First Annual Report

on

EL 7/2010 – CONARA

Reporting Period:	14 September 2010 – 13 August 2011
Project Operator:	ABx4 Pty Ltd
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Date:	10 August 2011

COORDINATES ARE WGS84 (GDA94/MGA55)

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1 ABSTRACT

Objective:

Exploration Licence (**EL**) 7/2010 "Conara" 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 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 natural outcrops and exposures in road cuts of lateritic weathering profile.
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 Mitsubishi 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:

Over the reporting period a total of 143 holes were drilled in the Conara Tenement with a total of 1,238m. Except for Riccarton Target Area, most holes intercepted bauxite mineralization averaging 4m in thickness to a maximum of 9m but varied in grade. A total of 708 samples were selected for analysis by XRF and analysed for available alumina and reactive silica after wet screening at 260 microns.

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).

ABSTRACT Cont

- Systematic drilling at close spacings to obtain data for preliminary resource estimation in the best target areas defined by program.
- Systematic sampling and drilling at waypoints with best bauxite potential.
- Sieve testing to find optimal sieve size for Tasmanian bauxites.
- Detailed analysis of assay results to determine assaying strategy for future drilling.

2 INTRODUCTION

Exploration Rationale

Exploration Licence (**EL**) 7/2010 "Conara" 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 Mitsubishi 12 tonne truck.

Geological Setting

In the Conara 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. This concept is being tested by drilling.

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. Exposures of this volcanic can be found in the Packston Reserve at Fingal Rail Deposit in a field north of the Riccarton Targets. The volcanic was also in drill holes directly underneath the bauxite in Meadowbank Target which was originally described as bauxite formed on Dolerite.

Tenement Information

EL 7/2010 "Conara" was granted on and from 14 September 2010 for a period of 5 years to ABx4 Pty Ltd (**ABx4**).

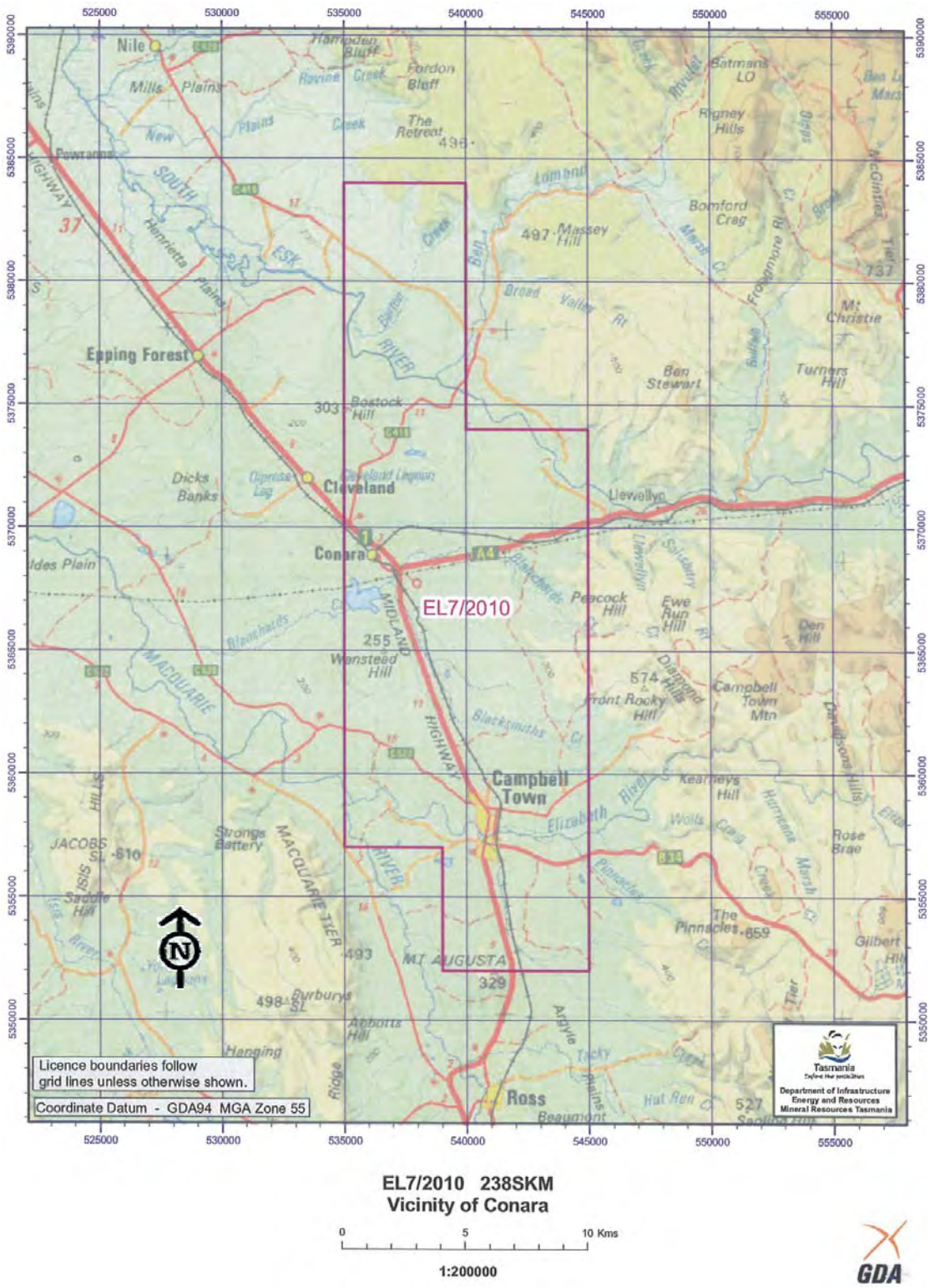
This is the First Annual Report for the reporting period 14 September 2010 - 13 August 2011 incorporating the results of work completed during the first year of tenure.

Total area of the Licence is 238 sq km and its Mineral Category is 1 – Metallic Minerals and Atomic Substances.

Location

The Conara Tenement is located from the edge of Launceston to Campbelltown where there is a rail line which connects all the ports of Tasmania to each other. Ports and rail way lines in Tasmania are generally under capacity and the Tenements are often over the working railway lines. EL 7/2010 is close to the City of Launceston which could offer a wide range of services and skilled work force.

INTRODUCTION Cont



Map 1 – Location Map of EL 7/2010 "Conara"

Tenure, including joint venture details and title transfers

EL 7/2010 "Conara" is 100% owned by ABx4 which is a 100% owned subsidiary of Australian Bauxite Limited.

3 REVIEW OF PREVIOUS WORK

Prior to Current Tenement

Historical references for bauxite in the Conara Tenement are reported by H.B. Owen in his book "Bauxite in Australia", 1954, which was the basis for Initial exploration of the area

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

During current Tenement

This is the first year of exploration in EL 7/2010.

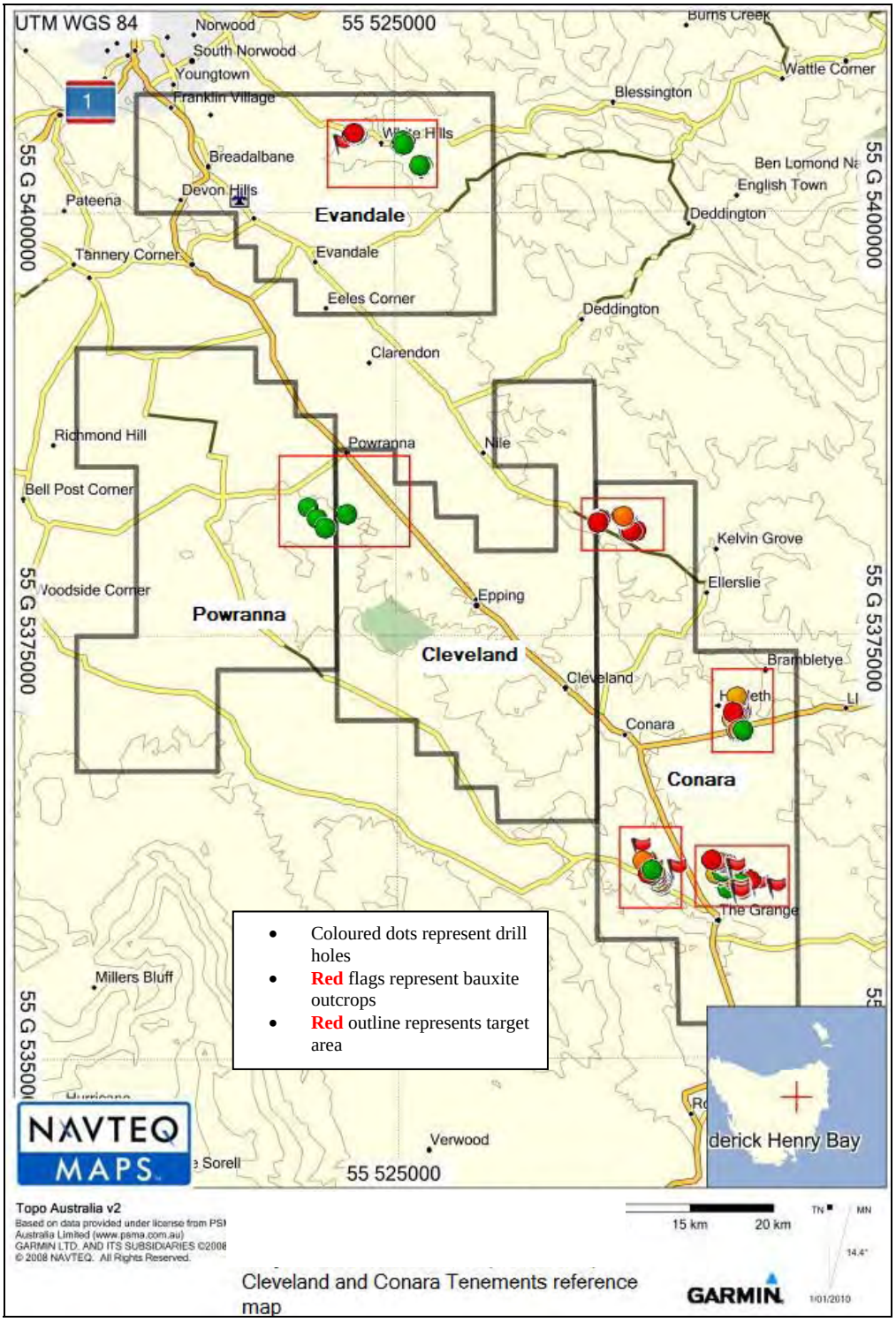
4 EXPLORATION COMPLETED DURING THE REPORTING PERIOD

Literature Review

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

Regional Exploration Activities

Drilling and Sampling: 143 holes / 1,238m



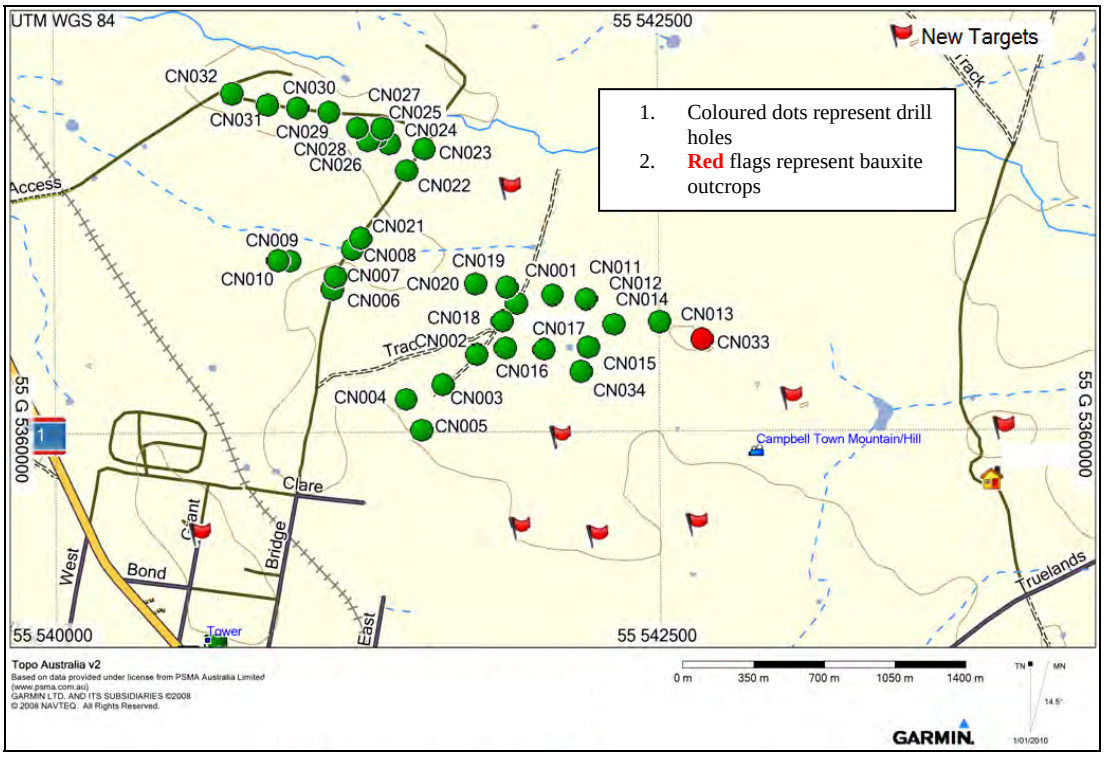
Map 2 –Location of Drill-hole Targets for EL 7/2010 Conara, showing adjacent tenements held by ABx4

EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont

Riccarton Targets

Total holes: 34 (CN001-CN034)

The Riccarton Targets extend from the water tower in the centre of Campbelltown, to the north east about 2km. The first drilling location had a large amount of residual bauxite at surface but there was very little bauxite in drill holes. Very few of the targets were drilled, but the undrilled targets are characterised by large slabs of bauxite at surface which could be more promising.



Map 3 – Riccarton Drill Targets.

Only one hole drilled at Riccarton Target intersected bauxite which was 3m thick. The average grade for bauxite in hole CN033 with a cut off grade of 2.5 A/S ratio is: 33.0% Available Alumina (avl Al_2O_3), 1.2% Reactive Silica (rx SiO_2), 37.1% Total Alumina, 2.1% Total Silica and 34.4 % Iron oxide. The effects of sieving could not be analysed on these samples but the overall recovery was acceptable at 62%.

Figure 1 – Bauxite exposed at Riccarton Target. (Target was nor drilled).

EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont

Figure 2 – Pisolitic Bauxite at Riccarton Target on top of Bauxite slab.

Table 1 – Assay results for hole CN033

Sieved at 0.26mm							Rx & Avl	Total	Recovery %
Sample	Al_2O_3avl	Rx SiO_2	Al_2O_3	SiO_2	Fe_2O_3	LOI	A/S AV/RX	A/S	+0.26mm
CN03301	**32.9**	**1**	**37.5**	**1.92**	**34.8**	**21.27**	**32.90**	**19.53**	**60.6**
CN03302	**35**	**1.2**	**39**	**2.14**	**31.2**	**22.36**	**29.17**	**18.22**	**55.5**
CN03303	**30.9**	**1.3**	**34.9**	**2.19**	**37.2**	**19.97**	**23.77**	**15.94**	**68.9**
CN03304	**22.2**	**12.5**	**35.2**	**13.7**	**27.1**	**18.64**	**1.78**	**2.57**	**50.1**
CN03305	**2.5**	**22.1**	**23.1**	**23.9**	**36.2**	**12.04**	**0.11**	**0.97**	**29.6**

Please see Appendix D for complete assay results.

Potential Tonnes for the Riccarton Target could be between 0.1-0.9 Million, assuming similar grades to hole CN033 are found in new targets areas. Further drilling in the area will help give better estimates.

Fingal Rail Targets

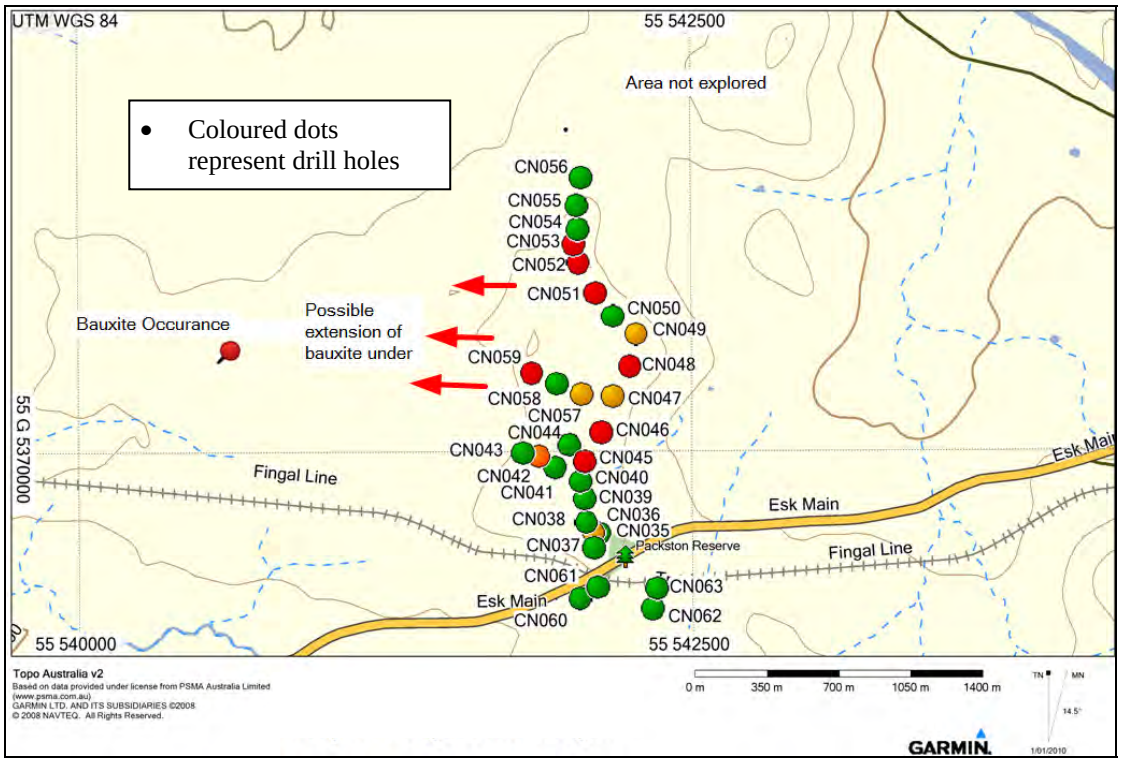
Total holes: 29 (CN035-CN063)

The Fingal Rail Targets are on a large ridge line that occurs on either side of the Esk Main road at the Fingal Rail crossing. Initial surface sampling for this area produced incredible grades. The current target area is 500m x 2km with possible extensions to the west and to the north with bauxite occurring under some sand cover.

The Fingal Rail bauxite is a volcaniclastic hosted deposit with both bauxite and source volcanic boulders found around the area. It is believed to host volcanic because of very similar textures and is very different from Dolerite textures - most notably the characteristic of the size and shape of the vughs are the same. The host volcanic is a light weight grey volcanic with approximately 0.1 -1cm perfectly spherical vughs and is fine grained.

The bauxite at Fingal Rail has an average thickness of bauxite mineralisation of 4m with a maximum thickness of 9m. The average grade for bauxite in holes CN035-CN063 with a cut off grade of 2.5 A/S ratio is: 31.1% Available Alumina (avl Al_2O_3), 6.7% Reactive Silica (rx SiO_2), 39.8% Total Alumina, 8.1% Total Silica and 26.1 % Iron oxide. The bauxite profile at Conara shows a consistent Iron rich layer at surface which is generally 1-3m thick. It was expressed as a soil with minor bauxite, pisolites or a hematite matte texture less bauxite. It also almost always has elevated levels of reactive silica.

EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont



Map 4 – Fingal Rail Target Drill-hole Locations

Table 2 – Assay results for hole CN052

Sieved at 0.26mm							Rx & Avl	Total	Recovery %
Sample	Al_2O_3avl	Rx SiO_2	Al_2O_3	SiO_2	Fe_2O_3	LOI	A/S AV/RX	A/S	+0.26mm
CN05201	2.3	9.9	15.6	24.7	47.3	8.85	0.23	0.63	21.7
CN05202	6.2	9.4	18.8	16.4	48.7	10.69	0.66	1.15	42.7
CN05203	24.3	2.6	30.3	3.86	41.2	17.92	9.35	7.85	74.5
CN05204	26.9	1.9	31.3	2.52	39.4	18.25	14.16	12.42	66.5
CN05205	31.4	0.5	33.8	0.92	36.7	19.56	62.80	36.74	45.4
CN05206	48.4	0.5	49.3	0.75	19.2	27.54	96.80	65.73	52.2
CN05207	45.3	0.6	46.8	0.94	22.4	26.94	75.50	49.79	54.4
CN05208	36.4	2.5	41.5	3.03	27.7	24.79	14.56	13.70	51.3
CN05209	39.2	7.7	47.7	8.57	15.85	25.77	5.09	5.57	30.1
CN05210	45.6	5.2	50.3	5.7	14.45	27.25	8.77	8.82	32.1
CN05211	46.9	5.6	51.9	6.28	12.3	28.15	8.38	8.26	13.8
CN05212	10.2	13.9	26.1	15.7	38.7	16.73	0.73	1.66	2.8

Please see Appendix D for complete assay results.

Upgrading by sieving the bauxite showed excellent results. The recovery was very poor overall at 36% on average but the reduced recovery was directly proportional to the increase in grade. E.g. see Table 3 below.

EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont

Table 3 – Upgrading of samples CN05210

Sample	Al_2O_3avl	Rx SiO_2	Al_2O_3	SiO_2	Fe_2O_3	LOI	Rx & Avl A/S AV/RX	Total A/S	Recovery % +0.26mm
CN05210	**45.6**	**5.2**	**50.3**	**5.7**	**14.45**	**27.25**	**8.77**	**8.82**	**32.1**
CN05210	**22.5**	**12.9**	**35.8**	**13.85**	**26.1**	**20.19**	**1.74**	**2.58**	**100**

Please see Appendix D for complete assay results.

Potential tonnes for the Fingal Rail Target could be between 0.4-1.6 Million, using a cut off grade of 2.5 A/S ratio. The bauxite could extend through to the north or west under the loose sand deposits.

Nile Road Targets

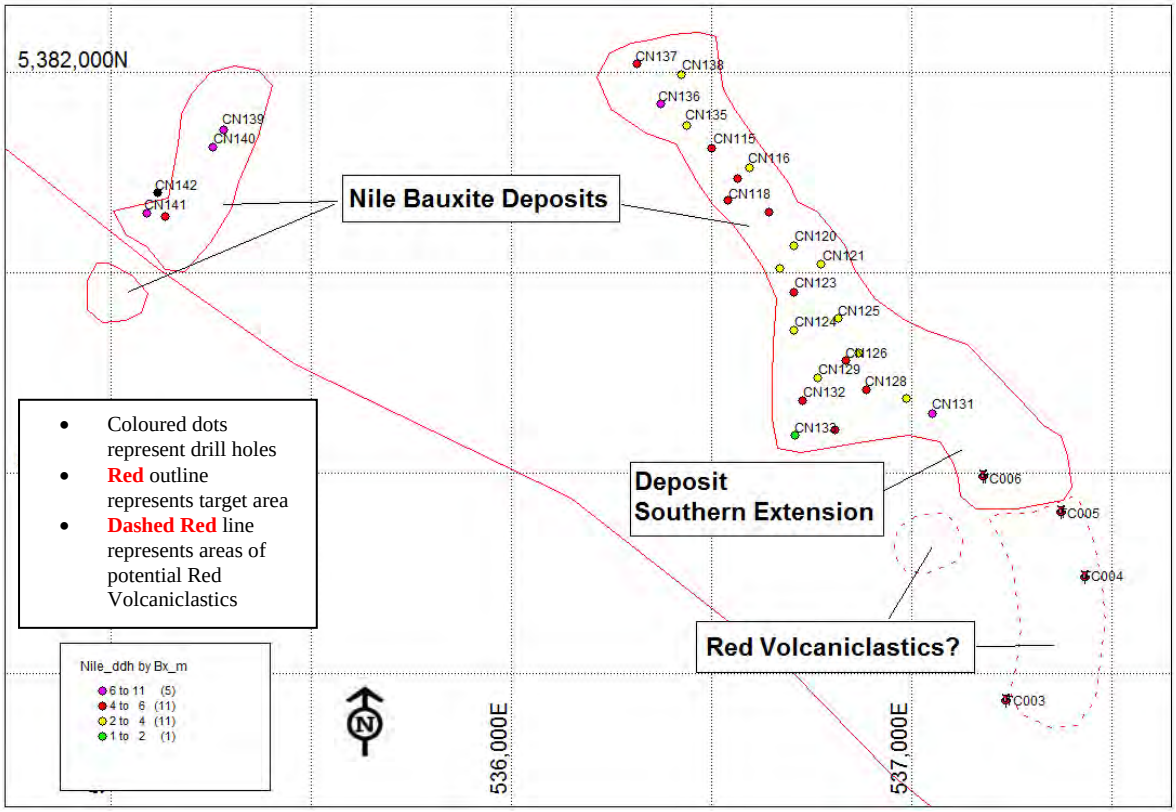
Total holes: 28 (CN115-CN142)

Two bauxite deposits have been drill defined on the Nile Prospect. The largest deposit is located on Donald Cameron's property in an old growth eucalypt forest. The deposit extends north-west for almost 1.2kms and is approximately 2-300m wide (Map 5). The average thickness of bauxite mineralisation was 4m with a maximum of 8m. The deposit contains approximately 1-1.4 Mt of bauxite. The deposit remains open to the south for a further 500m. Sub-cropping bauxite mineralisation is evident for a further 500m. Red oxidized volcaniclastic sediments extend for a further 5-600m south-southeast.

A small bauxite deposit is located on Phillip Mans property 1km west of the largest deposit (Map 5).This deposit is less well defined by five drill holes, four of which intersected probable bauxite mineralisation. This deposit as well as a small hill to the southwest of the road may add an additional 0.8-1Mt of resource.

The bauxite mineralisation occurs as regolith remnants on low ridges and hills formed from weathering/bauxitisation of Tertiary basaltic volcaniclastic deposits. Jurassic dolerite forms the basement to the Tertiary volcanism.

EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont



Map 5 – Nile Drill-holes and bauxite deposits

The average grade for bauxite in holes CN0115-CN143 with a cut off grade of 2.5 A/S ratio is: 28.2% Available Alumina (avl Al_2O_3), 4.3% Reactive Silica (rx SiO_2), 35.5% Total Alumina, 5.4% Total Silica and 33.1 % Iron oxide. The average recovery with sieving was ok with an average of 53%, because detail analysis of the recoveries will show that the first and last 1-2m have low recovery due to loss of reactive silica. The meters of bauxite which are not on the contact show excellent recoveries around 70%. Sieving of the Nile bauxite significantly improves the grade of the bauxite, with a large reduction in reactive silica and large increases in available alumina. The Nile bauxite also contains a large iron zone which appears to be associated to the west of the main target. The smaller target to the west is also mostly iron rich.

Table 4 – Assay results for CN126

Sieved at 0.26mm							Rx & Avl	Total	Recovery %
Sample	Al_2O_3avl	Rx SiO_2	Al_2O_3	SiO_2	Fe_2O_3	LOI	A/S AV/RX	A/S	+0.26mm
CN12601	15.3	3.9	24.6	8.84	49.4	12.67	3.92	2.78	42.3
CN12602	39.6	1.9	44	2.74	21.7	25.11	20.84	16.06	74.4
CN12603	39.4	1.5	43.6	2.42	22.9	25.17	26.27	18.02	78.1
CN12604	52.4	0.6	54	0.88	11.65	29.67	87.33	61.36	80.6
CN12605	30.5	10.1	41.4	11.1	18.1	22.11	3.02	3.73	31.1

Please see Appendix D for complete assay results.

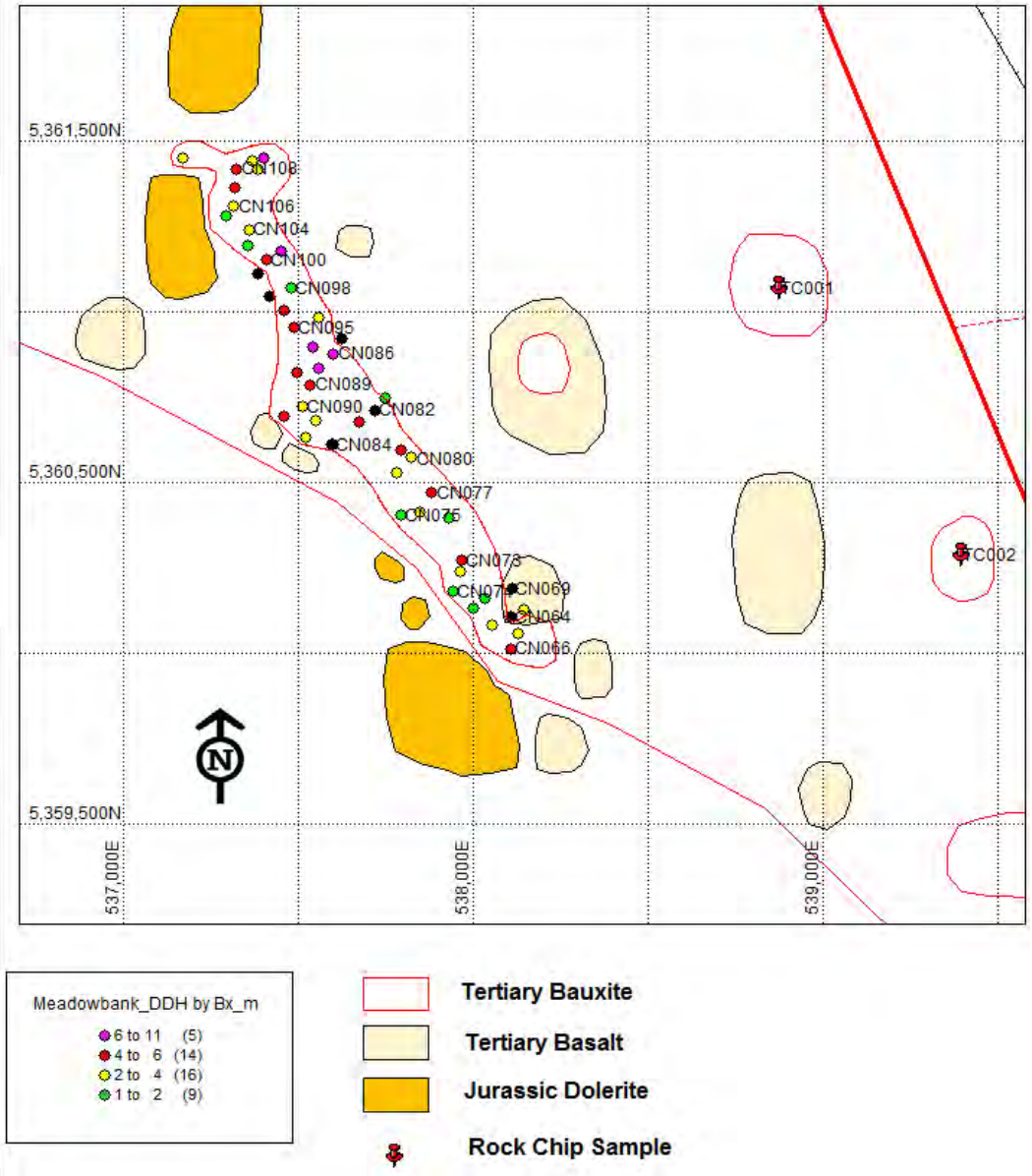
EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont

Medowbank / Rosevale Targets

Total holes: 51 (CN064-CN114)

The drill defined bauxite deposit extends north north-west for almost 2kms and is approximately 200m wide (Map 6). The bauxite mineralisation averaged 4.5m with a maximum thickness of 9m and the deposit contains approximately 1 Mt of bauxite.

Additional resources are likely as the deposit remains open to the north on the Rosedale property for a further 1km possibly adding an additional 1Mt of resource. Four low hills to the east of the deposit also contain bauxite mineralisation that may add another 0.2-0.3Mt. The total resource potential of the Meadowbank-Rosedale deposits is in the order of 1-4Mt.



Map 6 – Meadowbank Geology and Drill-hole Locations

EXPLORATION COMPLETED DURING THE REPORTING PERIOD Cont

The average grade for bauxite in holes CN064-CN114 with a cut off grade of 2.5 A/S ratio is: 32.6% Available Alumina (avl Al_2O_3), 5.8% Reactive Silica (rx SiO_2), 41.2% Total Alumina, 7.1% Total Silica and 25.5% Iron oxide. Recoveries for the Meadow Bank target were quite low averaging 43%. Sieving of samples significantly improved the A/S ratio with increases in Alumina and decreases in Silica with a corresponding increase in Iron. Most of the low recovery is due to a corresponding loss of silica.

Table 5 – Comparison between Sieved and Unsieved assay results for the sample CN00104

Sieved at 0.26mm							Rx & Avl	Total	Recovery %
Sample	Al_2O_3avl	Rx SiO_2	Al_2O_3	SiO_2	Fe_2O_3	LOI	A/S AV/RX	A/S	+0.26mm
CN10004	**40.9**	**4.4**	**47.8**	**5.13**	**17.55**	**26.98**	**9.30**	**9.32**	**44.9**
CN10004	**21.6**	**10.1**	**35.4**	**11.35**	**28.2**	**20.64**	**2.14**	**3.12**	**100**

Please see Appendix D for complete assay results.

5 DISCUSSION OF RESULTS

Only one hole drilled at Riccarton Target intersected bauxite which was 3m thick. The first drilling location had a large amount of residual bauxite at surface but there was very little bauxite in drill holes. Very few of the targets were drilled, but the undrilled targets are characterised by large slabs of bauxite at surface which could be more promising. The average grade for bauxite in hole CN033 with a cut off grade of 2.5 A/S ratio is: 33.0% Available Alumina (avl Al_2O_3), 1.2% Reactive Silica (rx SiO_2), 37.1% Total Alumina, 2.1% Total Silica and 34.4 % Iron oxide. The effects of sieving could not be analysed on these samples but the overall recovery was acceptable at 62%.

The bauxite at Fingal Rail has an average thickness of bauxite mineralisation of 4m with a maximum thickness of 9m. The average grade for bauxite in holes CN035-CN063 with a cut off grade of 2.5 A/S ratio is: 31.1% Available Alumina (avl Al_2O_3), 6.7% Reactive Silica (rx SiO_2), 39.8% Total Alumina, 8.1% Total Silica and 26.1 % Iron oxide. Upgrading by sieving the bauxite showed excellent results. The recovery was very poor overall at 36% on average but the reduced recovery was directly proportional to the increase in grade. Potential tonnes for the Fingal Rail Target could be between 0.4-1.6 Million, using a cut off grade of 2.5 A/S ratio. The bauxite could extend through to the north or west under the loose sand deposits.

Two bauxite deposits have been drill defined on the Nile Prospect. The largest deposit is located on Donald Cameron's property in an old growth eucalypt forest. The deposit extends north-west for almost 1.2kms and is approximately 2-300m wide (Map 5). The average thickness of bauxite mineralisation was 4m with a maximum of 8m. The deposit contains approximately 1-1.4 Mt of bauxite. A small bauxite deposit is located on Phillip Mans property 1km west of the largest deposit (Map 5).This deposit is less well defined by five drill holes, four of which intersected probable bauxite mineralisation. This deposit as well as a small hill to the southwest of the road may add an additional 0.8-1Mt of resource. The average grade for bauxite in holes CN0115-CN143 with a cut off grade of 2.5 A/S ratio is: 28.2% Available Alumina (avl Al_2O_3), 4.3% Reactive Silica (rx SiO_2), 35.5% Total Alumina, 5.4% Total Silica and 33.1 % Iron oxide. The average recovery with sieving was ok with an average of 53%, because detail analysis of the recoveries will show that the first and last 1-2m have low recovery due to loss of reactive silica. The meters of bauxite which are not on the contact show excellent recoveries around 70%. Sieving of the Nile bauxite significantly improves the grade of the bauxite, with a large reduction in reactive silica and large increases in available alumina.

At Meadowbank / Rosevale, the drill defined bauxite deposit extends north north-west for almost 2kms and is approximately 200m wide (Map 6). The bauxite mineralisation averaged 4.5m with a maximum thickness of 9m and the deposit contains approximately 1 Mt of bauxite. The average grade for bauxite in holes CN064-CN114 with a cut off grade of 2.5 A/S ratio is: 32.6% Available Alumina (avl Al_2O_3), 5.8% Reactive Silica (rx SiO_2), 41.2% Total Alumina, 7.1% Total Silica and 25.5% Iron oxide. Recoveries for the Meadow Bank target were quite low averaging 43%. Sieving of samples significantly improved the A/S ratio with increases in Alumina and decreases in Silica with a corresponding increase in Iron. Most of the low recovery is due to a corresponding loss of silica.

6 CONCLUSIONS AND RECOMMENDATIONS

Over the reporting period a total of 143 holes were drilled in the Conara Tenement with a total of 1,238m. Except for Riccarton Target Area, most holes intercepted bauxite mineralization averaging 4m in thickness to a maximum of 9m but varied in grade. A total of 708 samples were selected for analysis by XRF and analysed for available alumina and reactive silica after wet screening at 260 microns.

Recommendations for future work include:

1. Detailed geological mapping, including geomorphological mapping and study of satellite images to define the areas with the best potential for bauxite.
2. Systematic sampling of natural outcrops and exposures in road cuts of lateritic weathering profile.
3. 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.
4. 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).
5. Systematic sampling and drilling at waypoints with best bauxite potential.
6. Sieve testing to find optimal sieve size for Tasmanian bauxites.
7. Detailed analysis of assay results to determine assaying strategy for future drilling.
8. Testing new sample processing techniques to improve silica reduction.

7 ENVIRONMENT

Surface Disturbing Operations:

ABx4's surface disturbing operations are minimal.

Drilling is conducted by an RC drill rig mounted on a light Mitsubishi 12 tonne truck. All drill holes are filled immediately after completion.

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):

Four botanical surveys were conducted by Philip Milner Consultant Pty Ltd covering the following areas within EL 7/2010.

1. Fingal Rail Target Area
2. Meadowbank Rosedale Target Area
3. Nile Road Target Area
4. Campbelltown Target Area

Please refer to Appendix A for the complete Surveys.

Rehabilitation:

All drill holes are filled immediately after completion.

All landholders sign a rehabilitation statement at the completion of each program confirming their satisfaction with the rehabilitation completed.

8 EXPENDITURE

Table 6 – Exploration Activity and Expenditure Table for reporting period 14 September 2010 – 13 August 2011

Exploration Category	Description of Activity	Quantity	Expenditure
Office Administration			
Authority Management	Environment		$4,632
Office Activities	Data Processing & Interpretation		$393
Field Activities	Geological Mapping		$175
	Sampling	core storage	
	Equipment Hire	Vehicle Hire	$1,684
	Accommodation/Field Camp	Days	$17,139
	Travel	Vehicle Hire	
	Land Holder Liaison		
	Field Supplies		$3,667
	Other	Freight Charges	$2,414
	Geophysics		
	Airborne		
	Type	Line kms	
	Ground		
	Type	Line kms	
	Drilling (program cost)		
	RAB/AC	Holes/total metres	
	RC	143 holes for 1,238 metres	$34,325
	Diamond	Holes/total metres	
	Other	Holes/total metres	
Laboratory	ME-XRF 13B, Reactive Silica & Available Alumina	708 Samples	$40,738
Salaries / Wages	Employees	Drilling Supervision & Field Assistance	$4,200
	Contractors	3 personnel Oct2010	$9,362
		Grand Total	**$118,729**

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

9 REFERENCES

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

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on

EL 7/2010 – CONARA

APPENDIX A – BOTANICAL SURVEYS

ABx4 Pty Ltd

FINGAL RAIL TARGET AREA

BOTANICAL & FAUNA HABITAT SURVEY OF PROPOSED DRILL SITES

For ABx4 PTY LTD

11th October 2010

PHILIP MILNER LANDSCAPE CONSULTANT PTY LTD

144 Allisons Road, LOWER BARRINGTON
POSTAL: C/O Post Office, BARRINGTON, 7306
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Mobile: 0417 052 605
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Email: philip.milner@bigpond.com

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 immediate east of Conara on the property of T. Jones to the south of Esk Main Road and of B Thorald to the north of Esk Main Road.

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 licence 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 Areas:

MAP REF: Tasmap 1:25,000, Sheet No. 5436, Diamond

BIOREGION: Northern Midlands

FINGAL RAIL TARGET AREA:

The following proposed drill sites are located on the property of T. Jones south of Esk Main Rd.

DRILL PAD No. 142: GRID REF: 542084E – 5369313N
143: GRID REF: 542033E – 5369279N
144: GRID REF: 542346E – 5369230N
145: GRID REF: 542336E – 5369338N

The following proposed drill sites are located on the property of B. Thorald north of Esk Main Road.

DRILL PAD No. 146: GRID REF: 542116E – 5369537N
147: GRID REF: 542135E – 5369590N
148: GRID REF: 542095E – 5369601N
149: GRID REF: 542060E – 5369580N
150: GRID REF: 542071E – 5369673N
. 151: GRID REF: 542064E – 5369771N
152: GRID REF: 542048E – 5369846N
153: GRID REF: 542062E – 5369947N
154: GRID REF: 542131E – 5370084N
155: GRID REF: 542179E – 5370265N
156: GRID REF: 542246E – 5370408N
157: GRID REF: 542276E – 5370572N
206: GRID REF: 541942E – 5369922N
207: GRID REF: 541875E – 5369970N
208: GRID REF: 541800E – 5369982N
209: GRID REF: 541980E – 5370033N
210: GRID REF: 542051E – 5370272N
211: GRID REF: 541951E – 5370330N
212: GRID REF: 541841E – 5370387N
213: GRID REF: 541792E – 5370428N
214: GRID REF: 542165E – 5370655N
215: GRID REF: 542107E – 5370761N
216: GRID REF: 542054E – 5370907N

(All Grid References MGA Zone 55 GDA94)

Site Description: The exploration target area is within an area of remnant forest which is surrounded on three sides by cleared farmland utilized for grazing and some Canola cropping.

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 Pad site No.155: GRID REF: 542179E – 5370265N

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"	Most of the western half of the study area comprises this community
Highland *Poa* Grassland	GPH / yellow with vertical lines	One small localized area near the centre of the survey area
Agricultural Land	FAG / cream	Much of the eastern half of the study area comprises agricultural land (improved pasture)

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 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.*

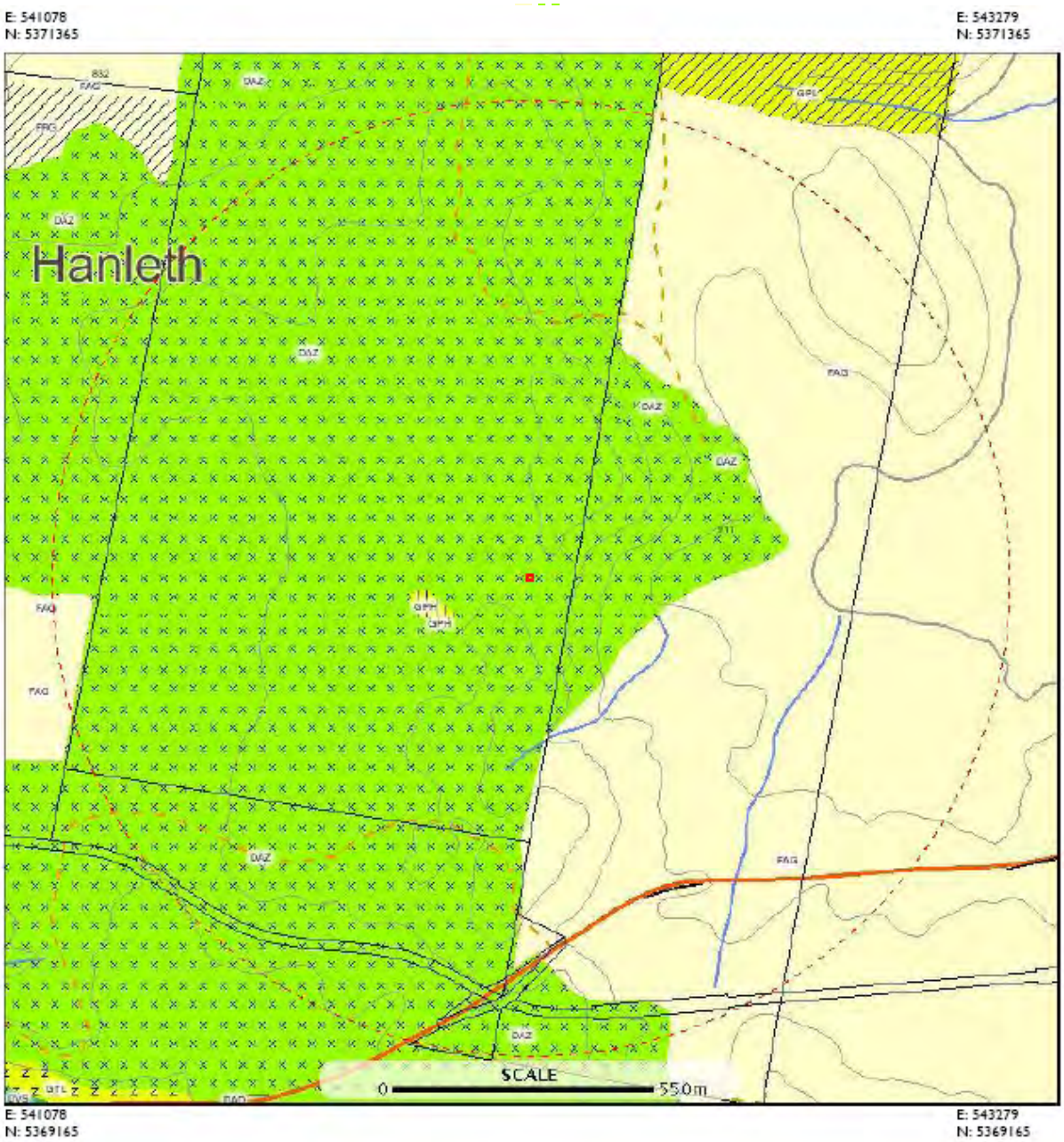


FIGURE 1: Vegetation communities as per TasVeg mapping program within 1,000 metres of reference point Drill Pad Site No.155: GRID REF: 542179E – 5370365N.

CODE: DAM ……...*Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits,
FAG …….. Agrucultural Land
GPH …….. Highland *Poa* Grassland

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

No other natural vegetation communities of conservation significance are mapped as occurring within the study area.

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.

- *Arthropodium strictum* the Chocolate Lily is listed as being rare under the Tasmanian Act with one record from 1984 and a second undated record.
- *Caesia calliantha* the Blue Grasslily is listed as being rare under the State Act with three 1984 records.
- *Caladenia filamentosa* Daddy Longlegs is a spider orchid which is considered to be rare in Tasmania with one 1986 record from the locality.
- *Pterostylis squamata* the Ruddy Greenhood orchid is considered to be rare in Tasmania with three records from the 1980's from this locality.
- *Stackhousia subterranea* (syn. *S. gunnii*) Grassland Candles is listed as being endangered under the Tasmanian Act with one record from 1988 and a second record from 1995.
- *Tricoryne elatior* Yellow Rushlily is listed as being vulnerable under the Tasmanian Act with two 1984 records from the locality. There are a further five records from within 3,000 metres of the reference point.
- *Viola cunninghamii* the Alpine Violet is rare in Tasmania with a single 1984 record from the locality.

A further 7 species of listed threatened flora are recorded on the database as occurring within 3,000 metres of the study area reference point.

- *Austrostipa scabra* subsp *scabra* Rough Speargrass is provisionally listed as being rare in Tasmania with 4 records from the locality.
- *Glycine latrobeana* Clover Glycine *Glycine latrobeana* the Clover Glycine is listed as being vulnerable under the Tasmanian Act and under the Commonwealth Act. There is a single 2005 record from the locality.
- *Hyalosperma demissum* the Moss Sunray is an endangered species in Tasmania with a single record from the locality dated 1999.
- *Hypoxis vaginata* var *vaginata* the Sheathing Yellowstar is provisionally listed as being rare in Tasmania. There is one 2005 record on the database.

- *Scleranthus fasciculatus* the Spreading Knawel is listed as being vulnerable in Tasmania with a single 2005 record from the locality.
- *Triptilodiscus pygmaeus* (syn *Helipterum australe*) the Dwarf Sunray is considered to be vulnerable in Tasmania. TThere is one 2005 record from the locality.
- *Vittadinia burbidgeae* the Smooth New-Holland Daisy is provisionally listed as being rare in Tasmania. There is one 2005 record from the locality.

The following 13 threatened plant species have been recorded from between 3,000 and 5,000 metres from the location.

- *Aphelia gracilis* the Slender Fanwort (rare Tas)
- *Aphelia pumilio* the Dwarf Fanwort (rare Tas)
- *Austrodanthonia popinensis* Blue Wallabygrass (endangered Tas & Nationally)
- *Austrostipa nodosa* Knotty Speargrass (rare Tas)
- *Callitris oblonga* subsp *oblonga* the South Esk Pine (vulnerable Tas, endangered Nationally)
- *Colobanthus curtisiae* the Grassland Cupflower (rare Tas, vulnerable Nationally)
- *Gratiola pubescens* the Hairy Brooklime (vulnerable Tas)
- *Isoetes elatior* the Tall Quillwort (rare Tas)
- *Leucochrysum albicans* subsp *albicans* the Grassland Paperdaisy (endangered Tas & Nationally)
- *Muehlenbeckia axillaris* Matted Lignum (rare Tas)
- *Pultenaea humilis* the Dwarf Bushpea (vulnerable Tas)
- *Pultenaea prostrata* the Silky Bushpea (vulnerable Tas)
- *Vittadinia gracilis* the Woolly New Holland Daisy. (rare Tas)
-

THREATENED FAUNA:

Two species of threatened fauna listed under the above Acts are recorded on the database as occurring within 5,000 metres of the study area. No species have been recorded from within 500 metres of the study area reference point

- The Tasmanian Devil *Sarcophilus harrisii* is now listed as being endangered under both State and Commonwealth Acts. There are three records of the species from within 5,000 metres from the study area reference point, from 1974 and 1976. The accuracy of the recorded locations are +/- 1850 metres.
- 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 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 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.

- 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 over two days on Friday the 1st and Thursday 7th of October 2010.

Methodology: Each of the proposed drill sites was plotted and surveyed on foot. An area of approximately 50 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 early spring when many grassland species are not yet in flower or fruit. 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:
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 although White Gum *Eucalyptus viminalis* and Cabbage Gum *Eucalyptus pauciflora* were both present as co-dominants or secondary trees within the canopy. *Eucalyptus viminalis* was the dominant species in the vicinity of Drill Sites 142 to 145 which are located to the south of the Esk Main Road and the ground stratum tended to be more grassy and dense than the balance of the study area. *Eucalyptus pauciflora* formed the dominant canopy tree in the vicinity of Drill Site 206 and in this location the ground layer was composed primarily of small shrubs and heath-like species.

The tree density and age class varied greatly across the study area with numerous mature old-growth trees present amongst semi mature trees and younger regrowth which has undoublably been influenced by land use activities over the years. Some locations had strong regrowth of Silver Wattle *Acacia dealbata* probably up to 15 to 20 years old which made up much of the smaller understorey trees along with *Allocasuarina littoralis* and *Exocarpus cupressiformis*. The ground layer vegetation varied greatly in density and in particular along the main access track was quite short and sparse and made up of grass and forb species. The ground layer tended to be more dense and higher in moister locations where species such as *Lomandra longifolia* and *Lepidosperma concavum* were more prevalent.

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.

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

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

- *Hypoxis vaginata* var *vaginata* the Sheathing Yellow-star was observed in the vicinity of Drill Site 145 GRID REF: 542336E – 5369338N and
  Drill Site 213 GRID REF: 541792E – 5370428N
  Both were locations that remained damp in winter. The species is provisionally listed as being rare under the Tasmanian Act. The location of each of those two drill sites should be relocated a short distance to avoid the small (about 2 cm across) bright yellow star-like flowers on short stems up to 5 cm in height. See following photos. The species was observed in other locations within the survey area but away from proposed drill sites.

None of the other threatened species known to occur within 500 metres of the study area reference point was observed during the survey.
Pterostylis squamata the Ruddy Greenhood (orchid) and the Yellow Rushlily *Tricoryne elatior* are both summer flowering species and would not be flowering at the time of the survey. Both species have been recorded previously within 500 metres of the study area reference point.
The native grasses were also not yet flowering at the time of the survey and some identifications were not possible at this time.

THREATENED FLORA: *Hypoxis vaginata* var *vaginata* Sheathing Yellow-star

FLORA OF CONSERVATION SIGNIFICANCE:

One species of particular bio-geographical interest was observed during the survey, but was not located at any drill site.

- *Caladenia deformis* or Blue Fairies is a small blue flowered orchid which usually has a coastal or near coastal distribution, so this location extends the known range of the species to a more inland location. Four flowering plants were observed during the survey at GRID REF: 541797E – 5370398N.
  The species however is not listed as threatened and is considered to be well represented in reserves.

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

THREATENED FAUNA HABITAT:
The mature old-growth Eucalypts which occur as occasional trees throughout the survey area are important potential habitat for many species of fauna including a number of threatened species. Such trees are critical habitat for mammals and birds which require large trees or trees with hollows for part of their life cycle and includes threatened species such as the Masked Owl (requires large hollows) and the Wedgetailed Eagle which requires large trees for nest support. Tasmanian Devils and Spotted-tailed Quolls can also utilize basal tree hollows as dens. The exploration program as proposed will not impact on any standing trees or threaten any such potential fauna habitat.

ENVIRONMENTAL WEEDS:
Two 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.
Blackberry *Rubus fruticosus* was observed in the roadside parking area adjacent to Esk Main Road but was not observed in the actual target areas. The weed does not present any issues for the drilling program.

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 a significant area of remnant forest which is listed as a threatened native vegetation community. There is a high diversity of grassland species and forbs within the ground stratum and a number of mature old-growth trees including trees with hollows are present in the tree canopy.

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 previous disturbance such as vehicular track formation, a number of gravel pits and wood cutting the area still retains its high diversity of plant species and is of 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 no impact on the standing trees.

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 pad sites.

Ensure the adequate containment within each drill pad site of all silt, 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:

One species of threatened flora was observed during the field survey. *Hypoxis vaginata* var *vaginata* was observed in the vicinity of Drill Sites No.145 and No.213.

Both Drill sites should be relocated a short distance to avoid impacting on the small (about 2cm across) bright yellow star-like flowers which are on short stems up to 5cm in height.

THREATENED FAUNA:

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

THREATENED FAUNA HABITAT:
The key potential habitat for threatened species in the target area are the mature old-growth Eucalypts which possess hollows. 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:
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 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.

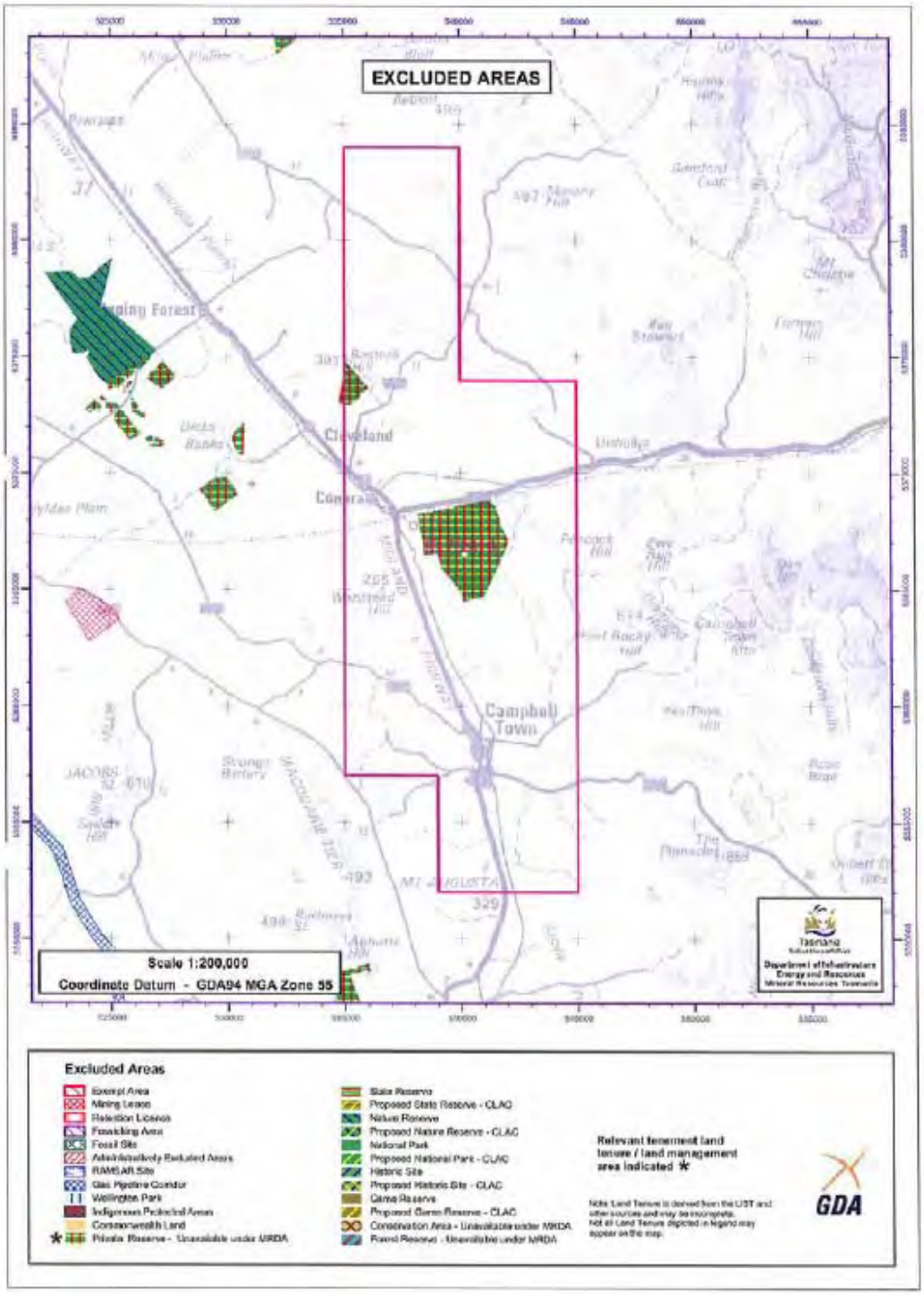
DOMINANT TREES	COMMON NAME	FREQUENCY
Eucalyptus amygdalina	Black Peppermint	abundant
Eucalyptus pauciflora	Cabbage Gum	common
Eucalyptus viminalis	White-gum	common
UNDERSTOREY TREES AND TALL SHRUBS		
Acacia dealbata	Silver wattle	common
Acacia melanoxylon	Blackwood	uncommon
Acacia mearsii	Black Wattle	uncommon
Allocasuarina littoralis	Black Sheoak	occasional
Banksia marginata	Silver Banksia	occasional
Exocarpus cupressiformis	Native Cherry	occasional
MEDIUM SHRUBS		
Bursaria spinosa	Prickly Box	uncommon
SMALL SHRUBS		
Astroloma humifusa	Cranberry Heath	common
Bossiaea cinerea	Showy Bossia	localized
Bossiaea prostrate	Creeping Bossia	common
Dillwynia sericea	Showy Parrotpea	uncommon
Epacris impressa	Common Heath	uncommon
Gonocarpus tetragynus	Common Raspwort	occasional
Goodenia lanata	Trailing Native-primrose	common
Hibbertia humifusa	Hairy Guineaflower	localized
Hibbertia prostrata	Prostrate Guineaflower	occasional
Hibbertia riparia	Erect Guineaflower	common
Hovea heterophylla	Winter Purplepea	localized
Kennedia prostrate	Running Postman	common
Leucopogon virgatus	Twiggy Beardheath	common
Lissanthe strigosa	Peachberry Heath	common
Pimelea humilis	Dwarf Riceflower	occasional
Pultenaea pedunculata	Matted Bushpea	occasional

APPENDIX 1 (cont)
Vegetation Communities and Species Recorded.

CLIMBING PLANTS		
Comesperma volubile	Blue Love Creeper	occasional
HERBS & HERB-LIKE PLANTS		
Acaena echinata	Sheeps Burr	occasional
Asperula conferta	Common Woodruff	uncommon
Chrysocephalum apiculatum	Common Everlasting	common
Crassula sieberiana	Rock Stonecrop	localized
Craspedia glauca	Common Billybuttons	occasional
Dichondra repens	Kidneyweed	occasional
Drosera peltata subsp *peltata*	Pale Sundew	common
Euchiton collinus	Common Cottonleaf	common
Geranium solanderi	Southern Cranesbill	occasional
Helichrysum scorpioides	Curling Everlasting	occasional
Hydrocotyle callicarpa	Tiny Pennywort	common
Lagenophora stipitata	Bluebottle Daisy	occasional
Leptorhynchos squamatus	Scaly Buttons	common
Linum marginale	Native Flax	occasional
Millotia tenuifolia	Soft Bowflower	common
Oxalis perennans	Grassland Woodsorrel	common
Senecio quadridentatus	Cotton Fireweed	uncommon
Veronica calycina	Hairy Speedwell	localized
Viola betonicifolia	Showy Violet	localized
Viola hederaceae	Ivy-leafed Violet	occasional
Wahlenbergia sp.	A Native Bluebell	occasional
ORCHIDS		
Caladenia carnea	Pink Fingers	common
Caladenia deformis	Blue Fairies	very localized
Cyrtostylis reniformis	Small Gnat-orchid	common
Glossodia major	Waxlip	common
Pterostylis nana	Dwarf Greenhood	localized
Thelymitra spp.	Sun Orchids	common
GRASSES & GRAMINOIDS		
Austrodanthonia spp.	Wallaby Grasses	common
Dianella revoluta	Spreading Flaxlily	common
Ehrharta stipoides	Weeping Grass	common
Hypoxis vaginata var *vaginata*	Sheathing Yellow-star	occasional
Lepidosperma inops	Fan Sedge	common
Lepiosperma concavum	Sand Swordsedge	common
Lomandra longifolia	Mat-rush	common

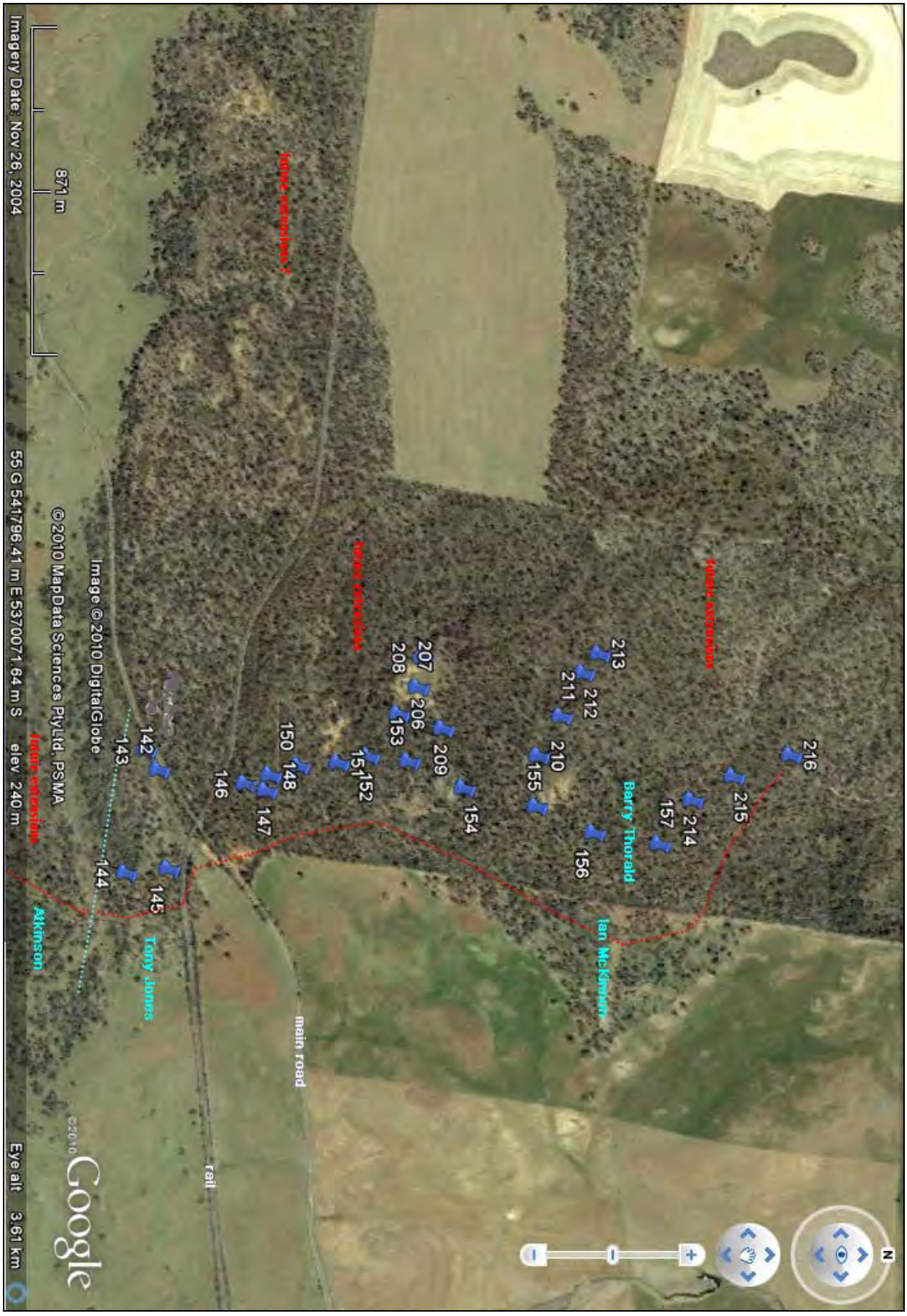
APPENDIX 1 (cont)
Vegetation Communities and Species Recorded

GRASSES & GRAMINOIDS (cont)		
Lomandra nana	Dwarf Mat-rush	occasional
Luzula sp.	A Woodrush	occasional
Poa rodwayi	Velvet Tussockgrass	common
Poa labillardierei	Silver Tussockgrass	common
Schoenus apogon		
Themeda triandra	Kangaroo Grass	occasional
Thysanotus patersonii	Twining Fringelily	uncommon
Wurmbea dioica	Early Nancy	common
FERNS & ALLIED PLANTS		
Pteridium esculentum	Bracken	common
ENVIRONMENTAL WEEDS		
Centaurium erythraea	Centaury	common
Cerastium holosteneoides	Mouse-eared Chickweed	occasional
Ulex europaeus	Gorse	occasional
Reseda luteola	Wild Mignonette	localized
Rubus fruticosa	Blackberry	localized



MAP 1: Exploration License Area with target area to the east of Conara off the Esk Main Road

BOTANICAL AND FAUNA HABITAT SURVEY FOR ABx4 PTY LTD: FINGAL RAIL TARGET AREA



Google Earth Satellite Image on previous page

- proposed drill sites for 1st stage (surveyed by consultant Phillip Milner, Leon Hawker and I on 1 and 5 Oct 2010) shown as **blue pins** (see map on next page for topographic contours)
- **future extensions**: targets for drill testing in 2nd Stage if results of 1st Stage are encouraging (as regards extensions toward west, bauxite may be present under thin cover of loose sand)

PHOTO 1 ……. Drill Pad Site 144. Open forest with sparse grassy ground layer

PHOTO 2 …… Main access track near Drill Site 214

PHOTO 3 …… Vicinity of Drill Site 212

PHOTO 4 …… *Eucalyptus pauciflora* vicinity of Drill Site 206

PHOTO 5 ……. Typical ground layer vegetation

CAMPBELLTOWN EXPLORATION PROGRAM

BOTANICAL & FAUNA HABITAT SURVEY OF PROPOSED DRILL SITES ON THE PROPERTY OF "MEADOWBANK"

For ABx4 PTY LTD

20th October 2010

PHILIP MILNER LANDSCAPE CONSULTANT PTY LTD

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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 the area to the immediate west of Campbelltown on the property of "Meadowbank".
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 Areas:

MAP REF: Tasmap 1:25,000, Sheet No. 5236, Conara

BIOREGION: Northern Midlands

- Campbelltown "Meadowbank" target area: proposed drill site locations.

DRILL PAD GRID REFERENCES

No. 220 : 537569E – 5360885N
221 : 537621E – 5360906N
222: 537643E – 5360963N
223 : 537667E – 5361015N
224 : 537706E – 5361055N
225 : 537736E – 5361094N
226 : 537786E – 5361124N
227 : 537660E – 5361160N
228 : 537583E – 5361227N
229 : 537527E – 5361332N
. 230 : 537557E – 5361371N
231 : 537472E – 5361425N
232 : 537507E – 5361600N
233 : 537511E – 5361646N
234 : 537472E – 5361631N
235 : 537429E – 5361608N
264 : 537262E – 5361627N
265 : 537415E – 5361549N
266 : 537414E – 5361468N
267 : 537442E – 5361490N
268 : 537469E – 5361378N
269 : 537495E – 5361294N
270 : 537532E – 5361229N
271 : 537576E – 5361160N
272 : 537602E – 5361114N
273 : 537601E – 5361017N
274 : 537658E – 5361081N
275 : 537727E – 5360958N
276 : 537668E – 5360871N
277 : 537642E – 5360840N
278 : 537713E – 5360806N
279 : 537784E – 5360876N
280 : 537832E – 5360884N
281 : 537872E – 5360932N
282 : 537944E – 5360756N
283 : 537906E – 5360762N
284 : 537888E – 5360717N
285 : 537958E – 5360602N
286 : 538002E – 5360650N
287 : 537904E – 5360583N
289 : 538054E – 5360367N
290 : 538077E – 5360423N
291 : 538082E – 5360458N
292 : 538122E – 5360478N

293 : 538220E – 5360373N
294 : 538266E – 5360316N
295 : 538258E – 5360245N
296 : 538219E – 5360198N
297 : 538210E – 5360289N
298 : 538169E – 5360262N
299 : 538151E – 5360348N
300 : 538104E – 5360320N

(All Grid References MGA Zone 55 GDA94)

Site Description: All of the above proposed drill pad sites are within the property of "Meadowbank" to the immediate west of Campbelltown and are to be accessed from Macquarie Road.

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.268: GRID REF: 537469E – 5361378N

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 point.

VEGETATION COMMUNITY	TasVeg Code / Map colour	EXTENT IN STUDY AREA
Midlands Woodland Complex	DMW / pale green with "v"	Small scattered remnants across the study area
Lowland Grassland Complex	GCL / bright yellow/green	Two small areas in the west & SW quadrats of the study area
Agricultural Land	FAG / cream	Almost all of the study area comprises agricultural land

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

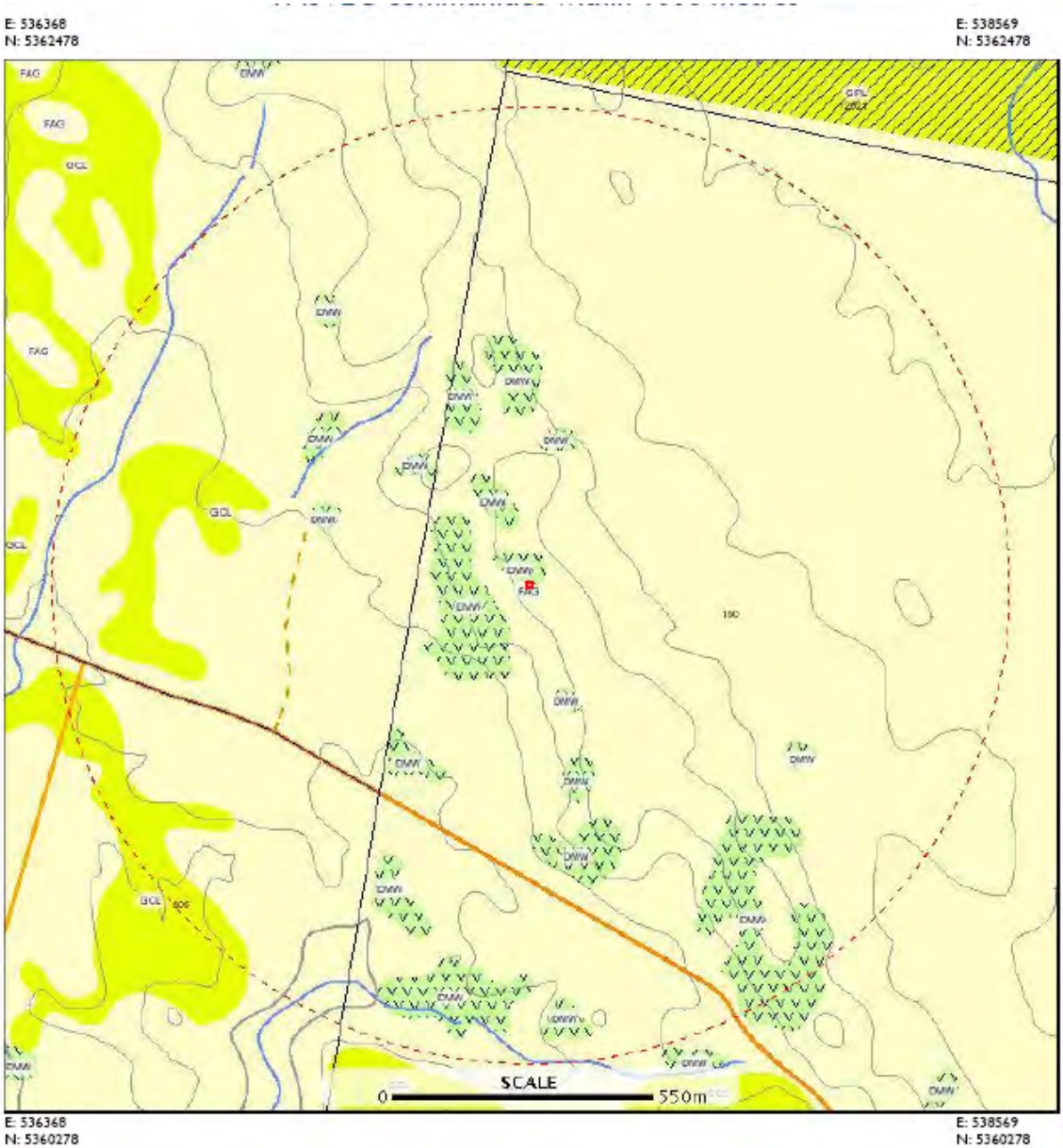


FIGURE 1: Vegetation communities as per TasVeg mapping program within 1,000 metres of reference point Drill Site 268: GRID REF: 537469E – 5361378N

CODE: DMW ……...Midlands Woodland Complex
GCL ……Lowland Grassland Complex
FAG …….. Agricultural Land

THREATENED VEGETATION COMMUNITIES:

- One natural vegetation communitiy which is mapped within the study area is listed as threatened under the Tasmania *Nature Conservation Act 2002*. Midlands Woodland Complex is listed as an endangered community under the Act and is mapped as occurring as small scattered remnants across the study area.
- Lowland Grassland Complex is listed as a threatened vegetation community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. There are two localized areas of this vegetation mapped about 800 metres to the west and south-west of the reference point.

VEGETATION COMMUNITIES OF CONSERVATION SIGNIFICANCE

No other natural vegetation communities of conservation significance are mapped as occurring within the study area.

THREATENED FLORA:

One species of threatened flora listed under the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* is recorded on the "Natural Values Atlas" database as occurring within 1,000 metres of the study area reference point.

- *Scleranthus fasciculatus* Spreading Knawel is listed under the Tasmanian act as being vulnerable. There is one 1994 record from the southern side of Macquarie Road. There are a further three records from within 3,000 metres.

Three species are recorded from within 2,000 metres of the study area reference point.

- *Dianella amoena* the Grassland Flaxlily is listed as being rare under the Tasmanian Act and endangered Nationally. There is one undated record on the western side of the Midlands Highway about 1,800 metres from the study area reference point. There are a further three records from within 3,000 metres and three within 5,000 metres.
- *Vittadinia gracilis* the Woolly New-Holland Daisy is rare in Tasmania. There is one undated record from the same location as the Grassland Flaxlily above. There are a further four records of the species within 3,000 metres and 5 within 5,000 metres.
- *Xerochrysum bicolor* the East-coast Everlasting is listed as being rare under the State Act. There is one 1984 record from the southern side of Macquarie Road about 1,800 metres from the study area reference point. There are a further three records from within 3,000 metres.

A further 17 species of threatened flora are recorded on the database as occurring within 3,000 metres of the study area reference point.

- *Asperula scoparia* var *scoparia* the Prickly Woodruff is listed as rare under the Tasmanian Act. There is one undated record from the area.
- *Austrostipa bigeniculata* the Double-jointed Speargrass is listed as rare under the Tasmanian Act. There are two 1984 records on the database.
- *Austrostipa nodosa* the Knotty Speargrass is listed as being rare under the Tasmanian Act. There are two undated records from the area and a further 3 records within 5,000 metres from between 1984 and 1994.

- *Carex tasmanica* Curly Sedge is listed as being vulnerable nationally although it is not listed under the Tasmanian Act. There are two records, one dated 1948 and one undated, and a further 3 records from within 5,000 metres.
- *Colobanthus curtisae* the Grassland Cupflower is listed as being rare under the Tasmanian Act and vulnerable nationally. There are two 1996 records from the area and a single record from within 5,000 metres.
- *Glycine latrobeana* the Clover Glycine is listed as being vulnerable under both the Tasmanian and the Commonwealth Acts. There is one record from 1996 and two from 2009 and a further single record from within 5,000 metres.
- *Haloragis heterophylla* the Variable Raspwort is a species which is listed as being rare under the State Act. There is one 2001 record from the locality.
- *Prasophyllum incorrectum* the Golfers Leek Orchid is largely restricted to the Campbelltown Golf Course and is considered to be endangered under the State Act and critically endangered nationally. One record from 1999.
- *Prasophyllum tunbridgense* the Tunbridge Leek Orchid is restricted to two small areas,one near Tunbridge and one north of Campbelltown. The species is listed as endangered under both State and Commonwealth Acts. There is one record from this locality from between 1996.
- *Pterostylis zeigleri* Cape Portland Greenhood is an orchid which is considered to be vulnerable both in Tasmania and nationally. There is one 1996 record from the locality and a further 6 records within 5,000 metres..
- *Pultenaea prostrata* the Silky Bushpea is considered to be vulnerable in Tasmania. There are two 1996 records from the area.
- *Scleranthus diander* the Tufted Knawel is listed as being vulnerable in Tasmania. There is one undated record from the locality.
- *Senecio squarrosus* the Leafy Fireweed is listed as being rare in Tasmania and there is a single 2001 record from the area.
- *Stackhousia subterranea* (syn. *S. gunnii*) Grassland Candles is an endangered species in Tasmania. There are 5 records from the area from between 1984 and 2009 and a further 4 records from within 5,000 metres.
- *Stuckenia pectinata* Fennel Pondweed is rare in Tasmania with two 1948 records.
- *Triptilodiscus pygmaeus* (syn *Helipterum australe*) the Dwarf Sunray is considered to be vulnerable in Tasmania. There is a single 2009 record from the area.
- *Vittadinia muelleri* the Narrow-leaf New-Holland Daisy is also rare in Tasmania. There are two undated records from the area, and a further two records from within 5,000 metres.

A further 9 species of threatened flora are recorded on the database as occurring within 5,000 metres of the study area reference point.

- *Acacia axillaris* the Midlands Wattle is listed as being vulnerable under both the Tasmanian and Commonwealth Act.There are 5 records of the species within 5,000 metres from between 1982 and 1994.
- *Austrostipa scabra* Rough Spear-grass is rare under the State Act. There are 3 records from 2005.

- *Caladenia anthracina* Black-tip Spider Orchid is listed as being endangered under the Tasmanian Act and critically endangered nationally. There are 4 records from between 1996 and 2007.
- *Calocephalus lacteus* Milky Beautyheads are listed as being rare in Tasmania although it may qualify for delisting after further surveys as it is relatively widespread. One record from 1992.
- *Epacris acuminata* the Claspleaf Heath is listed as being rare in Tasmania and vulnerable nationally. There is one 1990 record from the locality.
- *Ranunculus prasinus* the Midlands Buttercup is listed as being endangered under both the State Act and the Commonwealth Act. There are 3 records from between 1993 and 2004.
- *Velleia paradoxa* the Spur Velleia is considered to be vulnerable in Tasmania. There are 4 records from between 1992 and 2009.
- *Vittadinia cuneata* var *cuneata* the Fuzzy New-holland Daisy is considered to be rare in Tasmania. There are two records from 1992 and 1993.
- *Wilsonia rotundifolia* the Roundleaf Wilsonia is rae in Tasmania. There is one 1978 record and 3 from 2005.

THREATENED FAUNA:

Three species of threatened fauna listed under the above Acts are recorded on the database as occurring within 5,000 metres of the study area. No species have been recorded from within 1,000 metres of the study area reference point

- The Tasmanian Devil *Sarcophilus harrisii* is now listed as being endangered under both State and Commonwealth Acts. There are 4 records from between 1974 and 1980. The accuracy of the recorded locations is vary from 1850 to 4000 metres.
- The Spotted-tailed Quoll *Dasyurus maculatus* subsp *maculatus* is Listed as being rare in Tasmania and vulnerable under the Commonwealth Act. There is one 1991 record from the locality.
- The Eastern-barred Bandicoot *Parameles gunnii* is relatively widespread in Tasmania but considered to be vulnerable nationally. There is one 1992 record from the locality.

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

- 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.
- The Tasmanian subspecies of Masked Owl *Tyoto novaehollandiae* subsp *castanops* is provisionally listed as being endangered in Tasmania and provisionally listed as being vulnerable nationally. This bird requires large 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 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 listed under both State and Commonwealth Acts as being vulnerable. There is one record from about 1960 from the area.
- The Catadromus Carabid Beetle *Catadromus lacordairei* is listed as a vulnerable species under the Tasmanian Act.

Field Survey:
The field survey was undertaken on Thursday the 14th of October 2010.

Methodology: Each of the proposed previously plotted drill sites were surveyed. An area of 20 metres diameter was surveyed around any site with remnant native vegetation. The target area and proposed drill sites was accessed from existing roads, vehicular tracks across paddocks.
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 early spring when many grassland species are not yet in flower or fruit. 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:
VEGETATION COMMUNITIES**:**
All proposed drill sites grid referenced on the "Meadowbank" property except for those referred to below are located within areas of improved pasture which has been previously ploughed and cultivated, and sown with pasture grasses.
No remnant indigenous vegetation was present within a 20 metre diameter of each of these drill pad sites.
None of the proposed drill sites will impact on the remnant trees or on any remnant ground stratum vegetation.

DRILL SITE 282 and the nearby 283 and 284 are located adjacent to the ridge where the soil was obviously too shallow and the site too rocky to plough. A small area of remnant native grassland remains in this location although it has been heavily impacted by sheep grazing. The location of each of the three drill hole sites should be adjusted if necessary to ensure they are no closer than 20 metres to the edge of the native grass community.
282: GRID REF: 537944E – 5360756N
283: GRID REF: 537906E – 5360762N
284: GRID REF: 537888E – 5360717N

THREATENED VEGETATION COMMUNITIES:
One vegetation community listed under the Tasmanian *Nature Conservation Act 2002* was present on the site. The community known as Midlands Woodland Complex was present as scattered remnants across the survey area but has been heavily impacted by agricultural activities and reduced to an occasional scattered tree across the survey area, some of which had a localized skirt of remnant grasses at the base of the trunk. All the trees are mature, some are in decline and a few are dead standing trees.
A small area of remnant ground stratum grassy vegetation was present on the crest of the hill where site conditions were not condusive to ploughing and cultivation but was heavily impacted by sheep grazing so identification was not possible. Drill sites 282, 283 and 284 are adjacent to this area.
Two small dolerite outcrops located within the survey area also retained some remnant vegetation but were heavily impacted by stock and by the invasion of Gorse. The dolerite outcrops are not included in the proposed drilling program.
The main species of remnant tree on the site was Cabbage Gum *Eucalyptus pauciflora* and a few smaller trees of Black Wattle *Acacia mearnsii* were also present.
The native grasses had been heavily grazed and were not flowering but were most likely species of *Austrostipa spp* and *Austrodanthonia spp.*

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

THREATENED FLORA:
No plant species listed under the Tasmanian *Threatened Species Conservation Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* was observed or recorded during the field survey.

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

THREATENED FAUNA HABITAT:
There is very limited potential habitat for threatened fauna within the survey area. The patches of Gorse could provide cover for a ground dwelling species such as the Eastern-barred Bandicoot and the dolerite outcrops could provide habitat for small reptiles or ground invertebrates. A few of the remnant old-growth paddock trees contain hollows which may be potential nest sites however there is very little surrounding vegetation and the location is considered marginal at best.
The proposed exploration program will not impact on any remnant trees, the dolerite outcrops or the established Gorse and will have no impact on any potential habitat for threatened fauna on the site.

ENVIRONMENTAL WEEDS:
One significant environmental weed was observed during the survey. Gorse *Ulex europa* is well established on the uncultivated areas of the site.

Care will be needed during the drilling program to avoid the inadvertent moving of soil which may contain Gorse seeds from this site to other locations.
Other weed species observed during the survey included Capeweed *Arctotheca calendula,* Wild Mignonette *Reseda luteola,* and Spear Thistle *Cirsium vulgare.*

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

Recommendations:
VEGETATION COMMUNITIES:
The proposed drilling program will not impact on any native vegetation community, however care should be taken in the vicinity of Drill Pad Sites 283, 284 and 285 to ensure that a distance of at least 20 metres is maintained between the drill sites and the edge of the native grassland remnant. This may involve some adjustment to the drill site locations.
Any proposed drill site in proximity to existing remnant trees should be located no closer than the outer drip line of the branch canopy.
Ensure the adequate containment within each drill pad site of all silt, sediment and other contaminants resulting from the drilling program to avoid impacting on adjacent soils and vegetation.

THREATENED VEGETATION COMMUNITIES:
One threatened vegetation community Midlands Woodland Complex, was observed during the field survey. However there will be no 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:
No species of threatened flora was observed or recorded during the field survey and no specific action is required.

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

THREATENED FAUNA HABITAT:
The proposed exploration program will not impact on any potential habitat for threatened species of fauna and no specific action is required.

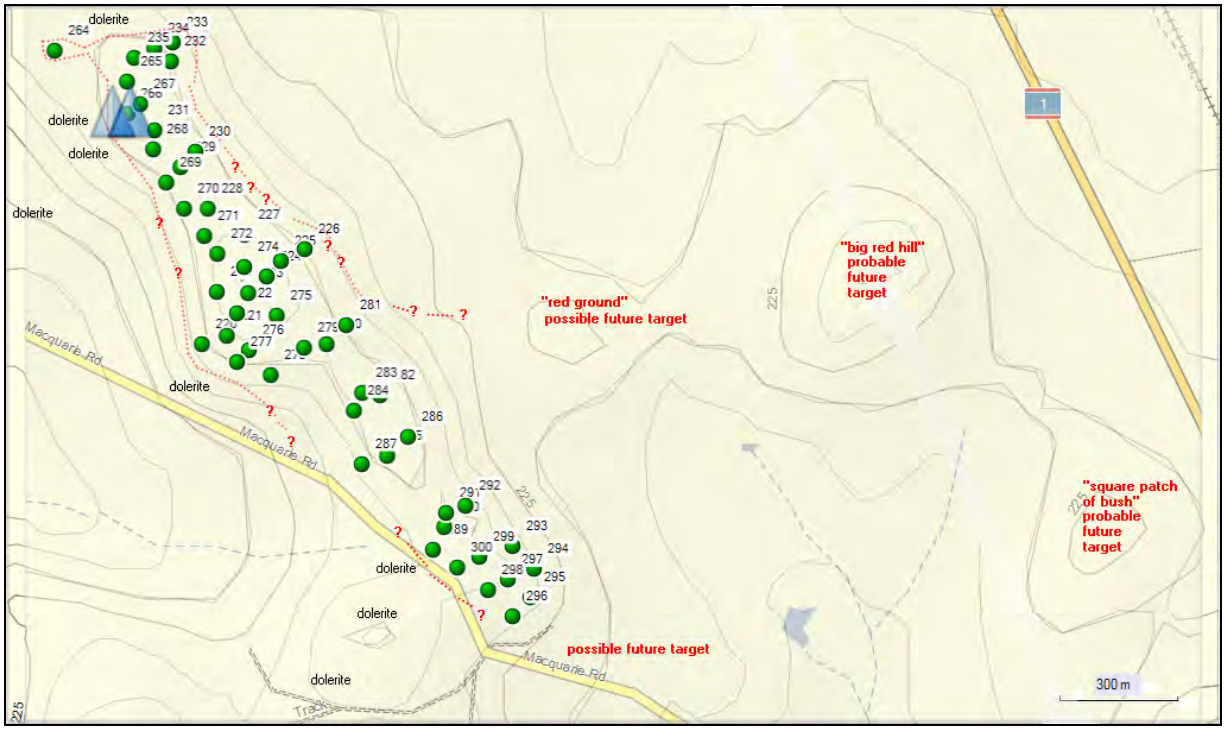
ENVIRONMENTAL WEEDS:
In order to prevent the introduction of weeds into weed free areas all equipment and machinery should be subject to a wash-down procedure to remove any soil or mud which could contain weed seeds before being transported into and out of the exploration target area.
Drill sites located in proximity to existing Gorse *Ulex europaeus* should be drilled last in order to avoid the inadvertent transfer of soil with the risk of soil borne seed being present and being taken to other parts of the property.

Washdown procedures should then be followed before the drill rig is transferred to another exploration location.

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

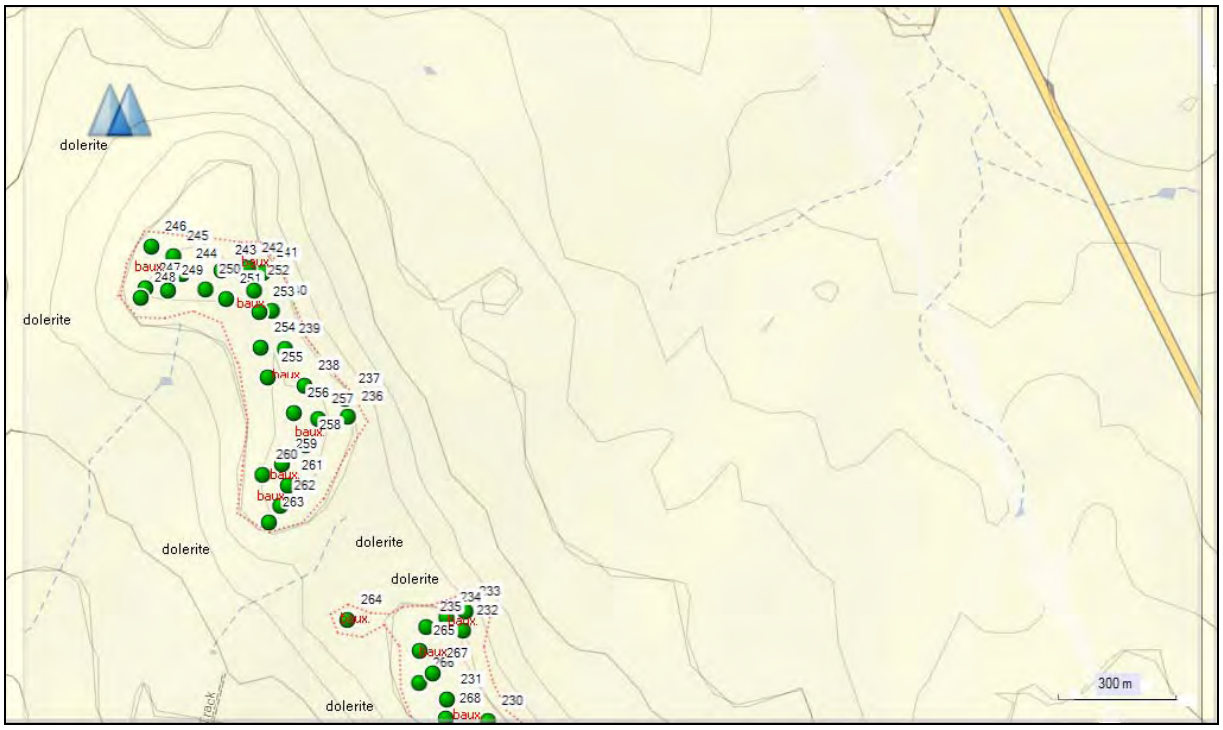
Vegetation Consultant



Base Camp Map - South Part (northern, central and southern sector of Meadowbank) – map produced by merging the 5m topo contour and the Topo Australia v2 maps

- **dotted red outline**: probable or possible extent of bauxite (bauxite outcrops and abundant rubble was observed in red soil throughout the target so that high parts of terrain are probably comprised of bauxite that was erosion resistant – similar to classic bauxite exposure under the water reservoir in Campbell Town)
- proposed drill sites for 1st stage shown as **green spots** (sites surveyed by me on 5 Oct 2010) - NB: all sites still need to be surveyed by Phillip Milner
- **probable and possible future targets**: the probable and possible targets to the SE of proposed drill sites have not been traversed as yet but from distance one can observe red soil and boulders of what may be bauxite; if results of drilling in 1st stage are encouraging, the the probable and the possible target can be drill tested in 2nd stage.

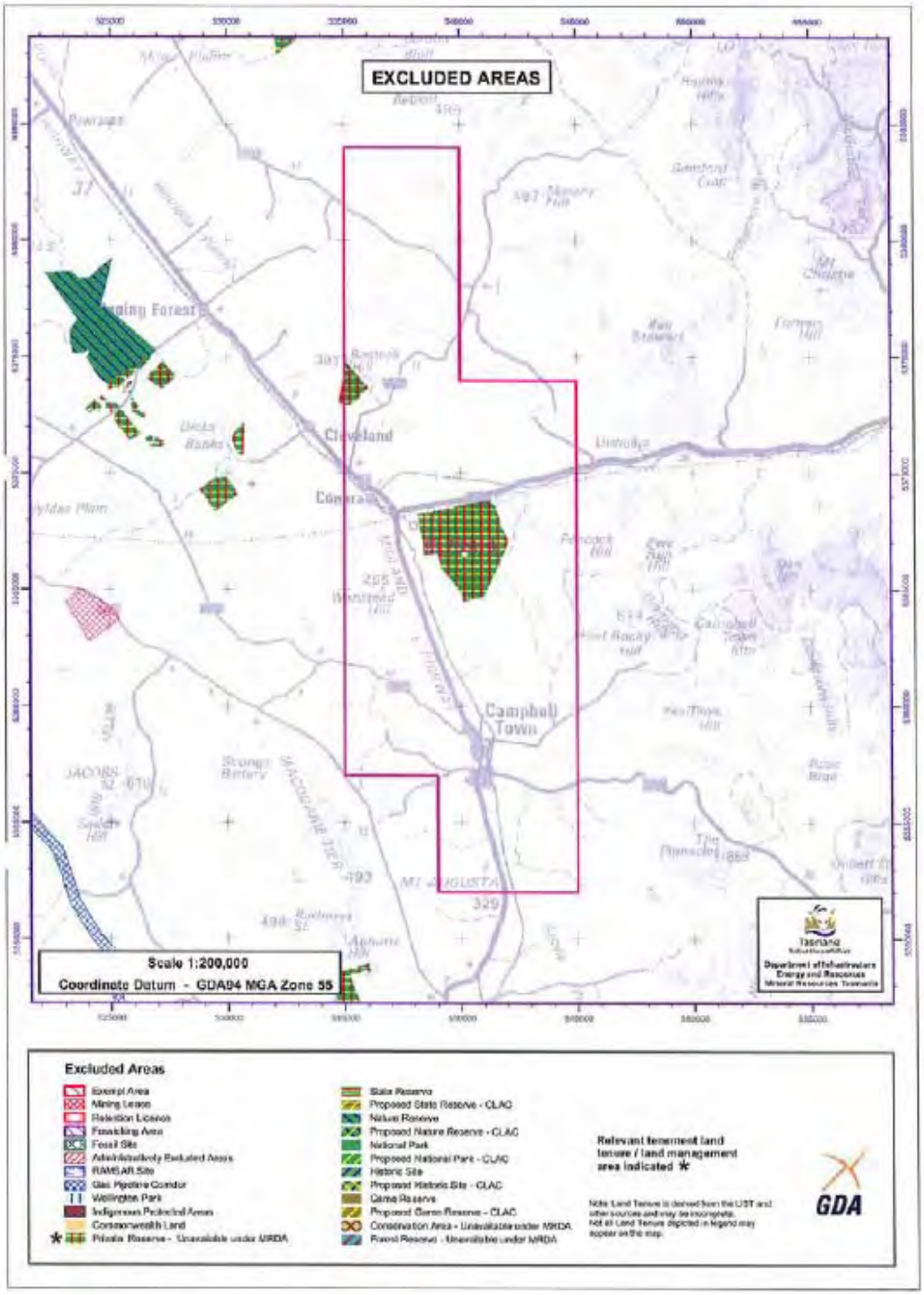
MAP 1: Proposed drill sites on the "Meadowbank" property at Campbelltown.



Base Camp Map - North Part (Rosedale and northern sector of Meadowbank) – map produced by merging the 5m topo contour and the Topo Australia v2 maps

- **dotted red outline**: probable or possible extent of bauxite (bauxite outcrops and abundant rubble was observed in red soil throughout the target so that high parts of terrain are probably comprised of bauxite that was erosion resistant – similar to classic bauxite exposure under the water reservoir in Campbell Town)
- proposed drill sites for 1st stage shown as **green spots** (sites surveyed by me on 5 Oct 2010)

MAP 2: Proposed Drill Sites northern end of "Meadowbank" property Campbelltown and "Rosedale" as a future stage.



MAP 3: Exploration License Area with target area immediately west of Campbelltown

PHOTO 1 ……. Crest of hill with remnant vegetation and Gorse in background.

PHOTO 2 ……. Crest of hill in the vicinity of Drill Site 282, with remnant grassland and Gorse

PHOTO 3 …… Improved pasture and remnant Eucalypts.

PHOTO 4… "Improved pasture" dead standing tree and dolerite outcrop with Gorse in background

PHOTO 4 . Improved pasture with dead stems of the weed Wild Mignonette and remnant Eucalypts in background

NILE ROAD TARGET AREA

BOTANICAL & FAUNA HABITAT SURVEY OF PROPOSED DRILL SITES

For ABx4 PTY LTD

25th October 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 immediate east of Nile Road on the property of Mr Donald Cameron and a smaller localized area on the adjoining "Pretty Plains" property.

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 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

NILE ROAD TARGET AREA:

The following proposed drill sites are located on the property of "Pretty Plains" 2330 Nile Road.

GRID REF: DRILL No. 171: 535123E – 5381636N
172: 535076E - 5381666N
173: 535117E – 5381705N
174: 535257E – 5381820N
175: 535274E – 5381874N

The following proposed drill sites are located on the property of D. Cameron, "Fordon" 1541 Nile Road. GRID REF: DRILL No. 183: 536310E – 5382001N
184: 536409E – 5381997N
185: 536370E – 5381926N
186: 536442E – 5381875N
187: 536506E – 5381811N
188: 536569E – 5381732N
189: 536588E – 5381769N
190: 536545E – 5381685N
191: 536641E – 5381653N
192: 536694E – 5381577N
193: 536779E – 5381528N
194: 536694E – 5381463N
195: 536701E – 5381357N
196: 536818E – 5381391N
197: 536841E – 5381284N
198: 536755E – 5381212N
199: 536722E – 5381175N
200: 536798E – 5381103N
201: 536709E – 5381101N
202: 536888E – 5381205N
203: 536982E – 5381189N
204: 537049E – 5381147N
205: 536878E – 5381307N
(All Grid References MGA Zone 55 GDA94)

Site Description: The exploration target area is within an area of remnant forest which is surrounded on three sides by cleared farmland utilized for grazing. Parts of the surrounding area are heavily infested with Gorse.

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 POINTS for the locality: **1** Drill Site No.190: GRID REF: 536545E – 5381685N
2 Drill Site No 171: GRID REF: 535123E – 5381636N

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"	From the centre of the survey area and to the south-east.
Eucalyptus amygdalina Forest & Woodland on Dolerite	DAD / bright green with horizontal lines	From the centre of the survey area and to the south-east.
Lowland *Poa labillardierei* Grassland	GPH / yellow with diagonal lines	One localized area along a creek-line in the south-west quadrat.
Lowland Grassland Complex	GCL / yellow	Forms a mosaic with the weed infestation and improved pasture across the survey area
Lowland *Themeda* Grassland	GTL / yellow with "z"	A small area s.e of Drill site 171 on the "Pretty Plains" property
Agricultural Land	FAG / cream	As above but mainly in the west and s.w quadrats, and surrounding Ref point 1
Weed Infestation	FWU / cream with "x"	Extensive in the north and east quadrats.

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 grassland with graminoids and 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 its 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 of the northern

midlands on the less fertile soils 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.

All native grasslands in Tasmania are of high conservation value although just two of the grassland communities are listed as threatened under the Commonwealth Act, namely Lowland *Poa labillardierei* Grassland, and Lowland *Themeda* Grassland, the latter usually having a higher diversity of inter-tussock herbs and forbs. Both are mapped as occurring in the locality along with the grassland community Lowland Grassland Complex. Most of the native and semi-improved pastures through the midlands are mapped as this community.

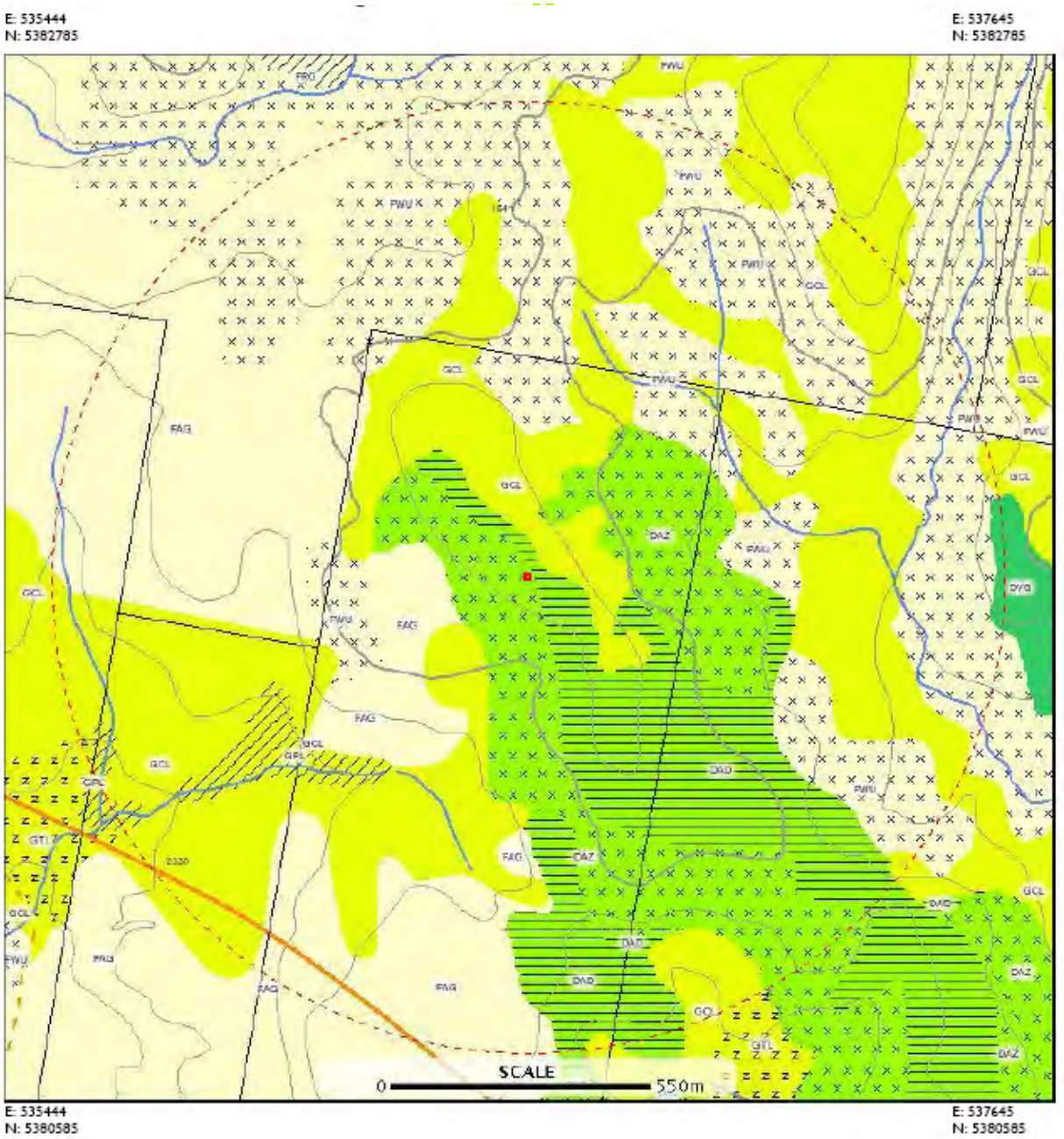


FIGURE 1: Vegetation communities as per TasVeg mapping program within 1,000 metres of reference Point No.1, proposed drill Site No.190: GRID REF: 536545E – 5381685N

CODE: DAZ …….….. *Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits,
DAD ……..…*Eucalyptus amygdalina* Forest & Woodland on Dolerite
GPL ……..….. Lowland *Poa labillardierei* Grassland
GCL ……..... Lowland Grassland Complex
FAG ……..... Agricultural Land
FWU ……..…. Weed Infestation

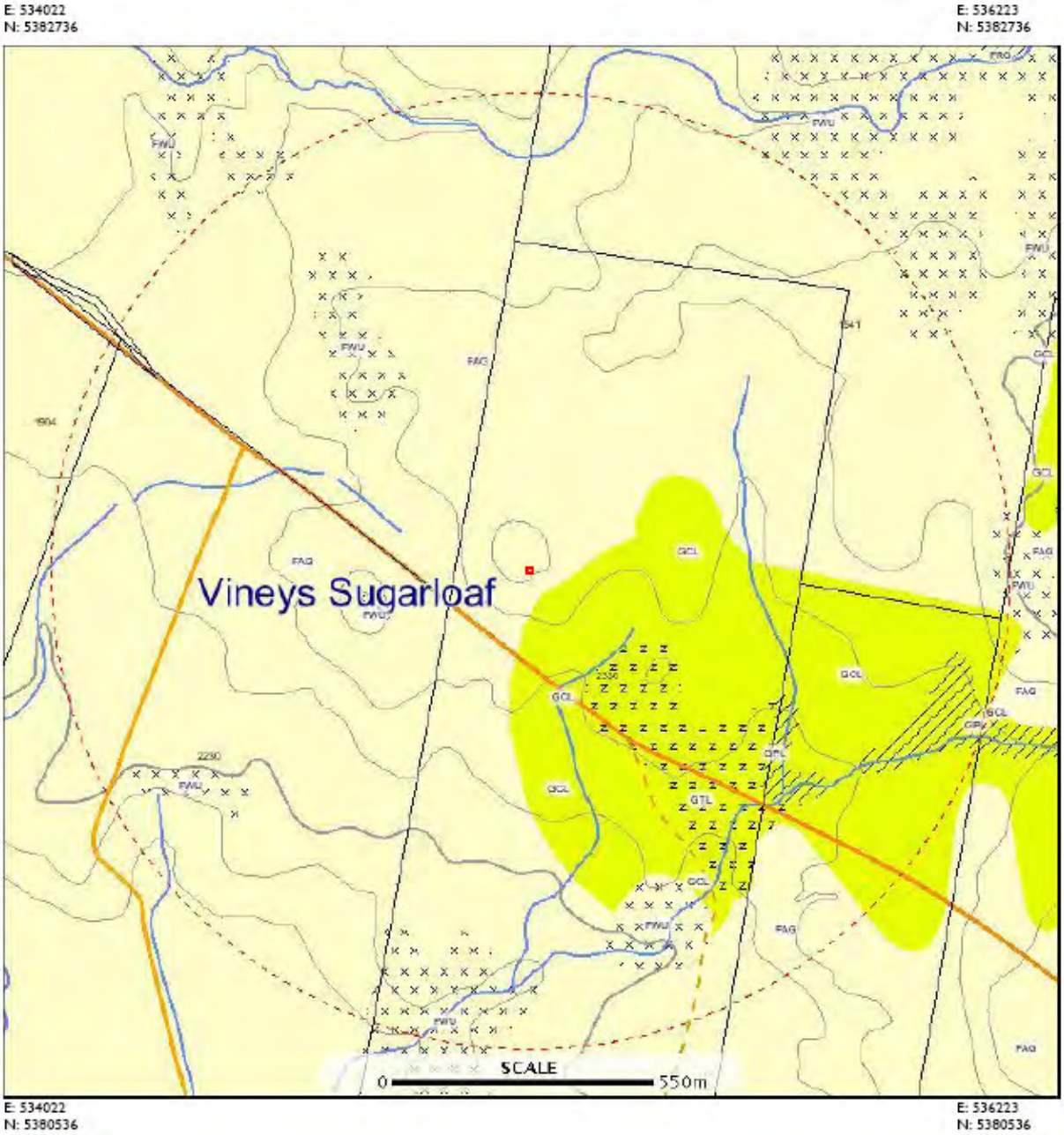


FIGURE 2: Vegetation Communities as per TasVeg mapping program within 1,000 metres of reference Point No.2, proposed drill site 171 Grid Ref: 531323E – 5381636N

CODE: GCL ……..... Lowland Grassland Complex
GTL …….. Lowland *Themeda* Grassland
GPL …….. Lowland *Poa labillardierei* Grassland
FAG …….. Agricultural Land
FWU ……. Weed Infestation

THREATENED VEGETATION COMMUNITIES:

One of the two forest communities mapped within the study area is listed as threatened under the Tasmanian *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. This community occurs within the main exploration target area. Reference point No.1, Drill site 190.

Two of the three native grassland communities mapped within the study area are listed as nationally threatened ecological communities under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.*

- Lowland *Poa labillardierei* Grassland was declared a critically endangered ecological community in Tasmania in June 2009. This community follows the lower slopes and creek-line outside of and to the south-west of the main target area Ref point No.1, Drill site 190.
- Lowland *Themeda triandra* Grassland was declared a critically endangered ecological community in Tasmania in June 2009. This community is mapped as occurring in a localized area to the south-east of reference point No. 2, ie Drill Site 171.

VEGETATION COMMUNITIES OF CONSERVATION SIGNIFICANCE

- *Eucalyptus amygdalina* Forest and Woodland on Dolerite is relatively widespread in the drier areas of eastern Tasmania and the midlands.
- Lowland Grassland Complex is considered to be relatively widespread in the midlands however it is often considered to be disturbance induced and the diversity of species particularly herbs and other forbs can be greatly influenced by the disturbance history of a location. Areas of this community which have a high diversity of herbs and forbs are of high conservation significance.

THREATENED FLORA:

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

- *Glycine latrobeana* the Clover Glycine is listed as being vulnerable under both State and Commonwealth Acts. There is one 1984 record of the species from within the target area. There is a further single record from the same year within 5,000 metres of the locality.

One further species of threatened flora is recorded on the data base from within 1,000 metres of the site.

- *Arthropodium strictum* the Chocolate Lily is listed as being rare under the Tasmanian Act with two records from 1985 and a further single record from within 3,000 metres.

A further three species of threatened flora are recorded within 3,000 metres of the locality.

- *Caesia calliantha* the Blue Grasslily is listed as being rare under the State Act with a single 1984 record.

- *Colobanthus curtisiae* the Grassland Cupflower is listed as being rare in Tasmania and vulnerable nationally. There are 3 records on the data base from 1984, 1990 and 1994. There are a further four records within 5,000 metres.
- *Lachnagrostis punicea* subsp *punicea* the Bristle Blowngrass is listed as being rare in Tasmania. There is one 1984 record.

A further 15 species of listed threatened flora are recorded on the data base within 5,000 metres of the locality.

- *Alternanthera denticulata* the Lesser Joyweed is considered to be endangered in Tasmania. There are three very early records on the database, one undated and from 1877 and 1878.
- *Austrostipa nodosa* the Knotty Speargrass is rare in Tasmania. One 1984 record.
- *Austrostipa scabra* subsp *scabra* Rough Speargrass is provisionally listed as being rare in Tasmania with 2 records from the locality.
- *Glossostigma elatinoides* the Small Mudmat is rare in Tasmania with one early 1878 record.
- *Hyalosperma demissum* the Moss Sunray is an endangered species in Tasmania with six records from the locality all dated from 2005.
- *Hypoxis vaginata* var *vaginata* the Sheathing Yellowstar is provisionally listed as being rare in Tasmania. There is four records on the database and all from 2005
- *Juncus amabilis* the Gentle Rush is rare in Tasmania with a single record from 1984.
- *Lythrum salicaria* Purple Loosestrife is listed as being vulnerable under the State Act. There are two very early records from 1877 and 1878.
- *Persicaria decipiens* Slender Waterpepper is vulnerable in Tasmania. A single early but undated record.
- *Pterostylis commutata* the Midlands Greenhood orchid is considered to be endangered in Tasmania and critically endangered nationally with a single record from 2000.
- *Pterostylis ziegleri* the Grassland Greenhood (orchid) is considered to be vulnerable both within Tasmania and nationally. There is one very early record from 1882.
- *Scleranthus fasciculatus* the Spreading Knawel is listed as being vulnerable in Tasmania with a single 2006 record from the locality.
- *Teucrium corymbosa* the Forest Germander is rare in Tasmania. One very early record from 1877.
- *Tricoryne elatior* Yellow Rushlily is listed as being vulnerable under the Tasmanian Act with two early records from the locality, one undated and the other from 1881.
- *Triptilodiscus pygmaeus* (syn *Helipterum australe*) the Dwarf Sunray is considered to be vulnerable in Tasmania. There are six 2005 records from the locality.

THREATENED FAUNA:

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

- The Tasmanian Devil *Sarcophilus harrisii* is now listed as being endangered under both State and Commonwealth Acts. There are three records of the species from within 1,000

metres from the study area reference point, from 1975 and 1985. The accuracy of the recorded locations are +/- 1850 and 5,000 metres. There are a further 8 records from within 5,000 metres dated between 1974 and 1993.

Two further species have been recorded within 5,000 metres of the locality.

- The Eastern-barred Bandicoot *Parameles gunnii* is relatively widespread in Tasmania but considered to be vulnerable nationally. One record from 1977.
- The Spotted-tailed Quoll *Dasyurus maculatus* subsp *maculatus* is considered to be rare in Tasmania and vulnerable nationally. One record from 1990.

The following 8 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 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.
- 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 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.

ENVIRONMENTAL WEEDS:

One significant environmental weed is mapped as occurring within 500 metres and 5,000 metres of the locality.

- Gorse *Ulex europeus* is considered to be a weed of national significance under commonwealth legislation and a declared weed in Tasmania. Extensive infestations of Gorse are mapped across the study area and particularly so in the native grasslands and in areas of improved but long established pasture in the north and east of the study area.

Field Survey:
The field survey was undertaken over two days on Thursday 14th and Monday 18th 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 grassland 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:
Two separate target areas were surveyed.

TARGET AREA No.1:
Drill Site No. 190 was used as the reference point for this survey.
GRID REF: 536545E – 5381685N
This survey area consisted of 23 proposed drill holes which extend along a low ridgeline from a north-west to south-east direction and through a relatively small area of remnant open forest and native grassland which is surrounded on three sides by open paddocks of improved pasture which are infested to a degree by gorse. Gorse is also present within the remnant forest and native grassland. The area of remnant forest extends outside of the target area towards the south-east along two separate low ridge-lines with the southern-most remnant extending over the Nile Road. This target area was botanically rich and the following survey results reported here largely refer to this location.

TARGET AREA No. 2.
Drill Site No. 171 was used as the reference point for this survey.
GRID REF: 531323E – 5381636N
The second and smaller area is located on the “Pretty Plains” property and consisted of 5 proposed drill holes No. 171, 172, 173, 174 and 175. This area is located to the west of the main target area and is separated by paddocks utilized for sheep grazing. It is a localized rocky outcrop which is surrounded by recently improved pasture and is heavily impacted by sheep grazing and camping as well as a heavy gorse infestation. The natural vegetation has been reduced to a few declining *Acacia dealbata,* a single *Exocarpus cupressiformis,* small numbers of indigenous grasses which included some *Poa labillardierei,* and a few herbs such as *Crassula sieberiana* and *Achena echinata* which are being progressively out-competed by the gorse.

No threatened species or threatened vegetation communities were present in this target area. The two threatened grassland communities mapped under TasVeg were located outside of, and downslope of the actual target area.

VEGETATION COMMUNITIES:

The predominant vegetation community throughout Target Area 1. is a relatively low and open forest of predominantly *Eucalyptus amygdalina*, the Black Peppermint. The two forest communities present were located according to the underlying geology and as mapped under the TasVeg program. *Eucalyptus amygdalina* Inland Forest and Woodland on Cainozoic Deposits extended in a linear zone mainly along the upper slopes either side of the ridgeline and this was the target geology of the exploration program. *Eucalyptus amygdalina* Forest and Woodland on Dolerite also extended along the ridgeline and alongside the previous community. An area of short native grassland with a relatively open sward extended between the open forest and along the ridge from the north, on quite shallow soil which in places would be described as a rock-plate grassland. Similar grassland vegetation also formed the understorey vegetation throughout both open forest communities in the study area.

The grassland and the grassy understorey vegetation had a high diversity of ground stratum species and is considered to be of high conservation value. The area of grassland is mapped under TasVeg as Lowland Grassland Complex (GCL) although the more limited areas of rock-plate vegetation may be too small to have been mapped under TasVeg.

THREATENED VEGETATION COMMUNITIES:

One threatened native vegetation community listed under the Tasmanian *Nature Conservation Act 2002* was the observed during the survey. *Eucalyptus amygdalina* Inland Forest on Cainozoic Deposits was the predominant community within Target area No.1. as the underlying geology of this community is the target of this exploration program.

Neither of the two grassland communities which are listed as threatened under the Commonwealth legislation was present in either of the two target areas, but were observed in the general locality.

VEGETATION COMMUNITIES OF CONSERVATION SIGNIFICANCE:

The area of low open native grassland (Lowland Grassland Complex, GCL) including the small areas of rock-plate vegetation (Rock-plate Grassland GRP) which is present within target area No.1 and extends into and forms the ground stratum understorey of the two forest communities has a high diversity of species, including herbs, forbs, grasses and orchids, including some threatened species.

The community in this location is considered to be of high conservation value.

THREATENED FLORA:

Three 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, although no threatened species of plant was observed within 20 metres of any of the plotted drill site locations.

- *Triptilodiscus pygmaeus* the Common Sunray is considered to be vulnerable in Tasmania but is not listed under the Commonwealth Act. It is a tiny annual daisy which does benefit from a degree of soil disturbance.

The plant tends to occur in colonies of many individuals however each plant is quite small and just up to 20mm tall in this location with open yellow flowers only 5mm across.

Colonies of the species were observed within the rock-plate grassland and in the vicinity of drill site No. 192. Two exclusion zones are suggested in order to limit the level of disturbance where the species occurs.

1. Within a 15 metre radius of GRID REF: 536627E – 5381692N
2. Within a 10 metre radius of GRID REF: 536643E – 5381678N

PHOTO 1. *Triptilodiscus pygmaeus* the Common Sunray.

PHOTO 2: Rock-plate grassland community with *Triptilodiscus pygmaeus*

- *Arthropodium strictum* the Chocolate Lily was observed in the vicinity of drill site Nos 199 and 200 although it was not observed within 15 metres of either site. The species is listed as being rare under the Tasmanian Act although it is relatively widespread. The related but smaller species *Arthropodium minus* was more common in this locality, particularly in the open grassland and the rock-plate grasslands.
- *Stackhousia subterranea* (syn *S. gunnii*) Grassland Candles is considered to be an endangered species in Tasmania. About 20 plants were observed within a 15 metre radius of GRID REF: 536851E – 5381088N and a 20 metre exclusion zone should be flagged from this reference point to avoid impacting on this population although it is not close to any of the proposed drill sites.
  **NOTE: It is an offence to collect, disturb, damage or destroy this species unless under permit.

None of the other three threatened species known to occur within 3,000 metres of the study area and referred to in this report under the desktop survey section were observed during the survey.

THREATENED FAUNA:
No species of threatened fauna listed under the above Acts, which have been recorded in the locality or have the potential to occur in this geographical area were observed during the field survey.

THREATENED FAUNA HABITAT:
The mature old-growth Eucalypts which occur as occasional trees throughout the survey area are important potential habitat for many species of fauna including a number of threatened species. Such trees are critical habitat for mammals and birds which require large trees or trees with hollows for part of their life cycle and includes threatened species such as the Masked Owl (requires large hollows) and the Wedgetailed Eagle which requires large trees for nest support. Tasmanian Devils and Spotted-tailed Quolls can also utilize basal tree hollows as dens. The exploration program as proposed will not impact on any standing trees or threaten any such potential fauna habitat.

ENVIRONMENTAL WEEDS:
The principal environmental weed observed during the field survey was Gorse *Ulex europeaus.* Gorse was observed as scattered plants and as larger patches throughout the survey area and is having an impact on the ground stratum vegetation in those locations.
It is a widespread and extensive weed throughout the district and is having a serious impact on both agricultural land and remnant natural vegetation.
Gorse is recognized as being a weed of national significance.

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

Survey Conclusions:

The No.1. exploration target area is located within a significant area of remnant forest comprising two forest vegetation communities, one of which is listed as a threatened native vegetation community in Tasmania. There is a high diversity of grassland species and forbs within the ground stratum and a number of mature old-growth trees including trees with hollows are present in the tree canopy.

The area of native grassland within the target area is not listed as a threatened community however it is of high conservation value due to the high diversity of ground stratum species, including a number of threatened species.

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.

The proposed exploratory drilling program is of a low impact nature involving shallow drill holes. The drilling program as proposed will have a minimal impact of the ground layer vegetation providing a number of key areas with threatened species are avoided. There will be no impact on the standing trees.

There was no significant vegetation or threatened species within Target area No.2.

Recommendations:

VEGETATION COMMUNITIES:

The proposed drilling program is located within vegetation with an open understorey so no clearing of woody vegetation will be necessary. The drilling method being used will ensure that there will be 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 allow access to any of the drill sites.

Ensure the adequate containment within each drill pad site of all silt, 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 survey and exploration target area No.1, 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:

Three species of threatened flora were observed during the field survey.

The following exclusion areas should be plotted, flagged and observed by the field crew in order to avoid populations of threatened species.

For the Common Sunray *Triptilodiscus pygmaeus*

(a) Within 15 metres of GRID REF: 536627E – 5381692N
(b) Within 10 metres of GRID REF: 536643E – 5381678N

For the Grassland Candles *Stackhousia subterranea.*

(c) Within 20 metres of GRID REF: 536851E – 5381088N

***NOTE: Grassland Candles is an endangered species under the Tasmanian Act and it is an offence to disturb, damage or destroy this plant.

No plants of *Arthropodium strictum* were observed in the vicinity of any proposed drill site location and no specific action is required.

THREATENED FAUNA:

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

THREATENED FAUNA HABITAT:

The key potential habitat for threatened species in the target area are the mature old-growth Eucalypts which possess hollows. The exploration program will not impact on any established trees and so will not impact on potential habitat for threatened species of fauna.

The proposed drilling program will have minimal impact to the ground stratum vegetation and will have little impact on terrestrial species of fauna.

ENVIRONMENTAL WEEDS:
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 the exploration area.
Gorse is widespread in both target areas and in the wider area. Care should be taken with drill sites in the vicinity of existing gorse infestations to minimize ground disturbance and to avoid moving potentially contaminated soil to sites which are clear of the weed.
Ensure that all machinery and equipment is cleaned of extraneous soil before leaving this property and moving to a new exploration target 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.

FUTURE EXPLORATION ACTIVITIES:
Should the Nile Road Target area warrant further exploration or more concentrated exploration as a result of this initial drilling program then a more thorough botanical survey over an extended season will be necessary in order to more fully determine the conservation value of the ground stratum vegetation, particularly with mapping the locations and extent of the threatened species of plants observed in the locality. Further botanical survey will also be necessary if exploration activities are extended into the areas described on the attached photomap as possible future targets.

Philip Milner

Vegetation Consultant

Appendix 1:
Vegetation Communities and Species Recorded within the exploration target area

1. ***Eucalyptus amygdalina*** **Inland Forest and Woodland on Cainozoic Deposits (TasVeg Code DAZ)**
2. ***Eucalyptus amygdalina*** **Forest & Woodland on Dolerite (DAD)**
3. **Lowland Grassland Complex (GCL)**

DOMINANT TREES	COMMON NAME	FREQUENCY
Eucalyptus amygdalina	Black Peppermint	abundant
Eucalyptus viminalis	White-gum	common
MEDIUM SHRUBS		
Bursaria spinosa	Prickly Box	occasional
Melicytis dentatus	Violet Bush	occasional
SMALL SHRUBS		
Astroloma humifusa	Cranberry Heath	occasional
Bossiaea prostrata	Creeping Bossia	common
Clematis gentianoides	Ground Clematis	occasional
Einadia nutans	Climbing Saltbush	localized
Gonocarpus tetragynus	Common Raspwort	occasional
Goodenia lanata	Trailing Native-primrose	common
Hibbertia humifusa	Hairy Guineaflower	occasional
Lissanthe strigosa	Peachberry Heath	common
Pimelea humilis	Dwarf Riceflower	occasional
CLIMBING PLANTS		
Comesperma volubile	Blue Love Creeper	uncommon
HERBS & HERB-LIKE PLANTS		
Acaena echinata	Sheeps Burr	occasional
Ajuga australis	Austral Bugle	localized
Asperula conferta	Common Woodruff	uncommon
Chrysocephalum apiculatum	Common Everlasting	occasional
Crassula sieberiana	Rock Stonecrop	occasional
Cymbonotus priessianus	Southern Bears-ears	occasional
Daucus glochidia	Australian Carrot	uncommon
Dichondra repens	Kidneyweed	common
Drosera peltata subsp *peltata*	Pale Sundew	common
Geranium solanderi	Southern Cranesbill	occasional
Hydrocotyle callicarpa	Tiny Pennywort	occasional
Hypericum gramineum	Small StJohns Wort	occasional
Lagenophora stipitata	Bluebottle Daisy	occasional
Leptorhynchos squamatus	Scaly Buttons	common

APPENDIX 1 (cont)

HERBS & HERB-LIKE PLANTS (cont)

Millotia tenuifolia	Soft Bowflower	common
Oxalis perennans	Grassland Woodsorrel	common
Poranthera microphylla	Small Poranthera	common
Sebaea ovata	Yellow Sebea	uncommon
Senecio quadridentatus	Cotton Fireweed	uncommon
Stackhousia subterranean	Midlands Candles	localized
Triptilodiscus pygmaeus	Common Sunray	localized
Veronica calycina	Hairy Speedwell	localized
Viola betonicifolia	Showy Violet	common
Viola hederaceae	Ivy-leafed Violet	occasional
Wahlenbergia sp.	A Native Bluebell	occasional

ORCHIDS

Caladenia carnea	Pink Fingers	common
Cyrtostylis reniformis	Small Gnat-orchid	common
Glossodia major	Waxlip	common
Microtis sp.	An Onion Orchid	occasional
Pterostylis nutans	Nodding Greenhood	uncommon
Pterostylis pedunculata	Maroonhood	uncommon
Thelymitra spp.	Sun Orchids	common

GRASSES & GRAMINOIDS

Arthropodium minus	Small Vanilla-lily	common
Arthropodium strictum	Chocolate Lily	occasional
Austrodanthonia spp.	Wallaby Grasses	common
Chamaescilla corymbosa	Bluestars	localized
Ehrharta stipoides	Weeping Grass	common
Hypoxis vaginata	SheathingYellow-star	localized
Lomandra longifolia	Mat-rush	common
Lomandra nana	Dwarf Mat-rush	occasional
Luzula sp.	A Woodrush	occasional
Poa rodwayi	Velvet Tussockgrass	common
Poa labillardierei	Silver Tussockgrass	common
Schoenus apogon	Common Bogsedge	occasional
Themeda triandra	Kangaroo Grass	occasional
Wurmbea dioica	Early Nancy	common

FERNS & ALLIED PLANTS

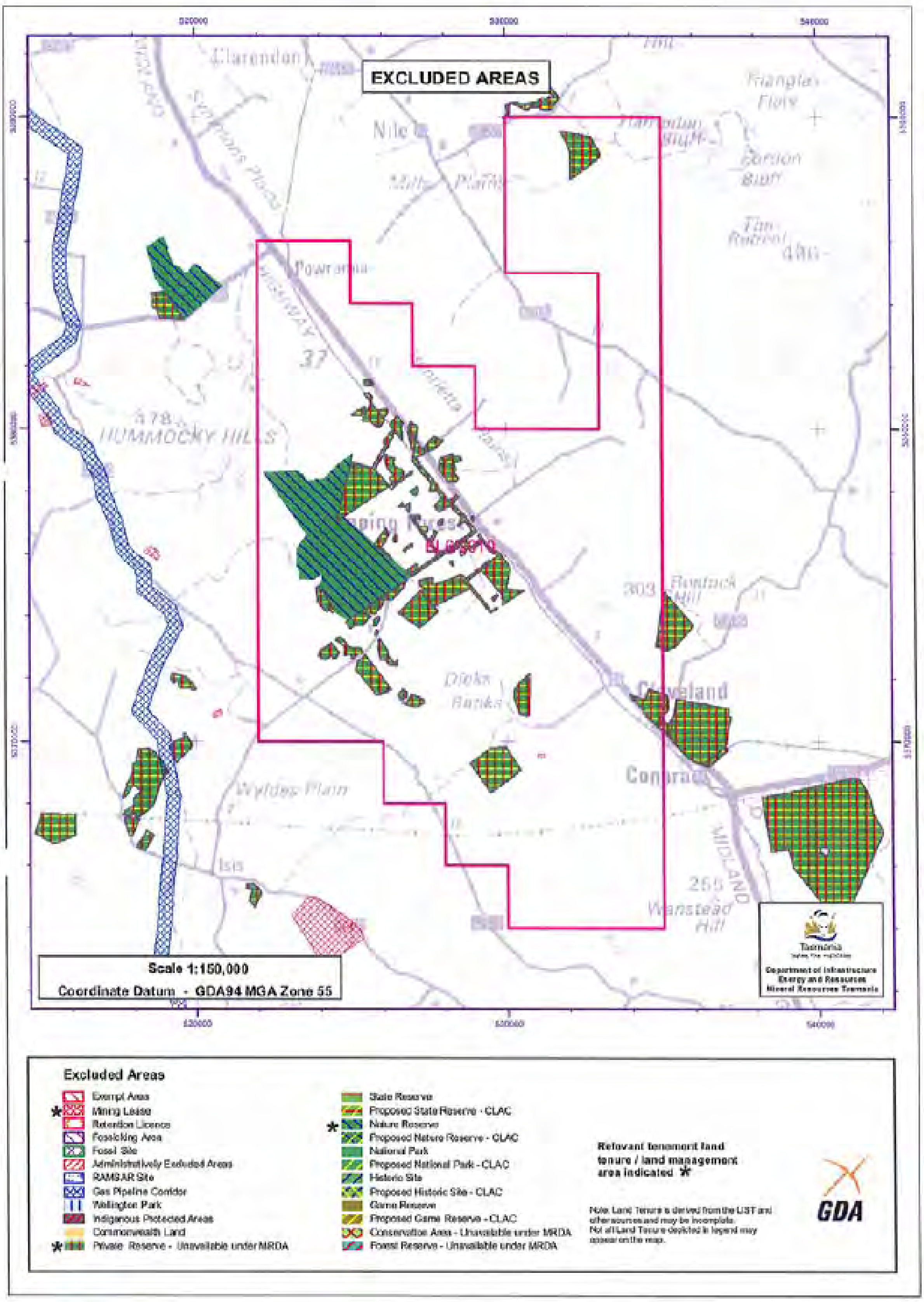
Pteridium esculentum	Bracken	common

ENVIRONMENTAL WEEDS

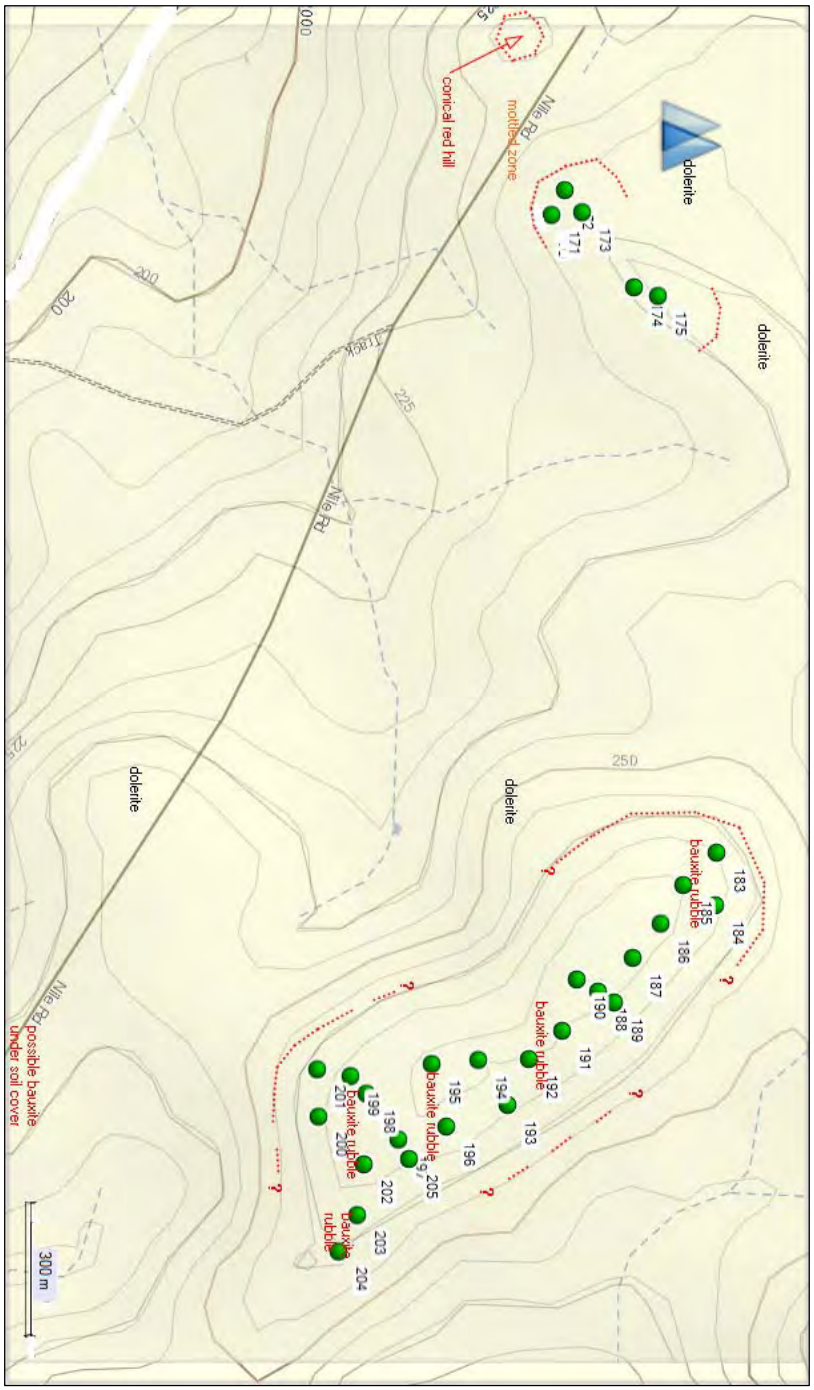
Anthoxanthum odoratum	Sweet Vernal Grass	occasional
Arctotheca calendula	Capeweed	common

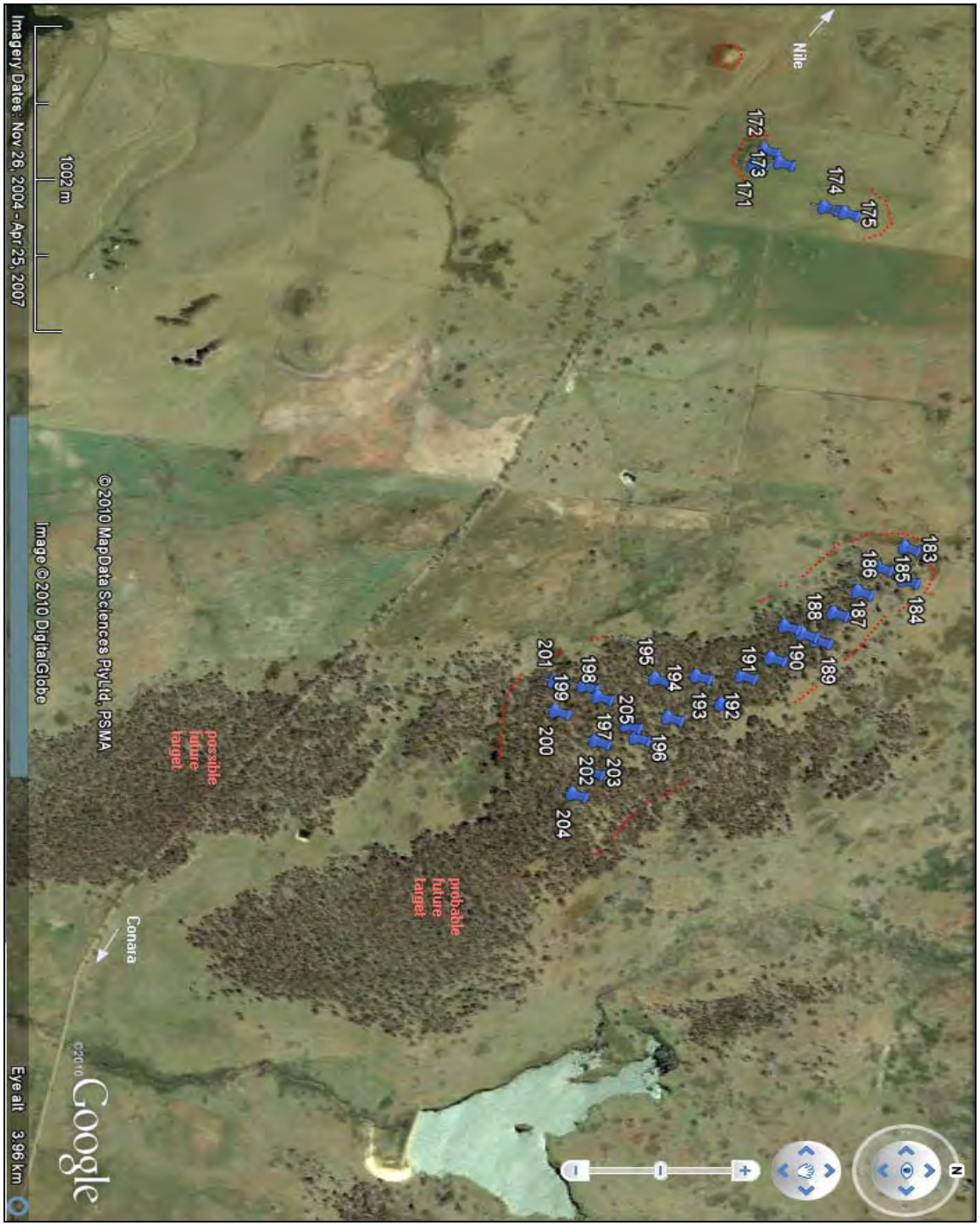
APPENDIX 1 (cont)
ENVIRONMENTAL WEEDS (cont)

Briza minor	Shivery Grass	occasional
Centaurium erythraea	Centaury	occasional
Cerastium holosteneoides	Mouse-eared Chickweed	occasional
Marrubium vulgare	Horehound	occasional
Ulex europaeus	Gorse	abundant
Reseda luteola	Wild Mignonette	occasional


EXCLUDED AREAS
Clarendon
Nile
Powranna
HUMMOCKY HILLS
Wyldes Plain
Isis
Dicks Banks
Cleveland
Conara
Wanstead Hill
Scale 1:150,000
Coordinate Datum - GDA94 MGA Zone 55
Tasmania
Department of Infrastructure Energy and Resources Mineral Resources Tasmania
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 Reserve - Unavailable under MRDA
Relevant tenement land tenure / land management area indicated *
GDA

MAP 2: Nile Road Target Area: proposed drill sites





MAP 3: Aerial Photomap of Nile Road Target Area and proposed drill site locations.

PHOTO 3 ……. Rockplate Grassland community along low ridge.

PHOTO 4 …… *Eucalyptus amygdalina* Inland Forest on Cainozoic Deposits in study area.

PHOTO 5 …… *Eucalyptus amygdalina* Inland Forest on Cainozoic Deposits within study area.

PHOTO 6 … *Eucalyptus amygdalina* Dry Forest with improved pasture and gorse infestation.

PHOTO 7 …… Target Area No.2, vicinity of proposed Drill Site 171.

CAMPBELLTOWN EXPLORATION PROGRAM

BOTANICAL & FAUNA HABITAT SURVEY OF PROPOSED DRILL SITES

For AUSTRALIAN BAUXITE LTD

4th October 2010

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

Introduction: Australian Bauxite Ltd is undertaking an exploratory program in an area of the midlands between Launceston and Cranbrook and are initially undertaking a targeted drilling program in the area to the immediate north of Campbelltown on the property "Riccarton". 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 Areas:

MAP REF: Tasmap 1:25,000, Sheet No. 5436, Diamond

BIOREGION: Northern Midlands

- Campbelltown "Riccarton" target area: proposed drill site locations.

DRILL PAD No. 1.: GRID REF: 541451E – 5360154N
2 : GRID REF: 541514E – 5360008N
3 : GRID REF: 541603E – 5360230N
4 : GRID REF: 541746E – 5360384N
5 : GRID REF: 541870E – 5360423N

Drill Pad No. 6 : GRID REF: 542030E – 5360405N
7 : GRID REF: 542206E – 5360420N
8 : GRID REF: 542311E – 5360524N
9 : GRID REF: 542505E – 5360538N
. 10 : GRID REF: 542209E – 5360647N
11 : GRID REF: 542059E – 5360661N
12 : GRID REF: 541975E – 5360583N
13 : GRID REF: 541911E – 5360628N
14 : GRID REF: 541895E – 5360706N
15 : GRID REF: 541750E – 5360727N
16 : GRID REF: 541158E – 5360746N
17 : GRID REF: 541269E – 5360960N
18 : GRID REF: 541467E – 5361287N
19 : GRID REF: 541420E – 5361376N
20 : GRID REF: 541357E – 5361482N
21 : GRID REF: 541371E – 5361516N
22 : GRID REF: 541306E – 5361449N
23 : GRID REF: 541257E – 5361507N
24 : GRID REF: 541132E – 5361582N
25 : GRID REF: 541006E – 5361603N
26 : GRID REF: 540888E – 5361622N
27 : GRID REF: 540744E – 5361670N
28 : GRID REF: 541534E – 5361399N
29 : GRID REF: 541002E – 5360838N
30 : GRID REF: 540917E – 5360851N
31 : GRID REF: 541144E – 5360663N
(All Grid References MGA Zone 55 GDA94)

Site Description: All of the above proposed drill pad sites are within the property of "Riccarton" to the immediate north of Campbelltown and all are located in paddocks and arable land.

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 Pad site No.17: GRID REF: 541269E – 5360960N

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"	One small localized remnant NW of reference point + one very small remnant to NE
Agricultural Land	FAG / cream	Almost all of the study area comprises agricultural land

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

FIGURE 1: Vegetation communities as per TasVeg mapping program within 1,000 metres of reference point Drill Pad Site No.17: GRID REF: 541269E – 5360960N.

CODE: DAM ……...*Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits,
FAG …….. Agrucultural Land

THREATENED VEGETATION COMMUNITIES:

- The only 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 and is mapped as occurring as a small localized remnant to the north-west of the reference point. A very small localized remnant of this community also occurs on a creekline to the north-east.

VEGETATION COMMUNITIES OF CONSERVATION SIGNIFICANCE

No other natural vegetation communities of conservation significance are mapped as occurring within the study area.

THREATENED FLORA:

No 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 1,000 metres of the study area reference point.

12 species of threatened flora are recorded on the database as occurring within 2,000 metres of the study area reference point.

- *Acacia axillaris* the Midlands Wattle is listed as being vulnerable under both the Tasmanian and Commonwealth Act. There is one 1990 record from the area. There are a further 9 records of the species within 5,000 metres from between 1981 and 2003.
- *Asperula scoparia* var *scoparia* the Prickly Woodruff is listed as rare under the Tasmanian Act. There is one undated record from the area and a further single record within 5,000 metres.
- *Austrostipa bigeniculata* the Double-jointed Speargrass is listed as rare under the Tasmanian Act. There are two 1984 records on the database.
- *Austrostipa nodosa* the Knotty Speargrass is listed as being rare under the Tasmanian Act. There are two undated records from the area and a further 5 records within 5,000 metres from between 1984 and 1994.
- *Colobanthus curtisae* the Grassland Cupflower is listed as being rare under the Tasmanian Act and vulnerable nationally. There is one 1996 record from the area and a single earlier (1931) record from within 5,000 metres.
- *Dianella amoena* the Grassland Flaxlily is listed as being rare in Tasmania and endangered under the Commonwealth Act. There are two records of the species, one dated 1984, and a further 15 records within 5,000 metres dated between 1984 and 2008.
- *Epacris acuminata* the Claspleaf Heath is listed as being rare in Tasmania and vulnerable nationally. There is one 1990 record from the locality.
- *Scleranthus diander* the Tufted Knawel is listed as being vulnerable in Tasmania. There is one undated record from the locality and a further three 2009 records from within 5,000 metres.

- *Stackhousia subterranean* Grassland Candles is listed as being endangered under the Tasmanian Act. There are two records from the area, one undated and the other from 1984. There are a further 8 records within 5,000 metres dated from 1993 to 2009.
- *Vittadinia gracilis* the Woolly New-Holland Daisy is rare in Tasmania. There are three records on the database, two undated and the other from 2001.
- *Vittadinia muelleri* the Narrow-leaf New-Holland Daisy is also rare in Tasmania. There is one undated record from the area and a further three records within 5,000 metres dated between 1992 and 1993.
- *Xerochrysum bicolor* the East-coast Everlasting is listed as being rare under the State Act. There are three 1984 records from the area and a further single record within 5,000 metres in the same year.

A further 16 species of threatened flora are recorded on the database as occurring within 5,000 metres of the study area reference points.

- *Caladenia anthracina* Black-tip Spider Orchid is listed as being endangered under the Tasmanian Act and critically endangered nationally. 7 records from between 1996 and 2009.
- *Calocephalus lacteus* Milky Beautyheads are listed as being rare in Tasmania although it may qualify for delisting after further surveys as it is relatively widespread.
- *Carex tasmanica* Curly Sedge is listed as being vulnerable nationally although it is not listed under the Tasmanian Act. There are two records from between 2,000 and 5,000 metres from the study area reference points between 1948 and 1996.
- *Glycine latrobeana* the Clover Glycine is listed as vulnerable under the Tasmanian Act and nationally. There are five records of the species between 2005 and 2009.
- *Haloragis heterophylla* the Variable Raspwort is a species which is listed as being rare under the State Act. There is one 2001 record from the locality.
- *Lobelia pratioides* Poison Lobelia is vulnerable in Tasmania. There are three early records from 1931 – 1938.
- *Prasophyllum incorrectum* the Golfers Leek Orchid is largely restricted to the Campbelltown Golf Course and is considered to be endangered under the State Act and critically endangered nationally. 11 records between 1995 and 2008.
- *Prasophyllum olidum* the Pungent Leek-orchid is a species which is listed as being endangered under the Tasmanian Act and critically endangered under the Commonwealth Act. The species is restricted to the Campbelltown Golf Course with 12 records between 1995 and 2008.
- *Prasophyllum taphaxyx* the Graveside Leek Orchid is restricted to a few plants within a church cemetery in Campbelltown. The species is endangered under the Tasmanian Act and critically endangered under the Commonwealth Act. Just three plants have been recorded between 2001 and 2009.
- *Prasophyllum tunbridgense* the Tunbridge Leek Orchid is restricted to two small areas,one near Tunbridge and one north of Campbelltown. The species is listed as endangered under both State and Commonwealth Acts. There are two records from this locality from between 1996 and 2000.

- *Pterostylis zeigleri* Cape Portland Greenhood is an orchid which is considered to be vulnerable both in Tasmania and nationally. There are 8 records from the locality from between 1941 and 2009.
- *Pultenaea prostrata* the Silky Bushpea is considered to be vulnerable in Tasmania. There are 6 records from the area from between 1984 and 2008.
- *Scleranthus fasciculatus* Spreading Knawel is listed under the Tasmanian act as being vulnerable. There are four records from between 1994 and 2009.
- *Senecio squarrosus* the Leafy Fireweed is listed as being rare in Tasmania and there is a single 2001 record from the area.
- *Stackhousia subterranea* (syn. *S. gunnii*) Grassland Candles is an endangered species in Tasmania. There are 10 records from the area from between 1993 and 2009.
- *Triptilodiscus pygmaeus* (syn *Helipterum australe*) the Dwarf Sunray is considered to be vulnerable in Tasmania. There is a single 2009 record from the area.

THREATENED FAUNA:

Two species of threatened fauna listed under the above Acts are recorded on the database as occurring within 5,000 metres of the study area. No species have been recorded from within 1,000 metres of the study area reference point

- The Tasmanian Devil *Sarcophilus harrisii* is now listed as being endangered under both State and Commonwealth Acts. There is a single record of the species from about 1,200 metres from the study area reference point, from 1974. The accuracy of the recorded location is +/- 1850 metres. There are two further records of the species within 5,000 metres from 1986 and 1993.
- The Green and Gold Frog *Litoria raniformis* is listed under both State and Commonwealth Acts as being vulnerable. There is one record from about 1960 from the area.

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 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.
- The Tasmanian subspecies of Masked Owl *Tyoto novaehollandiae* subsp *castanops* is provisionally listed as being endangered in Tasmania and provisionally listed as being vulnerable nationally. This bird requires large 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 Swan Galaxia *Galaxias fontanus* is considered to be endangered in Tasmania and nationally. The species is endemic to Tasmania.
- 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 1st of October 2010.

Methodology: Each of the proposed drill pad sites were plotted and surveyed. An area of 50 metres diameter was surveyed around any site with remnant native vegetation. The field survey of each of the proposed drill pad was accessed from existing roads, vehicular tracks and paddock headlands.
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 early spring when many grassland species are not yet in flower or fruit. 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:
DRILL SITES 1, 3, 4, 13, 14, 15, 16, & 31 are all located within an arable paddock currently planted with a crop of canola.

Drill pad Site 1. GRID REF: 541451E – 5360154N
3. GRID REF: 541603E – 5360230N
4. GRID REF: 541746E – 5360384N
13. GRID REF: 541911E – 5360628N
14. GRID REF: 541895E – 5360706N
15. GRID REF: 541750E – 5360727N
16. GRID REF: 541158E – 5360746N
31. GRID REF: 541144E – 5360663N

No remnant indigenous vegetation was present within a 50 metre diameter of each of these drill pad sites.

DRILL SITE 2 is located in an area of rough pasture comprising both exotic pasture grasses including clover and some indigenous species and was adjacent to an arable paddock. The pasture had been heavily grazed and no species were identifiable. An infestation of Gorse was present about 100 metres south of the proposed drill pad site.

Drill pad Site 2. GRID REF: 541514E – 5360008N

DRILL SITES 5, 6, 7, 8, 9, 10, 11, & 12 are all located within an arable paddock which is currently standing as stubble from a previous grain crop.

Drill pad Site 5. GRID REF: 541870E – 5360423N
6. GRID REF: 542030E – 5360405N
7. GRID REF: 542206E – 5360420N
8. GRID REF: 542311E – 5360524N
9. GRID REF: 542505E – 5360538N
10. GRID REF: 542209E – 5360647N
11. GRID REF: 542059E – 5360661N
12. GRID REF: 541975E – 5360583N

No remnant indigenous vegetation was present within a 50 metre diameter of each of these drill pad sites.

DRILL SITES 17, 18, 19, 20, 21, 22, 23, 24, 28, 29 & 30 are all located within a paddock of improved pasture which has been heavily grazed.

Drill pad Site 17. GRID REF: 541269E – 5360960N
18. GRID REF: 541467E – 5361287N
19. GRID REF: 541420E – 5361376N
20. GRID REF: 541357E – 5361482N
21. GRID REF: 541371E – 5361516N
22. GRID REF: 541306E – 5361449N
23. GRID REF: 541257E – 5361507N
24: GRID REF: 541132E – 5361582N
28. GRID REF: 541534E – 5361399N
29. GRID REF: 541002E – 5360838N
30. GRID REF: 540917E – 5360851N

No remnant indigenous vegetation was present within a 50 metre diameter of each of these drill pad sites.

DRILL SITES 25, 26 & 27 are each located along an existing vehicular track which separates a mixed planted shelterbelt of Radiata Pine and Silver Wattle with the localized area of remnant forest mapped under TasVeg as *Eucalyptus amygdalina* Inland Forest on Cainozoic Deposits.

Drill pad Site 25. GRID REF: 541006E – 5361603N
26. GRID REF: 540888E – 5361622N
27. GRID REF: 540744E – 5361670N

Each of these drill pad sites are located alongside or within the vehicular track and will not impact on any trees or indigenous vegetation within the remnant patch of forest.

Note: A number of the paddocks have planted shelter belts along one or more boundary fencelines which were composed of a range of native species both Tasmanian and mainland and included Radiata Pine in a number of instances.

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 was present in a localized area adjacent to proposed drill pad sites 25, 26 and 27. White Gum *Eucalyptus viminalis* was present as a co-dominant within this community remnant.There will be no impact on this community from the exploration program as the three drill sites are to be located on or adjacent to an existing vehicular track which skirts around the southern edge of the remnant forest. A detailed survey of the remnant forest was not considered necessary as there will be no impact on the community from the exploration program.

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

THREATENED FLORA:
No plant species listed under the Tasmanian *Threatened Species Conservation Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* was observed or recorded during the field survey.

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

THREATENED FAUNA HABITAT:
There is some potential but no optimum habitat for threatened fauna on the property within the localized area of remnant forest and within a number of isolated living and dead old-growth paddock trees which are present. Such old-growth trees may contain hollows as potential nest sites for owls or other birds , or old-growth trees with basal hollows as potential den sites for devils or quolls.
The proposed exploration program will have no impact on any potential habitat for threatened fauna in the area of remnant forest nor will it involve the disturbance of any standing tree across the property.

ENVIRONMENTAL WEEDS:
One significant environmental weed was observed during the survey within 100 metres of drill pad site No. 2. A well established patch of Gorse *Ulex europaeus* was located to the south of the proposed drill pad site.
Care will be needed during the drilling program to avoid the inadvertent moving of soil from this site to other locations on the property as soil borne seeds of the Gorse may be present at the drill site.

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

Recommendations:

VEGETATION COMMUNITIES:

The proposed drilling program will not impact on any native vegetation community, however care should be taken in the vicinity of Drill Pad Sites 25, 26 and 27 to ensure that all exploration activities are confined to and adjacent to the existing vehicular track which is adjacent to the patch of remnant forest.

No mature trees will need to be felled to accommodate any of the drill pad sites. Ensure the adequate containment within each drill pad site of all silt, sediment and other contaminants resulting from the drilling program to avoid impacting on adjacent soils and vegetation.

THREATENED VEGETATION COMMUNITIES: One threatened vegetation community, *Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits, was observed during the field survey in the vicinity of drill pad sites 25, 26 and 27, however there will be no 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: No species of threatened flora was observed or recorded during the field survey and no specific action is required.

THREATENED FAUNA:

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

THREATENED FAUNA HABITAT:

The proposed exploration program will not impact on any potential habitat for threatened species of fauna and no specific action is required.

ENVIRONMENTAL WEEDS:

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 the exploration area.

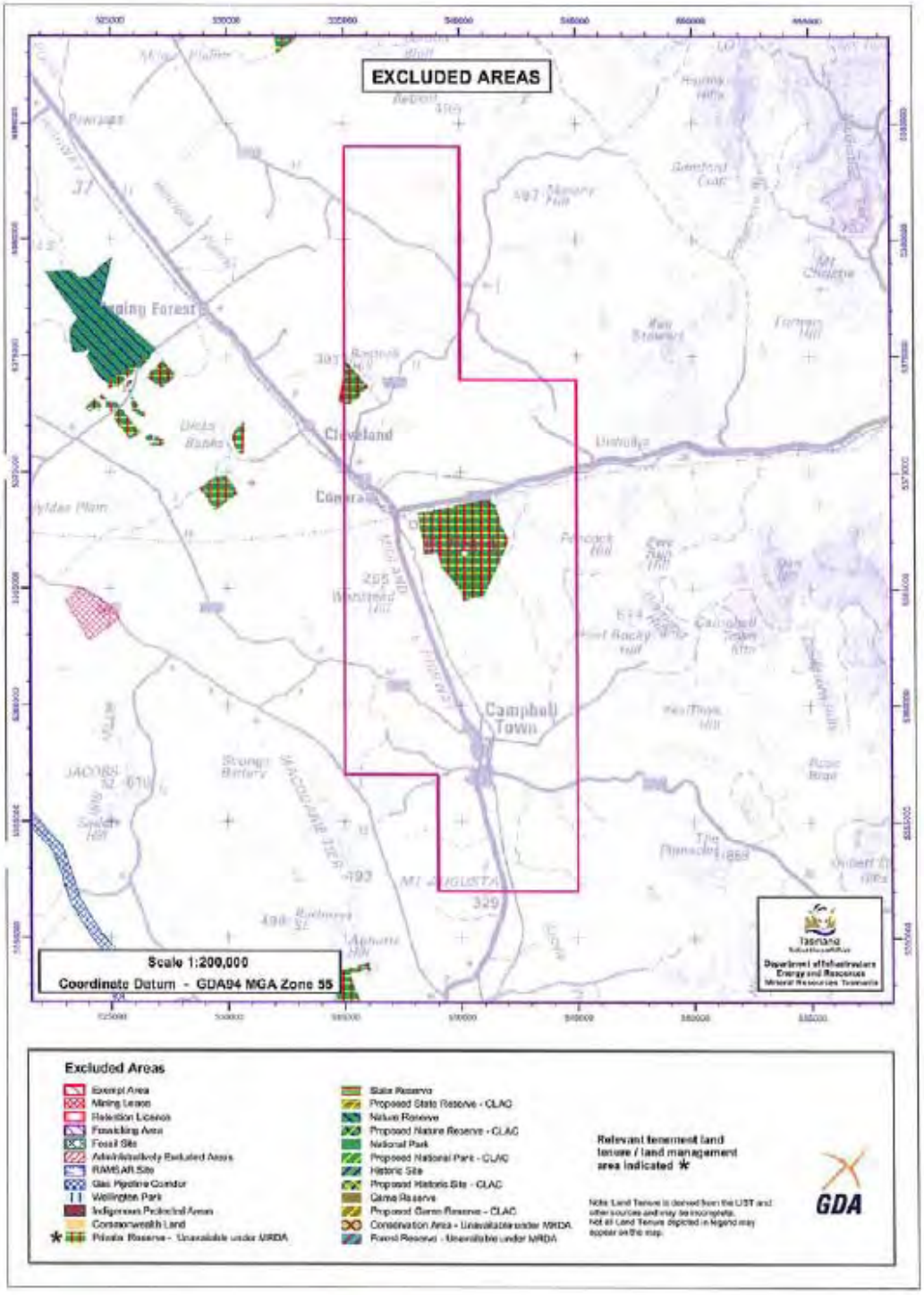
Gorse *Ulex europaeus* was present in the vicinity of drill site No.2. It is recommended that this site be drilled last in order to avoid the inadvertent transfer of soil with the risk of soil borne seed being present being taken to other parts of the property.

Washdown procedures should then be followed before the drill rig is transferred to another exploration location.

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



MAP 1: Exploration License Area with target area immediately north of the town boundary of Campbelltown

PHOTO 1 ……. Drill Pad Site 2 with mixed rough pasture and nearby Gorse infestation.

PHOTO 2 …… Canola Crop

PHOTO 3 …… Stubble Paddock of previous grain crop

PHOTO 4 ……. Improved pasture, well grazed with remnant area of the threatened community *Eucalyptus amygdalina* Inland Forest & Woodland on Cainozoic Deposits in background