

# **Fourth Annual Report**

**on**

## **EL 4/2010 – Evandale**

**Reporting Period:** 14 September 2013 – 13 September 2014

**Project Operator:** ABx4 Pty Ltd

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**Date:** 23 September 2014

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# 1 ABSTRACT

## **Objective:**

Exploration Licence (EL) 4/2010 “Evandale” was applied for in order to facilitate an exploration program to discover economically viable deposits of bauxite associated with Tertiary Volcanics, in an area with old penepained surfaces preserved as plateaus. The goal of the program is to determine the quality and quantity of the bauxite in the area using an RC drill rig mounted on a light Mitsubishi 12 tonne truck.

## **Methodology:**

1. Detailed geological mapping, including geomorphological mapping, to define the areas with best potential for bauxite.
2. Systematic sampling of potentially bauxitic rocks at natural outcrops and exposures in road cuts.
3. Chemical analyses of samples, including specialist analyses to determine total and available alumina, total and reactive quartz, loss on ignition and other analyses as required in bauxite search.
4. Drill testing of zones with best potential defined by work under 1, 2. and 3, by an RC drill rig mounted on a light truck to get samples representing the whole lateritic weathering profile (from upper-most iron rich zone through alumina rich zone down into mottled and pallid saprolite zone).
5. Systematic drill testing at close spacings to obtain data for resource estimation in the best target areas defined by programme under 4.

## **Results:**

Field work, including surface sampling, took across the Strathroy and Norwich properties within the western land parcel of EL 4/2010. A total of eleven samples were collected and assayed, eight of which gave poor results and another three indicated bauxite of a sub-economical grade. However, more exploration is warranted in the area.

**Recommendations for future work:**

Recommendation for future work include further:

- Detailed geological mapping, including geomorphological mapping and study of satellite images to define the areas with the best potential for bauxite.
- Systematic sampling of natural outcrops and exposures in road cuts of lateritic weathering profile.
- Chemical analyses of samples, including specialist analyses to determine total and available alumina, total and reactive quartz, loss on ignition and sieving (+0.26mm) at 260 microns as required in the bauxite search.
- Drill testing of zones with best potential with an RC drill rig mounted on a light six wheel truck to get samples representing the whole lateritic weathering profile (from upper-most iron rich zone through alumina rich zone down into mottled and pallid saprolite zone).
- Systematic drilling at close spacings to obtain data for preliminary resource estimation in the best target areas defined by program.
- Detailed analysis of assay results to determine assaying strategy for future drilling.

## 2 INTRODUCTION

### Exploration Rationale

Exploration Licence (EL) 4/2010 “Evandale” was applied for in order to facilitate an exploration program to discover economically viable deposits of bauxite associated with Tertiary Volcanics, in an area with old peneplained surfaces preserved as plateaus. The goal of the program is to determine the quality and quantity of the bauxite in the area using an RC drill rig mounted on a light 12 tonne truck.

### Geological Setting

The historic work done by H.B. Owen (‘Bauxite in Australia’, 1954) demonstrated that bauxite in Tasmania can be found in both Jurassic Dolerite and Tertiary Basaltic Volcanics. According to Owen, these bauxite deposits - regardless of host rock type - are thought to form either as ‘grouped remnants of former continuous sheet’ or ‘formed in lenticular or pod shaped bodies in localised depressions’.

### Tenement Information

EL 4/2010 “Evandale” was granted on and from 14 September 2010 for a period of 5 years to ABx4.

This is the Fourth Annual Report for the reporting period 14 September 2013 - 13 September 2014 incorporating the results of work completed during the fourth year of tenure.

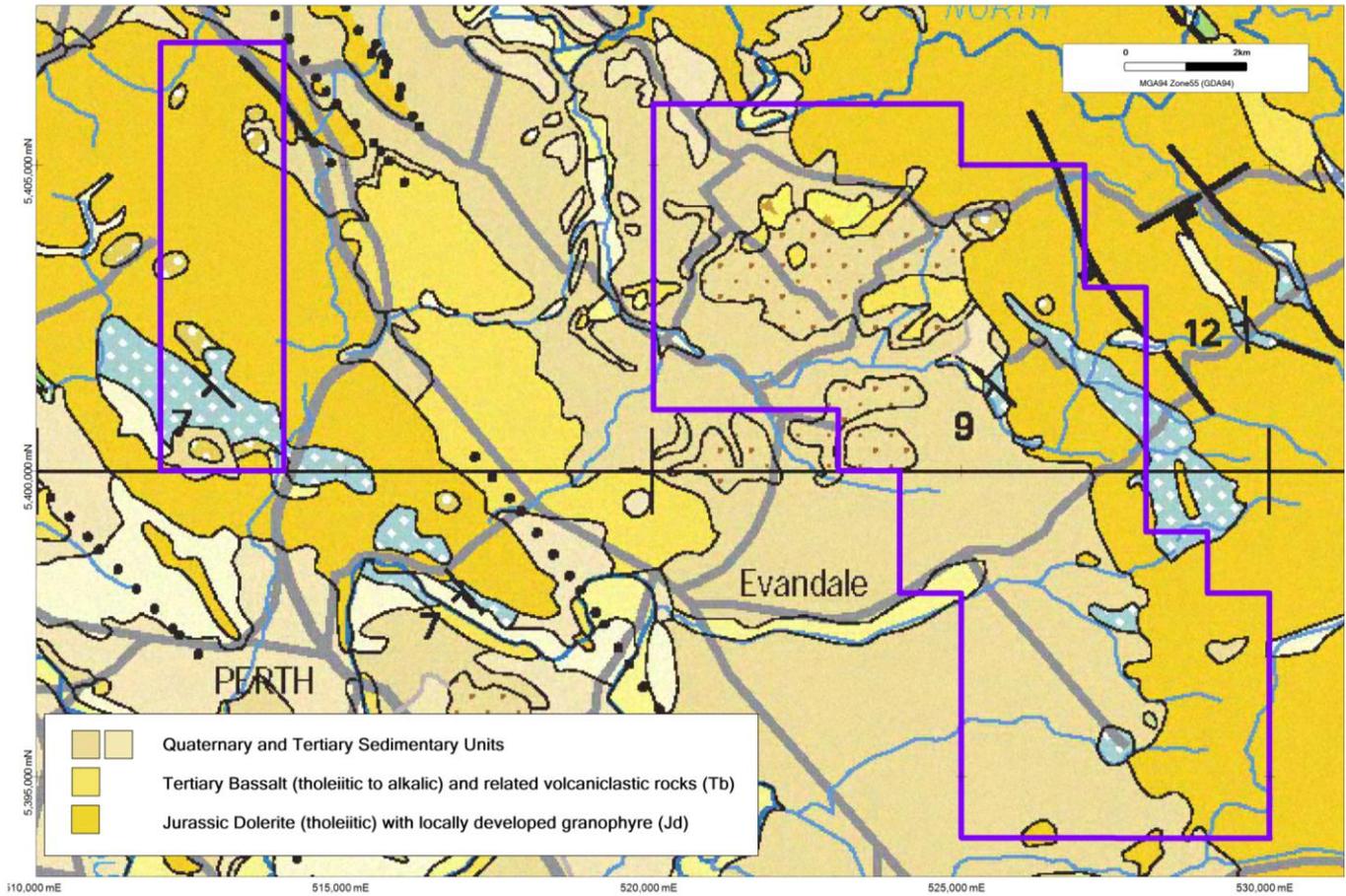
ABx4 relinquished 113sq km in 2012 to bring the remaining total area to 83sq km. The Mineral Category for EL 4/2010 is 1 – Metallic Minerals and Atomic Substances. Further partial relinquishment of this tenement is planned.

### Location

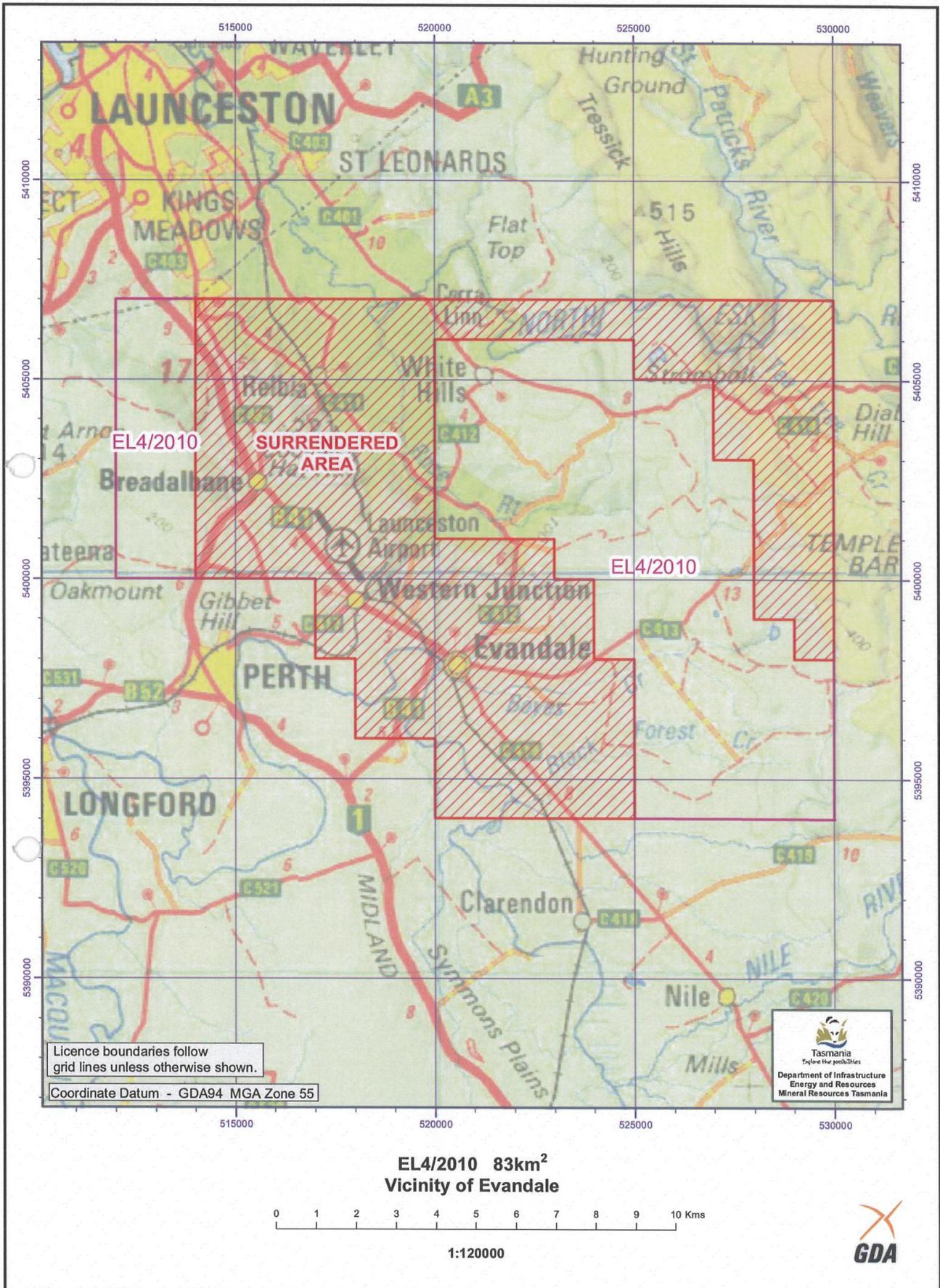
The Evandale tenement is located from the edge of Launceston to Campbelltown where a rail line exists which connects to all Tasmania Ports. Ports and railway infrastructures in Tasmania are generally under capacity and tenements are often over the working railway lines. EL 4/2010 is close to the City of Launceston which could offer a wide range of services and skilled work force.

### Tenure, including joint venture details and title transfers

EL 4/2010 “Evandale” is 100% owned by ABx4 which is a wholly-owned subsidiary of Australian Bauxite Limited (ASX:ABX).



Map 1. Geology of the EL 4/2010 area (from Geology of Northeast Tasmania 1:250 000 sheet). Projection MGA94, Datum GDA94.



Map 2 – Location of EL 4/2010 “Evandale”. Previously relinquished areas are shown by diagonal lines. Projection MGA94, Datum GDA94.

### 3 REVIEW OF PREVIOUS WORK

#### Prior to Current Tenement

Historical references for bauxite in the Evandale tenement are reported by H.B. Owen in his book "Bauxite in Australia", 1954, most notably in White Hills which was the basis for initial exploration of the area.

- H.B. Owen, 1954, Bauxite in Australia, Bulletin 24

The following geological map which identified a bauxite deposit has also been referred to:

- F. Blake (1959). Longford 1:6336000 geological map, Geological survey of Tasmania - Department of Mines

#### During current Tenement (from first year of tenure)

Historical references of bauxite in the Evandale area were recorded in H.B. Owens's book; most notably at White Hills which was the basis for Initial exploration of the area.

In December 2010 a total of 21 holes were drilled in the Evandale Tenement with a total of 126m. Only two holes intersected the bauxite zone which had an average thickness of 2.5m and had an average grade of 33.0% Available Alumina (Avl Al<sub>2</sub>O<sub>3</sub>), 3.4% Reactive Silica (Rx SiO<sub>2</sub>), 38.6% Total Alumina, 4.6% Total Silica and 30.1% Iron Oxide. Approximate tonnage for the area is 100,000 tonnes and exploration around the area had revealed other outcrops of red material from lateritic weathering but which failed to achieve a significant grade.

Reconnaissance work done in the previous reporting did not result in any additional bauxite exposures being found.

## 4 EXPLORATION COMPLETED DURING THE REPORTING PERIOD

### Prospect-based Exploration Activities

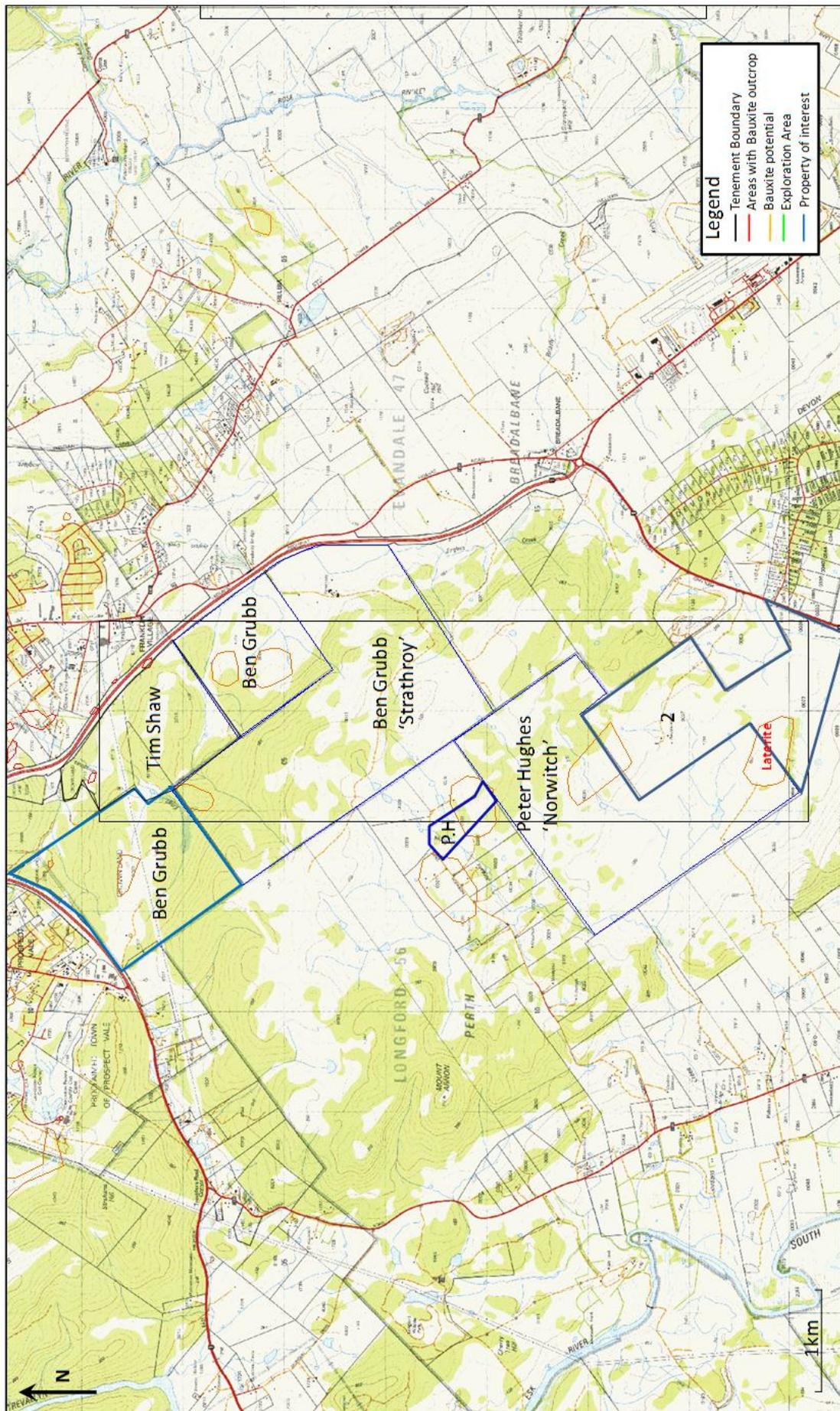
During the current annual reporting period work was done within the western land parcel of EL 4/2010 located to the west of the Midland Highway between Perth and Youngtown. Multiple exploration targets were identified within this parcel using 1:25 000 scale geologic maps. These targets are mapped as 'Tertiary Ferruginous' material and were in close proximity to areas mapped as bauxite. It is known that ferruginous capping can occur above good quality bauxite. A small iron-rich bauxite outcrop can still contain significant quantity and quality of bauxite and could be an indicator for bauxite forming under cover. This type of formation is common in the Launceston area.

These exploration targets were followed up with field work across the Norwich and Strathroy properties (See Map 3).

### Literature Review

H.B. Owen, 1954, Bauxite in Australia, Bulletin 24

F. Blake (1959). Longford 1:6336000 geological map, *Geological survey of Tasmania -Department of Mines*



Map 3. Exploration targets and property boundaries within the western parcel of EL 4/2010.  
 Projection MGA94, Datum GDA94.

## 5 DISCUSSION OF RESULTS

### Strathroy Targets

The Strathroy property is owned by Mr & Mrs Grubb and is used mostly as farm land with forest on areas where the land is inadequate for agriculture (e.g. Steep slopes or gravelly ground).

Three targets were briefly explored in this field trip. The first target located on the side of a hill in the north of the property consisted of iron-rich gravel lag. The target appeared to be small but could still have decent tonnage. Due to time constraints no samples were taken and the area was not thoroughly explored.

The two targets on the southern part of the Strathroy property occurred at the base of a dolerite hill. Sample EVP01 had a spheroidal texture, with iron zonations in the core of the spheroids. Most of the samples also had a strong relic crystal structure indicative of coarse grained mafic volcanic, this is evident in photo's 1-5.

The most southern part of the two southern targets was not explored or identified on this field trip.

Table 1. Assay results for samples EVP01-EVP05.

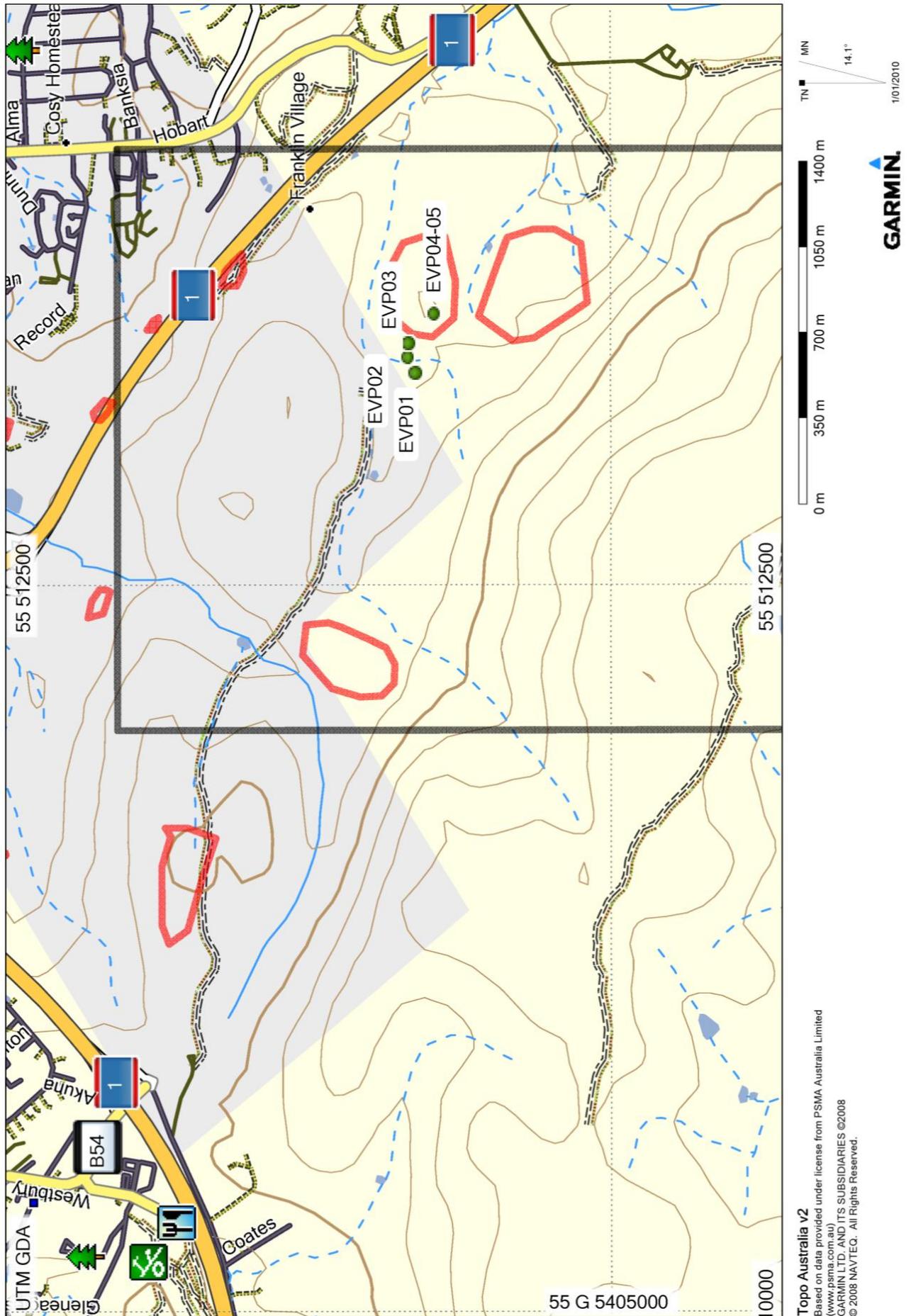
SAMPLE ID	Al <sub>2</sub> O <sub>3</sub> avl %	Rx SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	LOI %
EVP01	6.1	14.4	20.7	16.35	46	1.26	15.16
EVP02	1.6	14.9	14.7	17.5	57.8	0.9	8.77
EVP03	1.6	14.8	14.8	17.1	58.3	1.28	8.1
EVP04	0.2	32.7	14.2	48.3	25.8	1.2	9.91
EVP05	0.3	33.4	15.3	50.2	22.7	1.56	9.62

The samples taken from the Strathroy targets all assayed poorly. Sample EVP05 was pale in colour, cemented and contained micro-vugs which usually is a strong indicator for gibbsite. Bauxite assays from ALS showed that none of the samples were bauxite for these targets. Sample EVP01 was the highest assay and contained 6% Available alumina. Bauxite potential in this area could be reasonably high and also has potential for bauxite to occur below tertiary sediments.

Samples taken from the area indicate the bauxite has formed in the area at some stage which means the whole area has potential. This type of ferruginous Iron layering is often identified below the bauxite layer. This is also supported by the historical bauxite occurrences which are mapped close by.

The Strathroy Targets are the closest ABx Targets to the port and a high priority should be placed on this area. The property contains 3 promising target areas which could contain economic potential. The land holder is pro-development and has been very supportive so far. Neighbours in the area maybe less cooperative and this needs to be assessed in the future if work progresses.

Other small bauxite deposits occur in the area identified on Map 1 in Red and are historical bauxite occurrences; many can be seen from the highway.



Map 4. Target and sample locations within the Strathroy property. Projection UTM, Datum WGS84.

## Norwich Targets

The Norwich property is owned by Mr Hughes and consists mostly of farm land for grazing sheep and cattle. Three targets occurred partially on this property.

The first target in the north of the property consisted of piles of pisolitic bauxite on the western side of the hill. The dolerite outcrops at the top of the hill at a slightly higher elevation than the bauxite. The dolerite ridge was not the typical type of ridge usually seen adjacent to bauxite outcrops. The pisolites in the bauxite suggest the samples (EVP08-10) were taken from the top of the bauxite profile. The bauxite limits were not explored on this field trip and are unknown but the bauxite most likely occurs in the side of the dolerite ridge as a narrow strip with limited tonnage potential. The bauxite could also extend into the valley floor but this would bring it into close proximity of houses which would not be favourable. The eastern side of the hill was not explored for bauxite because it was on a neighbouring property. Negotiations with the neighbouring land owner would be vital for this project.

The second target was a set of two hills separated by a creek. The northern hill had no obvious bauxite but was not thoroughly explored. On the southern hill samples EVP06-07 were taken from small cemented boulders under a tree. The material was similar to the samples taken on the Strathroy property and had strong relic crystal structures with iron zoning and had a high S.G. The profile appears to occur at the base of a large dolerite ridge at an intermediate elevation which is classic in this type of deposit.

The third bauxite target on the Norwich property occurred in the south and was quarried for road base and construction materials at some stage. The material was as mapped on geological maps and consisted of ferruginous laterite with massive ferricrete, clay and pisolites (EVP11).

Table 2. Assay results for samples EVP06-EVP11.

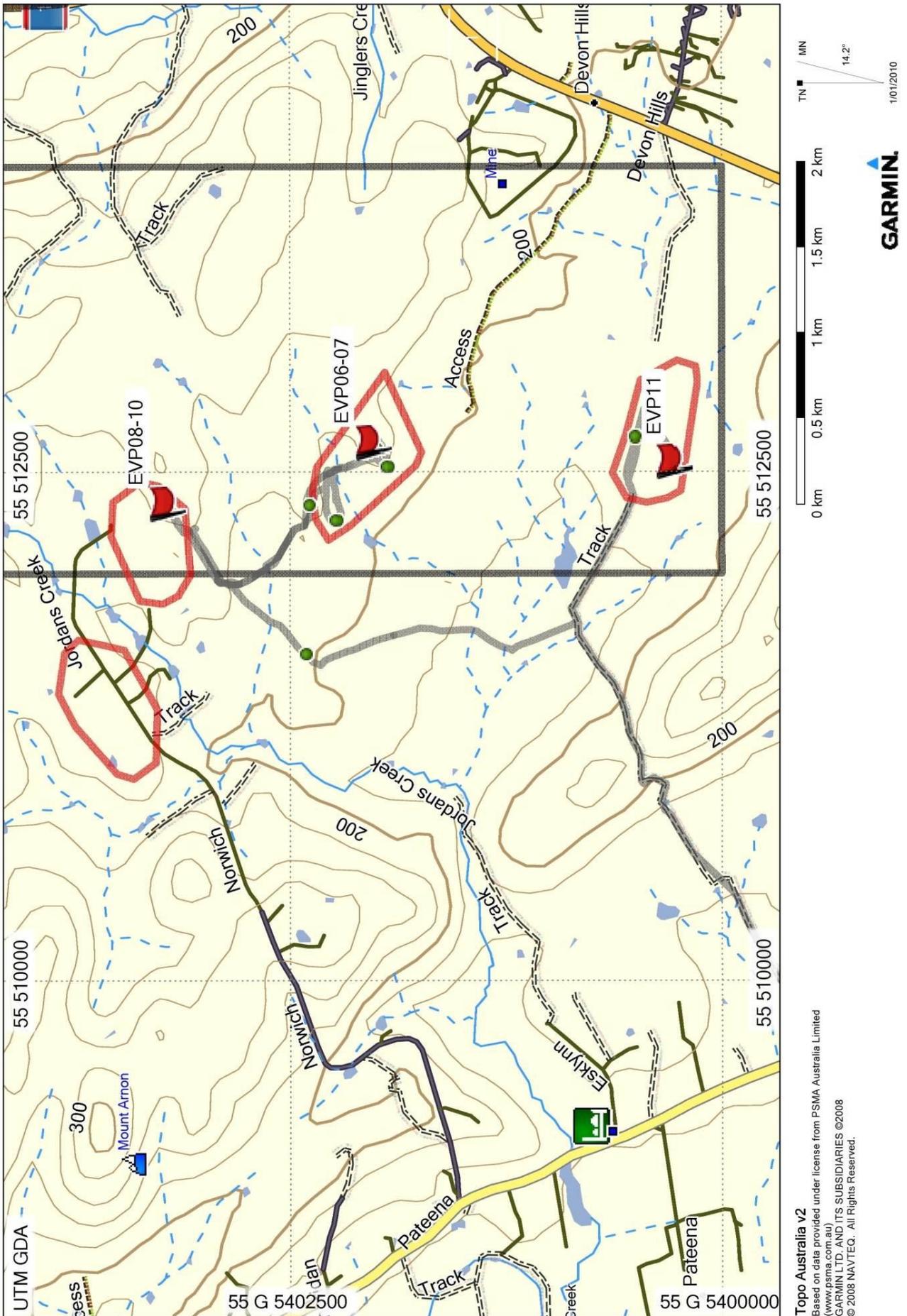
Sample ID	Al <sub>2</sub> O <sub>3</sub> avl %	Rx SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	LOI %
EVP06	1.1	10.1	10.25	36.1	42	1.08	10.07
EVP07	1.2	12.8	12.65	43.4	32.4	1.34	9.81
EVP08	23.8	0.9	28.6	2.11	50	2.71	16
EVP09	22.7	1.1	27.4	2.77	51.8	2.25	15.27
EVP10	14.7	2	20.5	5.02	59.4	3.27	11.26
EVP11	1.5	5.3	7.75	46.2	37.6	1.46	6.49

The Norwich property contains 3 target areas of interest. Samples EVP06-EVP11 was taken from the three targets to test for bauxite. The samples from the first target (EVP08-10) on the north of the property contained enough available alumina to be classified as bauxite. These samples were very low grade which is common for surface samples adjacent to dolerite. The bauxite was pisolitic indicating the top of the bauxite profile which is always more iron rich than the lower layers. The bauxite outcrop appeared to be long and skinny with a north-south trend following the dolerite ridge. This layer could potentially be much larger but access agreements should be made with the neighbour before any further exploration is conducted. Without an access agreement there would be little chance of ever mining the target.

The other two targets assayed poorly. The second target contained similar material to the Strathroy property and has limited potential due to erosion of the target area. The assays of the targets contain very little clay or gibbsite according to assay results and consist mostly of silica and Iron minerals. The

material is most likely derived from laterized tertiary sediments. The increased iron could indicate the material is well past the lower bauxite contact of the bauxite profile.

The northern target indicates that bauxite may have formed a more extensive layer at some stage. The area warrants further exploration in the future.



Map 5. Target and sample locations within the Norwich property. Projection UTM, Datum WGS84.

## **6 CONCLUSIONS AND RECOMMENDATIONS**

### **Strathroy Targets**

#### Recommendations for Future Work

- Explore to the west of samples EVP01-05.
- Take reconnaissance samples to submit to ALS for each target.
- Assess access and delineate target outlines.
- Explore to the south where similar but larger targets are mapped.
- If reconnaissance is successful drilling should be planned for the area.

### **Norwich Targets**

#### Recommendations for Future Work

1. Organize access agreement with Neighboring land owner.
2. If positive, continue exploration on both properties, focusing on the northern area.
3. Assess access and delineate target outlines.
4. If 1-3 are successful drilling should be planned for the area.

## **7 ENVIRONMENT**

### **Surface Disturbing Operations:**

Surface-sampling had a nil / negligible impact on the surface.

Thus, no surface-disturbance operations were undertaken during the current reporting period.

### **Surveys (archaeological, botanical):**

No archaeological or botanical surveys took place during the current reporting period.

### **Rehabilitation:**

No rehabilitation was required during the current reporting period.

## 8 EXPENDITURE

Table 3. Exploration Activity and Expenditure Table for reporting period 14 September 2013 – 13 September 2014.

Exploration Category	Description of Activity	Quantity	Expenditure
<b>Office Administration</b>	General		\$800
<b>Authority Management</b>	Rent		\$5,533.16
	Tenement Management		\$1000
<b>Office Activities</b>	Data Processing & Compilation		\$500
	Data Interpretation & Report Compilation		\$1500
<b>Field Activities</b>	<b>Geological Mapping</b>		\$109
	Sampling		
	Equipment Hire		
	Travel & Accommodation		\$41.27
	Vehicle Hire		
	Vehicle Petrol		
	Field Supplies		
	<b>Geophysics</b>		
	Airborne		
	Type	Line kms	
	Ground		
	Type	Line kms	
	<b>Drilling (program cost)</b>		
	RAB/AC	Holes/total metres	
	RC	Holes/total metres	
	Diamond	Holes/total metres	
	Other	Holes/total metres	
<b>Laboratory</b>	ME-XRF 13B, Reactive Silica & Available Alumina	Samples	\$182.02
<b>Salaries / Wages</b>	Employees	Geologists	\$13,502.68
		<b>Grand Total</b>	<b>\$23,168.13</b>

Note: Office Administration was met by parent company – Australian Bauxite Limited.

## 9 REFERENCES

H. B. Owen (1954). *Bauxite in Australia*, Bureau of Mineral Resources Bulletin no. 24

F. Blake (1959). Longford 1:6336000 geological map, *Geological survey of Tasmania -Department of Mines*

T. Coyte, J. Rebek, First Annual Report on EL 4/2010 August 2011 – Evandale, *ABx4 Pty Ltd*

T. Coyte, J. Rebek, Second Annual Report on EL 4/2010 August 2012 – Evandale, *ABx4 Pty Ltd*

T. Coyte, J. Rebek, Third Annual Report on EL 4/2010 August 2012 – Evandale, *ABx4 Pty Ltd*

## 10 APPENDIX 1 – SAMPLE LOCATIONS AND DESCRIPTIONS

Table 4. Strathroy property sample coordinates (UTM Zone 55 - WGS84) and descriptions.

Sample ID	Northing	Easting	Description
EVP01	5405790	513227	Yellow bauxitized material with spheroidal zoning on a vuggy pisolitic core. Heavy iron zonations around core
EVP02	5405821	513285	Red cemented material with black spots in relic crystal forms with vuggs
EVP03	5405815	513331	Red cemented vuggy material with some clay filled vuggs and heavy iron zoning
EVP04-05	5405715	513434	EVP04 - Ugly yellow/grey cemented material with possible gibbsite zoning. EVP05 - Strong relic doleritic texture in pale red/yellow and buff vuggy material appears to be high grade bauxite with minor Iron zoning.

Table 5. Norwich property sample coordinates (UTM Zone 55 – WGS84) and descriptions.

WP	Sample ID	North	East	Description
1		5402229	512262	Dolerite
2		5401932	512525	Thick cover with Pisolites and bauxite in soil
3	EVP06-07	5402014	512644	EVP06 - Vuggy red/brown/yellow material, heavy iron rich with relic crystal structure. EVP07 - Vuggy yellow/brown, heavy iron rich material with relic crystal structure, possibly some pale spots of gibbsite?
4		5402003	512614	Bauxite
5		5402386	512335	Bauxite
6	EVP08-10	5403206	512343	EVP08 - Red & buff pisolitic bauxite (concretionary Ps 10%) classic bauxite style, red bauxite with zones of buff bauxite through zone of ancient fluid movement. EVP09 - Red vuggy pisolitic bauxite potentially re-cemented pisolites 1-10mm 15%, red with grainy matrix. EVP10 - Light red/orange/buff pisolitic bauxite. Pisolites are matt black/brown, preferentially occurring in more iron rich zones, minor vughs.
7		5403208	512346	Bauxite
8		5403219	512365	Dolerite Outcrop
9		5402404	511604	Pisolite gravel
10	EVP11	5400272	512550	EVP11 - Heavy black shiny pisolitic PDM (40%) quartz laterite red/brown.
11		5400497	512671	Tertiary Sediments

## 11 APPENDIX 2 – SAMPLE PHOTOS

### Strathroy Photos



Photo 1 - Sample Photo of EVP01

Yellow Bauxitized material with spheroidal zoning on a vuggy pisolitic core. Heavy Iron zonations around core.



Photo 2 - Sample Photo of EVP02

Red Cemented Material with black spots in relic crystal forms with vuggs.



Photo 3 - Sample Photo of EVP03

Red cemented vuggy material with some clay filled vuggs and Heavy Iron Zoning.



Photo 4 - Sample Photo of EVP04

Ugly Yellow/Grey cemented material with possible gibbsite zoning.



Photo 5 - Sample Photo of EVP05

Strong Relic Doleritic texture in pale red/yellow and buff vuggy material appears to be high grade bauxite with minor Iron zoning.

### **Norwich Photos**



Photo 6. Photo of Sample EVP06

Vuggy red/brown/yellow material, heavy iron rich with relic crystal structure

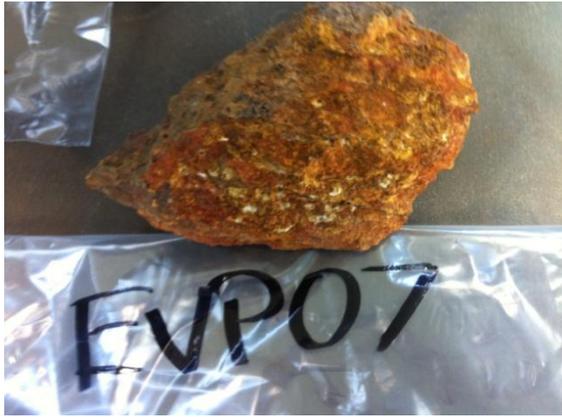


Photo 7. Photo of Sample EVP06

Vuggy yellow/brown, heavy iron rich material with relic crystal structure, with some pale spots of possible gibbsite.



Photo 8. Photo of Sample EVP06

Red & buff pisolitic bauxite (concretionary Ps 10%) classic bauxite style, red bauxite with zones of buff bauxite through zone of ancient fluid movement.



Photo 9. Photo of Sample EVP06

Red vuggy pisolitic bauxite potentially re-cemented pisolites 1-10mm 15%, red with grainy matrix.



Photo 10. Photo of Sample EVP06

Light red/orange/buff pisolitic bauxite. Pisolites are matt black/brown, preferentially occurring in more iron rich zones, minor vughs.



Photo 11. Photo of Sample EVP06

Heavy black shiny pisolitic PDM (40%) quartz laterite red/brown.