor	0.05 mg/kg	<0.05	<0.05	0.0
		Aldrin	0.05 mg/kg	<0.05	<0.05	0.0

Matrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 147251) - continued				mg/kg	mg/kg	%
ES0510381-011	Anonymous	Heptachlor epoxide	0.05 mg/kg	<0.05	<0.05	0.0
		trans-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		alpha-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		cis-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		Dieldrin	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDE	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin	0.05 mg/kg	<0.05	<0.05	0.0
		beta-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDD	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin aldehyde	0.05 mg/kg	<0.05	<0.05	0.0
		Endosulfan sulfate	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDT	0.2 mg/kg	<0.2	<0.2	0.0
		Endrin ketone	0.05 mg/kg	<0.05	<0.05	0.0
		Methoxychlor	0.2 mg/kg	<0.2	<0.2	0.0
EP068B: Organophosphorus Pesticides (OP)						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 145769)				mg/kg	mg/kg	%
ES0510190-001	Anonymous	Dichlorvos	0.05 mg/kg	<0.05	<0.05	0.0
		Demeton-S-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Monocrotophos	0.2 mg/kg	<0.2	<0.2	0.0
		Dimethoate	0.05 mg/kg	<0.05	<0.05	0.0
		Diazinon	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion-methyl	0.2 mg/kg	<0.2	<0.2	0.0
		Malathion	0.05 mg/kg	<0.05	<0.05	0.0
		Fenthion	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion	0.2 mg/kg	<0.2	<0.2	0.0
		Pirimphos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorfenvinphos	0.05 mg/kg	<0.05	<0.05	0.0

Matrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP068B: Organophosphorus Pesticides (OP) - continued						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 145769) - continued				mg/kg	mg/kg	%
ES0510190-001	Anonymous	Bromophos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Fenamiphos	0.05 mg/kg	<0.05	<0.05	0.0
		Prothiofos	0.05 mg/kg	<0.05	<0.05	0.0
		Ethion	0.05 mg/kg	<0.05	<0.05	0.0
		Carbophenothion	0.05 mg/kg	<0.05	<0.05	0.0
		Methyl Azinphos	0.05 mg/kg	<0.05	<0.05	0.0
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 147251)				mg/kg	mg/kg	%
ES0510381-011	Anonymous	Dichlorvos	0.05 mg/kg	<0.05	<0.05	0.0
		Demeton-S-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Monocrotophos	0.2 mg/kg	<0.2	<0.2	0.0
		Dimethoate	0.05 mg/kg	<0.05	<0.05	0.0
		Diazinon	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion-methyl	0.2 mg/kg	<0.2	<0.2	0.0
		Malathion	0.05 mg/kg	<0.05	<0.05	0.0
		Fenthion	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion	0.2 mg/kg	<0.2	<0.2	0.0
		Pirimphos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorfenvinphos	0.05 mg/kg	<0.05	<0.05	0.0
		Bromophos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Fenamiphos	0.05 mg/kg	<0.05	<0.05	0.0
		Prothiofos	0.05 mg/kg	<0.05	<0.05	0.0
		Ethion	0.05 mg/kg	<0.05	<0.05	0.0
		Carbophenothion	0.05 mg/kg	<0.05	<0.05	0.0
		Methyl Azinphos	0.05 mg/kg	<0.05	<0.05	0.0

Quality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

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 type is to monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of this QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of reporting.

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results		Recovery Limits	
			Spike concentration	Spike Recovery	Dynamic Recovery Limits	
				LCS	Low	High
EG005T: Total Metals by ICP-AES						
EG005T: Total Metals by ICP-AES - (QC Lot: 147555)		mg/kg	mg/kg	%	%	%
Arsenic	5 mg/kg	<5	—	—	—	—
	5 mg/kg	—	13.1	97.2	70	130
Cadmium	1 mg/kg	—	2.76	97.3	70	130
	1 mg/kg	<1	—	—	—	—
Chromium	2 mg/kg	—	60.9	101	70	130
	2 mg/kg	<2	—	—	—	—
Copper	5 mg/kg	—	54.7	93.8	70	130
	5 mg/kg	<5	—	—	—	—
Lead	5 mg/kg	—	55.2	101	70	130
	5 mg/kg	<5	—	—	—	—
Nickel	2 mg/kg	—	54.8	100	70	130
	2 mg/kg	<2	—	—	—	—
Zinc	5 mg/kg	—	104	106	70	130
	5 mg/kg	<5	—	—	—	—
EG035T: Total Mercury by FIMS						
EG035T: Total Mercury by FIMS - (QC Lot: 147556)		mg/kg	mg/kg	%	%	%
Mercury	0.1 mg/kg	—	1.4	96.9	70	130
	0.1 mg/kg	<0.1	—	—	—	—
EP068A: Organochlorine Pesticides (OC)						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 145769)		mg/kg	mg/kg	%	%	%
4,4'-DDD	0.05 mg/kg	—	0.25	95.6	72.4	109
	0.05 mg/kg	<0.05	—	—	—	—
4,4'-DDE	0.05 mg/kg	—	0.25	98.2	73.6	107
	0.05 mg/kg	<0.05	—	—	—	—
4,4'-DDT	0.2 mg/kg	—	0.25	90.6	62.1	125
	0.2 mg/kg	<0.2	—	—	—	—

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 145769) - continued		mg/kg	mg/kg	%	%	%
Aldrin	0.05 mg/kg	—	0.25	97.6	73.3	108
	0.05 mg/kg	<0.05	—	—	—	—
alpha-BHC	0.05 mg/kg	—	0.25	105	77.5	109
	0.05 mg/kg	<0.05	—	—	—	—
alpha-Endosulfan	0.05 mg/kg	—	0.25	98.2	71.5	112
	0.05 mg/kg	<0.05	—	—	—	—
beta-BHC	0.05 mg/kg	—	0.25	111	73.1	110
	0.05 mg/kg	<0.05	—	—	—	—
beta-Endosulfan	0.05 mg/kg	—	0.25	107	73.8	112
	0.05 mg/kg	<0.05	—	—	—	—
cis-Chlordane	0.05 mg/kg	—	0.25	100	70.8	111
	0.05 mg/kg	<0.05	—	—	—	—
delta-BHC	0.05 mg/kg	—	0.25	103	67.1	113
	0.05 mg/kg	<0.05	—	—	—	—
Dieldrin	0.05 mg/kg	—	0.25	104	72.7	109
	0.05 mg/kg	<0.05	—	—	—	—
Endosulfan sulfate	0.05 mg/kg	—	0.25	106	68.5	115
	0.05 mg/kg	<0.05	—	—	—	—
Endrin	0.05 mg/kg	—	0.25	98.2	65.8	107
	0.05 mg/kg	<0.05	—	—	—	—
Endrin aldehyde	0.05 mg/kg	—	0.25	104	72.2	114
	0.05 mg/kg	<0.05	—	—	—	—
Endrin ketone	0.05 mg/kg	—	0.25	99.0	71.1	114
	0.05 mg/kg	<0.05	—	—	—	—
gamma-BHC	0.05 mg/kg	—	0.25	99.4	73.1	110
	0.05 mg/kg	<0.05	—	—	—	—
Heptachlor	0.05 mg/kg	—	0.25	94.0	74.8	107
	0.05 mg/kg	<0.05	—	—	—	—
Heptachlor epoxide	0.05 mg/kg	—	0.25	91.0	74	108
	0.05 mg/kg	<0.05	—	—	—	—

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 145769) - continued		mg/kg	mg/kg	%	%	%
Hexachlorobenzene (HCB)	0.05 mg/kg	---	0.25	107	69.6	108
	0.05 mg/kg	<0.05	---	---	---	---
Methoxychlor	0.2 mg/kg	---	0.25	95.8	56.8	137
	0.2 mg/kg	<0.2	---	---	---	---
trans-Chlordane	0.05 mg/kg	---	0.25	102	74.6	108
	0.05 mg/kg	<0.05	---	---	---	---
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 147251)		mg/kg	mg/kg	%	%	%
4,4'-DDD	0.05 mg/kg	---	0.25	103	72.4	109
	0.05 mg/kg	<0.05	---	---	---	---
4,4'-DDE	0.05 mg/kg	---	0.25	102	73.6	107
	0.05 mg/kg	<0.05	---	---	---	---
4,4'-DDT	0.2 mg/kg	---	0.25	95.8	62.1	125
	0.2 mg/kg	<0.2	---	---	---	---
Aldrin	0.05 mg/kg	---	0.25	99.2	73.3	108
	0.05 mg/kg	<0.05	---	---	---	---
alpha-BHC	0.05 mg/kg	---	0.25	109	77.5	109
	0.05 mg/kg	<0.05	---	---	---	---
alpha-Endosulfan	0.05 mg/kg	---	0.25	100	71.5	112
	0.05 mg/kg	<0.05	---	---	---	---
beta-BHC	0.05 mg/kg	---	0.25	109	73.1	110
	0.05 mg/kg	<0.05	---	---	---	---
beta-Endosulfan	0.05 mg/kg	---	0.25	97.2	73.8	112
	0.05 mg/kg	<0.05	---	---	---	---
cis-Chlordane	0.05 mg/kg	---	0.25	95.2	70.8	111
	0.05 mg/kg	<0.05	---	---	---	---
delta-BHC	0.05 mg/kg	---	0.25	101	67.1	113
	0.05 mg/kg	<0.05	---	---	---	---
Dieldrin	0.05 mg/kg	---	0.25	101	72.7	109
	0.05 mg/kg	<0.05	---	---	---	---

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 147251) - continued		mg/kg	mg/kg	%	%	%
Endosulfan sulfate	0.05 mg/kg	—	0.25	97.0	68.5	115
	0.05 mg/kg	<0.05	—	—	—	—
Endrin	0.05 mg/kg	—	0.25	99.2	65.8	107
	0.05 mg/kg	<0.05	—	—	—	—
Endrin aldehyde	0.05 mg/kg	—	0.25	94.6	72.2	114
	0.05 mg/kg	<0.05	—	—	—	—
Endrin ketone	0.05 mg/kg	—	0.25	93.2	71.1	114
	0.05 mg/kg	<0.05	—	—	—	—
gamma-BHC	0.05 mg/kg	—	0.25	108	73.1	110
	0.05 mg/kg	<0.05	—	—	—	—
Heptachlor	0.05 mg/kg	—	0.25	96.8	74.8	107
	0.05 mg/kg	<0.05	—	—	—	—
Heptachlor epoxide	0.05 mg/kg	—	0.25	103	74	108
	0.05 mg/kg	<0.05	—	—	—	—
Hexachlorobenzene (HCB)	0.05 mg/kg	—	0.25	110	69.6	108
	0.05 mg/kg	<0.05	—	—	—	—
Methoxychlor	0.2 mg/kg	—	0.25	96.2	56.8	137
	0.2 mg/kg	<0.2	—	—	—	—
trans-Chlordane	0.05 mg/kg	—	0.25	97.2	74.6	108
	0.05 mg/kg	<0.05	—	—	—	—
EP068B: Organophosphorus Pesticides (OP)						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 145769)		mg/kg	mg/kg	%	%	%
Methyl Azinphos	0.05 mg/kg	—	0.25	110	33.1	144
	0.05 mg/kg	<0.05	—	—	—	—
Bromophos-ethyl	0.05 mg/kg	—	0.25	97.0	66.5	112
	0.05 mg/kg	<0.05	—	—	—	—
Carbophenothion	0.05 mg/kg	—	0.25	101	67.8	108
	0.05 mg/kg	<0.05	—	—	—	—
Chlorfenvinphos	0.05 mg/kg	—	0.25	102	54.5	132
	0.05 mg/kg	<0.05	—	—	—	—

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068B: Organophosphorus Pesticides (OP) - continued						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 145769) - continued		mg/kg	mg/kg	%	%	%
Chlorpyrifos	0.05 mg/kg	—	0.25	101	75	109
	0.05 mg/kg	<0.05	—	—	—	—
Chlorpyrifos-methyl	0.05 mg/kg	—	0.25	96.8	72.2	107
	0.05 mg/kg	<0.05	—	—	—	—
Demeton-S-methyl	0.05 mg/kg	—	0.25	109	57.7	123
	0.05 mg/kg	<0.05	—	—	—	—
Diazinon	0.05 mg/kg	—	0.25	103	72.9	108
	0.05 mg/kg	<0.05	—	—	—	—
Dichlorvos	0.05 mg/kg	—	0.25	70.6	64	117
	0.05 mg/kg	<0.05	—	—	—	—
Dimethoate	0.05 mg/kg	—	0.25	111	60.7	117
	0.05 mg/kg	<0.05	—	—	—	—
Ethion	0.05 mg/kg	—	0.25	104	58.9	116
	0.05 mg/kg	<0.05	—	—	—	—
Fenamiphos	0.05 mg/kg	—	0.25	100	48.8	118
	0.05 mg/kg	<0.05	—	—	—	—
Fenthion	0.05 mg/kg	—	0.25	101	72.5	107
	0.05 mg/kg	<0.05	—	—	—	—
Malathion	0.05 mg/kg	—	0.25	97.6	61.6	121
	0.05 mg/kg	<0.05	—	—	—	—
Monocrotophos	0.2 mg/kg	—	0.25	92.2	46.9	125
	0.2 mg/kg	<0.2	—	—	—	—
Parathion	0.2 mg/kg	—	0.25	102	65.2	116
	0.2 mg/kg	<0.2	—	—	—	—
Parathion-methyl	0.2 mg/kg	—	0.25	95.6	68	109
	0.2 mg/kg	<0.2	—	—	—	—
Pirimphos-ethyl	0.05 mg/kg	—	0.25	91.0	66.3	118
	0.05 mg/kg	<0.05	—	—	—	—
Prothiofos	0.05 mg/kg	—	0.25	98.8	73	111
	0.05 mg/kg	<0.05	—	—	—	—

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068B: Organophosphorus Pesticides (OP) - continued						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 147251)		mg/kg	mg/kg	%	%	%
Methyl Azinphos	0.05 mg/kg	—	0.25	102	33.1	144
	0.05 mg/kg	<0.05	—	—	—	—
Bromophos-ethyl	0.05 mg/kg	—	0.25	100	66.5	112
	0.05 mg/kg	<0.05	—	—	—	—
Carbophenothion	0.05 mg/kg	—	0.25	94.6	67.8	108
	0.05 mg/kg	<0.05	—	—	—	—
Chlorfenvinphos	0.05 mg/kg	—	0.25	95.2	54.5	132
	0.05 mg/kg	<0.05	—	—	—	—
Chlorpyrifos	0.05 mg/kg	—	0.25	101	75	109
	0.05 mg/kg	<0.05	—	—	—	—
Chlorpyrifos-methyl	0.05 mg/kg	—	0.25	101	72.2	107
	0.05 mg/kg	<0.05	—	—	—	—
Demeton-S-methyl	0.05 mg/kg	—	0.25	105	57.7	123
	0.05 mg/kg	<0.05	—	—	—	—
Diazinon	0.05 mg/kg	—	0.25	107	72.9	108
	0.05 mg/kg	<0.05	—	—	—	—
Dichlorvos	0.05 mg/kg	—	0.25	78.4	64	117
	0.05 mg/kg	<0.05	—	—	—	—
Dimethoate	0.05 mg/kg	—	0.25	111	60.7	117
	0.05 mg/kg	<0.05	—	—	—	—
Ethion	0.05 mg/kg	—	0.25	99.2	58.9	116
	0.05 mg/kg	<0.05	—	—	—	—
Fenamiphos	0.05 mg/kg	—	0.25	104	48.8	118
	0.05 mg/kg	<0.05	—	—	—	—
Fenthion	0.05 mg/kg	—	0.25	99.2	72.5	107
	0.05 mg/kg	<0.05	—	—	—	—
Malathion	0.05 mg/kg	—	0.25	103	61.6	121
	0.05 mg/kg	<0.05	—	—	—	—
Monocrotophos	0.2 mg/kg	—	0.25	103	46.9	125
	0.2 mg/kg	<0.2	—	—	—	—

Matrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068B: Organophosphorus Pesticides (OP) - continued						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 147251) - continued		mg/kg	mg/kg	%	%	%
Parathion	0.2 mg/kg	---	0.25	102	65.2	116
	0.2 mg/kg	<0.2	---	---	---	---
Parathion-methyl	0.2 mg/kg	---	0.25	105	68	109
	0.2 mg/kg	<0.2	---	---	---	---
Pirimphos-ethyl	0.05 mg/kg	<0.05	---	---	---	---
	0.05 mg/kg	---	0.25	103	66.3	118
Prothiofos	0.05 mg/kg	---	0.25	102	73	111
	0.05 mg/kg	<0.05	---	---	---	---

Quality Control Report - Matrix Spikes (MS)

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 type is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations: LOR = Limit of Reporting, RPD = Relative Percent Difference.*

Indicates failed QC

Matrix Type: SOIL

Matrix Spike (MS) Report

Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration	Actual Results: Sample Result	Actual Results: Spike Recovery MS	Recovery Limits: Static Limits Low	Recovery Limits: Static Limits High
EG005T: Total Metals by ICP-AES								
EG005T: Total Metals by ICP-AES - (QC Lot: 147555)				mg/kg	mg/kg	%	%	%
Arsenic	ES0510236-001	C1	5 mg/kg	50	<5	97.1	70	130
Cadmium			1 mg/kg	50	<1	102	70	130
Chromium			2 mg/kg	50	6	99.0	70	130
Copper			5 mg/kg	250	<5	98.1	70	130
Lead			5 mg/kg	250	<5	98.1	70	130
Nickel			2 mg/kg	50	<2	97.4	70	130
Zinc			5 mg/kg	250	<5	97.0	70	130
EG035T: Total Mercury by FIMS								
EG035T: Total Mercury by FIMS - (QC Lot: 147556)				mg/kg	mg/kg	%	%	%
Mercury	ES0510236-001	C1	0.1 mg/kg	5	<0.1	98.5	70	130
EP068A: Organochlorine Pesticides (OC)								
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 145769)				mg/kg	mg/kg	%	%	%
gamma-BHC	ES0510190-001	Anonymous	0.05 mg/kg	0.25	<0.05	107	75.65	110.44
Heptachlor			0.05 mg/kg	0.25	<0.05	74.6	72.2	106.71
Aldrin			0.05 mg/kg	0.25	<0.05	93.8	77.54	107.0
Dieldrin			0.05 mg/kg	0.25	<0.05	81.6	76.37	109.7
Endrin			0.05 mg/kg	1	<0.05	92.5	68.51	119.47
4,4'-DDT			0.2 mg/kg	1	<0.2	58.0	67.12	118.10
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 147251)				mg/kg	mg/kg	%	%	%
gamma-BHC	ES0510381-011	Anonymous	0.05 mg/kg	0.25	<0.05	79.2	75.65	110.44
Heptachlor			0.05 mg/kg	0.25	<0.05	100	72.2	106.71
Aldrin			0.05 mg/kg	0.25	<0.05	82.0	77.54	107.0
Dieldrin			0.05 mg/kg	0.25	<0.05	78.2	76.37	109.7
Endrin			0.05 mg/kg	1	<0.05	70.5	68.51	119.47
4,4'-DDT			0.2 mg/kg	1	<0.2	86.5	67.12	118.10

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Matrix Type: SOIL

Matrix Spike (MS) Report

Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration	Actual Results: Sample Result	Actual Results: Spike Recovery MS	Recovery Limits: Static Limits Low	Recovery Limits: Static Limits High
EP068B: Organophosphorus Pesticides (OP)								
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 145769)				mg/kg	mg/kg	%	%	%
Diazinon	ES0510190-001	Anonymous	0.05 mg/kg	0.25	<0.05	98.4	75.85	107.06
Chlorpyrifos-methyl			0.05 mg/kg	0.25	<0.05	94.8	74.84	107.91
Pirimphos-ethyl			0.05 mg/kg	0.25	<0.05	83.2	67.98	109.42
Bromophos-ethyl			0.05 mg/kg	0.25	<0.05	83.6	74.94	107.37
Prothiofos			0.05 mg/kg	0.25	<0.05	81.6	75.45	106.05
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 147251)				mg/kg	mg/kg	%	%	%
Diazinon	ES0510381-011	Anonymous	0.05 mg/kg	0.25	<0.05	79.2	75.85	107.06
Chlorpyrifos-methyl			0.05 mg/kg	0.25	<0.05	89.8	74.84	107.91
Pirimphos-ethyl			0.05 mg/kg	0.25	<0.05	77.0	67.98	109.42
Bromophos-ethyl			0.05 mg/kg	0.25	<0.05	95.4	74.94	107.37
Prothiofos			0.05 mg/kg	0.25	<0.05	78.2	75.45	106.05

AUSTRALIAN LABORATORY SERVICES PTY LTD ABN 84 009 936 029
277-289 Woodpark Road Smithfield NSW 2164 Australia
Telephone: 61-2-87848555 Facsimile: 61-2-87848500 http://www.alsenviro.com/

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive report

Client Details			Laboratory Details		
Client	:	NETWORK GEOTECHNICS PTY LTD	Laboratory	:	ALS Environmental Sydney
Contact	:	MR GARY PEAKE	Manager	:	Greg Vogel
Address	:	6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	:	277-289 Woodpark Road Smithfield NSW Australia 2164
Project	:	G25192 1	Quote number	:	ES20040057
Order number	:	- Not provided -	Work order	:	ES0510236
C-O-C Number	:	- Not provided -			
Site	:	- Not provided -			
Sampler	:	DD			
E-mail	:	gosnetgeo@bigpond.com	E-mail	:	Greg.Vogel@alsenviro.com
Telephone	:	02 4351 6200	Telephone	:	61-2-87848555
Facsimile	:	02 4351 6300	Facsimile	:	61-2-87848500

Dates

Date Samples Received	:	1 Dec 2005
SRA Issue Date	:	1 Dec 2005
Scheduled Reporting Date	:	**12 Dec 2005**

Delivery Details

Mode of Delivery	:	Carrier.	Temperature		: CHILLED - Ice present
No. of coolers/boxes	:	1 HARD	No. of samples	- Received	9
Security Seal	:	Intact.		- Analysed	9

Comments

- **Samples received in appropriately pretreated and preserved containers.**
- **Sample(s) have been received within recommended holding times.**

- Analytical work for this work order will be conducted at ALSE Sydney.
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of work order.
- Please direct any queries related to sample condition / numbering / breakages to Barbara Hanna.
- Please direct any turn around / technical quires to the laboratory contact designated above.
- When the sampling time is not supplied on the COC documentation, ALSE defaults the sampling time to that of the COC 'relinquishment' time (if supplied). If this also is not supplied, ALSE defaults the sampling time to the 'time of receipt at Laboratory'.

Client	: NETWORK GEOTECHNICS PTY LTD	Work Order	: ES0510236
Project	: G26192 1	ALS Quote Reference	: ES20040057

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Summary of Sample(s) / Container(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as moisture and preparation tasks, that form an implicit part of that package.

ALS Sample ID.	Client Sample ID - Sample Date	Requested Analysis									
		S-02 - SOIL 8 Metals (incl. Digestion)	S-12 - SOIL OC/OP Pesticides								
ES0510236-001	C1 - 30 Nov 2005	●	●								
ES0510236-002	C2 - 30 Nov 2005	●	●								
ES0510236-003	#7 - 30 Nov 2005	●	●								
ES0510236-004	#1 - 30 Nov 2005										
ES0510236-005	#2 - 30 Nov 2005										
ES0510236-006	#3 - 30 Nov 2005										
ES0510236-007	#4 - 30 Nov 2005										
ES0510236-008	#5 - 30 Nov 2005										
ES0510236-009	#6 - 30 Nov 2005										
	Total(s) :	3	3								

Client	: NETWORK GEOTECHNICS PTY LTD	Work Order	: ES0510236
Project	: G25192 1	ALS Quote Reference	: ES20040057

ALS Environmental

Requested Reports

- MR GARY PEAKE
  - A4 - Certificate of Analysis - NEPM format — Email — gosnetgeo@bigpond.com
  - A4 - Quality Control Report - NEPM format — Email — gosnetgeo@bigpond.com
  - A4 - Interpretive Quality Control Report - NEPM format — Email — gosnetgeo@bigpond.com
  - ENMRG Export Format — Email — gosnetgeo@bigpond.com
  - Chain of Custody Acknowledgement — Email — gosnetgeo@bigpond.com
  - A4 - Sample Receipt Notification - Comprehensive format — Email — gosnetgeo@bigpond.com
  - Invoice — Email — gosnetgeo@bigpond.com

Sample Container(s) / Preservation Non-Compliance Log

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

- **No sample container / preservation non-compliance exist.**

CHAIN OF CUSTODY DOCUMENTATION

Australian Laboratory Services Pty Ltd

CLIENT: [illegible] P/L
ADDRESS / OFFICE: 6/6 [illegible] 2354
PROJECT MANAGER (PM): [illegible]
PROJECT NO: 6251911
SITE: [illegible]
RESULTS REQUIRED (Date): [illegible]
P.O. NO:
QUOTE NO:

SAMPLER: DO
MOBILE:
PHONE:
EMAIL REPORT TO:
EMAIL INVOICE TO: (if different to report)
ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:
Analysis requirements [illegible] by [illegible] 1/12/05 by [illegible]

LAB ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles		COMPOSITE	S12 - 8 metals	S12 - OC/OP
	#1 4	S	3/11		J	1	}			
	#2 5	S	"		"	"	}	(1) C1	✓	✓
	#3 6	S	"		"	"	}			
	#4 7	S	"		"	"	}			
	#5 8	S	"		"	"	}	(2) C2	✓	✓
	#6 9	S	"		"	"	}			
	#7 (3)	S	"		"	"			✓	✓

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

COMPOSITE C1 = #1, #2, #3
Composite C2 = #4, #5, #6

RELINQUISHED BY:		RECEIVED BY:	
Name: [illegible]	Date: 30/11/05	Name: [illegible]	Date: 30/11/05
Of: [illegible]	Time: [illegible]	Of: [illegible]	Time: 1530
Name: [illegible]	Date: 1/12/05	Name: FAD	Date: 1/12/05
Of: [illegible]	Time:	Of: ALS	Time: 10am

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; [illegible] V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulphuric Preserved Amber Glass; H = HCl preserved Plastic; [illegible] Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; [illegible]

AUSTRALIAN LABORATORY SERVICES P/L

ALS Environmental
Sydney
Work Order
ES0510236

Report Version: AlsQuotLabel 1.02
Telephone : 61-2-87848555

ALS Environmental

CERTIFICATE OF ANALYSIS

ient	: NETWORK GEOTECHNICS PTY LTD	Laboratory	: ALS Environmental Sydney	Page	: 1 of 5
ntact	: MR GARY PEAKE	Contact	: Greg Vogel	Work Order	: ES0606080
ldress	: 6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164		
mail	: gosnetgeo@bigpond.com	E-mail	: Greg.Vogel@alsenviro.com		
lephone	: 02 4351 6200	Telephone	: 61-2-87848555		
csimile	: 02 4351 6300	Facsimile	: 61-2-87848500		
oject	: G25192/1-B	Quote number	: SY/405/02	Date received	: 18 May 2006
der number	: - Not provided -			Date issued	: 29 May 2006
O-C number	: 120304			No. of samples	- Received : 5
e	: - Not provided -				Analysed : 5

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NATA Accredited Laboratory 825

This document is issued in accordance with NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Position	Department
Daniel Um	Senior Organic Chemist	Organics - NATA 825 (10911 - Sydney)
Peter Dickenson	Senior Spectroscopist	Inorganics - NATA 825 (10911 - Sydney)

ALS Environmental

omments

is report for the ALSE reference ES0606080 supersedes any previous reports with this reference. Results apply to the samples as submitted. All pages of this report have been checked and proved for release.

is report contains the following information:

- **Analytical results for samples submitted**

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample racts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified EPA limits). Where LOR of reported result differ from standard LOR, this may be due to high moisture, reduced sample amount or matrix interference. When date(s) and/or time(s) are own bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number, LOR = Limit of Reporting. * Indicates ed Surrogate Recoveries.

- **Surrogate control limits**

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house ocedure 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 ein. Reference methods from which ALSE methods are based are provided in parenthesis.

ecific comments for Work Order **ES0606080**

LCS recovery for various organic analytes fall outside ALS dynamic control limits, However they are within the acceptance criteria based on USEPA SW-846.

ALS Environmental

nalytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: ES1 0-2-0-3	ES2 0-2-0-3	ES3 0-2-0-3	ES4 0-2-0-3	ES5 0-2-0-3
				Sample Matrix Type / Description: SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Date / Time: 17 May 2006 15:00	17 May 2006 15:00	17 May 2006 15:00	17 May 2006 15:00	17 May 2006 15:00
				Laboratory Sample ID: ES0606080-001	ES0606080-002	ES0606080-003	ES0606080-004	ES0606080-005
A055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	12.1	12.9	20.6	20.4	25.4
G005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	12	15	13	9
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	9	12	14	16	6
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	4	<2
Zinc	7440-66-6	5	mg/kg	<5	<5	8	12	6
G035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
P068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
P068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

ALS Environmental

nalytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: ES1 0-2-0-3	ES2 0-2-0-3	ES3 0-2-0-3	ES4 0-2-0-3	ES5 0-2-0-3
Sample Matrix Type / Description:				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time:				17 May 2006 15:00	17 May 2006 15:00	17 May 2006 15:00	17 May 2006 15:00	17 May 2006 15:00
Laboratory Sample ID:				ES0606080-001	ES0606080-002	ES0606080-003	ES0606080-004	ES0606080-005
P068B: Organophosphorus Pesticides (OP)								
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
P068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE		0.1	%	73.6	83.4	60.7	75.3	60.4
P068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	77.5	88.8	64.6	102	101

ALS Environmental

urrogate Control Limits

trix Type: SOIL - Surrogate Control Limits

ethod name	Analyte name	Surrogate Control Limits	
		Lower Limit	Upper Limit
P068: Pesticides by GCMS			
EP068S: Organochlorine Pesticide Surrogate	Dibromo-DDE	10	136
EP068T: Organophosphorus Pesticide Surrogate	DEF	10	136

ALS Environmental

QUALITY CONTROL REPORT

lient	: NETWORK GEOTECHNICS PTY LTD	Laboratory	: ALS Environmental Sydney	Page	:	1 of 11
ontact	: MR GARY PEAKE	Contact	: Greg Vogel			
ddress	: 6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164	Work order	:	ES0606080
				Amendment No.	:	
oject	: G25192/1-B	Quote number	: SY/405/02	Date received	:	18 May 2006
rder number	: - Not provided -			Date issued	:	29 May 2006
O-C number	: 120304					
te	: - Not provided -					
mail	: gosnetgeo@bigpond.com	E-mail	: Greg.Vogel@alsenviro.com	No. of samples		
lephone	: 02 4351 6200	Telephone	: 61-2-87848555	Received	:	5
csimile	: 02 4351 6300	Facsimile	: 61-2-87848500	Analysed	:	5

is final report for the ALSE work order reference ES0606080 supersedes any previous reports with this reference.
esults apply to the samples as submitted. All pages of this report have been checked and approved for release.
is report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

ork order specific comments

CS recovery for various organic analytes fall outside ALS dynamic control limits, However they are within the acceptance criteria based on USEPA SW-846.

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Accredited for compliance with ISO/IEC 17025

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Daniel Um	Organics - NATA 825 (10911 - Sydney)
Peter Dickenson	Inorganics - NATA 825 (10911 - Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

he quality control term Laboratory Duplicate refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity. Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations: LOR = Limit of Reporting, RPD = Relative Percent Difference.* indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level reporting:- Result < 10 times LOR, no limit - Result between 10 and 20 times LOR, 0% - 50% - Result > 20 times LOR, 0% - 20%

atrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	*Client Sample ID*	*Analyte name*	*LOR*	*Original Result*	*Duplicate Result*	*RPD*
A055: Moisture Content						
EA055: Moisture Content - (QC Lot: 217064)				%	%	%
ES0606080-001	ES1 0-2-0-3	Moisture Content (dried @ 103°C)	1.0 %	12.1	13.3	9.5
ES0606135-001	Anonymous	Moisture Content (dried @ 103°C)	1.0 %	10.4	9.6	7.4
G005T: Total Metals by ICP-AES						
EG005T: Total Metals by ICP-AES - (QC Lot: 215226)				mg/kg	mg/kg	%
ES0606080-001	ES1 0-2-0-3	Arsenic	5 mg/kg	<5	<5	0.0
		Cadmium	1 mg/kg	<1	<1	0.0
		Chromium	2 mg/kg	6	5	0.0
		Copper	5 mg/kg	<5	<5	0.0
		Lead	5 mg/kg	8	6	28.5
		Nickel	2 mg/kg	<2	<2	0.0
		Zinc	5 mg/kg	<5	<5	0.0
G035T: Total Mercury by FIMS						
EG035T: Total Mercury by FIMS - (QC Lot: 215224)				mg/kg	mg/kg	%
ES0605992-005	Anonymous	Mercury	0.1 mg/kg	<0.1	<0.1	0.0
ES0606080-001	ES1 0-2-0-3	Mercury	0.1 mg/kg	<0.1	<0.1	0.0
P068A: Organochlorine Pesticides (OC)						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581)				mg/kg	mg/kg	%
ES0606040-003	Anonymous	alpha-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Hexachlorobenzene (HCB)	0.05 mg/kg	<0.05	<0.05	0.0
		beta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		gamma-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		delta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor	0.05 mg/kg	<0.05	<0.05	0.0
		Aldrin	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor epoxide	0.05 mg/kg	<0.05	<0.05	0.0

atrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581) - continued				mg/kg	mg/kg	%
ES0606040-003	Anonymous	trans-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		alpha-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		cis-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		Dieldrin	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDE	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin	0.05 mg/kg	<0.05	<0.05	0.0
		beta-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDD	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin aldehyde	0.05 mg/kg	<0.05	<0.05	0.0
		Endosulfan sulfate	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDT	0.2 mg/kg	<0.2	<0.2	0.0
		Endrin ketone	0.05 mg/kg	<0.05	<0.05	0.0
		Methoxychlor	0.2 mg/kg	<0.2	<0.2	0.0
ES0606140-001	Anonymous	alpha-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Hexachlorobenzene (HCB)	0.05 mg/kg	<0.05	<0.05	0.0
		beta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		gamma-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		delta-BHC	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor	0.05 mg/kg	<0.05	<0.05	0.0
		Aldrin	0.05 mg/kg	<0.05	<0.05	0.0
		Heptachlor epoxide	0.05 mg/kg	<0.05	<0.05	0.0
		trans-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		alpha-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		cis-Chlordane	0.05 mg/kg	<0.05	<0.05	0.0
		Dieldrin	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDE	0.05 mg/kg	<0.05	<0.05	0.0
		Endrin	0.05 mg/kg	<0.05	<0.05	0.0
		beta-Endosulfan	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDD	0.05 mg/kg	<0.05	<0.05	0.0

atrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581) - continued				mg/kg	mg/kg	%
ES0606140-001	Anonymous	Endrin aldehyde	0.05 mg/kg	<0.05	<0.05	0.0
		Endosulfan sulfate	0.05 mg/kg	<0.05	<0.05	0.0
		4,4'-DDT	0.2 mg/kg	<0.2	<0.2	0.0
		Endrin ketone	0.05 mg/kg	<0.05	<0.05	0.0
		Methoxychlor	0.2 mg/kg	<0.2	<0.2	0.0
EP068B: Organophosphorus Pesticides (OP)						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 214581)				mg/kg	mg/kg	%
ES0606040-003	Anonymous	Dichlorvos	0.05 mg/kg	<0.05	<0.05	0.0
		Demeton-S-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Monocrotophos	0.2 mg/kg	<0.2	<0.2	0.0
		Dimethoate	0.05 mg/kg	<0.05	<0.05	0.0
		Diazinon	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion-methyl	0.2 mg/kg	<0.2	<0.2	0.0
		Malathion	0.05 mg/kg	<0.05	<0.05	0.0
		Fenthion	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion	0.2 mg/kg	<0.2	<0.2	0.0
		Pirimphos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorfenvinphos	0.05 mg/kg	<0.05	<0.05	0.0
		Bromophos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Fenamiphos	0.05 mg/kg	<0.05	<0.05	0.0
		Prothiofos	0.05 mg/kg	<0.05	<0.05	0.0
		Ethion	0.05 mg/kg	<0.05	<0.05	0.0
		Carbophenothion	0.05 mg/kg	<0.05	<0.05	0.0
		Methyl Azinphos	0.05 mg/kg	<0.05	<0.05	0.0
ES0606140-001	Anonymous	Dichlorvos	0.05 mg/kg	<0.05	<0.05	0.0
		Demeton-S-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Monocrotophos	0.2 mg/kg	<0.2	<0.2	0.0

ALS Environmental

etrix Type: SOIL

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
P068B: Organophosphorus Pesticides (OP) - continued						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 214581) - continued				mg/kg	mg/kg	%
ES0606140-001	Anonymous	Dimethoate	0.05 mg/kg	<0.05	<0.05	0.0
		Diazinon	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos-methyl	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion-methyl	0.2 mg/kg	<0.2	<0.2	0.0
		Malathion	0.05 mg/kg	<0.05	<0.05	0.0
		Fenthion	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorpyrifos	0.05 mg/kg	<0.05	<0.05	0.0
		Parathion	0.2 mg/kg	<0.2	<0.2	0.0
		Pirimphos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Chlorfenvinphos	0.05 mg/kg	<0.05	<0.05	0.0
		Bromophos-ethyl	0.05 mg/kg	<0.05	<0.05	0.0
		Fenamiphos	0.05 mg/kg	<0.05	<0.05	0.0
		Prothiofos	0.05 mg/kg	<0.05	<0.05	0.0
		Ethion	0.05 mg/kg	<0.05	<0.05	0.0
		Carbophenothion	0.05 mg/kg	<0.05	<0.05	0.0
		Methyl Azinphos	0.05 mg/kg	<0.05	<0.05	0.0

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uality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

e 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 type is monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of s QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of reporting.

trix Type: SOIL

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

		Method blank result	Actual Results		Recovery Limits	
			Spike concentration	Spike Recovery	Dynamic Recovery Limits	
Analyte name	LOR			LCS	Low	High
G005T: Total Metals by ICP-AES						
EG005T: Total Metals by ICP-AES - (QC Lot: 215226)		mg/kg	mg/kg	%	%	%
Arsenic	5 mg/kg	—	13.1	98.0	70	130
	5 mg/kg	<5	—	—	—	—
Cadmium	1 mg/kg	—	2.76	98.7	70	130
	1 mg/kg	<1	—	—	—	—
Chromium	2 mg/kg	—	60.9	100	70	130
	2 mg/kg	<2	—	—	—	—
Copper	5 mg/kg	—	54.7	97.3	70	130
	5 mg/kg	<5	—	—	—	—
Lead	5 mg/kg	—	55.2	95.6	70	130
	5 mg/kg	<5	—	—	—	—
Nickel	2 mg/kg	—	54.8	102	70	130
	2 mg/kg	<2	—	—	—	—
Zinc	5 mg/kg	—	104	92.8	70	130
	5 mg/kg	<5	—	—	—	—
G035T: Total Mercury by FIMS						
EG035T: Total Mercury by FIMS - (QC Lot: 215224)		mg/kg	mg/kg	%	%	%
Mercury	0.1 mg/kg	—	1.4	88.1	70	130
	0.1 mg/kg	<0.1	—	—	—	—
P068A: Organochlorine Pesticides (OC)						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581)		mg/kg	mg/kg	%	%	%
4,4'-DDD	0.05 mg/kg	—	0.25	90.2	72.4	109
	0.05 mg/kg	<0.05	—	—	—	—
4,4'-DDE	0.05 mg/kg	—	0.25	90.6	73.6	107
	0.05 mg/kg	<0.05	—	—	—	—

atrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581) - continued		mg/kg	mg/kg	%	%	%
4,4'-DDT	0.2 mg/kg	—	0.25	93.1	62.1	125
	0.2 mg/kg	<0.2	—	—	—	—
Aldrin	0.05 mg/kg	—	0.25	88.0	73.3	108
	0.05 mg/kg	<0.05	—	—	—	—
alpha-BHC	0.05 mg/kg	—	0.25	84.5	77.5	109
	0.05 mg/kg	<0.05	—	—	—	—
alpha-Endosulfan	0.05 mg/kg	—	0.25	91.6	71.5	112
	0.05 mg/kg	<0.05	—	—	—	—
beta-BHC	0.05 mg/kg	—	0.25	84.4	73.1	110
	0.05 mg/kg	<0.05	—	—	—	—
beta-Endosulfan	0.05 mg/kg	—	0.25	91.3	73.8	112
	0.05 mg/kg	<0.05	—	—	—	—
cis-Chlordane	0.05 mg/kg	—	0.25	92.4	70.8	111
	0.05 mg/kg	<0.05	—	—	—	—
delta-BHC	0.05 mg/kg	—	0.25	90.6	67.1	113
	0.05 mg/kg	<0.05	—	—	—	—
Dieldrin	0.05 mg/kg	—	0.25	92.4	72.7	109
	0.05 mg/kg	<0.05	—	—	—	—
Endosulfan sulfate	0.05 mg/kg	—	0.25	94.8	68.5	115
	0.05 mg/kg	<0.05	—	—	—	—
Endrin	0.05 mg/kg	—	0.25	85.7	65.8	107
	0.05 mg/kg	<0.05	—	—	—	—
Endrin aldehyde	0.05 mg/kg	—	0.25	85.1	72.2	114
	0.05 mg/kg	<0.05	—	—	—	—
Endrin ketone	0.05 mg/kg	—	0.25	93.1	71.1	114
	0.05 mg/kg	<0.05	—	—	—	—
gamma-BHC	0.05 mg/kg	—	0.25	77.0	73.1	110
	0.05 mg/kg	<0.05	—	—	—	—
Heptachlor	0.05 mg/kg	—	0.25	90.9	74.8	107
	0.05 mg/kg	<0.05	—	—	—	—

atrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
P068A: Organochlorine Pesticides (OC) - continued						
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581) - continued		mg/kg	mg/kg	%	%	%
Heptachlor epoxide	0.05 mg/kg	—	0.25	90.4	74	108
	0.05 mg/kg	<0.05	—	—	—	—
Hexachlorobenzene (HCB)	0.05 mg/kg	—	0.25	78.2	69.6	108
	0.05 mg/kg	<0.05	—	—	—	—
Methoxychlor	0.2 mg/kg	—	0.25	69.5	56.8	137
	0.2 mg/kg	<0.2	—	—	—	—
trans-Chlordane	0.05 mg/kg	—	0.25	91.0	74.6	108
	0.05 mg/kg	<0.05	—	—	—	—
P068B: Organophosphorus Pesticides (OP)						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 214581)		mg/kg	mg/kg	%	%	%
Methyl Azinphos	0.05 mg/kg	—	0.25	43.1	33.1	144
	0.05 mg/kg	<0.05	—	—	—	—
Bromophos-ethyl	0.05 mg/kg	—	0.25	90.0	66.6	112
	0.05 mg/kg	<0.05	—	—	—	—
Carbophenothion	0.05 mg/kg	—	0.25	78.5	67.8	108
	0.05 mg/kg	<0.05	—	—	—	—
Chlorfenvinphos	0.05 mg/kg	—	0.25	93.7	54.5	132
	0.05 mg/kg	<0.05	—	—	—	—
Chlorpyrifos	0.05 mg/kg	—	0.25	90.0	75	109
	0.05 mg/kg	<0.05	—	—	—	—
Chlorpyrifos-methyl	0.05 mg/kg	—	0.25	88.8	72.2	107
	0.05 mg/kg	<0.05	—	—	—	—
Demeton-S-methyl	0.05 mg/kg	—	0.25	25.7	57.7	123
	0.05 mg/kg	<0.05	—	—	—	—
Diazinon	0.05 mg/kg	—	0.25	86.6	72.9	108
	0.05 mg/kg	<0.05	—	—	—	—
Dichlorvos	0.05 mg/kg	—	0.25	46.8	64	117
	0.05 mg/kg	<0.05	—	—	—	—
Dimethoate	0.05 mg/kg	—	0.25	79.5	60.7	117
	0.05 mg/kg	<0.05	—	—	—	—

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atrix Type: SOIL

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

Analyte name	LOR	Method blank result	Actual Results		Recovery Limits	
			Spike concentration	Spike Recovery	Dynamic Recovery Limits	
				LCS	Low	High
P068B: Organophosphorus Pesticides (OP) - continued						
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 214581) - continued		mg/kg	mg/kg	%	%	%
Ethion	0.05 mg/kg	—	0.25	87.6	58.9	116
	0.05 mg/kg	<0.05	—	—	—	—
Fenamiphos	0.05 mg/kg	—	0.25	71.2	48.8	118
	0.05 mg/kg	<0.05	—	—	—	—
Fenthion	0.05 mg/kg	—	0.25	84.7	72.5	107
	0.05 mg/kg	<0.05	—	—	—	—
Malathion	0.05 mg/kg	—	0.25	90.5	61.6	121
	0.05 mg/kg	<0.05	—	—	—	—
Monocrotophos	0.2 mg/kg	—	0.25	23.1	46.9	125
	0.2 mg/kg	<0.2	—	—	—	—
Parathion	0.2 mg/kg	—	0.25	84.9	65.2	116
	0.2 mg/kg	<0.2	—	—	—	—
Parathion-methyl	0.2 mg/kg	—	0.25	83.1	68	109
	0.2 mg/kg	<0.2	—	—	—	—
Pirimphos-ethyl	0.05 mg/kg	—	0.25	88.6	66.3	118
	0.05 mg/kg	<0.05	—	—	—	—
Prothiofos	0.05 mg/kg	—	0.25	90.9	73	111
	0.05 mg/kg	<0.05	—	—	—	—

Quality Control Report - Matrix Spikes (MS)

ne 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 type is to monitor potential matrix effects on analyte recoveries. atic Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which e not specifically part of this work order but formed part of the QC process lot. *Abbreviations: LOR = Limit of Reporting, RPD = Relative Percent Difference.*
Indicates failed QC

atrix Type: SOIL

Matrix Spike (MS) Report

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
EG005T: Total Metals by ICP-AES								
EG005T: Total Metals by ICP-AES - (QC Lot: 215226)				mg/kg	mg/kg	%	%	%
Arsenic	ES0606080-001	ES1 0-2-0-3	5 mg/kg	50	<5	97.9	70	130
Cadmium			1 mg/kg	50	<1	108	70	130
Chromium			2 mg/kg	50	8	105	70	130
Copper			5 mg/kg	250	<5	108	70	130
Lead			5 mg/kg	250	8	104	70	130
Nickel			2 mg/kg	50	<2	110	70	130
Zinc			5 mg/kg	250	<5	102	70	130
EG035T: Total Mercury by FIMS								
EG035T: Total Mercury by FIMS - (QC Lot: 215224)				mg/kg	mg/kg	%	%	%
Mercury	ES0605992-005	Anonymous	0.1 mg/kg	5	<0.1	107	70	130
EP068A: Organochlorine Pesticides (OC)								
EP068A: Organochlorine Pesticides (OC) - (QC Lot: 214581)				mg/kg	mg/kg	%	%	%
gamma-BHC	ES0605040-003	Anonymous	0.05 mg/kg	0.25	<0.05	87.0	75.65	110.44
Heptachlor			0.05 mg/kg	0.25	<0.05	87.1	72.2	106.71
Aldrin			0.05 mg/kg	0.25	<0.05	78.3	77.54	107.0
Dieldrin			0.05 mg/kg	0.25	<0.05	88.0	76.37	109.7
Endrin			0.05 mg/kg	1	<0.05	94.7	68.51	119.47
4,4'-DDT			0.20 mg/kg	1	<0.2	76.0	67.12	118.10
EP068B: Organophosphorus Pesticides (OP)								
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 214581)				mg/kg	mg/kg	%	%	%
Diazinon	ES0606040-003	Anonymous	0.05 mg/kg	0.25	<0.05	84.5	75.85	107.06
Chlorpyrifos-methyl			0.05 mg/kg	0.25	<0.05	86.0	74.84	107.91
Pirimphos-ethyl			0.05 mg/kg	0.25	<0.05	84.5	67.98	109.42
Bromophos-ethyl			0.05 mg/kg	0.25	<0.05	70.8	74.94	107.37

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latrix Type: SOIL

Matrix Spike (MS) Report

Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration	Actual Results: Sample Result	Actual Results: Spike Recovery MS	Recovery Limits: Static Limits Low	Recovery Limits: Static Limits High
EP068B: Organophosphorus Pesticides (OP) - continued								
EP068B: Organophosphorus Pesticides (OP) - (QC Lot: 214581) - continued				mg/kg	mg/kg	%	%	%
Prothiofos	ES0606040-003	Anonymous	0.05 mg/kg	0.25	<0.05	75.8	75.45	106.05

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

ient	:	NETWORK GEOTECHNICS PTY LTD	Laboratory	:	ALS Environmental Sydney	Page	: 1 of 5
ntact	:	MR GARY PEAKE	Contact	:	Greg Vogel		
ddress	:	6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	:	277-289 Woodpark Road Smithfield NSW Australia 2164	Work order	: ES0606080
						Amendment No.	:
oject	:	G25192/1-B	Quote number	:	SY/405/02	Date received	: 18 May 2006
der number	:	- Not provided -				Date issued	: 29 May 2006
O-C number	:	120304					
te	:	- Not provided -					
mail	:	gosnetgeo@bigpond.com	E-mail	:	Greg.Vogel@alsenviro.com	No. of samples	
lephone	:	02 4351 6200	Telephone	:	61-2-87848555	Received	: 5
csimile	:	02 4351 6300	Facsimile	:	61-2-87848500	Analysed	: 5

his Interpretive Quality Control Report was issued on 29 May 2006 for the ALS work order reference ES0606080 and supersedes any previous reports with this reference.
his report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Type Frequency Compliance
- Summary of all Quality Control Outliers
- Brief Method Summaries

nterpretive Quality Control Report - Analysis Holding Time

ne following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and runs. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time om extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken om the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

atrix Type: SOIL

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
A055-103: Moisture Content							
Soil Glass Jar - Unpreserved							
ES1 0-2-0-3, ES2 0-2-0-3, ES3 0-2-0-3, ES4 0-2-0-3, ES5 0-2-0-3	17 May 2006	—	—	—	25 May 2006	24 May 2006	Fail by 1 day
G005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved							
ES1 0-2-0-3, ES2 0-2-0-3, ES3 0-2-0-3, ES4 0-2-0-3, ES5 0-2-0-3	17 May 2006	22 May 2006	13 Nov 2006	Pass	23 May 2006	13 Nov 2006	Pass
G035T: Total Mercury by FIMS							
Soil Glass Jar - Unpreserved							
ES1 0-2-0-3, ES2 0-2-0-3, ES3 0-2-0-3, ES4 0-2-0-3, ES5 0-2-0-3	17 May 2006	22 May 2006	14 Jun 2006	Pass	23 May 2006	14 Jun 2006	Pass
P068: Pesticides by GCMS							
Soil Glass Jar - Unpreserved							
ES1 0-2-0-3, ES2 0-2-0-3, ES3 0-2-0-3, ES4 0-2-0-3, ES5 0-2-0-3	17 May 2006	19 May 2006	31 May 2006	Pass	22 May 2006	28 Jun 2006	Pass

nterpretive Quality Control Report - Frequency of Quality Control Samples

ne following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

strix Type: SOIL

Frequency of Quality Control Samples

uality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
aboratory Duplicates (DUP)					
EA055-103: Moisture Content	2	17	11.8	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG005T: Total Metals by ICP-AES	1	10	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	2	11	18.2	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	2	12	16.7	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
aboratory Control Samples (LCS)					
EG005T: Total Metals by ICP-AES	1	10	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	1	12	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
ethod Blanks (MB)					
EG005T: Total Metals by ICP-AES	1	10	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	1	12	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
atrix Spikes (MS)					
EG005T: Total Metals by ICP-AES	1	10	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP068: Pesticides by GCMS	1	12	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

nterpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

he following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - lient Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

ALS QC Lot	Matrix Type	Laboratory Sample ID	Client Sample ID	Analyte	Data	Limits	Comment
Laboratory Control Samples (LCS)							
EP068B: Organophosphorus Pesticides (OP)	SOIL	233934-002	—	Dichlorvos	46.8 %	64-117 %	Recovery less than lower control limit
				Demeton-S-methyl	25.7 %	57.7-123 %	Recovery less than lower control limit
				Monocrotophos	23.1 %	46.9-125 %	Recovery less than lower control limit
Matrix Spikes (MS)							
EP068B: Organophosphorus Pesticides (OP)	SOIL	ES0606040-003	Anonymous	Bromophos-ethyl	70.8 %	74.94-107. 37 %	Recovery less than lower data quality objective

- **For all matrices, no RPD recovery outliers occur for the duplicate analysis.**
- **For all matrices, no method blank result outliers occur.**

Surrogates

- **For all matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time

he following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EA055-103: Moisture Content							
Soil Glass Jar - Unpreserved							
ES1 0-2-0-3, ES2 0-2-0-3, ES3 0-2-0-3, ES4 0-2-0-3, ES5 0-2-0-3	17 May 2006	—	—	—	25 May 2006	24 May 2006	Fail by 1 day

Outliers : Frequency of Quality Control Samples

he following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- **No frequency outliers occur.**

lethod Reference Summary

he analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure are employed in the bsence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported herein. Reference methods from which ALSE methods are ased are provided in parenthesis.

latrix Type: SOIL

Preparation Methods

EN69 : Hot Block Digest for metals in soils sediments and sludges - USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)

ORG17A : Tumbler Extraction of Solids (Option A - Concentrating) - In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Analytical Methods

EA055-103 : Moisture Content - A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (1999) Schedule B(3) (Method 102)

EG005T : Total Metals by ICP-AES - (APHA 20th ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. 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 (1999) Schedule B(3)

EG035T : Total Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)

EP068 : Pesticides by GCMS - (USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)

AUSTRALIAN LABORATORY SERVICES PTY LTD ABN 84 009 936 029
277-289 Woodpark Road Smithfield NSW 2164 Australia
Telephone: 61-2-87848555 Facsimile: 61-2-87848500 http://www.alsenviro.com/

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive report

Client Details			Laboratory Details		
Client	:	NETWORK GEOTECHNICS PTY LTD	Laboratory	:	ALS Environmental Sydney
Contact	:	MR GARY PEAKE	Manager	:	Greg Vogel
Address	:	6/6 MORTON CLOSE TUGGERAH NSW AUSTRALIA 2259	Address	:	277-289 Woodpark Road Smithfield NSW Australia 2164
Project	:	G25192 1-B	Quote number	:	ES20040057
Order number	:	- Not provided -	Work order	:	ES0606080
C-O-C Number	:	120304			
Site	:	- Not provided -			
Sampler	:	TS			
E-mail	:	gosnetgeo@bigpond.com	E-mail	:	Greg.Vogel@alsenviro.com
Telephone	:	02 4351 6200	Telephone	:	61-2-87848555
Facsimile	:	02 4351 6300	Facsimile	:	61-2-87848500

Dates

Date Samples Received	:	18 May 2006
SRA Issue Date	:	18 May 2006
Scheduled Reporting Date	:	**29 May 2006**

Delivery Details

Mode of Delivery	:	Carrier.	Temperature		: AMBIENT
No. of coolers/boxes	:	PLASTIC BAG	No. of samples	- Received	5
Security Seal	:	Not Intact.		- Analysed	5

Comments

- **Samples received in appropriately pretreated and preserved containers.**
- **Sample(s) have been received within recommended holding times.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**

- Analytical work for this work order will be conducted at ALSE Sydney.
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of work order.
- Please direct any queries related to sample condition / numbering / breakages to Nazeeh Aoun.
- Please direct any turn around / technical quires to the laboratory contact designated above.
- When the sampling time is not supplied on the COC documentation, ALSE defaults the sampling time to that of the COC 'relinquishment' time (if supplied). If this also is not supplied, ALSE defaults the sampling time to the 'time of receipt at Laboratory'.

Client	: NETWORK GEOTECHNICS PTY LTD	Work Order	: ES0606080
Project	: G25192 1-B	ALS Quote Reference	: ES20040057

ALS Environmental

Summary of Sample(s) / Container(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as moisture and preparation tasks, that form an implicit part of that package.

ALS Sample ID.	Client Sample ID - Sample Date	Requested Analysis									
		ES-02 : SOIL 8 Metals (incl. Digestion)	ES-12 - SOIL OC/OP Pesticides								
ES0606080-001	ES1 0-2-0-3 - 17 May 2006	●	●								
ES0606080-002	ES2 0-2-0-3 - 17 May 2006	●	●								
ES0606080-003	ES3 0-2-0-3 - 17 May 2006	●	●								
ES0606080-004	ES4 0-2-0-3 - 17 May 2006	●	●								
ES0606080-005	ES5 0-2-0-3 - 17 May 2006	●	●								
	Total(s) :	5	5								

Client	: NETWORK GEOTECHNICS PTY LTD	Work Order	: ES0606080
Project	: G25192 1-B	ALS Quote Reference	: ES2040057

ALS Environmental

Requested Reports

- **MR GARY PEAKE**
  - A4 - Certificate of Analysis - NEPM format — Email — gosnetgeo@bigpond.com
  - A4 - Quality Control Report - NEPM format — Email — gosnetgeo@bigpond.com
  - A4 - Interpretive Quality Control Report - NEPM format — Email — gosnetgeo@bigpond.com
  - ENMRG Export Format — Email — gosnetgeo@bigpond.com
  - Chain of Custody Acknowledgement — Email — gosnetgeo@bigpond.com
  - A4 - Sample Receipt Notification - Comprehensive format — Email — gosnetgeo@bigpond.com
  - Invoice — Email — gosnetgeo@bigpond.com

Sample Container(s) / Preservation Non-Compliance Log

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

- **No sample container / preservation non-compliance exist.**

CHAIN OF CUSTODY DOCUMENTATION 120304

CLIENT: NETWORK GEOTECHNICS
POSTAL ADDRESS: 6/6 Morton Close, Tuggerah
SEND REPORT TO: CARY PEARCE SEND INVOICE TO:
DATA NEEDED BY: REPORT NEEDED BY: 25/5/06
PROJECT ID: G25192/1-B QUOTE NO.:
P.O. NO.: COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

FOR LAB USE ONLY
COOLER SEAL
Yes No
Broken Intact
COOLER TEMP deg C

LABORATORY BATCH NO.
SAMPLERS: TS
PHONE: 43516200 FAX: 43516300 EMAIL: gosnetgeo@bigpond.com
REPORT FORMAT: HARD: ☐ FAX: ☐ E-MAIL: ☑
QC LEVEL: QCS1: ☐ QCS2: ☐ QCS3: ☐ QCS4: ☐

ANALYSIS REQUIRED

SAMPLE DATA				*CONTAINER DATA			8 metals OC/OP	NOTES
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	pH		
ES1 0.2-0.3	Soil	17/5	PM	J	1			
ES2 0.2-0.3	↓	↓	↓	↓	↓			
ES3 0.2-0.3								
ES4 0.2-0.3								
ES5 0.2-0.3	↓	↓	↓	↓	↓			

ALS Environmental
Sydney
Work Order
ES0606080
Telephone : 61-2-87848555

RELINQUISHED BY
NAME: Tim Smith
OF: NETWORK GEOTECHNICS
DATE: 18/5/06
TIME: 2pm

RECEIVED BY
NAME: Frank Ferraro
OF: ALS Sydney
DATE: 18/5/06
TIME: 13:50

METHOD OF SHIPMENT
CONSIGNMENT NOTE NO.
TRANSPORT CO. NAME

NAME:
OF:
DATE:
TIME:

NAME:
OF:
DATE:
TIME:

*Container Type and Preservative Codes: **P** = Natural Plastic; **N** = Nitric Acid Preserved; **C** = Sodium Hydroxide Preserved; **J** = Solvent Washed Acid Rinsed Jar; **S** = Solvent Washed Acid Rinsed Glass Bottle; **V** = Vial; **VC** = Hydrochloric Acid Preserved Vial; **VS** = Sulphuric Acid Preservative Vial; **BS** = Sulphuric Acid Preserved Glass Bottle; **PS** = Sulphuric Acid Preserved Plastic Bottle; **Z** = Zinc Acetate Preserved Bottle; **E** = EDTA Preserved Bottle; **H** = Hydrochloric Acid Preserved Plastic Bottle; **F** = Formaldehyde Preserved; **ST** = Sterile Bottle; **B** = Plastic Bag; **O** = Other

AUSTRALIAN LABORATORY SERVICES P/L

WHITE - LAB COPY
YELLOW - CUSTOMER COPY
PINK - BOOK COPY

SULTS OF ACID SULFATE SOIL ANALYSIS (Page 1 of 2)

nples supplied by Network Geotechnics P/L on 5th June 2006 - Lab. Job No. E5750
ysis requested by TS. - Your Project: G25192/1, G26081/1

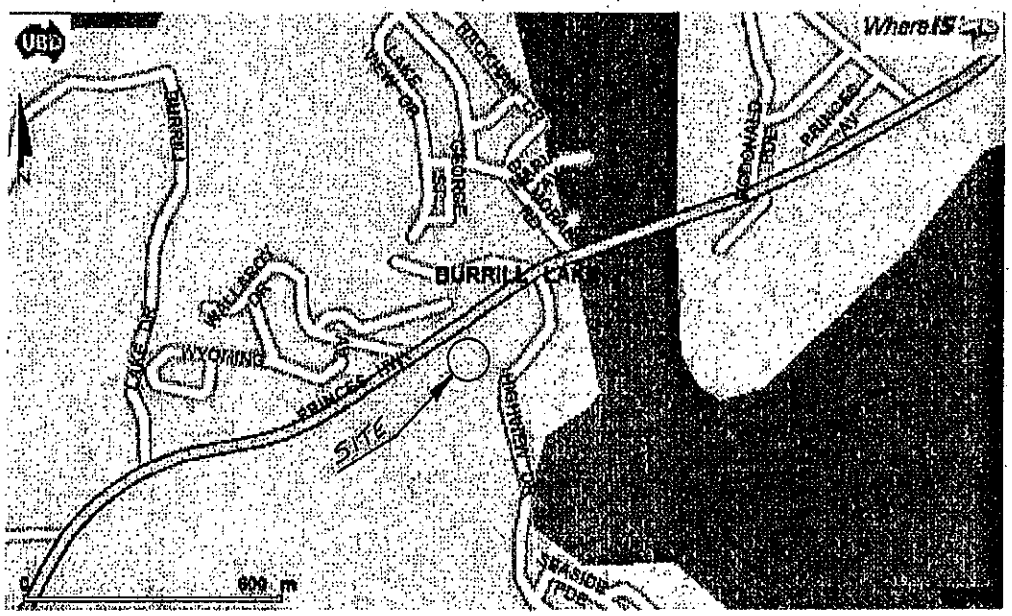
Sample Site	Depth (m)	EAL lab code	Texture (note 6)	Lab. Bulk Density tonne DW/m³	TAA pHKCl	Titratable Actual Acidity (TAA) mole H⁺/tonne (to pH 6.5)	Reduced Inorganic Sulfur (%chromium reducible S) (%Scr) (note 2)	Reduced Inorganic Sulfur (Scr) mole H⁺/tonne	NET ACIDITY Chromium Suite mole H⁺/tonne (based on %Scrs)	LIME CALCULATION Chromium Suite kg CaCO₃/m³ (includes 1.5 safety Factor)	COMMENTS- PASS RE: Classification as POTENTIAL acid sulfate soil (PASS) (based on %Scr results)	COMMENTS-AASS RE: Classification as ACTUAL acid sulfate soil (AASS) (based on %Scr results)
Method No.					23A	23E	22B	a=22B	note 5	note 5	refer note 10	refer note 10
25192/1 BH7	0.4-0.5m	E5750/1	Coarse	2.0	5.36	8	0.003	2	9	1	NOT Potential ASS	NOT Actual ASS
25192/1 BH8	0.9-1.0m	E5750/2	Coarse	2.2	4.75	18	0.428	267	284	47	YES Potential ASS	NOT Actual ASS
25192/1 BH8	1.9-2.0m	E5750/3	Coarse	2.1	4.66	15	0.014	9	24	4	NOT Potential ASS	NOT Actual ASS

l analysis is Dry Weight (DW) - samples dried and ground immediately upon arrival (unless supplied dried and ground)
mples analysed by SPOCAS method 23 (ie Suspension Peroxide Oxidation Combined Acidity & sulfate) and 'Chromium Reducible Sulfur' technique (Scr - Method 22B)
ethods from Ahern, CR, McElnea AE , Sullivan LA (2004). *Acid Sulfate Soils Laboratory Methods Guidelines.* QLD DNRME.
ulk density was determined immediately on arrival to laboratory (insitu bulk density is preferred)
BA Equation: Net Acidity = Potential Sulfidic Acidity (ie. Scrs or Sox) + Actual Acidity + Retained Acidity - measured ANC/FF
or Texture: coarse = sands to loamy sands; medium = sandy loams to light clays; fine = medium to heavy clays and silty clays
Denotes not requested or required
RS, TAA and ANC are NATA certified but other SPOCAS segments are currently not NATA certification
esults at of below detection limits are replaced with '0' for calculation purposes.
Projects that disturb >1000 tonnes of soil, the ≥0.03% S classification guideline would apply.

Lab Accred. No.: 14960

sification of potential acid sulfate material if: coarse Scr≥0.03%S or 19mole H+/t; medium Scr≥0.06%S or 37mole H+/t; fine Scr≥0.1%S or 62mole H+/t)

checked: .....



Network Geotechnics Pty Ltd
ACN 069 211 561

6/6 Morton Close TUGGERAH NSW 2259
Tel: (02) 4351 6200 Fax: (02) 4351 6300
Email: gosnetgeo@bigpond.com

SCALE:
AS SHOWN

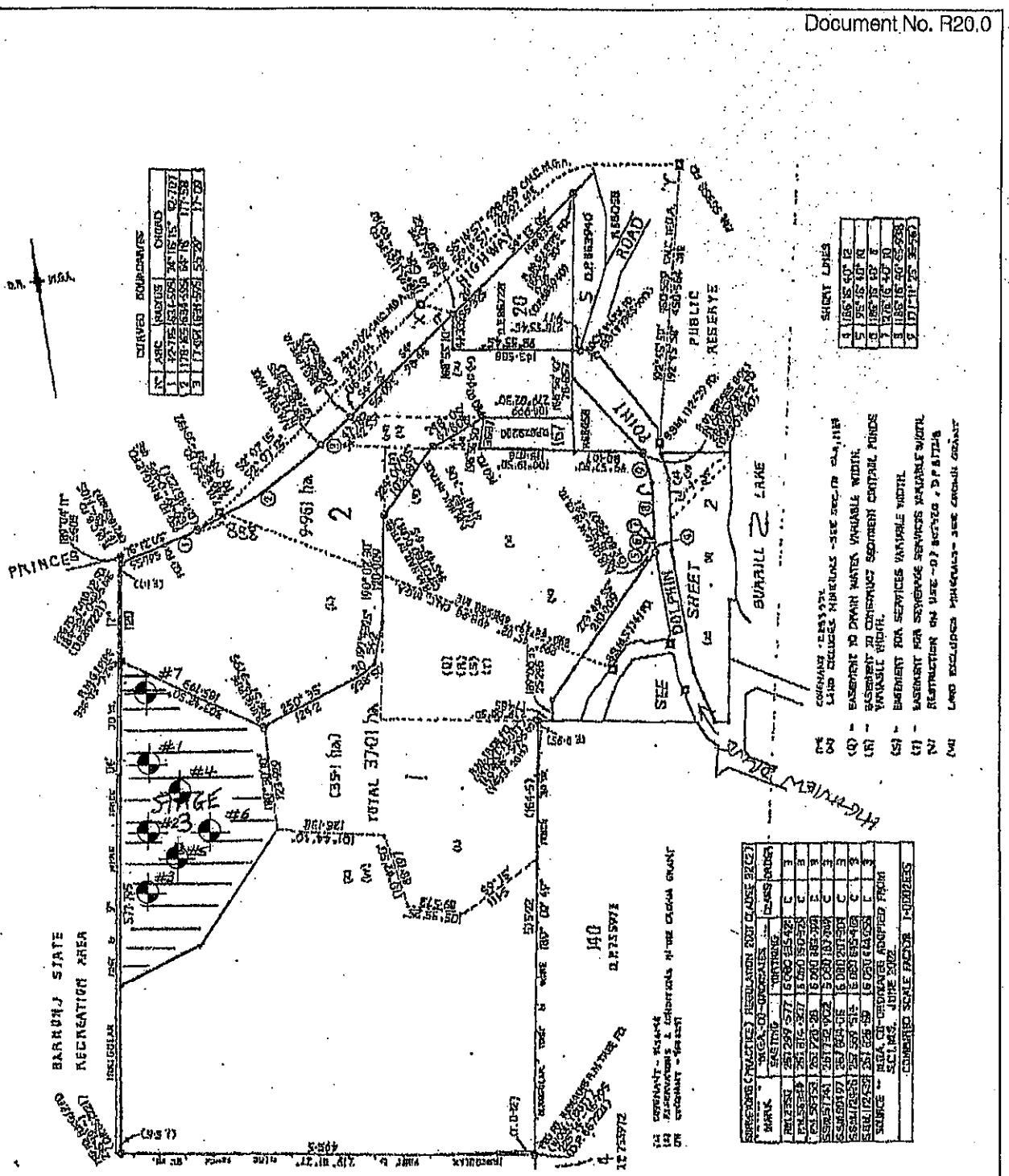
DRAWING NO:
G25192/1-1

THE TURNBULL GROUP
PROPOSED STAGE 3
RESIDENTIAL SUBDIVISION

LOT 1 DP1045990
PRINCES HWY, BURRILL LAKE

LOCALITY PLAN

Document No. R20.0



LEGEND

Approx location of samples

Network Geotechnics Pty Ltd
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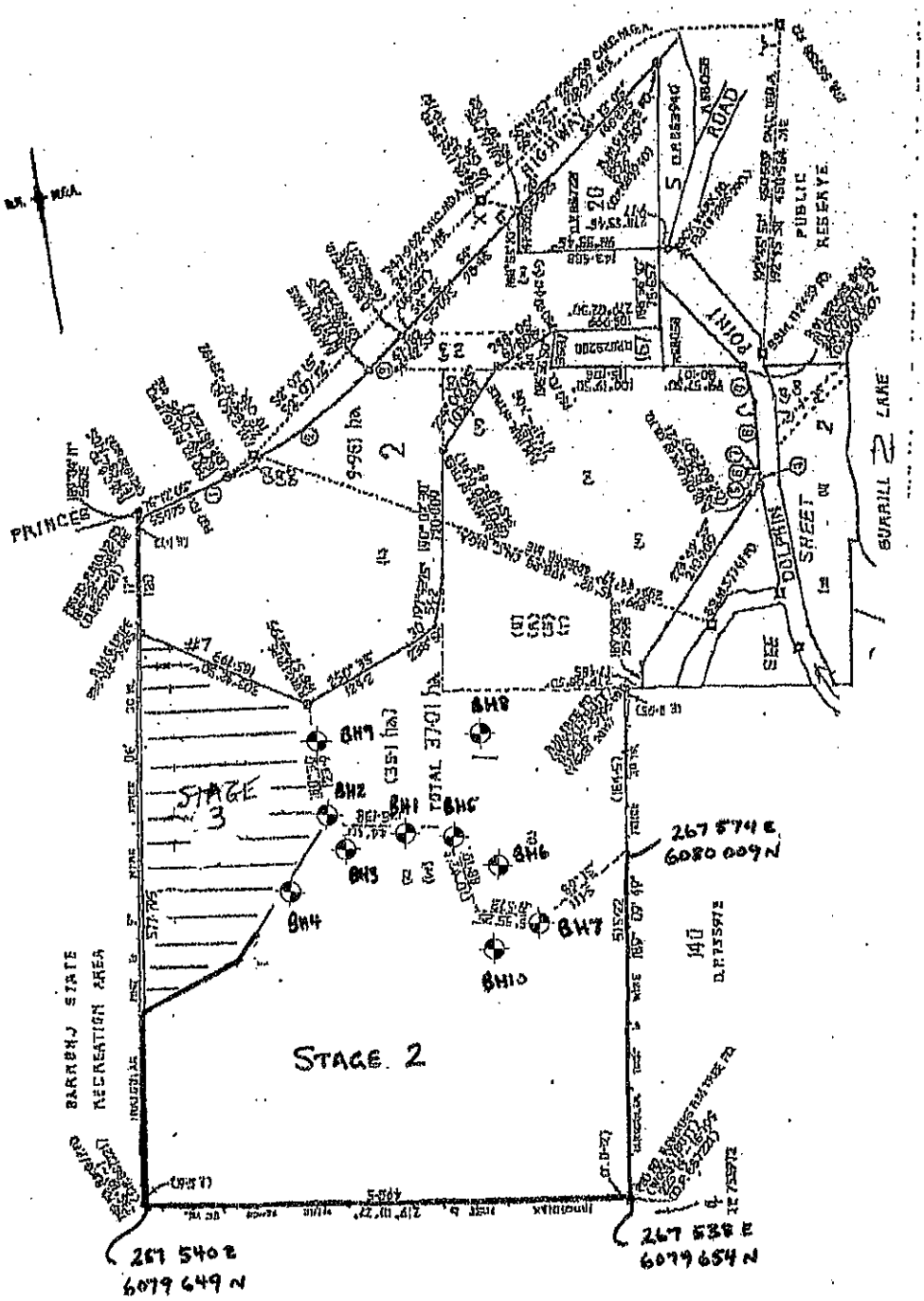
6/6 Morton Close TUGGERAH NSW 2259
Tel: (02) 4351 6200 Fax: (02) 4351 6300

N

SCALE:
AS SHOWN

THE TURNBULL GROUP
PROPOSED STAGE 3
RESIDENTIAL SUBDIVISION

LOT 1 DP1045990
PRINCES HWY, BURRILL LAKE



LEGEND

⊕ Approximate location of boreholes

Network Geotechnics Pty Ltd

Geotechnical Engineering, Consulting & Testing Services

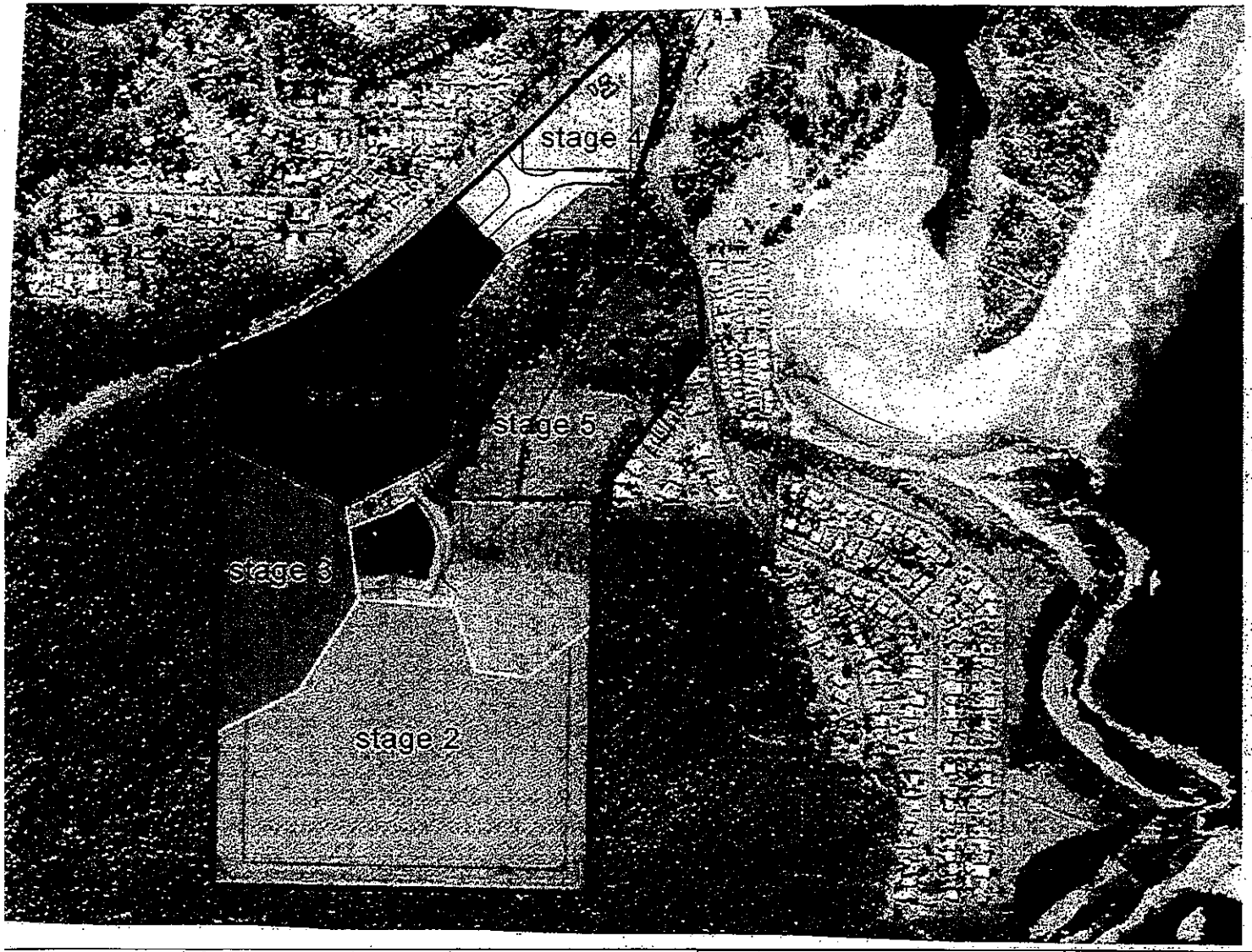
Not to Scale

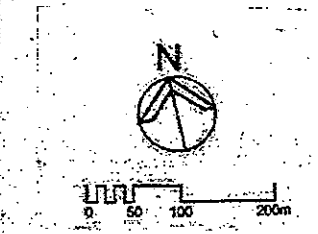
Drawing No: G25192/1-3

THE TRUNBULL GROUP
PROPOSED STAGE 2
RESIDENTIAL SUBDIVISION

LOT 1 DP1045990
PRINCES HIGHWAY, BURRILL LAKE

SITE PLAN





Legend

- existing stage one subdivision
- proposed stage two subdivision
- proposed stage three subdivision
- proposed stage four subdivision

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Geotechnical Engineering, Consulting & Testing Services

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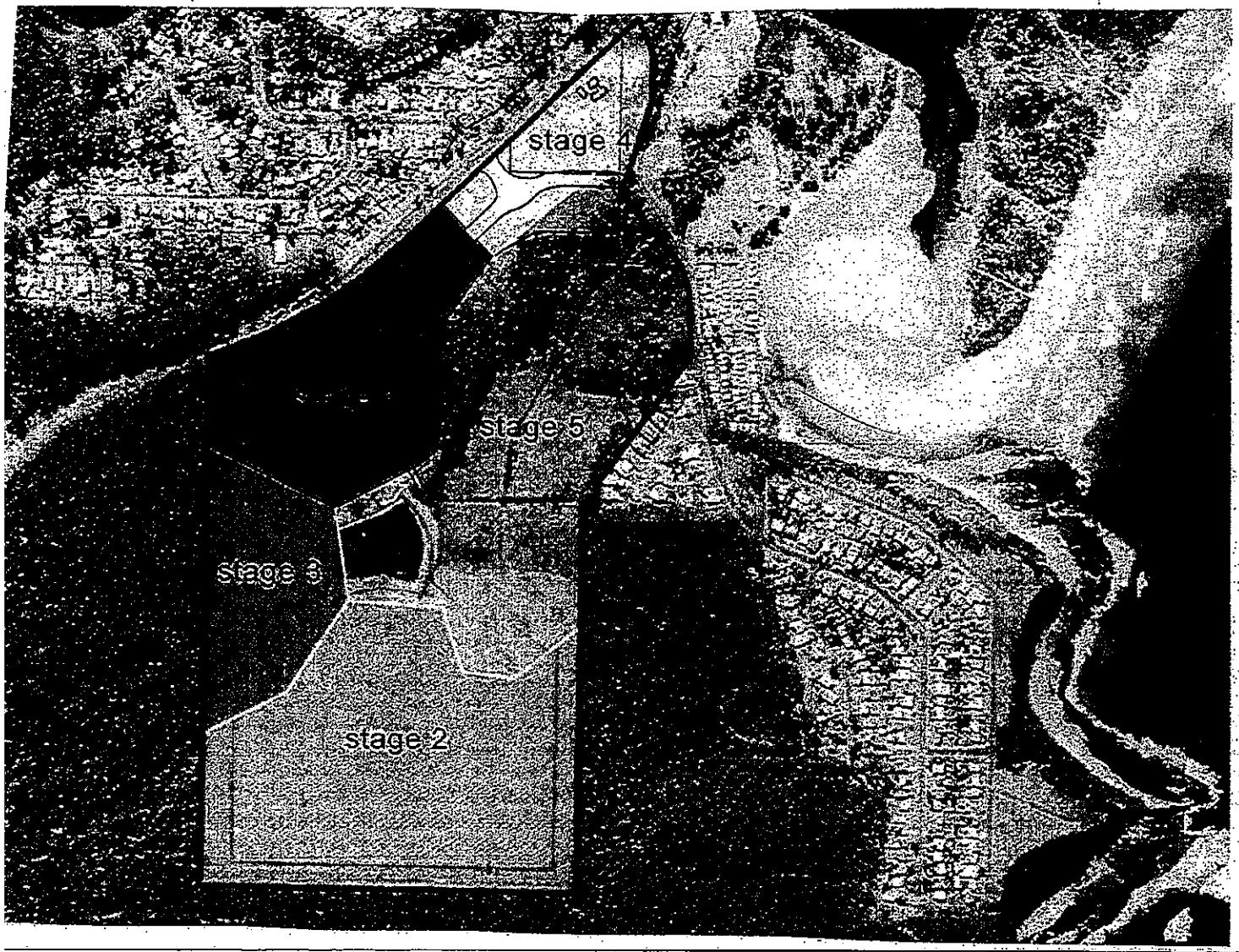
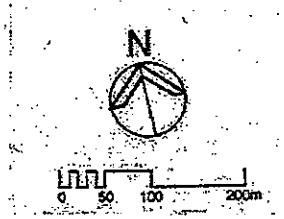
SCALE: AS SHOWN

DRAWING NO: G25192/1-4

THE TURNBULL GROUP
PROPOSED RESIDENTIAL SUBDIVISION
STAGES 2 & 3

LOT 1 DP1045990 PRINCES HIGHWAY,
DOLPHIN POINT
STAGE PLAN





Legend

- existing stage one subdivision
- proposed stage two subdivision
- proposed stage three subdivision
- proposed stage four subdivision

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SCALE: AS SHOWN

DRAWING NO: G25192/1-4

THE TURNBULL GROUP
PROPOSED RESIDENTIAL SUBDIVISION
STAGES 2 & 3

LOT 1 DP1045990 PRINCES HIGHWAY,
DOLPHIN POINT
STAGE PLAN