REHAB2006_04

REHABILITATION OF ABANDONED MINING LANDS TRUST FUND

PROPOSED SHAFT SAFETY PROJECT 2006/2007

BACK CREEK GOLDFIELD

North East Tasmania

PROJECT OUTLINE AND COST ESTIMATE

M. J. Reid

Cover Page photograph – Miners' Hut, Back Creek

Trust Fund Assessment

Locality / Site Name:	Back Creek			
Land status:	State Forest			
Grid reference:	505209 mE; 5455480mN *(AGD66 AMG Zone 55)*			
Past lessee:	Numerous			
Approximate date last worked:	1920's			
Description of previous operation:	Alluvial and deep lead gold mining. A slate mine operated at the Deep Lead in the 1980's			
Public safety hazards:	Abandoned mine workings, unstable ground, open shafts and extensive shallow workings and pits.			
Access:	Easy 4WD vehicle access to all sites.			
Vegetation type:	Mine sites in dry eucalypt woodland dominated by *Eucalyptus amygdalina*. Surrounds include areas of wet (*Leptospermum sp.*) and dry (typically *Melaleuca squarrosa*) heath complexes. Few to no invasive weeds present.			
Off site impacts:	Wider social impacts of injury or death from on-site impacts.			
Adjacent land:	Some freehold blocks in the general vicinity but none bordering proposed project sites.			
Historical significance:	Goldfield historically linked to Lefroy, Leura and Den fields.			
Maintenance:	Integrity of safety works (signs, grates and caps) will need to be checked periodically.			
Hazard reduction required:	Shaft capping and grating. Hazard signage.			
Previous rehabilitation:	None known			
Public safety:	Risk	**H**	Exposure	**L**
Off site impacts:	Severity	**L**	Extent	**L**
Degradation:	Degradation	**L**	Extent	**L**
Visibility:	Visibility	**L**	Exposure	**L**

Background/Summary

The Back Creek Goldfield is approximately 20 kilometres east of George Town in north east Tasmania (Map 1). The goldfield was abandoned in the 1920's though a small slate mine operated near Deep Lead in the 1980's. The field comprises extensive shallow workings with few deep shafts. There may be significant cultural heritage values on the field with numerous historic features (puddling machines, water races for example) still discernable.

Safety hazards include open shafts and unstable ground around abandoned workings.

Three separate sites comprising 14 shafts have been identified as high risk hazards (Map 2). A combination of capping and grating is recommended to make these safe. Hazard signage at a strategic entry point to Back Creek is also recommended (Map 2). The total proposed budget for this work is $45,000.

Aims

- Improve public safety on the Back Creek Goldfield.

In undertaking safety works, the works program will also aim to:

- Preserve heritage values.
- Preserve or improve natural values.

Methods

The following three methods of risk management are proposed for this site.

1. Provide hazard warning signage in strategic locations. Signage should be consistent with the relevant Australian Standard and meet requirements of the *Civil Liabilities Act 1992.*
2. Cap open shafts with pre-cast concrete panels. Experience with this style of capping at Lefroy has shown it to be a relatively easy and effective method of closing small to moderate size shaft openings. The following points are relevant:
    - Panels should be designed and installed to engineering specifications (Appendix 1).
    - A mid-sized excavator (12 tonne or similar) is ideal for preparing shafts and fitting panels.
    - A 'spotter' should be present to assist the excavator operator for all works as a matter of safety.
    - General on-ground procedures for site works should comply with environmental guidelines described in the *Mineral Exploration Code of Practice 1999.*
    - Contractors should ideally have radio communication. The mobile phone network does not cover Back Creek.
3. Cap shafts with metal viewing grate. This method requires further investigation to identify an acceptable and reasonable cost style of grating.

Recommendations

Safety work is recommended at three abandoned mine sites. A summary of proposed work and cost estimate is set out below. Each site is described in more detail in the following section.

- Provide hazard sign at the junction of Back Creek Road and Ringwandls Road (Map 2).
- Cap three of the six Union Mine shafts with pre-cast concrete panels. Provide viewing grates to the three main shafts. Viewing grates are recommended because of perceived heritage value of these shafts.
- Cap six shafts on Red Lead with pre-cast concrete panels.
- Cap two shafts on Deep Lead with pre-cast concrete panels.

A contingency of $10,000 is recommended for the probability of additional shafts being identified during the course of works.

Item	Quantity	Rate	Cost Total
Heritage Survey	-	$6,000	$6,000
Engineering Designs	-	$2,000	$2,000
Panel Fabrication	• 8 x 4200 mm • 15 x 3000 mm	$620 (ea) = $4,960 $450 (ea) = $6,750 less stock held from 2005/06	$0
Prepare shafts and fit panels	• 12 t excavator (8 days) • Spotter (8 days) • Establishment and transport costs	$960 p/day $280 p/day $800	$10,720
Shaft Grate Fabrication	• 3 off	$3,500 ea	$10,500
Prepare shafts and fit grates	• 12 t excavator (3 days) • Spotter – (3 days) • Concrete pads • Establishment and transport costs	$960 p/day $280 p/day $800 $0 (Sync with panels)	$4,520
Signage and installation	• 14 x shaft signs • 1 x general hazard • Consumables and installation	• $350 • $60 • $400	$810
Contingency	•	•	$10,000
		Estimate Total	**$44,550**

Table 1. Indicative cost of recommended works

Red Lead

Six open shafts have been identified along the Red Lead, all within 15 metres of the track leading to the Union Mine site. All are open to a depth of between 3 and 5 metres. The history of these shafts and the extent of original workings is unknown.

Deep Lead

Two main shafts — both collapsed but recorded as being sunk to 800 feet (Montgomery, 1897).

Figure 1. Deep Lead site showing two open shafts. The main shaft is in the background (circled).

Figure 2 & 3.
Deep Lead Main Shaft.

Union Mine

The Union Mine site is at the head of the White Lead. The site appears well preserved and free of rubbish dumping and environmental weeds.

Although relatively remote, the Union Mine site is easily accessible by 4WD. Three of six deep shafts are very obvious – positioned on prominent mullock heaps with clear area around them – while another three are concealed by vegetation with no obvious indicators of their presence.

Figure 5. Example of an obscured shaft at the Union Mine. This shaft measures 2200 mm x 1200 mm and is open to a depth of 12 metres.

Figures 6 & 7. Two views of the Union Mine main shaft. This shaft is open to 11 metres and measures 3200 mm x 4200 mm at ground level. There are drives off the two long sides at the 11 metre level.

Reference Documents

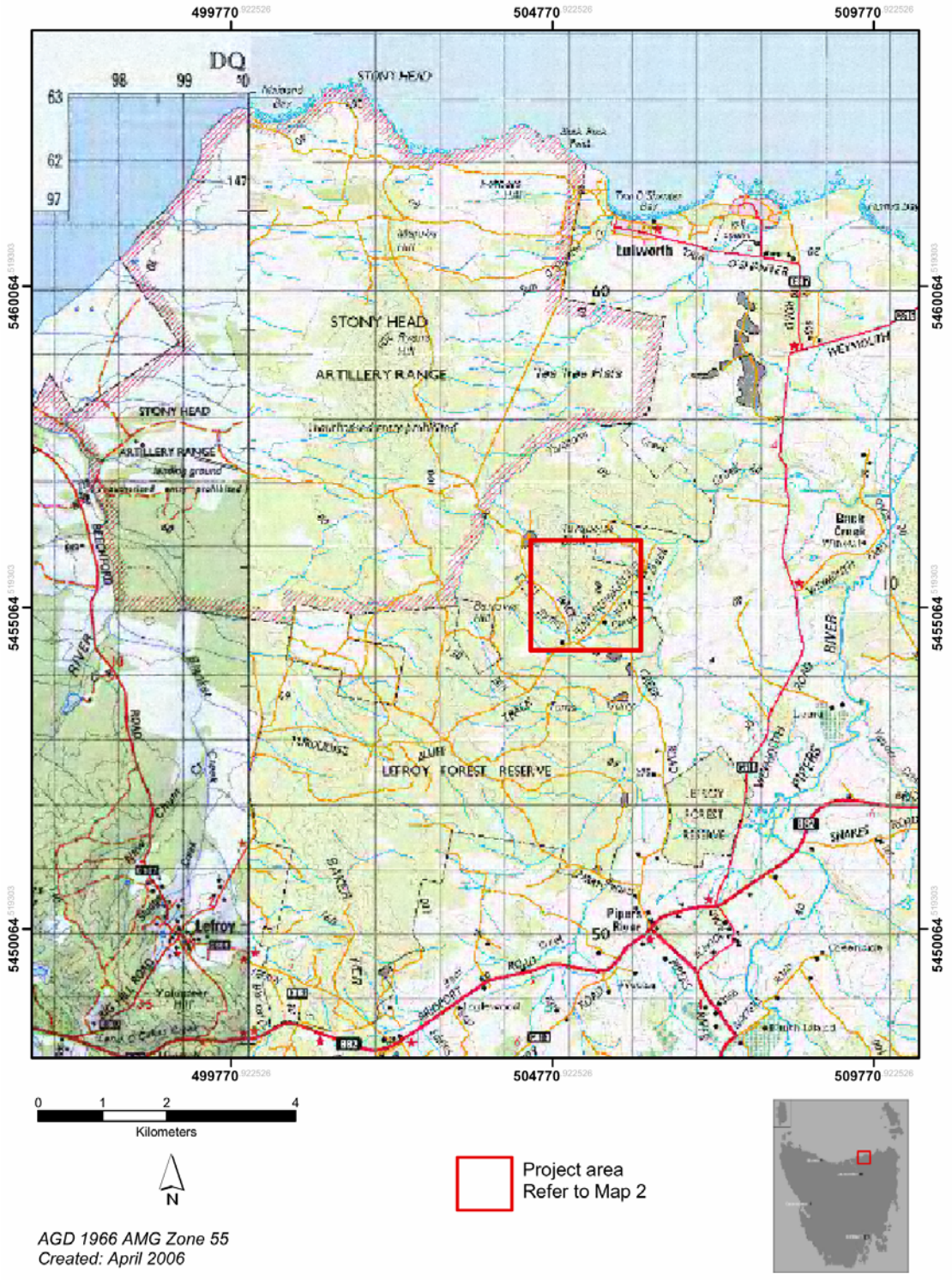
BROADHURST, E. 1935. Lefroy and Back Creek Gold Fields. *Bulletin Geological Survey Tasmania 42*.

MCCLENAGHAN, M. P. 1994. A summary of the Beaconsfield, Lefroy, Back Creek and Gladstone goldfields. *Report Mineral Resources Tasmania* 1994/03.

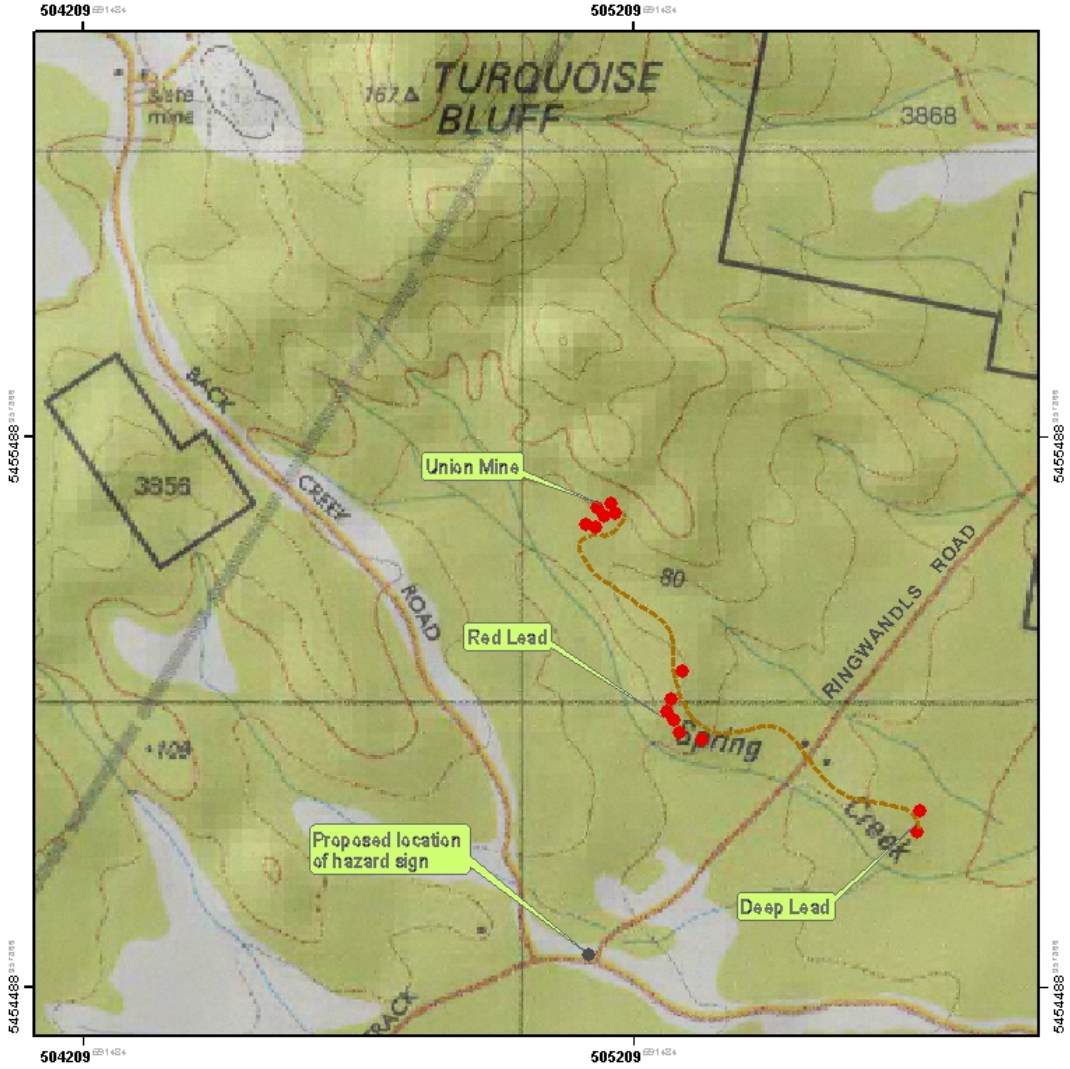
MONTGOMERY, A. 1894. Report on the Back Creek Goldfield County of Dorset. *Report Secretary for Mines Tasmania* 1893-1894.

WEBSTER, A. E. 1998. *A preliminary cultural heritage assessment of the historic gold mines of North-eastern Tasmania: Part 11 — Back Creek Goldfield.* Unpublished report for Mineral Resources Tasmania.

Map 1. Back Creek Shaft Safety Program 2006/2007: Project Location



Map 2. Back Creek: open mine shafts identified for 2006/07 safety program.



AGD 1966 AMG Zone 55
Created: April 2006