Partial Relinquishment Report

on

EL 6/2010 – CLEVELAND

Reporting Period:	14 September 2010 – 14 September 2012
Project Operator:	ABx4 Pty Ltd
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Date:	10 September 2012

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NOTE: All Garmin maps use WGS – 84

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1 ABSTRACT

Objective:

Exploration Licence (**EL**) 6/2010 "Cleveland" 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 was 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.

Work undertaken in relinquished area:

1. Detailed mapping, including geomorphological mapping, to define the areas with best potential for bauxite.
2. Desktop review - driving along public roads in search of bauxite outcrops and examination of the geology of the area.
3. 1 hole was drilled in the zone with best potential defined by work under 1 and 2 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).
4. Chemical analysis of 1 drill sample was undertaken to determine total and available alumina, total and reactive quartz, loss on ignition and other analyses as required in bauxite search.

Results:

In October 2010, a drilling program was organized which drilled 4 holes into the Powranna Target, situated on the boundary of EL 5/2010 and EL 6/2010 both held by ABx4 Pty Ltd (**ABx4**). One of these holes was drilled in EL 6/2010 Cleveland for a total of 14m. The drill holes targeted the large plateaus of laterite which had formed in the central region of Tasmania. The 4 holes intersected a laterite profile rich in clay quartz and iron but very poor in alumina. The composition of the laterite suggests it's derived from tertiary sediments.

No bauxite outcrops were seen whilst traversing on public roads in the area of relinquishment.

The landscape based on visual observation and mapping did not seem prospective for finding bauxite.

ABx4 is partially relinquishing the majority of this tenement (202sq km) as seen on Map 2 so it can focus on areas with the most potential for finding bauxite.

2 INTRODUCTION

Exploration Rationale

Exploration Licence (**EL**) 6/2010 "Cleveland" 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 was 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

In the Cleveland area, the occurrences of bauxite are located in areas with Tertiary basaltic volcanics.

Study of geomorphology based on a digital terrain model led the company's geologist to the conclusion that Tertiary basaltic volcanics are preserved on remnants of old surface which form larger plateaus or smaller 'mesas'. Bauxite was formed during the Tertiary period when tropical climate prevailed (high rainfall and relatively high temperatures). Bauxite is present in the upper part of the ancient lateritic / saprolitic weathering profile. Except for the lateritic crust, ancient lateritic / saprolitic weathering profile is easily eroded because weathered rocks are soft. However, under protective cover of Tertiary basaltic volcanics, large tonnages of bauxite may have been preserved.

The bauxite has formed in the lower areas of central Tasmania between two massive plateaus of dolerite. The large valley is made up of dolerite, young volcanics, recent sediment and some sandstone which have been extensively laterised. There is a small amount of older volcanics in the bauxite areas which are believed to be the source rock for the bauxite.

Tenement Information

EL 6/2010 "Cleveland" was granted on and from 14 September 2010 for a period of 5 years to ABx4.

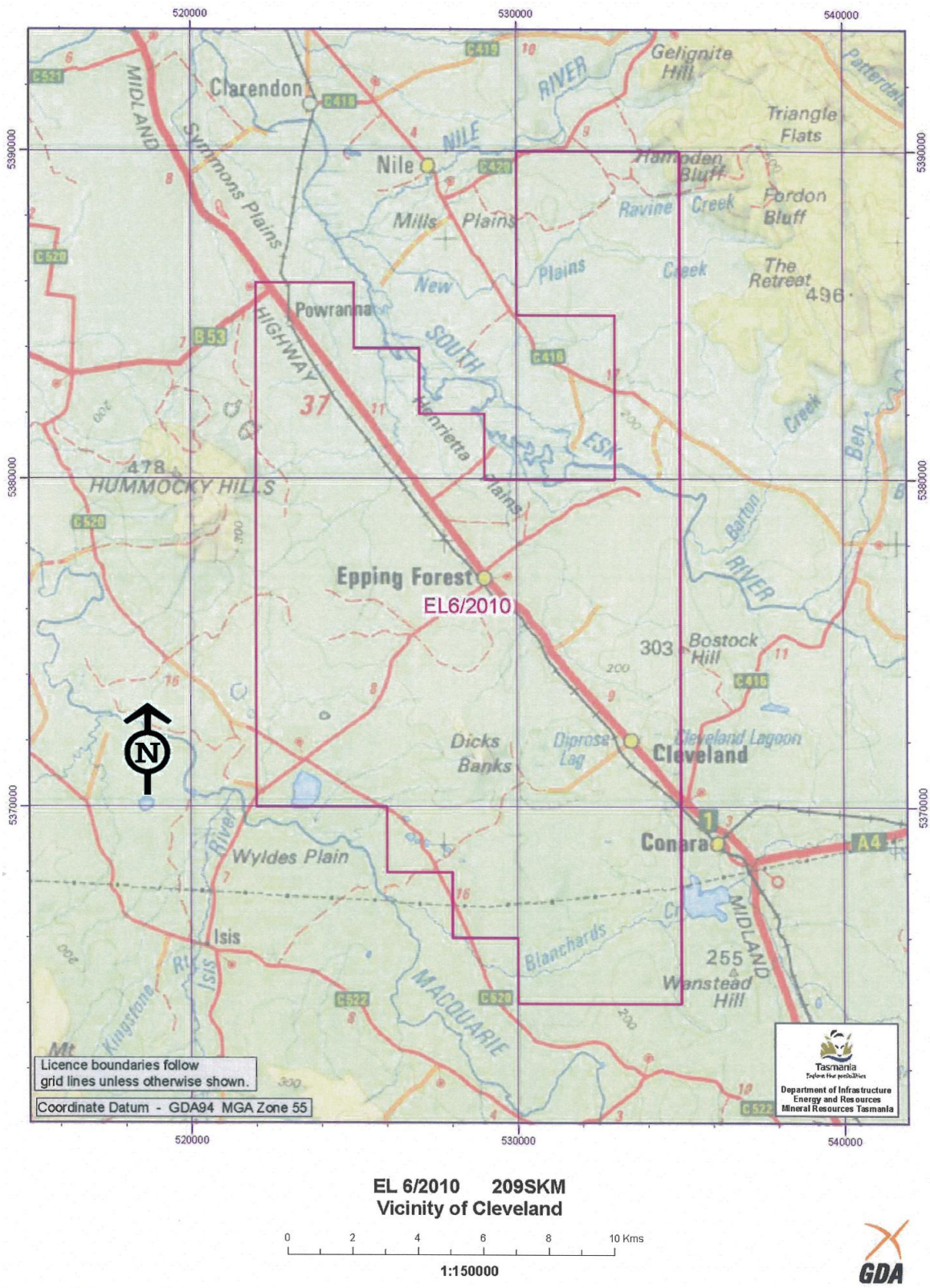
This is the Partial Relinquishment Report for the reporting period 14 September 2010 - 14 September 2012 incorporating the results of work completed over the last two years of tenure.

The original area of the Licence is 209sq km. ABx4 however is relinquishing 202sq km in order to focus on those areas most prospective for bauxite discovery. The Mineral Category is 1 – Metallic Minerals and Atomic Substances.

Location

The Cleveland tenement is centred on the town of Epping Forest. The tenement covers an active railway with a siding at Conara 10km to the south-east. Cleveland tenement is only 75km away from the deep water port at Bell Bay. EL 6/2010 is close to the City of Launceston which could offer a wide range of services and skilled work force.

INTRODUCTION Cont



Map 1 – EL 6/2010 Cleveland Original Tenement Boundary Location Map

Tenure, including joint venture details and title transfers

EL 6/2010 "Cleveland" is 100% owned by ABx4 which is a wholly owned subsidiary of Australian Bauxite Limited.

3 REVIEW OF PREVIOUS WORK

Prior to Current Tenement

There are no recorded historical references for bauxite in the Cleveland Tenement.

During current Tenement (First Year of Tenure)

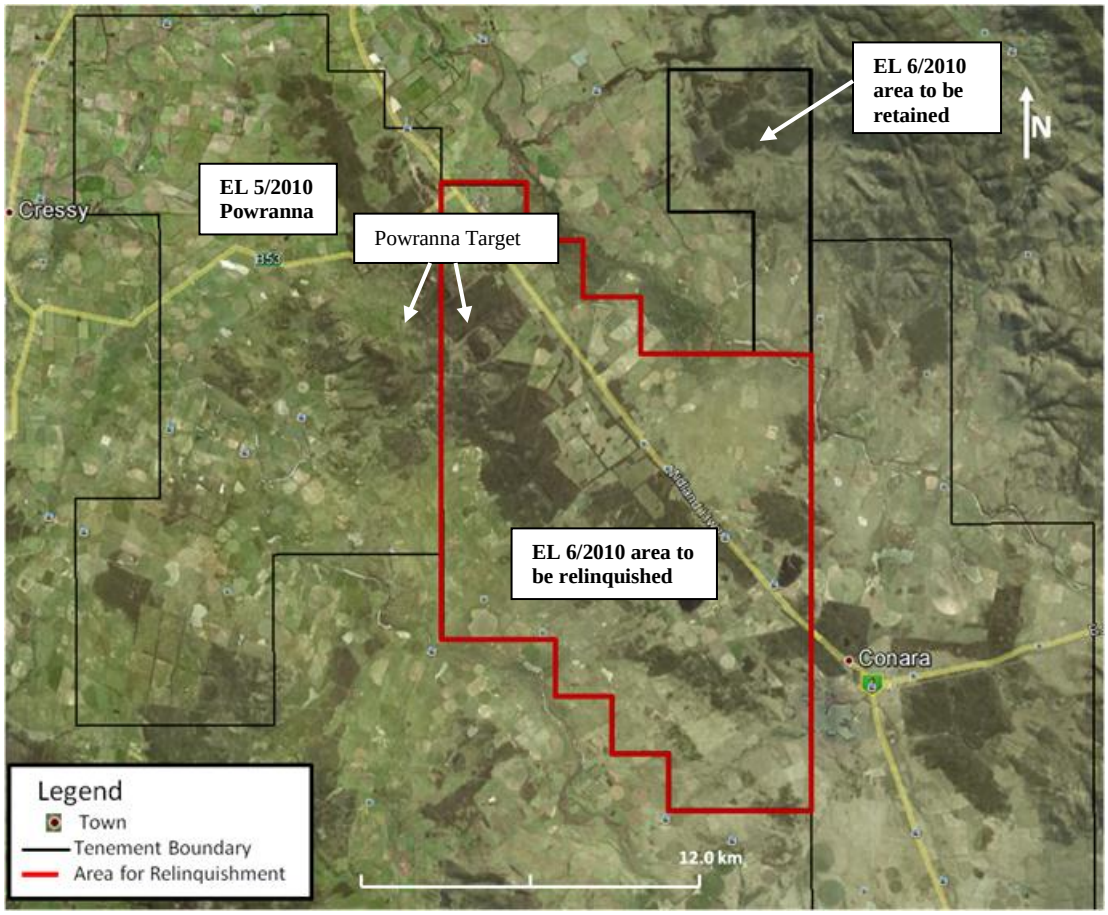
In October 2010, 1 hole was drilled in EL 6/2010 Cleveland for a total of 14m. This hole was drilled to test the large plateaus of laterite which had formed in the central region of Tasmania. The hole intersected the laterite profile but failed to intersect bauxite mineralisation. The laterite in this area is most likely associated with sediments.

4 EXPLORATION COMPLETED DURING THE REPORTING PERIOD

Literature Review

There are no recorded historical references for bauxite in the Cleveland Tenement.

Area being Relinquished

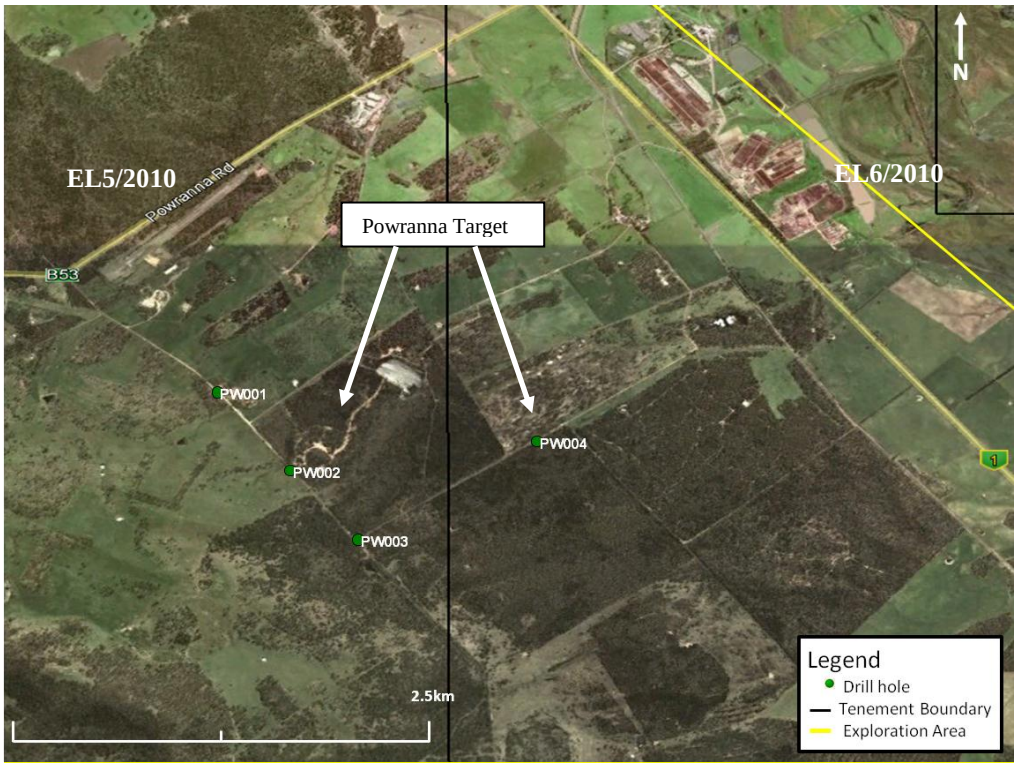


Map 2 – Area to be relinquished in EL6/2010 marked by red outline

ABx4 is partially relinquishing 202sq km of EL 6/2010 in order to focus on those areas most prospective for finding bauxite. The relinquished area includes relinquishment of the exclusion zones.

5 DISCUSSION OF RESULTS

In October 2010 a drilling program was organized which drilled 4 holes into the Powranna Target totalling 46m using an RC drill rig mounted on a light Mitsubishi 12 tonne truck. Only one hole PW004 was drilled on EL 6/2010 Cleveland tenement as seen in Map 3 below. These holes were to test the large plateaus of laterite which had formed in the central region of Tasmania. The 4 holes intersected a laterite profile rich in clay quartz and iron but very poor in alumina. The composition of the laterite suggests it's derived from tertiary sediments.



Map 3 – Base map (Google Earth Imagery) of 4 holes drilled at Powranna Target including PW004 on EL6/2010

Assay results

A total of 13 samples were sent to the lab from holes PW001-004 for sieved analysis and an extra four samples were assayed whole. A typical assay at Powranna Target is: 0.6% Available Alumina (avl Al_2O_3), 28.6% Reactive Silica (rx SiO_2), 27% Total Alumina, 38.2% Total Silica and 19.85% Iron Oxide. All the alumina in the samples will be bound up in clay minerals.

PW004 was drilled to a depth of 14m. The hole intersected the laterite profile but failed to intersect bauxite mineralisation.

Table 1 – Assay results from Hole PW004 – sieved at 0.26mm

From	To	Al_2O_3avl	Rx SiO_2	Al_2O_3	SiO_2	Fe_2O_3	TiO_2	LOI	Recovery
0	1	0.5	7.6	8.15	33.5	53.7	0.76	3.36	13.3

Complete assay results are found in Appendix A, B and C.

6 CONCLUSIONS AND RECOMMENDATIONS

Bauxite potential in the relinquished area seems minimal.

No bauxite outcrops were seen whilst traversing on public roads in the area proposed for relinquishment. The landscape based on visual observation and mapping does not seem prospective for finding bauxite.

In October 2010, a drilling program was organized which drilled 4 holes into the Powranna Target. One of these holes was drilled in EL 6/2010 Cleveland for a total of 14m. PW004 intersected the laterite profile but failed to intersect bauxite mineralisation. The drill holes targeted the large plateaus of laterite which had formed in the central region of Tasmania. The 4 holes intersected a laterite profile rich in clay quartz and iron but very poor in alumina. The composition of the laterite suggests it is derived from tertiary sediments.

ABx4 thus proposes to relinquish 202sq km as seen on Map 2 so it can focus on those areas with most potential for finding bauxite.

7 ENVIRONMENT

Surface Disturbing Operations:

One hole (PW004) was drilled in the area proposed for relinquishment.

Drilling was conducted by an RC drill rig mounted on a light 12 tonne truck. PW004 was plugged using an octo-plug at a depth of 1.5m and was refilled using innocuous material from the drill hole immediately after completion.

Existing public roads and tracks were used for traversing.

Existing tracks are used wherever possible. In the event that any specific access is required for drill rigs and/or service vehicles, track construction will be minimised and in accordance with directions of any landowners who may be affected.

Surveys (archaeological, botanical):

A botanical survey was conducted by Philip Milner Consultant Pty Ltd covering the Powranna Road Target area for EL 6/2010.

Please refer to Appendix D for the complete Survey.

Rehabilitation:

Drill hole PW004 at Powranna Road Target was plugged and filled immediately after completion.

ABx4 has a policy that all drill holes and tracks are fully rehabilitated immediately after drilling. Drill-holes are plugged using octo-plugs at a depth of 1.5m and re-filled using innocuous material from the drill hole.

8 REFERENCES

T. Coyte, J.Rebek, EL 6/2010 Cleveland First Annual Report - August 2011, *ABx4 Pty Ltd*

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Appendix A – Surface Location

Surface Location (SL1)

H1	Exploration licence data header file									
H2	Version 1									
H3	Generated	12-Aug-11								
H4	Reporting	14-Sep-12								
H5	State	TAS								
H6	Tenement_	EL6_2010								
H7	Tenement_	ABx4 Pty Ltd								
H8	Project_na	Cleveland								
H9	Map_sheet_number	250000								
H10	Map_sheet_number	100000								
H11	Map_sheet_number	25000								
H12	Start_date	14-Sep-10								
H13	End_date_	14-Sep-12								
H14	Data_form	SL1								
H15	Number_o	1								
H16	Date_of_m	11-Sep-12								
H17	FileNames									
H18	Location_c	EL62010_201209_R_02_AppendixA_SL1.txt								
H19	Assay_data	EL62010_201209_R_04_AppendixC_DG1.txt								
H20	Surveying	GPS								
H21	Surveying	Als Chemex								
H22	hole_id	Northing	Easting	Elev	max_Depth	Latitude	Longitude	Azimuth	Dip	Drill_Code
D1	PW004	5382167	522552	400	14	-41.712	147.2711	0	-90	RC

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Appendix B – Down-hole Survey

Downhole Survey Data (DS1)

H1	Exploration licence data header file				
H2	Version 1				
H3	Generated	12-Aug-11			
H4	Reporting period end_date	14-Sep-12			
H5	State	TAS			
H6	Tenement_name	EL6_2010			
H7	Tenement_holder	ABx4 Pty Ltd			
H8	Project_name	Cleveland			
H9	Map_sheet_number 250000				
H10	Map_sheet_number 100000				
H11	Map_sheet_number 25000				
H12	Start_date_of_data_acquisition	14-Sep-10			
H13	End_date_of_data_acquisition	14-Sep-12			
H14	Data_format	DS1			
H15	Number_of_data_records	1			
H16	Date_of_metadata_update	11-Sep-12			
H17	FileNames				
H18	Location_data_file	EL62010_201209_R_03_AppendixB_DS1.txt			
H19	Assay_data_file	EL62010_201209_R_04_AppenidxC_DG1.txt			
H20	Surveying Instrument	GPS			
H21	Surveying Company	Als Chemex			
H22	hole_id	Elev	max_Depth	Azimuth	Dip
H23		Metres	Metres	degrees_Mag	Degrees
D1	PW004	400	14	0	-90

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Appendix C – Down-hole Geochemistry

Downhole Geochemistry (DG1)

H1	Exploration licence data header file														
H2	Version 1														
H3	Generated	12-Aug-11													
H4	Reporting period end_date	14-Sep-12													
H5	State	TAS													
H6	Tenement_name	EL6/2010													
H7	Tenement_holder	ABx4 Pty Ltd													
H8	Project_name	Cleveland													
H9	Map_sheet_number 250000														
H10	Map_sheet_number 100000														
H11	Map_sheet_number 25000														
H12	Start_date_of_data_acquisition	14-Sep-10													
H13	End_date_of_data_acquisition	14-Sep-12													
H14	Data_format	DG1													
H15	Number_of_data_records	1													
H16	Date_of_metadata_update	11-Sep-12													
H17	FileNames														
H18	Location_data_file	EL62010_201209_R_04_AppendixC_DG1.txt													
H19	Assay_data_file	EL62010_201209_R_04_AppendixC_DG1.txt													
H20	Sample_code	Sample_type	Description												
H21	RC	RC drill rig mounted on a light Mitsubishi 12 tone truck													
H22	Sample_processing_code	Sample_processing_details													
H23	SCR-35	Screening													
H24	WEI-22g	Received Sample Weight													
H25	Assay_code	Assay Description													
H26	ME-XRF13b	Bauxites by Fusion/XRF													
H27	ME-GRA05	H2O/LOI by TGA Furnace													
H28	Remarks:														
H29	Hole No	SampleNo	dFrom	To	s0_26_yield	s0_26_avl_Al2O3	s0_26_SiO2_rx	s0_26_Avl_Srx	s0_26_tot_al2O3	s0_26_tot_siO2	s0_26_tot_a_s	s0_26_tot_fe2O3	s0_26_tot_tio2	s0_26_tot_loi	Drill_Code
H30			m	m											
D1	PW004	PW00401	0	1	13.3	0.5	7.6	0.065789474	8.15	33.5	0.243283582	53.7	0.76	3.36	RC

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Appendix D – Botanical Survey

POWRANNA TARGET AREA

BOTANICAL & FAUNA HABITAT SURVEY OF PROPOSED DRILL SITES

For ABx4 PTY LTD

3rd November 2010

PHILIP MILNER LANDSCAPE CONSULTANT PTY LTD

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A.B.N.No. 32 068 906 258

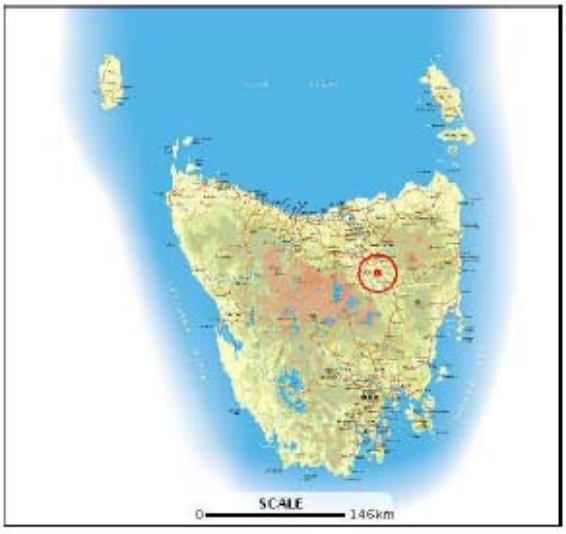
Introduction: ABx4 Pty Ltd the holder of Exploration Licences EL4; EL5; EL6; EL7; EL8; EL9; and EL14/2010, a wholly owned subsidiary of Australian Bauxite Ltd is undertaking an exploratory program in an area of the midlands between Launceston and Cranbrook and is undertaking a targeted drilling program in an area to the south of Powranna Road on the property of Tasmanian Feedlots.

The exploration program will involve numerous shallow drill holes which will not require the clearing and/or leveling of drill pad sites and so is expected to have a minimal impact on the ground surface and adjacent vegetation.
A botanical and fauna habitat survey is required of each drill pad site as part of the MRT license conditions to determine any likely impacts on threatened species or threatened vegetation communities.

Objectives: The objectives of this survey were to;

- Undertake a desktop survey to confirm the known biological records and the natural values present in the exploration target areas and in the vicinity.
- Undertake a field survey of the exploration target areas to observe and record the natural values present including the vegetation types and plant communities, the flora and in particular any threatened species and potential habitat for species of threatened fauna.
- Determine the possible impacts of the proposed exploration program on the natural values present and make recommendations on how those impacts can be minimized.

Location of Study Area:



MAP REF: Tasmap 1:25,000, Sheet No. 5238, Nile

BIOREGION: Northern Midlands

POWRANNA TARGET AREA:
The following proposed drill sites are located on the property of Tasmanian Feedlots in Powranna Road.
GRID REFERENCES:
PW1: 520624E – 5382519N
PW2: 521048E – 5381923N
PW3: 521417E – 5382360N
PW4: 521428E – 5381350N
PW5: 521795E – 5381624N
PW6: 522129E – 5381864N
PW7: 522534E – 5382249N (All Grid References MGA Zone 55 GDA94)

Site Description:
The exploration target area is within an area which retains some remnant vegetation and tree cover although the area has had a high level of disturbance which has impacted on the ground stratum vegetation in numerous locations.

Desktop Survey of Natural Values:
The DPIW database "The Natural Values Atlas" was accessed for the known biological records of the locality and environs. Records of threatened species of flora and fauna known to occur within a 5,000 metre radius of the location were also accessed. Data sourced included the vegetation types and plant communities, the occurrence of any threatened vegetation communities, the recorded locations of any threatened species of plants and threatened fauna known or expected to occur in the vicinity.
REFERENCE POINT for the locality: Drill Site No.PW3: GRID REF: 521417E – 5382360N

Desktop Survey Results:
VEGETATION COMMUNITIES:
The following vegetation communities are mapped under the TasVeg mapping program as occurring within 1,000 metres of the study area reference points.

VEGETATION COMMUNITY	TasVeg Code / Map colour	EXTENT IN STUDY AREA
Eucalyptus amygdalina Inland Forest & Woodland on Cainozoic Deposits	DAZ / bright green with "x"	The predominant community in the target area
Eucalyptus amygdalina Forest & Woodland on Dolerite	DAD / Bright green with horizontal lines	3 localized areas to the west and s.w of the reference point.
Eucalyptus viminalis Grassy Forest & Woodland	DVG / Medium green	An area of this community extends into the south-west quadrat of the study area.
Lowland Grassland Complex	GCL / bright yellow	Discontinuous extent mainly in the northwestern quadrat of the study area.
Agricultural Land	FAG / cream	Mainly in the south-west quadrat of the study area.

TABLE 1: Vegetation Communities and extent within the study area as per TasVeg mapping program.

Eucalyptus amygdalina Inland Forest and Woodland on Cainozoic Deposits is a community usually dominated by the Black Peppermint *Eucalyptus amygdalina* although other species such as *Eucalyptus viminalis, E. pauciflora* or occasionally *E. ovata* are present and can sometime form the dominant canopy species. Dry sclerophyll shrubs, often low or prostrate species, Bracken *Pteridium esculentum* or grasses and graminoids with forb species can dominate the ground stratum depending on the soil type, fertility and depth and the drainage conditions, as well as the additional historical factors of firing and land use. There can be a high diversity of species in the ground layer vegetation although many of the remnants are now degraded.

This community is strongly associated with lateritic sediments in the northern Midlands and in the Fingal Valley and it's main area of distribution is in the northern Midlands. Some outlying localities include the West Tamar, Bridgenorth and Westbury, between Cranbrook and Swansea on the east coast and in the Cressy – Blackwood Creek area.

The community was much more extensive in the northern Midlands at the time of white settlement however much of it has been cleared for agriculture. Large areas on the less fertile soils in the Epping Forest and Powranna areas were cleared in the 1960's following the introduction and widespread use of superphosphate.

The community is of high conservation value and is listed as a threatened native vegetation community under the Tasmanian *Nature Conservation Act 2002*.

Eucalyptus amygdalina Forest and Woodland on Dolerite is more widespread than the former community and is often located on rocky sites in low rainfall areas. The community typically is dominated by uneven aged Black Peppermint less than 25metres in height and with a variable understorey ranging from grassy to shrubby. In this location the two Eucalypt communities occur side by side and each has a similar structure with the dominant trees and a similar composition of species in the ground stratum. It is principally the underlying geology which separates them.

Eucalyptus viminalis Grassy Forest and Woodland is a community which is prevalent through the midlands and often found on rocky dolerite slopes. The understorey is usually grassy although the specific composition is dependent on a sites fire and grazing history. The canopy is generally open with low branched trees between 15 and 25 metres in height.

Lowland Grassland Complex; most of the native and semi-improved pastures through the midlands are mapped as this community but is distinguished from the mapping unit Regenerating Cleared Land (FRG) by having more than 25% of native species. The species composition varies greatly depending on location and disturbance history.

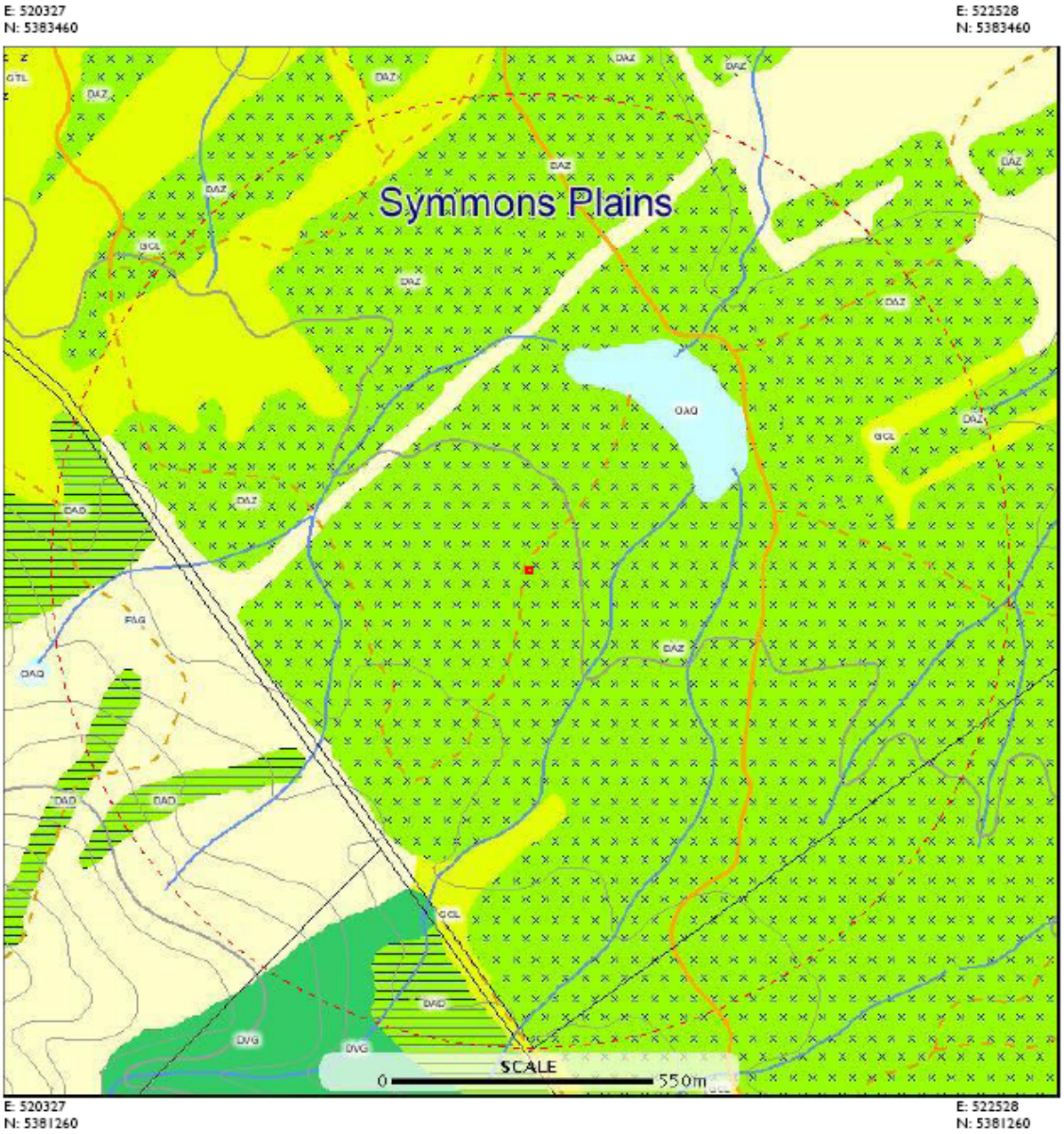


FIGURE 1: Vegetation communities as per TasVeg mapping program within 1,000 metres of reference point Drill Pad Site No. PW3: GRID REF: 541417E – 5382360N.

CODE: DAM ……..*Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits,
DAD ……*Eucalyptus amygdalina* Forest & Woodland on Dolerite
DVG …….. *Eucalyptus viminalis* Grassy Forest & Woodland
FAG …….. Agricultural Land
GCL …….. Lowland Grassland Complex

THREATENED VEGETATION COMMUNITIES:

- The predominant natural vegetation communitiy mapped within the study area is listed as threatened under the Tasmania *Nature Conservation Act 2002*. *Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits is listed as a vulnerable community under the Act as it has been subject to extensive clearing and fragmentation throughout the northern midlands and in particular since the 1960's.

VEGETATION COMMUNITIES OF CONSERVATION SIGNIFICANCE

- Although the community *Eucalyptus amygdalina* Forest and Woodland on Dolerite is relatively widespread it mainly occurs on freehold land and is considered to be under-reserved in the state and particularly so in its old-growth condition.
- The same can be said for *Eucalyptus viminalis* Grassy Forest and Woodland which predominantly occurs on private land. It also is considered to be under-reserved across the state, and particularly so in its old-growth condition. Both communities are being targeted for further reservation under the RFA.
- Any native grassland which is in good condition and has a high diversity of species would be of high conservation value.

THREATENED FLORA:

Seven species of threatened flora listed under the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are recorded on the "Natural Values Atlas" database as occurring within 500 metres of the study area reference point.

- *Aphelia gracilis* the Slender Fanwort is listed as being rare in Tasmania. There is one 1991 record from the locality and a further 10 records from within 3,000 metres, one from 1991 and the balance from 2009.
- *Arthropodium strictum* the Chocolate Lily is listed as being rare under the Tasmanian Act with two 1991 records and a further 42 records from within 3,000 metres dated between 1984 and 2009.
- *Brunonia australis* the Blue Pincushion is listed as being rare under the state Act. There is one 1991 record from within 500 metres and a further 49 records from within 3,000 metres dated between 1984 and 2009.
- *Hyalosperma demissum* the Moss Sunray is an endangered species under the Tasmanian Act. There is one 1991 record from the locality and a further 7 records from within 3,000 metres two dated from the early 90's and the balance from 2009.
- *Myriophyllum integrifolium* the Tiny Water-milfoil is considered to be vulnerable in Tasmania. There is one 1991 record and a further 9 from within 3,000 metres, two dated 1991 and the balance from 2009.
- *Siloxerus multiflorus* the Small Wrinklewort is a rare species in Tasmania. There is two 1991 records and a further four from within 3,000 metres, two from 1991 and three from 2009.
- *Triptilodiscus pygmaeus* (syn *Helipterum australe*) the Dwarf Sunray is considered to be vulnerable in Tasmania. There is one 1991 record from the locality and a further two from within 3,000 metres and both from the early 90's.

A further 18 species of listed threatened flora are recorded on the database as occurring within 3,000 metres of the study area reference point.

- *Amphibromus macrorhinus* Longnosed Swampgrass is endangered in Tasmania. There is one undated record from the locality.
- *Aphelia gracilis* the Slender Fanwort is a rare species within Tasmania. There are 11 records from the locality, two from 1991 and the balance from 2009.
- *Aphelia pumilio* the Dwarf Fanwort is also listed as being rare in the state with 11 records from the locality, 7 from 2005 and the balance from 2009.
- *Austrostipa scabra* subsp *scabra* Rough Speargrass is provisionally listed as being rare in Tasmania with 4 records from the locality.
- *Caesia calliantha* the Blue Grasslily is listed as being rare under the State Act with one 1984 record and one from 1993 and the balance from 2009.
- *Glycine latrobeana* Clover Glycine *Glycine latrobeana* the Clover Glycine is listed as being vulnerable under the Tasmanian Act and under the Commonwealth Act. There are two records from the locality dated 1984 and 1996.
- *Gratiola pubescens* the Hairy Brooklime is vulnerable in Tasmania with one 1993 record.
- *Haloragis heterophylla* the Variable Raspwort is considered to be rare in Tasmania. There are 14 2005 records on the database.
- *Hypoxis vaginata* var *vaginata* the Sheathing Yellowstar is provisionally listed as being rare in Tasmania. There are 34 records on the data base, most from 2005. (one from 1986 and three from 2009).
- *Leucochrysum albicans* subsp *albicans* the Grassland Paperdaisy is an endangered species both in Tasmania and Nationally. There are two 1984 records from the locality.
- *Leucopogon virgatus* var *brevifolius* the Shortleaf Beardheath is considered to be rare in Tasmania. There are 7 records from the locality all dated from 2009.
- *Poa mollis* the Soft Tussockgrass is listed as being rare with a single record from 1984.
- *Pultenaea humilis* the Dwarf Bushpea is listed as being vulnerable in Tasmania. There are 24 records on the database from the locality. 5 records are pre 2002 and the balance from 2009.
- *Pultenaea prostrata* the Silky Bushpea is considered to be vulnerable in Tasmania. There is a single 1984 record from the locality.
- *Ranunculus pumilio* var *pumilio* the Ferny Buttercup is rare in Tasmania. There are 8 records all from 2005.
- *Stylidium despectum* the Small Triggerplant is a rare species in Tasmania. There are 5 records and all from 2009.
- *Trithuria submersa* the Submerged Watertuft is a rare species in Tasmania with two 2009 records on the database.
- *Viola cunninghamii* the Alpine Violet is rare in Tasmania. There are three 1984 records from the locality.

THREATENED FAUNA:

Two species of threatened fauna listed under the above Acts are recorded on the database as occurring within 3,000 metres of the study area. No species have been recorded from within 500 or 1,000 metres of the study area reference point

- The Tasmanian subspecies of Wedge-tailed Eagle *Aquila audax* subsp *fleayi.* The bird is listed as being endangered under both State and Commonwealth Acts and requires large trees within tracts of old-growth forest for nesting. There are two known nest tree sites within the Hummocky Hills within 3,000 metres to the west of the study area reference point. Both records are from the 1980's.
- The Spotted-tailed Quoll, *Dasyurus maculatus* subsp *maculatus* is listed as a rare species under the Tasmanian Act and vulnerable under the Commonwealth Act. There is one record on the database dated about 1995.

The following species of threatened fauna could occur in the locality based on habitat mapping and on the known geographical range of each.

- The Tasmanian subspecies of the Masked Owl *Tyoto novaehollandiae* subsp *castinops* is listed as being endangered in Tasmania and considered to be vulnerable under the Commonwealth Act. There is one record from 1995 and one from 1996 from the locality. This bird requires large tree hollows for nesting and old-growth forest as habitat.
- The White (Grey) Goshawk *Accipiter novae hollandiae* is endangered in Tasmania. The species requires mature wet forest as habitat.
- The Swift Parrot *Lathamus discolor* is listed as endangered both in Tasmania and nationally and inhabits mature Blue Gum forests (*Eucalyptus globulus*) and *Eucalyptus ovata* Forest and requires tree hollows for nesting.
- The Eastern-barred Bandicoot *Parameles gunnii* is relatively widespread in Tasmania but considered to be vulnerable nationally.
- The Tussock Skink *Pseudemoia pagenstecheri* is considered to be vulnerable in Tasmania.
- The Swan Galaxia *Galaxias fontanus* is considered to be endangered in Tasmania and nationally. The species is endemic to Tasmania.
- The Green and Gold Frog *Litoria raniformis* is considered to be vulnerable in Tasmania and Nationally.
- The Catadromus Carabid Beetle *Catadromus lacordairei* is listed as a vulnerable species under the Tasmanian Act.

Field Survey:
The field survey was undertaken on Friday the 22nd of October 2010.

Methodology: Each of the proposed drill sites was plotted and surveyed on foot. An area of approximately 20 metres diameter was surveyed around each site.
Vascular plant species were recorded, vegetation communities were observed and cross-referenced with the TasVeg map sourced from the Natural Values Atlas database.

Limitations: This survey was conducted in spring when many species are in flower, however there are numerous species which flower later in the spring such as most of the grasses, and in other seasons. No botanical survey can guarantee that all flora will be observed and recorded in a single survey in one year due to seasonal and annual variation in abundance and the possible absence of flowers and fertile material for identification. Ephemeral species which may have been present includes species of orchids, lilies, herbs, grasses and other graminoids. However all significant species known to occur in the study areas and their environs have been considered in this report.

Field Survey Results:
The field survey and exploration target area is within property owned by Tasmanian Feedlots and is accessed from Powranna Road to the immediate west of the dragway facility. A gravel road extends southwards along the western boundary of the property and then turns east when the southern boundary of the property is reached. Proposed drill sites PW1, PW2 and PW4 (at the corner of the property) are located along the western boundary of the property. PW5, PW6 and PW7 are located alongside the track which extends along the southern boundary of the property. PW3 is located alongside a side track which extends towards the centre of the property.
It was noted during the survey that the private property opposite the entrance to this property in Powranna Road is a protected area with a conservation covenant. The adjoining property located to the south of the property being surveyed is now owned by the Tasmanian Land Conservancy and it is expected that this property would also be covered by a conservation covenant in order to conserve its natural values.

VEGETATION COMMUNITIES:
The predominant vegetation community throughout the area surveyed is confirmed as being *Eucalyptus amygdalina* Inland Forest and Woodland on Cainozoic Deposits as is mapped under the "TasVeg' mapping program. The Black Peppermint *Eucalyptus amygdalina* was the predominant canopy tree over most of the area. The composition of the ground layer vegetation was mainly open/sparse grassland with numerous herbs and forbs and an occasional small shrub. The density of the ground layer vegetation varied from bare or cultivated ground to an even grassy layer depending on the degree of disturbance which has occurred in a location. Some herbs had re-established in areas subject to past disturbance. The ground stratum vegetation has been and is continuing to be cleared, cultivated and disturbed across the property.
The tree density and age class varied greatly across the study area with few mature or old-growth trees present amongst semi mature trees and younger regrowth which has undoubtably been influenced by land use activities over the years. Some locations had young regrowth of Silver Wattle *Acacia dealbata* probably up to 15 years old which made up much of the smaller understorey trees. The clearing of trees was being undertaken in some locations.

eg Vicinity of PW7.

THREATENED VEGETATION COMMUNITIES:
One vegetation community listed under the Tasmanian *Nature Conservation Act 2002* was observed during the field survey. *Eucalyptus amygdalina* Inland Forest on Cainozoic Deposits is distributed across all of the exploration target area and the area covered by this survey. The exploration program as proposed is focused on areas previously disturbed and will not cause further impact on the vegetation community

VEGETATION COMMUNITIES OF CONSERVATION SIGNIFICANCE:
No other native vegetation community was observed in the target during the field survey.

THREATENED FLORA:
Five plant species listed under the Tasmanian *Threatened Species Conservation Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were observed or recorded during the field survey.

- *Siloxerus multiflorus* the Small Wrinklewort was observed in the vicinity of proposed drill sites PW3 and PW6 and PW7.
  PW3: 521417E – 5382360N
  PW6: 522129E – 5381864N
  PW7: 522534E – 5382153N
  And was also recorded at the following locations.
  PWA: 521160E – 5381916N
  PWB: 521398E – 5382249N
  This species is listed as being rare in Tasmania.
  There was also extensive colonies of this species along the cleared firebreak on the adjoining TLC property and it appears to favour previously disturbed ground. Some minor repositioning of the above three drill sites may be necessary to avoid damaging these plants. The plant is a small ground hugging plant with relatively bright green leaves and small round button-like and downy looking flowers.
  Field staff should ensure that they are able to recognize this plant.
  Note photos on the following page.

PHOTO 1: THREATENED FLORA … *Siloxerus multiflorus* the Small Wrinklewort

PHOTO 2: THREATENED FLORA … *Siloxerus multiflorus* the Small Wrinklewort

- *Hyalosperma demissum* the Moss Sunray was observed in the vicinity of drill sites PW3 and PW6.
  PW3: 521417E – 5382360N
  PW6: 522129E – 5381864N
  This species is listed as being endangered under the Tasmanian Act.
  A few plants were observed along the existing vehicular track and adjacent to previously disturbed ground in the location. A minor repositioning of the drill sites may be necessary to avoid impacting on the plant. The field crew should ensure that they are able to recognize the plant in the field. Note photo on the following page.
  Typically it is a small ground herb which forms a compact moss-like mound or cushion. The leaves are a darkish green and the flowers are relatively small but located prominently at the tips of the short stems.

PHOTO 3: THREATENED FLORA … *Hyalosperma demissum* the Moss Sunray

- *Arthropodium strictum* the Chocolate Lily was observed during the survey but not in the vicinity of any of the seven proposed drill sites. This plant is listed as being rare under the State Act.
  The proposed drilling program will not impact on this species.
- *Brunonia australis* the Blue Pincushion was also observed during the field survey but did not occur in the vicinity of any of the proposed drill sites.
  This plant is listed as being rare under the State Act.
- *Hypoxis vaginata* the Sheathing Yellowstar was observed during the survey in a few locations prone to dampness but was not observed in the vicinity of any of the proposed drill sites.

No other threatened species of plants which have been previously recorded within 3,000 metres of the study area reference point, and referred to in the desktop survey section of this report was observed during the field survey of the target area.

FLORA OF CONSERVATION SIGNIFICANCE:
Other species of particular bio-geographical interest observed during the survey included *Millotia tenuifolia* the Soft Bowflower, *Hydrocotyle callicarpa* the Tiny Pennywort, and the Hairy Hibbertia *Hibbertia hirsuta*.

THREATENED FAUNA:
No species of fauna listed under the above Acts was observed during the field survey.

THREATENED FAUNA HABITAT:
No potential habitat for the threatened species of fauna which are known or expected to occur in the locality was observed within the target area. Old-growth trees with hollows may be present elsewhere on the property however no significant trees with hollows were observed during the survey.

ENVIRONMENTAL WEEDS:
Three significant environmental weeds were observed during the field survey.

- Gorse *Ulex europeaus* was observed as an occasional weed throughout the survey area although all plants were relatively small and scattered and will not cause any issue for the proposed drilling program. Dead plants of gorse were also present which is evidence of a current weed management program by the landowner.
- Oniongrass *Romulea rosea* was observed in a number of locations. It is a South African species which has the potential to invade native grasslands and exclude indigenous species. It is a relatively widespread weed in Tasmania.
- Spear Thistle *Cirsium vulgare* is a widespread weed of pasture and disturbed ground throughout Tasmania.

PHYTOPTHORA: There was no symptomatic field evidence observed of the root pathogen *Phytophthora cinnamomi* during this field survey.

Survey Conclusions:
The exploration target area is located within an area of remnant forest which is listed as a threatened native vegetation community. The community has been subjected to a high level of disturbance, particularly the ground stratum vegetation. The proposed drill sites are located along existing tracks or adjacent to previously disturbed areas and will have no further impact on the community itself.
The vegetation of the northern midlands bioregion has been subject to extensive land clearance in the past mainly for agriculture and the remaining natural vegetation is now of high conservation value and is often the last remaining refuge for numerous species of flora and fauna but particularly so for the ground stratum flora.
Although the exploration target area has been subject to a high degree of disturbance a number of threatened species were present within the survey area which demonstrated that the area is still of relatively high conservation value.
The proposed exploratory drilling program is of a low impact nature involving shallow drill holes which will be located within or adjacent to existing vehicular tracks in most cases. The drilling program as proposed will have a minimal impact of the ground layer vegetation and will not impact on any of the threatened species observed during the survey providing the field crew is aware of and are able to recognize the particular species and position the drill sites and work areas accordingly.

Recommendations:

VEGETATION COMMUNITIES:

The proposed drilling program is located mainly along and within the existing vehicular tracks and so will have a minimal impact on the native vegetation community present and a minimal impact on the ground stratum vegetation. No mature trees will need to be felled to accommodate any of the drill sites.

Ensure the adequate containment within each drill pad site of all silt, dust, sediment and other contaminants resulting from the drilling program to avoid impacting on adjacent soils and ground stratum vegetation.

THREATENED VEGETATION COMMUNITIES:

The threatened vegetation community, *Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits is present across the survey and exploration target area, however there will be minimal impact on this community with the proposed exploration program and no specific action is required in addition to the recommendations made under vegetation communities (above).

THREATENED FLORA:

Five species of threatened flora were observed during the field survey, however just two of these species were observed in the vicinity of proposed drill sites.

- *Siloxerus multiflorus* the Small Wrinklewort was observed in the vicinity of PW3, PW6 and PW7 and at two other locations between PW2 and PW3. Some repositioning of each of these drill sites may be necessary to avoid impacting on plants of this species. Field staff should ensure that they are able to recognize this plant.
- *Hylaospermum demissum* the Moss Sunray was observed in the vicinity of proposed drill sites PW3 and PW6. Some repositioning of the two drill sites may be necessary to avoid impacting on plants of this species. Field staff should ensure that they are able to recognize this plant.

THREATENED FAUNA:

No species of threatened fauna was observed or recorded during the field survey and no specific action is required.

THREATENED FAUNA HABITAT:

No potential habitat for threatened fauna such as mature trees with hollows was observed during the survey. The exploration program will not impact on any established trees and so will not impact on potential habitat for threatened species of fauna.

As most of the drill sites are located on or adjacent to existing vehicular tracks there will be minimal impact to the ground stratum vegetation and will have little impact on terrestrial species of fauna.

ENVIRONMENTAL WEEDS:
Gorse *Ulex europeus* was observed on this and adjoining properties during the survey however none was observed in the vicinity of proposed drill sites.
Onionweed *Romulea rosea* was observed during the survey although none was observed in the vicinity of proposed drill sites.
As a precautionary measure and in order to prevent the introduction of weeds into weed free areas all equipment and machinery should be subject to a wash-down procedure to remove any soil or mud which could contain weed seeds before being transported into and out of the exploration area.

PHYTOPHTHORA: Accepted protocols in regard to hygiene and wash-down procedures for all machinery and equipment, including the drill rig itself should be followed, to ensure that the pathogen is not inadvertently introduced into disease free locations by way of extraneous soil, mud and gravel adhered to tyres, work-boots and equipment.

Philip Milner

Vegetation Consultant

Appendix 1:
Vegetation Communities and Species Recorded

1. *Eucalyptus amygdalina* Inland Forest and Woodland on Cainozoic Deposits (TasVeg Code DAZ)

This is the predominant community throughout the survey area and its main area of distribution is the northern Midlands and the Fingal Valley. The community is listed as being a threatened native vegetation community under the Tasmanian *Nature Conservation Act 2002*. The community has been extensively cleared in the past mainly for agriculture.

DOMINANT TREES	COMMON NAME	FREQUENCY
Eucalyptus amygdalina	Black Peppermint	abundant
Eucalyptus viminalis	White-gum	occasional
UNDERSTOREY TREES AND TALL SHRUBS		
Acacia dealbata	Silver wattle	common
Allocasuarina littoralis	Forest She-oak	occasional
Allocasuarina verticillata	Drooping She-oak	one tree only
MEDIUM SHRUBS		
Banksia marginata	Silver Banksia	uncommon
Bursaria spinosa	Prickly Box	uncommon
Davesia latifolia	Hop Bitterpea	occasional
SMALL SHRUBS		
Astroloma humifusa	Cranberry Heath	common
Bossiaea prostrata	Creeping Bossia	common
Gonocarpus tetragynus	Common Raspwort	occasional
Goodenia lanata	Trailing Native-primrose	common
Hibbertia hirsuta	Hairy Guineaflower	occasional
Hibbertia riparia	Erect Guineaflower	common
Leucopogon virgatus	Twiggy Beardheath	common
Lissanthe strigosa	Peachberry Heath	common
Pimelea humilis	Dwarf Riceflower	occasional
Platylobium obtusangulum	Common Flatpea	occasional
Pultenaea pedunculata	Matted Bushpea	occasional
CLIMBING PLANTS		
Comesperma volubile	Blue Love Creeper	occasional
HERBS & HERB-LIKE PLANTS		
Acaena echinata	Sheeps Burr	occasional
#Brunonia australis	Blue Pincushion	localized
Chrysocephalum apiculatum	Common Everlasting	uncommon
Drosera peltata subsp *peltata*	Pale Sundew	uncommon
Euchiton collinus	Common Cottonleaf	occasional

APPENDIX 1 (cont)

HERBS & HERB-LIKE PLANTS (cont)

#Hyalosperma demissum	Moss Sunray	very localized
Hydrocotyle callicarpa	Tiny Pennywort	common
Hypericum gramineum	Small StJohns Wort	occasional
Leptorhynchos squamatus	Scaly Buttons	occasional
Millotia tenuifolia	Soft Bowflower	uncommon
Oxalis perennans	Grassland Woodsorrel	common
#Siloxerus multiflorus	Small Wrinklewort	localized
Viola hederaceae	Ivy-leafed Violet	occasional
Wahlenbergia sp.	A Native Bluebell	occasional

ORCHIDS

Glossodia major	Waxlip	uncommon
Pterostylis nutans	Nodding Greenhood	localized
Thelymitra sp.	A Sun Orchids	uncommon

GRASSES & GRAMINOIDS

#Arthropodium strictum	Chocolate Lily	localized
Austrodanthonia spp.	Wallaby Grasses	common
Centrolepis strigosa	Hairy Bristlewort	uncommon
Dianella revoluta	Spreading Flaxlily	uncommon
Ehrharta stipoides	Weeping Grass	occasional
#Hypoxis vaginata var *vaginata*	Sheathing Yellow-star	localized
Lepidosperma inops	Fan Sedge	occasional
Lomandra longifolia	Mat-rush	occasional
Poa rodwayi	Velvet Tussockgrass	occasional
Poa labillardierei	Silver Tussockgrass	occasional
Themeda triandra	Kangaroo Grass	occasional
Wurmbea dioica	Early Nancy	occasional

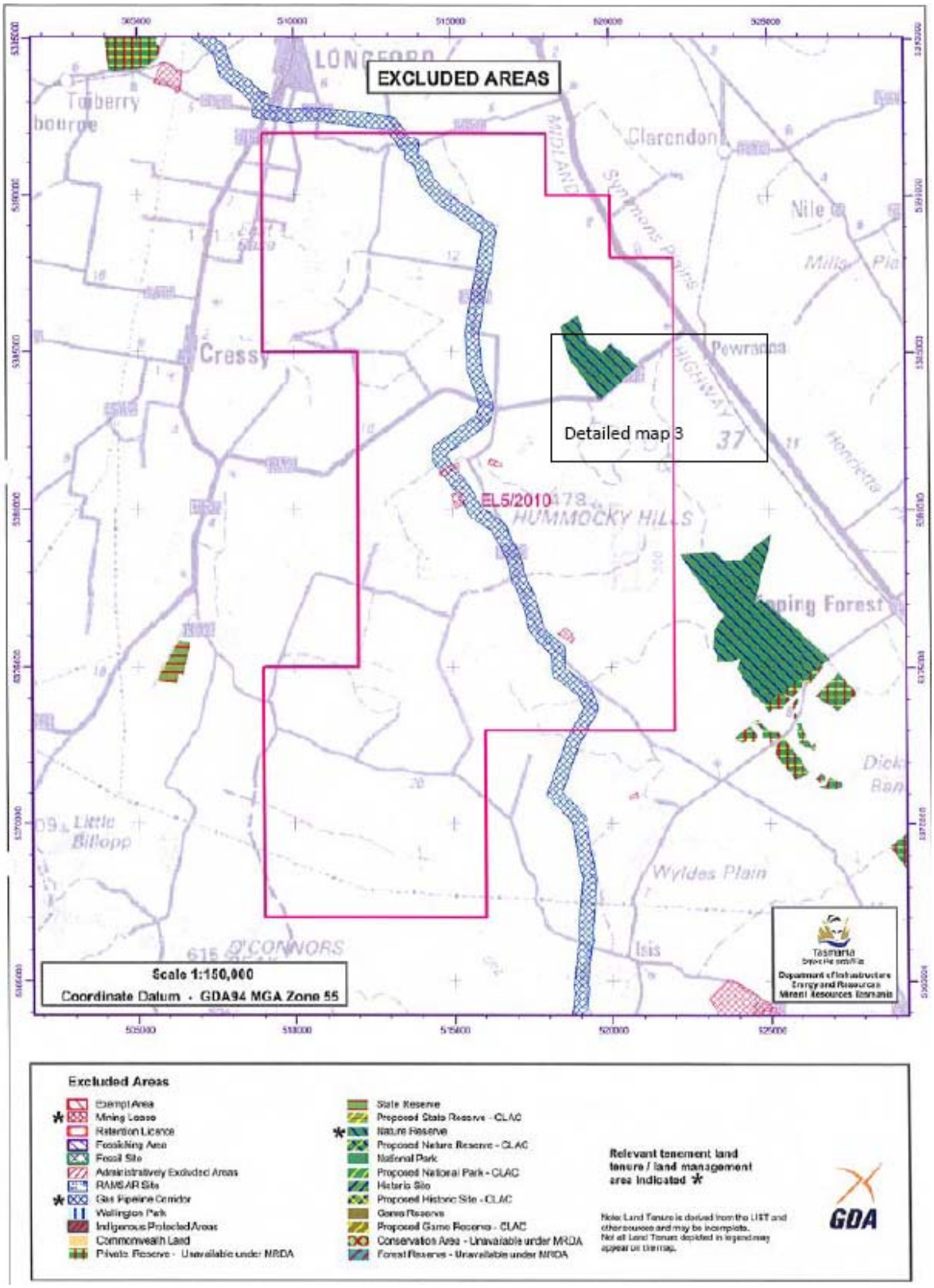
FERNS & ALLIED PLANTS

Pteridium esculentum	Bracken	uncommon

ENVIRONMENTAL WEEDS

Anagallis arvensis	Scarlet Pimpernel	occasional
Cirsium vulgare	Spear Thistle	common
Hypochoeris glabra	Catsear	occasional
Romulea rosea	Onionweed	occasional
Ulex europaeus	Gorse	occasional

Species listed as threatened.


EXCLUDED AREAS
Detailed map 3
EL5/2010
HUMMOCKY HILLS
Cressy
Longford
Clarendon
Nile
Powranna
Wylides Plain
Isis
Scale 1:150,000
Coordinate Datum - GDA94 MGA Zone 55
Excluded Areas
Exempt Area
Mining Lease
Retention Licence
Fossicking Area
Fossil Site
Administratively Excluded Areas
RAMSAR Site
Gas Pipeline Corridor
Wellington Park
Indigenous Protected Areas
Commonwealth Land
Private Reserve - Unavailable under MRDA
State Reserve
Proposed State Reserve - CLAC
Nature Reserve
Proposed Nature Reserve - CLAC
National Park
Proposed National Park - CLAC
Historic Site
Proposed Historic Site - CLAC
Game Reserve
Proposed Game Reserve - CLAC
Conservation Area - Unavailable under MRDA
Forest Reserves - Unavailable under MRDA
Relevant tenement land tenure / land management area indicated *
Note: Land Tenure is derived from the LIST and other sources and may be incomplete. Not all Land Tenure depicted in legend may appear on the map.
GDA

MAP 2: Location of proposed drill holes within survey area

PHOTO 4 ……. Drill Pad Site PW1. Very sparse grassy ground layer next to BMX track

PHOTO 5. …… Drill Site PW3 next to track showing degree of previous disturbance

PHOTO 6 …… Vicinity of Drill Site PW4 near south-west corner of the property.

PHOTO 7 …… Vicinity of Drill Site PW7 showing extent of clearing.