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Appendix 1

Resistograph Tree Ageing for Alkane Resources Ltd. - Dubbo

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T.T.A.
TREE TEST AUSTRALIA P/L
ABN: 13 125 947 113
P.O Box 82
NORTHLANDS QLD 4350
Mob: 0418 709 846 E-mail: tree_test_australia@bigpond.com

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Client: Alkane Resources Ltd.
P.O. Box 910
Dubbo NSW 2830
Att: Michael Sutherland

Resistograph Tree Ageing for Alkane Resources Ltd. - Dubbo

Testing Date: 2nd December 2011

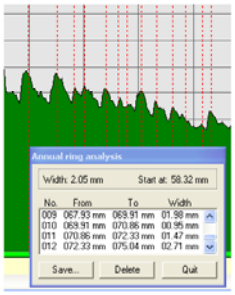
Scope of Work: Scientific age testing (Resistograph) on the specified 13x trees within the mining property/area.

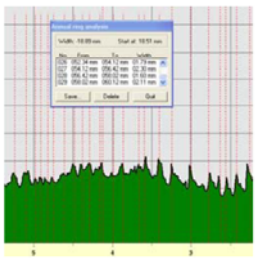
Testing area: Tree # 1 & 2 Cemetery area
Tree # 4 – 9 "Dunoon" area
Tree # 10 – 12 Water pipeline Area
Tree # 14 Tomingley West Road

Methodology:

The Resi PD 400 inserts a 1.4 mm needle (drill bit) into the tree to measure the resistant's of wood. The growth rings are shown as slight spikes in the magnified graph.
In the data processing the "IML Growth Ring Analyzing Software" is employed to quantify the age of the tree.
This method does NOT harm the tree ! (*C. Mattheck*)

As the Resistograph only measures a maximum of 40 cm or decay/dead wood, then for larger trees the following formula is used to extrapolate:
Average number of growth rings per cm (graph) x the ½ diameter (DBH) of trunk equals the age of tree.





Examples of the highly magnified growth rings

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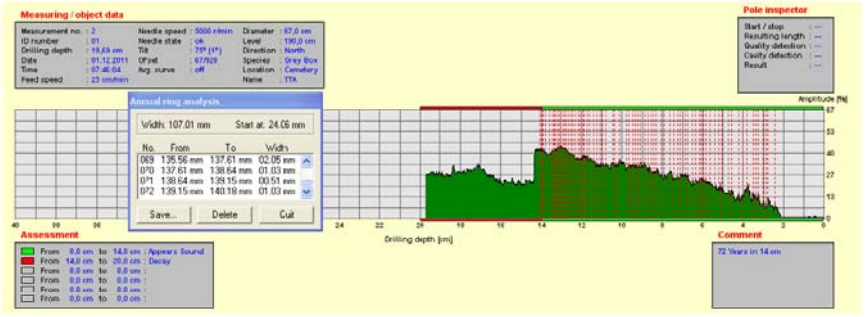
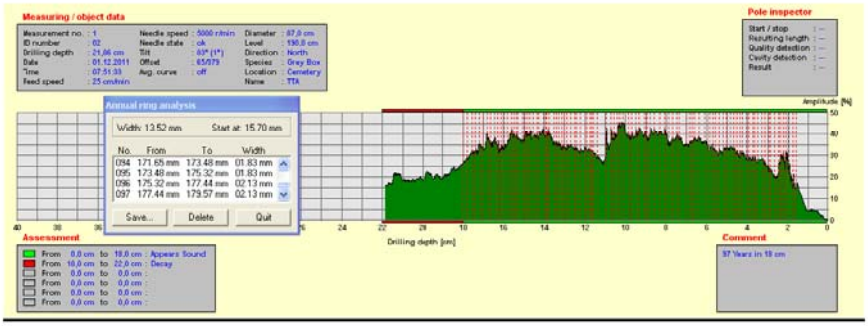
Age Test Measurement Results

 # 1: ***Grey Box***, *Eucalyptus microcarpa*, Cemetery – DBH 870 mm – 1 cm = 5 years – 5 x 43.5 cm (½ diameter) = **217 Years** Drill No. 2.



 # 2: ***Grey Box***, *Eucalyptus microcarpa*, Cemetery – DBH 870 mm – 1 cm = 5.3 years – 5.3 x 43.5 cm (½ diameter) = **230 Years** Drill No. 1.



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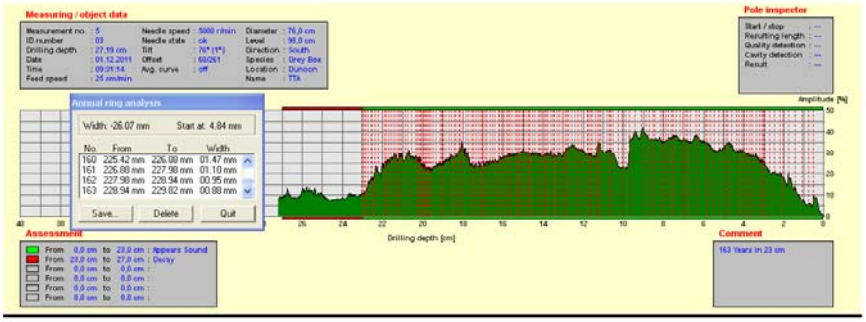
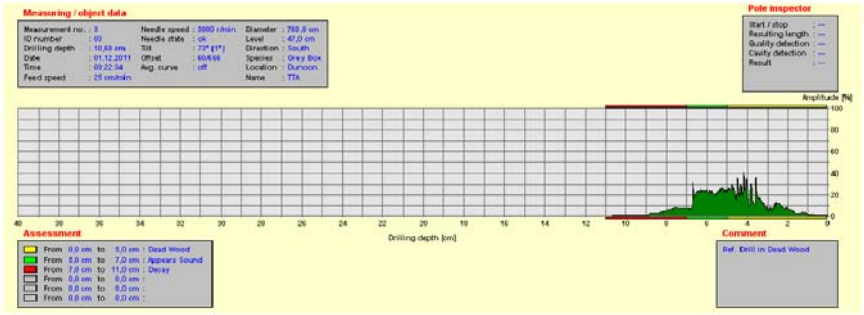
 # 3: ***Grey Box***, *Eucalyptus microcarpa*, (Caved Tree ?) Dunoon – DBH 760 mm – 1 cm = 7.08 years – 7.08 x 38 cm (½ diameter) = **269 Years** Drill No. 4.



 # 3: ***Grey Box***, *Eucalyptus microcarpa*, Dunoon – DBH 760 mm – Reference drill in dead wood. Drill No. 3.



 # 3: ***Grey Box***, *Eucalyptus microcarpa*, Dunoon – DBH 760 mm –Drill through scar tissue – Some dead wood under scar at 85 cm
Drill No. 4.

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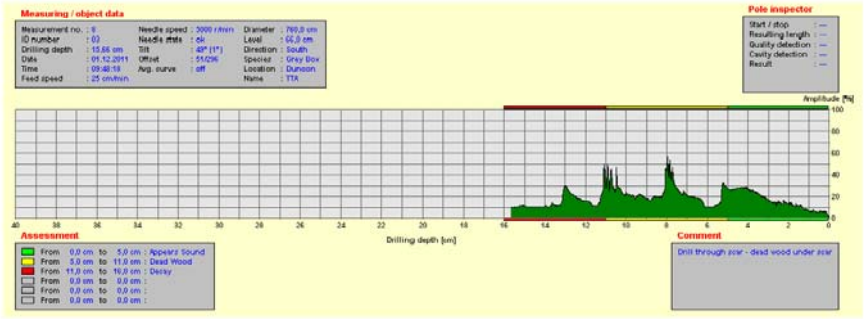
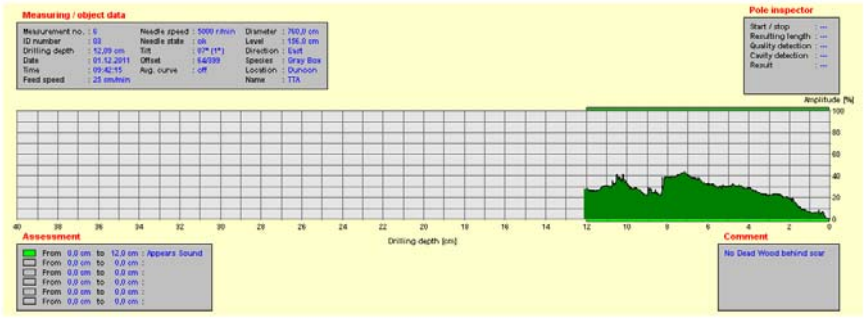
 # 3: ***Grey Box***, *Eucalyptus microcarpa*, Dunoon – DBH 760 mm –Drill through scar tissue –
NO dead wood under scar at **85 cm** Drill No. 7

 # 3: ***Grey Box***, *Eucalyptus microcarpa*, Dunoon – DBH 760 mm –Drill through scar tissue –
Some dead wood under scar at **66 cm**
Drill No. 8.



 # 3: ***Grey Box***, *Eucalyptus microcarpa*, Dunoon – DBH 760 mm –Drill through scar tissue –
NO dead wood under scar at **156 cm > East** Drill No. 6.



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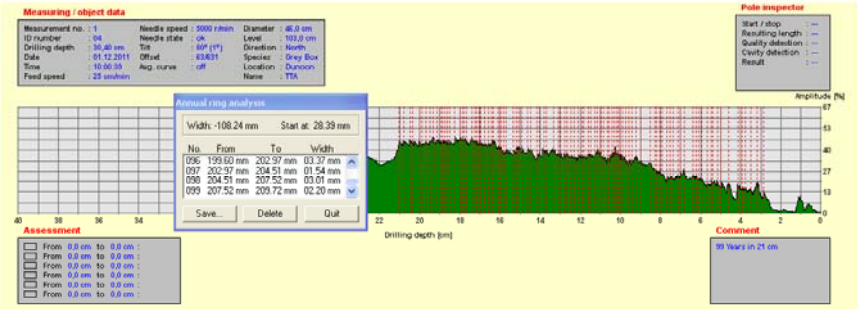
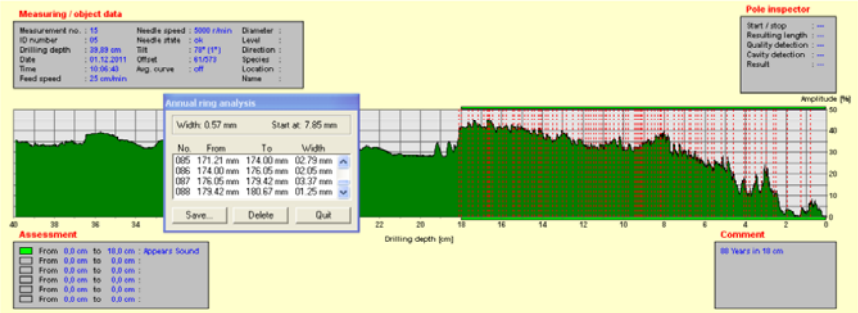
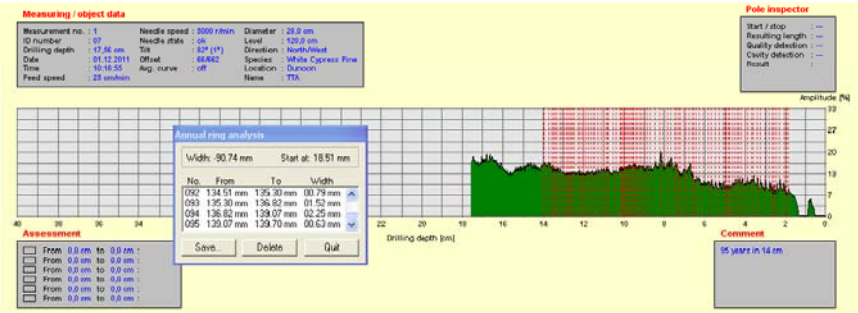
 # 4: ***Grey Box****, Eucalyptus microcarpa*, Dunoon – DBH 460 mm – 1 cm = 4.7 years – 4.7 x 23 cm (½ diameter) = **108 Years** Drill No. 1.



 # 5: ***Grey Box****, Eucalyptus microcarpa*, Dunoon – DBH 730 mm – 1 cm = 4.7 years – 4.8 x 36.5 cm (½ diameter) = **175 Years** Drill No. 1.



 # 7: ***White Cypress Pine****, Callitris columellaris*, Dunoon – DBH 280 mm – 1 cm = 6.78 years – 6.78 x 14 cm (½ diameter) = **95 Years** Drill No. 1.



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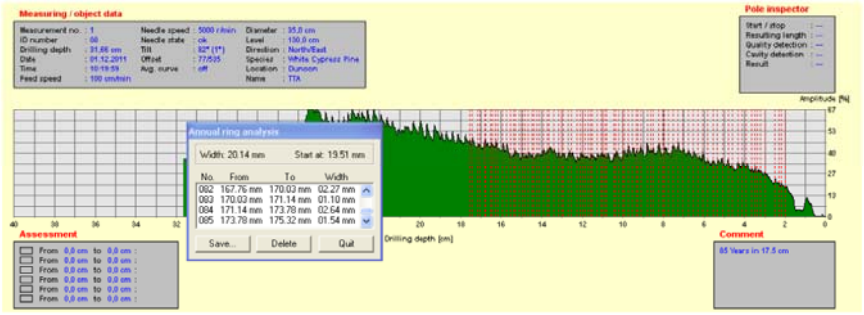
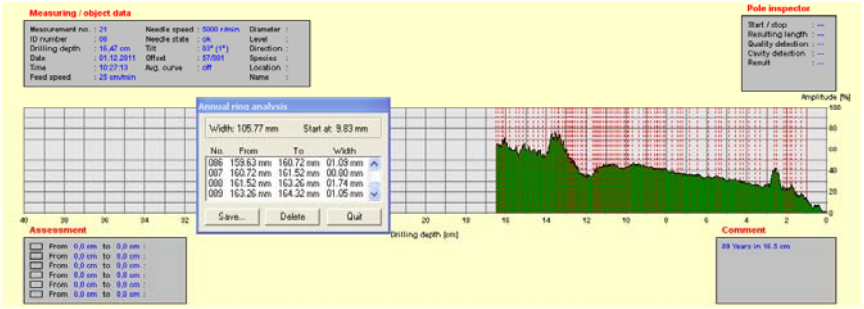
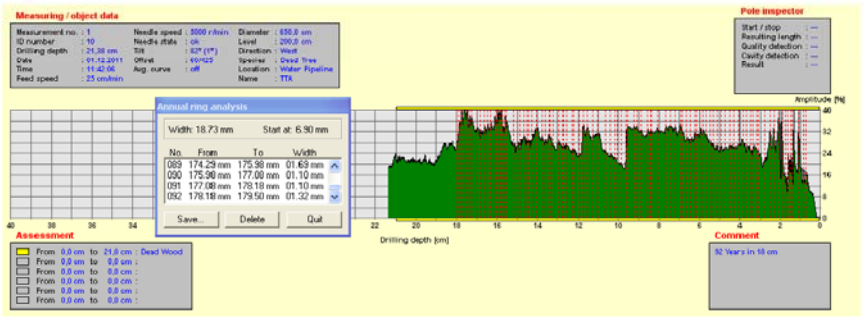
 # 8: ***White Cypress Pine****, Callitris columellaris,* Dunoon – DBH 350 mm – 1 cm = 4.85 years – 4.85 x 17.5 cm (½ diameter) = **85 Years** Drill No. 1.



 # 9:*Buloke**, Allocasuarine luehmannii,* Dunoon – DBH 335 mm – 1 cm = 5.4 years – 5.4 x 16.75 cm (½ diameter) = **90 Years** Drill No. 1.



 # 10: *Dead Tree,* Water Pipeline Area – DBH 650 mm – 1 cm = 5.1 years – 5.1 x 32.5 cm (½ diameter) = **165 Years** Drill No. 1.



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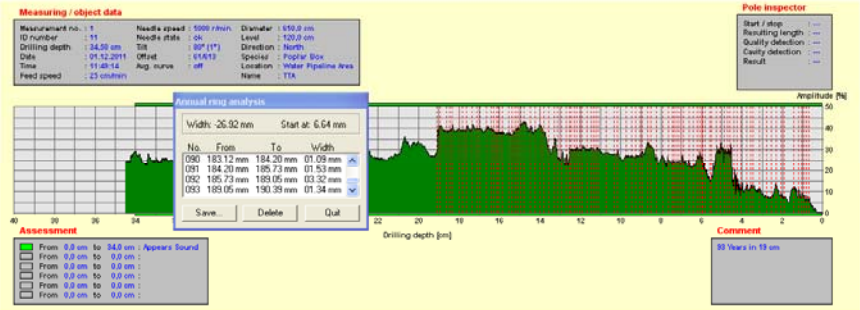
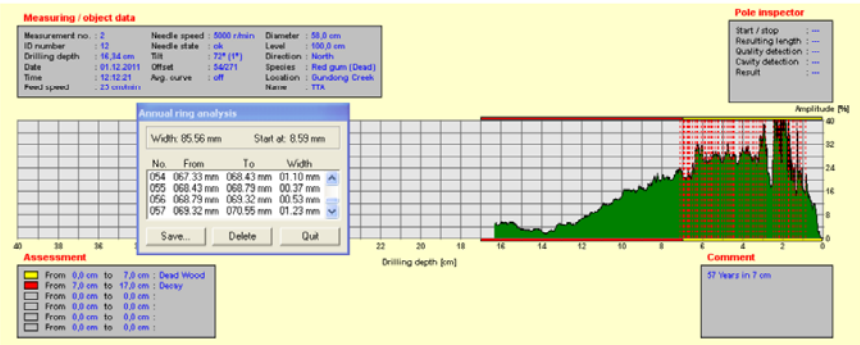
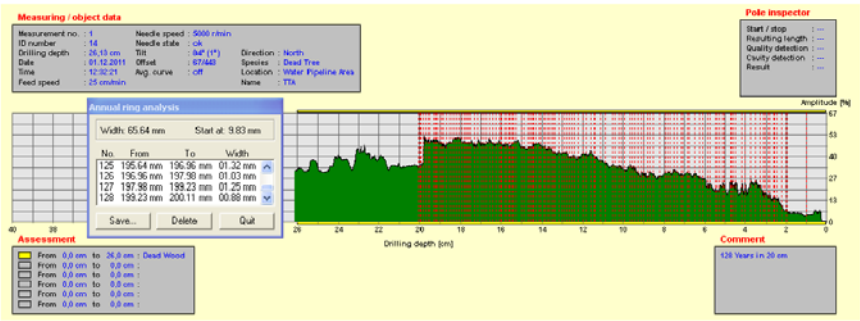
 # 11: *Dead Tree*, Water Pipeline Area – DBH 650 mm – 1 cm = 4.89 years – 4.89 x 32.5 cm (½ diameter) = **158 Years** Drill No. 1.



 # 12: ***Dead Tree***, *Eucalyptus camaldulensis*, Gundong Creek – DBH 580 mm – 1 cm = 8.14 years – 8.14 x 29 cm (½ diameter) = **236 Years** Drill No. 2. (*this test might not be 100% accurate due to the small amount of good wood available.*)



 # 14: ***Grey Box***, *Eucalyptus microcarpa*, Tomingley West Road – DBH 660 mm – 1 cm = 6 years – 6 x 33 cm (½ diameter) = **198 Years** Drill No. 1.



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Aging Results Summary:

Tree # 01 - **217 Years** DBH: 870 mm
Tree # 02 - **230 Years** DBH: 870 mm
Tree # 03 - **269 Years** DBH: 760 mm
Tree # 04 - **108 Years** DBH: 460 mm
Tree # 05 - **175 Years** DBH: 730 mm
Tree # 06 - **Not enough good wood for accurate data.**
Tree # 07 - **95 Years** DBH: 280 mm
Tree # 08 - **85 Years** DBH: 350 mm
Tree # 09 - **90 Years** DBH: 335 mm
Tree # 10 - **165 Years** DBH: 650 mm
Tree # 11 - **158 Years** DBH: 650 mm
Tree # 12 - **236 Years** DBH 580 mm (shield tree on Gundong Creek)
Tree # 14 - **198 Years** DBH: 660 mm

Please refer to the individual measurements.

Summary:

Thirteen (13x) individual trees have been Resistograph tested for age. One (1x) tree # 6 did not have enough sound wood for accurate data processing. Therefore there is no data available for this tree.
Species tested: *Eucalyptus. microcarpa, Callitris columellaris, Allocasuarine luehmannii, Eucalyptus camaldulensis*

Growth rates do vary within the individual trees, even of the same species.
Some influential factors are: Soil quality and consistency, water (exact elevation), domination and competition by surrounding trees, various root and trunk damage etc. etc.
The growth rate for the tested Grey box (*Eucalyptus microcarpa*) ranges from 4.7 years to 7 years per centimeter of growth in this area.
As for tree # 3, tests are showing that there appears to be very little dead wood extending under the scar tissue. (Tests 6 & 7)
See photograph with test points below.
The actual dating of the scars was impossible due to the lack of good wood available and the significant amount of decay in the tested trees.

- *DBH: Diameter at Breast Height*

Equipment used:

- IML Resi PD 400 Electronic Resistograph
- IML Growth Ring Analyzing Software - PD-Tools Pro
- Canon G10 Digital Camera
- Richter steel diameter tape

Please contact us anytime if you have any further questions.

TTA - *P.Blank*
Qualified Consulting Arborists Q.A.A. Certified Member, I.S.A. T.C.A.
Quantified Tree Risk Assessment (QTRA) Registered Licensee # 1729
IML Certified Senior Resi PD/FS Operator.

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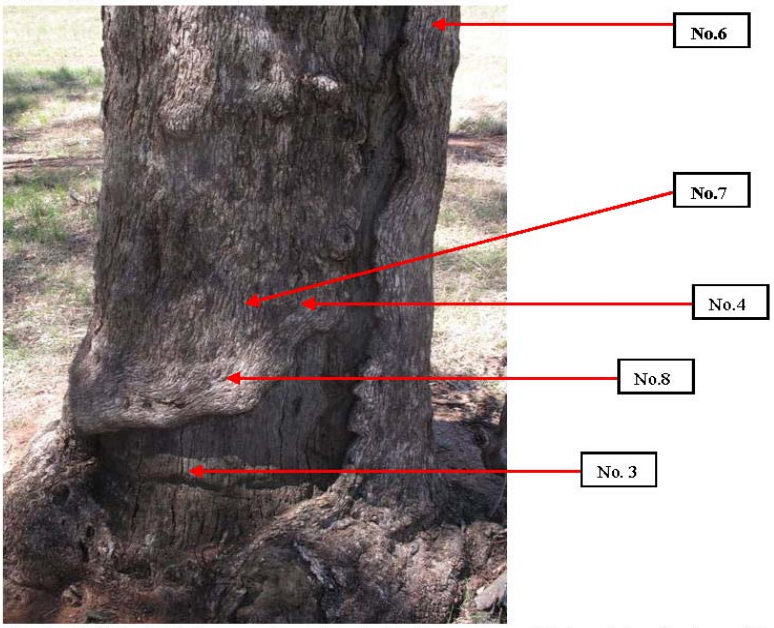
Tree # 3



The 4 x drill/test points on northern trunk for the purpose of determining dead wood behind scar tissue.

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Appendix 2

Results of the investigation of TGP-ST7- Tomingley Gold Project and meeting held on the 14th of December 2011– Letter to Peak Hill LALC

(Total No. of pages including blank pages = 4)

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Environmental & Heritage Management P/L
ABN 59 104 582 354

15th December 2011

Members: Peak Hill LALC
88 Caswell Street
Peak Hill NSW 2869

Dear Cherie Keed

Re: Results of the investigation of TGP-ST7- Tomingley Gold Project and meeting held on the 14th of December 2011

As you have been aware, OzArk and Alkane have been investigating TGP-ST7 for the Tomingley Gold Project due to possible evidence of carving.

In Summary:

On the 1st of December 2011 Peter Blank (Tree Test Australia, Toowoomba) undertook Resistograph Tree Ageing for the scarred tree on the Tomingley Gold Project mining property area. Jenny and Francis Robinson were present for the assessment.

The results of the assessment in terms of tree age, were that ST7 is likely to be 269 years old.

In terms of assessment of the scar itself, the following test was undertaken. Holes were drilled into the edges of the regrowth (see attached Figure) in an attempt to determine whether there is heartwood behind the regrowth that was once exposed (hence becoming compartmentalised). This is because if the scar was created for cultural reasons, it is likely to have originally been larger than it is now and oval or elongated in shape. The exposed wood of the scarred area (which is the area that would have been carved) would have suffered certain types of damage, that the Resistograph can pick up. So if the regrowth was covering previously scarred or carved heartwood, then the drill holes would have found compartmentalised wood beneath the regrowth. The drill holes found no such wood underneath the regrowth.

The interpretation of these findings is that the regrowth is relatively narrow and does not cover parts of a scar, hence the scarring looks quite similar now, to how it would have looked when the scarring occurred. This indicates it is a very irregular shaped scar and far more likely to be associated with ring barking or later damage than with older cultural activities.

If accepted, these findings make it unnecessary to impact the tree any further by removing the bark from around the scarred area in an tempt to determine if there is exposed heartwood beneath the regrowth.

If you would like a full copy of the report's findings, please contact us so that a copy can be sent out.

Alkane held a meeting on Wednesday the 14th of December to discuss the results of the tree investigations. Present were Jodie Benton, Mike Sutherland and Jenny Robinson. Several people gave their apologies as they were unable to attend the meeting. According to Jenny Robinson she feels that there may be an old canoe scar in the higher parts of the tree, but lower marks are unlikely to be Aboriginal carving for a burial tree. Jenny also noted that she thought the location of

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Web: www.ozarkehm.com.au

ST7 was in area unlikely to have been used for burials, due to the clayey soil and the distance from water.

As a result the following decision was made on managing this tree in the face of the Tomingley Gold Project impacts:

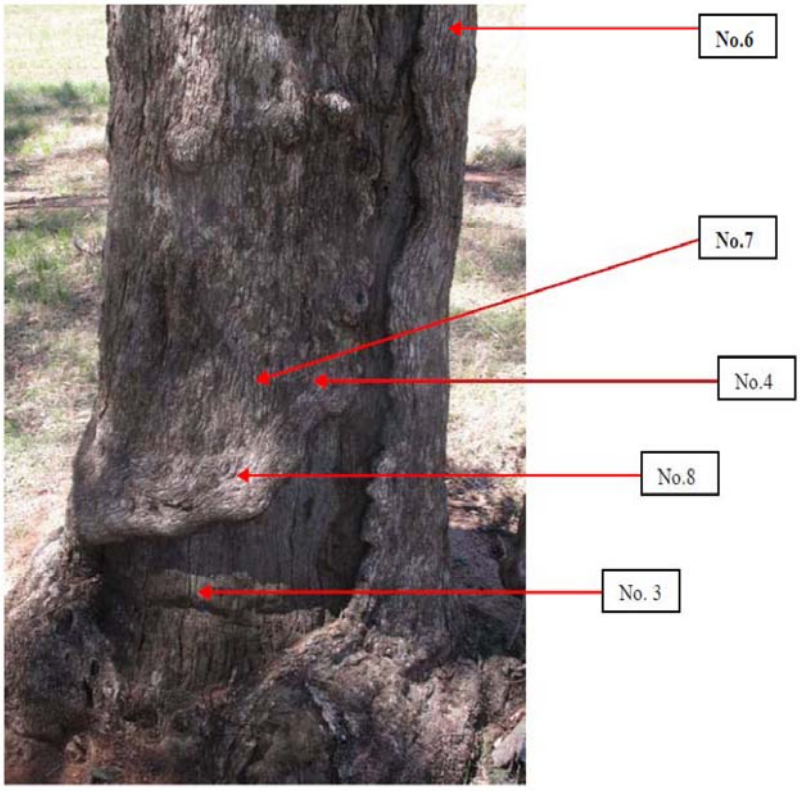
1. OEH AHIMS will be updated to note this tree ST7 is unlikely to be a carved tree but may be a scarred tree;
2. Management will be to remove the tree trunk carefully in two portions and retain these on the mine site for community assessment/protection and possibly education.
3. Aboriginal Stakeholders will be offered the opportunity to be present for the tree removal.
4. The Aboriginal Heritage Assessment Report will be updated to reflect this management.

We would like to thank the Tomingley Gold Project Aboriginal community stakeholders for their participation and input into the processes we have been undertaking in relation to this tree and please let us know if you have any additional feedback that you would like to be considered.

Yours faithfully

Cheryl Burke
Office Administrator

Tree # 3 (ST7) (Tree Test Australia). The drill/test points for determining dead wood behind scar tissue.



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Appendix 3

Archaeological Test Excavation Report - Tomingley Gold Project: Archaeological Test Excavations at site TGP-HS6 and further investigation of site TGP-HS5, February 2012

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TGP –HS6 Site. View south, showing bricks, metal objects and some timber.

Environmental and Heritage Management P/L

ARCHAEOLOGICAL TEST EXCAVATION REPORT

Tomingley Gold Project: Archaeological Test Excavations at site TGP-HS6 and further investigation of site TGP-HS5

February 2012

Report Prepared by
OzArk Environmental & Heritage Management Pty Ltd
for Alkane Resources

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DOCUMENT CONTROLS

Proponent	Alkane Resources		
Client	RW Corkery		
Project No / Purchase Order No			
Document Description	Test Excavations at site TGP-HS6 and further investigation of site TGP-HS5 February 2012		
	Name	Signed	Date
Client's Reviewing Officer			
Client's representative managing this document		OzArk Person(s) managing this document	
		Jen McGhee	
Location Tomingley Gold Mine Site TGP-HS6		OzArk Job No. 677	
Document Status V1.2		Date:	
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Draft V1.2 Report Draft for release to client (Series V2.X = OzArk and Client edits)		V2.1 OzArk to Alkane/RWC 23.2.12 V2.1 edits from RWC 24.2.12	
FINAL once latest version of draft approved by client		V3.0 OzArk to Alkane/RWC 24.2.12	
Prepared For		Prepared By	
Mike Sutherland Alkane Resource		Jen McGhee and Dr Jodie Benton OzArk Environmental & Heritage Management Pty. Limited P 02 6882 0118 F 02 6882 6030 Email: jodie@ozarkehm.com.au	

EXECUTIVE SUMMARY

Alkane Resources Ltd (the Proponent) proposes to develop the Tomingley Gold Project (TGP) which will involve the establishment of mining operations over 734ha of land adjacent to the township of Tomingley (referred to as the Mine Site), as well as a 46km water pipeline from a groundwater bore located on private property (Woodlands) 7km east of Narromine to the Mine Site (referred to as the TNWP Study Area) and a 20km electricity transmission line to bring power from Peak Hill (referred to as the PHTETL Study Area). The life of the TGP would be approximately 5 to 8 years.

This report details the results of test archaeological excavations carried out at historic site TGP-HS6 and further investigation of site TGP-HS5, both of which are located within the Mine Site Study Area.

The location of sites TGP-HS5 and TGP-HS6 is within the area proposed for Waste Rock Emplacement 3 (**Figure 1**). The two sites are within 100 metres of each other, located in a previously cropped paddock that has a history of heavy agricultural use and mining exploration.

The impacts to the sites from the TGP will see the complete destruction of any surface manifestations of the existing land across this entire area.

Excavations at TGP-HS6 and further assessment of the implements at TGP-HS5 indicate that these sites are of limited local interest. Nothing recovered demonstrates *in situ* structures although an ephemeral hut cannot be completely ruled out. If one did exist, however, it is so destroyed as to be now impossible to interpret.

The artefacts present include domestic and agricultural materials that are common and of limited historical value. The agricultural machinery is in very poor condition and, due to bulldozing, is twisted, entwined and unrecognisable as individual machinery items. These items are prolific in the surrounding areas and no longer function as originally designed.

In conclusion, it is determined sufficient material has been obtained and documented from the sites TGP-HS6 and TGP-HS5 for recording purposes. As there is none to limited local historical significance for both sites there is no need for a management plan for these sites.

No further archaeological investigation is warranted prior to the destruction of these sites. A comprehensive photographic record was collected throughout the excavations such that no further archival documentation is considered necessary.

CONTENTS

FIGURES

1 INTRODUCTION

1.1 BRIEF DESCRIPTION OF THE PROPOSAL

Alkane Resources Ltd (the Proponent) proposes to develop the Tomingley Gold Project (TGP) which will involve the establishment of mining operations over 734ha of land adjacent to the township of Tomingley (referred to as the Mine Site), as well as a 46km water pipeline from a groundwater bore located on private property (Woodlands) 7km east of Narromine to the Mine Site (referred to as the TNWP Study Area) and a 20km electricity transmission line to bring power from Peak Hill (referred to as the PHTETL Study Area). The life of the TGP would be approximately 5 to 8 years.

1.2 PROPOSED WORKS

This report details the results of test archaeological excavations carried out at historic site TGP-HS6 and further investigation of site TGP-HS5, both of which are located within the Mine Site Study Area (Figure 1).

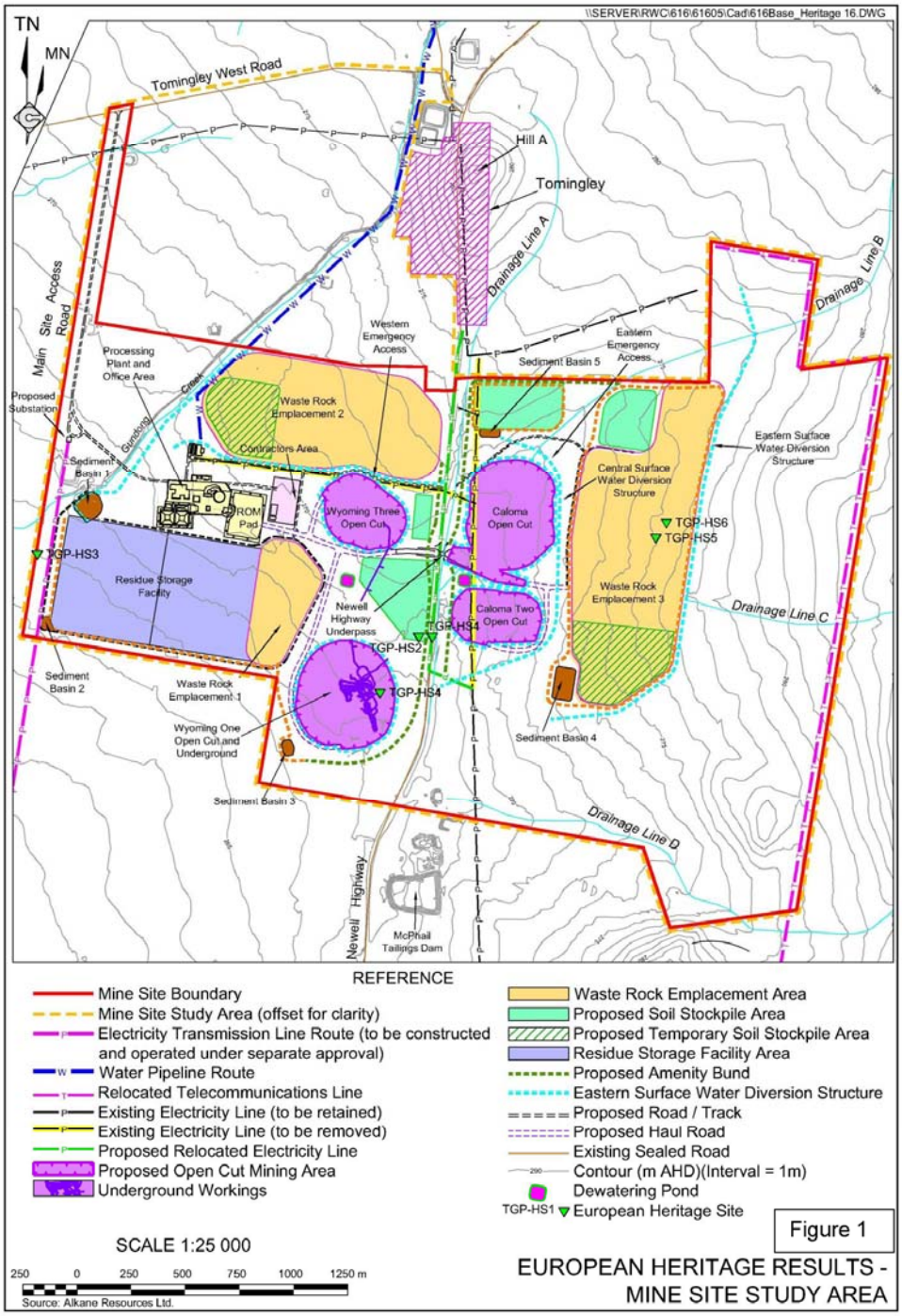
The location of sites TGP-HS5 and TGP-HS6 is within the area proposed for Waste Rock Emplacement 3 (**Figure 1**). The two sites are within 100 metres of each other, located in a previously cropped paddock that has a history of heavy agricultural use and mining exploration.

The impacts to the sites from the TGP will see the complete destruction of any surface manifestations of the existing land across this entire area.

1.3 ARCHAEOLOGICAL INVESTIGATIONS

Excavations at TGP-HS6 were required to determine if this site has any historical significance. To do so, it was necessary to determine whether the mounded material on site was the remains of an "*in-situ*" dwelling or bulldozed material containing mixed objects in a secondary deposit. TGP-HS5, 100 metres to the south of TGP-HS6 is a collection of agricultural machinery that will be researched to determine historical significance and any association with TGP-HS6.

Figure 1: Location map showing TGP-HS5 and TGP-HS6.



2 THE PROJECT

2.1 PURPOSE AND OBJECTIVES OF THE TEST EXCAVATION

The purpose of the current excavation is to determine the nature and extent of site TGP-HS6 and TGP-HS5. The objectives of the study are as follows:

Objective One: To excavate and investigate TGP-HS6 for evidence of a possible dwelling; relics below bulldozed material to enable a more accurate assessment of the significance of the site.

Objective Two: To investigate site TGP-HS5 to determine the significance of the machinery there and the relationship of this area to TGP-HS6, which is 100 metres to the south.

Objective Three: to analyse the archaeological findings.

Objective Four: to use the archaeological findings from TGP-HS6 and TGP-HS5 to inform future management of the site in regards to the proposed impacts from the TGP.

2.2 DATE OF TEST EXCAVATION

7-8 February 2012.

2.3 OZARK EHM INVOLVEMENT

2.3.1 FIELD ASSESSMENT

The fieldwork component of the archaeological test excavation was undertaken by:

- Fieldwork director: Dr Jodie Benton (Director of OzArk EHM); and
- Archaeological assistants: Jen McGhee and James Sutherland.

2.3.2 REPORTING

The reporting component was undertaken by:

- Report author: Jen McGhee; and
- Reviewer: Dr Jodie Benton (PhD, University of Sydney).

3 PROJECT METHODOLOGY

The test excavation programme was designed to:

- Determine whether sub-surface archaeological deposits are present at TGP-HS6 and, if so, the integrity, spatial distribution, extent, and nature of these deposits;
- Characterise the objects found at TGP-HS5 and TGP-HS6, types of materials and structures if any and their historical significance;
- Assess the significance of any archaeological deposits; and
- Provide management recommendations.

Determining the *integrity* of the site involves an assessment of the 'intactness' of the archaeological material within the landscape. This leads into the second factor, which involves an assessment of the amount of disturbance that has occurred in the landscape either through taphonomic processes or through other forms of sub-surface disturbance such as agriculture practice.

Determining the *extent* of the site involves broad assessment of the boundaries of the artefactual material. This includes attempting to determine the background presence of artefacts versus higher densities or unusual/diagnostic artefact types (i.e. 'features'). Have agriculture and gold mining activities impacted the site.

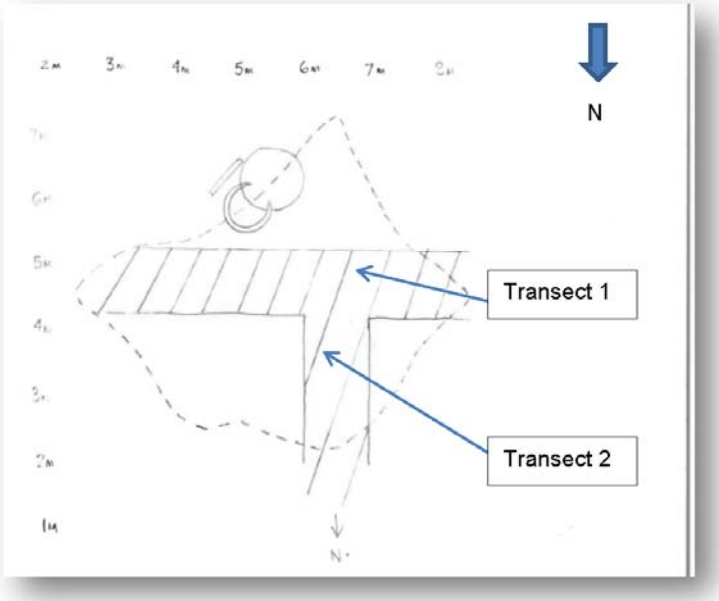
3.1 TEST EXCAVATION CONSTRAINTS

There were no constraints at either TGP-HS6 or TGP-HS5 as the area was clear of physical obstructions, the weather was fine and the soil at TGP-HS6 was soft. Trenches were dug easily with the help of a backhoe.

3.2 LAYOUT OF EXCAVATION TRENCHES

TGP-HS6 has a site focus comprising an 8 metre x 8 metre central mound rising approximately 60cm above the ground surface. After site photography was undertaken and site maps drawn, objects from the surface of the mound were removed and laid out to the side to avoid impact from the backhoe. A single linear trench (Transect 1), 1 metre wide was excavated in an east-west direction through the centre of the site (**Figure 2**). This trench was excavated in two spits of approximately 30 cm depth. A perpendicular trench (Transect 2) was excavated from the centre of Transect 1 out to the north, through the centre of the site, again in two spits. Both trenches were excavated to a basal clay layer clear of any objects.

Figure 2: Diagram shows trench location through TGP-HS6



3.4 OBJECTIVES OF ANALYSING ARTEFACTS

Analysing the artefacts allows us to better understand the possible context of the site, which will aid in determining historical significance. The objects at both sites may be from the same time period or may represent secondary deposits from another time and place. Analysis will allow us to assess and determine the historical significance of both sites and determine any correlation between the two sites.

3.5 ARTEFACT RETRIEVAL

Excavation was conducted on both days of the programme. Site TGP-HS6 was photographed and drawn before the removal of obvious surface objects from the main mounded area and the surrounding area. The soil from the excavations was stock-piled and raked through to retrieve artefacts. Sieving of deposits was not considered necessary, as most material present was large in scale. An inventory was made of the objects found.

A representative sample of artefacts, as well as anything unusual, was collected from TGP-HS6 and have been photographed and retained for a future Mine Office display should project approval be forthcoming. They have been stored with OzArk at their Dubbo premises for collection by the Propoent when required.

TGP-HS5 was photographed; however, no artefacts were collected from this site as it was mostly comprised of large pieces of agricultural machinery.

4 LANDSCAPE CONTEXT

4.1 BRIEF LAND USE HISTORY

Tomingley is within the Wiradjuri tribal area, situated in Central West NSW. The region was used by Aboriginal people for millennia prior to European settlement.

The area was then explored and inhabited by European settlers as early as the 1830s. European settlers used this land for agriculture in the 1840s and 50s, with mining exploration and operations beginning around 1879. The most recent century has mostly seem the Mine Site Study Area used for agricultural purposes; cropping and grazing.

5 HISTORICAL CONTEXT

Refer to Section 9.4 of the Cultural Heritage Report 2011 (Part 5 of the Specialist Compendium supporting the EA for the TGP) for detailed information which will not be repeated here. The objects found at TGP-HS6 and TGP-HS5 may relate to either of the two primary historical uses of the land, namely gold mining and agriculture.

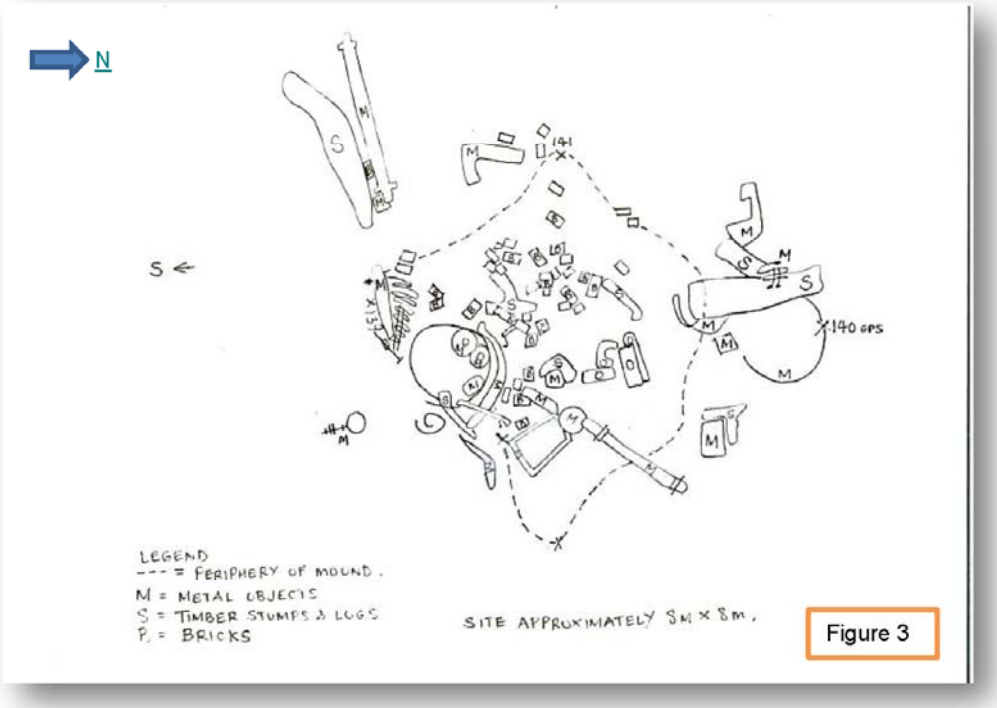
6 EXCAVATION RESULTS

6.1 SITE TGP-HS6

The surface material from the mounded portion of Site TGP-HS6 was primarily twisted and entwined rusted metal objects mixed with burnt wood and bricks. **Figure 3** is a plan drawing of the surface material with **Plates 1** and **2** showing the nature of the material.

The twisted and entangled nature of the surface material strongly indicated that the material had been pushed up and mounded via machine action. The current landholder[1], stated that the artefacts found at both TGP-HS5 and TGP-HS6 were originally strewn across the area and that he had used a bulldozer to make two separate piles five to six years ago. He also mentioned that he had burnt a pile of rubbish on the TGP-HS6 site around this time.

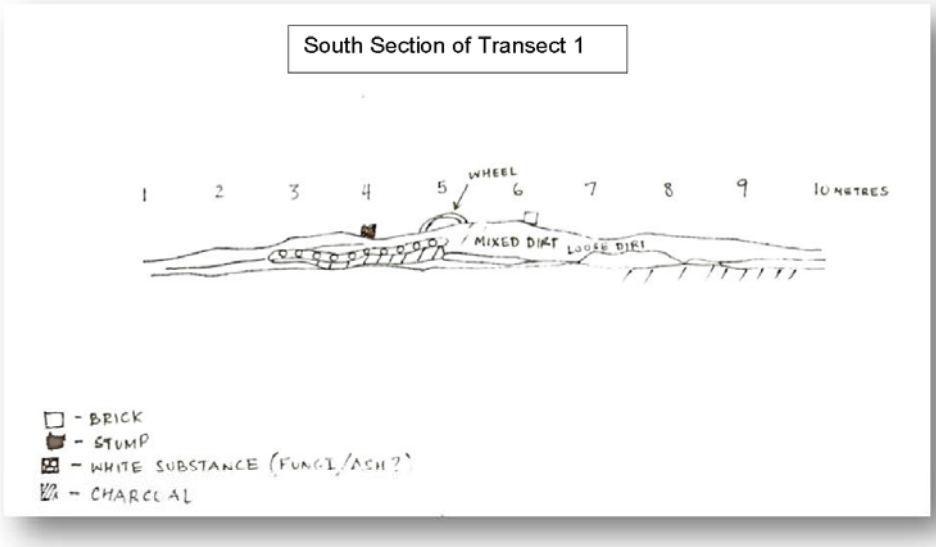
Figure 3: Showing site diagram of TGP-HS6



[1] Mr Glenn Pugh. OzArk would like to thank Glenn for his input whilst we were undertaking excavations.

The excavation of Transects 1 and 2 into the mounded portion of site TGP-HS6 showed that artefactual material, along with ash and charcoal extended to a depth of c. 40-50 cm below the surface of the mound, sitting directly onto a reddish clay soil basal layer. **Figure 4** shows the section of Transect 1, also shown in **Plate 5.**

Figure 4: South Section of TGP-HS6 East West Trench showing charcoal and clay seams as well as surface objects



The soil removed by the backhoe was put to the side and raked through for any objects. Recovered were bricks, assorted pieces of metal, some ash and small pieces of burnt timber (**Plates 2, 7-11**). Collected from the near vicinity were additional similar materials as well as ceramic and glass fragments (**Plates 12 - 13**).

6.1.1 ARTEFACTS FROM TGP-HS6

6.1.1.1 METAL OBJECTS

Many of the elements recovered from the site were disassociated and difficult to interpret. Commonly found were twisted, heavy gauge fencing wire, as though they had held together fencing posts. Elements from a horse drawn wagon with axle wheel rims were also recovered, and although it was not possible to discern manufacturer or dates, many wagon wheels were recovered from the area surrounding TGP-HS6.

Two rusted single cast iron bed frames (**Plate 11**) with decorative badges were found, being some of the few objects that can be ascribed to a domestic rather than agricultural setting

Broken pieces of at least one wood stove (cast iron) with lighthouse decoration was recovered. The front door of this stove bears the typical beacon lighthouse that points to the manufacturer, Metters Ltd of Sydney. Metters was an Australian stove manufacturing company, established in Adelaide in 1891, that supplied mid-priced wood and fuel stoves first to south and western Australia, later expanding to the east coast. Metters products followed established practice and were often directly copied from American or British imports. The Beacon Light series of stoves patented the 'top-fire' fuel stoves, that heated a hob above and an oven below, and were manufactured between 1900 and 1939 (PowerhouseMuseum.com).

6.1.1.2 BRICKS

Many bricks were recovered from site TGP-HS6, all appearing to be hand-made sandstock bricks (probably dating from 1850-1870, but possibly later considered the rural context) from a fire place/chimney (**Plate 7**). The bricks found had varying diamond and oval shaped indents otherwise known as frogs. Sandstock bricks found in the Sydney area and shown to have the diamond shaped frog, are often described as 'convict' bricks.

The first bricks made in Australia were sandstock bricks. Soft clays were thrown into a timber box (the *stock*) which had sand sprinkled in it to prevent the clay sticking to the box. The resulting bricks, sun-dried in the earliest days of colonisation but later fired in primitive kilns (as the bricks at TGP-HS6 have been), had their own unique combination of lumps and folds, with a rough sandy texture (Birmingham et al 1983).

The mixture of brick types (different frogs, brick sizes and possibly firing temperature/ methods), as well as the lack of any bonding holding two bricks together increases the likelihood of these bricks being in a secondary deposit.

6.1.1.3 MISCELLANEA

Small pieces of broken glass and pottery were also found scattered around the mounded area of TGP-HS6 (**Figures 12 – 13**). These were very non-descript items – the ceramics all plain white and the glass primarily too small to interpret. One base of a glass sauce bottle was found.

6.2 SITE TGP-HS5

This site is a collection of agricultural machinery pushed up against a large box tree. The machinery is a mixture of items, but at minimum, the following items could be discerned (or parts thereof).

<u>Meadow Bank Mouldboard Ploughs</u>

A major advance in plough design was the mouldboard, which comprised a knife or skeith cutting into the ground ahead of frog. Such ploughs came in a horse-drawn single-furrow type with a single wheel at the front and handles at the back for steering. Remnants of a single

furrow plough were seen at TGP-HS5. Other mouldboard ploughs were designed with wheels at either side and either two, three or four plough blades between them for multiple furrowing. These were again horse drawn although more horses were required for the weight of the broader plough. A four disc mouldboard plough was also seen at site TGP-HS5.

The Meadowbank Manufacturing Company's advertisement in the 1911 Sydney Morning Herald exhibit included a great variety of agricultural implements, including mouldboard ploughs.

Ballast Tank

An old ballast tank was also found at site TGP-HS5. Ballast tanks were original created for use on ships to control weight. Once no longer needed, however, they were put to a multiple of different uses and can often be found lying around farming properties. Landowner Glenn Pugh noted that farmers re-used them for a number of purposes, including for storage and for use as dog kennels.

H.V McKay 'Sunshine' header-harvester

Among the machinery pieces were the remnants of an old H.V McKay 'Sunshine' header-harvester (**Plate 16**), being a ground drive model (Glenn Pugh Pers. Comm. 8.02.12). Ground driving is an "in-hand" technique where the horse is equipped with a saddle or surcingle, bridle, and a pair of long 'reins' which are held by a handler who walks behind the horse and drives him forward (http://forequestrians.com/Articles).

HV McKay is an Australian company, established several times through the late 1800's due to changing fortunes. With the help of friends, McKay eventually managed to regain enough capital to re-purchase his own business and begin building harvesters again. This was around the same time that he saw a lecture by Rev. Dr. Thomas De Wit Talmage, which prompted him to rename his business "Sunshine". The following day, in July 1893, McKay, with the help of Jim Menzies (father to Robert Menzies, later Prime Minister of Australia) painted "Sunshine" across all the McKay harvesters (Arnold 2005: 14).

Noxon seeder

A seeder of the Noxon brand had also been pushed up in the pile of machinery at TGP-HS5 (**Plate 17**). Two parts bore the labels 'L315' and 'L388', which relate either to the single or double furrow function of the seeder.

The Noxon Brothers Manufacturing Company was incorporated in Canada in 1872, manufacturing a wide range of seeders, reapers and mowers.

Miscellanea

An unidentified heavy-duty object was found bearing the insignia of Victorian-based agricultural implement makers, T. Robinson & Co. This was a long-lived Melbourne-based agricultural

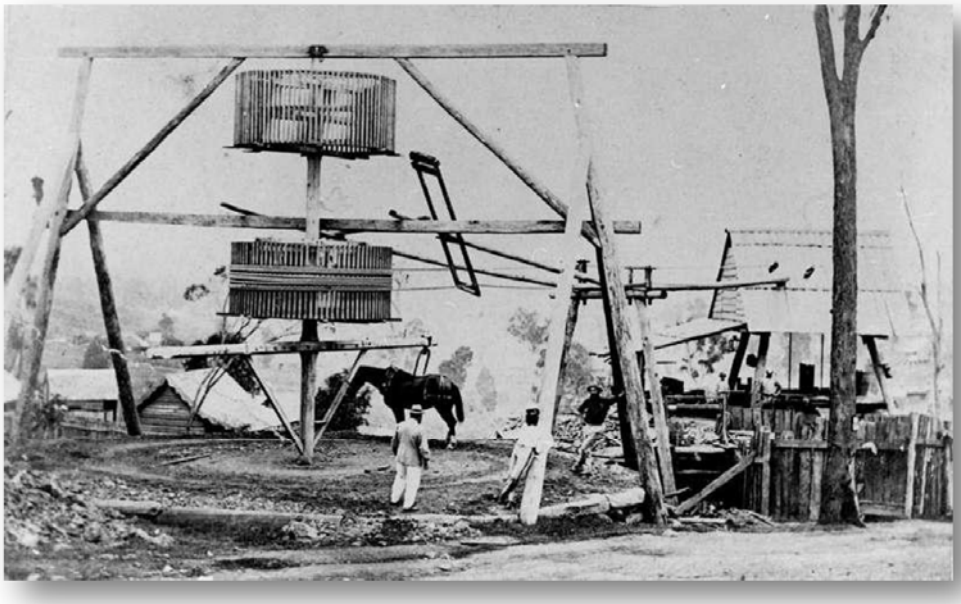
implement maker and importer. In business for over 120 years, the company operated in a number of locations including Melbourne, Spotswood and Sydney. In 1855 the company was first listed in the Melbourne directories. After Robinson's death in 1862, James Hutchings took over as the main proprietor until the 1884, when James Hutchings died. The firm remained a private company up to 1889 (www.museumofvicotoria.com).

T. Robinson & Co. was awarded several prize medals, including one at the 1870 Intercolonial Exhibition, Sydney. The company displayed no fewer than 45 implements and machines, including a 'four-way motion for driving four machines at the same time', a self-filling canvas water bucket, a thistle mower with wrought iron fingers, a cultivator, a horse hoe, a horse chaffcutter and a four-horse threshing and cleaning machine (museum of Vicotoria.com).

A horse drawn whim

Items possibly related to a horse powered whim implement were also found at the site. The whim which was made up of several iron cogs was used as a power generator for activities such as shearing (Glenn Pugh. Comm.08.02.12) or for raising materials from mine shafts (**Figure 5**).

Figure 5: A horse powered whim, in operation on a gold mine in Gympie, Qld in the 1870s (source - www.bonzle.com/pictures).



7 DISCUSSION

7.1 SITE TGP-HS6

Excavations at site TGP-HS6 provided no definitive evidence of a structure with any "*in-situ*" elements remaining extant. There was no evidence of any sub surface objects or foundations and ash layers and charcoal remains in the section walls of Transects 1 and 2 provided evidence of a fire on the top of the mounded materials. The mixted nature of the objects in this intense zone on the site showed that more than likely the area was a dump and all the objects had been pushed up into a mound. Current landowner Glenn Pugh confirmed these findings by stating that he had pushed the objects found at TGP-HS5 and TGP-HS6 to their current locations five to six years ago and had a fire at TGP-HS6 at that time (Glenn Pugh Pers.Comm.08.02.12).

Discussions with Mr Bruce Maclean, however, whose family owned this property for 60 years prior to Glenn Pugh, records that it was purchased from the Clarkes in the 1950's, and that part of the old wagon was still standing in the 1980's (Bruce Maclean Pers. Comm. 20.10.09). Bruce also notes that his father described an old shed as being in that location (Pers. Comm. 20.10.09).

If there was an old hut on this site, it may have been an ephemeral surface dwelling with no foundations or sub-surface evidence remaining of its existence in this location. Horseshoes were found in the area, one in a half-complete stage and both landholder Glenn Pew and the OzArk team discussed the possibility of their being a small blacksmith / forge hut that could have been used for machinery repairs and horseshoe making, hence the amount of metal equipment clustered in the area.

7.2 SITE TGP-HS5

The machinery that comprises site TGP-HS5 is primarily agricultural, with one possible item that could have derived from mining activities.

It is now understood that the machinery of this site was, up until 5-6 years ago, strewn across the surrounding paddock between TGP-HS5 and TGP-HS6, and was thus original associated with TGP-HS6. From this point forward, the two sites will be assessed as a single entity due to their known connectedness, and will be referred to as site TGP-HS5/6.

8 SIGNIFICANCE

8.1 GENERAL PRINCIPLES

The assessment of heritage significance is a process of examining the various factors and values which bear upon a place, building or structure and determining what level of significance, if any, the item may have with respect to an established set of heritage criteria. Broadly speaking, these criteria are based on the four values set out in the Australia International Council on Monuments and Sites (ICOMOS) Burra Charter and are the methodology accepted by heritage authorities and professional consultants. These criteria are:

- historic significance;
- aesthetic significance;
- scientific significance; and
- social significance.

The Heritage Council of NSW has defined a set of heritage significance criteria against which the heritage significance of an item may be judged. The use of standardised criteria helps achieve consistency in the assessment process and provides a basis for comparative assessment between types or classes of items.

The Heritage Council significance criteria are as follows:

- **Criterion (a)** – an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);
- **Criterion (b)** – an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);
- **Criterion (c)** – an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
- **Criterion (d)** – an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
- **Criterion (e)** – an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);
- **Criterion (f)** – an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);
- **Criterion (g)** – an item is important in demonstrating the principal characteristics of a class of NSW's:
  - cultural or natural places; or
  - cultural or natural environments: or
  - a class of the local area's:

- cultural or natural places; or
- cultural or natural environments.

In many cases, items or places will be significant under only one or two of these criteria. Structures or items that do not function in their original context are much less able to demonstrate the qualities for which they were originally designed and this thereby reduces their heritage significance.

8.2 SIGNIFICANCE ASSESSMENT OF TGP-HS5/6

The following significance assessment is based on the significance criteria of the Heritage Council of NSW, as outlined in **Section 8.1**.

Neither of the sites are listed on any government heritage databases. The following relates the significance criteria to site TGP-HS5/6, for which we now have additional information based on the results of the investigations documented in this report. Please note that the assessment of these sites will be combined as we are aware that this material once formed a contiguous spread of materials.

Criterion (a) – an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);

- TGP-HS5/6 (Possible structure remains, agricultural machinery and possibly one item of mining machinery): Development of agriculture in the Tomingley area predated mining but also no doubt expanded significantly once mining had caused the population increases of the late nineteenth century. These remains attest to the agricultural history of the area and possibly also the mining history. The remains of a possible ephemeral blacksmiths hut cannot be ruled out, but there was little direct evidence for this. Such sheds may be considered a common phenomenon on early agricultural properties, for the repair of machinery.

Criterion (b) – an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

- TGP-HS5/6 (Hut(?) and agricultural machinery): Despite considerable historical research, these items cannot be seen to directly relate to this significance criterion

Criterion (c) – an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

- Neither of the sites can be seen to relate specifically to this significance criterion.

Criterion (d) – an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

- Neither of the sites provide evidence of particular connections on a social, cultural or spiritual level to parts of the Peak Hill and Tomingley community.

Criterion (e) – an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)

- TGP-HS5/6 (Dwelling and agricultural machinery): As the remains of the possible hut of TGP-HS6 bear no foundation evidence and as excavations have been undertaken, we can conclude that there is no further information to be gleaned from the site to relate to the cultural or natural history of the area.

Criterion (f) – an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).

- The site does not contain uncommon, rare or endangered aspects of the local area's history.

Criterion (g) – an item is important in demonstrating the principal characteristics of a class of NSW's:

- *cultural or natural places; or*
- *cultural or natural environments: or*
- *A class of the local area's:*
- *cultural or natural places; or*
- *cultural or natural environments.*

- Again, TGP-HS5/6 does not demonstrate the principal characteristics of a class of NSW's or the local areas cultural or natural place.

8.2.1 Summary Statement of Significance

Excavations at TGP-HS6 and further assessment of the implements at TGP-HS5 indicate that these sites are of limited local interest. Nothing recovered demonstrates *in situ* structures although an ephemeral hut cannot be completely ruled out. If one did exist, it is so destroyed as to be now impossible to interpret.

The artefacts present include domestic and agricultural materials that are common and of limited historical value. The agricultural machinery is in very poor condition and, due to bulldozing, is twisted and entwined and unrecognisable as individual machinery items. These items are prolific in the surrounding areas and no longer function as originally designed.

9 RECOMMENDATIONS

Sufficient material has been obtained and documented from the sites TGP-HS6 and TGP-HS5 for recording purposes. As there is none to limited local historical significance for both sites there is no need for a management plan for these sites.

No further archaeological investigation is warranted prior to the destruction of these sites. A comprehensive photographic record was collected throughout the excavations such that no further archival documentation is considered necessary.

10 REFERENCES

Arnold 2008 — Arnold, K. *Harvester Works. HV McKay: An Agricultural Icon*. Trojan Press, Victoria.

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PLATES

Plate 1: Overhead view of site TGP-HS6. Main mounded section showing surface objects.

Plate 2: Section view (to the north) of the main mound of TGP-HS6.

Plate 3: TGP-HS6 looking to the south. Plate 1 shows the Transect 1, excavated down to a basal clay level.

Plate 4: TGP-HS6 showing the clay basal layer and the north section of Transect 1. Evidence of rabbit burrows were present in the section and a layer of ash and clay.

Plate 5: TGP-HS6 showing south section of Transect 1 and intersection with Transect 2. Charcoal and ash are clearly visible in the layers below the site mound.

Plate 6: TGP-HS6 showing east section of Transect 2. Note the lack of objects at depth in the section and the base layer free of objects and artefacts.

Plate 7: A variety of sandstock bricks found on TGP-HS6.

Plate 8: Cast iron stove pieces found on TGP-HS6

Plate 9: Miscellaneous metal objects found on TGP-HS6.

Plate 10: Two horseshoes found in the general area of TGP-HS6.

Plate 11: Bed frame remains with detail of ornamentation.

Plate 12: Ceramic sherds from TGP-HS6.

Plate 13: Glass from TGP-HS6.

Plate 14: Agricultural implements in the area of TGP-HS5.

Plate 15: Agricultural implements in the area of TGP-HS5.

Plate 16: H.V McKay Sunshine Harvester emblem. Site TGP-HS6

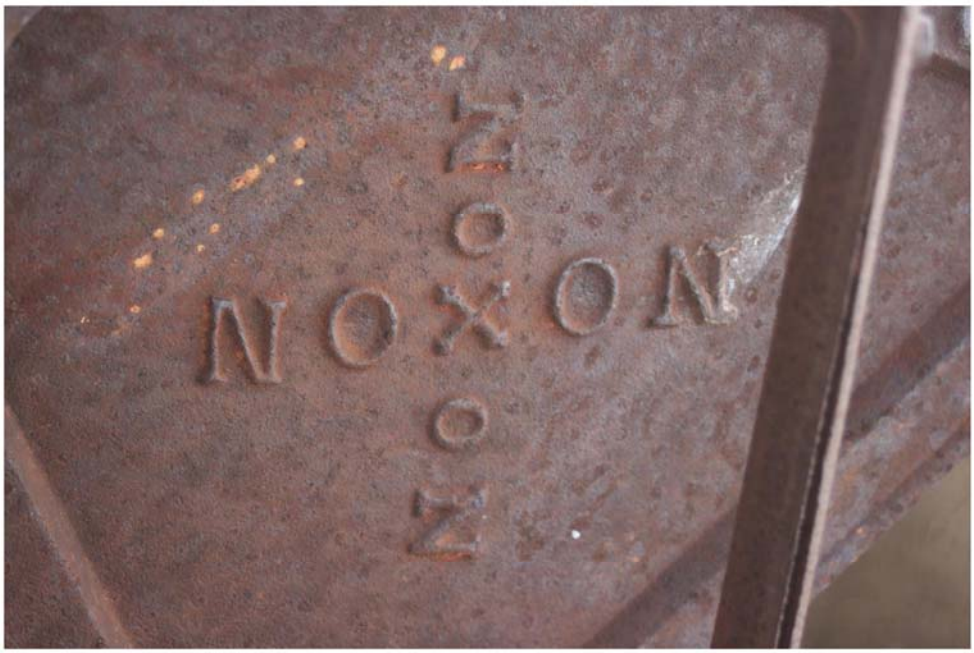

Plate 17: Noxon emblem from one of the implements at TGP-HS5.