Melaleuca Group Pty Ltd

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Date: 28th April 2017

To: The General Manager
Lismore City Council
PO Box 23A,
LISMORE NSW 2480

Attention: Paula Newman

Dear Paula,

Re: Lot 2 DP 1073973, 528 Caniaba Rd, Caniaba - Proposed Rezoning: Assessment of Potential Contamination.

Introduction

Melaleuca Group has been engaged by Mr and Mrs Farquharson to provide independent advice in regard to the possible rezoning of the site and potential impacts from past land uses and contamination at the site.

Preliminary Contamination Assessment

The methods used to conduct this assessment are:

- A review of relevant documents and past studies pertaining to the subject land (including Environmental Analysis Laboratory 2006);
- A review of available recent and historical aerial photographs;
- A 0.5-day assessment of the subject land which incorporated an interview with the proponents and a walk over of the site.

Desktop Assessment

The Investigation Area corresponds to the area earmarked for rezoning (Attachment A, Figure A1.).

A review of available historical aerials was undertaken. Images from 1964, 1987, 2004, 2009 and 2017 were examined (refer Attachment A, Figures A2 to A6 respectively). These images show the site relatively devoid of treed vegetation in 1964. Grassland with scattered trees covered the majority of the site/Investigation Area. Some increased tree density is noted across the site. This particularly occurred in the north-east section of the site in proximity to drainage lines that develop into an unnamed tributary of Yeurabar Creek. A Macadamia Plantation was established on the site

in approximately 1995 (D. Farquharson, Pers Comm) but was removed in 2008. The 2009 image provides evidence of the plantation's removal.

Mr and Mrs Farquharson have owned the land for approximately 20 years. They did farm the Macadamia Plantation until 2008. Management of the Plantation did consist of the standard industry recommended practices. That is, a range of products were used on the trees for the control of pests. Mr Farquharson advised chemical use was low to moderate and only applied as required (i.e. monitoring undertaken prior to application) and application rates and methods were as per Best Practice. Since the removal of the Macadamia Plantation, the site has been predominantly used for the grazing of horses. A dressage ring, round yard and other infrastructure for horses has been etched out of the landscape (i.e. no fill materials have been brought to the site). Some cattle grazing has also occurred in the eastern section of the site. Chemical usage has been low to negligible with only some intermittent use of weedicides as required. Mrs D Farquharson has completed a Statutory Declaration and this is provided in Attachment B.

Prior to the Macadamia Plantation and from 1964, the site appears to have been used for grazing purposes only. As such chemical usage is anticipated to be low. A review of other available information (e.g. State and Local Authority Records) have indicated the site is not listed Contaminated Land Record, not on the current list of licensed activities as per Schedule 1 of the Protection of the Environment Operations Act 1997 nor within 200m of a cattle dip site (closest is located approximately 700 m west; KOPPS)

A previous preliminary contamination assessment of the site was undertaken by Southern Cross University Environmental Laboratory (EAL) in 2006. This report was reviewed. Fifty-two (52) samples were collected across the proposed layout area (approximately 4 ha). The number of samples collected is considered to meet the NSW EPA guidelines. The sampling plan for this investigations is reproduced in Attachment C.

While the current Investigation is increased (approximately 9.5 ha), the previous sampling and analysis effort does not indicate any potential contamination of concern. The rezoning area also includes a farm dam and an area of vegetation considered unlikely to be developed due to other constraints (e.g. ecological, onsite wastewater etc).

Results from 2006 (Attachment C) were compared to the new guidelines (NEPM 2013). In particular Column 1 of Table 'Soil Investigation Levels for Urban Redevelopment Sites in NSW'. Column 1 represents Human - Based Investigation Levels (HBIL) for developments being 'Residential with gardens and accessible soil including children's daycare centres, preschools, primary schools, town houses or villas'. The investigation levels adopted for this investigation are presented below in Table 1. This table also shows the changes in the guideline limits.

All metals were found to be below the assessment criteria. Organochlorine levels were below detection. The samples most likely to indicate an issue with past landuses are those collected within the Macadamia Plantation. The majority of samples were collected in this area and include samples from Composite Samples 1 to 9. Thirty-four (34) of the 52 samples were collected in this area. An indicator Chemical of Concern (COC) in this instance would be Copper as Copper-based fungicides are regularly used in Macadamia Plantations. Results for Copper are not considered elevated. A recent assessment by Melaleuca Group in 2015 at a site within 1 km recorded Copper at levels

between 21 to 34 mg/kg. This other site had never been used for Macadamias or other horticultural crops and provides some reference information to further indicate the management of the site including low to moderate use of chemicals.

Given the desktop assessment, it was considered it would be unlikely any further sampling at the site would be warranted. However, it was considered a site inspection was warranted to determine if any areas of interest require further investigation.

Table 1: Soil investigation levels for urban redevelopment sites in NSW: Column 1 'Residential with gardens and accessible soil including children's daycare centres, preschools, primary schools, town houses or villas' (NSW DEC 2006).

Contaminant	Acceptable Limit Column 1 (mg/kg) (2006)	Acceptable Limit Column 1 (mg/kg) (2013)
Arsenic	100	100
Cadmium	20	20
Chromium (VI)	100	100
Cobalt		100
Copper	1,000	6,000
Lead	300	300
Manganese	1,500	3,800
Nickel	600	430
Zinc	7,000	7,400
Mercury	15	40
OC's (aldrin and dieldrin)	10	6
OC's (DDT, DDD, DDE)	200	240

[1] Defined as 'Management Limits' in NEPM 2013 with course/fine limits based on soil types

Field Assessment

A field survey was completed on 19th April 2017. The rezoning area was traversed by foot using a random meander method. While the entire area was traversed as best practical, efforts were concentrated in the northern section of the of the site which correspond to the additional area outside the Investigation Area of EAL (2006). No areas were located that may indicate contamination (e.g. poor plant growth, spillages, fill materials).

Thereby, no additional areas of interest were located that would warrant the requirement to undertake any further sampling at the site.

Some general site photographs are included in Attachment D.

Summary and Conclusion

This assessment found that the landuse history of the site was dominated by grazing practices. This historical and current usage is not usually indicate a high rate of chemical application or other potentially contaminating activities. Part of the site was used for the production of Macadamias. These were located in the western section of the site for approximately 13 years. A prior assessment (EAL 2006) undertook sampling and analysis and the results indicate soil contamination of the study area (approximately 4ha in 2006) has not occurred by the broad range of metals and pesticides tested which thereby confirms the site history.

Given the low levels of Copper (considered an indicator of management of the site), it is considered the previous results can be extrapolated across the new Investigation Area (approximately 9.5ha).

As such, the previous sampling and analysis effort is considered not only sufficient for the purposes of this rezoning but also for subdivision purposes of the site.

Should you require any additional information or wish to clarify any matter raised in this correspondence please feel free to contact the writer at any time.

Yours faithfully,
Melaleuca Group

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Dr. Melissa Van Zwieten
Senior Environmental Scientist
Attachments:
Attachment A: Figures
Attachment B: Statutory Declaration
Attachment C: Sampling Plan and results from EAL (2006)
Attachment D: Site Photos

Attachment A. Figures

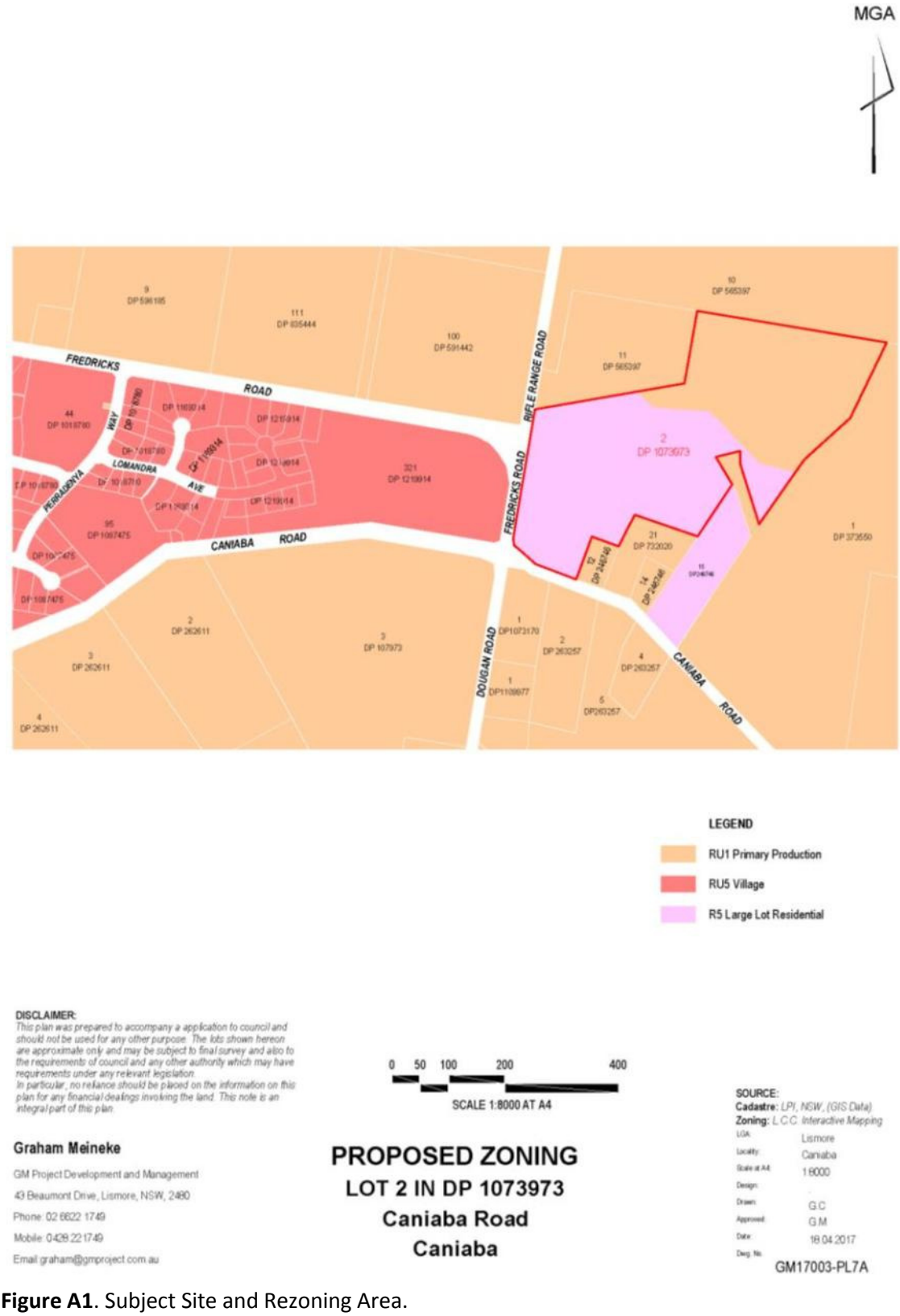

Figure A1. Subject Site and Rezoning Area.

Figure A2. Historical Aerial - May 1964

Figure A3. Historical Aerial - August 1987

Figure A4. Historical Aerial - 2004 (Source: Google Earth)

Figure A5. Historical Aerial - 2009 (Source: Google Earth)

Figure A6. Aerial of site - 2017 (Source: Google Earth)

Attachment B: Statutory Declaration

Statutory Declaration

"I, (Full Name) DENISE YVONNE FARQUHARSON

of (Address) 528 CANIABA RD LISMORE Post Code: 2480.

(Occupation) RETIRED in the State of New South Wales, do solemnly

and sincerely declare the following in relation to land at _____:

1. *What are all known land uses, including the current uses, to which the site has been put?*

MACADAMIA NUTS WERE GROWN IN NORTH WEST CORNER BETWEEN 1995 to 2008 APPROXIMATELY THEN THE PADDOCK WAS CLEARED FOR GRAZING

2. *Is the applicant aware of uses to which properties adjoining the site have been put? If so please specify.*

GRAZING

3. *Do any of the uses on the subject land or adjoining land correlate with the potentially contaminating activities set out in Schedule 1 (attached)?*

NO ONLY GRAZING

4. *If the answer to question 3 is yes – has there been any testing or assessment of the site and if so, what were the results?*

SITE WAS TESTED IN 2006 AS PER ASSESMENT BY EAL

5. *Is the applicant aware of any contamination on the site, or adjoining site?*

NO.

6. *What remediation work, if any, has taken place in respect of contamination which is or may be present on the site or an adjoining site?*

NO

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and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the ***Oaths Act, 1900***.

Declared at LISMORE, this 19 day of APRIL 2017

D. Farquharson

Declarant (Signature)
(This must only be signed in the presence of the JP)

Before me:

(Signature of JP)

MICHAEL CHARLES HARRMANN

(Print Full Name of JP)

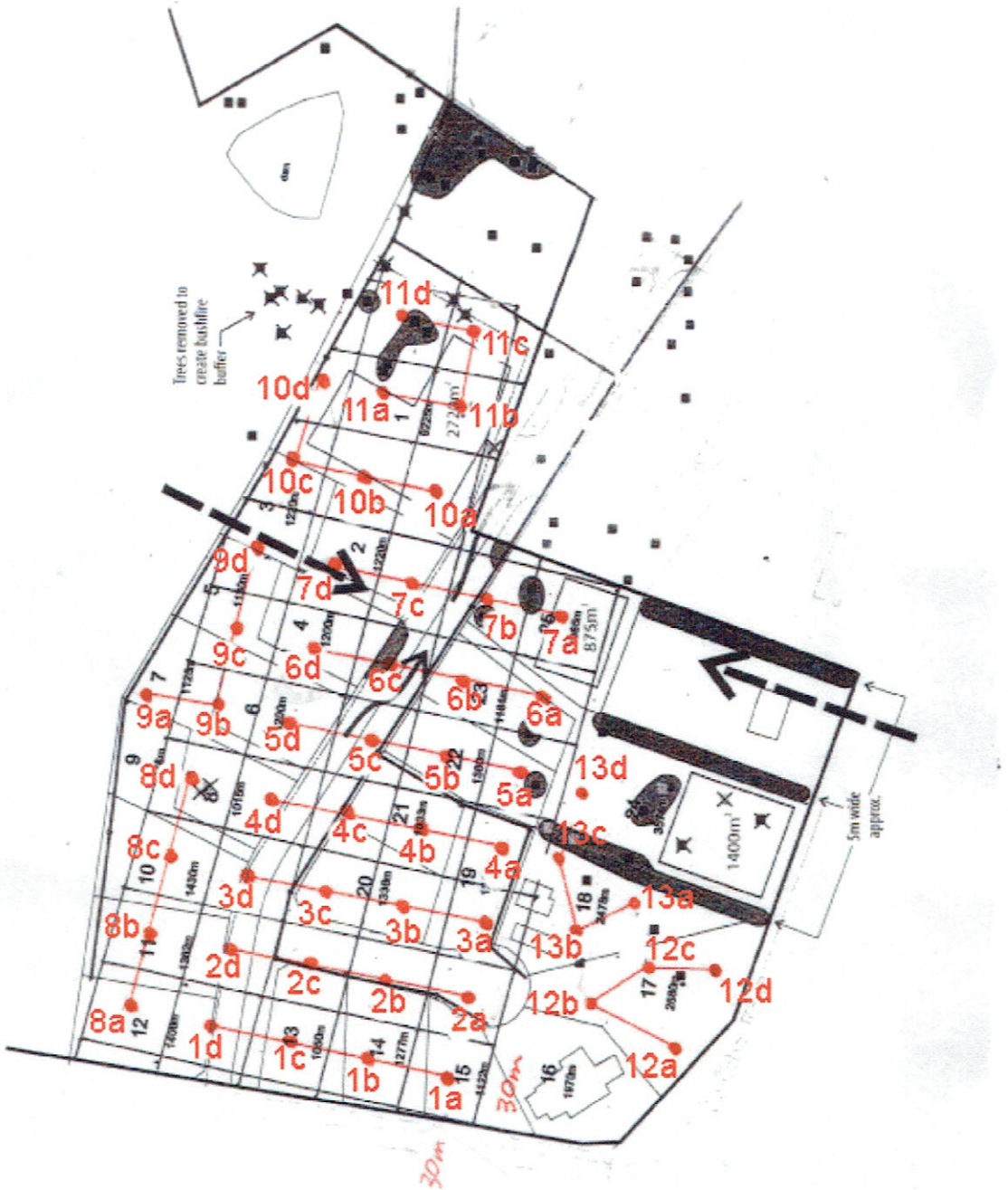
J.P. 112494

(NSW Registration Number)

Penalties for False Statutory Declarations
The ***Oaths Amendment Act 1996*** provides that if a Statutory Declaration is made to gain material benefit and the offence is dealt with by indictment the penalty is up to 7 years imprisonment. If dealt with summarily then the penalty is up to 2 years imprisonment and/or a fine of 100 penalty units ($11,000). If the offence is swearing a false declaration that does not involve material benefit, the penalty is up to 12 months imprisonment and/or a fine of 50 penalty units ($5,500).

Attachment C: Sampling Plan and results from EAL (2006)

Map 1- Individual and Composite sample site locations- 528 Caniaba Rd, Canbiaba



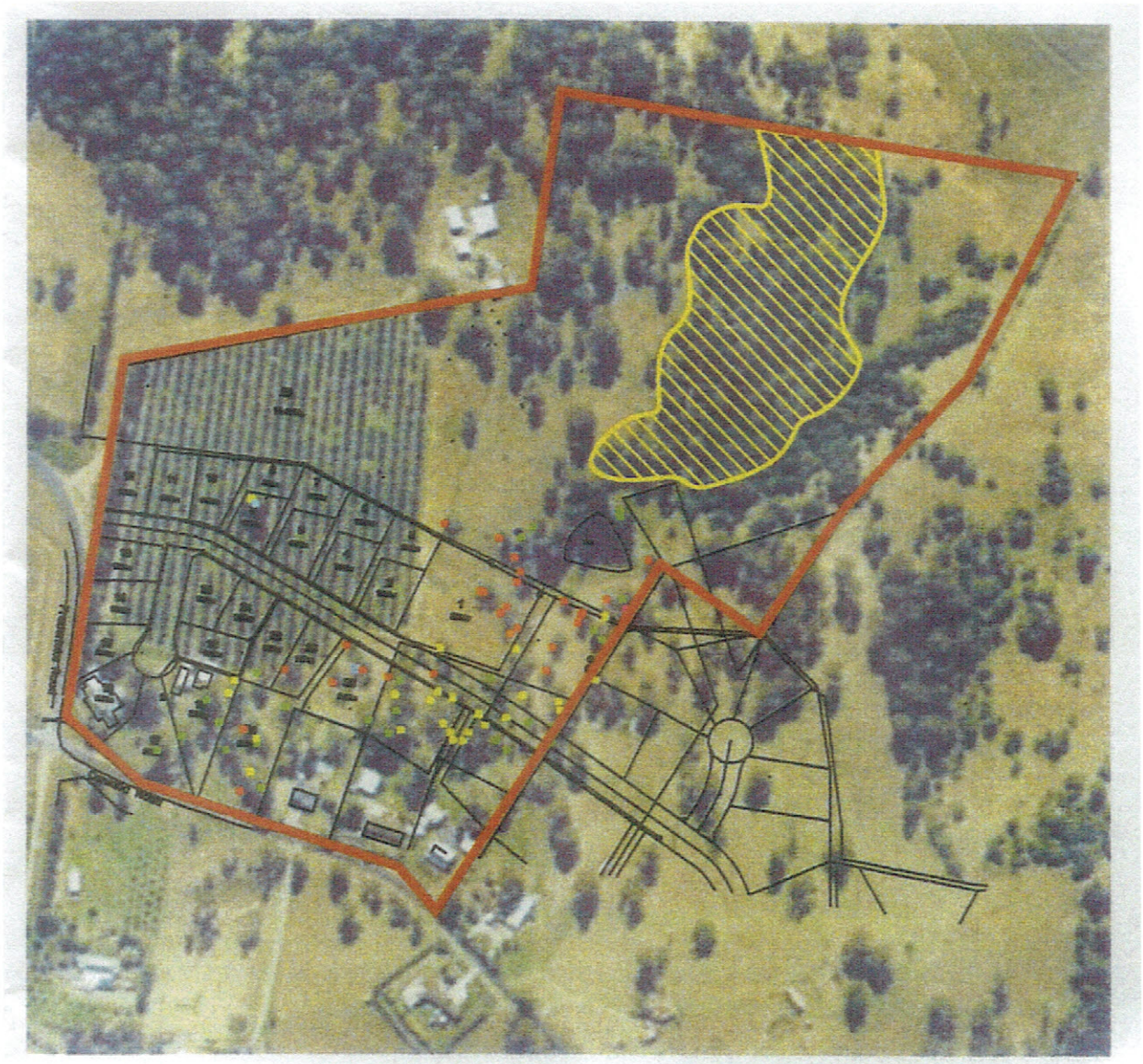


Exhibit 1b: Site Layout with aerial photograph

EXHIBIT 2: PHOTOGRAPHS OF THE SITE

Exhibit 2a: Looking towards Macadamia Plantation over much of the Study Site.Source: Nigel Raynard

RESULTS OF SOIL ANALYSIS (Page 1 of 1)

52 soil samples supplied by Newton Denny Chapelle on 17 January 2006 - Lab Job No. E5128
Soil samples supplied were composited by EAL into 13 composite samples for analysis
Analysis requested by Damian Chapelle **Your Job.: 04/249**

ANALYTE	METHOD REFERENCE	Composite Sample 1	Composite Sample 2	Composite Sample 3	Composite Sample 4	Composite Sample 5	Composite Sample 6	Composite Sample 7	Composite Sample 8	Composite Sample 9	Composite Sample 10	Composite Sample 11	Composite Sample 12	Composite Sample 13	Composite Acceptable Limit	Background
		Site 1a, b, c, d	Site 2a, b, c, d	Site 3a, b, c, d	Site 4a, b, c, d	Site 5a, b, c, d	Site 6a, b, c, d	Site 7a, b, c, d	Site 8a, b, c, d	Site 9a, b, c, d	Site 10a, b, c, d	Site 11a, b, c, d	Site 12a, b, c, d	Site 13a, b, c, d	Column 1	Range
	Job No.	*E5128/1*	*E5128/2*	*E5128/3*	*E5128/4*	*E5128/5*	*E5128/6*	*E5128/7*	*E5128/8*	*E5128/9*	*E5128/10*	*E5128/11*	*E5128/12*	*E5128/13*	*See note 1*	*See note 2*
MOISTURE %	c	22	25	25	19	23	23	26	19	29	26	28	26	25	..	..
SILVER (mg/Kg DW)	*a*	0.2	0.1	0.1	0.2	0.2	0.5	0.3	0.2	0.4	0.3	0.2	0.2	0.2	**na**	**na**
ARSENIC (mg/Kg DW)	*a*	1.2	1.2	1.0	1.0	1.0	1.2	1.7	1.1	1.6	1.3	0.9	1.1	1.2	**<25**	**0.2-30**
LEAD (mg/Kg DW)	*a*	9.8	8.7	8.4	5.6	6.2	6.1	6.2	8.3	6.6	6.5	6.4	5.0	5.3	**<75**	**<2-200**
CADMIUM (mg/Kg DW)	*a*	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	**<5**	**0.04-2.0**
CHROMIUM (mg/Kg DW)	*a*	129.4	111.4	113.4	113.6	127.9	104.1	89.0	91.1	83.3	42.9	36.5	97.4	82.8	..	..
COPPER (mg/Kg DW)	*a*	22.3	20.1	15.9	17.4	16.1	16.0	12.6	11.7	10.3	10.1	9.7	16.3	15.4	**<250**	**1-190**
MANGANESE (mg/Kg DW)	*a*	8240	6674	4875	2555	3614	3233	7463	14181	4743	5164	5292	1772	3332	..	..
NICKEL (mg/Kg DW)	*a*	69.9	47.3	38.3	44.0	33.6	36.9	27.8	53.6	21.6	21.8	26.5	24.8	32.5	**<150**	**2-400**
SELENIUM (mg/Kg DW)	*a*	-1.7	-1.7	-2.0	-1.1	-1.4	-1.1	-1.4	-1.8	-1.9	-1.3	-1.0	-1.2	-1.0	**na**	**na**
ZINC (mg/Kg DW)	*a*	88.8	88.4	65.8	86.5	81.4	78.8	66.7	57.9	70.0	65.0	63.5	78.9	78.1	**<1750**	**2-180**
MERCURY (mg/Kg DW)	*a*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**<3.75**	**0.001-0.1**
IRON (% DW)	*b*	7.02	6.16	6.26	5.44	5.49	5.23	5.57	4.36	7.66	4.43	3.57	5.22	5.32	**na**	**na**
ALUMINIUM (% DW)	*b*	3.06	2.87		3.03	3.33	3.38	3.54	3.58	2.91	2.54	2.28	2.88	2.59	**na**	**na**
PESTICIDE ANALYSIS SCREEN																
DDD, DDE, DDT (mg/Kg)	*c*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**<50**	**<0.5**
Aldrin/ Dieldrin (mg/Kg)	*c*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**<2.5**	**<0.5**
Methoxychlor (mg/kg)	*c*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	..	**<0.5**
Other Organochlorine Pesticides (mg/K	*c*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**<2.5**	**<0.5**
Ethion (mg/Kg)	*c*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	..	**<0.5**
Other Organophosphate Pesticides (mg	*c*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	..	**<0.5**

METHODS REFERENCE

a. 1:3Nitric/HCl digest - APHA 3120 ICPMS
b. 1:3Nitric/HCl digest - APHA 3120 ICPOES
c. Analysis sub-contracted - results attached

NOTES

1. Column 1 ' Residential with gardens and accessible soil including childrens daycare centres, preschools, primary schools, town houses or villas' (NSW EPA 1998)
2. Environmental Soil Quality Guidelines, Page 40, ANZECC, 1992.

Additional NOTES

DW = Dry Weight

Organochlorine pesticide (OC's) screen: (Aldrin, Cis-chlordane, Trans-chlordane, HCB, DDD, DDE, DDT, Alpha-BHC, Beta-BHC, Delta-BHC, Dieldrin, Endrin, Heptachlor, Heptachor epoxide, Alpha-endosulfan, Beta-endosulfan, Endosulfan sulfate, Methoxychlor, Endrin aldehyde, Endrin Ketone)

Organophosphorus pesticide (OP's) screen: (Dichlorvos, Diazinon, Methyl parathion, Mevinphos,Chlorpyrifos methol, Chloropyrifos, Ronnel, Fenitrothion, Fenthion, Malathion, Ethion, Parathian)

na = no guidelines available

checked:.....

Attachment D. Site Photographs

Plate C1. View of western section of site, showing row of Forest Red and Tallowwood trees and area not devoid of Macadamia trees.

Plate C2. General view of northern section (easterly view) showing area devoid of trees.

Plate C3. General view of Investigation Area. Photograph taken from north-east corner with a south-westerly view.

Plate C4. General view of dam and upslope drainage line.

Plate C5. General view of dry rainforest (north-easterly view).

Plate C6. General view of drainage line through dry rainforest.