

Name	Mount Moran Battery
Former/Other Name	
Location	Located off the Agate Creek – Ortona Mine Road about 5 km north-west of Ortona Station Homestead.
RPD	ML3333 & ML 3434 on Lot 4957 on PH 881 and Lot 5101 on PH 492, par Tripera co Victor
Local Authority	Etheridge Shire Council
AMG Map Sheet	Bellfield 7559 [1:100, 000] Grid 628 816
Listing boundary	ML 3434 & ML 3333
Other listings	<i>Mining Heritage Places Study: Northern & Western Queensland</i>

Heritage Significance

Mount Moran Mine is a place of cultural heritage significance and satisfies one or more of the criteria in s.23(1) of the Act as evidenced by, but not exclusive to, the following statement of heritage significance, based on **criteria a.**

The Mount Moran Mine is important in demonstrating the evolution of Queensland's mining history, in particular the Etheridge Gold and Mineral Field. It contributes to an understanding of ore crushing technology utilised on a marginal lode and is an example of a small battery which was set up to crush ore for a few small mines in an isolated area of the remote field.

History

Mount Moran Battery is situated on a sloping ridge above the seasonally active Agate Creek, west of Forsayth. The isolated five head stamp battery was erected in 1924 to crush ore won from the three reefs worked in the area – the Mona, Iona and Bosker.

Gold was discovered in the Georgetown Mining District in 1868 and a series of gold and base metal discoveries followed. The region became known as the Etheridge Gold and Mineral Field. The field peaked as a gold producer in the 1890s but was in decline by World War I. High base metal prices turned attention to lead, silver and copper and the field boomed until the onset of the Depression in the late 1920s again caused prices to drop. A brief revival in gold mining followed but the labour and materials shortages of World War Two ended all mining.



During the early years of gold discoveries on the Etheridge field small amounts of alluvial gold were found in gullies around Mount Moran. Although it was not until the 1920s that the area produced three working gold reefs. Between 1922 and 1936 the three mines, the Mona, Iona and Bosker, yielded 1,033 ounces of gold. Ore from the area was first crushed at the Ortona battery. By 1924 Mount Moran required its own crushing facilities. The ten head battery at Ortona, situated about 3 miles from Mount Moran field, was relocated from Ortona to its present site.

In 1924 there was increased prospecting in the area with satisfactory results. Several new gold-bearing lodes were discovered, however most of the work was confined to the Finger Point mine. Here, the principal owners formed a syndicate and amalgamated their holdings in a 16 acre lease. The claims in the area were the Blue Spec, Bosker, Brown Hill, Dinkum, Finger Print, Lucky Hit, Iona and Peg Leg, with the deepest shafts of 22metres and 27metres being sunk on the Peg Leg and Finger Print respectively.

The 1930s saw a brief revival in the area then known as "the Mount Moran group of gold mines". In 1936 the Mount Moran Battery crushed 157 tons of ore to yield 58 ounces of gold. However, there appears to have been no activity after this date. The Mount Moran Battery presumably ceased operation as the mines in the area closed.

Description

The Mount Moran Battery contains the remains of a five head stamp battery including mortar box, stamper rods and belt wheel. The battery frame has been removed. A colonial boiler, the remains of a steam engine with fly wheel and several berdan pans are located alongside the stamp battery. A collapsed corrugated iron camp is located across a gully to the west of the battery. A small steam pump is located near a well on a watercourse east of the battery. The place includes several early open workings.

Process:

Pursuant to the provisions of the Queensland Heritage Act 1992, the Heritage Council has formed the opinion that this is a place of cultural significance which satisfies one or more of the criteria for provisional entry in the Heritage Register and that it is possible for the cultural heritage significance of the place to be conserved. The decision of the Heritage Council is recorded in the minutes of the Council meeting of 22 September 2000.

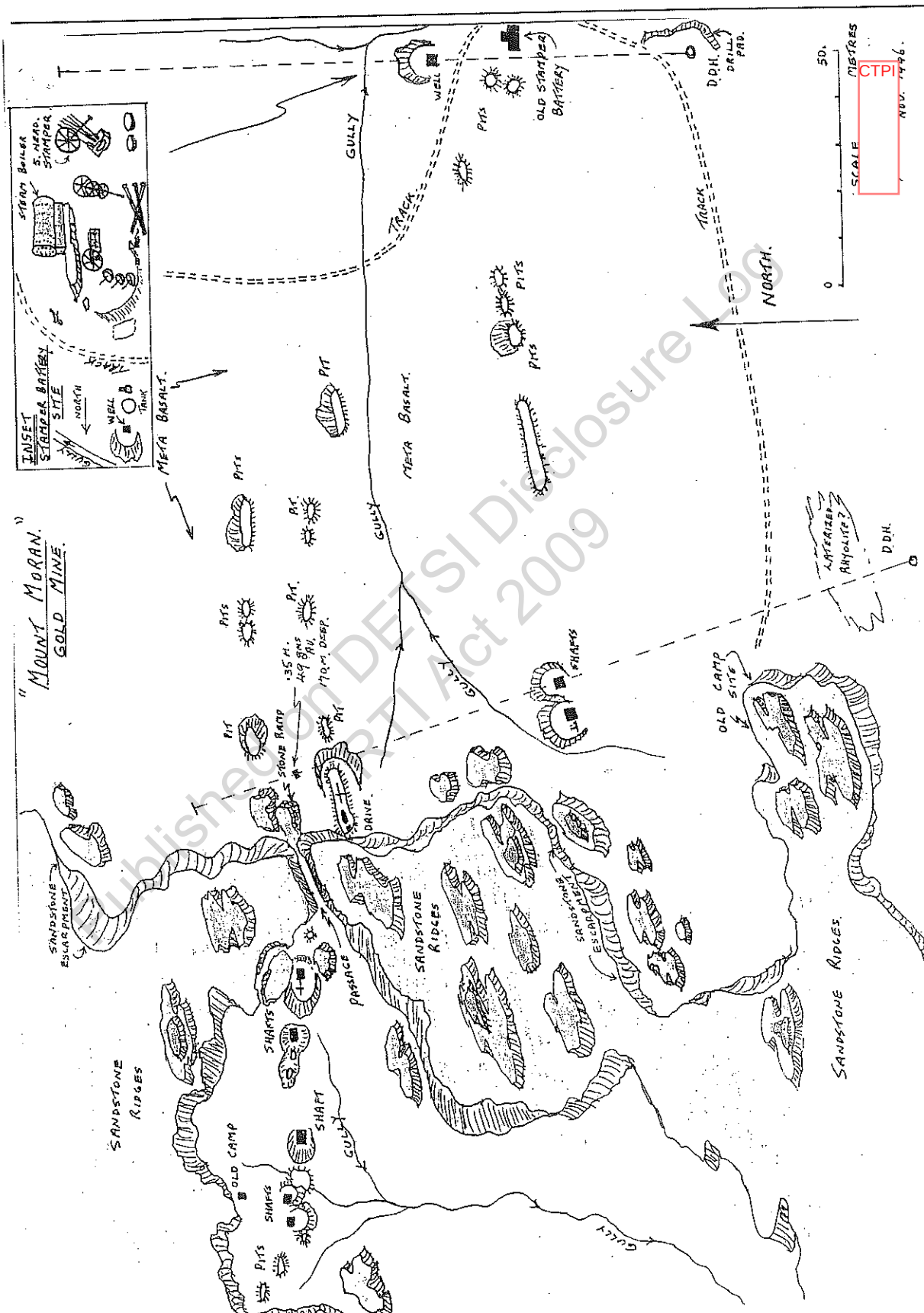
Note: This document has been prepared on the basis of current information, and assessed under the criteria in the Queensland Heritage Act. This document may be reassessed if further evidence becomes available. The statement of significance specifies the most important heritage values of the place. The purpose of this document is to provide an informed evaluation for heritage registration. This does not negate the need for a thorough conservation study by a qualified practitioner, or Cultural Heritage Branch consultation, before any action is taken which may affect the significance of the place.



MT MORAN MINE, VIA GEORGETOWN

File No: 601921

Sketch prepared by Stuart Foster, November 1996



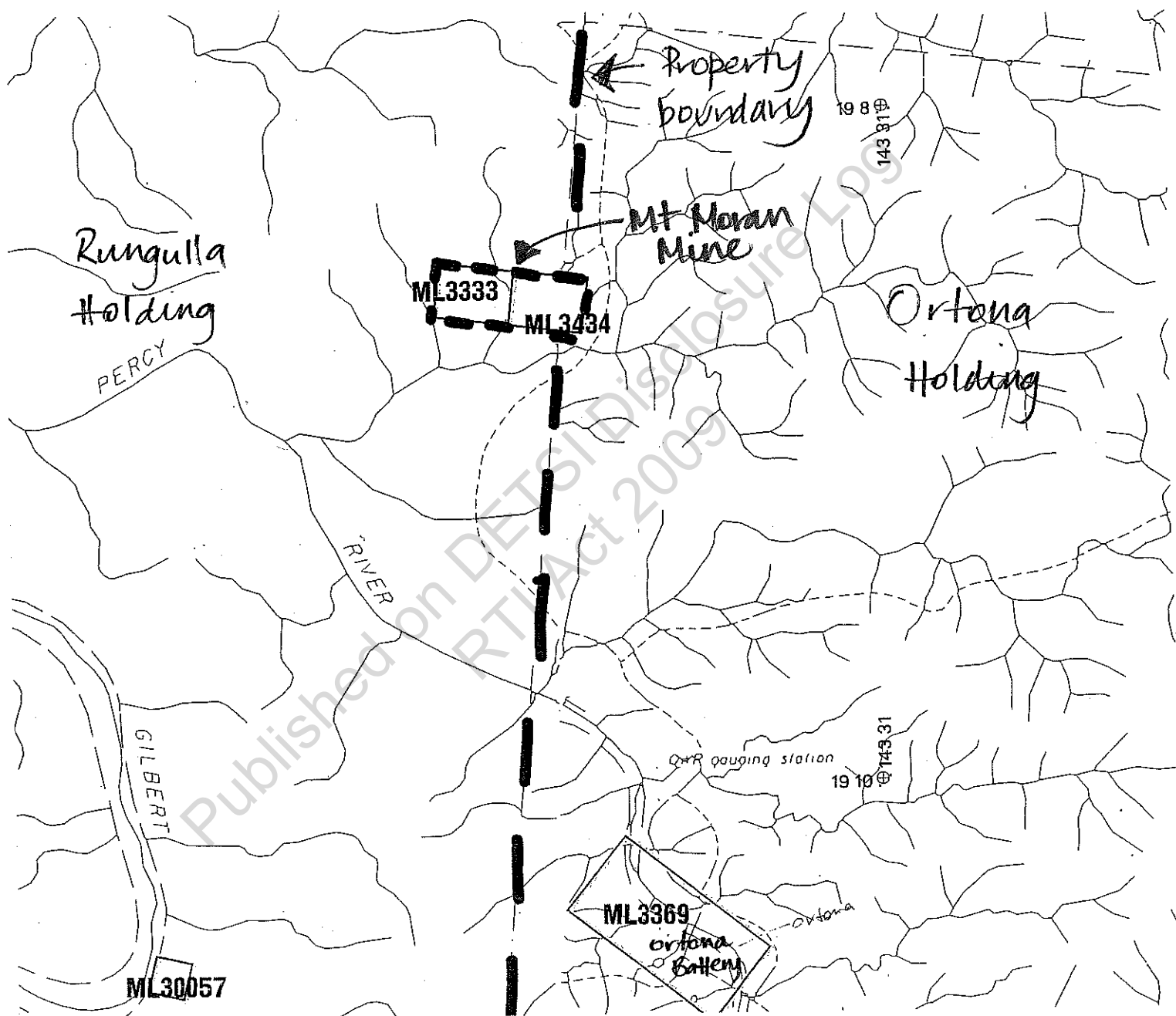
SITE PLAN
Environmental Protection Agency

22 SEPTEMBER 2000

MT MORAN MINE, VIA GEORGETOWN

File No: 601921

Source: Department of Mines & Energy mapping services



Please Note: heritage register boundary is defined by dashed line within ML 3333 (Background tenure Lot 4957 on PH 881) and ML 3434 (Background tenures Lot 5101 on PH 492 and Lot 4957 on PH 881)

HERITAGE REGISTER BOUNDARY

Environmental Protection Agency

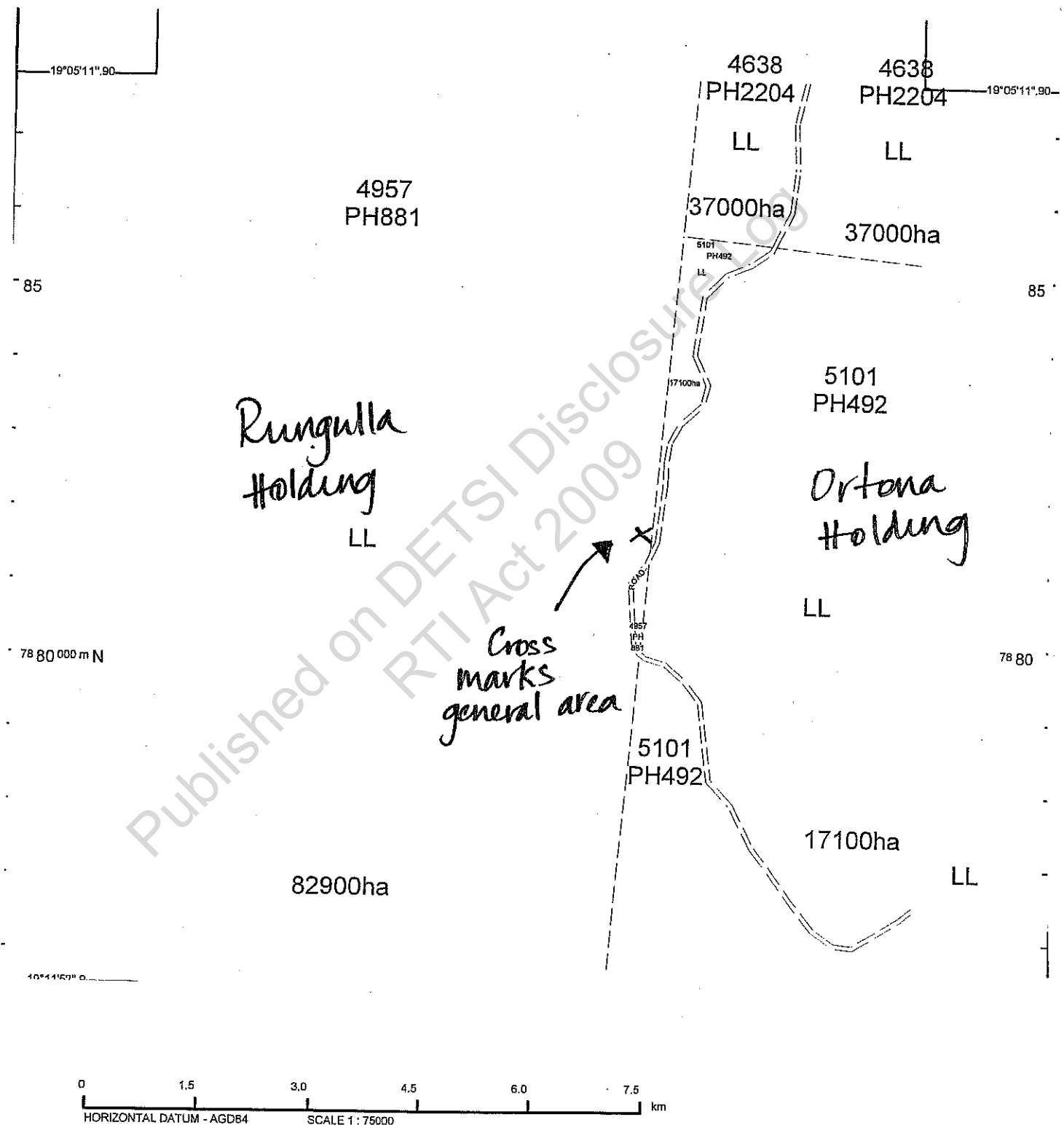
22 SEPTEMBER 2000



MT MORAN MINE, VIA GEORGETOWN

File No: 601921

Source: Blinmap, Department of Natural Resources. Map Number 7559-12112



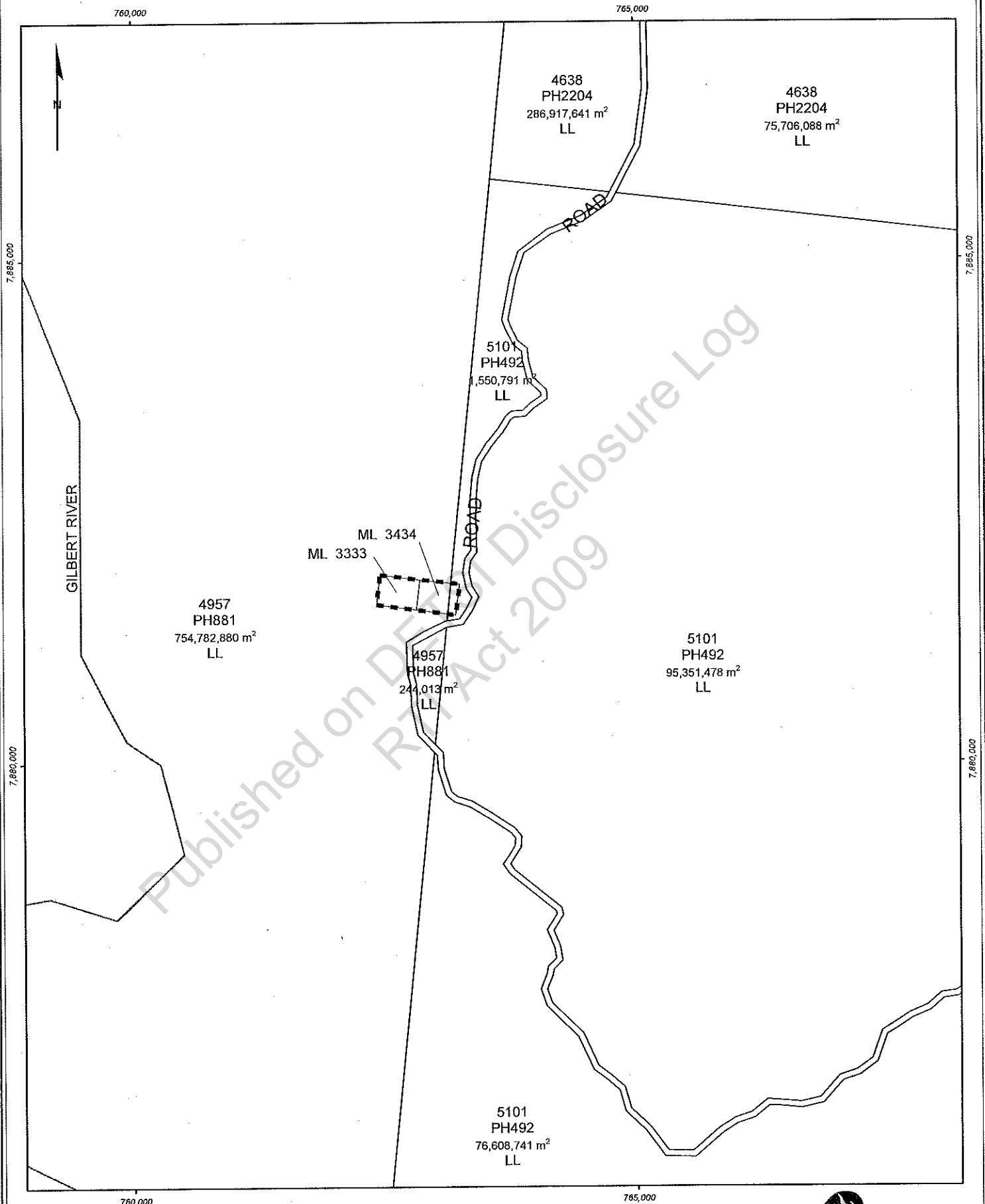
GENERAL LOCATION MAP
Environmental Protection Agency

22 SEPTEMBER 2000



Mount Moran Battery

601921



- Heritage Register boundary
- Cadastral boundary
- Easement



© The State of Queensland
(Environmental Protection Agency) 2005

Entry in the Queensland Heritage Register

State Heritage Place



Figure 1: Mount Moran Battery (2009)

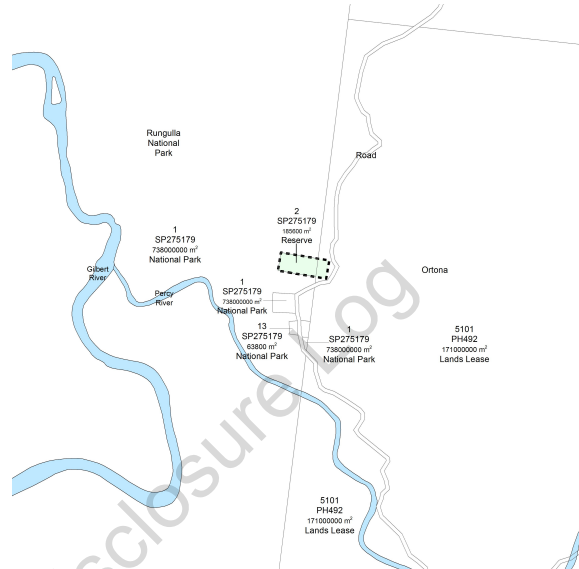


Figure 2: 601921 - Mount Moran Battery (see attached map)

Place ID	601921
Place name	Mount Moran Battery
Address	New Woolgar Road, FORSAYTH, 4871
LGA	ETHERIDGE SHIRE COUNCIL
RPD	2 SP275179
Boundary Description	See attached map (Mineral Lease 3434 & Mineral Lease 3333)

Statement of Significance

Mount Moran Battery is a place that satisfies one or more of the criteria specified in s.35(1) of the Queensland Heritage Act 1992 as evidenced by, but not exclusive to, the following statement of cultural heritage significance, based on criteria:

Criterion A

The place is important in demonstrating the evolution or pattern of Queensland's history

The Mount Moran Mine is important in demonstrating the evolution of Queensland's mining history, in particular the Etheridge Gold and Mineral Field. It contributes to an understanding of ore crushing technology utilised on a marginal lode and is an example of a small battery which was set up to crush ore for a few small mines in an isolated area of the remote field.

Published on DETSI Disclosure Log
RTI Act 2009

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Illustrations



Figure 3: Mount Moran Battery - antbed oven (2009)

Published on DEPS 2008
RTI Act 20

Heritage register boundary

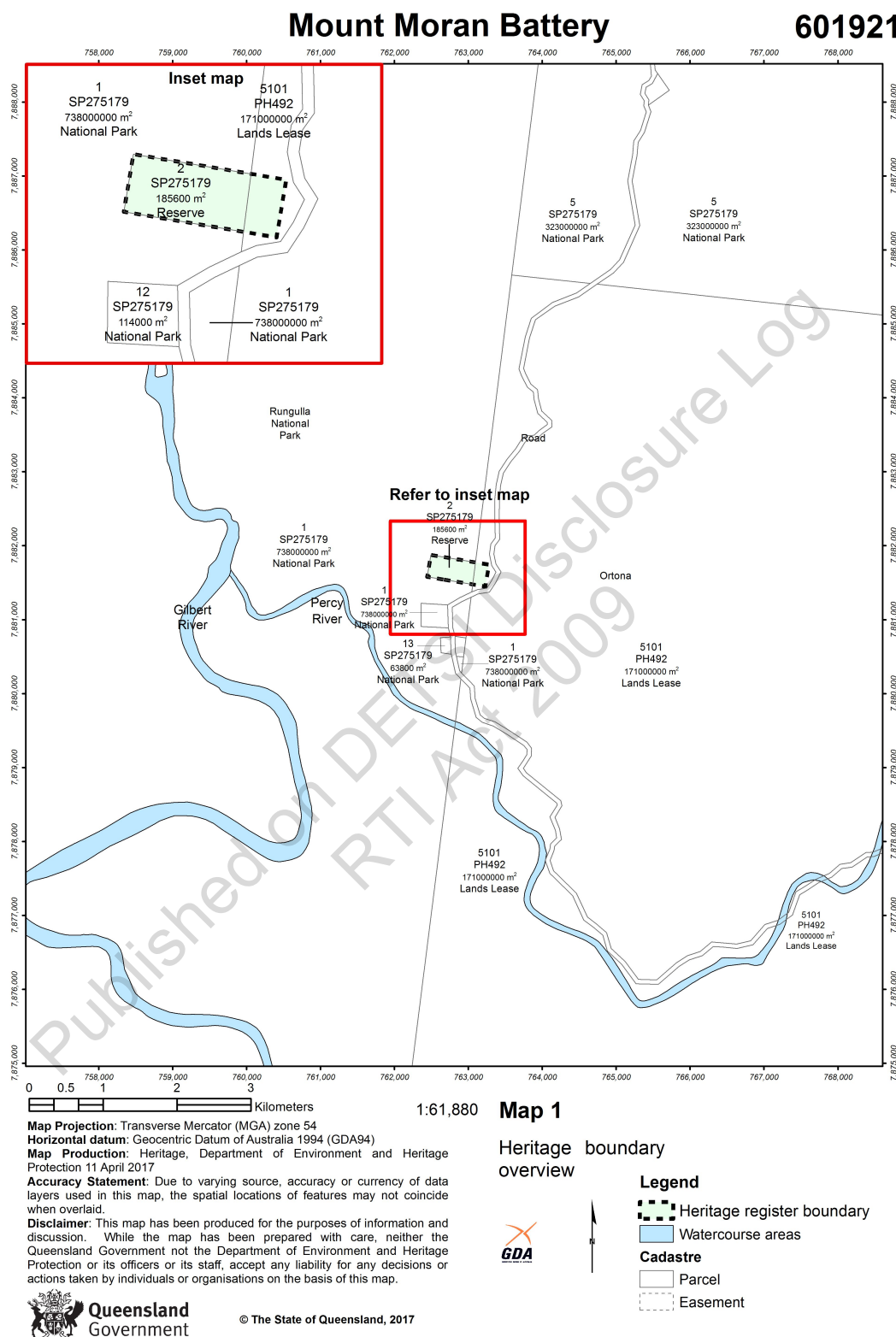


Figure 4: 601921 - Mount Moran Battery - Map 1 (2017)

Process Statement:

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RTI Act 2009

HISTORIC SITE FILE CONTENTS AND REVIEW FORM

File no: 601921

File name(s):Mount Moran Mine.....

- | | | |
|--|---|--|
| ☐ Identification Form | ☐ Site Plan | ☐ Assessor's Report* |
| ☐ Site Survey Form | ☐ Listing Boundary Map | ☒ Other Report (Loc'n) |
| ☐ Administrative Advice | ☒ Shot Record Form | HRAC report |
| ☐ LGA/Rate Report | ☒ AHC Citation | Site report - P. Waterson |
| ☐ VGs Report | ☒ NTQ Citation | |
| ☐ Title/Reserves Search | ☒ LGA Citation | |
| ☐ Survey Plans | ☒ Bibliography | |
| ☐ Location Map/Sketch | ☒ Research Material | |

*** Assessor's Report not kept on Historic Site File**

[illegible]

Site Report Mt Moran Mine, Etheridge Shire

September 1999

Introduction

This is a report on the initial site inspection of the Mt Moran mine, Etheridge Shire. Located on a mineral lease west of the township of Forsayth, Mt Moran mine site was nominated to the Queensland Heritage Register in the late 1990's. In accordance with Agency procedure, the site was inspected as part of the nomination process. There are two key areas to the site, the first around the stamper battery and a second, which is a rock shelter inhabited during mining operations. The site does qualify for registration under section 23 of the Queensland Heritage Act, satisfying criteria (a) and (b). This site was previously inspected as part of the *Mining Heritage Places Study Vol. 4* (Lennon and Pearce 1996) and the relevant section of that report is attached as Appendix A. To avoid unnecessary duplication of information, this report will concentrate on providing previously unrecorded data; it should therefore be read in conjunction with Appendix A.

Location

Located on a sloping ridge above the seasonally active *Agate Creek*, the vegetation surrounding Mt Moran mine is sclerophyll forest. The vegetation is quite thick around the site but the main areas around the stampers and the rock-shelter are relatively clear. **Access is via 4WD only and should only be attempted in the dry season.** Exact location details have been previously recorded under the *Mining Heritage Places Study Vol. 4* (Lennon and Pearce 1996: 216-218) (Appendix A).

Methodology and Methods

The intention of the visit was not to conduct a systematic survey but to:

1. assess the size of the site and estimate the time needed to conduct any future work,
2. assess the extent and nature of extant features,
3. determine impacts from current land use
4. make a preliminary significance assessment of the site under the criteria specified in the Queensland Heritage Act 1992.

As this was an initial scoping survey, the methods employed were quite general. I met with the lessee, Mr Eddy Hoolihan, and drove to the site where he pointed out the main extant features. It is quite probable that further cultural features and/or artefacts are present in the area, but time and poor ground surface visibility prevented any examination beyond the two key areas.

Both areas were photographically recorded and any oral history documented. Given the surface areas involved and the thickness of the vegetation, tape and compass measurement techniques were not viable for establishing the distance between the two key areas, therefore distance was estimated using the car odometer. The size of the

Physical Description

The actual mine site is located on the lower portion of the slope toward the creek and a campsite is located within a rock shelter near the crest of the ridge. Although still an active mine lease, there is no evidence of contemporary mining activities in the immediate area.

The dominant feature of the mine is the extant machinery; this consists of a:

- boiler,
- five head stamp battery,
- driver wheel for the battery
- water pump
- in-ground cyanide pool (this was added in the 1960's (pers.com [CTPI 49-Sch4] 1999)).

The boiler is a large steel cylinder. It is encased in a steel frame that is approximately two metres square at the ends and runs the length of the boiler but only extends half way up. Within the frame, the base and sides of the boiler are built in with bricks. These would provide insulation and enable the wood fire to generate higher temperatures. Furnace doors are located at the north-eastern end of the boiler frame.

The five head stamper battery is in relatively good condition but machinery plates have been removed. Embossed into the front of the casing is:

*SANDYCROFT FOUNDRY
CHESTER ENGLAND*

Refer appendix A for further details.

The rock shelter is popularly known as Baker's Cave after the prospector who lived there in the 1920's (pers.com [CTPI 49-Sch4] 1999). Located approximately 200 metres in a south/westerly direction from the battery, the shelter consists of a sandstone outcrop with a predominantly stone floor. Aligned along an east/west axis, the shelter faces out toward the north. The shelter has some 'bush' shelving made by wedging wooden supports into gaps in the sandstone and then placing small roughly cut timbers onto them. There is a collection of bottles on the shelves, which do come from the site but were placed on the shelves by [CTPI 49-Sch4] (pers.com [CTPI 49-Sch4] 1999).

There is also an ant bed oven within the drip-line of the shelter. Approximately 2 metres high, the oven exhibits scorch marks in the interior and around the holes in the antbed. A large flat rock is positioned in front of the largest hole at the base of the (magnetic) western face. It is unclear whether the rock dates from the era of use of is a more recent 'interpretive addition'.

This site should be treated with caution, as it is also an Indigenous archaeological site. Nodes of good quality milky quartz are protruding from the ground around the rock-shelter and numerous flakes and cores are scattered over the surface. It is quite possible that this was an Indigenous quarry site, particularly given that this is the only known site of quality siliceous stone in the immediate area (pers.com [CTPI 49-Sch4] 1999). It is also possible that the antbed oven predates the 1920's and was used by Indigenous people. The lessee is presently unaware of the Indigenous component and given his desire to preserve the site for it's historic values, I did not see any advantage in informing him.

Discretion should be used with regards to how this information is disseminated.

Significance Assessment

The significance of the Mt Moran site has already been partially assessed under the *Mining Heritage Places Study* (see Appendix A). However, that study did not examine the camp site within the rock-shelter and therefore this report will concentrate on that area.

The rock-shelter area represents a rare example of an intact isolated mining camp from the first half of the twentieth century. Most miners dwelt in tent camp sites and or small towns that boomed and busted in relatively short periods of time. The Mt Moran example, and specifically Bakers Cave, is a good example of living conditions in small isolated mining operations. The site is also important because of the probable adaptation of an Indigenous camp site for historic purposes. Interference with the site has occurred, but has been minimal.

Mt Moran mine site exhibits substantial significance as a place demonstrating the evolution or pattern of Queensland's history [category (a) Section 23, QLD Heritage Act 1992].

Due to the adaptation of the Indigenous site by a historic miner, Mt Moran also exhibits moderate significance as a place demonstrating uncommon and endangered aspect of Queensland's cultural heritage [category (b) Section 23, QLD Heritage Act 1992].

NB. Before a final recommendation can be made to the Qld Heritage Council, further research would need to be conducted to place this site within broader thematic and regional contexts as this would help establish the true extent of the sites significance. The site would also have to be mapped and clear boundaries established within the contemporary mining lease.

APPENDIX A

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: MOUNT MORAN BATTERY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Percy River

Local Government Area: Etheridge Shire

Map Sheet: Bellfield 7559. 1:100,000. AMG 628816

Latitude: 19.08.32 S (by GPS)

Longitude: 143.29.07 E (by GPS)

Land Tenure: Ortona Holding

Mineral Lease: ML 3333. ML 3434 E Hoolihan

Location and Access:

Located off the Agate Creek - Ortona mine road about 5 km north-west of Ortona (Iona) homestead.

Heritage Boundaries:

North. East-west line passing through a point 150 metres north of the battery.
South. East-west line passing through a point 100 metres south of the battery.
East. North-south line passing through a point 100 metres east of the battery.
West. North-south line passing through a point 100 metres west of the battery.

HISTORY OF PLACE

Although alluvial gold was won from the gullies surrounding Mount Moran years beforehand, it was not until 1920 that payable reefs were located. Of these, it appears that only three reefs were worked - the Mona, Iona and Bosker (de Havelland, 1989:293).

Officially, a total of 1,272 tons of ore yielded 1,033 ozs of gold between 1922 and 1936. The ore was first crushed at the Ortona battery, but by 1924 Mount Moran boasted its own crushing facilities (de Havelland, 1989:294). This battery was at Ortona, where it was described as ten head, before being relocated to Mount

APPENDIX A

Moran (Annual Report, 1924:8-9). It presumably operated until 1936 as there was a brief revival in the 1930s (Wegner, 1990:227).

In 1936 the battery crushed 157 tons of ore from the Finger Point mine and this yielded 58 oz of gold. The accumulated battery tailings were successfully cyanided by P. Prideaux (Annual Report, 1936:148). There are no further reports of activity after this date.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mining Residential

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Structural Components:

Power Plant Foundations

Mill/Battery Foundations

Mining Quarters/Camp

Description of Place:

The place contains the remains of a five head stamp battery including mortar box, stamper rods and belt wheel. The battery frame has been removed. A colonial boiler, the remains of a steam engine with fly wheel and several berdan pans are located alongside the stamp battery. A collapsed corrugated iron camp is located across a gully to the west of the battery. A small steam pump is located near a well on a watercourse east of the battery. The place includes several early open workings. [pers. com. R Coe, DME, Mareeba]

Plant:

- Five-head mortar box & stamper rods - no brand.
- Colonial boiler - no brand.
- Flat bed steam engine with fly wheel - no brand.
- 2 Berdan pans.
- Steam pump - no brand.

STATEMENT OF SIGNIFICANCE

The Mount Moran Battery is significant in Queensland's history as an example of a small isolated battery on a marginal lode on the Etheridge Goldfield which was developed in the 1920s and briefly revived during the 1930s.

The place satisfies criterion (a) of the *Queensland Heritage Act 1992*.

APPENDIX A

REFERENCES

- Coe, Rod. 1995. Personal communication and sketch map.
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, pp.293-4.
- Mines Department. 1924. *Annual Report*, pp. 8-9.
1938. *Annual Report*, p. 148.
- Wegner, Janice. 1990. *The Etheridge*, Studies in North Queensland History No. 13, James Cook University of North Queensland.

APPENDIX B

MT MORAN MINE SITE INSPECTION

NB. Slides start at # 16

#	FEATURE	DIRECTION	COMMENTS
16	Baker's Cave Antbed oven	west	Rear of antbed oven
17	Baker's Cave Antbed oven	west	Rear of antbed oven
18	Baker's Cave	west	entire cave - note the makeshift shelving to the left.
19	Baker's Cave Shelving	south	The bottles have been recently collected around the site and placed on the shelves.
20	Baker's Cave	south-east	Note the entry to the oven.
21	Baker's Cave Antbed oven	east	Front of antbed oven
22	Baker's Cave Antbed oven	east	Front of antbed oven
23	Baker's Cave Shelving	south	The bottles have been recently collected around the site and placed on the shelves
24	Mt Moran Stamp Battery	south-west	
25	Mt Moran Stamp Battery	south-west	Embossed makers mark
26	Mt Moran Boiler		
27	Mt Moran	east	
28	Mt Moran	east	
29	Mt Moran Boiler		Interior of boiler
30	Mt Moran Boiler	northeast	Rear of boiler and interior - note the bricks used to insulate.
31	Mt Moran Boiler	northeast	Rear of boiler and interior - note the bricks used to insulate.
32	Mt Moran	south-west	
33	Mt Moran Water pump		water pump to bring water up from Agate Creek - note the (cyanide?) flotation tank in background.

R

MOUNT MORAN MINE REFERENCES

De Havelland, D.W. *Gold and Ghosts—A prospector's guide to metal detecting in Australia*. Hesperian Press, Carlsisle. 1989.

Parliamentary Papers. 1924. Vol.2.

Pearce, Howard & Jane Lennon & Associates. *Mining Heritage Places Study: Northern & Western Queensland. Volume 3.2: Mareeba Mining District*, A report to the Queensland Department of Environment, September 1996. pp. 226-228.

Wegner, Jan. *The Etheridge—Studies in North Queensland History No. 13*. James Cook University of North Queensland. 1990.

Published on DETSI Disclosure Log
RTI Act 2009

Queensland Heritage Act 1992

Proposal for the entry of a place in the Heritage Register
pursuant to Section 24 (1). (see reverse side of form)

OFFICE USE ONLY

601921
Reference
Nomination

DETAILS OF PLACE

Name of place and/or former name: Mount Moran Mine

Location or address: Located off Agate Creek - Ortona Mine Road about 5km
north-west of the Ortona (Iona) Station Homestead

Real Property Description: ML 3434 - see attached for further details

Zoning: Mineral Lease

Local Government Authority: Etheridge Shire

Ownership: Leasee E Hollihan

INFORMATION REQUIRED

1. HISTORY [Statement of the history of the place - please attach details]

See attached

2. DESCRIPTION [Description of the place today - please attach details]

See attached

3. SIGNIFICANCE [Statement of heritage significance relating to the criteria in Section 23 (1) - please attach details]

See attached

4. REFERENCES [Sources from which further information may be obtained - please attach details]

Pearce, H. and Lennon, J. (1996; Mining Heritage Places Study: Northern and Western Queensland.

5. PHOTOGRAPHS AND DRAWINGS [Photographs and other material showing the place today - please attach]

See sketch map attached

PARTICULARS OF APPLICANT

Name: CTPI 49-Sch4

Address: PO Box 4871, Ortona Station, Eidsleigh, Qld 4871

Contact telephone number: CTPI 49-Sch4

Interest in property: Lessee

[Where the applicant is not the owner, has the owner been notified of this nomination: YES/ NO]
DNE advised

CTPI 49-Sch4

Signature

Date 30/4/1997



Queensland
Department of
Environment and Heritage

Send to:

The Director
Cultural Heritage Branch
Department of Environment and Heritage
PO Box 155
BRISBANE ALBERT STREET QLD 4002

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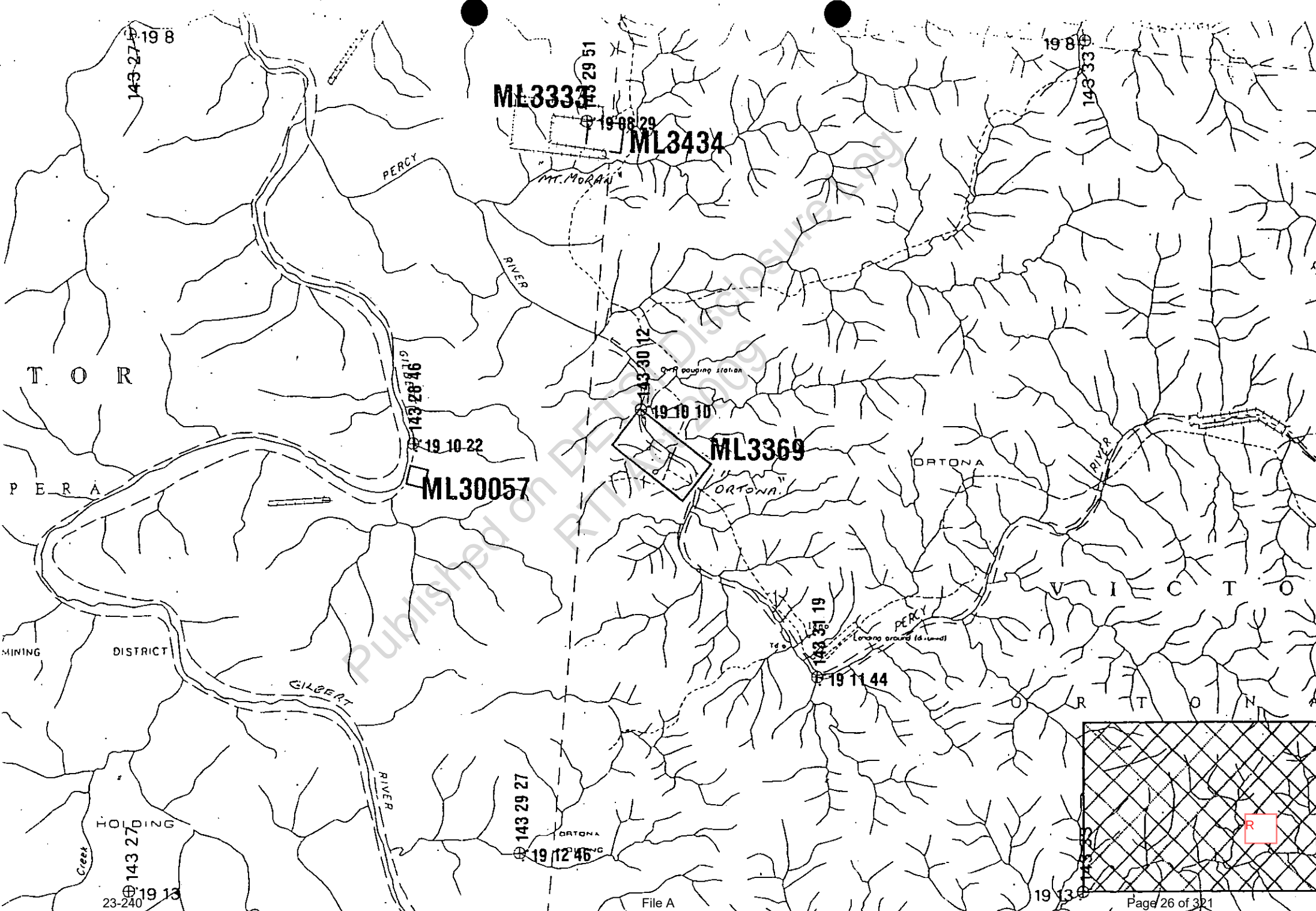
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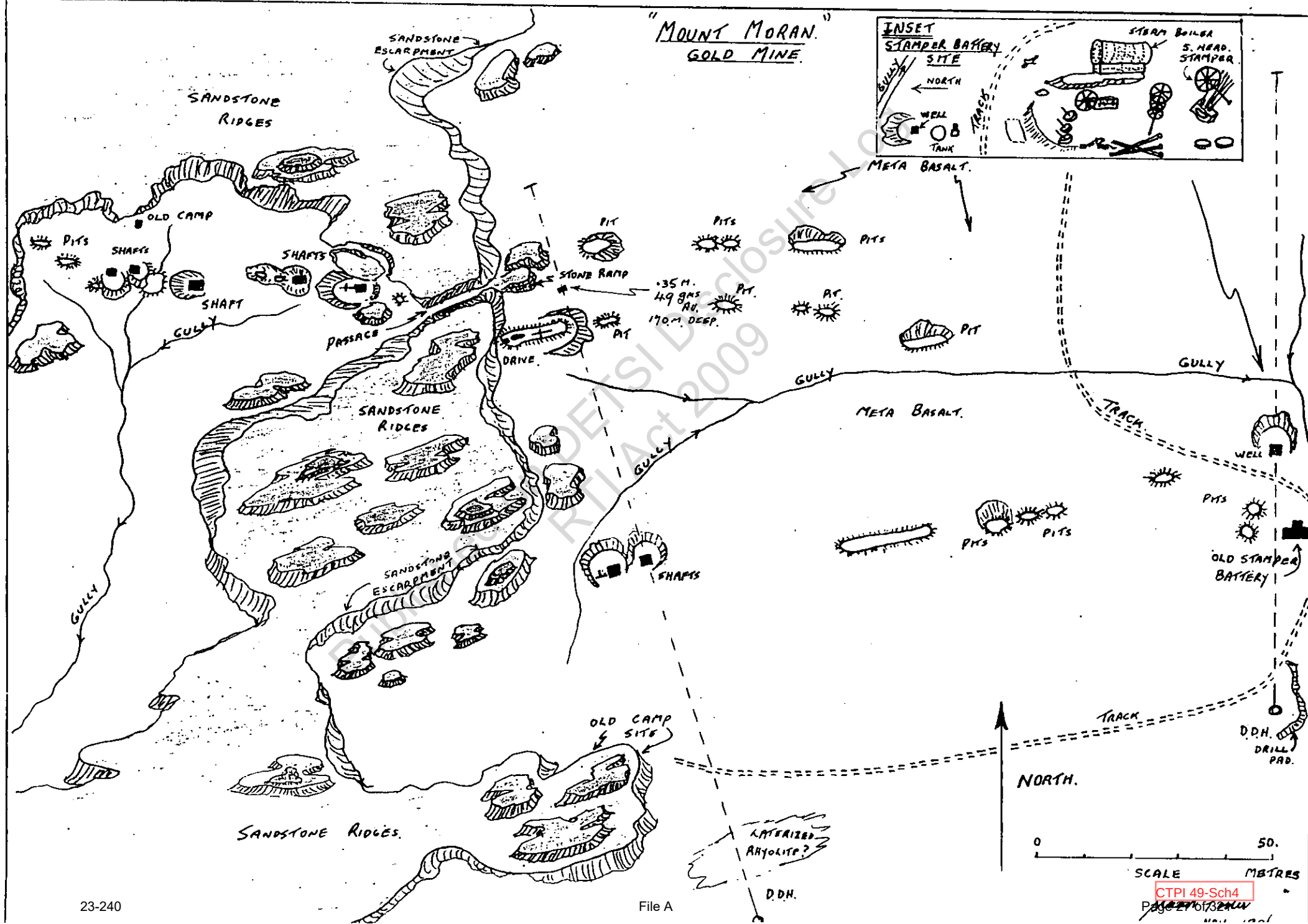
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"MOUNT MORAN.
GOLD MINE."



DEPARTMENT
OF MINES
AND ENERGY



Active Layers

Detailed Topography
Mining Leases
Historical Mining Leases - Nil

Projection: UTM
Zone: 54

Scale 1:50 000

1 km 0 1

Requested By: brisenq3

Date: 14 Aug 00

Time: 12:21 PM



R

WARNING: No liability is accepted for inaccuracies occurring because of approximations between
Mines & Energy tenure information and cadastral/topographic features on this diagram

MERLIN SYMBOLOGY

EXPLORATION PERMITS		Survey Control –Class 1		Tunnels (Lines)		Stratigraphic Borehole		Strip Ratio Overburden Isopach	
	Granted								
	Application Not Yet Proposed		Survey Control –Class 2		Tunnels (Points)		Water Borehole		Seam Deterioration Line Seam Isopach Seam Split Line
	Application Proposed		Survey Control –Class 3	GEOSCIENCE SYMBOLS			Aerial Geophysical Survey		Cadastral Boundary Modified Mining Lease Boundary Tenure Boundary
	Moratorium Areas		Survey Control –Class 4		Unknown Borehole		Surface Geology Field Sites		Extrapolation from Drill Holes Highwalls
	Advertised Areas/Petroleum Ex Areas		Survey Control –Class 5		Dry No Hydrocarbons Borehole		Mineral Occurrence	MINERAL RESOURCE SYMBOLS	
	Historical		Districts		Dry Gas Show Borehole		Active Mine		Mineral Resource (Polygon)
	Petroleum Leases		Local Authorities		Dry Oil Show Borehole		Abandoned Mine		Mineral Resource (Point)
ADMINISTRATIVE SYMBOLS		MINING TENURE SYMBOLS			Dry Oil and Gas Show Borehole		Abandoned Prospect		Not Defined
	Sterile Land		Mining Leases		Gas Borehole		Prospect		Fault (Approximate)
	Constarined Land		Dead Mining Leases		Gas and Condensate Borehole		Soil Sample Sites		Grade Cut-off Limit of Oxidation Subcrop
	Notified Land		Historical Mining Leases		Gas and Condensate Show Borehole		Stream Sediment Sample Sites		Ore: Waste Limit
	Restricted Areas		Mining Claims		Gas and Oil Show Borehole		COAL RESOURCE SYMBOLS		Limit of Drilling
	Native Title Applications		Dead Mining Claims		Oil Borehole		Coal Resource Areas		Cadastral Boundary Modified Mining Lease Boundary
	Native Title Determinations		Mineral Development Licences		Oil and Gas Borehole		Coal Inferred Sites		Extrapolation from Drill Holes
	Native Title Extinguishments and Likely Extinguishments		Dead Mineral Development Licences		Oil and Gas Show Borehole		Unknown		Geological Contact
	Native Title Insufficient Evidence for Extinguishment		Mine Workings		Coal Borehole		Fault		
			Shafts		Mineral Borehole		Subcrop Limit of Oxidation		



DEPARTMENT
OF MINING
AND METALLURGICAL
ENGINEERING

Cadastro

Mining Leases

Historical Mining Leases - Nil

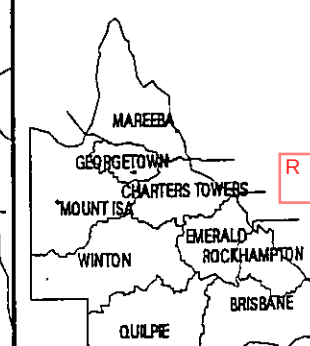
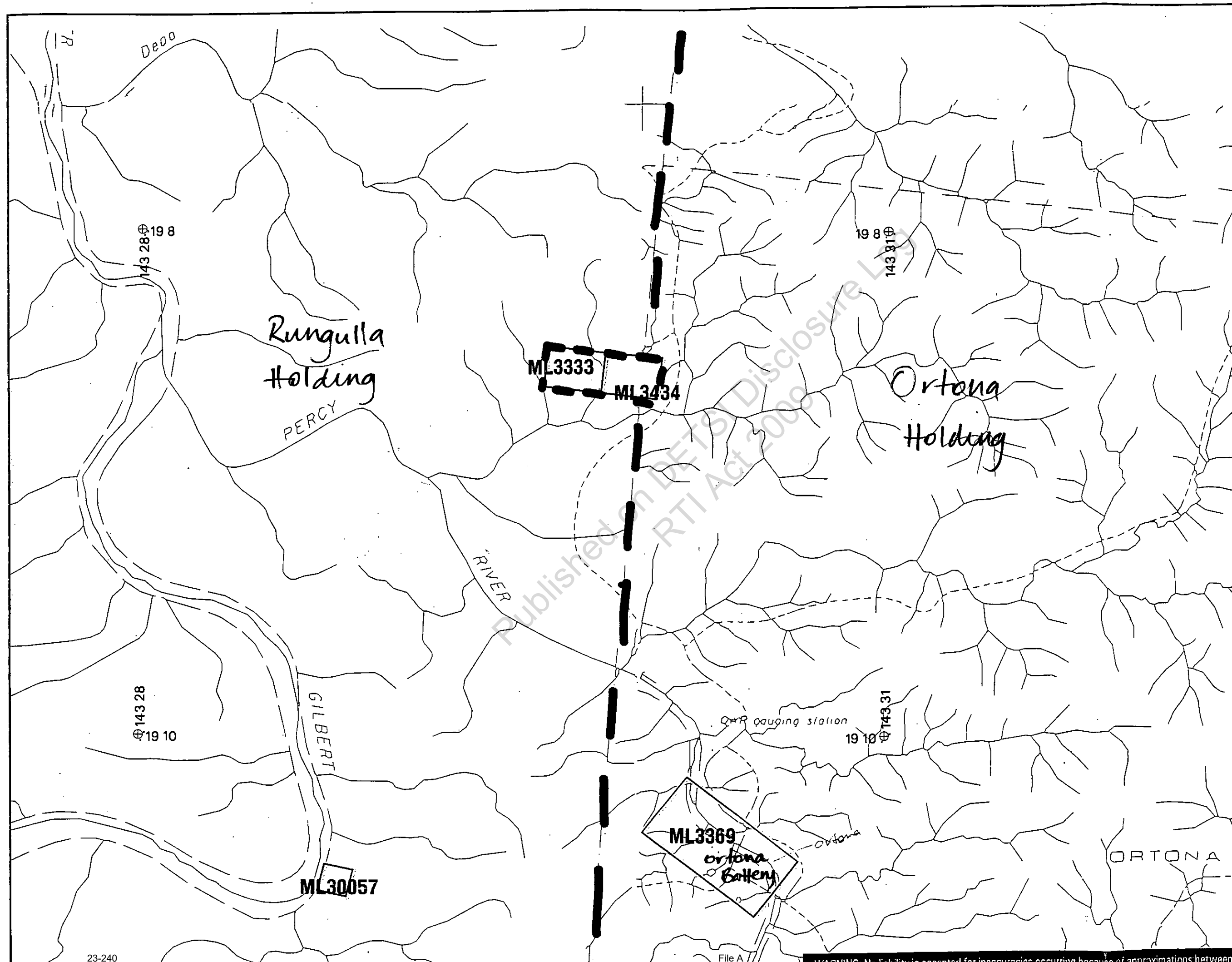
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Requested By: brisenq3

Date: 14 Aug 00

Time: 12:25 PM



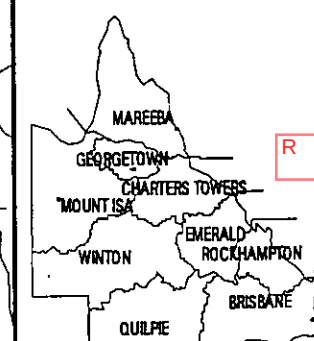
DEPARTMENT
OF MINING
AND ENERGY

Cadastre
Mining Leases
Historical Mining Leases - Nil

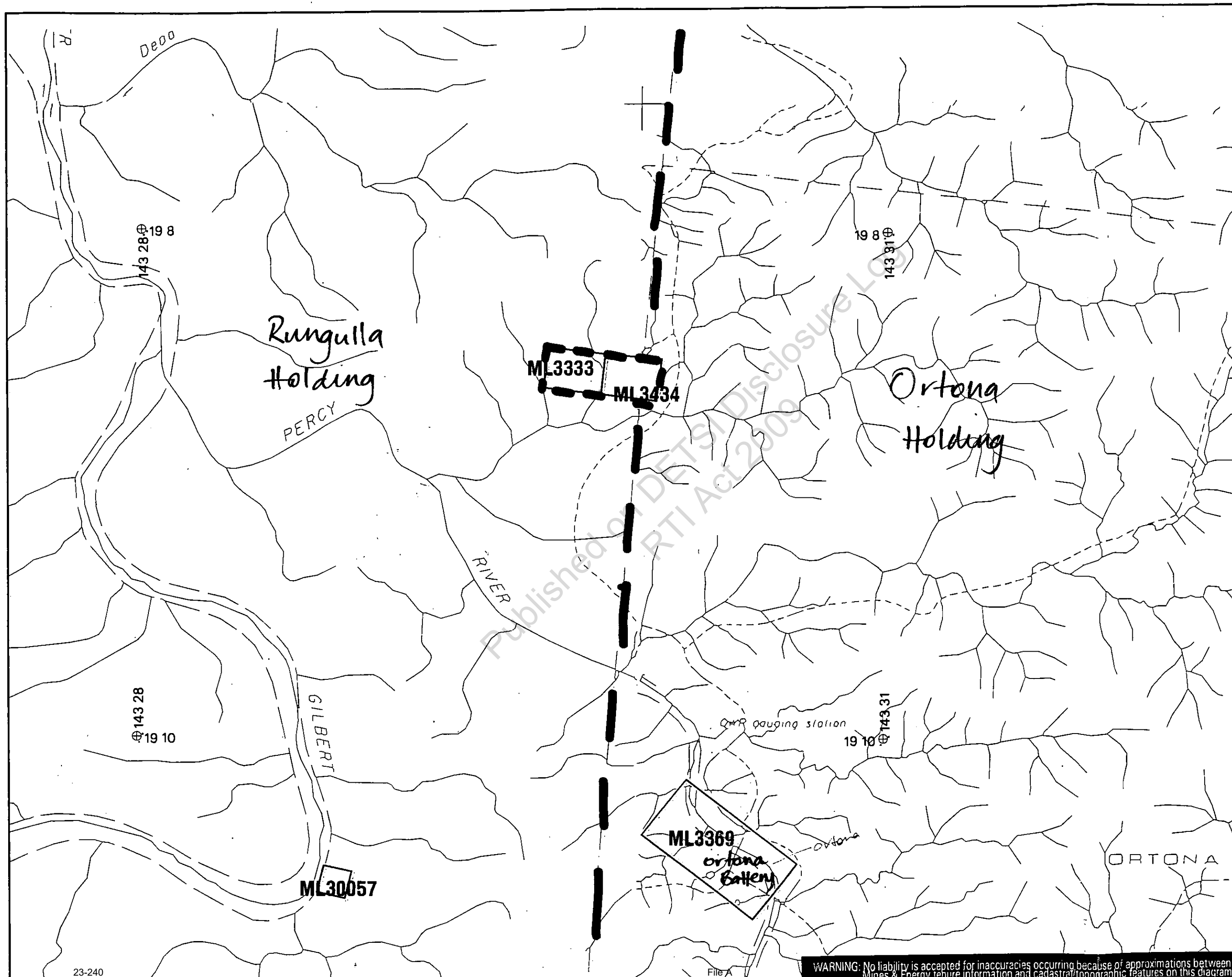
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Time: 12:25 PM



WARNING: No liability is accepted for inaccuracies occurring because of approximations between Mines & Energy tenure information and cadastral/topographic features on this diagram



**Report to
Heritage Register Advisory Committee**

*To be deferred
until August*

24 June 2000

Subject

Mount Moran Mine

601921

Summary of Proposal

HRAC recommend to Heritage Council that based on the information available at this time **Mount Moran Mine**, not be entered on the Queensland Heritage Register.

Background and Issues

- The **Mount Moran Mine** was nominated to the heritage register on 30 April 1997 by CTPI 49-Sch4 CTP the owner of Ortona Station, the property on which the mining lease is situated.
- The place was inspected by Paddy Waterson, Cairns Office of the Environmental Protection Agency. Paddy has prepared a report of his scoping study, which is attached.
- Paddy found that the place also contains an Aboriginal archaeological site. The site, known locally as Baker's Cave after the prospector who lived there in the 1920s, is likely to have heritage value in demonstrating the adaptations of an Indigenous camp site for historical purposes.
- It is likely that the place does have heritage value and it is proposed that the site be surveyed in the next dry season to determine the size of the place and to determine a boundary for heritage listing.
- Given the need for a site inspection of this place in the next dry season it is recommended that the place not be entered on to the heritage register but be considered following the results of the survey.

Recommendation

That based on the information available, **Mount Moran Mine**, not be entered in the Queensland Heritage Register but be reconsidered following the results of a site inspection to be undertaken in the dry season.

Attached

- Original nomination
- Report from Paddy Waterson, September 1999 (to be tabled at meeting)
- Slides of Mount Moran Mine from Paddy Waterson, September 1999 (to be tabled at meeting)

Anne Meiklejohn
13 June 2000

Name Mount Moran Battery

Former/Other Name

Location Located off the Agate Creek – Ortona Mine Road about 5 km north-west of Ortona Station Homestead.

RPD ML3333 & ML 3434 E Hoolihan

Local Authority Etheridge

AMG Map Sheet Grid CTPI 49-Sch4

Present tenure Ortona Homestead Station
PO Box 4871 Emsleigh 4871.

Listing boundary
North. East-west line passing through a point 150 metres north of the battery
South. East west line passing through a point 100 metres south of the battery.
East. North-south line passing through a point 100 metres east of the battery.
West. North-south line passing through a point 100 metres west of the battery.

Other listings

Heritage Significance

Mount Moran Mine is a place of cultural heritage significance and satisfies one or more of the criteria in s.23(1) of the Act as evidenced by, but not exclusive to, the following statement of heritage significance, based on **Criteria: a.**

The Mount Moran Mine is important in demonstrating the evolution of Queensland's mining history, in particular the Etheridge Gold and Mineral Field. It contributes to an understanding of ore crushing technology utilised on a marginal lode and is an example of a small battery which was set up to crush ore for a few small mines in an isolated area of the remote field.

History

Mount Moran Battery is situated on a sloping ridge above the seasonally active Agate Creek, west of Forsayth. The isolated five head stamp battery was erected in 1924 to crush ore won from the three reefs worked in the area – the Mona, Iona and Bosker.

Gold was discovered in the Georgetown Mining District in 1868 and a series of gold and base metal discoveries followed. The region became known as the Etheridge Gold and Mineral Field. The field peaked as a gold producer in the 1890s but was in decline by World War I. High base metal prices turned attention to lead, silver and copper and the field boomed until the onset of the Depression in the late 1920s again caused prices to drop. A brief revival in gold mining followed but the labour and materials shortages of World War Two ended all mining.

During the early years of gold discoveries on the Etheridge field small amounts of alluvial gold were found in gullies around Mount Moran. Although it was until the 1920s that the area produced three working gold reefs. Between 1922 and 1936 the three mines, the Mona, Iona and Bosker, yielded 1,033 ounces of gold. Ore from the area was first crushed at the Ortona battery. By 1924 Mount Moran required its own crushing facilities. The ten head battery at Ortona, situated about 3 miles from Mount Moran field, was relocated from Ortona to its present site.

In 1924 there was increased prospecting in the area with satisfactory results. Several new gold-bearing lodes were discovered, however most of the work was confined to the Finger Point mine. Here, the principal owners formed a syndicate and amalgamated their holdings in a 16 acre lease. The claims in the area were the Blue Spec, Bosker, Brown Hill, Dinkum, Finger Print, Lucky Hit, Iona and Peg Leg, with the deepest shafts of 22metres and 27metres being sunk on the Peg Leg and Finger Print respectively.

The 1930s saw a brief revival in the area then known as "the Mount Moran group of gold mines". In 1936 the Mount Moran Battery crushed 157 tons of ore to yield 58 ounces of gold. However, there appears to have been no activity after this date. The Mount Moran Battery presumably ceased operation as the mines in the area closed.

Description *over?*

The Mount Moran Battery contains the remains of a five head stamp battery including mortar box, stamper rods and belt wheel. The battery frame has been removed. A colonial boiler, the remains of a steam engine with fly wheel and several berdan pans are located alongside the stamp battery. A collapsed corrugated iron camp is located across a gully to the west of the battery. A small steam pump is located near a well on a watercourse east of the battery. The place includes several early open workings.

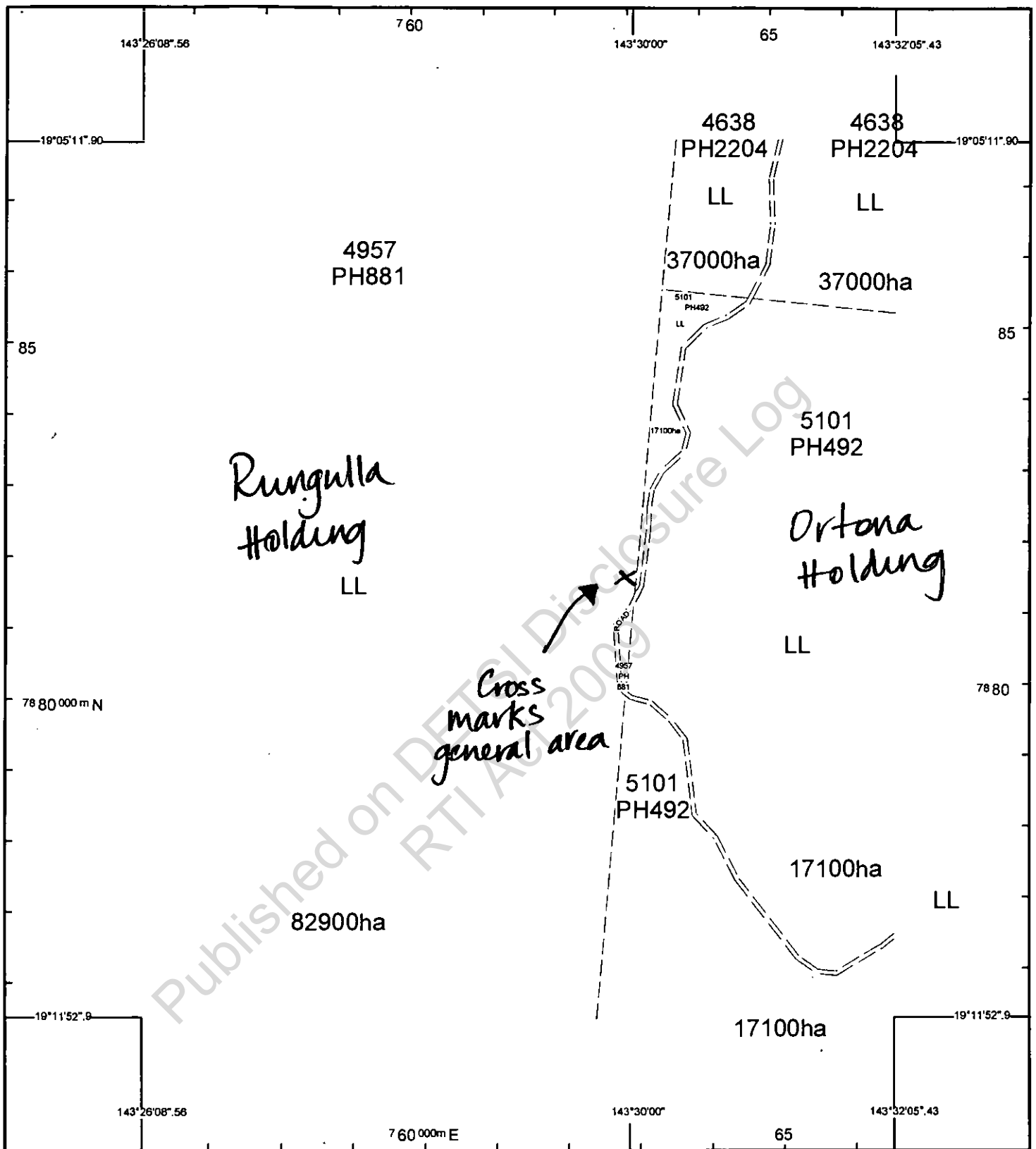
Process:

Pursuant to the provisions of the Queensland Heritage Act 1992, the Heritage Council has formed the opinion that this is a place of cultural significance which satisfies one or more of the criteria for provisional entry in the Heritage Register and that it is possible for the cultural heritage significance of the place to be conserved.

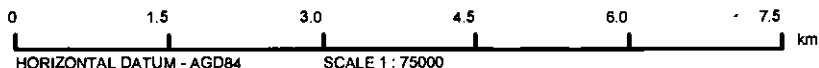
The decision of the Heritage Council is recorded in the minutes of the Council meeting of **.

Note: This document has been prepared on the basis of current information, and assessed under the criteria in the Queensland Heritage Act. This document may be reassessed if further evidence becomes available. The statement of significance specifies the most important heritage values of the place. The purpose of this document is to provide an informed evaluation for heritage registration. This does not negate the need for a thorough conservation study by a qualified practitioner, or Cultural Heritage Branch consultation, before any action is taken which may affect the significance of the place.

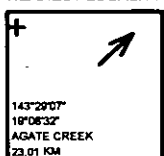




STANDARD MAP NUMBER
7559-12112



MAP WINDOW POSITION &
NEAREST LOCALITY

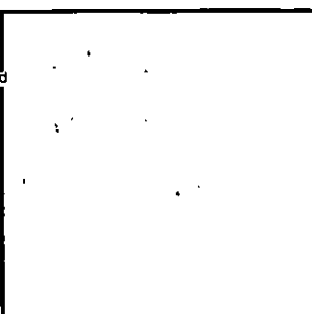


SUBJECT PARCEL DESCRIPTION

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Area	No Lot/Plan Selected.
Tenure	No Lot/Plan Selected.
Local Government	No Lot/Plan Selected.
Locality	No Lot/Plan Selected.
Parish	No Lot/Plan Selected.
County	No Lot/Plan Selected.
Parcel/Segment	No Lot/Plan Selected.

PRINTED (dd/mm/yyyy) 11/9/2000
(Important Notice: The information hereon is NOT an OFFICIAL RECORD and its ACCURACY is NOT GUARANTEED)
DCDB 08/09/2000
(Lots with an area less than 40000 square metres are not shown)
For symbology see the BLIN Abbreviations Sheet.

LEGEND



BLINMAP

An External Product of the
Basic Land Information Network
Based upon an extraction from the
Digital Cadastral Data Base

NATURAL RESOURCES

(c) The State of Queensland,
Department of Natural Resources, 2000.

INSET
STAMPER BATTERY
SITE

GULLY

NORTH

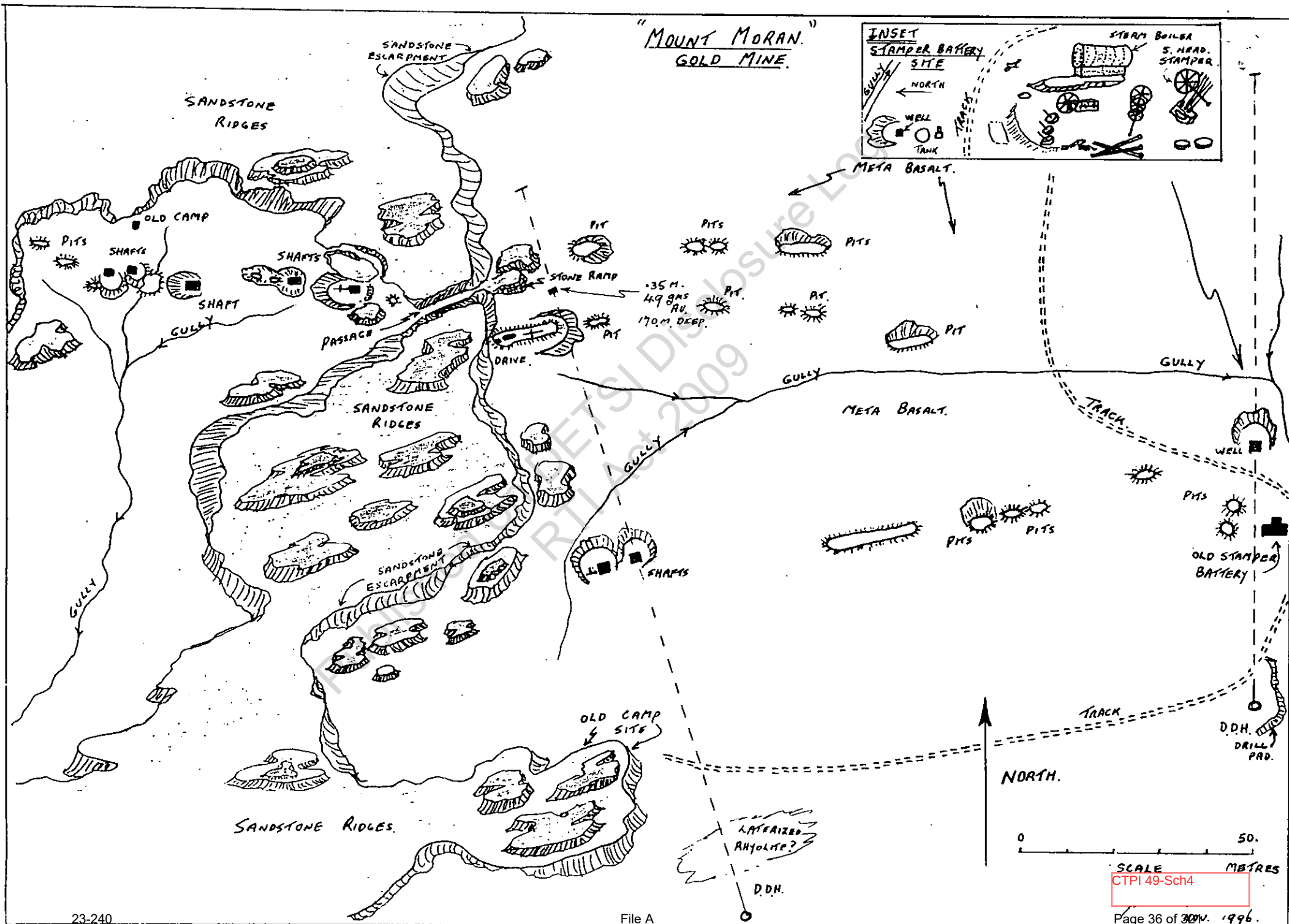
WELL

TANK

TRAIL

STEAM BOILER

5. HEAD. STAMPER



Place Report

General Place Details

Place ID	610969
Place Status	Reported
Date Entered	
Place Name	Mount Moran Battery - Gold?
Alternate Place Name	
Classification	
Condition	
Condition Date	

Locations

Locality Description: Located off the Ortona - Agate Creek road about 5km north-west of Ortona (Iona) homestead.

Near Town: No

Street	Suburb	City	PostCode	LGA
	GEORGETOWN		4871	ETHERIDGE SHIRE COUNCIL

Coordinates

Point Name	Type	Map Accuracy	Source	Date	Comments
N/A	Unknown	Unknown	Unkno wn	01-Jan- 2006	

Statement of Significance

Criterion A

The place is important in demonstrating the evolution or pattern of Queensland's history

The Mount Moran battery is significant in Queensland history as an example of a small isolated battery on a marginal lode on the Etheridge Goldfield, which was developed in the 1920's and briefly revived during the 1930's. The surface remains and plant at the place is significant.

Published on DETSI Disclosure Log
RTI Act 2009

History

Although alluvial gold was won from the gullies surrounding Mount Moran years beforehand, it was not until 1920 that payable reefs were located. Of these, it appears that only three reefs were worked. The Mona, Iona and Bosker.

Officially, a total of 1,272 tones of ore yielded of gold between 1922 and 1936. The ore was first crushed at the Ortona Battery, but by 1924 Mount Moran boasted its own crushing facilities. The battery presumable operated until 1936, as there was a brief revival in the 1930's.

Description

The place contains the remains of a five-head stamp battery including mortar box, stamper rods and belt wheel. The battery frame has been removed. A colonial boiler, the remains of a steam engine with flywheel and several berdan pans are located alongside. A collapsed corrugated iron camp is located across a gully to the west of the battery. A small steam pump is located near a well on a watercourse east of the battery. The place includes several early open workings.

Plant:

Five head mortar box & stamper rods - No brand.

Colonial Boiler - no brand

Flat bed steam engine with flywheel - no brand

2 Berdan pans

Steam pump - no brand

Boundary Description

North: East-west line passing through a point 150 metres north of the battery.

South: East-west line passing through a point 100 metres south of the battery.

East: North-south line passing through a point 100 metres east of the battery.

West: North-south line passing through a point 100 metres west of the battery.



01321 / File A 23-240



of 321

File A

23-240



File A



File A







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RTI Act 2003

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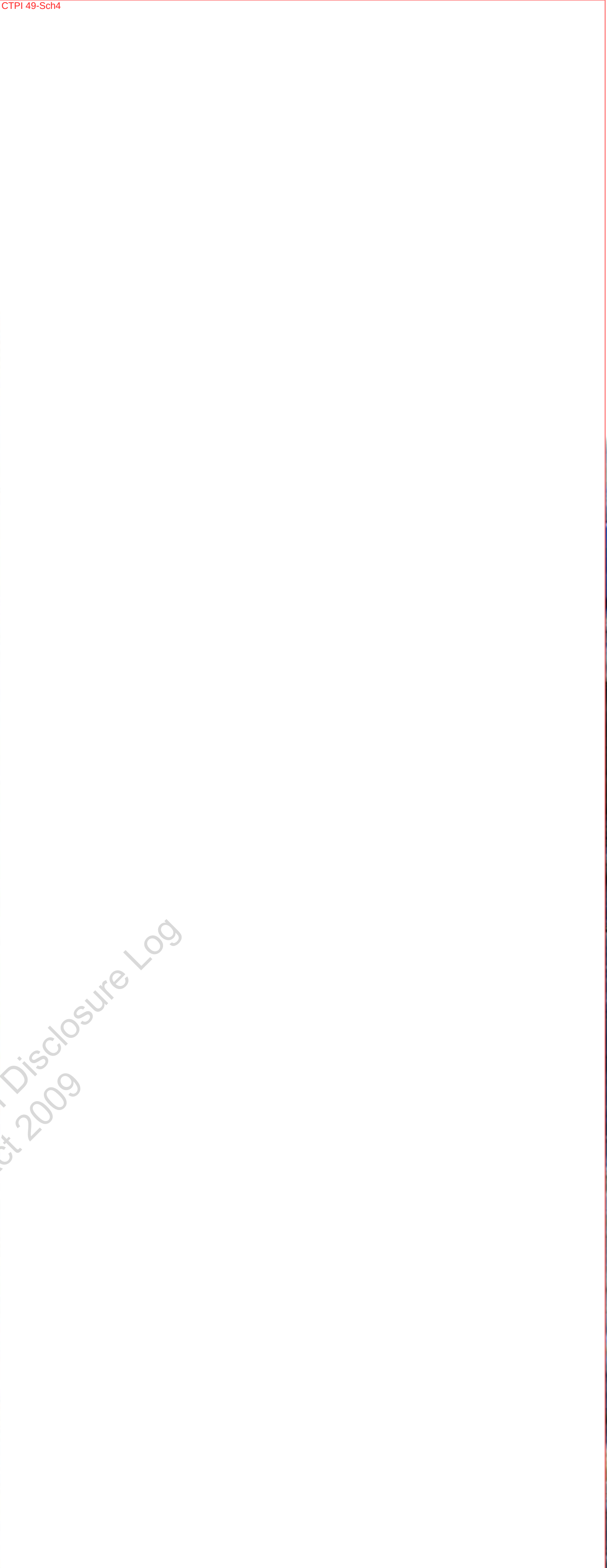
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17 Oct 2019

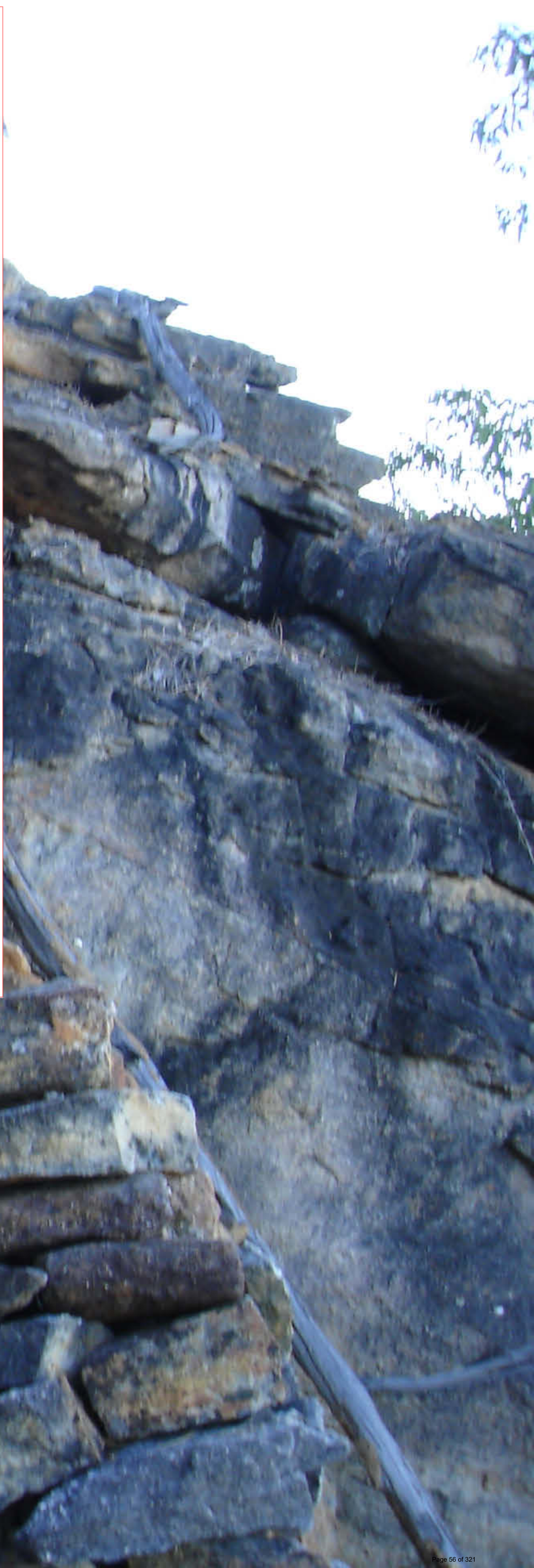






CTPI 49-Sc04

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CTPI 49-Sch4

CTPI 49-Sch4

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RTI Act 2009



CTPI 49-Sch4

CTPI 49-Sch4

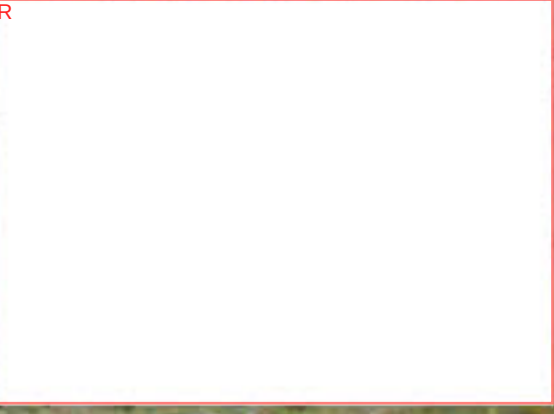


SANDYCROFT FOUNDRY
CHESTER ENGLAND



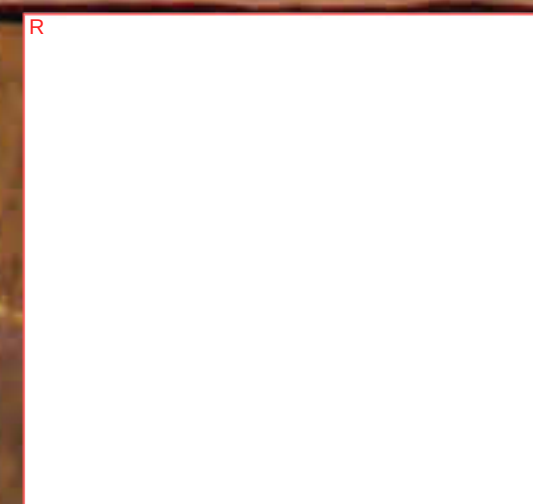
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CHESTER ENGLAND

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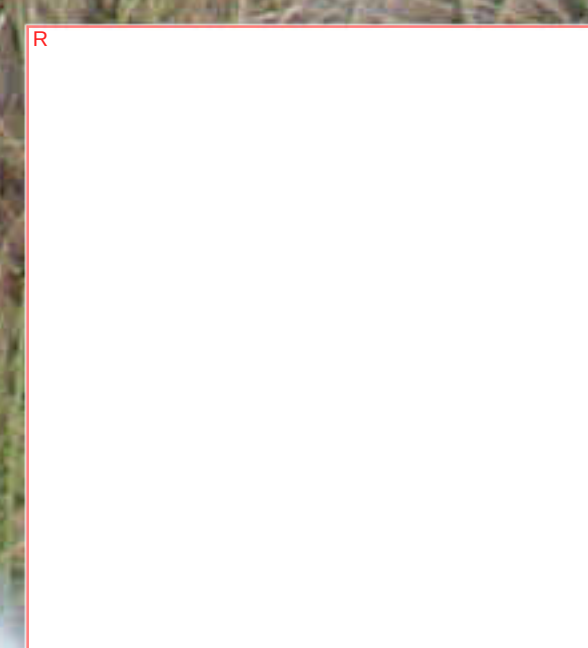




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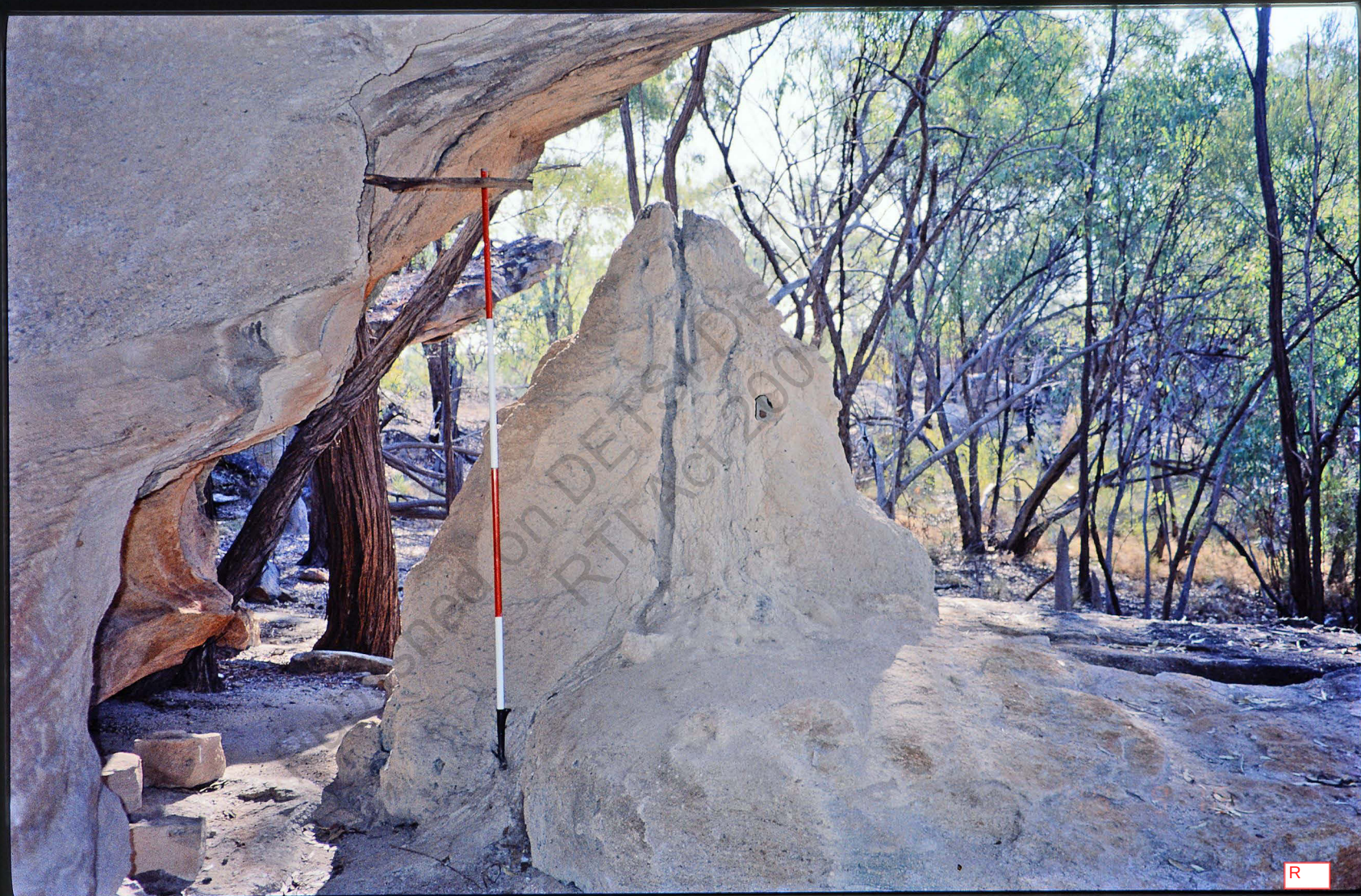


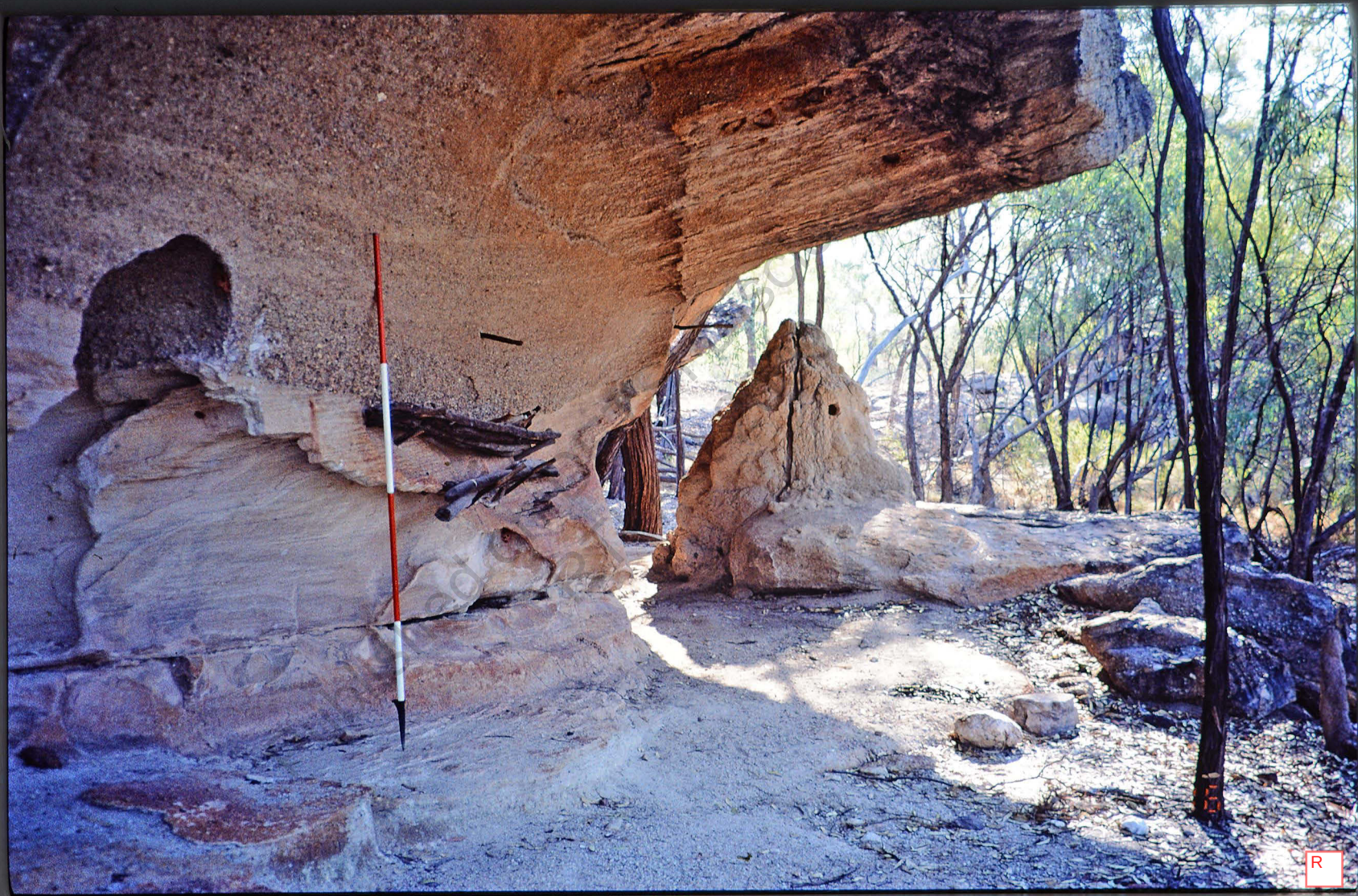


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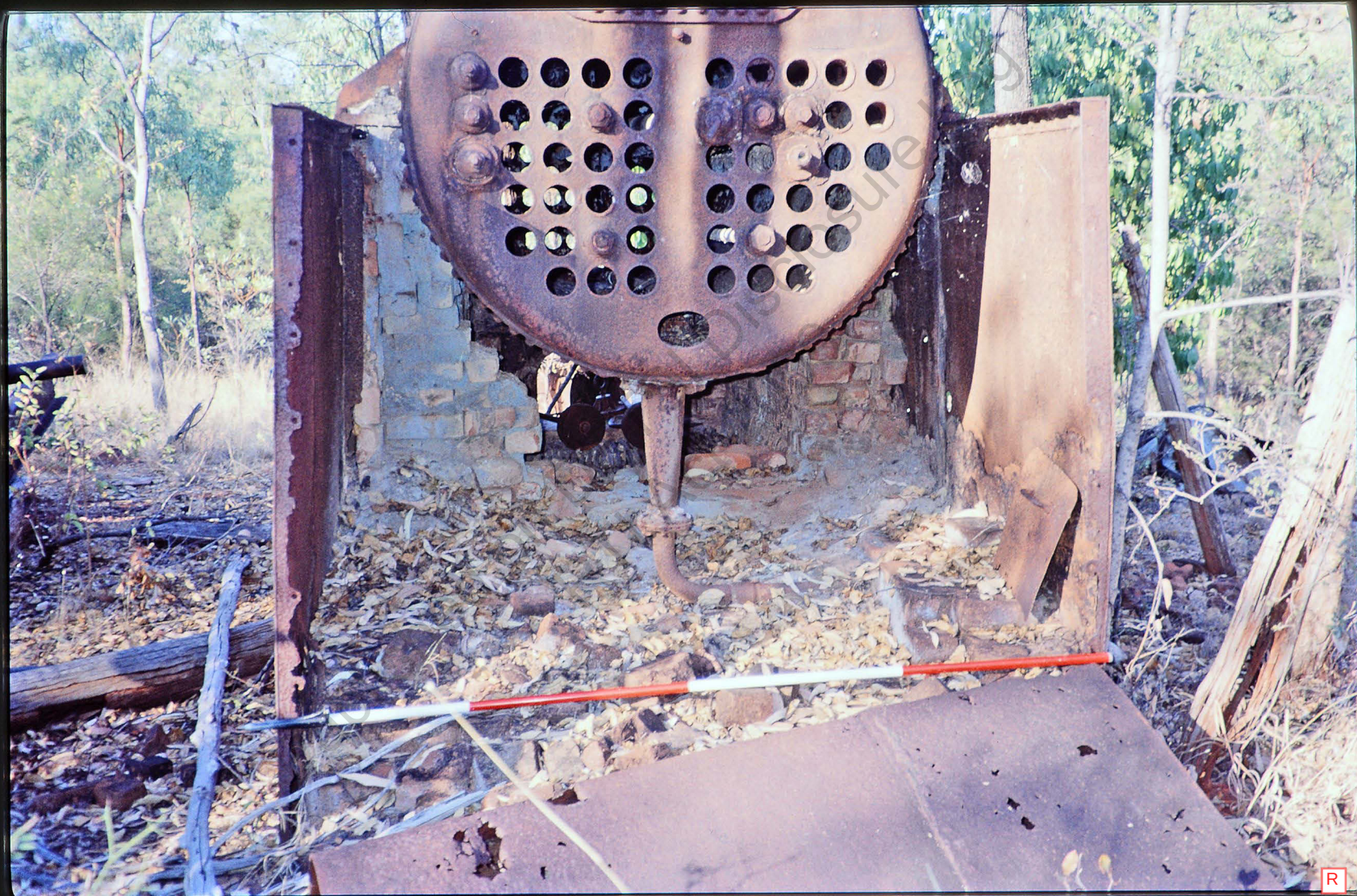


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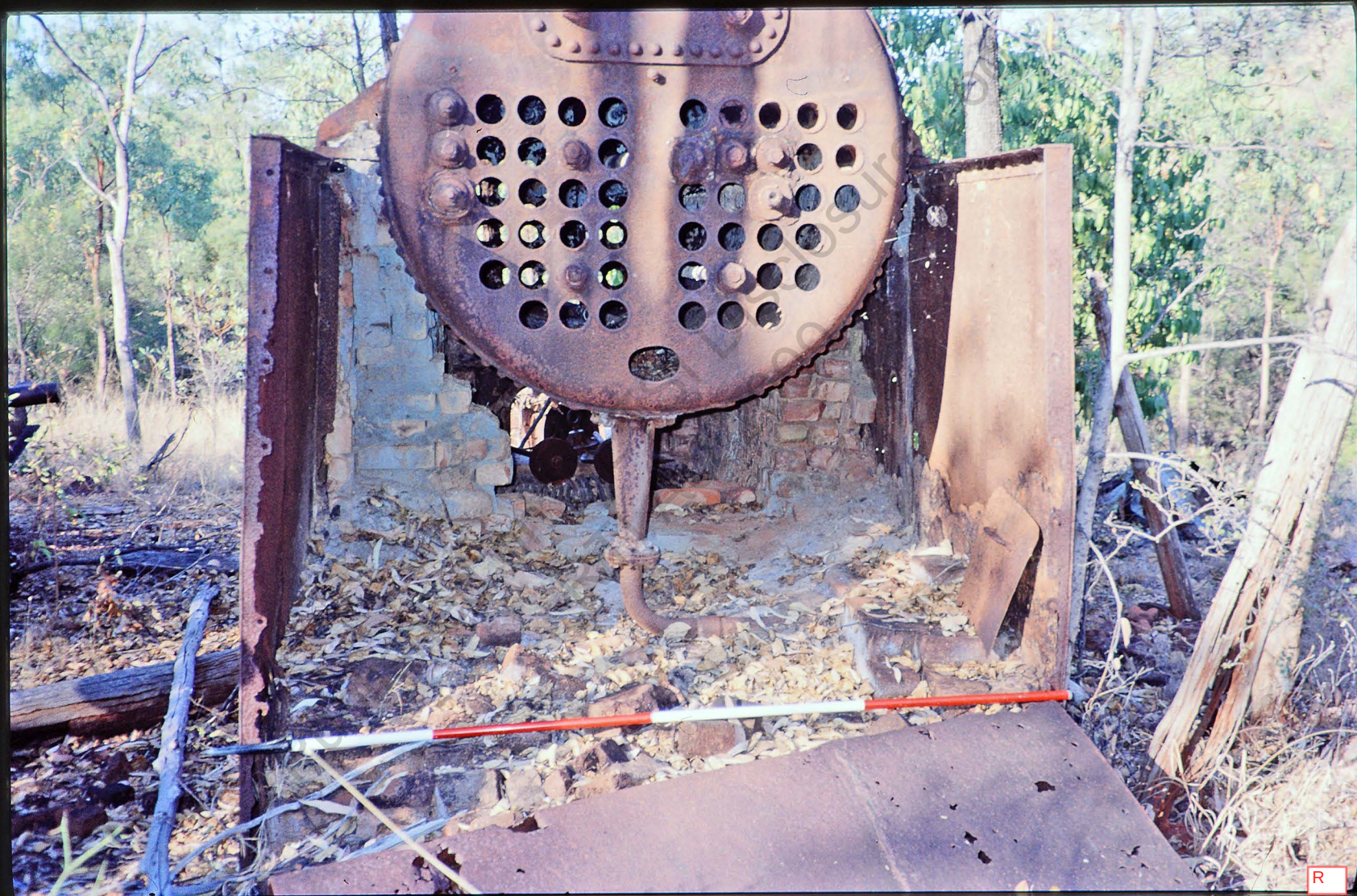


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Class/ID H-QLD/0416

Title: Mining Heritage Places Study - Northern and
Western Qld Vol2 - Georgetown District

Author: Howard Pearce
Jane Lennon & Associates

Copies: 1

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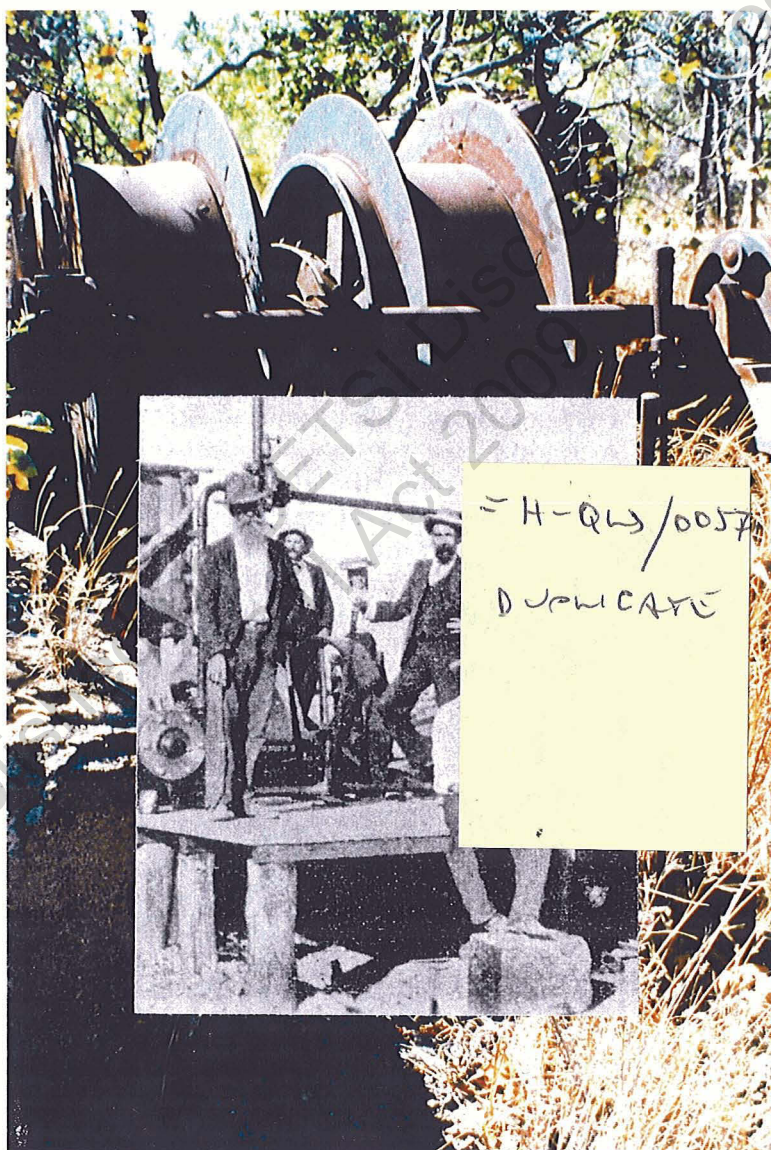
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MINING HERITAGE PLACES STUDY

NORTHERN AND WESTERN QUEENSLAND

Identification, assessment and documentation of
cultural heritage significance

Volume 2: Georgetown Mining District



JANE LENNON & ASSOCIATES
HOWARD PEARCE

September 1996

A Community History Report, Cultural Heritage Branch, Department of Environment, Brisbane.

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MINING HERITAGE PLACES STUDY:

NORTHERN AND WESTERN QUEENSLAND.

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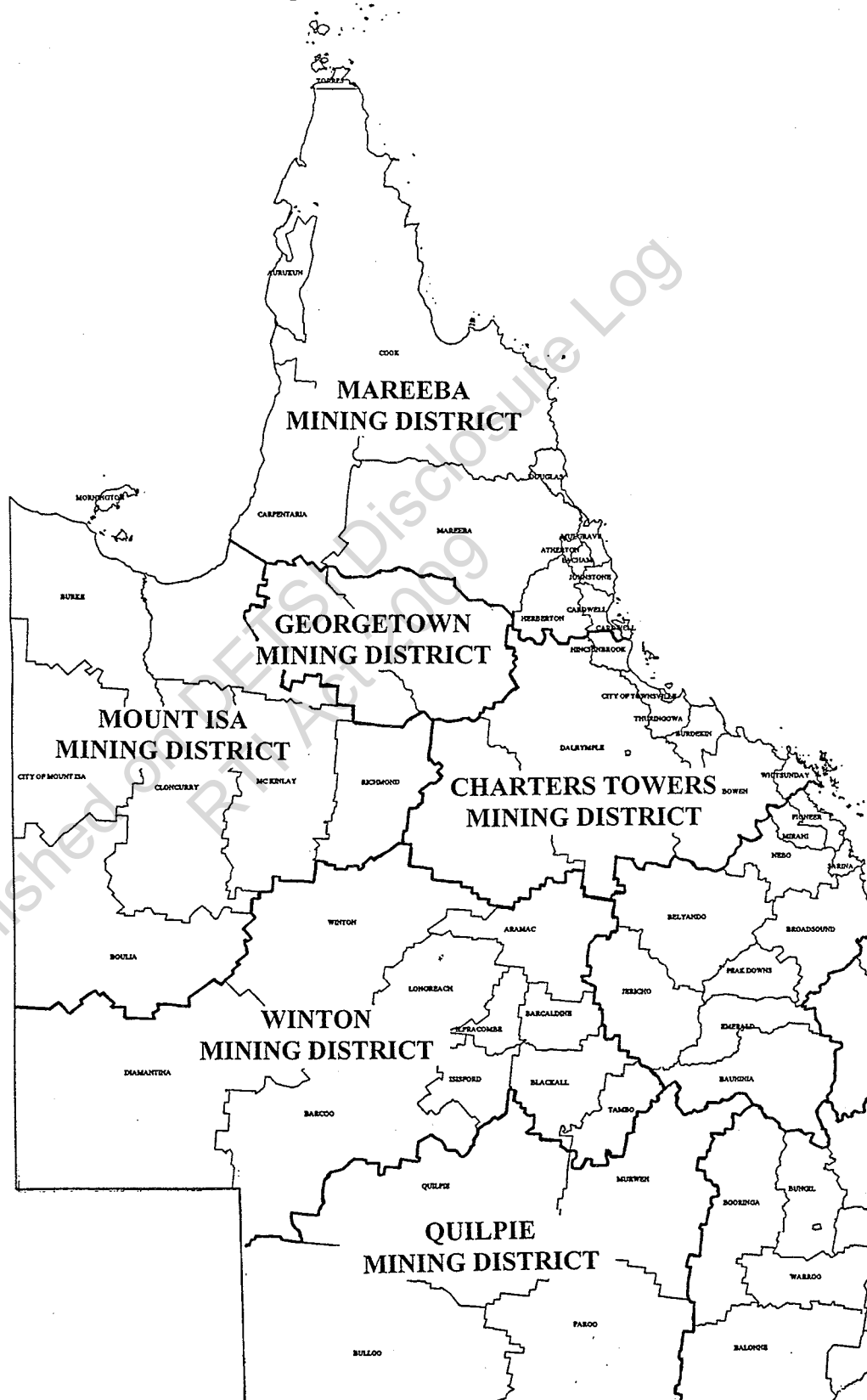
A Community History Report, Cultural Heritage Branch, Department of Environment, Brisbane.

Published on DET's Disclosure Log
RTI Act 2009

Queensland Department of Environment
Research Permit Q1/HRES/94 issued pursuant to Section 28 of the
Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987.



**DEPARTMENT OF MINES AND ENERGY
MINING DISTRICTS:
NORTHERN & WESTERN QUEENSLAND**



SUMMARY

Survey of approximately 180 mining heritage places across Northern and Western Queensland was undertaken within the Charters Towers, Georgetown, Mareeba and Mount Isa mining districts in 1994. Places were selected on the basis of previous research (Kerr, 1992), recommendations from the Study Advisory Committee and Department of Mines and Energy, and through local knowledge.

The objectives of the study are to identify significant places, research their history, document their physical condition, record their components, assess their cultural significance, define heritage boundaries and present this information in a report format. The aim of the study is to provide a working document and early advice reference for government departments, to strengthen the basis for nominations for entry of places on the Queensland Heritage Register, and to establish a statewide framework for the comparative assessment of mining heritage values.

The study compliments one undertaken by Dr Michael Pearson in 1994 into mining heritage places in Southern and Central Queensland.

A wide variation in historical mining places survive across the study area with gold mining predominating in the Charters Towers, Georgetown and Mareeba mining districts. However tin is also a major component in the Mareeba District, and copper dominates in the Mount Isa District. A feature of Queensland's mining heritage in comparison to other states is the relatively high rate of survival of early plant, particularly in the Georgetown, Mareeba and Mount Isa mining districts.

Themes are identified which deserve further research and survey. For example a large number of towns, either abandoned or with remnant historical buildings, owed their existence to mining and warrant further study. Implications of the development of the mining industry in Queensland deserves further research, for example its influence on the establishment of settlements, agriculture, gardening, meat production, transport and the reservation of forests as timber reserves.

It is inevitable that new technologies and economic upsurges will lead to new development in places with mining heritage values. For those places assessed as exhibiting such values extra care and consultation should be taken in the locating of any new works. Careful placement of new development not only adds another layer of evidence for researchers in the future, but may also be of ongoing economic benefit in providing a regional tourism resource.

As heritage tourism increases in popularity in Australia there is a growing demand for knowledge about Queensland's mining history. Heritage tourism is the vital link between the traditional recreational tourism and the expanding ecotourism markets. It offers a more satisfying, diverse and interactive tourism experience and provides an appreciation of the linkages between nature and industry. The study provides historical information which could be published as tour guide.

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MINING HERITAGE PLACES STUDY: NORTHERN & WESTERN QUEENSLAND

Jane Lennon & Associates
Howard Pearce



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MINING HERITAGE PLACES STUDY: NORTHERN & WESTERN QUEENSLAND

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Howard Pearce

R

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- 437 Mungana Township & Railway Terminus
- 440 Nettle Creek Tin Dredge
- 444 Nuggety Gully Stone Walls & Chinese Camp
- 448 OK Mine & Smelter
- 453 Ootann Lime Kilns & Staff Housing
- 456 Palmer River Gold Company Dredge
- 459 Pioneer Battery
- 462 Potallah Creek Battery Shed
- 465 Quartzborough: Four Mile Battery
- 468 Queen of the North Mine & Battery
- 471 Rocky Bluff Battery, Tramway & Township
- 476 Stannary Hills Tramway Formation: Eureka Creek
- 480 Stonyville Township, Cemetery & Water Race
- 484 Sunnymount Battery Shed
- 487 The Brothers Mine
- 490 Thornborough Township & Cemetery
- 493 Tyrconnel Mine & Battery
- 499 Vulcan Mine & Headframe
- 504 Walter Hodgson Battery & Ropeway
- 508 Wenlock Lower Camp Goldfield
- 514 Wenlock Lower Camp Settlement
- 517 Wild Irish Girl Mine & Battery
- 521 Wolfram: Thermo Electric Ore Reduction Corporation Mill

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526 Wolfram: Top Camp Mine Workings, Settlement & Cemetery

Volume 4: Mount Isa Mining District

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- 548 Great Australia Mine & Smelters
- 555 Kuridala: Hampden Mines & Smelter
- 561 Kuridala Township, Railway Formation & Cemetery
- 565 Labor Victory Mine Boilers
- 568 Mary Kathleen Mine & Treatment Works
- 572 Mary Kathleen Township
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- 580 Mount Cuthbert Mine & Smelter
- 585 Mount Cuthbert Township & Railway Formation
- 589 Mount Cuthbert: Kalkadoon Mine & Winding Plant
- 592 Mount Elliott Company Metallurgical Plant
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- 599 Mount Isa Mines: Davidson Shaft & Winding Engine
- 602 Mount Isa Mines: Executive Residences
- 605 Mount Isa Mines: Exhaust Fan House & Horizontal Duct
- 607 Mount Isa Mines: Experimental Dam
- 610 Mount Isa Mines: King's Cross Community Buildings Precinct
- 613 Mount Isa Mines: Lawlor Shaft & Winding Plant
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- 630 Mount Isa Mines: Urquhart Shaft Headframe & Winding Engine
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- 646 Selwyn: Mount Elliott Mine & Smelter
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INTRODUCTION

1. PURPOSE OF THE STUDY

This study is Part 1 of Stage 2 of the overall Queensland Mining Heritage Places Study; Stage 1 being a “desk-top” compilation of historical information for a large selection of early mining places prepared by Dr Ruth Kerr in 1992. Part 2 of Stage 2, prepared by Dr Michael Pearson in 1994, reports on mining heritage places in Southern and Central Queensland.

The brief for the project summarises the task as follows:

The study will present a soundly researched information base in the form of an inventory of all significant mining heritage places in Northern and Western Queensland. In this regard the study will:

- Identify significant places;
- Research their history;
- Document their physical condition;
- Record their components;
- Assess their cultural significance;
- Accurately define their heritage boundaries; and
- Present the above information in a report format.

The objectives of the study are to:

- Provide a working document and “early advice” reference for State Government departments;
- Strengthen the basis for nominations for entry of places on the Queensland Heritage Register; and
- Establish a statewide framework for the comparative assessment of mining heritage values.

The range of places which might be part of the study include places of mining habitation, mineral exploration and extraction, and mineral treatment. This was to include associated cultural heritage places in close proximity to historical mining sites, “for example places relating to residential, commercial, and agricultural occupation; places relating to transport, and water storage; and cemeteries and graves.” The scope of the study was originally to cover all mining and extractive types within the six northern and western Queensland mining districts of Charters Towers, Georgetown, Mareeba, Mount Isa, Winton and Quilpie. Following the preliminary research of the scale of exercise this would entail, and the cost-effectiveness of covering this wide range of mining types and geographical regions, it was agreed:

- To exclude the extraction and quarrying of building materials, stone, lime, and mineral sands, as these industries required a separate and somewhat different research design than envisaged for this study; and
- To exclude the Winton and Quilpie mining districts because the mining activity in these districts was restricted to opal mining and it was felt that a different research approach was required to study and record the heritage values of this mining type.

The physical remains of early opal mining in South West Queensland are minimal and are spread across a very large geographical region. Descriptions of a small selection of representative historical opal mining places have been included to contribute to a comprehensive statewide overview of mining heritage.

The report provides information upon which it offers clear assessments of the heritage significance of mining places. It does not attempt to make recommendations on the future management of mining heritage places or to prescribe the balance between mining and other land uses in Queensland.

The purpose of the study is not specifically to nominate places for consideration by the Heritage Council, though some places do stand out as meriting heritage registration. The assessments are written more from the point of view of their usefulness in clarifying heritage values as a basis for further deliberation by the Heritage Council and to inform discussions between the Department of Environment, the Department of Mines and Energy and the mining industry about the protection and management of heritage aspects of mining sites, especially in the context of lease conditions and rehabilitation requirements. In this regard the assessments of places using consistent criteria, and the definition of a heritage boundary, are thought to be particularly useful aspects of this report.

2. AUTHORSHIP, THE CLIENT AND FUNDING

2.1 Authorship

The research, assessment and recording work for the study was undertaken by Jane Lennon and Howard Pearce. Writing of the report was undertaken by Lennon. Pearce was responsible for the place descriptions, plans and photography. The work commenced in 1994, and the draft report was submitted in 1996.

2.2 Client

The Study was commissioned by the Cultural Heritage Branch of the Queensland Department of Environment. The Queensland Department of Mines and Energy and the Queensland Mining Council provided valuable advice and were regularly consulted regarding the methodology and outcomes of the study.

2.3 Funding

The funding for the overall Queensland Mining Heritage Places Study, Stages 1 and 2, was provided through the Australian Heritage Commission's National Estate Grants Program 1991-92, 1992-93, 1993-94.

3. METHODOLOGY

3.1 Identification of places

It is clear that a study with such a wide-ranging brief would take a very long time to complete if there were no filtering system applied to the selection of sites. The primary filter was to select for study only those sites where there was a *prima facie* case that the place had cultural significance - that is, that the place had documentary evidence to suggest it might satisfy the sorts of criteria set down in the *Queensland Heritage Act 1992* as defining heritage value, and that there was a likelihood of there being substantial physical remains at the places to demonstrate those values.

The Stage 1 report by Dr Ruth Kerr (Kerr 1992) was one of the starting points for identifying places to be included in the study. This provided basic historical information for many sites (72 of the 183 places documented in this report), and drew partly on Dr Kerr's personal knowledge of the physical attributes of those sites.

The other sources of information leading to the selection of places for this report were the members of the Study Advisory Committee (comprising representatives of the Department of Mines and Energy, Queensland Mining Council, Queensland Heritage Council and the Australian Council of National Trusts), and the Department of Mines and Energy who prepared a list of places with potential heritage value in response to Dr Kerr's report; some additions to that list by Pearce, and a list of places gathered from discussions with Department of Mines and Energy district officers and local informants during the course of the study.

This methodology for selecting places to study and record was based more on the practicalities of the resources available than on a consciously devised "ideal" research design, but it is believed that the involvement of a range of people and groups with intimate knowledge of the mining regions to be surveyed has resulted in the identification of the principal places with mining heritage value. There may well be additional places which will emerge following further research (some of which is recommended elsewhere in this report), but it is believed that these will be relatively few in number.

As indicated in the brief, many mining places have other types of places closely associated with them which owe their existence to mining, such as settlements,

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cemeteries and transport systems. The ideal way to assess these places would be by taking a holistic approach, which puts them into the context of their mining origins and later history. As such they would ideally all be part of this study. However, resources were insufficient to adequately assess extensive associated places such as whole mining towns (eg. Ravenswood, Kidston, Croydon, Maytown, Chillagoe, Herberton, Kuridala, Mount Cuthbert etc.), or extensive transport systems (eg. the Mungana, Mount Garnet, Forsayth, Selwyn, Dobbryn railways). Where it is thought that particular attention should be paid to the mining origin of such associated places, reference has been made to it in the relevant place record.

3.2 Historical research

It was envisaged in the brief that the bulk of the historical material to support this study would be drawn from the Stage 1 report (Kerr 1992). However, given the process of identifying places outlined above, the majority of places required more original or additional research than had at first been anticipated. The primary sources for this research have been the official Department of Mines Annual Reports, the *Queensland Government Mining Journal*, and Queensland Geological Survey Publications and Reports, and selected secondary documentary sources, especially local histories and mining history accounts.

There are a series of excellent histories of individual mining fields in Northern and Western Queensland: Noreen Kirkman on the Palmer River Goldfield and on the Hodgkinson Goldfield; Janice Wegner on the Etheridge and on Kangaroo Hills; Kett Kennedy on the Cloncurry Copper Field; Dianne Menghetti on Charters Towers; Peter Bell on the coal industry, Mount Isa, housing and settlement; Ruth Kerr on the tinfields. Some of these works were published as *Readings in North Queensland Mining History* in 1980 (vol.1) and 1982 (vol.2) by the History Department, James Cook University of North Queensland.

The History Department also published Peter Bell's monographs on *The Mount Mulligan Disaster* (1978) and *Gold, Iron and Steam - The Industrial Archaeology of the Palmer Goldfield* (1987) and Janice Wegner's detailed study, *The Etheridge* (1990). David de Havelland's massive *Gold and Ghosts, vol.4, A prospectors guide to metal detecting and history of the Australian goldfields* (615pp) covers northern and northwestern districts of Queensland and is invaluable in tracing down short-lived and remote gold mining places. Colin Hooper's *Angor to Zillmanton, stories of North Queensland's deserted towns* (1995) covers every mining district and makes extensive use of Mines Department township surveys and directories, especially *Pugh's Almanac*, to reconstruct settlements during their heyday.

In addition, three cultural heritage studies undertaken during 1995 have been useful for specific places: Mount Cuthbert and Dobbryn by Gordon Grimwade and Associates; and Kidston Township and Great Australia Mine, Cloncurry both by

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Michael Pearson. Deanne Dorn and the staff of the Department of Mines and Energy library in Brisbane gave great assistance in accessing relevant material and Margaret Pullar assisted with research of secondary sources.

The historical material was addressed with the particular needs of this type of study in mind. As it was expressed in the brief, "the purpose of the history is to contribute to an understanding of the cultural heritage significance of evidence of the past as demonstrated in the fabric and features of identified places".

3.3 Recording of places

The level of recording of the mining places had to be a balance between available resources and comprehensiveness. It was agreed, for instance, that doing measured drawings of standing buildings would not be a cost-effective way of using the limited resources of the study, but the brief required that places be documented to a level sufficient to contribute comparative information for the Cultural Heritage Branch historical places data base. The basic level of recording required for each recorded place was to include at least a scaled plan to a specified standard and black and white negative and colour transparency photographs of the place's features. A statement of the cultural significance of each place, based on the criteria in section 23(1) of the *Queensland Heritage Act 1992*, was to be included, together with a summary of its history and a written description of the place, including a definition of its heritage boundaries, and a bibliography.

Background and mineral tenure details for the recorded places were provided by the Department of Mines and Energy, Brisbane, during 1994. This information relates to tenures at the time of the field survey and in some cases may now be out of date. It should not therefore be accepted as current without re-checking the source. In a few instances places occurred on or close to mining tenement boundaries and their exact tenure could not be confirmed.

The field work for the recording of places in this report was carried out in four field surveys between May and September 1994. Field recordings of places within the four relevant mining districts were undertaken during the following periods:

- Charters Towers Mining District - May 1994,
- Mount Isa Mining District - June 1994,
- Mareeba Mining District - July-August 1994, and
- Georgetown Mining District - September 1994.

The assistance of Paul Graham and Rodney Coe, Department of Mines and Energy, Mareeba, is most gratefully acknowledged.

3.4 Heritage Boundaries

The definition of boundaries is a complex issue. The term used in the report is "Heritage Boundaries", and by this is meant the definition of the area of land which might be said to share the assessed heritage value of the place. The heritage

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boundary may be quite different from the management boundary, which is that area of land which has to be managed to effectively protect and manage the heritage and other values of a place.

An extreme example of the difference is in the case of a contaminated site, such as a lead smelter and treatment works - the "heritage boundary" may be simply a rectangle which encompasses all of the physical remains of the mine and works, while the "management boundary" may include an entire local stream catchment area which has to be managed to ensure that downstream water quality is protected.

The report does not attempt to define management boundaries, nor to indicate what the management issues may be in each case - that is a role of future consultations between the authorities and the industry. Nor does the report suggest that the heritage boundaries are necessarily "no-go" areas for future mining or other activities. What is indicated is that within that boundary the heritage significance of the place should be a primary consideration in determining controls or constraints on future management and use decisions.

3.5 Assessment of places

There is a number of ways in which mining heritage places can be assessed. A recent example is in Victoria, where there are no legislated criteria relevant to such surveys. In the case of a survey of mining sites in the Castlemaine area (and subsequently applied to other mining areas in an ongoing survey), the following guidelines were adopted:

"Historic value": encompasses the history of aesthetics, science and society. For any given place significance will be greater where evidence of an association or event survives in situ. It should be assessed against the following criteria:

- Represents a sequence of uses or functions over time;
- Part of a group or network of sites, the totality of which is considered to be significant;
- Be of considerable age in circumstances where precise historical significance of the site is not at present known;
- Associated with an important event(s), person(s), or cultural group;
- Success or failure as a mine in terms of its production levels, yields and as a business enterprise. Influence on the economic development of town/area/region/state.

Scientific value: depends upon the importance of the data represented in the features of a place and upon the degree to which the place may contribute further substantial information. It should be assessed against the following criteria:

- Represents a particular type of process, e.g. special process developed for the reserve or region to overcome water problems, or an

accessibility problem; an inventive or innovative process; a response to site.

- Represents an important mining technology;
- Ability of the site to answer timely and specific archaeological research questions.

Social value: is a measure of the spiritual, political, national or other cultural sentiment attached to a place by the community, and is assessed against the following criteria:

- Importance of the site to the local or wider community;
- Balance between historical integrity and historical representativeness.”

(Bannear & Annear 1990: 31; and re-phrased in Bannear 1993: 32-33).

In the case of present study, while the criteria used in the Victorian study are valid, the presence of legislated assessment criteria in the *Queensland Heritage Act 1992* dictates the use of those criteria. The concepts underpinning the Victorian criteria also underpin the Queensland criteria, and some other concepts are introduced which broaden out the assessment. Hence the two sets of criteria, while very different in structure and wording, would result in comparable assessments of heritage value if applied to the same place by the same assessor.

Criteria such as those incorporated in the *Queensland Heritage Act* establish the assessment concepts, but do not establish the degree of importance a place must have to be considered to be of heritage significance. The criteria say a place has to be “important” or demonstrate the “principal characteristics” or has to have “special association”, but these phrases are not quantified. This is understandable (and common to all such legislative wording), as the degree of importance, or “threshold” for heritage value, differs with each place and historical context. The thresholds applied in this study are based largely on comparative evidence gained through the study, knowledge of mining places elsewhere in Australia, and historical contexts provided in the literature. The threshold used for assessment in this report may differ from that applied by the Queensland Heritage Council if and when it assesses any of these places for the State Heritage Register. The Heritage Council might, for example, have greater access to comparative information by the time they come to consider a particular place, so it cannot be assumed that the assessments in this report would automatically qualify a place for entry in the Heritage Register, or that such listing is indeed recommended in this report. We have simply used the same criteria as the *Queensland Heritage Act 1992* to ensure clarity and consistency in assessment, and to provide a working document and early advice reference as required by the brief.

The criteria included in the *Queensland Heritage Act 1992*, (Section 23(1)), and used as the basis for assessment in this report, reads as follows:

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- a) the place is important in demonstrating the evolution or pattern of Queensland's history;
- b) the place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage;
- c) the place has potential to yield information that will contribute to an understanding of Queensland's history;
- d) the place is important in demonstrating the principal characteristics of a particular class of cultural places;
- e) the place is important because of its aesthetic significance;
- f) the place is important in demonstrating a high degree of creative or technical achievement at a particular period;
- g) the place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h) the place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

These criteria are very similar to those incorporated in the *Australian Heritage Commission Act 1976* for the Register of the National Estate, and those adopted by a number of other States.

All places described in this report meet criteria (a) - the place is important in demonstrating the evolution or pattern of Queensland's history - because only several hundred mining heritage places in North Queensland survive with enough surface evidence to record, out of many hundreds of mines and associated settlement. However application of thresholds, such as rarity, intactness or capacity to demonstrate historical value can then be used to expand the assessment of cultural significance.

Some of these criteria are generally more relevant to the assessment of mining places than others. Criterion (e), aesthetic value, for example, is poorly elaborated generally, and has been seldom used in relation to mining places, except in the few cases where associated buildings or structures may have architectural merit or where the setting of the mine and/or associated works is picturesque, as examples, Towers Hill at Charters Towers and Mount Mulligan.

Criterion (f), technical achievement, is interpreted for the purpose of this study to apply only where the place has evidence of specific innovation or technical creativity particular to that site, not where the place is simply part of a general change in technology such as the use of reverberatory furnaces in the 1870s.

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MINING HERITAGE PLACES STUDY: NORTHERN & WESTERN QUEENSLAND

Jane Lennon & Associates
Howard Pearce

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Relevant examples include the introduction of cyaniding at Charters Towers and of Edwards Roasters at Chillagoe Smelters. Unfortunately in this last example, there is little remaining physical evidence associated with this innovation, so it is not an element of the assessment of the surviving remains. A situation in which a place might be significant because it was one of a number of places exhibiting a similar high level of technical achievement is if it were a rare survivor of that type, in which case criterion (b) would also apply. An example would be Mount Mulligan colliery which was one of the most sophisticated constructed in Australia at the time particularly with regard to coke oven design, the endless ropeway electric haulage system and the use of electrical powered equipment underground.

Criterion (g), strong or special social, cultural or religious association with a particular community or social group, is a less-commonly applied criterion that relies on specific surviving evidence that such an association exists, and it was beyond the scope of this study to establish such associations. We have indicated in several cases, places we believe may have special social associations with particular communities and have recommended further research into this association.

Criterion (h), special association with individuals, groups or organisations, is seldom used in this report, as few mines are of "special" association - every mine has a mining company or manager, but most are not "special" associations. Exceptions are those associated with the working life of trade unionist, "Red Ted" Theodore who as a former Premier of Queensland, was associated with the Girofla mines through implication in the Mungana scandal; and mining entrepreneur, John Moffat who was associated with the development of tin and copper mining throughout the Herberton, Irvinebank and Chillagoe districts.

The most relevant criteria used in this study to categorise significance therefore are reduced, on the whole, to criteria (a) to (d): places which demonstrate the evolution or pattern of Queensland's history (a); which are rare, uncommon, or endangered aspects of the cultural heritage (b); which have potential to yield information, through the physical evidence, contributing to an understanding of that history (c); or which demonstrate the principal characteristics of a class of cultural places (d). This conclusion is similar to that drawn by Bell in a recent selective study of mining places in Tasmania (Bell 1993).

This report looks primarily at what is visible on the surface and consequently does not assess the technical or historic value of underground operations. A contributing factor is the obvious cost and danger of underground assessment of abandoned, isolated shafts. In most cases a shaft with no associated above ground material cannot be assessed in any other context than criterion (a), regardless of whether or not it may be able to stand up as a heritage place on just this value alone.

4. HISTORY OF MINING IN NORTHERN AND WESTERN QUEENSLAND.

4.1 Early mining and prospecting.

While the pastoral occupation of Queensland was spreading and exploration continuing, gold was discovered in 1857 on a sheep station, Canoona, about 160 km north of Gladstone. This began the first of the northern gold rushes, and the only one before separation of the colony from New South Wales in 1859. However the field was a disappointment and by November 1858 it was petering out (Fitzgerald, 1986:111), although it drew attention to the region's prospecting opportunities for southerners.

During the early years of settlement "North Queenslanders" were concerned about grass not gold, although discoveries in Victoria and New South Wales showed the impact of gold in fostering settlement. George Dalrymple had seen good promises of gold on his 1859 expedition, but the squatters were preoccupied with their stock and the area was too far from the established southern goldfields to attract even the most speculative of prospectors (Bolton, 1975:44).

In September 1865, Townsville residents eager to promote their settlement above the rival ports of Bowen and Cardwell offered a reward of £1,000 to the finder of payable gold within their hinterland. Two months later, Gibson, a station overseer found gold on the Star River and early in 1866 a small rush set in but it petered out in the dry season (Bolton, *ibid.*).

The futile chasing after every rumour of gold was common in the Australia of the 1860s but in North Queensland there was a growing feeling that a providential find was necessary to resuscitate the fledgling pastoral industry from its slump. A geologist turned pastoralist, Richard Daintree of Maryvale Station, started a more systematic search for minerals, photographing many rock formations in the district. With his partner, William Hann, Daintree's first mining speculation was an open-cut copper mine on what was then thought to be Leichhardt's Lynd River, and later found to be the Einasleigh River. Several tons of ore excavated in 1866 and carted by bullock team to Townsville made good returns but the costly freight rates made the mine unpayable and in 1867 the mine entrance was sealed (Bolton, 1975:45). Similarly, the struggling pastoralist, Ernest Henry, found rich copper country near Cloncurry in 1867 but his Great Australia mine, probably the most isolated mine in Australia with incredibly expensive transport costs, was worked sporadically until its collapse in 1887. After copper prices rose and the railway reached Cloncurry in 1908, copper mining revived around Cloncurry (Fitzgerald, 1986:178).

Daintree's advice caused a prospecting party to locate payable gold on the upper reaches of the Cape River in July 1867. A full scale rush set in this time and 600

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men were there by October (Bolton *ibid.*). Almost simultaneously, a major rush at Gympie, about 130 km north of Brisbane, helped solve the new colony's economic problems when 16,000 diggers produced 84,792 ozs of gold in 1868 (Fitzgerald, 1986:157).

Despite its short, productive life the Cape gold field brought 2,500 people to the struggling north, creating new ports, strengthening old ones and providing a ready market for nearby pastoralist's beef. A new pool of mining-oriented population increased the possibility of further discoveries (Fitzgerald, 1986:158).

In 1868 gold was discovered on Ravenswood Station, between Townsville and the Cape field, and by April 1869, 140 men were making a living from it. Daintree discovered gold in the headwaters of the Gilbert River and in April 1869 a small rush set in with up to 3,000 population by July. But the decline of the Cape and Gilbert fields stimulated prospecting at Ravenswood and the discovery of major reefs - Perseverance, General Grant, Donnybrook (Bolton 1975:46-7).

Ravenswood's success stimulated widespread prospecting resulting in major finds on the Etheridge River (1870), at Charters Towers (1872) and on the Palmer River (1873). Table 1 shows the dates of major discoveries.

4.2 Mining Patterns

Gold discoveries from 1865 onwards created the alluvial rushes and transient townships which were a major feature of North Queensland settlement until the 1930s. Peter Bell believes that one of these discoveries stands alone: "the Palmer, archetype of alluvial goldfields, produced nearly a million ounces of alluvial gold in five years from 1873, sparking a monumental population movement into an area far beyond previous European settlement" (Bell, 1982:1).

Underground mining led to the development of more stable settlements: Charters Towers with a peak population of 30,000 was the most important, and Croydon, Ravenswood and the Etheridge made up the bulk of other underground gold production.

Other metals fostered small underground mining towns: in the 1880s silver was mined at Topley, Argentine, Newellton, Montalbion and Muldiva. Tin created both alluvial and reefing settlements throughout the Herberton-Irvinebank-Mount Garnet district and the Cooktown hinterland between 1880 and 1914. The copper towns of the Chillagoe district and the Cloncurry fields boomed at the beginning of this century, and financial problems facing the base metal companies after 1907 brought to life North Queensland's two coal mining towns, Mulligan and Collinsville, to supply coal for the copper smelters (Bell, 1982:1-2).

Blainey has pointed out that in half the years from 1873 to 1906 Queensland's exports of gold and metals exceeded wool and the impact of gold on Queensland's

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growth was powerful. The ports of Townsville, Cairns and Cooktown were made or magnified by mining fields, and the whole colony was invigorated by the web of commerce spun by gold (Blainey, 1969:87). In addition the North Queensland tin magnate, John Moffat, became a generous financier of new mining ventures in Queensland. He built dams, tramways and railways, opened mines of many metals, searched for oil, and developed the copper-silver-lead mines of the Chillagoe field (Blainey, 1969:132).

The total value of gold produced in Queensland to 1898 was £44,499,955 compared with tin £4,448,800, copper £2,022,927, and silver £697,418. Gold did more to bring Europeans to Queensland and to establish white settlement in Queensland's tropics than any pastoral or agricultural product ever did. The placing of towns, ports and railways is a legacy of the early history of mining in a colony that once wanted a single substantial field (Fitzgerald, 1986:179).

4.3 Distinctive North Queensland Difficulties.

(i) Distance

The distance of North Queensland mineral fields from Brisbane was quite irrelevant, but even their distance from the nearest seaport was huge. Georgetown and Gilberton were 350 km from Townsville, Cloncurry 600 km from Townsville and 320 km from the Gulf ports of Burketown and Normanton.

Some of the North Queensland mineral discoveries were made within the settled districts, but these in turn were new and economically precarious, with little commercial or administrative infrastructure supporting them. Most discoveries were on the fringe of the settled area - Cloncurry, the Etheridge, Croydon, Chillagoe. A few - Herberton, Coen, the Palmer and the Hodgkinson - were in unsettled country presenting problems of supply and administration rarely encountered on mineral fields in Australia's eastern colonies.

The cost burden imposed by huge distances crippled the development of more intensive mining settlements. Even decades after settlement, new mineral discoveries in areas remote from transport routes - OK, Esmeralda, Woolgar and Batavia - were retarded because of supply problems which beset all fields in their infancy (Bell, 1982:5).

Remoteness also led to exaggerated reports of hostile conditions. For example, Gilberton's abandonment by its population in late 1873 was accelerated by a sudden increase in Aboriginal attacks but its decline for over a year had resulted from a combination of factors - isolation, climate, failure to attract crushing machinery and the rise of Georgetown as a rival centre (Bell, 1980:4). After the initial exploration of the North Queensland region and the consequent fatal skirmishes, few Aboriginal attacks occurred on armed parties of miners or

packers. There was little official sympathy for single, unarmed travellers who were speared - even in the 1880s (Bell, 1980:23).

Again remoteness led to specific demographic situations. For example, on the Palmer goldfield at the 1876 census only 1.3% of the population of 9,215 was female, while 73% were male Chinese (Bell, 1980:6).

(ii) Geology

In contrast to the Victorian goldfields, which were characterised by "leads" or old alluvial channels buried under later deposits that were exploited over long periods by small labour intensive mining operations, the North Queensland goldfields lacked this feature. Cape River goldfield was the single exception.

Alluvial gold was found only in surface alluvium along watercourses and extracted by shallow underground sinking. As early as 1869, Richard Daintree recognised the implications of the shallowness of the northern alluvial fields: they would be shortlived; either a succession of new discoveries must follow or the colony would face chronic unemployment (Bell, 1982:6). The ignorance of nineteenth century miners about geology and mineralisation caused much wasted effort.

Another distinctive feature is the co-location of a complex of minerals in ore bodies. For example, in the Ravenswood area, gold and silver are found; within a small radius of Chillagoe there are a number of areas where copper and silver-lead occur separately and together; in the north west silver-lead-zinc and copper deposits occur together at Mount Isa (Levingston, 1980: 1-38). The economic development of some deposits would have to wait until the arrival of the sophisticated separation processes of the 1990s.

4.4 Settlement Characteristics

Gold reefing generally created the largest and most durable mining settlements. The greater complexity of the mining and ore treatment processes and consequent demands on service industries created a diverse community.

A major industry existed simply to transport ore and tailings between mines, crushing mills and cyanide plants. This transport industry itself created subsidiary industries - horse breeding, stabling, grazing, growing and carrying feed; tradesmen such as farriers, smiths, saddlers, harness makers, wagon builders, wheelwrights, veterinary surgeons and knackers. Supplying firewood to mines, mills and locomotives was another major industry, and one which increased in cost and complexity as the area around settlements was progressively denuded of trees.

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The physical fabric of all these works required the services of engineering plants, smiths, bricklayers, plumbers and tinsmiths, carpenters, timber cutters and merchants, glaziers, ironmongers: by 1890 Charters Towers had two foundries, four sawmills and a brickworks. From the population sustained by these ancillary services to mining, many other services flowed: library, hospital, halls and lodges, jockey club, agricultural show society, cricket, football, lawn-tennis and rifle clubs, fire brigade, mounted infantry corps, three newspapers and a brass band.

No other North Queensland mining town even approached this level of complexity and prosperity until the rise of Mount Isa after World War Two. Ravenswood, Herberton and Croydon came nearest to it, but on a more modest scale (Bell, 1980:19).

Alluvial mining settlements and base metal mining towns had a straggling camp appearance and air of impermanency as many miners worked for wages.

The location of a mining settlement was usually determined by proximity to an economically important feature - the mine, mill or later, railway station. A permanent water supply was also important, even if artificially created. Butcher shops often became the focus of settlement because they provided the one staple which could not be stored for more than a few hours. Sometimes buildings clustered around each function. Thus in the Palmer River reefing district, Maytown was the centre for banks, post office and coach terminus, while a few kilometres away was Idatown with the principal mine and mill, and Edwardstown with the abattoir (Bell, 1980:28).

Later, as railways were constructed, the railway station usually became the dominant focus of settlement. In the case of Charleston in 1910, the town moved across the river to become the railway terminus of Forsayth. In 1901 Girofla was duplicated a mile northwest at the railway terminus at Mungana.

The location and form of some mining towns, especially those mining base metals, were directed by mining companies. Irvinebank and others of Moffat's empire - Chillagoe, Mount Mulligan, OK, Rocky Bluff, and most of the towns on the Cloncurry field - Selwyn, Kuridala, Mount Cuthbert - were dominated by a single company. Although these companies never monopolised trading, familiar retail stores established chains of shops - Jack and Newell, Burns Philp, Samuel Allen (Bell, 1980: 29-30).

Stability, permanency and civic pride demanded greater care in building construction and brickwork was prized. After 1888, better quality bricks became available from Townsville suppliers, but their use only became prevalent in Charters Towers and Ravenswood with local production in the later prosperous years of those towns (Bell, 1980: 31). Previously they had been mainly used for mining structures such as chimneys and as foundations for haulage and treatment plant.

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4.5 Gold Production

As shown in 4.2, gold production dominated nineteenth century Queensland mining and the 1870s was the decade of major discoveries in North Queensland.

By the end of 1872, 3,000 miners were on the Charters Towers field, and the 91,265 ozs of gold sent by escort from Charters Towers and Ravenswood in that year accounted for more than half the total output of Queensland. But most North Queensland miners were content to take quick profits from alluvial or surface reefs without reinvesting in exploration for deeper deposits. Perhaps this was natural at a time when exploration was opening up new fields almost every year (Bolton, 1975: 50-1).

Ceaseless prospecting continued while the Charters Towers and Etheridge rushes were still at their height. James Venture Mulligan (1837-1907) travelled from Georgetown to the Palmer in 1873 and realized that it was the richest alluvial so far found in North Queensland resulting in a "new rush a thousand miles away" (Bolton, 1975:53). The Palmer became legendary but more for its Chinese population, which peaked at 17,000 in April 1877, having been shipped out from south China via Cooktown. It is impossible to assess the amount of gold won by the Chinese alluvial diggers as large quantities were smuggled back to China, but in each of 1876 and 1877 over 500,000 ozs of gold valued at £200,000 were officially exported to China and as late as 1881, when yields were meagre, over 10% of Queensland's exports of gold went to China (Bolton, 1975: 58).

Reefing for gold at the Palmer conducted by Europeans commenced in 1876 but the rush to the Hodgkinson in 1877 ended the Palmer's heyday. The Hodgkinson, with its principal centre of Thornborough, boomed for several years as a rich reefing area but enormous transport costs limited profits (Fitzgerald, 1986: 165). The port of Cairns developed to serve this field.

Meanwhile the Etheridge was revived due to the systematic working of re-opened reefs in 1878 and prospectors found gold at Coen on the remote Cape York Peninsula in 1878, at the Bowerbird north of Cloncurry and on the Mulgrave, deep in rainforests between Cairns and Innisfail in 1879. Alluvial gold was found on the Woolgar, south-west of the Etheridge in 1880 but "the nomadic age of large-scale rushes was drawing to a close" (Bolton, 1975: 62).

During the 1880s, North Queensland mining proceeded along two new lines: gold was sought by deep-reefing, at first tentatively and later with the mounting excitement of a speculative boom; and prospectors diversified their interests by turning to tin, silver, lead, copper and any other base metals offering independent operators a chance to make their fortunes (Bolton, 1975: 110). This is reflected in the Table showing the number of mining heritage places remaining in the Mareeba Mining District by mineral type: although 51% are associated with gold, 22% are

the result of tin mining, 13% copper mining and the remaining 14% spread among wolfram, molybdenite, silver, antimony, coal and lime. Gold still dominated in the Charters Towers Mining District (73%) and the Georgetown District (88%).

Charters Towers went from strength to strength during the '80s overshadowing all other North Queensland mining centres. The introduction of the pyrites method of extraction in 1878 enabled the treatment of tailings and crushing mill owners were able to invest in the development of reefing through floating companies. By 1886, 33 shafts had been sunk below the 152m level and gold production doubled between 1883 and 1886 to 112,166 ozs (Bolton, 1975: 112).

In 1888 Charters Towers was the third most important gold field in Australia. It became such a mining business and social centre for North Queensland that it was widely referred to as "The World". Optimism, fuelled by British investors, continued throughout the difficult nineties, and in 1899 due to improved extraction process technology Charters Towers achieved a record output of 319,572 ozs of gold (Fitzgerald, 1983: 166).

Nearby Ravenswood was overshadowed by the discoveries at Charters Towers in 1872 and the Palmer in 1873 and by the failure to extract gold from the troublesome mundic stone. However new mines and investors kept the field open (indeed nearly 50% of the heritage places remaining in the Charters Towers Mining District are associated with gold at Ravenswood, including most of the 15 distinctive brick chimneys which survive in that district). And luckily, the goldfield adjoined silver-lead deposits which were the mainstay of the local field during the 1880s. During the nineties the Ravenswood goldfield enjoyed a modest revival due to the efforts of intelligent mine managers (especially A.L. Wilson), reinvesting in modern machinery and improved mining techniques (Fitzgerald, 1983: 170).

Despite problems of transport and management the Etheridge survived and although its yield of 19,854 ozs lagged a long way behind Charters Towers, it became the second richest field in North Queensland by 1885. Meanwhile the Palmer became virtually extinct although the railway reached Laura by 1888 (Bolton, 1975: 114).

The Croydon gold rush of 1887 was the last of any note in Queensland. Croydon peaked with a population of 7,000 in 1890 but lost its opportunities through inefficiency. In 1896 of 134 mines, half were still operated by man-powered windlass and only 27 used steam powered winding gear. The Golden Gate line of reef was opened out by a Charters Towers syndicate resulting in a short flush of prosperity, but after 1901 this faded (Bolton, 1975: 261-2). Ironically the Croydon field now retains the largest concentration of abandoned steam powered mining plant in North Queensland.

After 1904, one by one the great Charters Towers mines came to an end; in the three years after 1910 employed miners fell from 2,631 to 985, and although there were schemes for new developments capital was lacking, the population drifted away and the great days of Charters Towers were over (Fitzgerald, 1983: 169-70).

Reefing work recommenced in 1892 at Coen on the Cape York Peninsula and although production totals pale in comparison with more famous fields, Coen gave the Peninsula a permanent base for prospecting expeditions. Gold was found on the Starcke River in December 1890, at Batavia (Wenlock) in 1892, Ebagoola in 1899 and Potallah in 1902 (Bolton, 1975: 260-1).

Gold was mined at Mount Coolon, south of Charters Towers, from 1914 until World War Two and during the 1930s this field was Queensland's largest producer. Gold mining revived during the 1930s depression with the assistance of government subsidies and most fields had prospectors reworking claims.

During the 1980s there has been a new gold mining boom typified by the massive open cut mines at Mount Leyshon south of Charters Towers, Kidston near Georgetown, Red Dome gold-silver mine west of Chillagoe, and smaller open cuts at Ravenswood and the Starra mine, south of Mount Elliott.

4.6 Tin

During the 1870s when gold was paramount few prospectors were interested in base metals, but in the 1880s tin, lead and copper came into their own.

The Great Northern tin discoveries in 1880 on the banks of the Wild River led to the development of Herberton and from here fossickers fanned out reporting new finds every year. Alluvial tin was worked on the Tate River in 1883, at Stannary Hills in 1885 and north of Cooktown tin sluicing commenced on the Annan River in 1885 (Bolton, 1975: 116-118).

Production on the Herberton field fell from 105,537 tons in 1881 to 14,467 in 1884. However in 1883, John Moffat returned from studying mining and smelting methods overseas and centred his activities on Irvinebank, in the heart of the tin mining field (Bolton, 1975: 119-120). In 1888, a party of Italian charcoal burners discovered the Vulcan tin mine at Irvinebank, which became the richest in North Queensland by the early 1890s and the staunchest pillar of Moffat's empire until 1907 yielding 9,000 tons of tin and paying dividends totalling £162,030 (Kerr, 1980: 177). In the late 1880s Moffat invested £20,000 in developing deposits of silver and copper in the district. But after 1890, world base metal prices steadily dropped and black tin fell from over £80 per ton to £40 as oversupply followed new developments in Malaya and South America. Unable to foresee these fluctuations, North Queensland operators tended to blame their difficulties on the slowness of the Queensland Government in providing a railway to the coast (Bolton, 1975: 130).

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Moffat reopened the Coolgarra Tin Company Limited workings on Return Creek in 1899 and the Koorboora field, but building the Stannary Hills railway line to bring ore from Eureka Creek to the Irvinebank smelters overtaxed his company's finances and in 1907 the National Bank insisted on Moffat's replacement as manager (Kerr, 1980: 182-6). When the Irvinebank battery, smelter and tramway were disposed of to the State as a public enterprise in 1919, £37,400 was owed to Moffat personally. But his empire had exported more than £4 million worth of base metals and over the years several thousand men relied on Moffat for employment. The Irvinebank Company alone had 700 employees in 1907 (Kerr, 1980: 188). For the next 60 years, the Irvinebank State Treatment Works continued to provide a facility for small-scale tin miners although incurring heavy losses and with the threat of closure ever present.

Tin dredging led to a revival in tin mining around Mount Garnet after World War Two.

4.7 Copper

Copper had been discovered first in North Queensland by Richard Daintree on the Einasleigh River in 1865 and by Ernest Henry at the Great Australia mine at Cloncurry in 1867, but the former was not developed until 1899 and the latter had a sporadic production until it collapsed in 1887.

Copper was found at Mount Molloy in 1886 and was known from Mulligan's explorations in 1883. Leases were pegged around Chillagoe in 1888, and these grew into the mining camps of Zillmanton, Calcifer and Mungana. Moffat sold his interests to the Melbourne company of J S Reid in 1897 and as the Chillagoe Company Limited they succeeded in getting parliamentary approval to construct a 152 km railway from Mareeba to Chillagoe and to lease 2,000 acres (810 ha) for 50 years as a mining venture (Bolton, 1975: 280). The railway reached Chillagoe in March 1901 and in September the smelters were blown in. But constant restructuring of the companies operating Chillagoe was a feature until 1919 when the government purchased the smelter and railway as a State Enterprise. The Chillagoe Company Limited had also constructed a 229 km railway to the Etheridge to supply ore for its smelters in 1906. Profits were made in 1907 and 1908. Then the company developed the Mount Mulligan coal mine and railway to supply fuel for the smelters. The 1920s was a saga of corruption regarding assays and it culminated in a Royal Commission in 1930, which subsequently ruined the political careers of Premiers McCormack and Theodore. Smelting continued haphazardly throughout the 1930s serving a depressed mining community spread across North Queensland, whose ore transport costs were subsidised by the Railways Department. In 1943 the Chillagoe smelters closed permanently and the plant was auctioned (Kerr, 1992: 8-9).

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Copper had also been discovered at Mount Garnet in 1883 and Moffat developed a smelter there in 1896. The smelter was blown in at the start of 1901 but it was short-lived because of treatment difficulties, shortage of ore, high transport costs and falling metal prices. A railway to Lappa Junction was completed just as the smelter closed and it was sold with the smelters and mining plant (Kerr, 1980: 179).

During the first decade of this century as well as the Chillagoe-Mungana group, the Arbouin (later Cardross), OK and Mount Molloy mines were major copper producers on the Chillagoe and Mareeba fields.

But with rising copper prices during 1905 and the State Government's decision in 1906 to extend the railway from Richmond to Cloncurry, copper mining took off with a frenzy in the north west (Kennedy, 1980: 224). The Hampden Cloncurry Copper Mines Limited and Mount Elliott Limited companies were floated in Melbourne in 1906. The Great Australia mine at Cloncurry reopened in 1907. The southern portion of the field was very active in 1910 - the Mount Elliott smelters were blown in and returned dividends each year to 1914; the Hampden smelters commenced in 1911 but did not pay a dividend until 1913 (Kennedy, 1980: 229-30).

In 1914 the Mount Elliott company acquired the Great Australia, Argylla, Dobbyn and Crusader mines to boost its ore reserves. The only other companies on the field were those at Mount Cuthbert, Mount Oxide and Corella Copper Mines N. L. which was working the Rosebud group of mines (Kennedy, 1980: 234-5). In 1915 smelters commenced at Mount Cuthbert and the railway from Cloncurry arrived there in September 1916.

For the Cloncurry copper belt, 1918 was a peak year: Mount Elliott smelters treated 77,452 tons of ore, Hampden 75,301 tons and Mount Cuthbert 36,466 tons; total output was valued at £1,374,000. But following the Armistice ending World War One, copper prices tumbled and in total value, the Cloncurry yield was £1 million less than the previous year (Kennedy, 1980: 237-8).

The boom was over. During the 1920s Mount Elliott Limited vainly attempted to revive copper production in the north-west and took over other companies but to no avail. Obsolete plant and treatment technology meant that low grade ore could not be successfully treated. Only individual copper gougiers remained.

Large reserves of copper were found in the Black Star mine at Mount Isa in 1941 and copper was smelted from April 1943 using antiquated machinery from the Cloncurry field to boost wartime production. A new copper smelter was opened in 1953 but it was soon too small and replaced by another with a 153m chimney, the then tallest in Australia. By the end of 1965 the Black Rock open cut had yielded 3,300,000 tons of ore and far more copper than all the mines of the Cloncurry field

had yielded in their entire history. It yielded annually twice as much copper as all the other Australian mines (Blainey, 1970: 225-6).

4.8 Silver and Silver-Lead-Zinc

Silver was often discovered alone in small quantities and more commonly in association with lead and zinc in more extensive deposits. Silver was discovered first in North Queensland at Topley on the Ravenswood field in 1871 and worked during the 1880s successfully. Silver was discovered at Argentine on the Star gold field in 1881 but workings there were abandoned by 1886.

In 1881 J. V. Mulligan had discovered the Silver Valley deposits on the Dry River, near Herberton. Early in 1885 falling returns from Silver Valley (Newelltown) were offset by the discovery of very rich galena at Montalbion, from which nearly 11 tons of silver were extracted in three years (Bolton, 1975: 118).

Moffat erected two reverberatory and two water jacket cupola furnaces at Montalbion and these started operating in September 1886. Moffat's investment in the smelters earned a profit of £10,000 in the first seven months of operation (Kerr, 1979: 26). In 1889 318,192 ozs of silver were produced but the smelters closed and the company was restructured. This pattern continued. Over one year several thousand tons of ore had accumulated so that when the smelters recommenced in January 1893, 10 tons of bullion were produced daily, a spectacular sight. However by April 1894 the New Montalbion Company was in liquidation, the smelter on the market (Kerr, 1979: 56). Part of the smelters were subsequently used at Mount Garnet.

Silver was discovered at Muldiva on the Chillagoe field in 1889 and full scale smelting commenced in 1892. Machinery problems and insufficient charcoal caused stoppages. The closure of the Queensland National Bank forced the final shutdown of the Muldiva smelters on 21 May 1893 after 1,453 tons of bullion containing 232,000 ozs of silver had been produced. Moffat bought the smelters for removal to Girofla in 1896 (Kerr, 1979: 50-1).

Silver was also discovered at Mosquito Creek on the Etheridge in the 1880s but was not successfully worked. At Running River on the Kangaroo Hills field, silver deposits were known from the early 1870s but not worked until 1890 when the township of Ewan was established. In 1904 the smelter at Ewan produced £1,864 of copper, silver and lead, but it closed in 1906 and was removed to Cloncurry. From then on the field became a small scale tin producer (Wegner, 1982: 205).

Lead outcrops containing galena and zinc were discovered by J.C. Miles at Mount Isa in 1923 and 118 leases were soon pegged out, but by the end of 1925 William Corbould's Mount Isa Mines Limited had achieved an astonishing coup, unprecedented in Australian mining - virtually the entire mineralised area of a

promising field was held by one company (Bell, 1982: 281). But vast amounts of capital were required and by June 1927, Leslie Urquhart's Russo-Asiatic Consolidated had become a major investor and in 1928 plans were drawn up for the mine, mill, housing, dam and pipeline. Lead prices tumbled in 1930 and a 50% share in the Mount Isa Mining Company was sold to the American Smelting and Refining Company. Ore production commenced in May 1931 and the smelter was blown in during June but there were technical difficulties. Finally in 1937 a profit was made, by which time well over £5 million had been expended (Bell, 1982: 306).

By 1965 Mount Isa mine yielded more silver than any mine in Australia and ranked third amongst Australian lead mines and fifth amongst zinc mines (Blainey, 1970: 226).

4.9 Other Minerals

(i) Wolfram:

Prospectors were lured to wolfram, (discovered in 1894) but its value was erratic and only a small quantity was required for the European market. In years of good prices it was purchased by storekeepers from prospectors at Wolfram Camp (near Thornborough), Mount Carbine and Bamford. The Irvinebank Company bought into Mount Carbine in 1906 and overseas capital came in 1911 when the Societe Francais des Metaux Rares erected a plant at Wolfram Camp (Bolton, 1975: 288). The market had collapsed by the end of World War One.

(ii) Antimony:

Antimony was discovered in 1877 at Northcote on the eastern Hodgkinson and smelters were erected in 1882. By August 1884, 100 tons of crude antimony had been shipped out through Port Douglas. Gold was discovered in the mines and the Minnie Moxham reef. The field languished from 1900. From 1917 it was worked intermittently for gold and from 1947 for antimony (Kerr, 1992, 2). Antimony was also mined in the 1880s on the Mitchell River south east of the Limestone diggings.

(iii) Cobalt:

Cobalt was discovered south of Mount Elliott in 1919 at Mount Cobalt and worked by the latest methods from 1920-25 when it became a notable contributor to world production. In 1953 Mount Isa Mines geologists found the first traces of uranium in western Queensland at Mount Cobalt.

(iv) Uranium:

In July 1954 a syndicate of Mount Isa prospectors found uranium near the old Rosebud (Corella) copper smelter and their Mary Kathleen became the richest uranium mine in Australia (Blainey, 1969: 332). It closed in 1963 after seven rich years and reopened for six years in 1976 and was then dismantled.

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5. ISSUES EMERGING FROM THE STUDY

5.1 Associated places not covered in the study

If Queensland's mining heritage is to be studied in all its manifestations and is to be assessed for conservation of a representative sample of places, then further research is required of a number of topics. This study has concentrated on mining production and processing sites, with the occasional assessment of associated settlements (as at Ebagoola, Golden Valley, Groganville, Kidston, Mount Mulligan and Thornborough, etc.) and their cemeteries.

However this is not the full extent of cultural heritage implications for the mining industry. Whole towns sprang up, developed and were abandoned because of the rise and fall of mining activities. Districts developed their agricultural capacity to feed mining towns (even Mary Kathleen township provided salad vegetables to Mount Isa in the 1960s), and the role of the Chinese market gardener was a major influence on the health of northern mining communities. Some rare evidence of these gardens remain and more research into the Chinese involvement in the social history of mining communities would be rewarding from a heritage conservation perspective.

Transport infrastructure developed to supply the mines and export the treated products and this has been studied with regard to railways. But the associated involvement of bullock, horse and camel teams could be studied. In many early issues of the *Queensland Government Mining Journal* there are reports from distant mineral fields noting the cessation of mining due to the "want of feed" and drought.

The role of timber supplies in mining development and the impact of mining on the clearing of nearby forests and woodlands is worthy of further study. It has been referred to in studies of mining at Charters Towers. However the early reservation by government of forests as timber reserves occurred to provide resource security and an assured supply of timber for boiler fuel, pit props, domestic buildings and consumption. The Mount Molloy timber reserve is an example. Many mines had associated sawmills to supply dressed timber for use in reinforcing shafts or for surface buildings. These have been noted at, for example, Mount Molloy (1890s), Leichhardt River (1917) for the Mount Cuthbert district, Annan River near Cooktown (1914) for timber fluming for water races, and also at Kidston and Scottsville. Presumably the associated settlements had more weatherboard than iron cottages and huts.

Charcoal burning to supply fuel for gas producers also required massive volumes of timber. Sometimes the timber was cut locally (as at Montalbion in 1886) or else the timber was railed in and then converted to charcoal (as at Kuridala in 1912). Charcoal burning was a skill and Italian immigrants were sometimes associated

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with this industry as at Montalbion in the 1880s. Some of these Italians were also involved in prospecting and discovered the Vulcan mine at nearby Irvinebank.

The role of different national groups - English, Cornish, Welsh, Germans, Americans - and their impact on mining methods, machinery supplies and community life would also be worthy of further study to reveal the distinctive differences in mining places across North Queensland.

The location of Aboriginal camps in relation to mining settlements is also another topic for further study, as is the involvement of Aboriginal people in the mining industry, either as labourers or domestic servants in the settlements or, as in a few recorded instances, as partners in mining ventures. Friday Wilson owned the Chock-a-Block mine at Wenlock in 1930 and there were Aboriginal miners at Buthen Buthen in the 1940s. The only woman recorded as discovering a goldfield was an Aboriginal, Kitty Pluto, in 1915 at Lower Camp on the Wenlock (Batavia) diggings. Aboriginals were also employed on the tableland tin dredges from the 1940s and this activity around Mount Garnet is worthy of further research.

Supporting services such as power generation, water supply, mine safety and fire fighting require typological studies. These services are fundamental to mining operations but are usually only mentioned in passing, unless there is a major disaster as at Mount Mulligan in 1921 and a subsequent government enquiry. Historians have already pointed out the major economic role of these ancillary services on developing the settlement of the north, but more detailed studies would reveal the fundamental association of these industries to mining development and its heritage legacy. Documentation for some of these industries is very patchy and recorded incidentally, as was the case with the Crotty limeworks at Ootann. Quarrying for building stone, ballast or construction purposes requires further study.

Oral history research is also required to capture information from the last of the pre-World War 2 miners and their families who eked out a living on the reefs and lodes during times of depressed prices.

Some districts have been researched as a whole, for example, the Palmer, the Etheridge, Cloncurry, Charters Towers, Ravenswood, Kangaroo Hills; and some minerals also, especially gold. The influence of an individual such as John Moffat or William Corbould is revealed in a range of places. However there is a need to fill in the regional gaps, such as Croydon or Cape York north of the Palmer, and to look at the social history of major centres such as Chillagoe, Charters Towers and Mount Isa.

Aspects of this research are fundamental for a better understanding of the cultural landscapes developed through mining and its associated activities.

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5.2 Factors contributing to the survival of mining heritage places

It is not surprising that in many cases the most important mines historically (judged in terms of richest output, number of employees, extent of workings, etc.), are the least well-preserved from a cultural heritage perspective where remaining physical evidence is fundamental. This is the paradox of Charters Towers, once regarded by its inhabitants as "The World", but lacking in the complex and range of evidence today other than the spectacular ruins of the Pyrites Works, the lone Venus Battery, and a landscape dotted with tailings dumps and 19th century commercial and residential buildings. Surface evidence of the mines that created this wealth is not obvious.

A successful mine is constantly changing: old workings are re-worked after pumping out, or extended or destroyed by open-cut mining. Plant and machinery is upgraded, discarded or recycled in plant for another mine; whole processing works are abandoned or rebuilt to accommodate new technology. Therefore the best evidence of mining equipment in terms of plant, equipment and layout is often found at unsuccessful mines which have been abandoned. The spectacular smelter remains at Mount Cuthbert and Kuridala testify to this.

Remoteness is a major factor contributing to the retention in situ of evidence of previous mining technology. Hence the number of stamp batteries boilers and engines surviving on Cape York. Retention for use has also been a factor contributing to the survival of major plant, such as the Venus battery at Charters Towers which operated continuously as a State enterprise until the 1970s, the Green family battery at Emuford and Elliott's Wild Irish Girl battery on the Palmer.

Because a number of mining processes are now only able to be studied through their archaeological evidence, it is important not to overlook the values of conserving what might appear to be greatly depleted or decayed and scavenged sites. This consideration is also important in determining heritage area boundaries around a feature or components remaining in situ. Our study has delineated many such archaeological sites and care needs to be exercised in any exploration or reworking of these - the example of Carrington mines and smelters near Charters Towers is a good case study in how not to proceed from a heritage recording and conservation viewpoint.

5.3 New development in mining heritage places

It is inevitable that new technologies and economic upsurges will lead to the reworking of mining places with heritage values. These places have the ability to illustrate successive phases of mining if the subsequent activity does not obliterate the evidence of former work. For those places already assessed as exhibiting cultural heritage values, extra care and consultation should be taken in the location of any new works. This has occurred at the Great Australia mine at Cloncurry and

at Kidston township, while the massive tailings dam and surface plant at Mount Leyshon now dwarf the early battery shed and surviving power plant.

As well as preserving the historical and archaeological evidence of former mining activities, careful placement of any new development not only adds another layer of evidence for researchers in the future, but may also be of ongoing economic benefit in contributing a regional tourism resource for visitor interpretation at the end of the current life of the mine.

5.4 Tourism and visitor presentation of mining heritage places

Retaining historic fabric and surface components of a mine and its associated processing plant on site creates a resource for tourism, one of Australia's fastest growing industries. Tourists like to experience "the real thing" rather than a replica or facsimile, that is why we travel. As heritage tourism increases in popularity in Australia there is a growing demand for knowledge about the accessible and sometimes hidden heritage of Queensland's rich mining and rural history.

Heritage tourism is the vital link between the traditional recreational tourism and the expanding ecotourism markets. It offers a more satisfying, diverse and interactive tourism experience and provides an appreciation of the linkages between nature and industry. This study provides much historical information along with location and access details which, with little additional effort, could be reworked and published as an itinerary guidebook for suitable selected historical mining places and associated settlement sites and townships.

Some of the more intact places with evidence of phases of mining activity and changing technology should be protected from further decay and stabilized or zoned to address safety issues. Depending on the level of site management there may need to be consideration of vehicle access, camping and interpretive walking trails. On-site interpretation could allow visitors to follow the mining processes through the various stages on the site. This is especially the case with extensive sites like, for example, the Mount Cuthbert and Mount Mulligan mining and settlement complexes.

Where places retain many features and remain in private ownership, such as for example the Emuford battery and the Tyrconnel mine and battery, privately operated but publicly marketed tours a few times a year during the tourist season could be popular and rewarding. These tours could be timed to coincide with local events.

At Charters Towers, for example, the Venus battery could be assisted in holding regular public demonstrations of the ore crushing and gold collection process. An oral history and video record of the, now elderly, men who operated the battery should be undertaken as a priority. This testimony in conjunction with the original

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working battery would be a resource of national significance and value for tourists encouraged to venture a few hours inland from the Great Barrier Reef at Townsville.

A mining heritage tour circuit could be developed for the Atherton Tableland and Etheridge regions, taking advantage of the high density of historic mining places within easy reach of the Cairns market and associated nature tourism destinations. It could take in a range of mine types and minerals (gold, tin, copper, wolfram), at a range of places. In addition to the attractions of Cairns and Cooktown the Mareeba and Georgetown mining districts hold a range of compatible experiences, such as the Kuranda, Atherton, Forsayth and Croydon rail trips, and the Undara lava tubes and Chillagoe cave tours.

Any new work or restoration measures undertaken in historic mining sites should be sympathetic in design and materials to the original, but distinguished from it to show that it is a recent addition. Voluntary effort can be harnessed to undertake stabilization and interpretation at mining places but consultation should take place with the appropriate experts before any work commences so that well-meaning effort is not detrimental to the integrity and significance of a place, or its potential economic returns.

Even without infrastructure development the historic mining resources are there on-site. Information about mining history is available to be packaged and sold to the tourist industry. Queensland's mining heritage is a rich resource awaiting to reward the enquiring visitor.

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APPENDIX 1: PLACES INSPECTED BUT NOT RECORDED

Preliminary work for the study included preparation of a comprehensive inventory of places of potential mining heritage significance where surface evidence was reported to exist. Most of the places included on the inventory were inspected during the course of fieldwork. However for reasons of available time and other examples of type, not all places visited were recorded for the study. The following mining places were inspected during fieldwork but were not recorded. Their omission from the study does not necessarily imply that they lack cultural heritage significance. Their heritage values should be assessed ahead of any proposed developments.

Charters Towers Mining District - places inspected but not recorded:

Charters Towers Town -

Australian Gold Recovery Company battery site, Haldane Road.
Bonnie Dundee battery site, Blackheath and Thornburgh College grounds.
Brilliant Block mine, Holliman Street.
Brilliant Deep mine, Park Street.
Brilliant and St George mine, Railway and Gill streets.
Charters Towers Quartz Crushing Company battery and dam, Kellys Road.
Columbia mine, Devereux Street.
Day Dawn Block and Wyndham No.2 mine, Mossman Street.
Day Dawn P.C. mine and explosives magazine, Cadden and Deane streets.
Defiance battery site and tailings dump, Boundary Street.
Explosives magazine, Lot 3 Deanes Road.
Explosives magazine, 8 School Street.
Fair Rosamund battery site, Palmer Road.
New Queen battery and dam site, New Queen Road.
Prudence battery site and weir, off Millchester Road, Millchester.
Currency Lass mine, St Pauls station.
King's mine, Totley.
Midas mine, Lolworth Creek.
State Coal Mine, Collinsville.

Georgetown Mining District - places inspected but not recorded:

Canadian mine, near Castleton.
City of Glasgow battery site, near Georgetown (18.23.08S - 143.33.30E).
Croydon Town Reserve -
Barratt's mill, relocated stamp battery (18.09.42S - 142.12.34E).
Federation battery, relocated plant in Croydon township.
Isabella mine, Croydon.
Jubilee battery site, Twelve Mile.
Just in Time mine, Croydon.
King of Wallabadah mine, relocated plant in Croydon township.

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Rogers No.1 mine, Golden Gate (18.09.12S - 142.11.59E).
Shields battery, Waratah reef Croydon (18.12.45S - 142.15.30E).
Stanhills battery, relocated plant in Croydon township.
True Blue Block mine, Croydon.
Donnyville battery site, near Georgetown.
Durham battery site, near Georgetown (18.17.30S - 143.28.35E).
Lane Creek battery, Ironhurst station.
Lighthouse Hill dam, near Georgetown.
Oakville battery site near Forsayth.
Queenslander battery site, near Forsayth.

Mareeba Mining District - places inspected but not recorded:

Arbouin mine, Stannary Hills.
Cannibal Creek mine and camps, Palmer River.
Chinese alluvial workings, North Palmer River.
Dover Castle mine, near Almaden (17.18.33S - 144.53.28E).
Great Northern battery site, Herberton.
Great Southern mine, Irvinebank.
Great Western battery site, Watsonville.
Krafts Camp, Mulgrave River.
Maddens Flat mine, Normanby River.
Minnie Moxham mine site, near Mareeba.
Mount Arthur molybdenite plant site, near Wolfram (17.05.04S - 144.58.01E).
Mount Carbine battery, Mount Carbine.
New Northcote smelter and battery sites, near Mareeba.
Normanby tin workings, near Mount Poverty.
Plutoville workings and camp site, Wenlock River (13.06.34S - 142.57.24E).
Redcap tramway formation, near Chillagoe.
Return Creek tin dredge, Coolgarra (17.35.35S - 145.11.13E).
Ruddygore mine, Chillagoe.
Smith Creek tin dredge, near Mount Garnet.
Wandoo goldfield, near Chillagoe.
Wilson mines, near Coen.

Mount Isa Mining District - places inspected but not recorded:

Answer mine, near Cloncurry.
Mammoth mine former treatment plant, Gunpowder.
Mighty Atom mine, near Kajabbi.
Mount Freda battery site, near Cloncurry.
Mount Gordon mine, near Gunpowder.
Nil Desperandum mine, near Duchess.
Silver King mine, near Lawn Hill.
Wee MacGregor mine, near Duchess.

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APPENDIX 2: REPORTED PLACES REQUIRING ASSESSMENT

The following mining places have been reported to be of cultural heritage significance in preliminary research, but were not inspected during field surveys because of lack of available time, or access issues, or uncertainty regarding locations. These places should be treated as potentially significant and their heritage values should be investigated ahead of any specific developments.

Charters Towers Mining District - places requiring assessment:

Ewan battery (SE55-14 Townsville AMG 382603).
Grace Darling winding engine & Lady Norman battery near Normanby town site.
Keelbottom Creek copper smelter near junction of Coppermine Creek.
Oak Creek battery near Ewan.
Paluma battery near Paluma township (remains of water wheel & sluice).

Georgetown Mining District - places requiring assessment:

Deadhorse Creek battery near Georgetown.
Forsythe's battery site on Belmore Creek, Croydon.
Mount Hogan battery near Percyville (GPS 19.10.47 - 143.48.08).
No.5 Golden Gate near Croydon.
Sandy Creek battery (Roseglen station).
South Golden Gate Nos. 3 & 4 near Croydon

Mareeba Mining District - places requiring assessment:

Bamford Hill water race near Petford.
British Lion battery (Laura AMG 127326).
Brownville battery site near Mount Garnet.
China Camp water race near Helensvale.
Chinky Creek alluvial workings & camp sites near Laura.
Dreadnought battery site (Helensvale AMG 197650).
Horn Island battery.
Independent battery (Laura AMG 099458).
Khartoum battery site near Almaden.
Leo Creek mine & Lakeland battery (Coen AMG 572794)..
Lode Hill water race near Helensvale.
Mundic King battery near Cooktown.
Star of the East battery (Laura AMG 154394)..
The Astronomer mine near Bartle Frere.

Mount Isa Mining District - places requiring assessment:

Mount Emu battery, Flinders River & Soap Spar batteries, Woolgar River.
Slaty Creek copper smelter near The Gorge.

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APPENDIX 3: MINERAL DISCOVERIES BY YEAR

YEAR	GOLD	COPPER	TIN	SILVER/LEAD	OTHER
1865	Star River				
1866		Einasleigh (Daintree)			
1867	Cape River	Great Australia (Cloncurry)			
1868	Ravenswood				
1869	Gilberton				
1870	Etheridge (Georgetown)				
1871				Totley	
1872	Charters Towers				
1873	Palmer River				
1876	Hodgkinson				
1878	Coen				Antimony at Northcote
1880	Woolgar; Mulgrave River; Bower Bird		Great Northern (Herberton)		
1881				Argentine; Silver Valley (Newellton)	
1883		Mount Garnet	Kangaroo Hills		
1884		Hampden (Kuridala)			
1885			Annan River	Montalbion	
1886	Croydon	Mount Molloy			
1887					
1888		Chillagoe	Vulcan (Irvinebank)		
1889				Muldiva	
1890	Starcke River		Stanhills (Croydon)	Ewan	
1892	Batavia (Wenlock)				
1894					Wolfram at Wolfram Camp
1899	Ebagoola	Mount Elliott			
1907	The Oaks (Kidston)	Mount Cuthbert		Lawn Hill	Coal at Scottville and Mount Mulligan
1913	Mount Coolon				
1919					Cobalt at Mount Cobalt
1923				Mount Isa	
1941		Black Star Mine (Mount Isa)			
1954					Uranium at Mary Kathleen

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APPENDIX 4: DEVELOPMENT OF RECORDED PLACES BY YEAR

YEAR	NAME OF PLACE	MINERAL	DISTRICT
c1869	General Grant Mine (Ravenswood)	Gold	Charters Towers
c1869	Grant & Sunset Extended Mine	Gold	Charters Towers
c1869	Sunset No.1 Mine	Gold	Charters Towers
c1869	Sunset No.2 Mine	Gold	Charters Towers
1871	Mabel Mill	Gold	Charters Towers
1872	Venus Battery	Gold	Charters Towers
1873	Enterprise Battery (Charters Towers)	Gold	Charters Towers
1875	Maytown Township	Gold	Mareeba
1876	Kingsborough Township	Gold	Mareeba
1876	Thornborough Township	Gold	Mareeba
c1876	Ida Mine & Battery	Gold	Mareeba
c1876	Louisa Mine	Gold	Mareeba
1877	Laura-Maytown Coach Road	Gold	Mareeba
1877	Mabel Louise Battery	Gold	Mareeba
1878	Queen of the North Mine & Battery	Gold	Mareeba
1870s	Dog Leg Creek Garden	Gold	Mareeba
1870s	Duke of Edinburgh Mine	Gold	Mareeba
1870s	Gilberton Township Batteries	Gold	Georgetown
1870s	New England Mine & Battery	Gold	Charters Towers
1870s	Nil Desperandum Mine & Charleston Town	Gold	Georgetown
1870s	Nuggety Gully Stone Walls & Camp	Gold	Mareeba
1870s	Pyrites Works	Gold	Charters Towers
1870s	Rainbow Battery	Gold	Charters Towers
1870s	Stonyville Township & Water Race	Gold	Mareeba
1880	Cumberland Battery	Gold	Georgetown
1880	Great Northern Mine (Herberton)	Tin	Mareeba
1881	Argentine Smelter	Silver	Charters Towers
1882	Great Extended Mine	Silver	Charters Towers
1882	Mount Oxide Mine: Rock Shelter	Copper	Mount Isa
1883	Bischoff Battery	Tin	Mareeba
c1883	Kings New Mill	Silver	Charters Towers
1884	Great Australia Mine & Smelter	Copper	Mount Isa
1884	Irvinebank State Treatment Works	Tin	Mareeba
1885	Tabletop Township	Gold	Georgetown
1885	Montalbion Smelter & Township	Silver	Mareeba
c1885	Croydon State Mine (Iguana Consols)	Gold	Georgetown
c1885	Great Extended Mill	Silver	Charters Towers
1880-85	Comet Battery & Mine	Gold	Mareeba
1886	Anglo Saxon Mine	Gold	Mareeba
1886	Burdekin Battery	Gold	Charters Towers
1886	Groganville Township	Gold	Mareeba
1886	Harbord Battery & Township	Gold	Mareeba
1887	Content Mine	Gold	Georgetown
1887	Day Dawn Battery	Gold	Georgetown
c1887	Ivanhoe Mine	Tin	Mareeba
1888	Lady Jane Mine	Copper	Mareeba
1888	Homeward Bound Battery & Weir	Gold	Georgetown
1888	Vulcan Mine	Tin	Mareeba
c1888	Perseverance Battery	Gold	Georgetown
1889	Enterprise Battery (Croydon)	Gold	Georgetown
1880s	Castleton Battery, Mine & Township	Gold	Georgetown
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YEAR	NAME OF PLACE	MINERAL	DISTRICT
1880s	Golden Valley Battery & Township	Gold	Georgetown
1880s	Mosquito Creek Smelter	Silver Lead	Georgetown
1880s	Black Mountain Battery	Gold	Georgetown
1880s	Goldsmith Creek Hut	Gold	Georgetown
1890	Quartzborough: Four Mile Battery	Gold	Mareeba
c1890	Clarkes Mine & Battery	Gold	Charters Towers
1891	Brilliant Central Mine	Gold	Charters Towers
1891	Muldiva Smelter & Township	Silver	Mareeba
1893	Golden Gate Consols Mine	Gold	Georgetown
1893	Great Northern Mine (Coen)	Gold	Mareeba
c1893	Golden Gate; Croydon Consols Battery	Gold	Georgetown
1894	Calcifer Smelter & Township	Copper	Mareeba
1894	Fischerton Water Race	Tin	Mareeba
1894	Wild Irish Girl Mine & Battery	Gold	Mareeba
1895	Alexandra Mine & Battery	Gold	Mareeba
1895	Walter Hodgson Battery	Gold	Mareeba
c1895	Bower Bird Goldfield Battery	Gold	Mount Isa
1896	Girofla Mine & Smelter	Copper	Mareeba
1896	Kingsborough Battery	Gold	Mareeba
1896	Mungana Township	Copper	Mareeba
1897	General Grant Mine (Kingsborough)	Gold	Mareeba
1898	Pioneer Battery	Gold	Mareeba
1899	Federation Battery	Gold	Georgetown
1899	Golden Gate: Croydon Consols Pump Shaft	Gold	Georgetown
1899	Mitchell River Antimony Mill	Antimony	Mareeba
1899	Ortona Mine & Battery	Copper	Georgetown
1890s	Coen Quartz Enterprise Company Battery	Gold	Mareeba
1890s	Golden Gate No.10 North Mine	Gold	Georgetown
1890s	Percyville Township Batteries	Gold	Georgetown
1900	Chillagoe Smelters	Copper/Lead	Mareeba
1900	Ebagoola: Ada Stewart Battery	Gold	Mareeba
1900	Ebagoola Township	Gold	Mareeba
1900	Einasley Mine & Smelter	Copper	Georgetown
1900	Endeavour Battery	Tin	Charters Towers
1900	Mount Garnet Mine & Smelter	Copper	Mareeba
c1900	Donnybrook Blocks Battery	Gold	Charters Towers
c1900	Dry Hash Mine & Battery	Gold/Silver Lead	Georgetown
c1900	Mount Cuthbert: Kalkadoon Mine	Copper	Mount Isa
c1900	Mount Leyshon Battery	Gold	Charters Towers
c1900	The Sisters Mine	Gold	Charters Towers
c1900	Wolfram: Top Camp Mine Workings	Wolfram	Mareeba
1901	Coolgarra Battery	Tin	Mareeba
1901	Ravenswood Deep Mine & Battery	Gold	Charters Towers
1902	Collingwood Water Race	Tin	Mareeba
1902	Grand Junction Consols Mine	Gold	Charters Towers
1902	OK Mine & Smelter	Copper	Mareeba
1902	Mount Garnet - Lappa Tramway	Copper	Mareeba
1902	Rocky Bluff Battery & Township	Tin	Mareeba
1902	Stannary Hills Tramway: Eureka Creek	Tin	Mareeba
1903	Labor Victory Mine Boilers	Copper	Mount Isa
1903	London North Mine & Headframe	Gold	Charters Towers
1903	Joseph Morris Mine	Gold	Georgetown
1904	Lancelot Battery	Tin	Mareeba

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YEAR	NAME OF PLACE	MINERAL	DISTRICT
1904	Pandanus Creek Battery	Gold	Charters Towers
1904	Mount Molloy Smelter	Copper	Mareeba
c1904	Mount Molloy Timber Mill Boiler & House	Copper	Mareeba
1905	Carrington Mines & Smelters	Gold/Copper	Charters Towers
1906	Gurrumba Battery	Tin	Mareeba
1906	The Brothers Mine	Tin	Mareeba
c1906	Duck Creek Smelter	Copper	Mount Isa
1907	Esmeralda Battery	Gold	Georgetown
1907	Lukin King Mine & Battery	Gold	Mareeba
1907	Mount Cuthbert Mine	Copper	Mount Isa
1907	Selwyn Township	Copper	Mount Isa
1908	Kidston Township	Gold	Georgetown
1908	Selwyn: Mount Elliott Mine & Smelter	Copper	Mount Isa
c1908	Duchess Mine	Copper	Mount Isa
c1908	Villiers Smelter	Copper	Charters Towers
1910	Kuridala Township & Railway Formation	Copper	Mount Isa
c1910	Alice Queen Battery	Gold	Mareeba
c1910	Mount Mulligan Colliery	Coal	Mareeba
c1910	Mount Mulligan Township & Cemetery	Coal	Mareeba
1911	Emuford Battery	Tin	Mareeba
1911	Kuridala: Hampden Mines & Smelter	Copper	Mount Isa
1911	Sunnymount Battery Shed	Tin	Mareeba
1911	Trekellano Mine & Railway Formation	Copper	Mount Isa
1912	Cardross Mines & Smelter	Copper	Mareeba
1912	Havelock Mill & Tramway Formation	Copper/Gold	Georgetown
1912	Tyrconnel Mine & Battery	Gold	Mareeba
1913	Richmond Mine & Battery	Gold	Georgetown
1913	Rosebud Mine & Smelter	Copper	Mount Isa
1914	Barclays Battery	Gold	Charters Towers
1914	Mount Coolon Gold Mine & Mill	Gold	Charters Towers
c1914	Wolfram: Thermo Electric Corp. Mill	Wolfram	Mareeba
1915	Wee MacGregor Mine Ore Transfer Stage	Copper	Mount Isa
1915	Wee MacGregor Railway Formation	Copper	Mount Isa
1916	Aspasia Mine & Battery	Silver	Georgetown
1916	Bamford State Battery	Wolfram	Mareeba
1916	Mount Cuthbert Township & Railway	Copper	Mount Isa
c1916	Dobbyn Mine & Township	Copper	Mount Isa
1919	Bowen Consolidated Colliery	Coal	Charters Towers
1920	Mount Cobalt Mine & Mill	Cobalt	Mount Isa
c1920	Shrimp Battery	Tin	Charters Towers
1922	Kidston State Battery	Gold	Georgetown
1922	Wenlock Lower Camp Goldfield	Gold	Mareeba
1922	Wenlock Lower Camp Settlement	Gold	Mareeba
1923	Mount Isa Mines: Experimental Dam	Copper/Lead	Mount Isa
1924	Mount Moran Battery	Gold	Georgetown
1926	Mount Elliott Company Metallurgical Plant	Copper	Mount Isa
1929	Mount Isa Mines: Fan House & Duct	Copper/Lead	Mount Isa
1929	Mount Isa Mines: No.1 Concentrator	Copper/Lead	Mount Isa
c1929	Mount Isa Mines: Davidson Shaft Shed	Copper/Lead	Mount Isa
1920s	Mount Isa Mines: Lawlor Shaft & Plant	Copper/Lead	Mount Isa
1920s	Mount Isa Mines: No.2 Ore Shaft Headfr.	Copper/Lead	Mount Isa
1930	Mount Isa Mines; Man & Supply Headfr.	Copper/Lead	Mount Isa
1930	Mount Isa Mines: Urquhart Shaft Headfr.	Copper/Lead	Mount Isa

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YEAR	NAME OF PLACE	MINERAL	DISTRICT
1930	Palmer River Gold Company Dredge	Gold	Mareeba
c1930	Lolworth Creek Battery	Gold	Charters Towers
c1930	Mount Isa Mines: Power Station & Worksh.	Copper/Lead	Mount Isa
c1934	Birthday Mountain Battery	Gold	Mareeba
c1934	Gordons Mine & Mill	Gold	Mareeba
1935	Barns Battery	Gold	Mount Isa
c1935	Peter Pan Battery	Gold	Mount Isa
1936	Halls Battery	Gold	Georgetown
1937	Buthen Buthen Battery & Mining Camp	Gold	Mareeba
1938	Judjes Battery	Gold	Charters Towers
1930s	McLennons Lode Mine & Mill	Gold	Mareeba
1930s	Mount Isa: Tent House	Copper/Lead	Mount Isa
1930s	Nugents Battery	Gold	Georgetown
c1942	Potallah Creek Battery Shed	Gold	Mareeba
1949	Mount Isa Mines: Executive Residences	Copper/Lead	Mount Isa
1940s	Mount Isa Mines: Base Supply Depot	Copper/Lead	Mount Isa
1940s	Mount Isa Mines: Kings Cross Buildings	Copper/Lead	Mount Isa
1954	Mary Kathleen Mine & Treatment Works	Uranium	Mount Isa
1954	Mary Kathleen Township	Uranium	Mount Isa
1957	Nettle Creek Tin Dredge	Tin	Mareeba

APPENDIX 5:

**STATISTICAL SUMMARY:
CHARTERS TOWERS MINING DISTRICT**

Attributes	No. of places	Percentages
Sample No. of recorded places	34	
Mineral type - historical		
Gold	25	73%
Silver	4	12%
Copper	2	6%
Tin	2	6%
Coal	1	3%
Mineral field - historical		
Ravenswood Goldfield	16	47%
Charters Towers Goldfield	11	32%
Kangaroo Hills Goldfield	2	6%
Mount Coolon Goldfield	2	6%
Bowen Basin Coalfield	1	3%
Lolworth Creek Goldfield	1	3%
Major catchments		
Burdekin River	34	100%
Local government areas		
Dalrymple Shire	25	73%
Charters Towers City	6	18%
Bowen Shire	3	9%
Function of place - historical		
Mill/Battery	20	49%
Mine	15	36%
Smelter	5	12%
Colliery	1	3%
Haulage	--	--
Settlement	--	--
Surviving plant - historical		
Places with plant	19	56%
Places without plant	15	44%

APPENDIX 6:

STATISTICAL SUMMARY:
GEORGETOWN MINING DISTRICT

Attributes	No. of places	Percentages
Sample No. of recorded places	31	
Mineral type - historical		
Gold	28	88%
Silver Lead	2	6%
Copper	1	3%
Silver	1	3%
Mineral field - historical		
Croydon Goldfield	15	48%
Etheridge Goldfield	13	42%
Oaks Goldfield	3	10%
Major catchments		
Gilbert River	16	52%
Norman River	15	48%
Local government areas		
Etheridge Shire	16	52%
Croydon Shire	15	48%
Function of place - historical		
Mill/Battery	21	48%
Mine	9	21%
Settlement	8	18%
Haulage	4	9%
Smelter	2	4%
Colliery	--	--
Surviving plant - historical		
Places with plant	22	71%
Places without plant	9	29%

APPENDIX 7:

**STATISTICAL SUMMARY:
MAREEBA MINING DISTRICT**

Attributes	No. of places	Percentages
Sample No. of recorded places	73	
Mineral type - historical		
Gold	35	51%
Tin	15	22%
Copper	9	13%
Wolfram/Molybdenite	5	8%
Silver	2	3%
Antimony	1	1%
Coal	1	1%
Lime	1	1%
Mineral field - historical		
Walsh & Tinaroo Mining District	28	39%
Palmer Goldfield	20	28%
Hodgkinson Goldfield	11	15%
Batavia Goldfield	3	4%
Coen River Goldfield	3	4%
Hamilton Goldfield	3	4%
Philp Goldfield	2	3%
Cairns Mining District	1	1%
Cooktown Mining District	1	1%
Hayes Creek Goldfield	1	1%
Major catchments		
Mitchell River	53	73%
Herbert River	5	7%
Archer River	3	4%
Wenlock River	3	4%
Holroyd River	2	3%
Normanby River	2	3%
Annan River	1	1%
Claudie River	1	1%
Edward River	1	1%
Mulgrave River	1	1%
Nesbit River	1	1%

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Local government areas

Mareeba Shire	41	56%
Cook Shire	26	36%
Herberton Shire	5	7%
Eacham Shire	1	1%

Function of place - historical

Mill/Battery	32	28%
Mine	31	27%
Settlement	28	24%
Haulage	12	11%
Smelter	10	9%
Colliery	1	1%

Surviving plant - historical

Places with plant	41	56%
Places without plant	32	44%

APPENDIX 8:

STATISTICAL SUMMARY:
MOUNT ISA MINING DISTRICT

Attributes	No. of places	Percentages
Sample No. of recorded places	35	
Mineral type - historical		
Copper & Copper/Lead	29	83%
Gold	4	11%
Uranium	2	6%
Mineral field - historical		
Cloncurry Gold & Mineral Field	32	91%
Woolgar Goldfield	2	6%
Bower Bird Creek Goldfield	1	3%
Major catchments		
Leichhardt River	18	51%
Flinders River	14	40%
Georgina River	3	9%
Local government areas		
Cloncurry Shire	20	57%
Mount Isa City	13	37%
Richmond Shire	2	6%
Function of place - historical		
Mine	19	37%
Settlement	12	23%
Smelter	8	15%
Haulage	7	13%
Mill/Battery	6	12%
Colliery	--	--
Surviving plant - historical		
Places with plant	20	57%
Places without plant	15	43%

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APPENDIX 9:

PRINCIPAL SURVIVING STRUCTURES

Structural Type	Number of recorded places per Mining District			
	Charters Towers	Georgetown	Mareeba	Mount Isa
Mill/Battery Foundations	19	17	27	3
Boiler Foundations/Mounts	10	15	26	6
Mining Camp/Settlement	3	4	29	12
Winding Engine Foundations	13	4	8	11
Railway/Tramway Formation	3	5	13	12
Brick Chimney (standing)	15	1	7	1
Smelter Structure	3	2	10	8
Weir/Dam	4	3	11	1
Slag Dump	4	1	8	5
Cyanide Plant	8	3	4	1
Workshop/Smithy	1	2	11	2
Assay Office	3	--	5	3
Ore Bins	3	1	5	2
Metal Chimney (standing)	--	1	3	6
Mill/Battery Shed (standing)	2	1	7	--
Reverberatory Furnace	3	--	3	2
Winding Shed (standing)	2	--	2	3
Steel Headframe (standing)	2	--	1	4
Timber Headframe (standing)	4	--	2	--
Roasting Furnace	--	2	3	1
Water Race	--	--	6	--
Kiln	--	--	2	2
Strong Room	--	--	2	1
Bucket Dredge	--	--	2	--

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APPENDIX 10:

PRINCIPAL ITEMS OF SURVIVING PLANT

Plant Item	Number of recorded items per Mining District			
	Charters Towers	Georgetown	Mareeba	Mount Isa
Grav. Stamp Battery (in situ)	11	7	11	4
Colonial Boiler	--	5	17	5
Cornish Boiler	5	6	11	5
Portable Engine (steam)	1	11	9	2
Winding Engine (steam)	3	6	4	7
Diesel/Oil Engine	7	--	7	--
Stationary Engine (steam)	--	4	10	--
Grinding Pan	5	2	5	1
Wilfley Table	4	--	6	3
Copper Converter	--	--	8	10
Vertical Boiler/Engine	1	3	4	4
Water Condenser	--	--	--	10
Babcock & Wilcox Boiler	6	--	2	1
Air Compressor (steam)	1	1	6	--
Air Receiver Vessel	--	--	6	2
Suction Gas Producer	1	1	6	--
Water/Sand Pump (steam)	--	--	6	2
Portable Boiler	--	2	1	4
Beam Pump Arm	--	1	4	2
Weighbridge	5	--	1	1
Primary/Jaw Crusher	2	1	3	--
Return Flue Boiler	--	2	2	1
Suction Gas Engine	3	--	1	--
Turbine Generator	3	--	--	1
Winding Engine (electric)	1	--	--	3
Ball Mill	1	--	2	--
Empire Mill	--	--	2	--
Stirling Boiler	1	--	1	--
Water Jacket Blast Furnace	--	--	--	2
Galloway Boiler	--	--	1	--
Water Jacket Condenser	--	--	--	1

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6. REFERENCES

- Allom, Lovell, Marquis-Kyle and Austral Archaeology 1993 *Chillagoe Smelter Conservation Plan*. A report to the Department of Environment and Heritage, 145pp.
- Ball, L.C 1908 *Cloncurry Copper Mining District*, Queensland Geological Survey. Publication No. 215.
- Bell, P 1979 *The Mount Mulligan Disaster*, History Department, James Cook University of North Queensland, Townsville, 287pp.
- Bell, P. 1980 The Origins of the Queensland Coal Industry, In Kennedy, K.H. (ed.), *Readings in North Queensland Mining History*, History Department, James Cook University of North Queensland, Townsville, vol.1, pp.251-272.
- Bell, P. 1980 Houses in North Queensland Mining Towns, 1864-1914, in Kennedy, K.H. (ed.), *Readings in North Queensland Mining History*, History Department, James Cook University of North Queensland, Townsville, vol.1, pp.299-328.
- Bell, P. 1982 Essay on North Queensland Mining settlement, in Kennedy, K.H. (ed.), *Readings in North Queensland Mining History*, History Department, James Cook University of North Queensland, Townsville, vol.2, pp.1-48.
- Bell, P. 1982 International Investment in Early Mt. Isa, in Kennedy, K.H. (ed.), *Readings in North Queensland Mining History*, History Department, James Cook University of North Queensland, Townsville, vol.2, pp.275-306.
- Bell, P. 1987 *Gold, Iron and Steam, The Industrial Archaeology of the Palmer Goldfield*. History Department, James Cook University, Townsville, 134pp.

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MINING HERITAGE PLACES STUDY: NORTHERN & WESTERN QUEENSLAND

Jane Lennon & Associates
Howard Pearce

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- Bell, P. and McCarthy, J. 1994 The Evolution of Early Copper Smelting Technology in Australia. Paper presented at the Third International Mining History Conference, Colorado School of Mines, Golden, Colorado, 6 June 1994.
- Blainey, G. 1969 *The Rush That Never Ended*, A History of Australian Mining, Melbourne University Press.
- Blainey, G. 1970 *Mines in the Spinifex*, The Story of Mount Isa Mines, Angus and Robertson.
- Bolton, G.C. 1972 *A Thousand Miles Away*, A History of North Queensland to 1920, Australian National University Press.
- Boyd, S.H. 1963 Peninsula Prospecting Days, *Cairns Historical Society Bulletin*, No.49, 3pp.
- Boyd, S.H. 1964 Random Collections of Coen in the 1890s, *Cairns Historical Society Bulletin*, No.63, 2pp.
- Clark, D. 1904 *Australian Mining and Metallurgy*, Critchley Parker, 502pp.
- Comber, J. 1985 *Argentine Smelter*, 25pp.
- Comber, J. 1991 *Palmer Goldfield Heritage Study, Stage 2*, vol.1, Report to Department of Environment and Heritage, 348pp.
- de Havelland, D.W. 1989 *Gold and Ghosts*, vol.4, A prospectors guide to metal detecting and history of the Australian Goldfields, Hesperian Press, 615pp.
- Dunstan, B. 1913 *Queensland Mineral Index and Guide*.
- Fitzgerald, R. 1986 *A History of Queensland From the Dreaming to 1915*, University of Queensland Press.
- Grimwade, G. 1992 *Venus Battery Site, Cultural Resources Assessment*, a report to National Trust of Queensland, 15pp. & app.

- Grimwade, G. & Hunter, K. 1995 *Cultural Heritage Study of Mt Cuthbert and Dobbyn, Mount Isa Mining District, for Murchison United NL.*
- Hooper, Colin. 1995 *Angor to Zillmanton, Stories of North Queensland's deserted towns, Brisbane, 436pp.*
- Hore-Lacy, I.(ed) 1981 *Broken Hill to Mount Isa: the Mining Odyssey of W.H. Corbould, Hyland House, Melbourne.*
- Jack, Logan R. 1879 *Report on the Geology and Resources of the District between Charters Towers Goldfields and the Coast, Geological Survey Publication No.1.*
- Kennedy, K.H. 1980 "They Stumble That Run Fast": In the Wake of the Chillagoe Company, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.1, James Cook University of North Queensland, Townsville, pp.89-220.
- Kennedy, K.H. 1980 The Cloncurry Copper Companies, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.1, James Cook University of North Queensland, Townsville, pp.221-250.
- Kennedy, K.H., Bell, P. and Edmondson, C. 1981 *Totley, A study of the Silver Mines at One Mile, Ravenswood District, Department of History, James Cook University of North Queensland, Townsville, 61pp.*
- Kerr, R.S. 1976 Education at Hightville and Ballara, *Queensland Heritage*, vol.3, No. 5, pp.3-9.
- Kerr, R.S. 1979 *John Moffat's Empire, St. Lucia, 120pp.*
- Kerr R.S. 1980 John Moffat and the North Queensland Tinfields, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol 1, James Cook University of North Queensland, pp.161-188.
- Kerr, R.S. 1980 North Queensland Mining Railways, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.1, James Cook University of North Queensland, pp. 273-298.

- Kerr R.S. 1984 *"God Bless John Moffat", Irvinebank: Mining Community and Centre of an Empire*, St. Lucia, 24 pp.
- Kerr, R.S. 1992 *Chillagoe - Copper, Cattle and Caves, An Historical Guide*, St. Lucia, 40 pp.
- Kerr, R.S. 1992 *Queensland Historical Mining Sites Study*, 4 vols. Report to the Department of Environment and Heritage, n.p.
- Kerr, R.S. and J.D. 1985 *The Cumberland Mine and Its Tramway, Light Railways*, Oct. Issue, pp.20-26.
- Kirkman, N. 1980 *The Palmer River Goldfield*, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.1, James Cook University of North Queensland, pp.113-144.
- Kirkman, N. 1982 *Mining on the Hodgkinson*, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.2, James Cook University of North Queensland, pp.171-194.
- Levingston, K.R. 1980 *A Survey of the Geology and Mineralisation of North Queensland Mining Fields*, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.1, James Cook University of North Queensland, pp. 1-38.
- Maclaren, M. 1901 *Queensland Mining and Milling Practice*, Geological Survey Publication, No. 156.
- Menghetti, D. 1982 *The Gold Mines of Charters Towers*, in Kennedy, K.H. (ed.) *Readings in North Queensland Mining History*, vol.2, James Cook University of North Queensland, pp. 49-118.
- Menghetti, D. 1982 *Extraction Practices and Technology on the Charters Towers Goldfield, North Australia Research Bulletin*, No.8, 51 pp.
- Menghetti, D. 1992 *Ravenswood, Five Heritage Trails*, Department of History and Politics, James Cook University of North Queensland, 28 pp.

Mount Isa Mines Limited.	1973	Mount Isa, The Early Years. <i>Minmag</i> .
National Trust of Queensland.	1977	<i>A Study of the Tent House in Fourth Avenue, Mount Isa</i> , 19pp.
North Queensland Register.	1897	<i>Mining History of Charters Towers</i> , Northern Miner Charters Towers, 104pp.
Oliver, R.	1981	<i>A Strategy Plan for the Venus Gold Battery</i> , Charters Towers, prepared for the National Trust of Queensland, Brisbane.
Palmer River Historic Preservation Society,	1987	<i>Palmer Goldfield Nomination</i> (Ida, Queen, Comet & Louisa sites).
“ “ “ “	1988	<i>Chinese Alluvial Sites Nominations</i> .
“ “ “ “	1988	<i>Stonyville Nomination</i> .
“ “ “ “	1990	<i>Nomination for the Heritage Reservation of the Limestone District</i> .
Pearson, M.	1994	<i>Mining Heritage Places Study, Stage 2B: Southern and Central Queensland</i> , report for Department of Environment and Heritage.
Pearson, M.	1994	<i>Great Australia Mine, Cloncurry</i> , Cultural Heritage Study, for Cloncurry Mining N.L.
Pearson, M.	1995	<i>Kidston Township Cultural Heritage Study</i> , for Kidston Gold Mines Ltd. 41 pp.
Roderick, D.C.	1980	Ravenswood: Surveying the Physical Evidence, in Kennedy, K.H. (ed.) <i>Readings in North Queensland History</i> , vol.1, James Cook University of North Queensland, pp. 39-86.
Roderick, D.C.	1993	<i>Ravenswood - The Mabel Mill, The London North Mine, A Conservation Study</i> , report for Department of Environment and Heritage, n.p.
Royal Commission on Mungana, Chillagoe Mines etc.	1930	<i>Report of Royal Commission</i> , Queensland Parliament (paper A.6) 28 pp.

- Verhoeven, G. 1969 Stannary Hills and Irvinebank Tin Mining Tramways, *Light Railways*, Summer 1969-70 issue, pp.4-15.
- Verhoeven, G. 1970 To Rocky Bluff, *Light Railways*, Winter 1970, No.32, pp.4-11.
- Walmsley, H.O. 1965 Coen to 1907, *Cairns Historical Society Bulletin*, No.77, 2pp.
- Wegner, J. 1980 Gold Mining on the Etheridge, in Kennedy, K.H. (ed.), *Readings in North Queensland Mining History*, vol.1, James Cook University of North Queensland, pp.87-112.
- Wegner, J. 1982 Kangaroo Hills, in Kennedy, K.H. (ed.), *Readings in North Queensland Mining History*, vol.2, James Cook University of North Queensland, pp.195-216.
- Wegner, J. 1990 *The Etheridge*, Studies in North Queensland History, No.13, Department of History and Politics, James Cook University, Townsville, 276 pp.
- Wegner, J. 1992 *Vulcan Mine Site*, draft report.
- Williams, S.R. 1964 Ebagoolah, *Cairns Historical Society Bulletin*, No.69, 2pp.
- Whitmore, R.L. 1991 *Coal in Queensland, From Federation to the Twenties*, 1900 to 1925, University of Queensland Press, St Lucia.

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: ASPASIA MINE & BATTERY

Mineral Type - Historical: SILVER

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Silver Creek

Local Government Area: Etheridge Shire

Map Sheet: Forest Home 7561. 1:100,000. AMG 587768

Latitude: 18.17.00 S (by GPS)

Longitude: 143.26.53 E (by GPS)

Land Tenure: (Mount Turner station)

Mineral Lease: M.L. 3404 Midapa Pty Ltd

Location and Access:

Located 11 km west of Georgetown. Access by the Gulf Development Road with a turn-off north through a locked gate onto a station track.

Heritage Boundaries:

North: East-west line passing through a point 80 metres north of the battery.

South: East-west line passing through a point 50 metres south of the battery.

East: Station track 50 metres east of the battery.

West: North-south line passing through a point 50 metres west of the battery.

HISTORY OF PLACE

The first recorded gold in the Etheridge Goldfield was found by Richard Daintree in 1867 near the junction of the Etheridge and Delaney Rivers, site of present day Georgetown. Reef mining commenced in November 1870. (De Havelland, 1989:308-9).

The Durham mine worked a rich auriferous reef down to the 122m level between 1879 and 1899 and again from 1907. It produced over 20,000 ozs of gold. Approximately 3.5km west of the Durham and north of Hawkins Hill, a line of reefs can be found. The most southerly mine, the Aspasia, was worked between

1916-29, during the 1930s and between 1947-52, for gold-silver-lead ore. The main workings consist of three shafts and nearly 45m of stopes, from the surface down to at least 9m. Officially the records show a production of 716 tons of ore, returning 37 oz of gold, 14,626 ozs of silver, 285 tons of lead and 0.8 tons of copper. (De Havelland, 1989:313, map 80).

The 1930s Depression temporarily rejuvenated the Etheridge Goldfield and unemployment relief funds were provided to assist prospectors. Postwar, production costs rose and after 1950, silver-lead prices fell leading to the mine's closure. (Wegner, 1990:229-31).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Brick

Concrete

Bush Timber

Stonework

Structural Components:

Headframe Structure

Mill/Battery Foundations

Mine Shaft/Adit

Open Cut Mine

Tailings Dump

Constructed Tank/Pond

Mining Quarters/Camp

Smithy/Forge

Description of Place:

The place contains mine workings, a battery and concentration plant foundations arranged in close association. The main component of the place is an almost intact five head stamp battery set on rendered brick and stone mounts. Concrete foundations for the diesel power plant (which has been removed) are located alongside the stamp battery. Parts for another five head stamp battery are scattered in pieces about the site, however there are no foundations to indicate installation of a second five-head. A timbered shaft, partly caved at the surface, is situated 10 metres east of, and in line with, the battery's mortar box. The former hoisting gear over the shaft comprises a light bush timber tripod. The battery area contains bush timber uprights of varying lengths which formed supports for the shed roof, water

tanks and belt wheel shafts. A corrugated iron tank remains perched on a timber stand. A line of shallow open stopes extend northward of the stamp battery. Surface evidence of the former workshop and camp is located about 20 metres south of the battery

Plant:

- Five head stamp battery - no brand.

STATEMENT OF SIGNIFICANCE

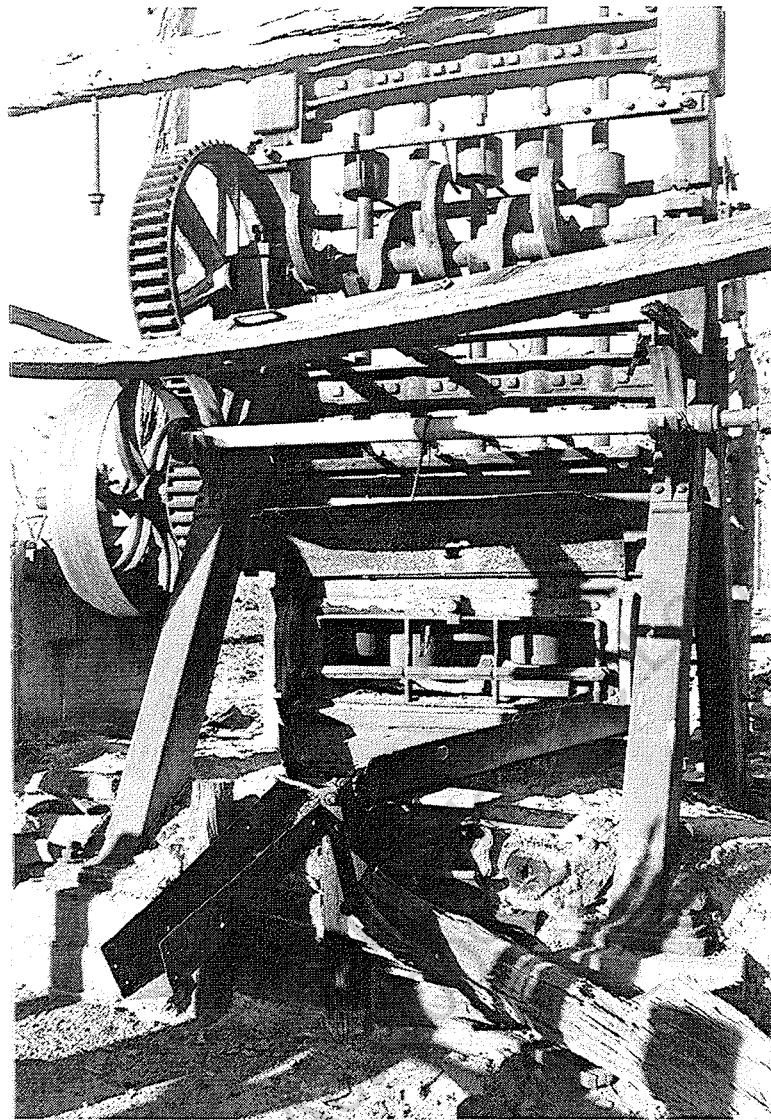
The Aspasia mine and battery is significant in Queensland's history as an example of a small battery working through the Depression years and until after World War 2 and producing a range of base metals.

The relatively intact state of the stamp battery, hoisting gear and water tanks is rare in the Georgetown Mining District.

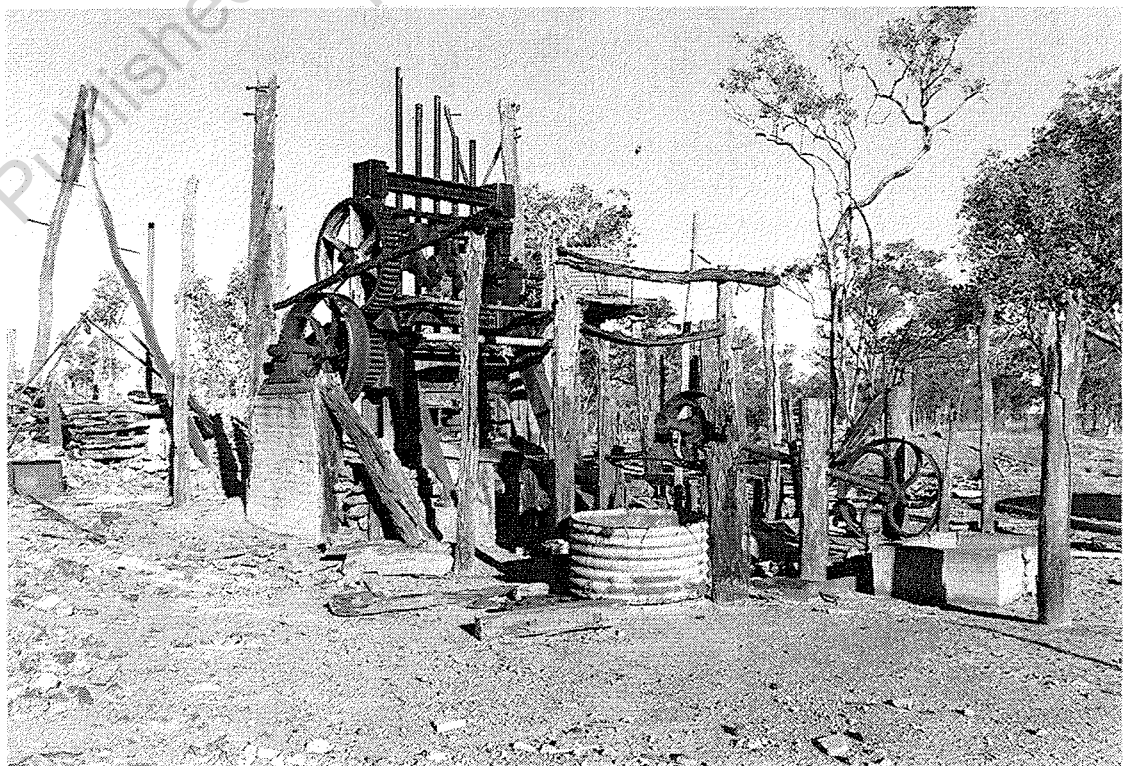
The place satisfies criteria (a) and (b) of the *Queensland Heritage Act 1992*.

REFERENCES

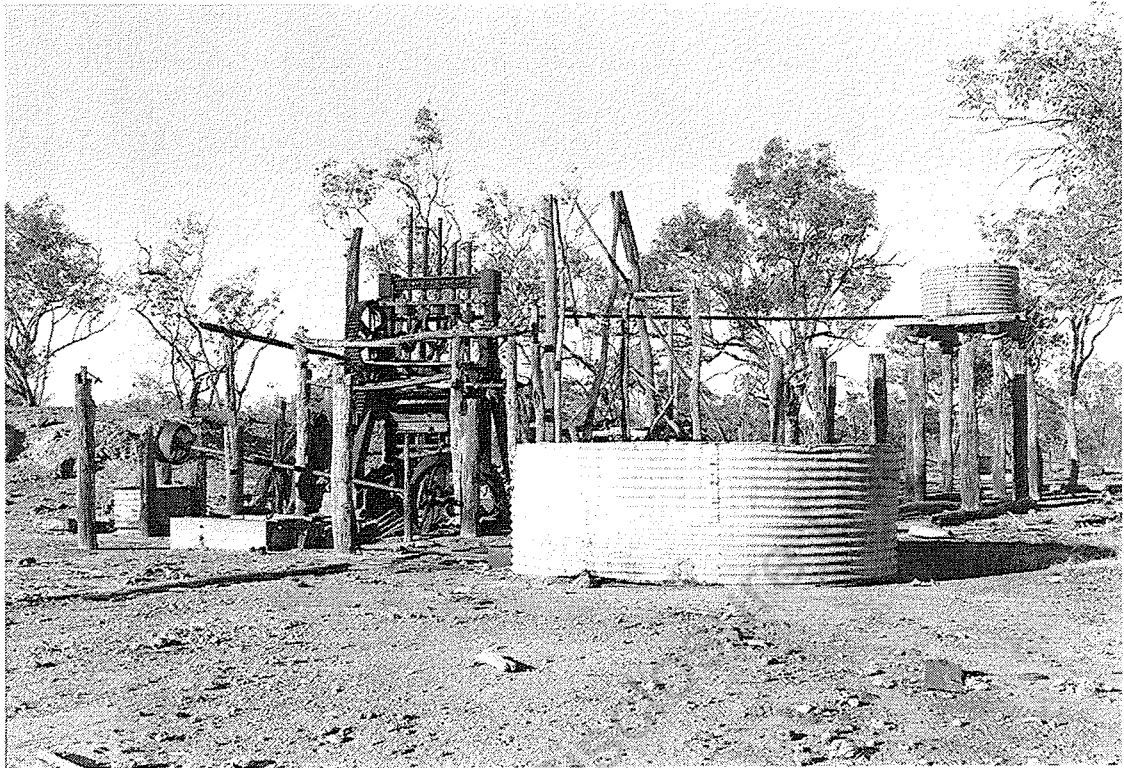
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, pp.308-9, 313
- Wegner, Janice. 1990. *The Etheridge*, Studies in North Queensland History No. 13, James Cook University, Townsville, pp. 229-231.



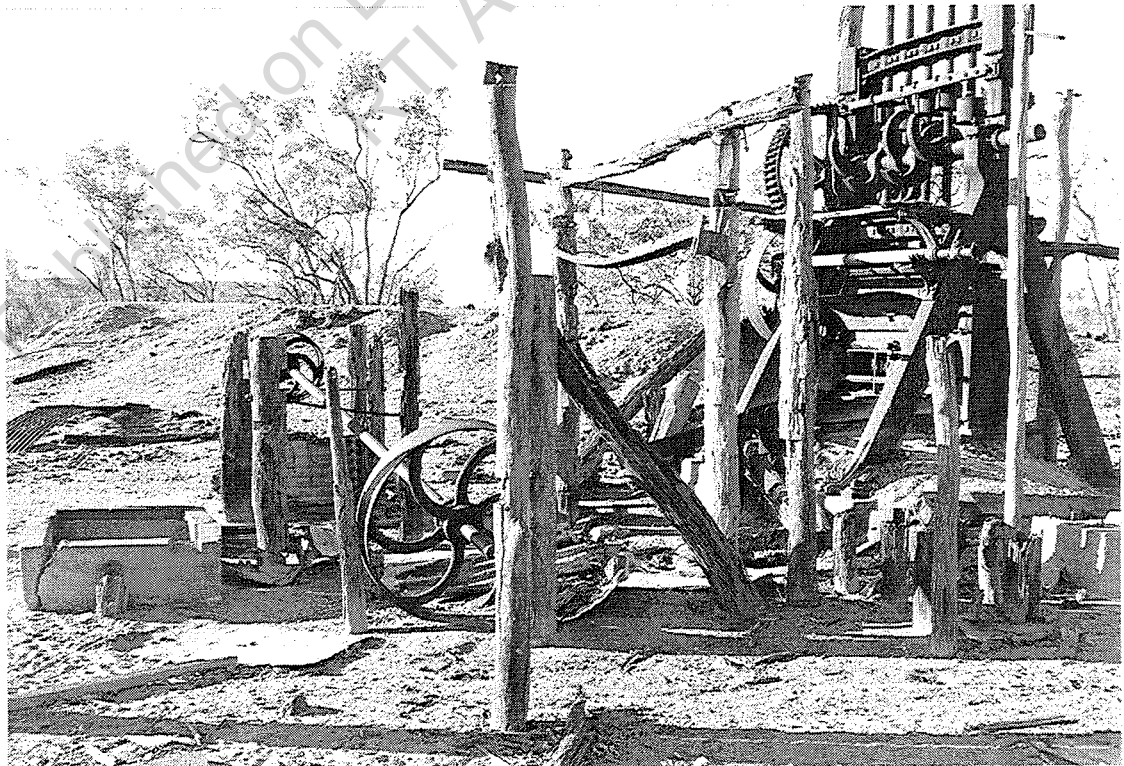
Five head stamp battery. Looking E.



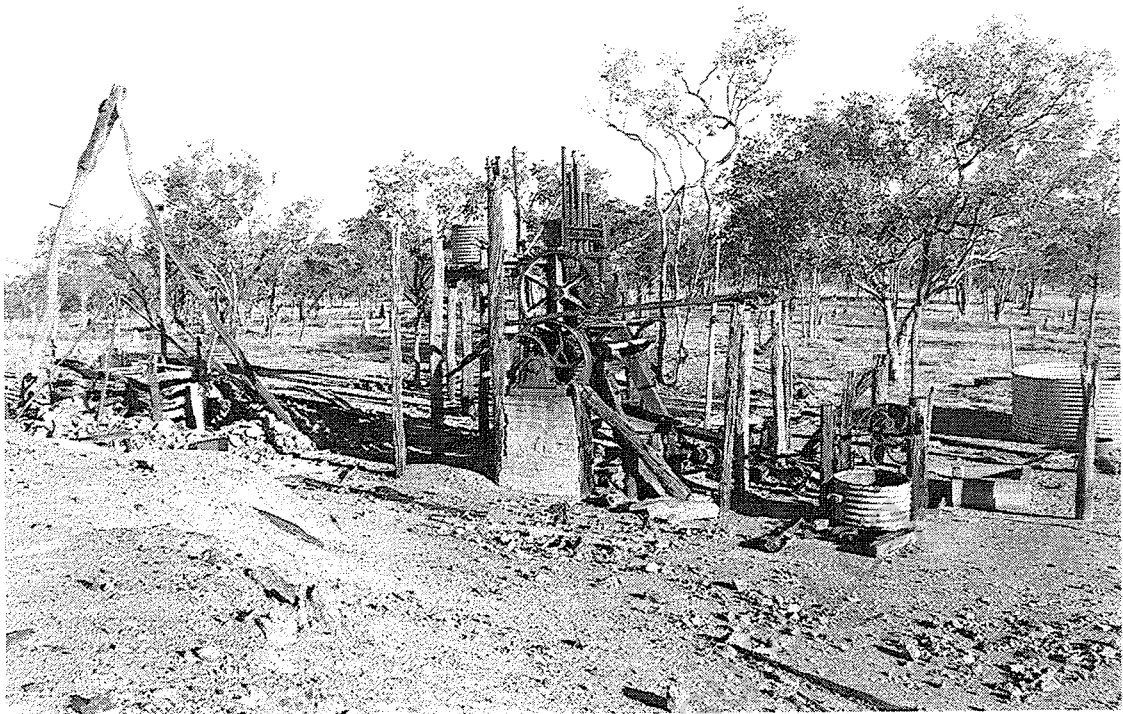
Battery, looking SE. Mine shaft and timber hoist in the background (left).



Aspasia Battery. Looking NE.



Battery and belt wheel supports. Looking N towards the open stopes.

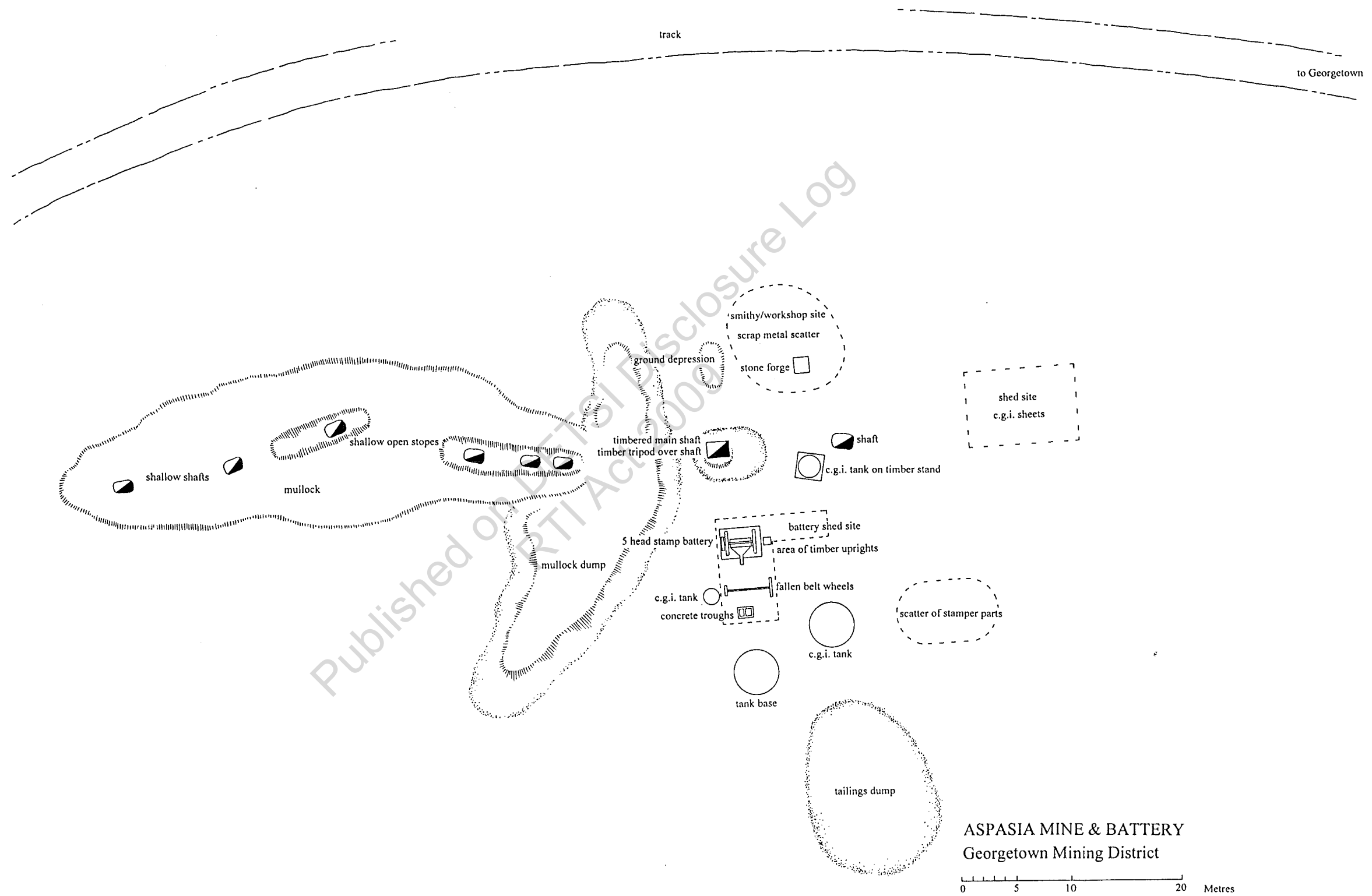
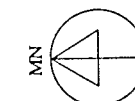


Showing the closeness of the battery (centre) to the mine shaft (left). Looking SE.



Battery shaft showing bush timber 'whip' hoist.





Queensland Mining Heritage Places Study
H Pearce 1994

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: BLACK MOUNTAIN BATTERY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Belmore Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 288912

Latitude: 18.09.54 S (by GPS)

Longitude: 142.13.04 E (by GPS)

Land Tenure: Town Reserve

Mineral Lease:

Location and Access:

Located 5 km north-west of Croydon off the Gulf Development Road. Access by a track northward through a road metal quarry on the western side of Belmore Creek.

Heritage Boundaries:

Heritage boundaries were not defined for this place but would encompass the battery site and grinding pan.

HISTORY OF PLACE

The origin of this battery on the southern slopes of Black Mountain and on the west side of Belmore Creek, opposite the Enterprise battery, is unknown. It is not shown on Rands 1896 map of the Croydon Goldfield. It is likely to be the remains of an early battery.

Wegner refers to the removal of 5 head of stamps, which formed part of a 10 head battery known as the Black Mountain mill at Golden Gate, for re-erection by tributers at the King of Wallabadah No.1 North Extended mine at Golden Valley in 1913. (Wegner, n.d.).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Earthwork

Structural Components:

Mill/Battery Foundations

Description of Place:

The place contains parts of a ten head stamp battery including a five stamp mortar box on bolt stays. A pit for another five stamp mortar box is situated alongside. The foundations for the mortar boxes are no longer present and may have been bed logs. A grinding pan is located near the mortar box but not insitu. The surrounding area has undergone past disturbance and no other battery foundations or plant are evident. An extensive road metal crushing plant and stone stockpiles are located adjacent to the battery on the south-west.

Plant:

- Five head mortar box - no brand.
- Grinding pan (not insitu) - no brand.

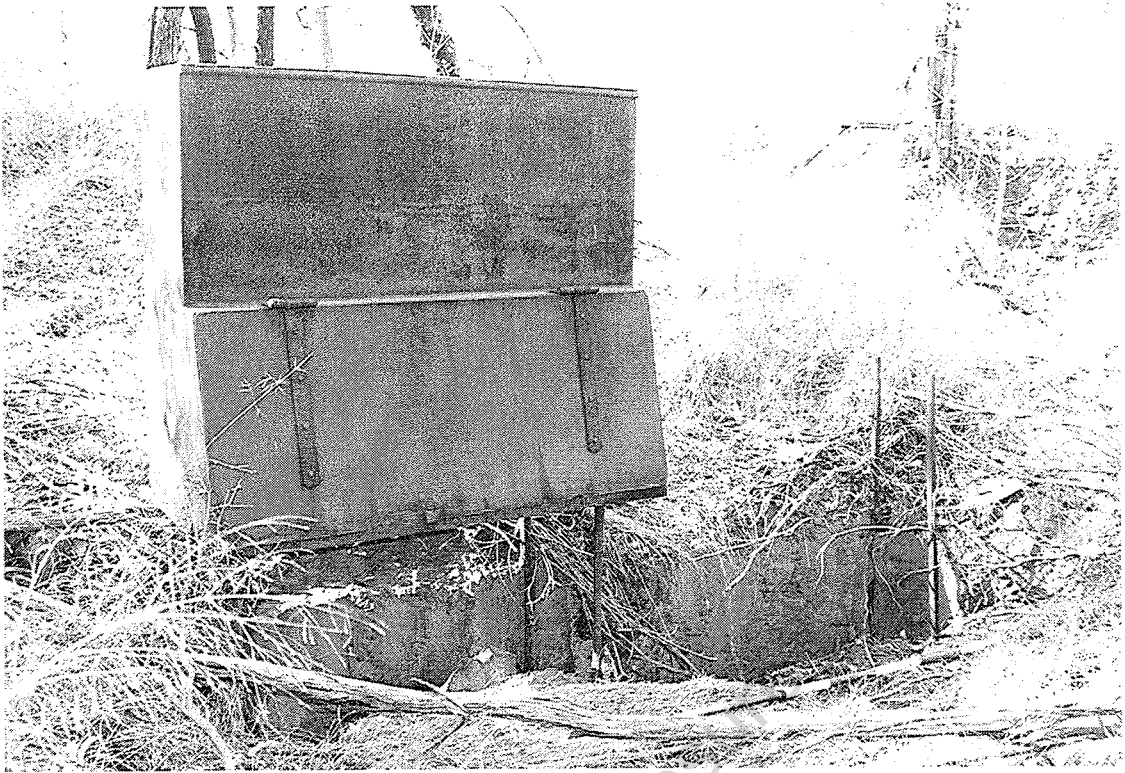
STATEMENT OF SIGNIFICANCE

There appears to be little recorded history of this battery at the foot of Black Mountain in contrast to the nearby Enterprise battery on the opposite side of Belmore Creek. Five head of stamps were relocated to Golden Valley in 1913 leaving five remaining. These are no longer intact.

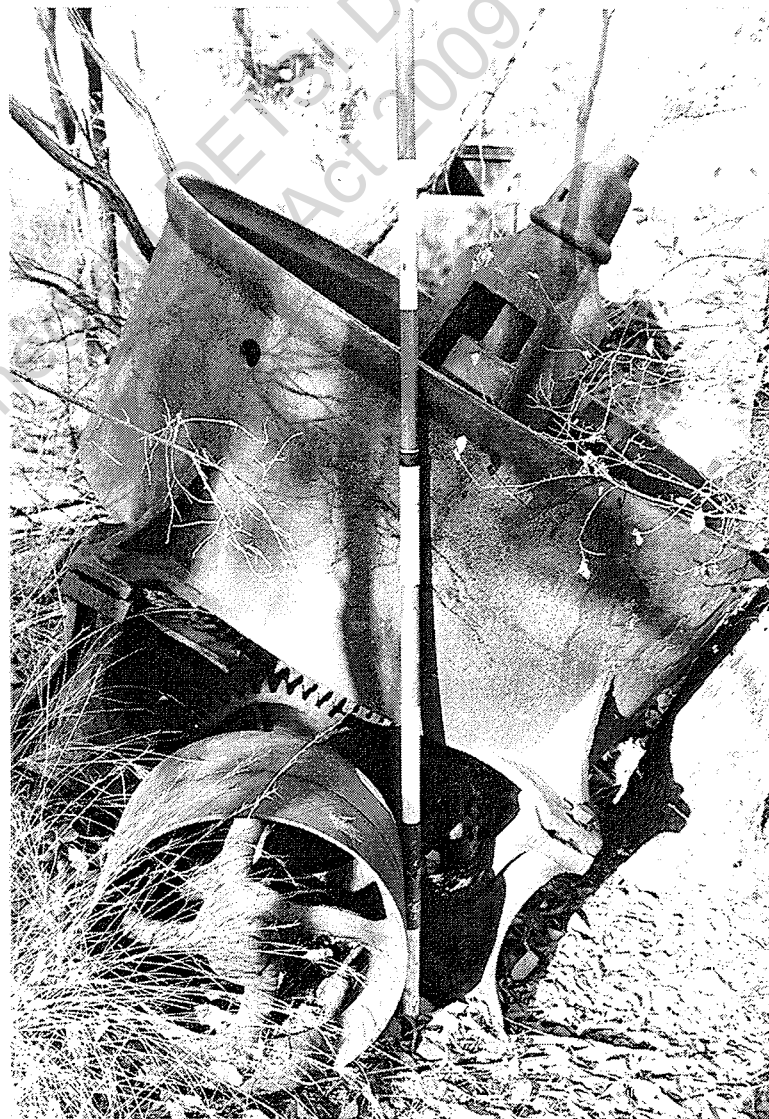
The place satisfies criterion (a) of the *Queensland Heritage Act 1992*.

REFERENCES

- Wegner, Janice (no date). *Report to the Croydon Shire Council on the King of Wallabadah mine and mill site.*



Ten head stamp battery pit with five head mortar box insitu.



Grinding pan (n/i).



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: CASTLETON BATTERY, TOWNSHIP & BIG REEF MINE

Other Names: CASTLETON BIG REEF MILL

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Woolpack Creek

Local Government Area: Etheridge Shire

Map Sheet: Forsayth 7660. 1:100,000. AMG 759375

Latitude: 18.38.06 S (by GPS)

Longitude: 143.36.56 E (by GPS)

Land Tenure: Town Reserve/Flattop Holding OL 195

Exploration Permit (M): EPM 8751 Union Mining NL

Mineral Lease: ML 3278, ML 3279 ? ML 3280 ? Union Mining NL

Location and Access:

Located 5 km south of Forsayth on the southern side of the Goldsmith Creek road and on the western bank of Woolpack Creek

Heritage Boundaries:

Northern: Forsayth - Goldsmith Creek road.

Southern: East-west line passing through a point 50 metres south of the weir spillway.

Eastern: North-south line passing through a point 100 metres east of the centre of Woolpack Creek at the weir.

Western: North-south line passing through a point 200 metres east of the battery foundations.

HISTORY OF PLACE

Following Richard Daintree's 1869 report there was a gold rush to the Gilbert River, then reefs around Georgetown were discovered in 1870 and around Charleston (Forsayth) in 1871. The Etheridge Goldfield was proclaimed in 1872.

The Big Reef workings extended from Woolpack Creek at the head of Delaney River for a kilometre west and are one of the largest groups of workings in the Forsyth district. (de Havelland, 1989:304).

A town was surveyed for the Mines Department in August 1890 to serve the Big Reef mine as there was a population of 80 by 1888. Initially the settlement was known as O'Donaghues but was renamed Castleton after the nearby prominent and massive castle-shaped rock which incorporated the main reef. In the 1890s there were three hotels, two stores, butchers, bakery, Young Gong's market garden and a postal receiving office which operated from 1888 until 1914. The peak population was 129 in 1894 (Hooper, 1993:45).

In 1890 the Big Reef Gold Mining Company had winding and crushing machinery including a small five head stamp mill fully employed crushing. A 10 head battery was imported and installed mid year, along with a 9m deep dam. In 1891 the company had a capital of £180,000 and spent large sums on surface works: 15 head of stamps, concentrators, wheeler pans and berdans. The mine was 56m deep. (Kerr, 1992).

In 1892 the Big Reef Gold Mining Company Limited changed management at the mine. Over 6,000 ozs of gold were produced during the year, but the dam which had a limited supply never filled. The ore was very refractory and in 1893 the manager erected a small roasting furnace and tried several lots of tailings, but there is no further record of this working. (Hooper, *ibid*). Heavy mundic stone in the levels below 30m led to abandonment of mining in some shafts, but a short inclined adit from the east of the reef was known as the Tunnel mine and worked productively with the Big Reef from 1878 to 1893.

In 1893 the Big Reef Gold Mining Company went into liquidation. Extravagant management by English companies was cited as a cause. After the collapse of company mining, many miners drifted to Croydon or to Charters Towers where the discovery of the Brilliant lodes ushered in a new era of prosperity. Those who remained on the Etheridge field acquired properties and machinery at extremely low prices. Carl Karius purchased the Big Reef and its machinery for £3,000 (the lease alone had originally cost the Big Reef Company £40,000) and was able to recover £3,600 worth of gold from the battery plates by November 1895. (Wegner, 1980:98-9).

Carl Karius had two 50hp steam engines, a stonebreaker, 15 head of stamps, 6 Berdan pans, 24 Wheeler pans, one settler and three Brown and Stanfield concentrators at Big Reef in 1897 valued at £10,000. In 1898 the crushing yielded 1.5 oz of gold for 1.6 tons (Kerr, 1992) but the mine only produced ore sporadically until 1910, when it was purchased by the Chillagoe Mining Company along with a group of other Charleston mines.

The Chillagoe Company does not appear to have carried out any work on the property. In 1915 the mine was closed down, but the battery crushed odd parcels of ore for neighbouring mines. (Q.G.M.J., 15 Feb 1915:54). Between 1917 and 1923 treatment of the main dumps produced further gold and in 1933 Forsayth Gold Mines N.L. reopened the main shaft and adit in the Tunnel Mine but did not go into production. Total recorded production was 26,912 ozs of bullion gold from 25,470 tons of ore. A further 830 ozs of gold and 1,033 ozs of silver was derived from 904 tons of ore and concentrates (de Havelland, 1989:304).

The Big Reef dam on Woolpack Creek remains today as Forsayth's water supply.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Brick

Structural Components:

Mullock Dump

Boiler Foundations/Mount

Mill/Battery Foundations

Weir/Dam Wall

Open Cut Pit

Mine Shaft/Adit

Mining Settlement/Camp

Description of Place:

The place comprises the Big Reef mine workings, Castleton battery foundations, Castleton township site and a dam. The mine workings include the Battery Shaft and a series of open cuts extending south to the battery along the strike of the Big Reef. Mullock dumps extend along the line of reef. A tramway embankment runs from the shaft and open cut to the battery site. All that remains of the battery are brick foundations and engine mounts, and the iron base of a colonial boiler. Nearby are two iron bands which may have been the frame of a raff wheel, and brick foundations which may have been a boiler mounting. Floor surfaces, stumps and artefacts associated with Castleton township are located about 100 metres north of the battery. The largest structural site immediately north of the battery appears to have been a hotel. An inground tank survives. The dam contains an eroded spillway of stone construction with concrete render.

Plant:

- Colonial boiler (base only) - no brand.

STATEMENT OF SIGNIFICANCE

The Castleton Battery, township site and Big Reef Mine are significant in Queensland's history in demonstrating the development of reef mining with English investment on the Etheridge goldfield in the 1880s-90s.

Red brick foundations and engine mounts are unusual, although they occur elsewhere on the Etheridge goldfield at Cumberland.

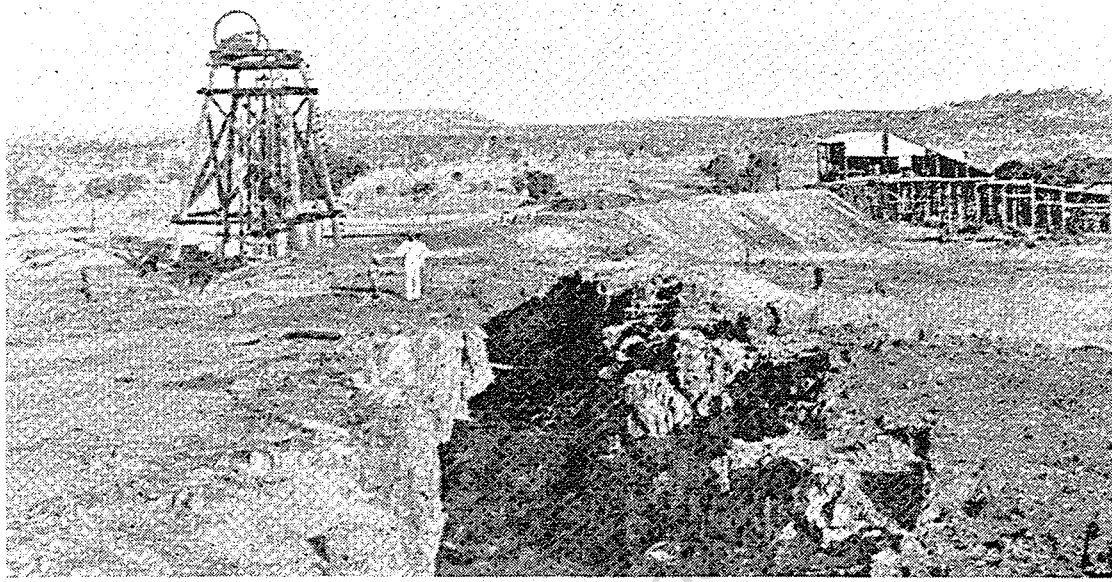
The combination of reef workings, battery, township and dam is unusual, but the surviving surface evidence is minimal. (The presence of the railway at Forsyth may have enabled plant and buildings to be railed out for reuse elsewhere).

The association of this mine with the Chillagoe Company when the latter was acquiring ore reserves to feed its smelters is noteworthy.

The place satisfies criteria (a), (b) and (h) of the *Queensland Heritage Act 1992*.

REFERENCES

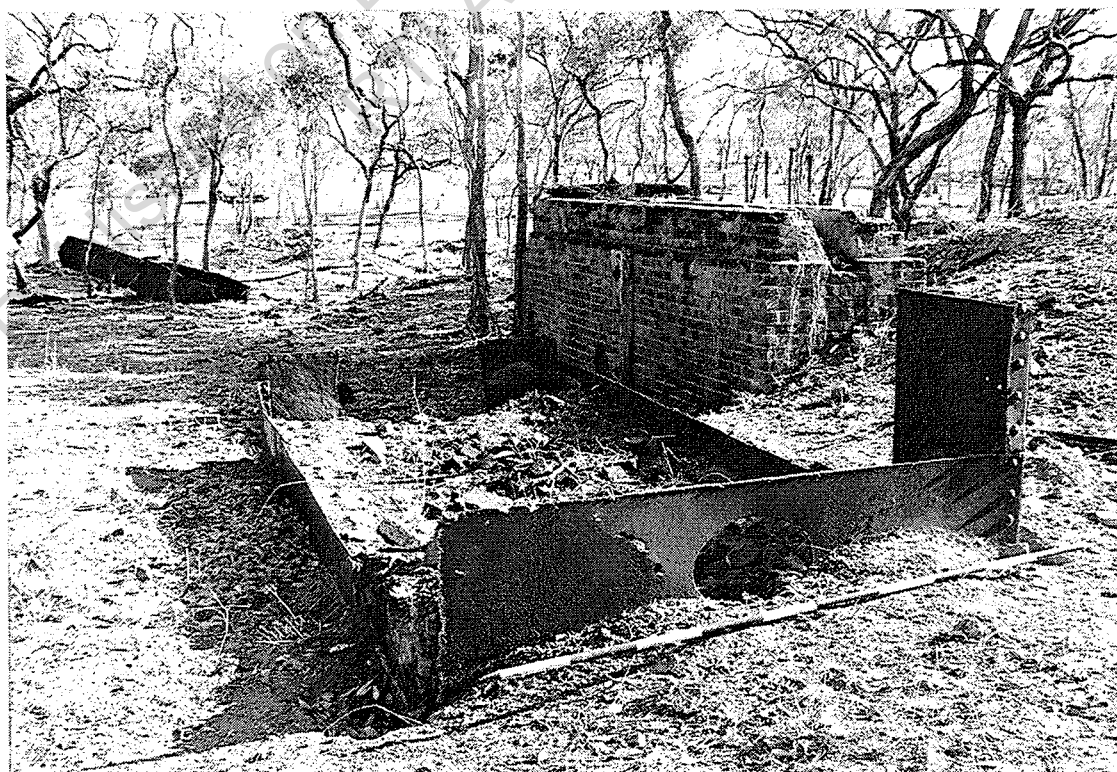
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 304
- Hooper, Colin. 1993. *Angor to Zillmanton*, p. 45
- Kerr, Ruth S. 1992. *Queensland Historical Mining Sites Study*, Vol. 3.
- Queensland Government Mining Journal*, 15 February 1915, p. 54.
- Wegner, Janice. 1980. *Gold Mining on the Etheridge*, in *Readings in North Queensland Mining History*, Vol. 1, pp. 98-9.



BIG REEF.

Castleton Big Reef workings (foreground) with the battery shaft and headframe (left) and Castleton battery (right).

Q.G.M.J. 15 February 1915, p.54.



Castleton battery site, showing a colonial boiler mount and brick engine mount.



Castleton battery, with boiler and engine house brick mounts in background.

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: CONTENT MINE

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Belmore Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 291903

Latitude: 18.10.21 S (by GPS)

Longitude: 142.13.09 E (by GPS)

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 5248 ? Pancontinental Mining Ltd

Location and Access:

Located 4 km north-west of Croydon on the southern side of the Gulf Development Road.

Heritage Boundaries:

Northern: A line at right-angles to the current (1994) Gulf Development Road passing through a point 50 metres north of the winding engine foundations.

Southern: Track about 50 metres south of the mine connecting the current and former highways.

Eastern: Current (1994) Gulf Development Road.

Western: Former Gulf Development (Croydon - Normanton) Road.

HISTORY OF PLACE

The Content P.C. was opened in 1887 as part of the True Blue and Isabella complex of mines at Croydon and operated until the end of World War I. In its first year it produced 30 tons of quartz yielding 27 ozs of gold. It was a privately owned mine throughout its life and public companies never invested in it. The first equipment installed at the mine was a 12 horsepower steam engine imported in 1891 at a value of £500. With the onslaught of the depression in 1892 the Isabella

and the Content were employing 150 men, but in that year the Content only produced 206 ozs of gold. Along with the True Blue and Isabella the Content had pumping machinery and these were known as the premier mines on the field in 1893. For the rest of the decade the Content produced an ounce of gold per ton of stone crushed. The most profitable years were 1894 with 897, 344 ozs in 1895 and 256 ozs in 1896. Production was spare until 1900 and 1901 when 288 and 511 ozs were produced. Mr. F.W.Cuthbert was the proprietor of the main mine, and by constantly pumping, produced profits and expanded. (Kerr, 1992,3).

In September 1900, Cuthbert applied for a new lease of the Content (also called Content Block mine) and commenced sinking a shaft striking the reef at 85m. He then spent over £10,000 on equipment and development work before he received any returns. If the Content had been owned by a company it would have been abandoned, but Cuthbert believed in its potential and was ultimately rewarded. (Q.G.M.J., 15 Aug 1912:369).

Substantial poppet legs and a winding engine were erected in 1903 on the frontage line and the two shafts were being worked together. They produced 1,252 ozs of gold from 1,306 tons of stone. The mine produced well in 1904 and 1905 yielding 5,571 ozs at under £2 per ozs from 2,206 tons of stone and 3,253 ozs respectively. However, like every Croydon mine 1906 was a disappointing year for the Content. Heavy development work was underway. £4,418 was made in profit from 2,246 ozs in 1907 and the tailings were stacked ready for treatment. By 1908 it was the most productive mine on the Croydon field producing 2,770 tons of stone yielding 7,203 ozs of gold valued at £10,625. It held its own through 1909 with a profit of £6,091 from 3,465 ozs of gold. Extensive development work was done in 1910 to follow the reef and it was the highest producer on the field with 3,031 ozs from 2,707 tons of stone. By 1912 the Content was producing one third of the total gold production on the Croydon goldfield. It also employed the largest number of miners of any mine on the field - 32. An air compressor was purchased from Charters Towers in 1912 together with a 40HP Babcock boiler from the Federation mine for a total of £3,000. (Kerr, 1992,3).

In 1912 the Mines Department stated that Cuthbert's foresight in developing the Content mine showed that capital, judiciously expended, would give good returns on the Croydon Goldfield because undoubtedly there were other lines of reef which would probably give the same results if worked on the same scale and method. (Q.G.M.J., 15 Aug 1912:369).

The Content was earning Cuthbert, the owner, a considerable income in those years with £8,416 from 5,238 ozs in 1911 and £12,110 from 7,296 ozs in 1912. From then on water was a problem and the faces of the stopes were unpromising. Cuthbert sought to reopen Waram's shaft in 1914 which had been discontinued 20 years before. Production was all inferior stone and eventually Cuthbert gave up the struggle closing the mine on 24 January 1918 after a continuous run of over 16 years. The final crushing was of 231 tons of stone which yielded 1,058 ozs of gold

valued at £1,843. The Content was the last productive mine on the Croydon field. (Kerr, 1992,3).

Officially, the Content reef yielded 65,130 ozs of gold from 35,521 tons of ore between 1886-1911 and 1912-18 and most of this derived from Cuthbert's Content Block mine. However, the bullion gold yield is quite deceiving as Mr. Reid pointed out in 1936 that from the 60,235 ozs of bullion gold, only 23,822 ozs of fine gold was derived and the balance was almost all silver.(de Havelland, 1989:431).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Bush Timber

Structural Components:

Power Plant Foundations

Winding Engine Foundations/Mount

Boiler Foundations/Mount

Metal Water Tank

Constructed Tank/Pond

Mine Shaft/Adit

Description of Place:

Most of the plant has been removed from the place and the area, which is located immediately alongside the Gulf Development Road, has been subjected to considerable disturbance. The two compartment timbered main shaft has partly caved at the surface. A group of concrete and bed log machinery mounts are aligned with the shaft including foundations for a winding engine and an air compressor. A twin cylinder portable steam engine and the remains of a stone mount for a Cornish boiler are similarly aligned. A section of a lightweight iron beam pump arm is located on the place. An above-ground concrete tank contains evidence of cooling tower footings.

Plant:

- Two cylinder portable steam engine - no brand.
- Beam pump arm (not insitu).

STATEMENT OF SIGNIFICANCE

The Content Mine at Croydon is significant in Queensland history as the longest operating mine on that field (1887-1918). It is unusual in that it was privately owned and developed and was a constant source of employment for at least 20 men at any one time.

The site has been much disturbed in recent times and stone boiler mounts, concrete engine footings and a portable steam engine are the only evidence of F.W. Cuthbert's capital investment in the mine. The presence of the iron beam pump arm may be indicative of water problems in the mine, although there is no evidence of a pump bed at the collar of the surviving shaft.

The place satisfies criteria (a) (b) and (f) of the *Queensland Heritage Act 1992*.

REFERENCES

- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 431.
- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.
- Queensland Government Mining Journal*, 15 August 1912, p. 369.



Content Block mine, June 1912.
Q.G.M.J. 15 August 1912, p.399.



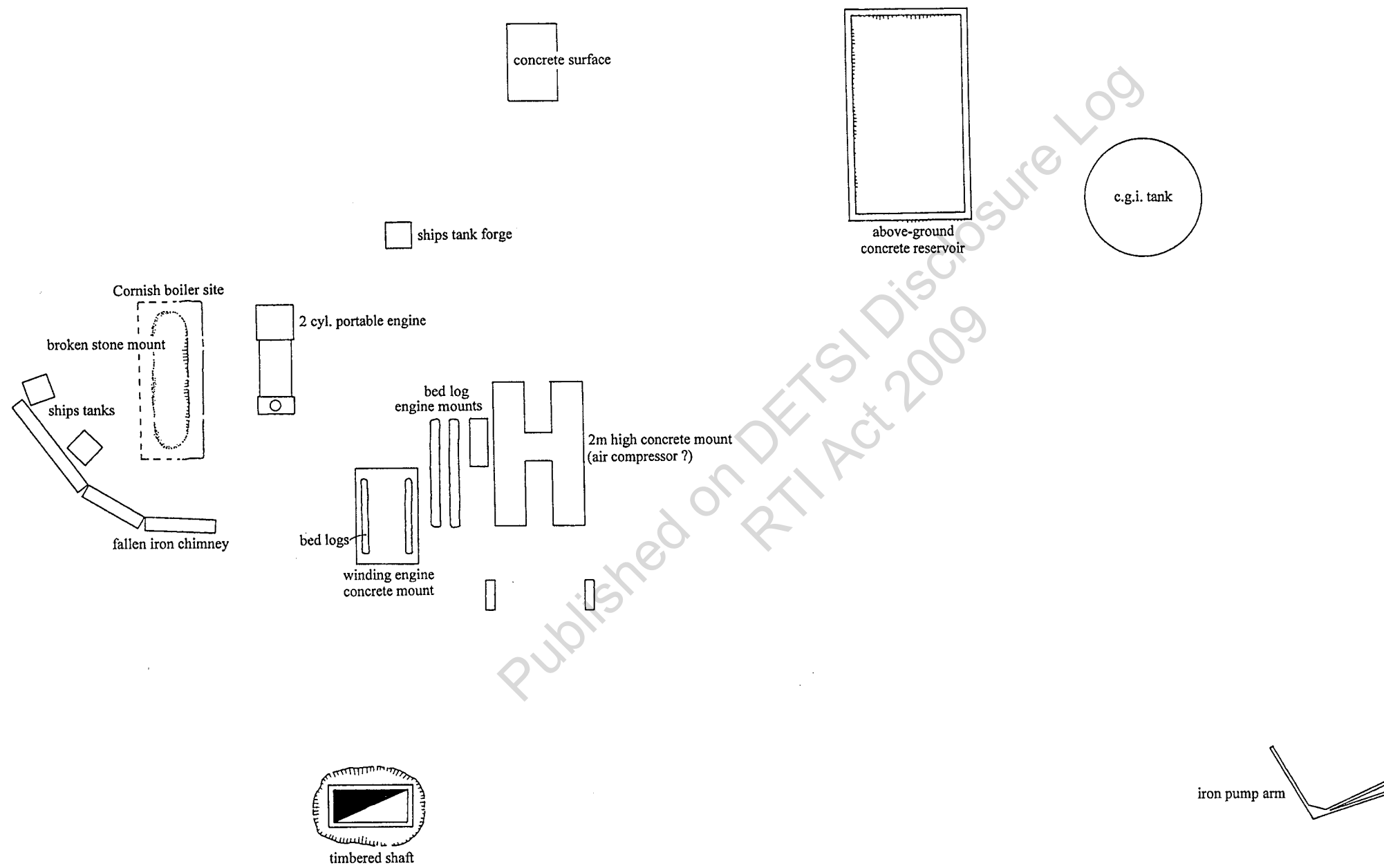
Cornish boiler stone mount in the foreground
with a 2 cyl. portable engine behind.
Looking SE.



Portable engine with winding engine mounts behind and Cornish boiler mount on left. Looking S.



2m high concrete mount (air compressor ?), with portable engine in background. Looking NW.



CONTENT MINE
Georgetown Mining District

0 5 10 Metres



Queensland Mining Heritage Places Study
H Pearce 1994

R

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: CROYDON STATE MINE

Other Names: IGUANA CONSOLS MINE

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Stockyard Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 315878

Latitude: 18.11.41 S (by GPS)

Longitude: 142.14.39 E (by GPS)

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 5248 ? Pancontinental Mining Ltd

Location and Access:

Located 1 km north of Croydon on the northern side of the Gulf Development Road.

Heritage Boundaries:

Northern: Fenceline about 200 metres north-west of the mine shaft.

Southern: A line parallel with the northern boundary fenceline 200 metres south of the mine shaft.

Eastern: Fenceline about 100 metres north-east of the mine shaft.

Western: A line parallel with the eastern boundary fenceline 100 metres south of the mine shaft.

HISTORY OF PLACE

The first reefs discovered on the Croydon Goldfield were the Iguana, True Blue and Lady Mary in October 1885. (De Havelland, 1989:419). The Iguana and Lady Mary lodes were part of the same ore body which contained numerous exceptionally rich shoots. Officially, the Iguana mine produced 44,436 tons of ore

between 1886 and 1911, in 1923, and again in 1940 for a yield of 89,469 ozs of gold. (De Havelland, 1989:421-2).

In the first year the Croydon Goldfield produced 2,144 ozs of gold from 463 tons of quartz. More stone could have been crushed but it had to be carted to the Cumberland battery near Georgetown. In December 1886, two batteries commenced crushing at Croydon. The "Invincible", owned by the Croydon Quartz Crushing Company Limited, crushed stone from the Iguana and six other reefs. From May to December 1887 Croydon boomed with a population of 6,500, making it the second largest inland town in Queensland, after Charters Towers. (Kerr, 1992).

In 1886 the "Invincible" battery was a 15 head stamp battery with a 20h.p. stationary engine. Boiler problems forced crushing to be postponed for six months in 1887 and in 1888 the company expanded the battery substantially. A constant water supply from pumping out the shafts enabled year round crushing. In 1890 another 5 head of stamps was added as well as two more berdan pans and two more wheeler pans. In 1893 the company started cyanide treatment of tailings.

The Iguana reef was worked by three companies by 1891 and up to 1897 the reef produced 79,929 ozs of gold, when it was lost in a fault. None of the mines on the Iguana reef were more than 91m deep. The discovery of rich ore in the Ophir again in 1896 on the top side of the Iguana fault resuscitated Iguana Hill. By 1899 only the Iguana Hill 2 West Block was working producing 1,340 ozs of gold from 713 tons of stone. In 1904 only 15 tons of stone was treated. (Kerr, 1992).

The cutting out of such a rich reef as the Iguana created a sensation and many theories were put forward to account for the break in the reef. William Rands, Assistant Government Geologist, suggested that it would be relocated under the intrusive granite bar. Shafts were sunk to test this theory but were unsuccessful. (Q.G.M.J., 15 Nov. 1901:510-11). In August 1901 a diamond drill hole was put down 220m in search of the reef. (Q.G.M.J., 15 Aug 1901:348).

In 1916 Iguana Consols Limited., a company with government assistance and Mr. F.W. Cuthbert as managing director had a scheme for testing the deep ground. The mine was re-equipped for day and night work, and resumed working double shifts. (Q.G.M.J., 15 Aug, 1917:391). As the ground was very hard at 55m, jackhammers were introduced in 1917. The drilling program stopped in 1918 at 101m.

Expensive drilling equipment was purchased in 1923 but there was insufficient capital to permit the drilling to go beyond the 370m level suggested by Rand. The State Government subsidized the diamond drilling and the Iguana was called a State mine. (Kerr, 1992).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Structural Components:

Mullock Dump

Metal Water Tank

Headframe Foundations

Constructed Tank/Pond

Mine Shaft/Adit

Boiler/Furnace Flue

Metal Chimney (standing)

Winding Engine Foundations/Mount

Boiler Foundations/Mount

Description of Place:

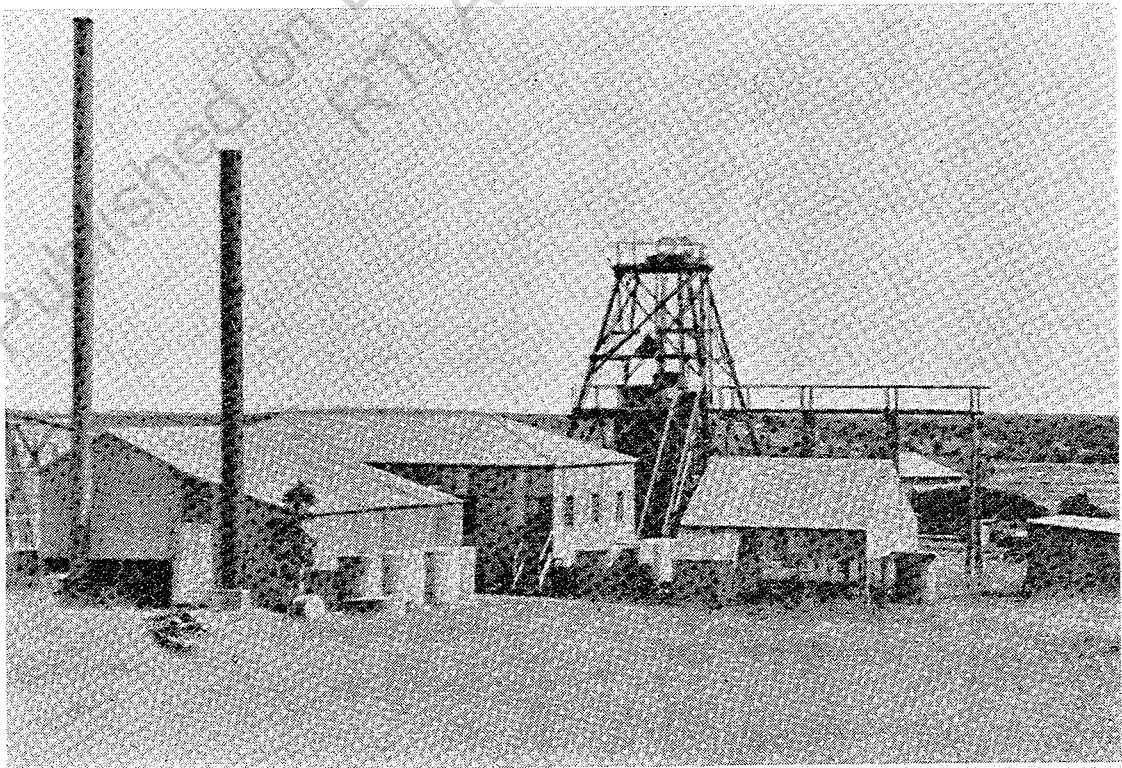
The place is centred on a large main shaft with a raised concrete collar. Four concrete headframe foundations and a mullock dump are located around the shaft. Two headframe sheave wheels have been dumped into the shaft. The concrete foundations and engine mounts containing the winding plant are aligned with the shaft. The two major items of plant that have survived, are in comparatively intact condition and comprise a two drum steam winding engine and a steam air compressor. Both are mounted on substantial 2 metre high concrete foundations. The boiler house site north of the winding shed contains a Cornish boiler and a standing iron chimney about 16 metres in height, stayed by three guy wires. The boiler sits on the remains of a brick mount, most of the brickwork having been removed. No evidence remains of the main Babcock boiler. Surface evidence of two large corrugated iron tanks occurs some distance west of the boiler.

Plant:

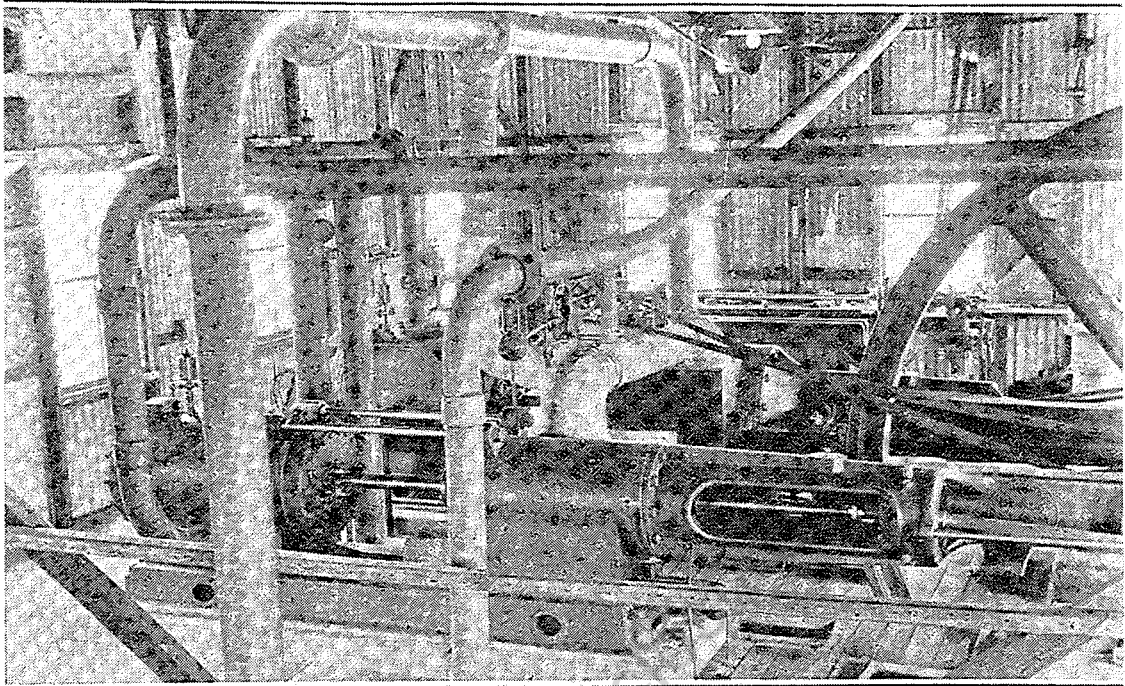
- Two cylinder, two drum, steam winding engine - John Donald Ltd. 42 Cadogan St. Glasgow.
 - Centre flywheel two cylinder tandem steam air compressor - Thompson & Co Engineers Castlemaine Victoria.
 - Cornish boiler - no brand.
 - One cylinder pump (part broken) - (?) - meter Eng Co Ld London.
- Firebricks - Campbell, Stourbridge.



Main shaft headframe and winding engine shed.
Looking E. Q.G.M.J. 15 August 1917, p.391.

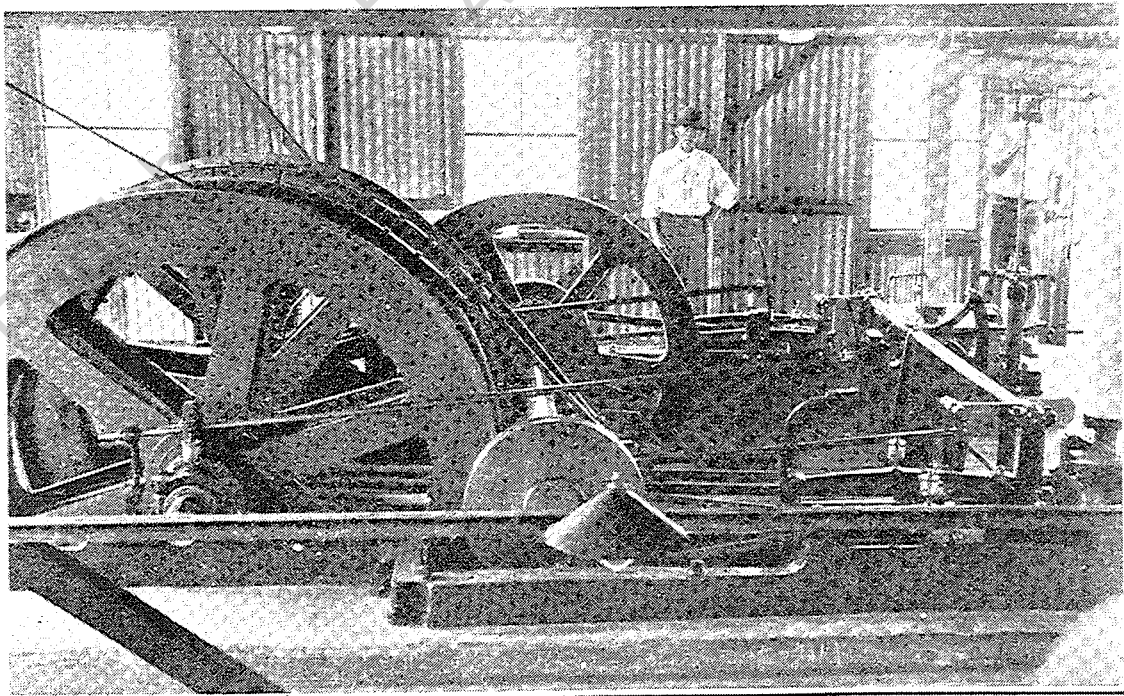


Boiler house and stack on left. Looking S.
Q.G.M.J. 15 August 1917, p.391.



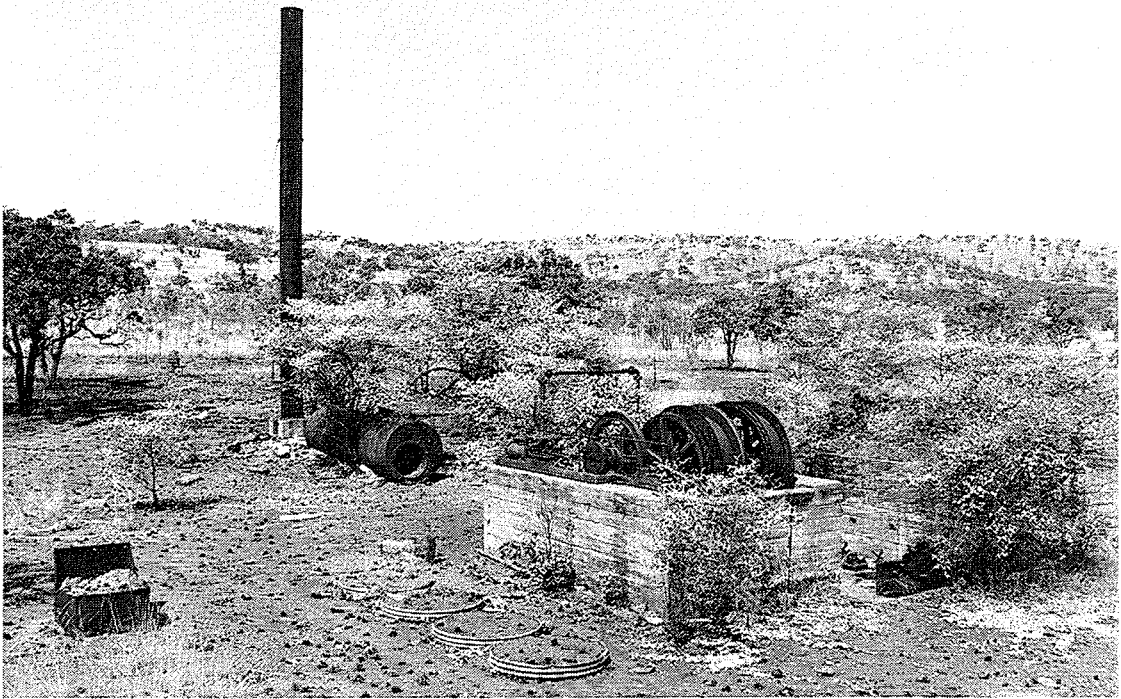
AIR-COMPRESSOR. IGUANA CONSOLS.

Thompson air compressor.
Q.G.M.J. 15 August 1917, p.391.



WINDING PLANT. IGUANA CONSOLS.

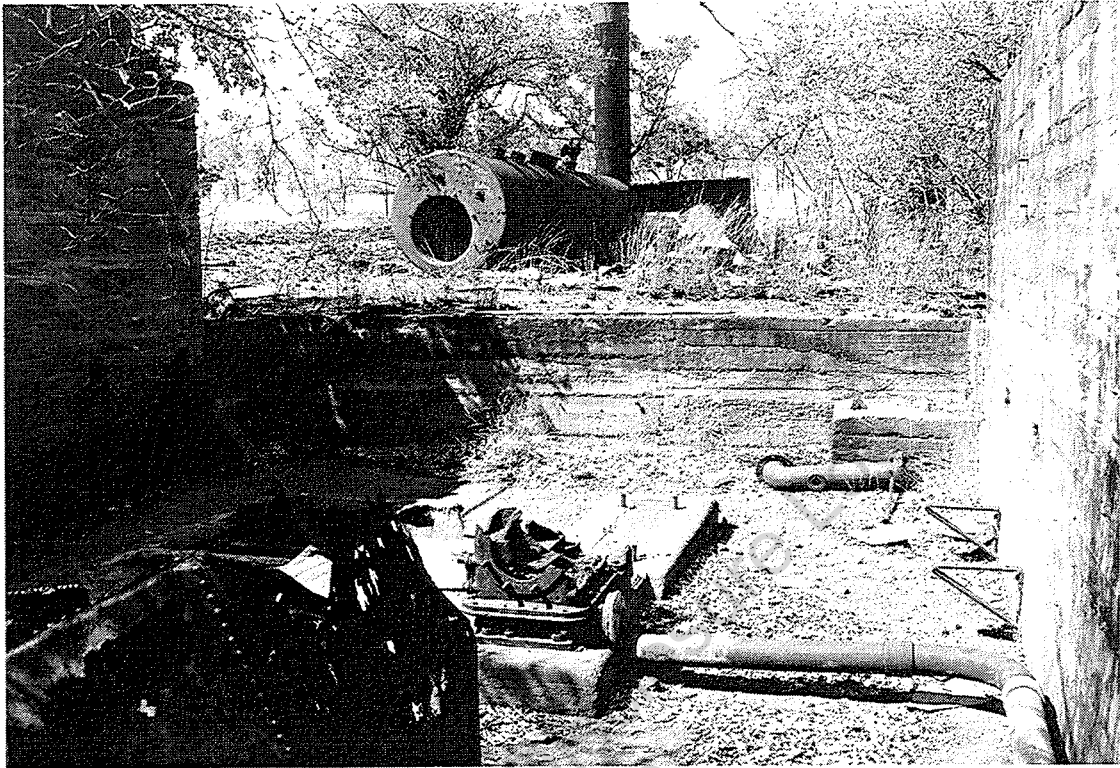
John Donald winding engine.
Q.G.M.J. 15 August 1917, p.391.



Cornish boiler and chimney stack base, looking S.



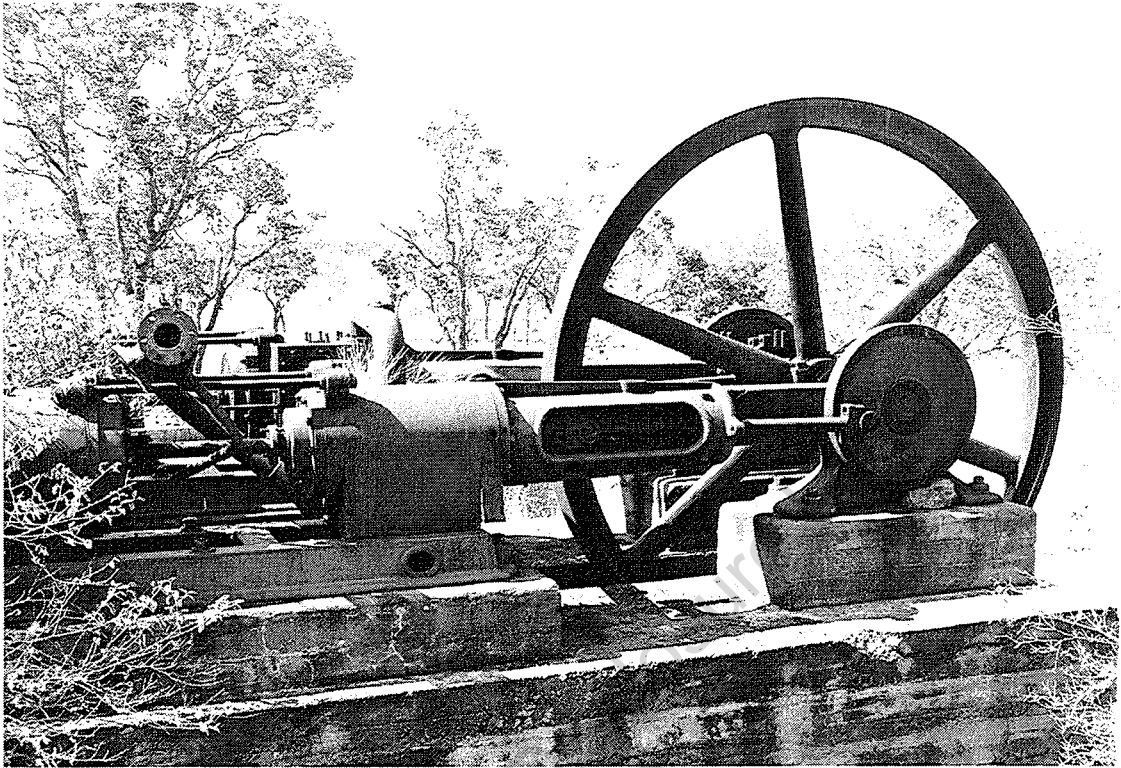
Winding engine plant (foreground), with Cornish boiler and stack. Looking E.



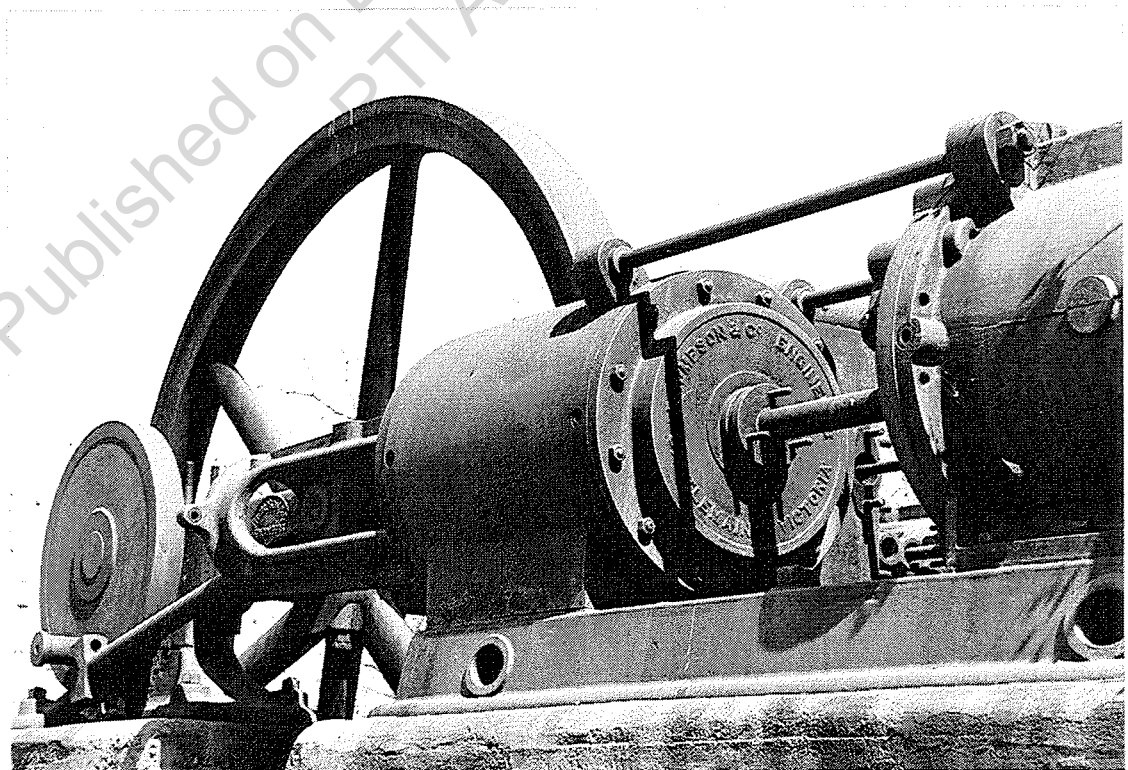
Winding engine shed site, concrete pit with Cornish boiler (background). Looking NE.



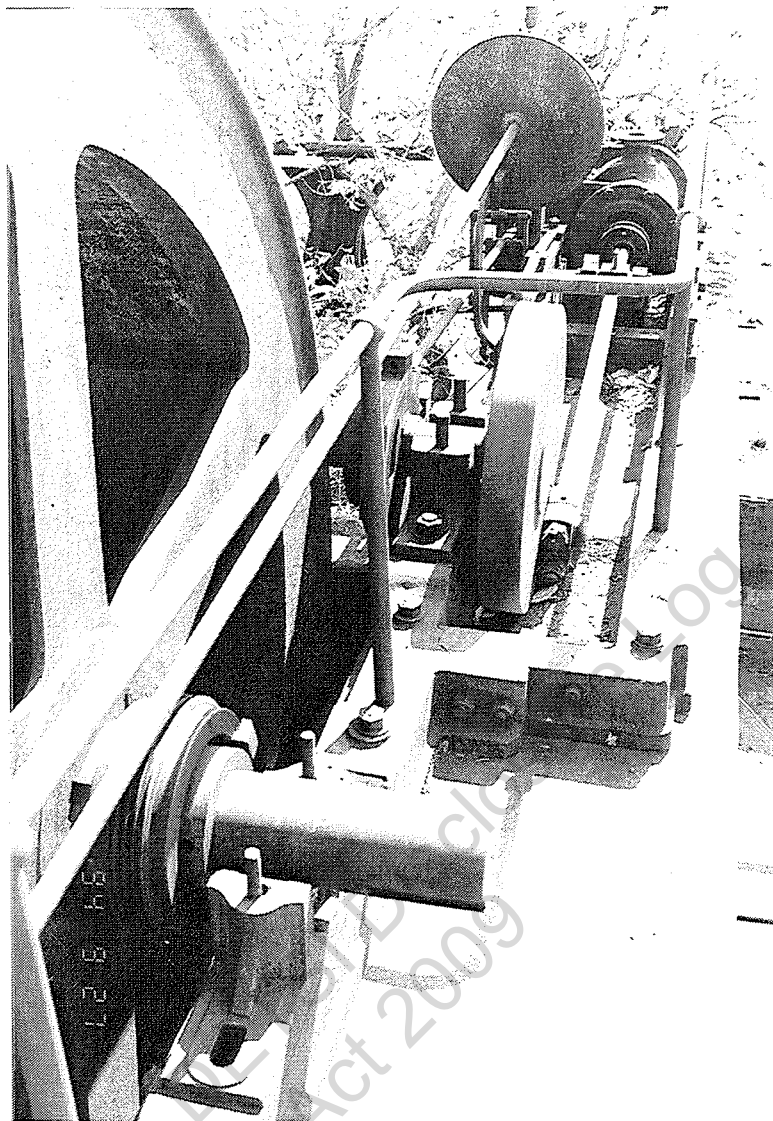
Thompson air compressor on 2m high concrete mount, looking NE.



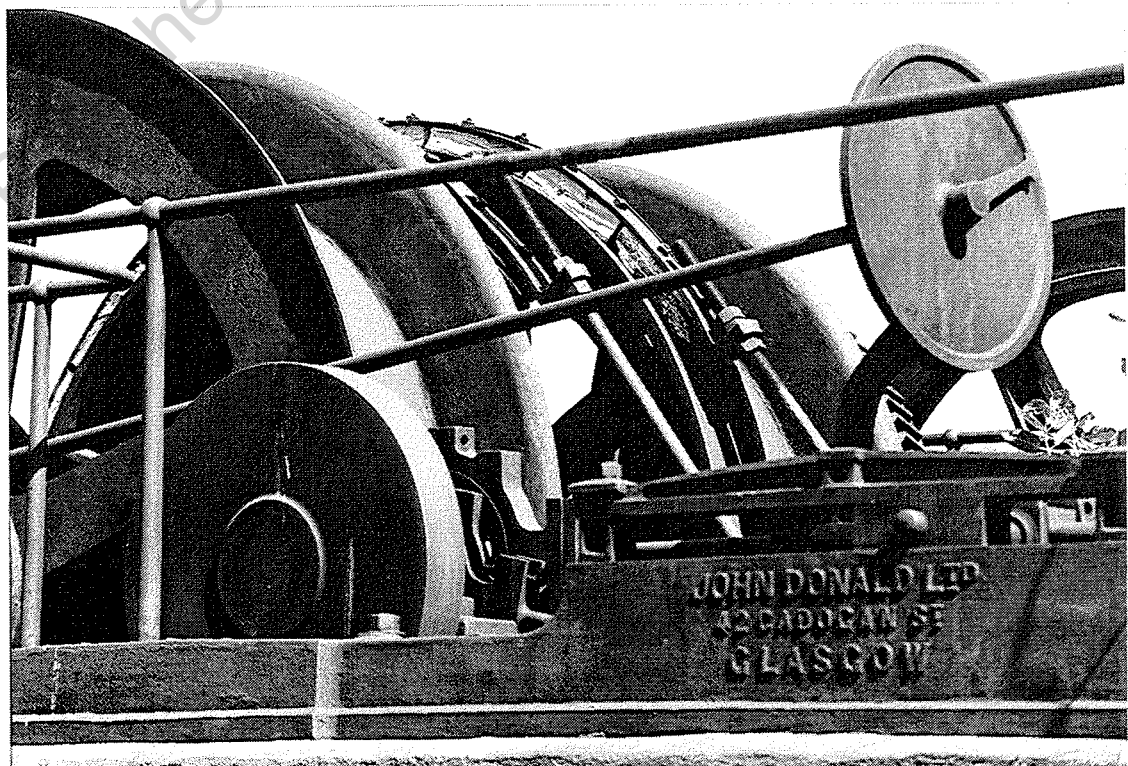
Thompson air compressor, looking SE.



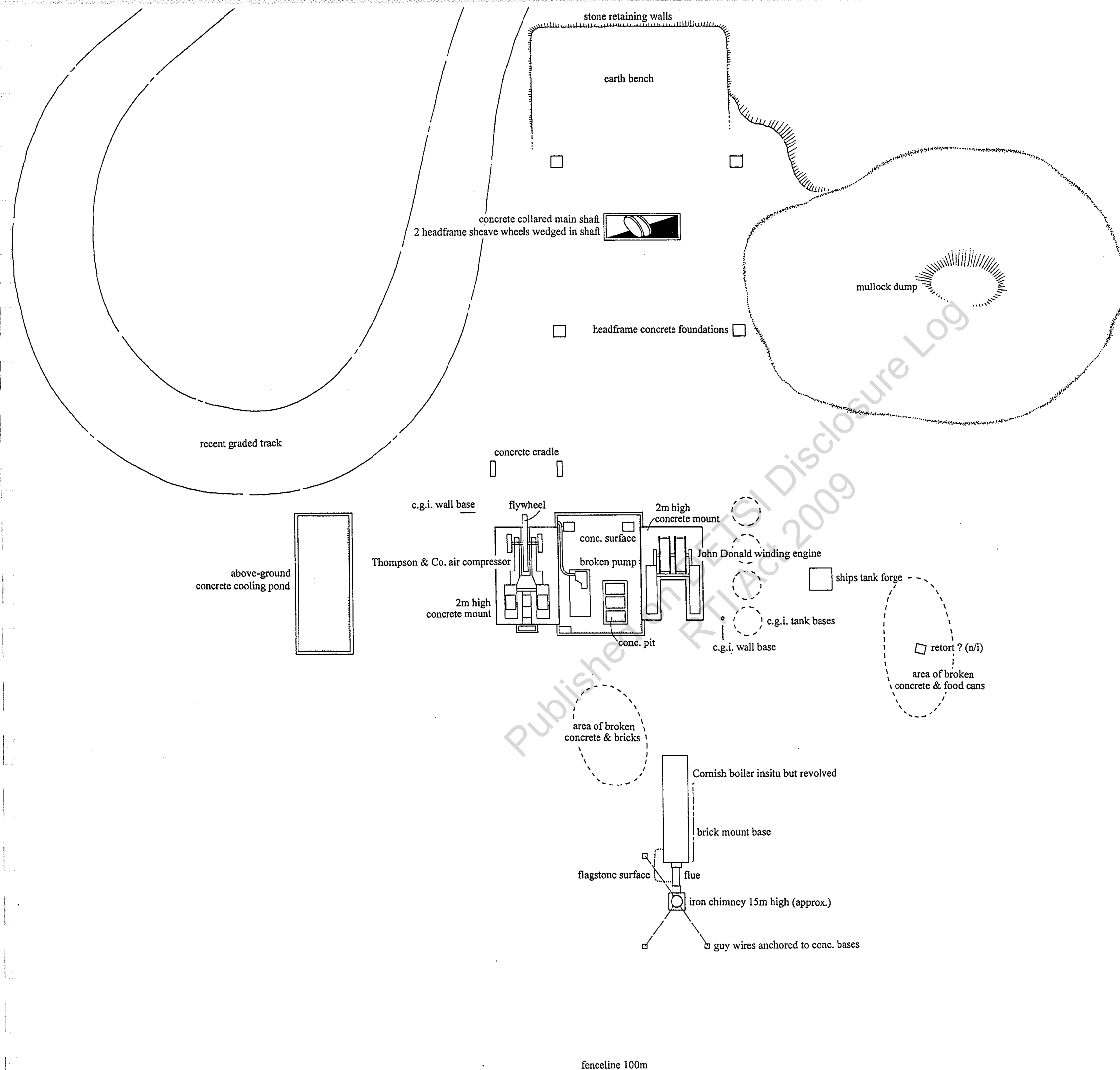
Thompson air compressor, looking W.



John Donald winding engine, looking NE.

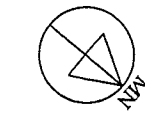


John Donald winding engine, looking W.



CROYDON STATE MINE
Georgetown Mining District

0 5 20 Metres



Queensland Mining Heritage Places Study
H Pearce 1994

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: CUMBERLAND BATTERY, CYANIDE WORKS & TRAMWAY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Cumberland Creek

Local Government Area: Etheridge Shire

Map Sheet: Forest Home 7561. 1:100,000. AMG 484748 - Chimney

Latitude: 18.18.06 S (by GPS) - Chimney

Longitude: 143.20.59 E (by GPS) - Chimney

Land Tenure: Cumberland Reserve

Exploration Permit (M): EPM 8271 Union Mining NL

Mineral Lease: ML 3331 Charles Edward Zimmerman

ML 3395 ? Sedimentary Holdings Ltd

Location and Access:

Located 21 km west of Georgetown on the Gulf Development Road.

Heritage Boundaries:

North: Gulf Development Road.

South: East-west line passing through a point 400 metres south of the chimney.

East: North-south line passing through a point 500 metres east of the chimney.

West: North-south line passing through a point 500 metres west of the chimney.

HISTORY OF PLACE

The Cumberland Reef, discovered by John Mitchell in the late 1870s, lies 21km west of Georgetown. On 18 December 1872 T. Parks, W.J. Smith, John Hardie and William Steele registered the Cumberland Prospecting Claim. Steele bought Smith's share after the 1874 crushing. When 160 tons of ore yielded a rich 556 ozs of gold in the first two months of 1875 despite losing 180 ozs of gold and amalgam in the floods, Cumberland gained its reputation as one of the best finds on the Etheridge. (Kerr, 1985:22).

The ore had to be carted long distances to the Riverstone battery at Gilbert River and cartage costs cut heavily into profits. In August 1877 Steele, Hardie and Hunt bought the Nil Desperandum battery at Forsayth, but left it on site there, possibly fearing the Cumberland riches might cut out. But in 1878, 1,860 ozs or a quarter of the Etheridge yield came from only 697 tons of Cumberland stone.

Patrick O'Brien became a partner in May 1878 and became the driving force of the enterprise. A £3,000 battery was ordered from Sydney but there was little profit in 1879 as 800 tons of stone was stacked awaiting commissioning of the battery. It was working by February 1880 and was well equipped with berdans, wheeler and wilson's pans to improve recovery, but after only a few days operation, the meagre water supply was exhausted and from February to December 1880 there was no crushing from the richest mine in the district.

The partners operating as O'Brien and Co. began work on an expensive dam on Cumberland Creek and, at the same time, converted their Prospecting Claim into a 3ha lease. The usual wet season filled the dam and with constant work in 1881, the battery crushed 2,790 tons of stone for a yield of 7,031 ozs of gold. The Cumberland shaft, down 67m by the end of 1881, was the deepest on the Etheridge and largely responsible for the yield of the whole field jumping from 8,821 ozs in 1880 to 20,926 in 1881. (Kerr, 1985:22).

The town of Cumberland was surveyed on 8 June 1882 by T.R. Geraghty to serve the mine and battery. (Hooper, 1993:51). By 1892 there were three hotels (including Aplin's Welcome Inn which operated until the 1930s), three stores, butcher, post office (1885-1929), telegraphic office, police barracks and school.

O'Brien and Co. erected another five head of stamps in 1883 and continued to raise ore from an underlie shaft 91.5m deep and a second shaft 180m away. Production reached 9,000 ozs from 3,000 tons of stone rising to 11,373 ozs in 1884 despite the dam being exhausted by the end of August. Two other companies erected batteries nearby but O'Brien and Co. continued to dominate the big returns, unchallenged as the best mine on the Etheridge. Their second shaft was down to 76m by the end of 1885 and it too was equipped with steam winding gear and tramway. (Kerr, 1985:23).

In October 1886 O'Brien and Co. sold out to the London based McIlwraith, McEachern and Co. who floated the Cumberland Gold Mining Company Limited with a capital of £185,000 in £1 shares. The vendors received £100,000 in cash and 60,000 shares in return for the mine, machinery, lease, two well equipped shafts, 10 head battery complete with concentrators, ribble table, eight wheeler's grinding pans, three wheeler's concentrators, two berdan pans, two percussion tables, a gold smelting furnace able to treat 3,000 ozs per day and 12,000 tons of tailings.

During 1887, 6,595 tons of quartz yielded 17,125 ozs of gold and with an apparently endless supply the company declared a 12.5% dividend and sank its working capital into expensive machinery imported from England, tripling the battery capacity. At the end of 1888, the company had 30 head of stamps, four tramways above and below ground totalling 1.4kms. Cumberland's population in 1888 reached 379: 224 miners, the usual tradesmen, 48 women and 79 children. (Kerr, 1985:24).

The battery stopped in November 1887 for lack of water and production in 1888 fell to 5,487 ozs from 2,320 tons. In 1889 the huge plant crushed only from May to September - the water supply was splendid but there was no ore. The company sank a further 74m through barren ground, while the hopes of its shareholders sank. Most of the workers were retrenched and at the end of 1890, the population numbered only 169, 50 of them carters and timber getters and only 30 miners. (Kerr, *ibid*).

In 1890 the battery ran for only six months, yielding 3,668 ozs from 2,512 tons. Sinking and driving continued during 1891 but expectations were not fulfilled and costs were cut. Cartage costs finally resulted in construction of a 800m tramway from the mine down to the battery. It was almost completed in May 1891 when the company ran out of funds and was forced into reconstruction.

The new company continued sinking and by the end of 1892 reached 307m. Only 1,101 ozs of gold was recovered and the best hope of profits lay in retreating tailings by the new McArthur-Forrest cyanide process.

Construction of the necessary vats began in late 1893 but before completion, a torrential downpour in January 1894 breached the dam and washed away an estimated 10,000 tons of tailings. The dam had held enough water for two years and the bywash proved inadequate. Attempts to cut a second bywash resulted in a 37m hole in the dam wall, so Cumberland ore was carted east to the Durham battery whose own mine had proved an expensive failure to investors. (Kerr, 1985:25).

The cyanide works were commissioned but were able to treat only 944 tons of tailings recovering 963 ozs of bullion before the water supply was exhausted. The dam was repaired and with a renewed water supply, 4,000 ozs of gold bullion were recovered in 1895 from 5,000 tons of tailings left after the wash away. Cyaniding was completed next year, producing another 2,028 ozs. The cyaniding works, the remaining 15 head of stamps, the 307m shaft, all remained when the Cumberland Gold Mining Company abandoned its property in 1897. The absence of a working crushing mill forced many independent miners to other fields. (Kerr, 1985:26).

In 1898, John Williamson took over operation of what became known as the Lady Norah cyanide works and began a long association with the field, sinking on the

Jubilee reef. The rails of the tramway were probably lifted for use underground. (Kerr, *ibid*).

In 1904 the Lady Norah Cyanide Plant was owned by the Etheridge Gold Recovery Company Ltd. whose registered office was in Charters Towers. The company held an auriferous sands claim and the plant managed by James Farmer consisted of one 8hp steam engine, four vats, three sumps, three recovery boxes, one pump and a disintegrator, all valued at £1,500. (Q.G.M.J., 15 June 1904:260).

In 1916 W. Larson took a tribute over the battery from J. Williamson and began crushing the various mullock heaps. He crushed 71 tons of stone in the battery in 1917 for a return of 42 ozs of gold valued at £124. J Williamson, the stalwart of the Cumberland, reconditioned the battery in 1930 after it had not been used for many years. He put through two crushings and invited others. Cumberland Caledonia Gold Mines NL commenced work in 1934 to dewater the Cumberland mine but had no success. (Kerr, 1995:3)..

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mineral Haulage

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Brick

Stonework

Concrete

Structural Components:

Power Plant Foundations

Tailings Dump

Brick Chimney (standing)

Mill/Battery Foundations

Weir/Dam Wall

Railway/Tramway Formation

Boiler/Furnace Flue

Cyanide Plant/Foundations

Description of Place:

The former township and mill areas have been stripped of all buildings and plant and the site has been so thoroughly scavenged that even pieces of scrap metal, machinery and surface artefacts are now scarce. The mine and early workings which are now located north of the development road have been recently re-worked on a large scale and have not been assessed. The feature of the mill site is

a square brick chimney with an associated brick engine mount at its base. The chimney is tightly enclosed behind a high steel mesh fence. Foundations of a five stamp battery comprising broken concrete and bent iron rods are evident south of the chimney alongside a car park area. Nearby at the commencement of the dam wall, a surface deposit of red tailings may identify the location of the former pyrites works. The dam wall is of earth and rock construction with a concrete rendered stone spillway section across Cumberland Creek. The waters of the dam cover an area east of the wall. The eroded remains of a large tailings dump extend west and north-west of the dam wall. The dump contains several areas of stumps which formerly supported cyanide vats. Iron hoops and retaining posts of a group of three timber vats remain evident. The township site extending north-east to the development road contains several areas of stumps and brick scatters. The tramway formation running north-south from the mine, remains partly intact.

Plant: Nil

STATEMENT OF SIGNIFICANCE

The Cumberland Mine, Battery, Cyanide Works and Tramway are significant in Queensland history for illustrating the English capital invested in reef mining in the 1880s on the Etheridge Goldfield. The Cumberland was the richest and deepest (335m) mine on the field producing a total of 65,713 ozs.

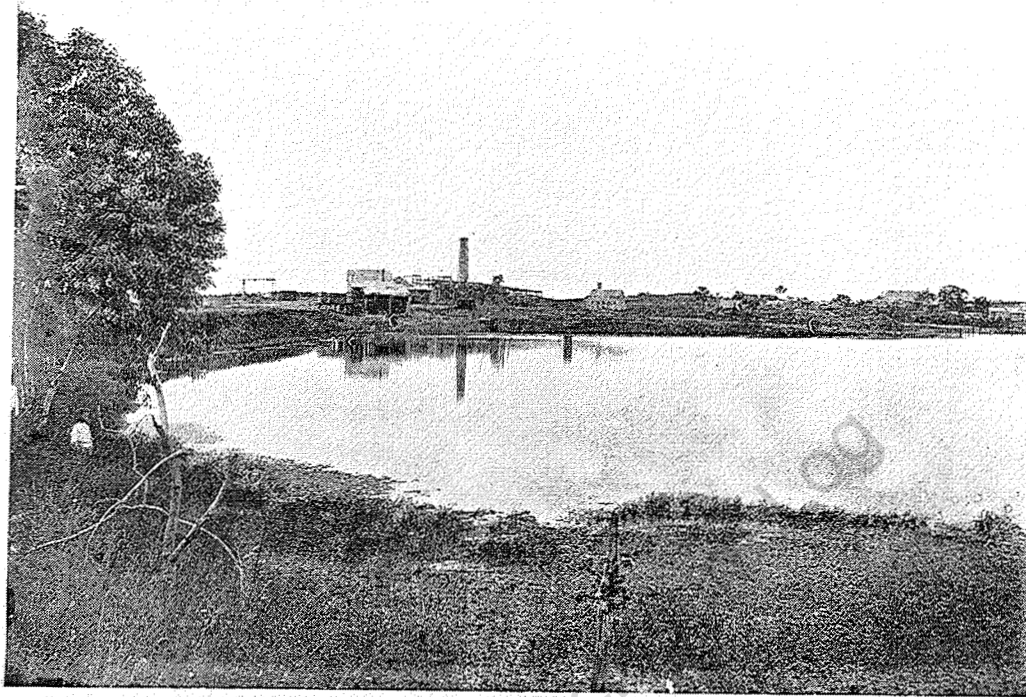
The management of the mine demonstrated all the extravagances of remote investment and control. The scale of the early operation and capital expenditure is still evident. The chimney, dam spillway, tramway formation and cyanide plant site still remain along with engine mounts and battery foundations.

The brick chimney is the only one surviving in the Georgetown district.

The place satisfies criteria (a) (b) (d) and (f) of the *Queensland Heritage Act 1992*.

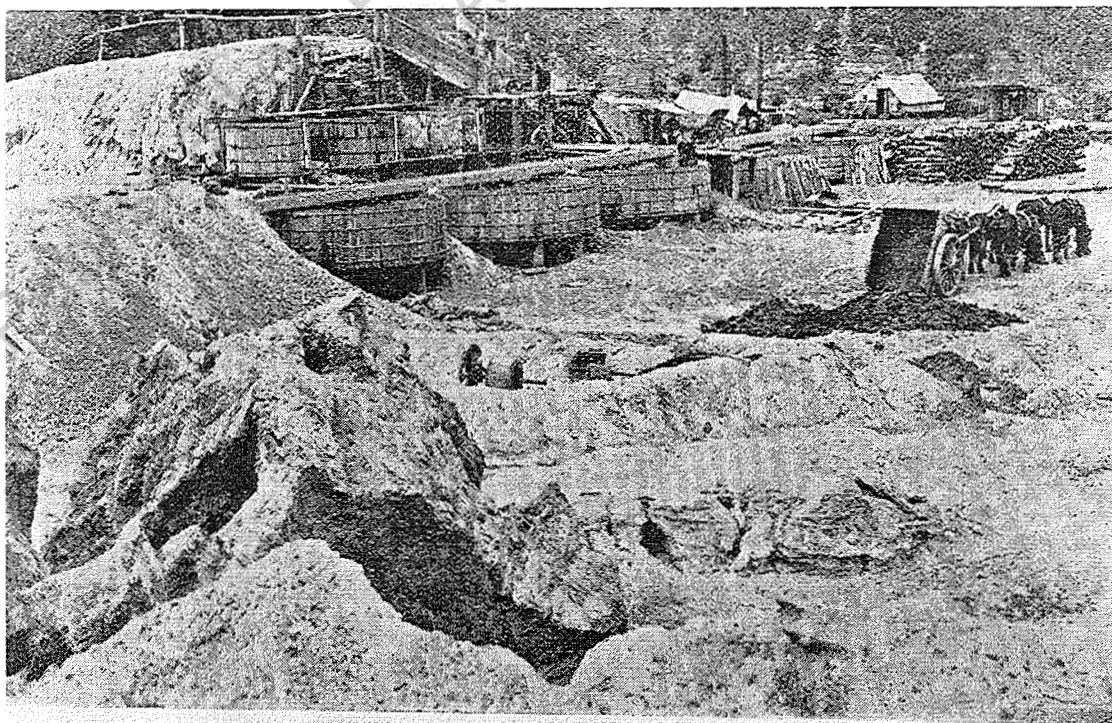
REFERENCES

- | | |
|---|---|
| de Havelland, D.W. | 1989. <i>Gold and Ghosts</i> , Vol. 4, p. 314. |
| Hooper, Colin. | 1993. <i>Angor to Zillmanton</i> , p. 50-1. |
| Kerr, J.D. and R.S. | 1985. The Cumberland Mine and its Tramway, <i>Light Railways</i> , no.90, pp.20-27. |
| Kerr, R.S. | 1995. <i>Queensland Historical Mining Sites Study</i> , Vol. 3. |
| <i>Queensland Government Mining Journal</i> , | 15 April 1903, frontispiece.
15 June 1904, p.260
15 November 1907, p.568. |



CUMBERLAND DAM, ETHERIDGE GOLDFIELD.

Cumberland battery with dam in foreground, looking NW. Q.G.M.J. 15 April 1903, frontispiece.



LADY NORAH CYANIDE PLANT, CUMBERLAND, ETHERIDGE.

Lady Norah cyanide plant.
Q.G.M.J. 15 June 1904, p.260.

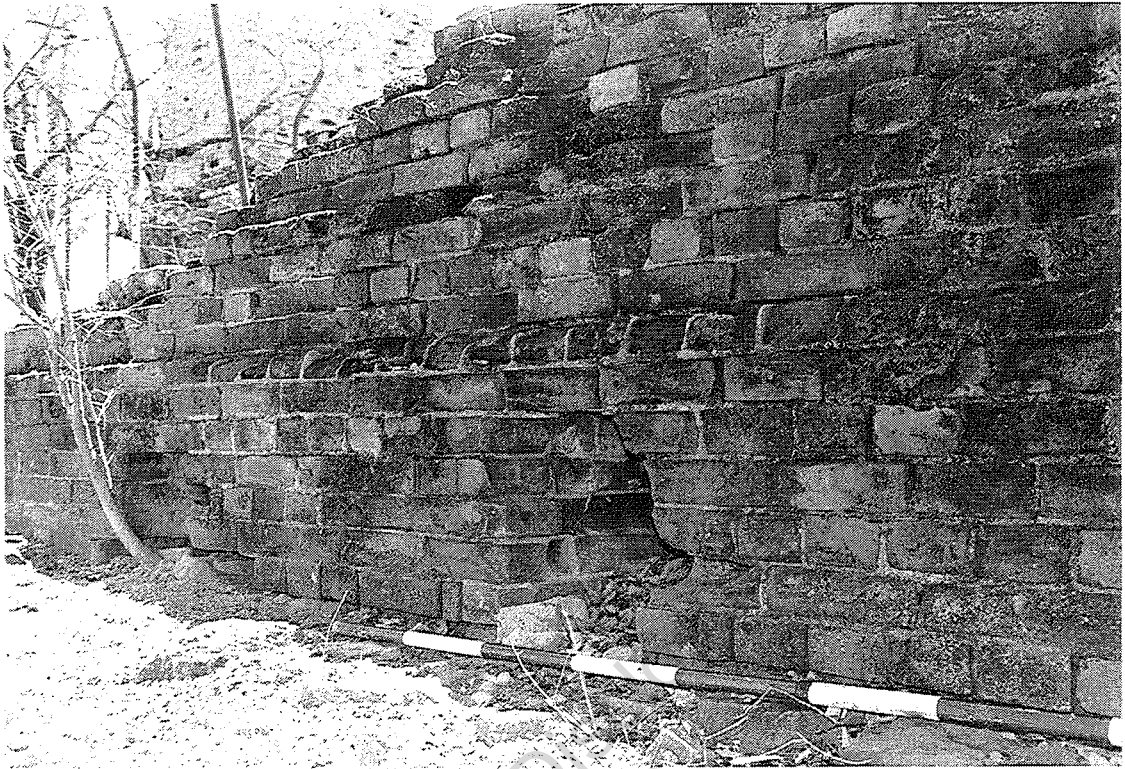


CUMBERLAND CYANIDE WORKS, ETHERIDGE.

Cumberland cyanide works.
Q.G.M.J. 15 November 1907, p.568.



Brick chimney, looking SW.



Engine brick mount with chimney in background.
Looking NW.



Five head stamp battery foundations, looking NW.



Cyanide plant site: area of vat stumps and iron hoops. Looking NW.



Tramway formation, looking S. to chimney.

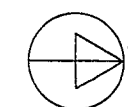
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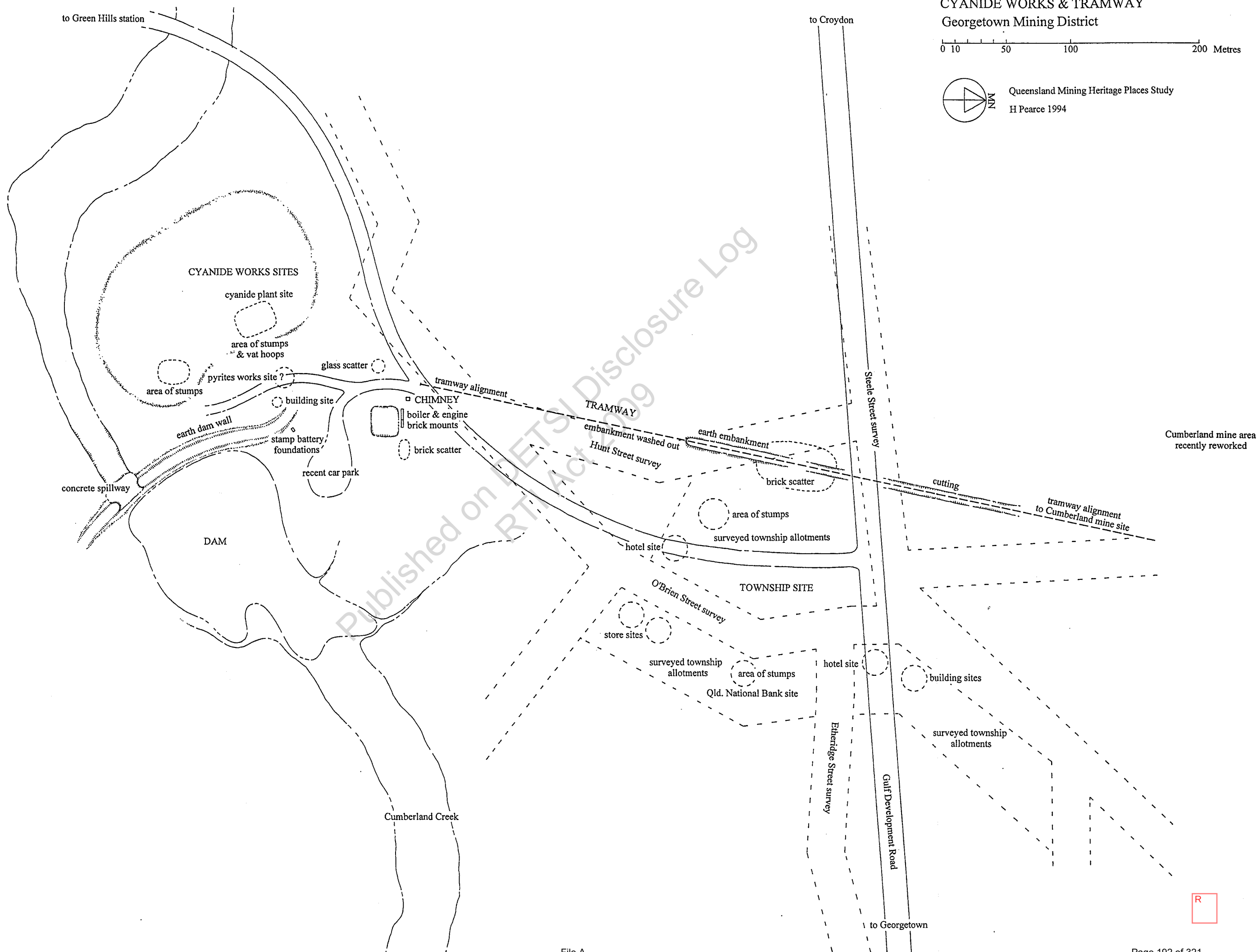
Dam spillway looking NW. to chimney.

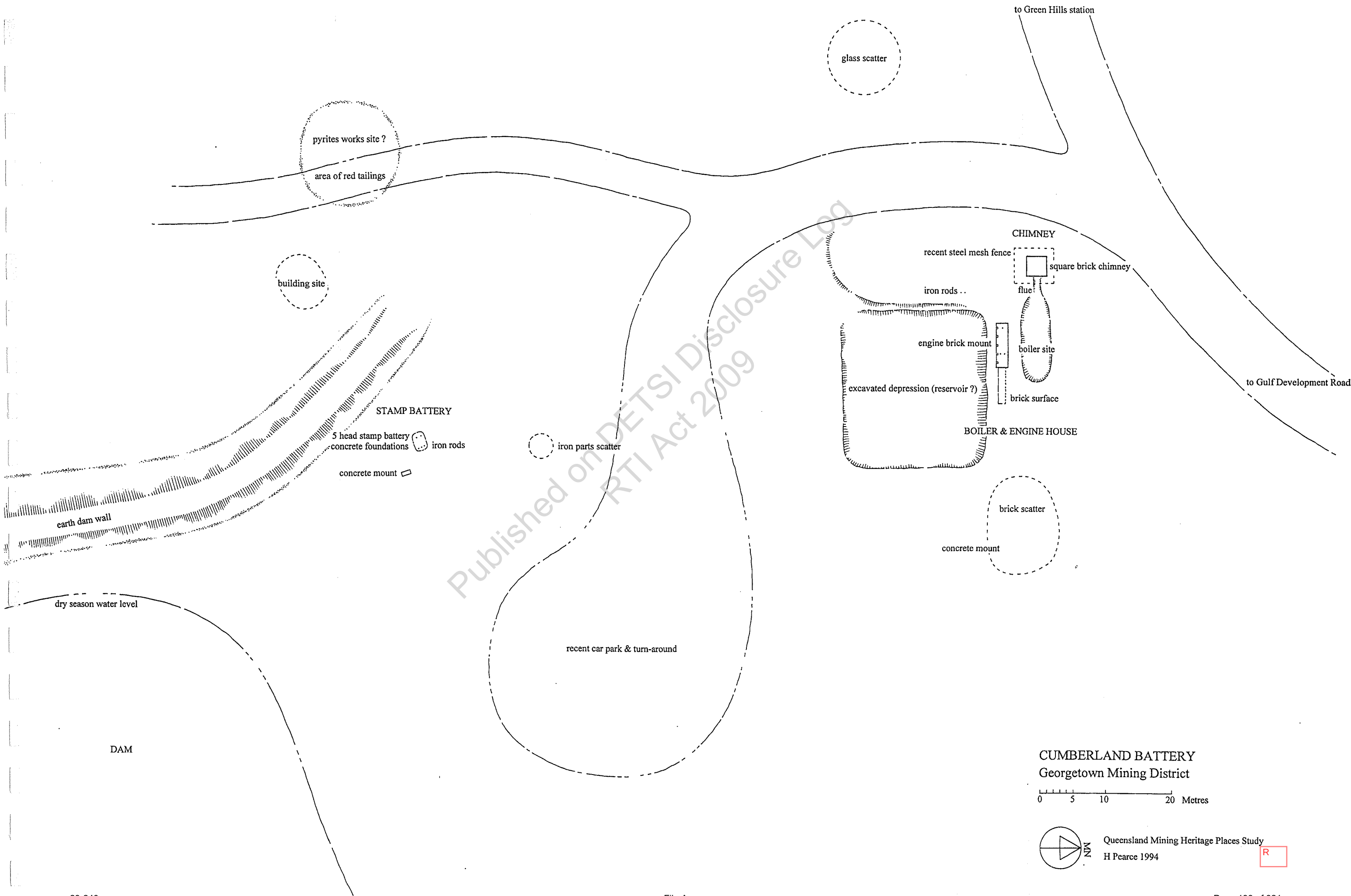
CUMBERLAND BATTERY,
CYANIDE WORKS & TRAMWAY
Georgetown Mining District

0 10 50 100 200 Metres

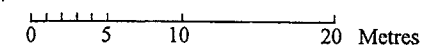
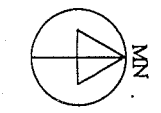


Queensland Mining Heritage Places Study
H Pearce 1994





CUMBERLAND BATTERY
Georgetown Mining District



Queensland Mining Heritage Places Study
H Pearce 1994



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: DAY DAWN BATTERY

Other Names: HOURSTON'S BATTERY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Tabletop Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 382985

Latitude: 18.05.47 S (by GPS)

Longitude: 142.18.22 E (by GPS)

Land Tenure: OL 785 (Tabletop station)

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 4990. ML 5254 ? Central Coast Exploration NL

Location and Access:

Located 13 km north of Croydon. Access by the Croydon - Tabletop township road with a turn off south at a dam west of Tabletop Creek. The place is situated on the west bank of Tabletop Creek adjacent to a recent treatment plant site.

Heritage Boundaries:

North: East-west line passing through a point 200 metres north of the engine.

South: East-west line passing through a point 100 metres south of the engine.

East: North-south line passing through a point 200 metres east of the engine.

West: North-south line passing through a point 100 metres west of the engine.

HISTORY OF PLACE

Tabletop developed quickly as a mining settlement after the discovery of gold-bearing reefs in 1885 in that part of the Croydon Goldfield. It had two batteries, the five head Day Dawn on the western side of the creek and the southern edge of the town and the fifteen head Catherine Mill, north of the town. (Hooper, 1993:175).

The Day Dawn owned by George Hourston operated from 1887 on Machine Area No.49 and became the Mount Morgan mill in 1893. It was abandoned in the late 1890s and recommissioned in 1910-11, but presumably closed at the onset of World War 1.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Earthwork

Structural Components:

Mill/Battery Foundations

Well/Water Shaft

Description of Place:

The place contains a single cylinder portable steam engine which was originally connected with a cog drive to a five head stamp battery. The frame of the battery has been removed and the mortar box, complete with stamps, is now lying on the ground still anchored to its concrete foundation by bent tension rods. The flywheel and camshaft of the engine has been removed and lies between the engine and battery. Other items of plant lying in the vicinity include a berdan pan and a belt wheel with shaft. A water shaft has been sunk between the battery and the creek. The place also contains the stone base of a forge. The area surrounding the battery to the west of Tabletop Creek has been more recently disturbed and excavated by Coastal Pacific for the erection of a crushing and treatment plant. This operation has ceased and the crusher (ex Mary Kathleen), has been removed. The area east across the creek and to the north of the battery was formerly the site of Tabletop township. The area along the creek adjacent to the town site is now covered with disused leaching ponds.

Plant:

- One-cyl. portable steam engine - no brand (Farmer Robey Brown. Lincoln ?)
- Five stamp mortar box - no brand.
- Berdan pan (not insitu).

STATEMENT OF SIGNIFICANCE

The Day Dawn Battery is significant in Queensland history as one of the earliest batteries at Tabletop, a major reefing area on the Croydon Goldfield. There were three batteries operating here in the 1880s.

The portable steam engine remaining on site is thought to be a Farmer Robey Brown manufacture, which is very rare.

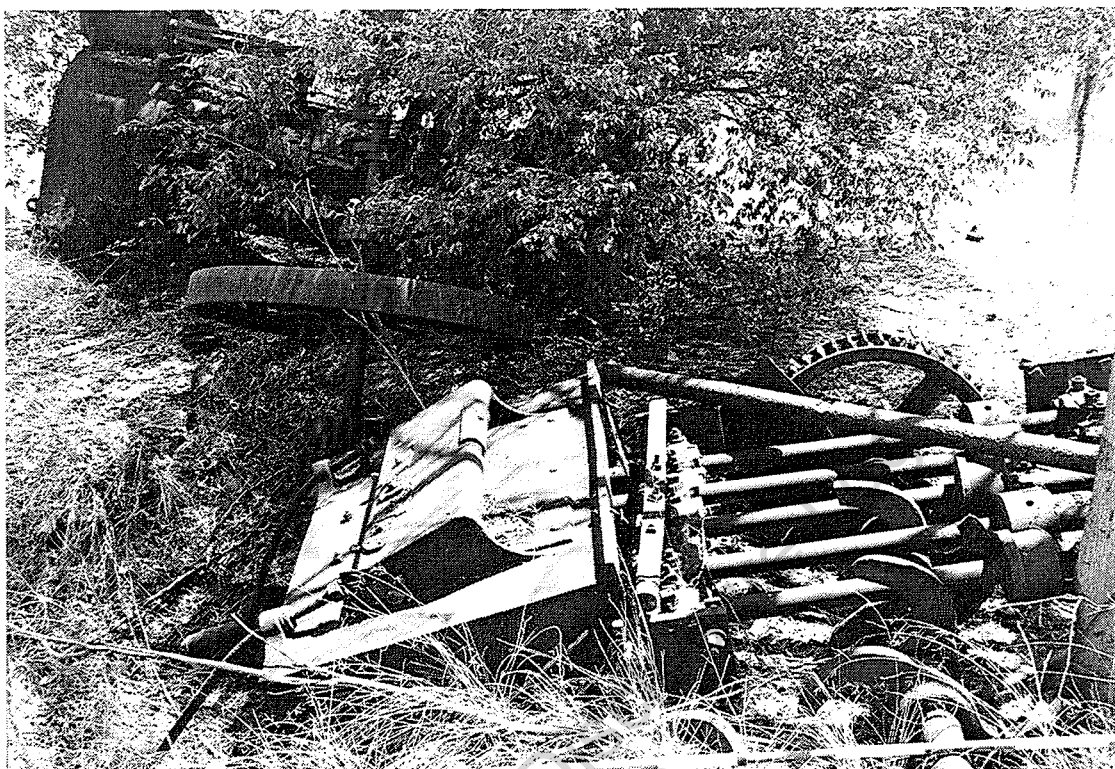
The place has survived recent mining operations and the township site on the opposite side of the creek is now covered with disused leaching ponds.

The place satisfies criteria (a) and (b) of the *Queensland Heritage Act 1992*.

REFERENCES

Hooper, Colin. 1993. *Angor to Zillmanton*, p. 175.

Published on DETSI Disclosure Log
RTI Act 2009



Five head stamp battery consisting of mortar box and rods (frame removed). Looking NW.



1 cyl. portable engine (Farmer Robey Brown ?).

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: DRY HASH MINE & BATTERY

Mineral Type - Historical: GOLD SILVER LEAD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Delaney River

Local Government Area: Etheridge Shire

Map Sheet: Forsayth 7660. 1:100,000. AMG 699485

Latitude: 18.32.06 S (by GPS)

Longitude: 143.33.26 E (by GPS)

Land Tenure: Rose Glen Holding (Rose Glen station)

Exploration Permit (M): EPM 8788 Union Mining NL

Mineral Lease: ML 3281. ML 3425. ML 3426 Sedimentary Holdings Ltd

Location and Access:

Located 7 km north-west of Forsayth on a western branch of the Delaney River.

Access by tracks east from the Georgetown - Forsayth road

Heritage Boundaries:

North: An east-west line passing through a point 150 metres north of the boiler house.

South: West-east trending watercourse about 150 metres south of the boiler house.

East: Delaney River tributary.

West: A north-south line passing through a point 150 metres west of the boiler house.

HISTORY OF PLACE

The Dry Hash reef and accompanying workings can be found on the west bank of Branch Creek. Jack Rogers had an early association with the reef but he may not have been the discoverer. Mr. Candlish from Georgetown acquired the reef from Rogers before selling it to the Schaffert brothers, who owned the battery at Donnyville in the 1890s.

The reef was exposed in most of the surface workings, which extended for about 90m west and 50m east of the main shaft, which was sunk to 64m. The mined ore was siliceous, but sulphides containing galena and pyrite dominated. Most ore was concentrated at the mine, then sent to Chillagoe for smelting. Officially production from these workings commenced in 1900, but the reef was probably worked on a small scale before this. Production in the years 1900, 1906-07 and 1910 resulted in the treatment of 240 tons of ore to yield 234 ozs of smelted gold, 1215 ozs of silver and 62 tons of lead. (De Havelland, 1989:301).

Mr. Candlish owned the mine in 1910 when the dump contained 1,000 tons of ore valued at £6000 and 260 tons of high grade ore valued at £2600. (Q.G.M.J., 15 Sept 1911:449).

The Dry Hash was reopened in 1913. In 1914 this silver-lead mine was under exemption and partly flooded, but well opened up and ready for stoping. (Q.G.M.J., 15 Feb. 1915:54). Between 1913 and 1926, the Dry Hash yielded a further 2339 ozs of gold, 3508 ozs of silver, 291 tons of lead ore and 4.5 tons of copper from 1106 tons of smelted ore (de Havelland, *ibid*).

During 1930 the Dry Hash mine was dewatered and put in working order. Development work then proceeded (Q.G.M.J., 15 Nov. 1930:448). Between 1932 and 1940, the mine produced 5693 tons of smelted ore, yielding 1515 ozs of gold, 3374 ozs of silver, 27.3 tons of lead and 9.7 tons of copper. The mine was then considered to be worked out (de Havelland, *ibid*).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Brick

Structural Components:

Power Plant Foundations

Mullock Dump

Tailings Dump

Boiler Foundations/Mount

Mill/Battery Foundations

Mine Shaft/Adit

Boiler/Furnace Flue

Workshop/Smithy

Description of Place:

The place includes a caved mine shaft with headframe timbers and a sheave wheel at the bottom. The shaft is associated with a Babcock boiler house with a concrete engine mount alongside. The inner skin of the boiler house is of brick, the outer surface is of form-cast reinforced concrete construction approximately the thickness of a brick. The structure has been broken open at the firebox end to remove the boiler but a section of the water tubes remain. Other components include the concrete surface and machinery mounts of the mill, the iron base of a colonial boiler, and several large iron cones which are not insitu.

Plant:

- Babcock & Wilcox boiler (portion only) - no brand
- Colonial boiler iron base - no brand.
- 2 Iron cones.

Firebricks - Campbell.

Red bricks - B.

STATEMENT OF SIGNIFICANCE

The Dry Hash mine and battery on the Etheridge Goldfield is significant in Queensland history for demonstrating the various attempts over 40 years (1900-1910, 1913-1926, 1932-1940) at mining its complex ore.

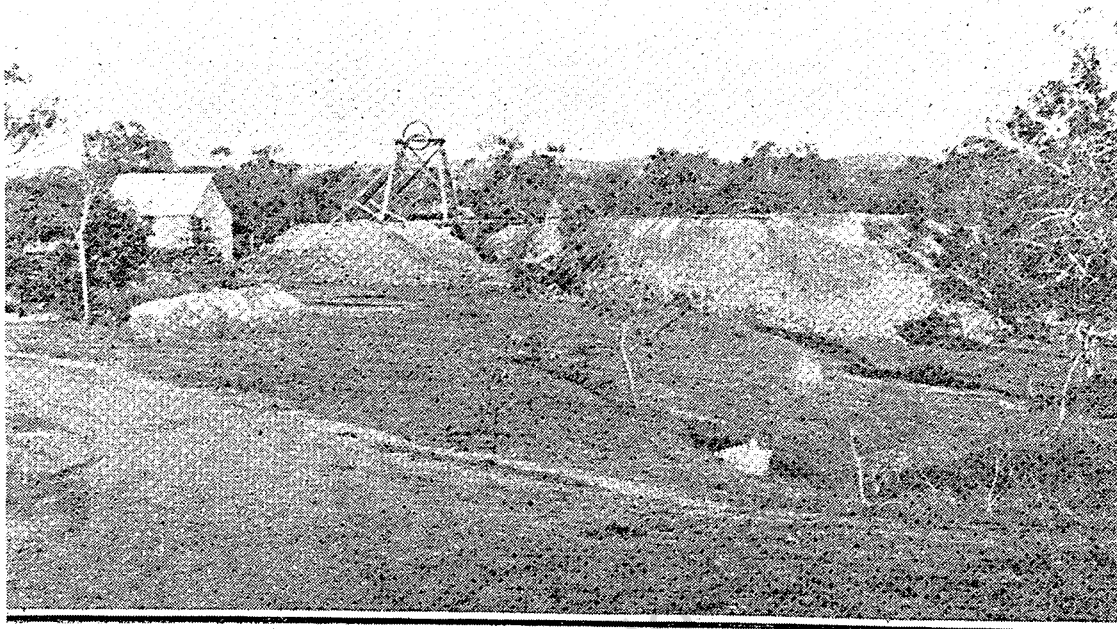
The Babcock boiler house is the only surviving one recorded in the Georgetown district.

The place satisfies criteria (a) (b) (d) of the *Queensland Heritage Act 1992*.

REFERENCES

de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 301.

Queensland Government Mining Journal,
15 Sept. 1911, p. 449
15 Feb. 1915, p. 54
15 Nov. 1930, p. 448.



DRY HASH.

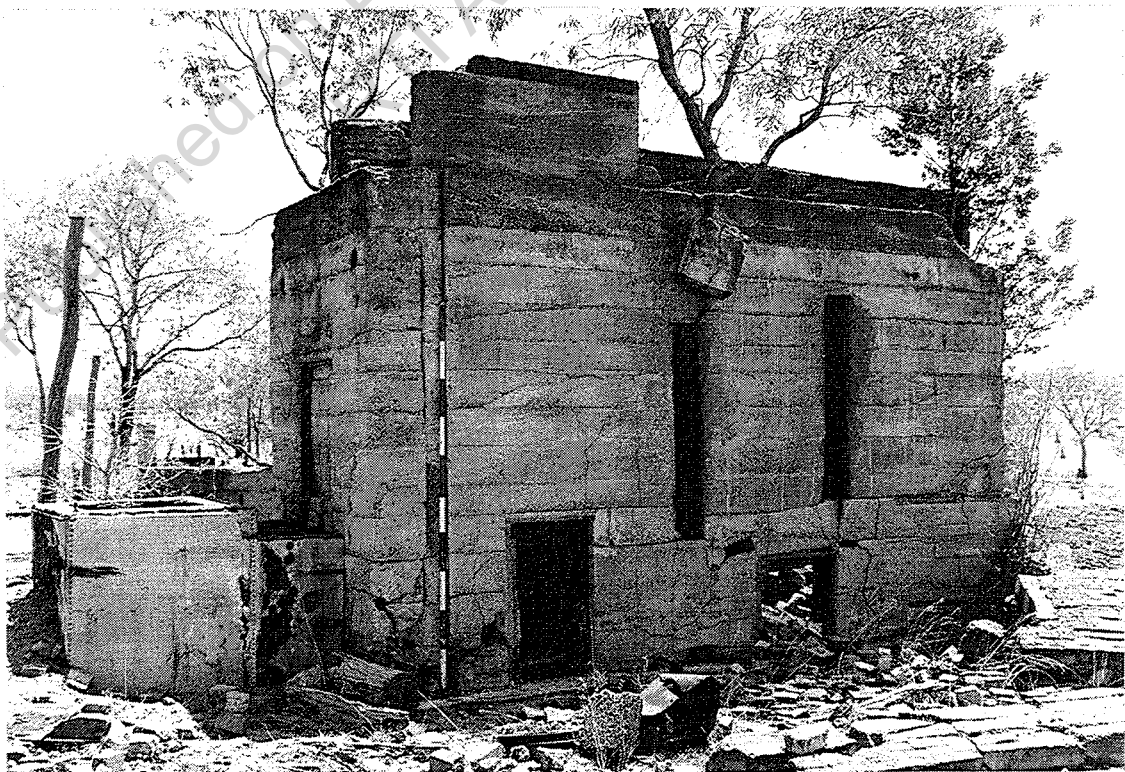
Dry Hash silver-lead mine.
Q.G.M.J. 15 February 1915, p.54.



Dry Hash mine and battery.
Q.G.M.J. 15 November 1930, p.448.



General view of battery site with Babcock boiler house in background. Looking W.



Babcock boiler house of form cast concrete and brick construction.

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: EINASLEIGH MINE & SMELTER

Other Names: EINASLEIGH COPPER MINE

Mineral Type - Historical: COPPER

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Oaks Gold Field, Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Einasleigh River

Local Government Area: Etheridge Shire

Map Sheet: Einasleigh 7760. 1:100,000. AMG 935512

Latitude: 18.30.23 S (by GPS)

Longitude: 144.05.56 E (by GPS)

Land Tenure: Mount Juliet Holding (Mount Juliet station)

Exploration Permit (M): EPM 10489 BHP Minerals Pty Ltd

Mineral Lease: MDL 93 ? Otter Exploration NL

Location and Access:

Located 53 km east of Forsayth. Access by the Gregory Development Road or the Forsayth - Einasleigh road, to Einasleigh township. The place is situated 1 km north of Einasleigh township, on the west bank of the Copperfield River at its junction with the Einasleigh River.

Heritage Boundaries:

North: An east-west line passing through a point 500 metres north of the main shaft.

South: An east-west line passing through a point 400 metres south of the main shaft.

East: East bank of the Copperfield River.

West: A north-south line passing through a point 500 metres west of the main shaft.

HISTORY OF PLACE

Richard Daintree discovered the Einasleigh copper deposit near the basalt wall at the head of the Copperfield River watershed in 1867, when out prospecting while visiting a northern pastoral station belonging to friends (Kerr, 1992, 3). He secured the freehold over 120 acres. A shaft sunk to 9m and a drive had shown the lode to be 7m wide and to consist of "spongy metallic copper" (Q.G.M.J., March 1901:47). It was not economical to mine it then as the nearest settlement was at Townsville and after Daintree's death, the mine was forgotten and all surface signs of the old shaft, the mouth of which had been covered with slabs, had disappeared. (Q.G.M.J., March 1901:48).

The Chillagoe Company discovered the Einasleigh shaft when exploring the area and commenced developing it in 1900 through their subsidiary, the Einasleigh Copper Mines Company Ltd. They dragged in machinery from the railhead at Mareeba and erected new head-gear, 24m boiler stack and gantry and a new shaft was sunk to 61m. The ore assayed from 12% to 19%. Water from the nearby river was assured and timber for charcoal making was abundant. Large stocks had been accumulated ready for use in the 50 ton water-jacket blast furnace, which was awaiting its blower in March 1901. (Q.G.M.J., March 1901:49).

In 1902 a small blast furnace capable of smelting 50 tons per day was erected and commissioned. But the operation was short lived due to the high costs. All the supplies had to come either 462 kms overland from Townsville or via Cairns for 192 kms along the Chillagoe line to Almaden, then carted by bullock team another 190 kms to the mine. Coke, which was indispensable for smelting cost from £12 to £14 to land at the mine and limestone had to be carted for over 48 kms. After treating 860 tons of ore, the smelting was abandoned even though 191 tons of copper matte had been produced (Q.G.M.J., 15 Oct. 1907:511)

The new Ethridge railway (opened to Forsayth in January 1910) allowed supplies of ore to be railed daily to Chillagoe (Q.G.M.J., 15 March 1910:126) as the route passed the mine, and plant was upgraded including a new Babcock and Wilcox boiler. By April 1910 the main shaft was down 119m and worked from four levels by 87 men, while a further 30 men were employed above ground. Construction of an extensive concentrating plant had commenced (Q.G.M.J., 14 May 1910:222). Production did not come up to expectations so in 1911 the Chillagoe Company decided to buy the mine and install a new flotation plant (Wegner, 1990:109).

The mine was exploited without systematic development and consequently the quality of ore produced declined. Untreated ore was sent direct to Chillagoe, an inefficient and uneconomical practice, and in 1911 the Company had to reduce railway freight on ore by 50% to keep the mine working (Wegner, 1990:122). The Chillagoe smelters closed in February 1914 and consequently the Einasleigh mine ceased operations.

The Einasleigh copper mine was acquired by the Queensland Government under the terms of the Chillagoe and Etheridge Railways Purchase Act of 1918. The mine was reopened at a cost of £100,000 and by December 1919 was at full output, providing three-quarters of the copper ore treated at the Chillagoe smelters. In 1920 the mine employed 100 men and produced an average 450-500 tons a week. But at the end of 1920 copper prices fell from £122 to £72 per ton (Wegner, 1990:207).

The Einasleigh State Mine closed in 1922. The Chillagoe smelters had relied heavily on Einasleigh ore, causing a severe drain on the mine's reserves. As well, copper prices remained low making production uneconomical (Wegner, 1990:227).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Mill/Battery

Smelter

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Structural Components:

Smelter Structure/Foundations

Power Plant Foundations

Explosives Magazine

Ore Dump

Mill/Battery Foundations

Railway/Tramway Formation

Slag Dump

Headframe Foundations

Primary Crusher Foundations

Mine Shaft/Adit

Boiler/Furnace Flue

Description of Place:

The place includes the surface structures of a mine, the concrete foundations of a mill, and a smelter site and slag dump. The mine workings are perched on the edge of a high precipitous bank overlooking the junction of the Einasleigh and Copperfield rivers. The workings comprise two shafts, including the former main shaft which has a recent steel tripod mounted over, a stone magazine, and several ore dumps. One dump has been spread to cover and fill the former South shaft.

The concrete foundations of a primary crusher, engine mounts, chimney base, and boiler house site are evident. Cordwood lengths are still present at the boiler site. Foundations of the mill building comprise concrete floor surfaces containing engine mounts, pits, and launders. Two recent sheds stand on the mine and mill site. One is a steel frame structure on a concrete slab on the site of the former blacksmith's shop, currently used for storing stock fodder.

The smelter site was formerly associated with a rail spur line and elevated hopper bins. However the bins have been bulldozed into a pile of earth and timbers. The smelter was removed early in the active life of the mine but one blast furnace mount remains standing. The slag dump contains form-poured areas which may have served as floor surfaces. A small heap of limestone flux is located alongside the slag dump. The walls of a small stone building, possibly a magazine, remain standing about 500 metres north-west of the mine.

Plant:

- Cornish boiler (not insitu) - no brand.

STATEMENT OF SIGNIFICANCE

The Einasleigh mine and smelter is significant in Queensland's history as the only copper smelter on the Etheridge goldfield. Although Daintree first discovered copper in the area in 1867, the area became known as a goldfield.

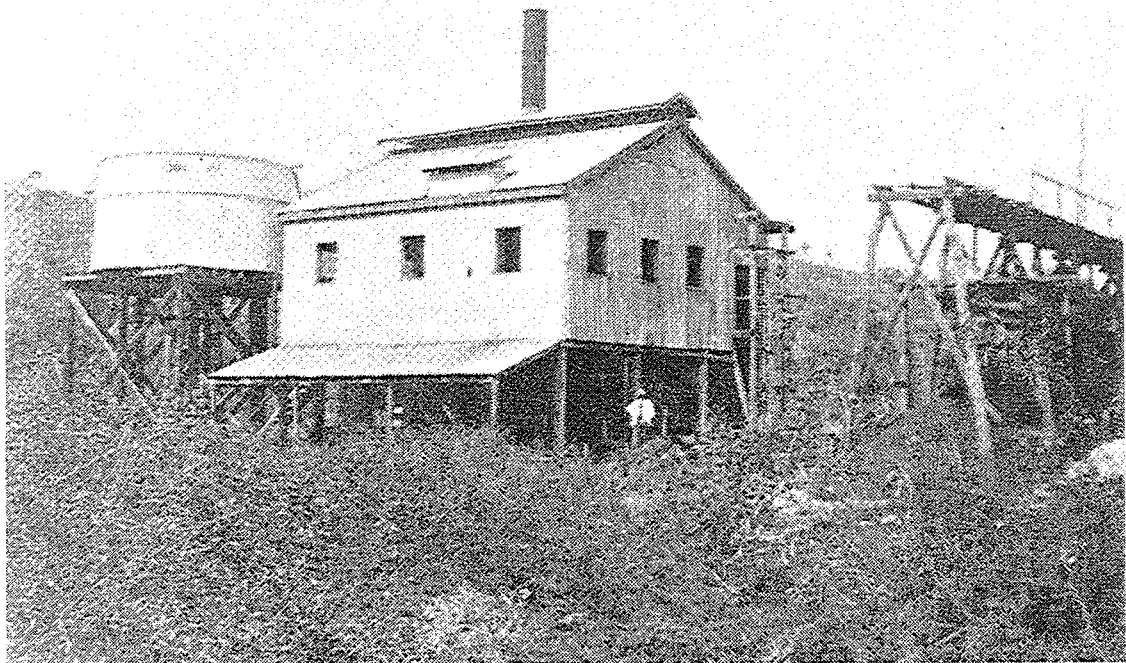
The site of the mine is very important in the history and development of the Etheridge district especially with the routing of the railway to enable transport of ores to Chillagoe. Einasleigh became the only State Mine on the Etheridge field.

Although most buildings and all plant have been renovated the site still explains the process. The slag dump, blast furnace mount and associated artefacts are significant, while the stone magazine and one room stone hut are noteworthy.

The place satisfies criteria (a) (b) (d) and (h), of the *Queensland Heritage Act 1992*.

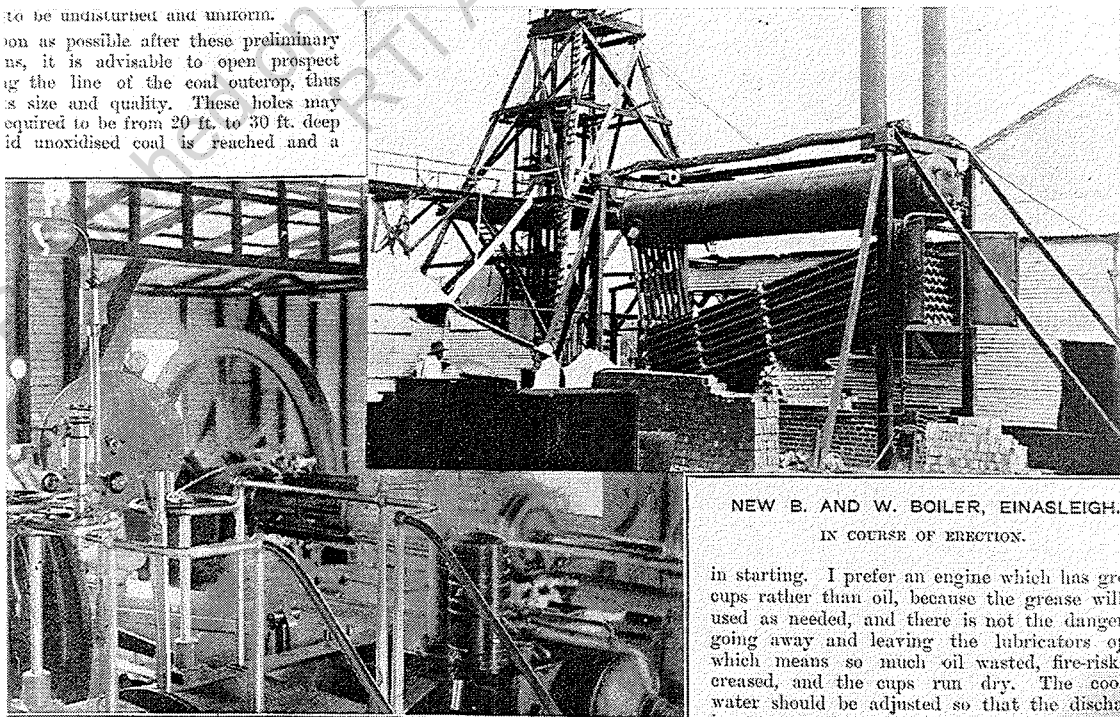
REFERENCES

- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.
- Queensland Government Mining Journal*,
March 1901, pp.48-50.
15 October 1907, p.511
15 March 1910, p.126
14 May 1910, p. 222
15 July 1914, p. 353
15 July 1919, p. 280
15 March 1921, p. 91.
- Wegner, Janice 1990. *The Etheridge*, Studies in North Queensland History No. 13, James Cook University, Townsville.



Smelter shed. Q.G.M.J. 15 October 1907, p.511.

to be undisturbed and uniform.
 on as possible after these preliminary
 us, it is advisable to open prospect
 up the line of the coal outcrop, thus
 as size and quality. These holes may
 required to be from 20 ft. to 30 ft. deep
 id unoxidised coal is reached and a

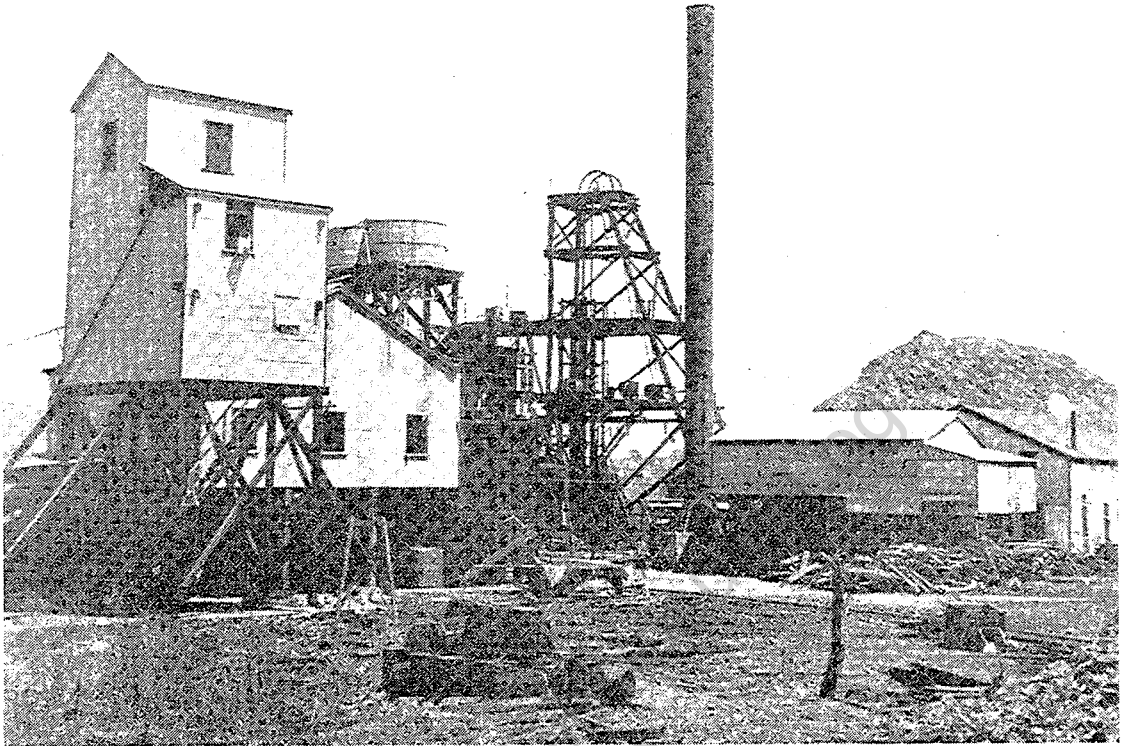


WINDING-ENGINE AND COMPRESSOR ROOM, EINASLEIGH.

NEW B. AND W. BOILER, EINASLEIGH.
 IN COURSE OF ERECTION.

in starting. I prefer an engine which has gre
 cups rather than oil, because the grease will
 used as needed, and there is not the danger
 going away and leaving the lubricators of
 which means so much oil wasted, fire-risk,
 creased, and the cups run dry. The cool
 water should be adjusted so that the discha
 is at a temperature of about 200 deg. Fahr.
 the highest efficiency, and in the winter, as

(Left) Winding engine and compressor room.
 (Right) New B & W boiler in course of erection.
 Q.G.M.J. 15 March 1910, p.128.



Mill (left), main shaft (centre) and boiler house (right). Looking SE.
Q.G.M.J. 15 July 1914, p.353.



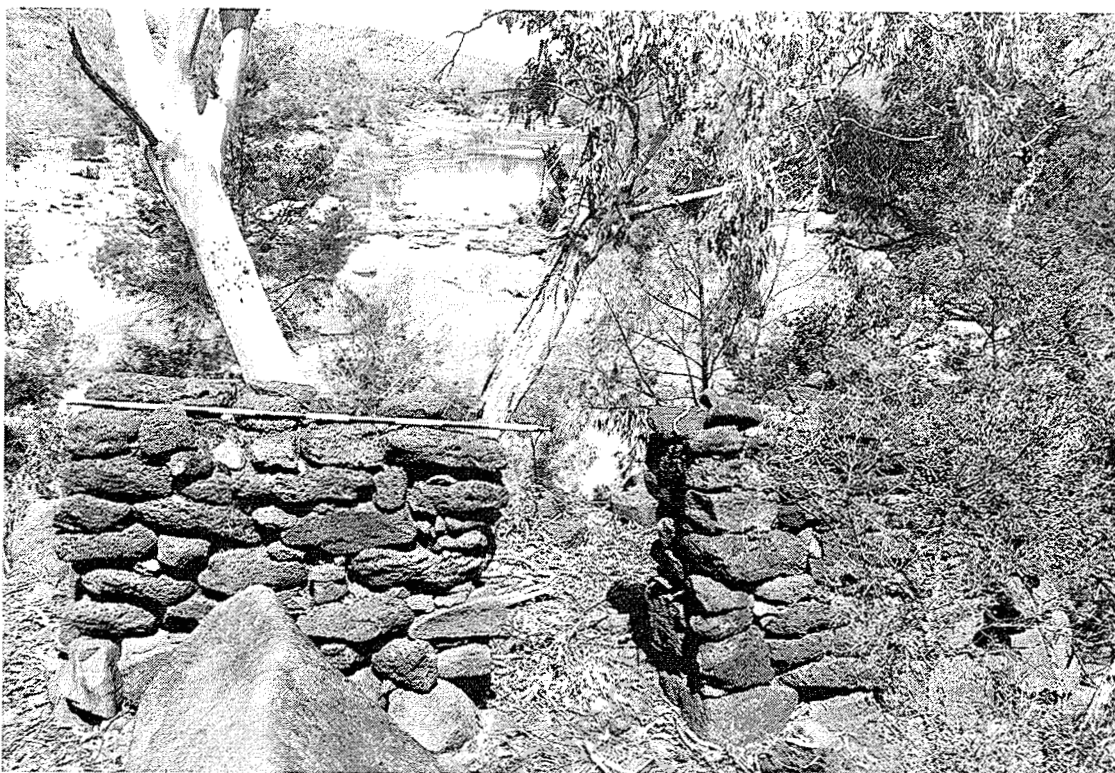
Mill foundations, looking W. to smelter site.



Boiler and engine house mounts, with chimney concrete base on right. Looking SW.



Stone magazine, looking S.



Stone magazine, looking SE with junction of Einasleigh and Copperfield rivers (background).



Smelter site showing blast furnace column, slag dump (right) and slag floor (left). Looking NW.

R

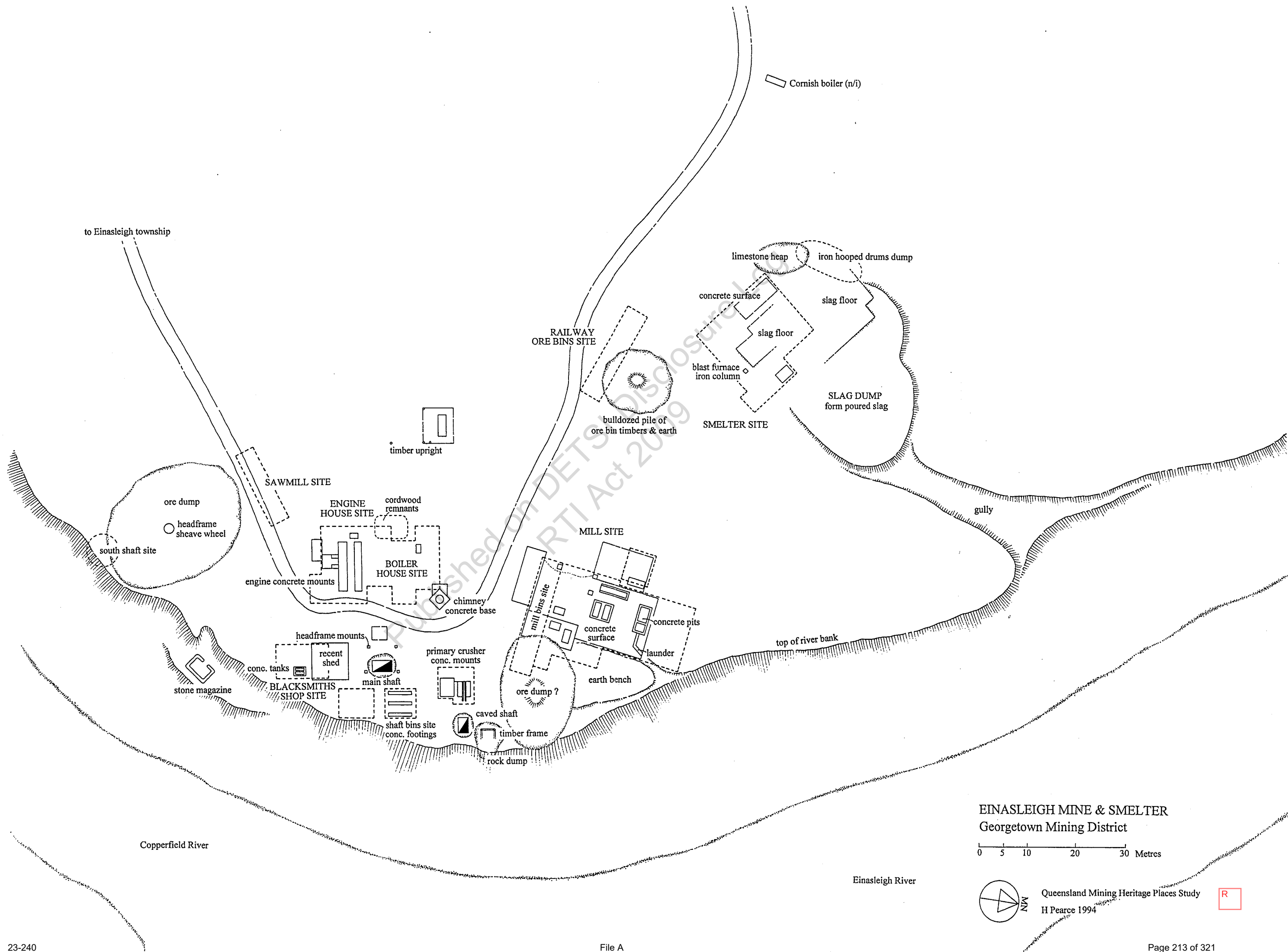


Close-up of surviving blast furnace column,
looking W.



One room stone hut (?) 500m NW. of the mine.

R



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: ENTERPRISE BATTERY & CYANIDE PLANT (Croydon)

Other Names: RICHARDSON'S ENTERPRISE BATTERY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Belmore Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 287908 - Battery

Latitude: 18.10.04 S (by GPS) - Battery. 18.10.10 S (by GPS) - Cyanide

Longitude: 142.12.55 E (by GPS) - Battery. 142.12.52 E (by GPS) - Cyanide

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: Nil

Location and Access:

Located 5 km north-west of Croydon on the Gulf Development Road. Access by a track north, on the east side of Belmore Creek.

Heritage Boundaries:

North: A line parallel with the current (1994) 'Gulf Development Road' passing through a point 400 metres north-east of the road.

South: Current (1994) Gulf Development Road.

East: A line at right-angles to the current (1994) Gulf Development Road passing through a point 300 metres east of the battery site.

West: West bank of Belmore Creek.

HISTORY OF PLACE

The Enterprise Crushing Company erected their mill on Station Creek (now referred to as Belmore Creek) in 1889 to crush stone from the nearby Golden Gate mines. It comprised a sixteen horsepower portable engine, five head of stamps, two berdan pans and one wheeler pan, valued at £2,000. The company itself had a

nominal capital of £9,375 in 25,000 shares of seven shillings and six pence. Five more stamps were added in 1891 along with two berdan pans purchased from the Mount Morgan Gold Mining Company at Tabletop.

The Golden Gate lines of reefs had been discovered in 1886 and abandoned in 1887. It remained idle until 1891, the deepest shaft being used as a well for passing coachmen and carriers to water their horses. The principal mine operating there in 1891 was the Golden Gate No. 1 North (later incorporated into Rogers' Golden Gate). The mill was substantially expanded in 1892 bringing the mill up to 40hp with two steam engines, 20 head of stamps (nine hundredweight), twenty berdan pans, one wheeler pan, four Brown and Stanfield concentrators, valued at £9,000. A manager's cottage, water shaft and mill yard had also been constructed and valued at £1,000. Considering the low production of the mines and the lack of will to raise ore in others, this investment appears to have been vastly over-optimistic.

The mill came into its own when the Golden Gate 3 and 4 South began producing heavily in 1899 - 4,332 tons of stone yielding 11,658 ozs of gold and 5,877 tons of stone yielding 21,723 ozs of gold in 1900. Golden Gate 3 and 4 South supplied the mill with a total of 25,457 tons from which 74,523 ozs of gold were extracted between 1899 and 1906. The mill had been taken over by Andrew Richardson by 1900 and was then valued at £5,000, although it was really the same mill as in 1892. The Enterprise mill ran their tailings into the Station Creek and lost approx. 6,000 tons downstream. Enterprisingly, another cyaniding plant was being erected in 1896 downstream to take advantage of the opportunity. The whole of the tailings for the Golden Gate 3 and 4 south for 1899 was purchased by John Davis from the Enterprise mill and taken to the new Station Creek cyanide works which he hired in 1900 for the purpose. Also the Enterprise mill was able to crush continuously through the drought times because they had a supplementary water supply from the True Blue shaft of the Croydon Goldfields Company and the Content mine a quarter of a mile away.

Richardson had already had cyaniding experience at the Pioneer mill with James Forsythe, at Gorge Creek and at the Croydon Consols. He opened the Enterprise cyanide mill in 1902 on Machine Area No. 114. He obtained a Water Right No. 115 on 19 June 1902 to lay pipes and pump water to the mill. The machinery comprised one six horsepower steam engine, four vats each of forty tons, two sumps each of 4,400 gallons, one solution vat of 4,400 gallons capacity, two recovery boxes and a pump, which very likely came from the Croydon Consols, and valued at £600. In 1903 he treated 9,160 tons of tailings for a yield of 4,265 ozs of gold bullion, increasing to 15,405 tons for a yield of 9,271 ozs of gold bullion, increasing to 15,405 tons for a yield of 9,271 ozs of gold bullion in 1904, the largest cyaniding works production on the field. In 1905 they processed 12,680 tons of tailings for 10,102 ozs and 14,970 tons for 13,189 ozs in 1906, still the largest on the field. As the mines closed the tailing resources declined quickly and mills closed and the Machine Area was forfeited in 1909. (Kerr, 1992,3).

A mining camp called Belmore operated on Station Creek to service the Enterprise Battery employees. A hotel and a postal receiving office existed from 1892 to 1909. (Hooper, 1993:177).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Structural Components:

Tailings Dump

Boiler Foundations/Mount

Mill/Battery Foundations

Well/Water Shaft

Cyanide Plant/Foundations

Description of Place:

The place includes two main component areas - a battery site and a cyanide plant and tailings heap about 200 metres south-west. The battery is located on the eastern bank of Belmore Creek. Much of the foundations have been lost from past disturbance and other uses of the area. Surviving structure and plant includes a raised concrete surface which formed the floor of the battery shed. Two stamper trenches for a total of ten head of stamps are evident. A lower earth terrace on the creek bank contains an area of vertical iron tension rods and the bowl of a berdan pan. A large colonial boiler seated on the remains of a stone and brick mount is located on the southern side of the stamper floor. A larger broken stone mount alongside probably contained a Cornish boiler. At the time of survey the Department of Transport were surveying for proposed road bridgeworks which, if constructed, would destroy or cover the battery foundations. The Department of Transport and the Croydon Shire Council were advised of the place's significance.

There is little surviving structural evidence of the cyanide plant located south-west of the battery except a circular area of timber stumps - formerly vat footings. A two cylinder portable steam engine and the crushed sides of an iron cyanide vat are nearby. The plant is located on the northern edge of a large and very high tailings heap which is roughly about 130 metres in diameter and extends southward to the edge of the Gulf Development Road.

Plant:

- Colonial boiler (at battery) - no brand.

- Berdan pan (at battery - not insitu).
 - Two-cylinder portable steam reversing engine (at cyanide plant) - no brand (Clayton & Shuttleworths ?).
 - One-drum steam winch (on tailings dump) - no brand.
- Firebricks - Campbell, Gartcraig.

STATEMENT OF SIGNIFICANCE

The Enterprise Battery and cyanide plant are significant in Queensland history as an associated group of components that demonstrate periods of development and reuse and stages of the extraction process on the Croydon Goldfield.

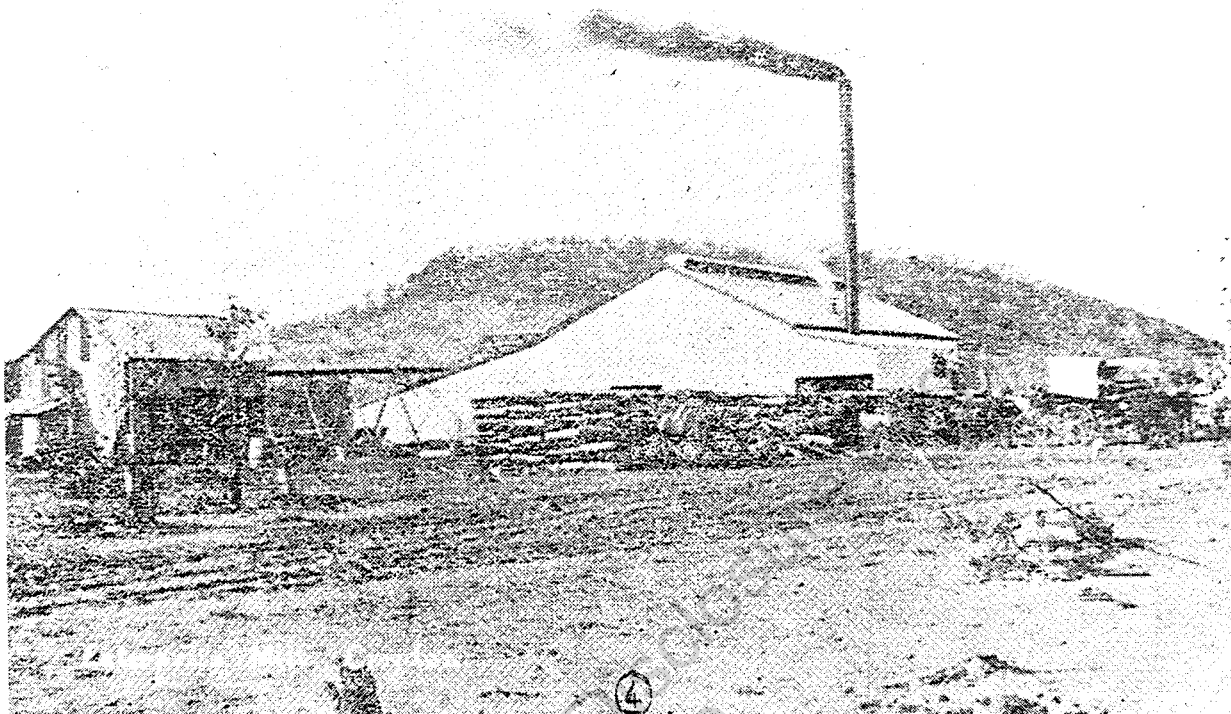
The location of Richardson's Enterprise battery beside Station Creek and the use of pumps and water pipes from the True Blue and Content mines enabled it to prosper on ore from Rogers' Golden Gate, Golden Gate 3 and 4 South, and the Content mine. The tailings heap is the highest recorded in North Queensland and demonstrates the extent of operations and the competition for tailings to treat.

The place has visual qualities arising from the surface evidence and there are associated places on the opposite side of the creek, including a cemetery and an early battery site containing a wheeler pan and a mortar box insitu.

The place satisfies (a) (d) and (e) of the *Queensland Heritage Act 1992*.

REFERENCES

- Hooper, Colin. 1993. *Angor to Zillmanton*, p. 162, 177.
- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.



Enterprise battery, looking N.
 Queenslander, 22 May 1897.
 John Oxley Library No.109689.



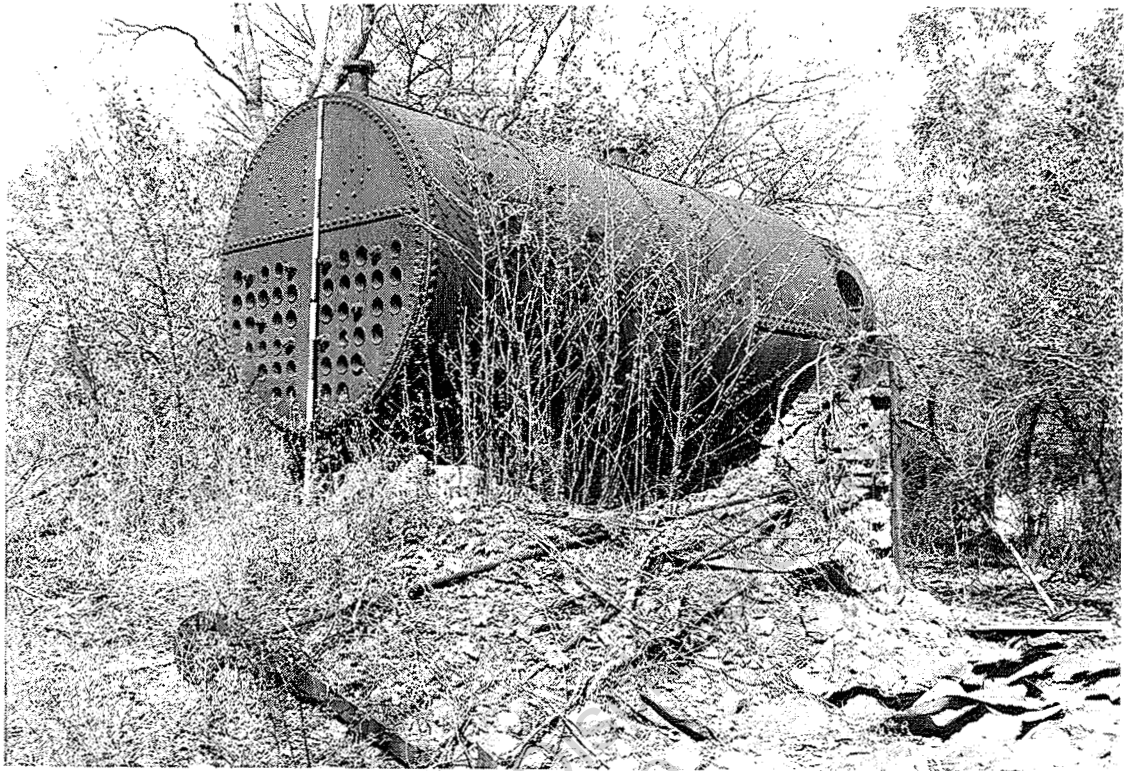
Battery shed foundations (left) and boiler
 house site (centre). Looking S. Survey pegs
 for new bridge approach in foreground.



New Belmore Creek bridge constructed through the Enterprise Battery site by the Department of Transport.



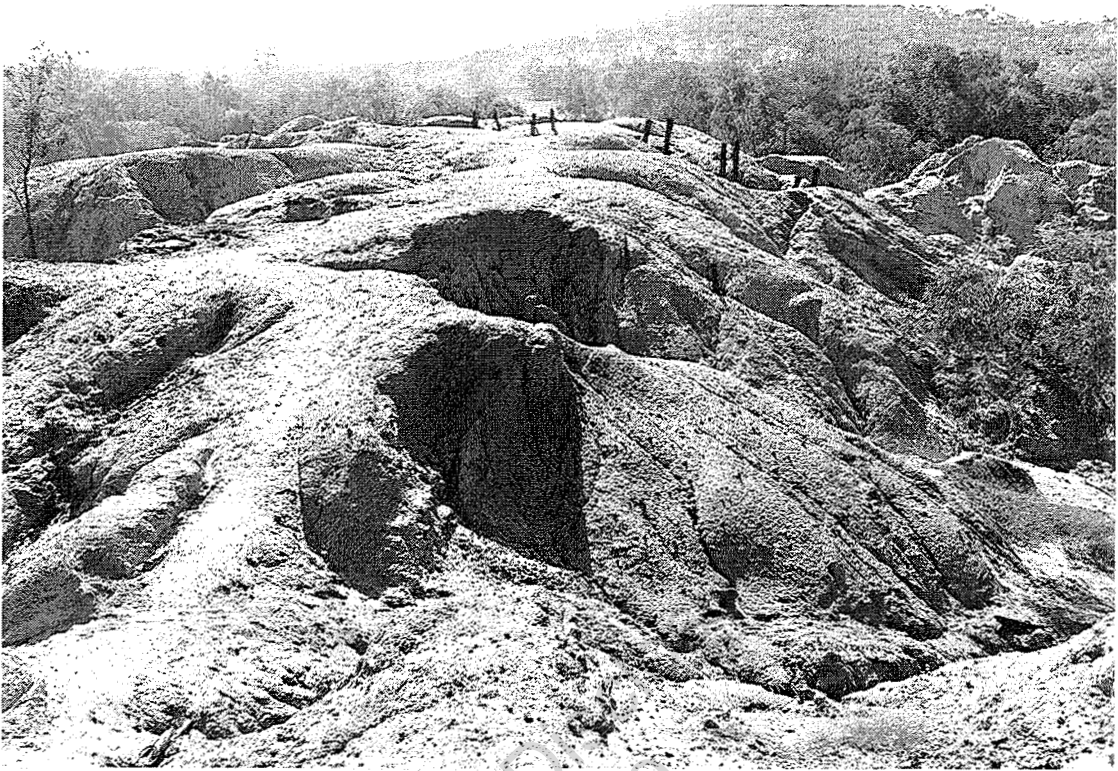
Enterprise Battery with new bridgeworks (June 1995). Boiler visible in background at right. Looking SE.



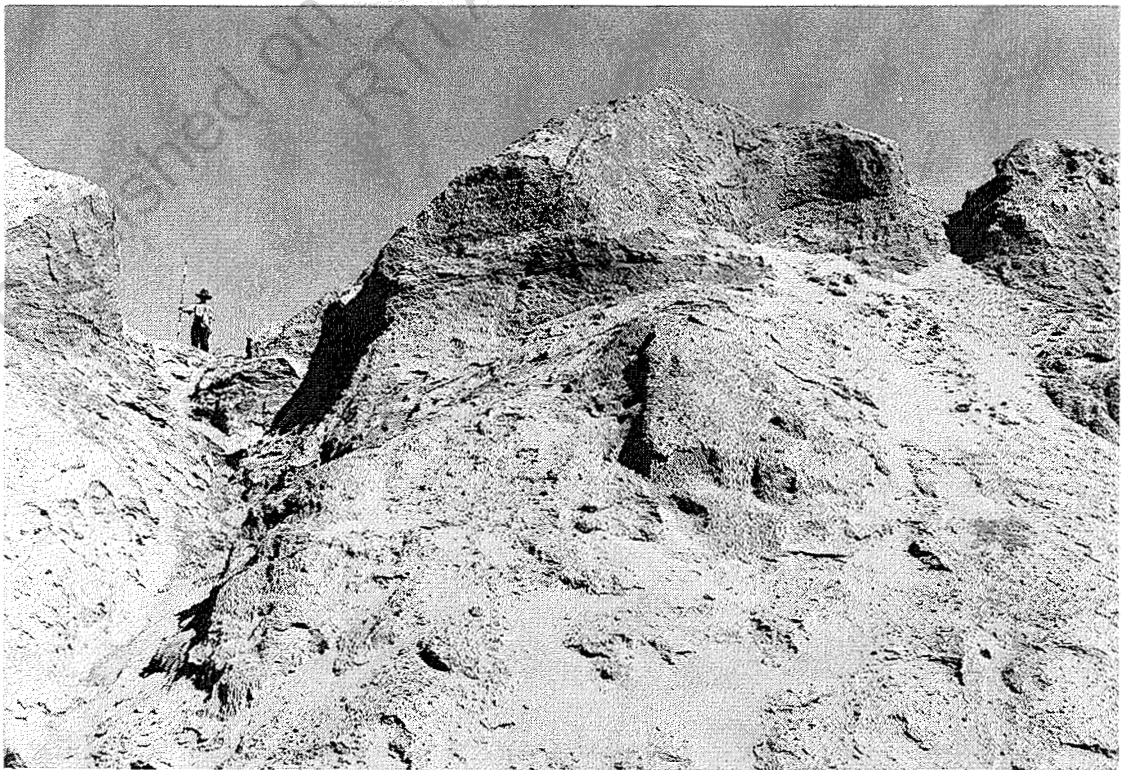
Colonial boiler in stone mount, looking E.



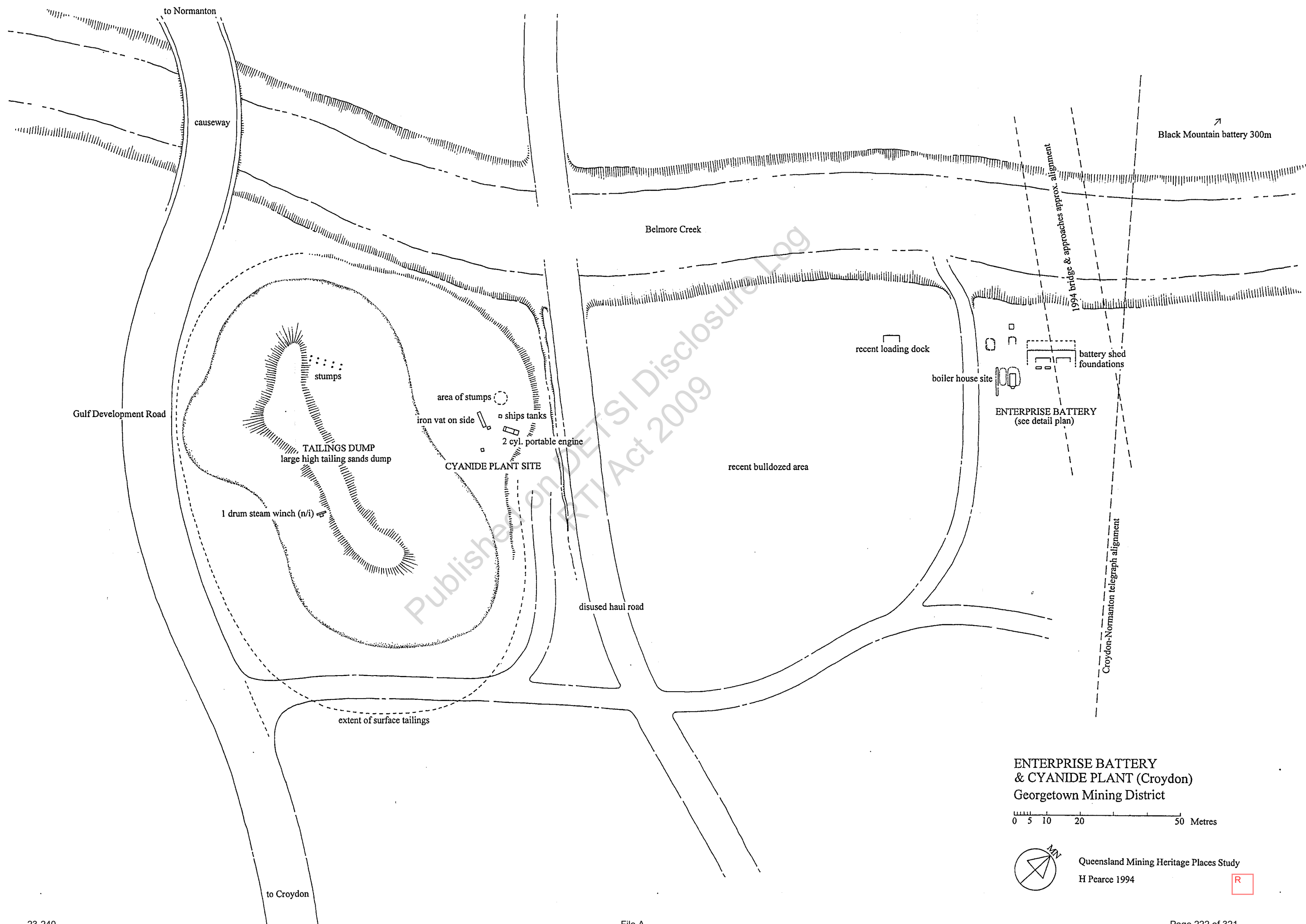
2 cyl. portable engine at cyanide plant site.
Looking NE.

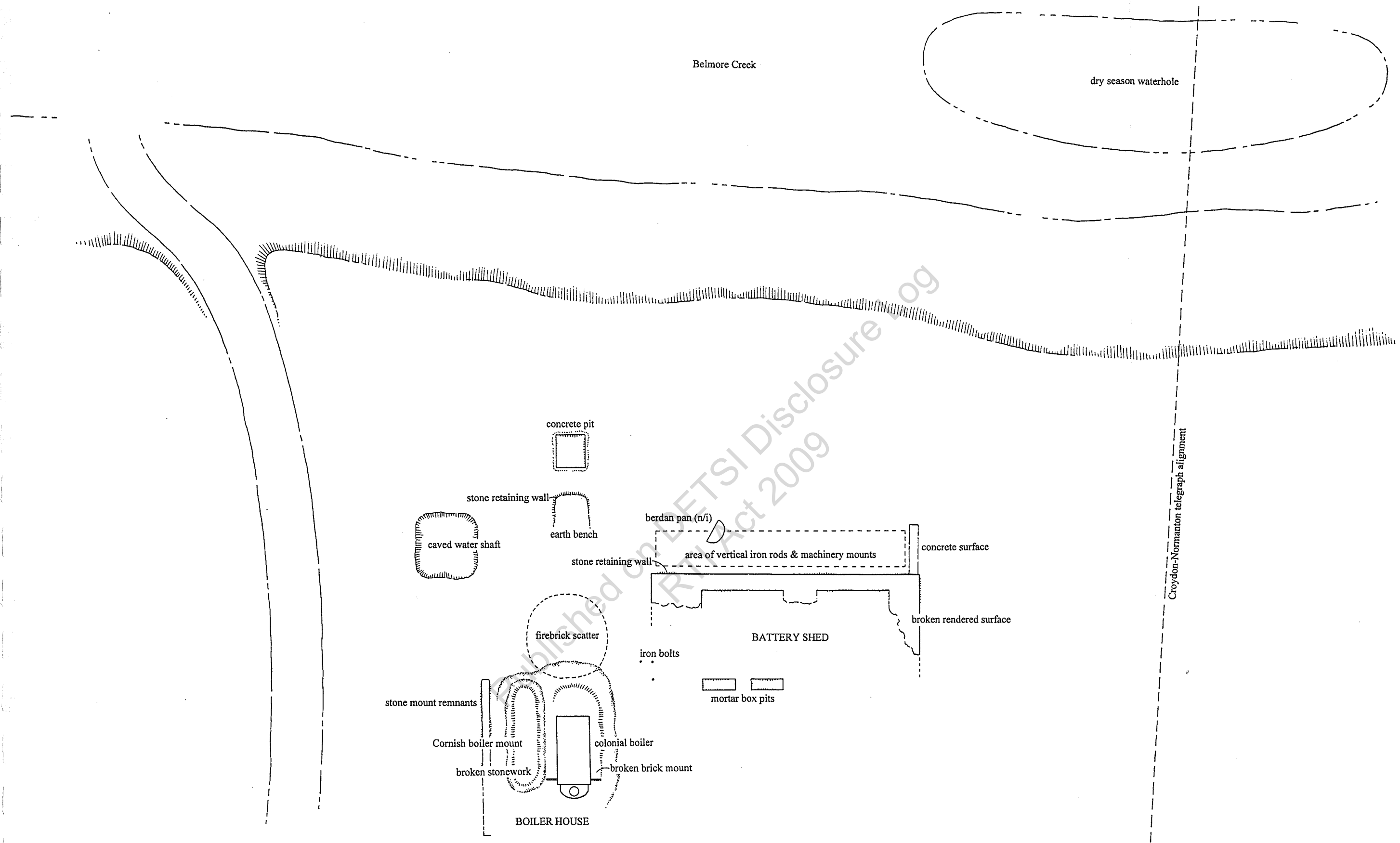


Top of large tailings dump, looking NW.



Large tailings dump from Belmore Creek.
Looking SE.





ENTERPRISE BATTERY (Croydon)
Georgetown Mining District

0 5 10 Metres



Queensland Mining Heritage Places Study
H Pearce 1994



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: ESMERALDA BATTERY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Yappar River

Local Government Area: Croydon Shire

Map Sheet: Esmeralda 7460. 1:100,000. AMG

Latitude: 18.53.09 S (by GPS)

Longitude: 142.37.22 E (by GPS)

Land Tenure: (Esmeralda station)

Mineral Lease:

Location and Access:

Located about 90 km south-east of Croydon. Access by the Croydon - Richmond road and station tracks from Esmeralda homestead.

Heritage Boundaries:

Heritage boundaries were not considered for this place.

HISTORY OF PLACE

Gold was first discovered at Esmeralda Creek at the southern edge of the Croydon Goldfield in 1892 and three prospecting areas were granted. A five head crushing battery was erected on Rifle Creek, 5 kms from the workings. However the battery was unsatisfactory due to its small capacity and distance from the workings and for some months it was idle because carters could not find feed for their horses (de Havelland, 1989:414).

In 1893 a Huntington mill from Goldstone was erected and there were 30 miners working. In 1894 the total returns were 2,982 ozs of gold from 4,942 tons of quartz (de Havelland, 1989:415).

The lodes worked were the Huon, Esmeralda, Ada, True Blue and Good Iron and between 1893-5 a total of 303 ozs of gold was derived from 413.5 tons of ore (de Havelland, *ibid*).

In 1896 new machinery was added to the Huntington mill consisting of a stone-breaker, elevator, two self-feeders, two concentrators, three Denny pans and two berdan pans.

Between 1899 and 1906, little work appears to have been carried out on the Esmeralda field. By 1901 the cyanide plant had been moved to Goldstone and the battery to Rocky Creek (Annual Report. 1901:48). In 1907 Messrs Houston and Stuart moved their crushing mill, the Catherine, from Tabletop to Esmeralda and in October 1908, 750 tons gave a return of 180 ozs. The owners then decided to let the mine, mill and cyanide works on tribute for two years to Lane and party. They realized only 61ozs from 500 tons and abandoned the mine in 1909. From then on the Esmeralda remained abandoned (de Havelland, 1989:415-416).

A hotel and a postal receiving office operated from 1893 to 1908 (Hooper, 1993:177).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Brick

Stonework

Bush Timber

Structural Components:

Boiler Foundations

Mill/Battery Foundations

Description of Place:

The place is located alongside a bore which is a major stock watering point on the station. Most of the surviving surface evidence of the battery layout has been trampled and destroyed, while the buildings and plant have long since been salvaged and removed. The last major item of plant at the place, a single cylinder portable steam engine (manufactured by Chas Burrell & Sons Thetford), was brought into Esmeralda homestead in the early 1980s. The engine may have continued to have been used for pumping after the closure of the battery. The battery location contains evidence of a stone and brick boiler mount with metal side plates that was probably associated with a small colonial boiler. There are

several ships tanks, one of which has been adapted as a forge, a wheeler pan base, and stamper parts including two five-head cam shafts, cams, shoes and dies, and a belt wheel shaft.

Plant: Nil

STATEMENT OF SIGNIFICANCE

The Esmeralda battery site is significant in Queensland's history as an example of an isolated mining development on the southern edge of the Croydon Goldfield from 1893 to 1908.

Very little surface evidence of the battery and cyanide works remains.

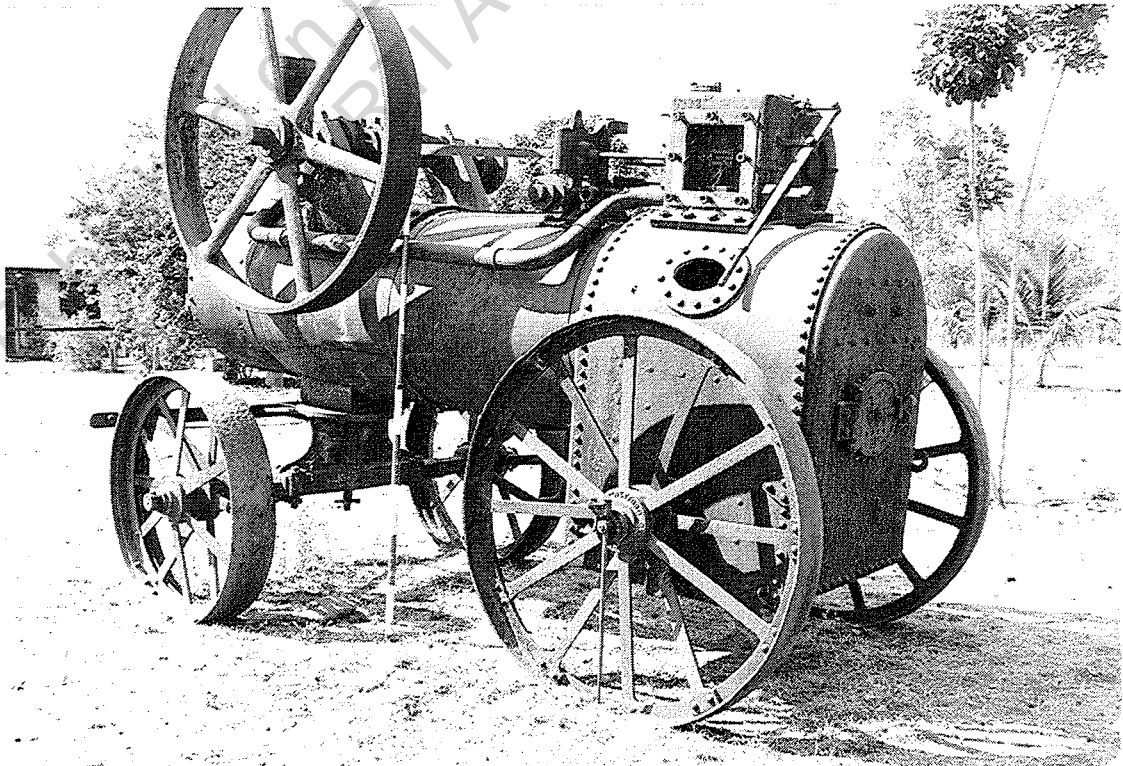
The place satisfies criterion (a) of the *Queensland Heritage Act 1992*.

REFERENCES

- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, pp. 414-416.
- Hooper, Colin. 1993. *Angor to Zillmanton*, p. 177.
- Greenfield, W.H. 1911. *Sketch Map of the Croydon and Etheridge Goldfields*.
- Mines Department. 1901. Annual Report, p. 48.



Esmeralda Battery site.



Portable steam engine recently removed from the battery site to Esmeralda homestead.

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: FEDERATION BATTERY & MOUNT MORGAN
TRAMWAY FORMATION

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Tabletop Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 375988 - Battery

Latitude: 18.05.43 S (by GPS) - Battery

Longitude: 142.17.58 E (by GPS) - Battery

Land Tenure: OL 785. (Tabletop station)

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 4990 Central Coast Exploration NL

Location and Access:

Located 13 km north of Croydon. Access by the Croydon - Tabletop township road, with a turn off south at a dam on the west side of Tabletop Creek. The battery is situated on the west side of Mount Morgan above the dam.

Heritage Boundaries:

North: East-west line passing through a point 150 metres north of the stone building.

South: East-west line passing through a point 50 metres south of the southern extremity of the tramway stage.

East: North-south line passing through a point 100 metres east of the tramway stage.

West: North-south line passing through a point 100 metres east of the eastern extremity of the battery site.

HISTORY OF PLACE

The Federation mine at Tabletop dates from 1887. Tabletop was then the most important centre on the field other than Croydon. Speculators had taken up all the

machine sites and when they were unable to sell they were forfeited. The first battery, a sixteen head, was brought from the Woolgar Goldfield north of Hughenden. There were several mills at the Tabletop before the Federation - Day Dawn P.C's, Lady Marian, Catherine and Mount Morgan - all erected between 1888 and 1890. Companies were formed in haste and profits made and lost quickly and the Warden described in 1889 that "practical mining was ignored in favour of effervescent bubble ventures".

During the depression when the population drifted away, the Federation was one of the best mainstays of Tabletop. It produced 2,000 ozs from 850 tons of quartz in 1894. There was also a good yield of 1,597 ozs from 3,337 tons of quartz in 1896. It was doing very well in 1897 with 7,908 ozs, 39% of Tabletop's production that year.

In 1899 Charters Towers interests visiting the Croydon field looking for bargains, came to Tabletop and disregarded it. However the Federation United Gold Mines Company Limited, an English company, and their manager, H.F. Morgan, bought the Federation, Mount Morgan, Day Dawn and Bobby Dazzler mines, and erected the Federation Mill - a thirty head battery and cyanide works, tramways and dam, all constructed for £14,000 - the largest mill on the Croydon field. The problem for the battery was that surface crushings had really only been done and the mines needed huge capital outlays on exploration and sinking at depth. Consequently the mill operated for only a few years. It was lying idle in 1900 as tight financial conditions in London caused by the Boer War forced them to mothball the mill.

Cuthbert, a longtime investor on the Croydon field, had bought the Federation mine and commenced work assessing the underlie, thought to go down to 91m. Cuthbert's pursuit of ore at the Federation was mentioned in 1905 as an almost solitary exception to the apathy exhibited towards the "outside" mines on the field (Q.G.M.J., 15 April 1905: 158). The mine produced very little and Cuthbert directed his energies to the Golden Gate reefs. By 1908 there were only a few tributers. The mill was subsequently dismantled and parts removed to other Croydon batteries. (Kerr, 1992,3).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mineral Haulage

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Stonework

Concrete

Earthwork

Structural Components:

Power Plant Foundations

Boiler Foundations/Mount

Mill/Battery Foundations

Railway/Tramway Formation

Boiler/Furnace Flue

Description of Place:

The place comprises three associated component areas, a battery, a tramway formation and a tramway stage. Most of the surviving plant of the Federation battery has been removed to Croydon township and dumped in an area containing plant from a number of local batteries. Items remaining on site include a 2 metre long boiler, two belt wheel shafts and two ten head stamper camshafts. Foundations include the surface remains of two stone boiler mounts and a set of concrete engine mounts. The area has been severely disturbed, but a line of at least four mortar box locations are evident from earth depressions.

A tramway formation aligned approximately north-south passes through the battery site. A short section of the formation comprises a 2 metre deep cutting, 2.6 metres wide at the base. The base of a stone building located 10 metres north-east of the battery appears to be associated with the tramway. The building's well cut and dressed stonework has mostly been removed for re-use. The tramway alignment has been disturbed south of the battery but the formation appears to continue about 300 metres south-east to terminate at an elevated stone-built stage or loading platform. The quality of the stage stonework and finish is identical to that of the building. The stage is 2.4 metres at its highest point and 20 metres in length. A water tube end section from a Babcock & Wilcox boiler lies alongside. Bulldozed tram rails, are located adjacent to the stage overlooking a recent, large worked-out open cut mine.

Plant:

- Boiler (unidentified type) - no brand.

STATEMENT OF SIGNIFICANCE

The Federation Battery and Mount Morgan Tramway are significant in the history of Queensland as the battery with thirty head of stamps was the largest erected on the Croydon Goldfield. That it only operated for approximately two years is indicative of the problems of foreign company ownership and management.

Dressed stonework features in the remnants of buildings and the tramway ore stage indicating that skilled tradesmen were employed in the construction, indicative of capital investment.

The combination of early tramway, battery site, elevated stage and recent huge open cut is noteworthy.

The place satisfies criteria (a) (b) and (e) of the *Queensland Heritage Act 1992*.

REFERENCES

- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol 3.
Queensland Government Mining Journal.
15 September 1900, p. 159.
15 April 1905, p. 158.

Published on DETSI Disclosure Log
RTI Act 2009



Battery site, looking S. with fallen
belt wheel shaft in foreground.



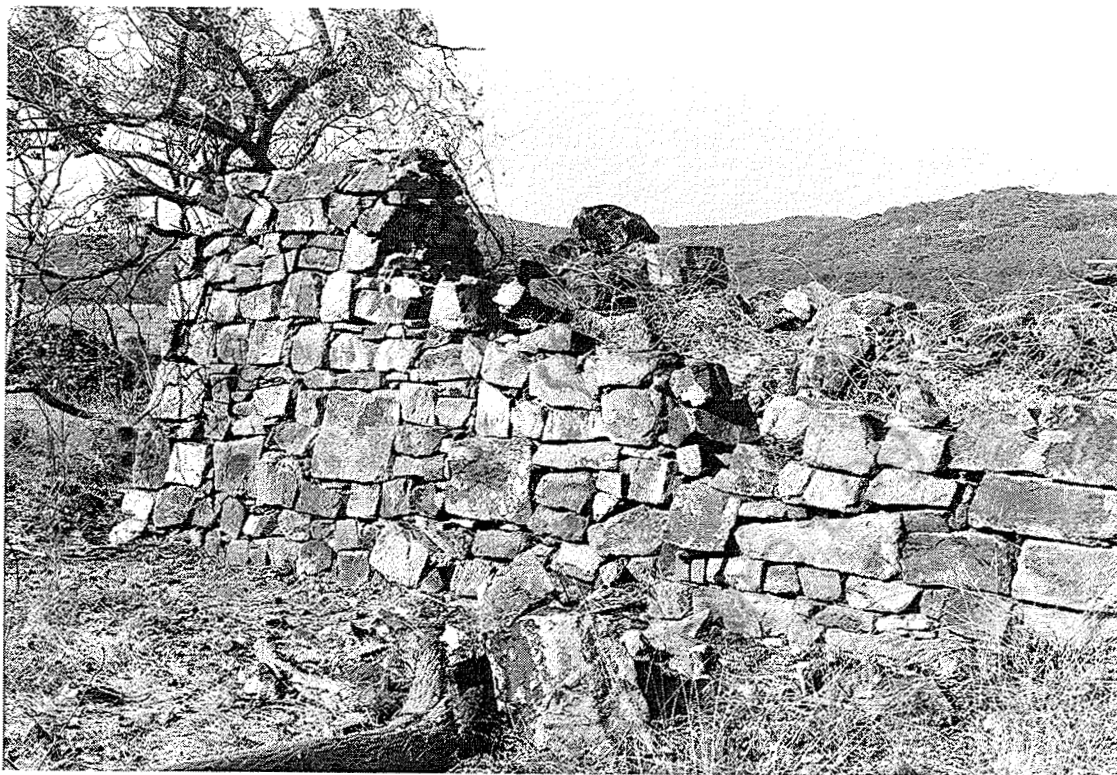
Battery site with stone boiler mount in
foreground, looking E.



Tramway cutting, looking SW. to battery.



Stone building remains on tramway,
looking S. to battery.

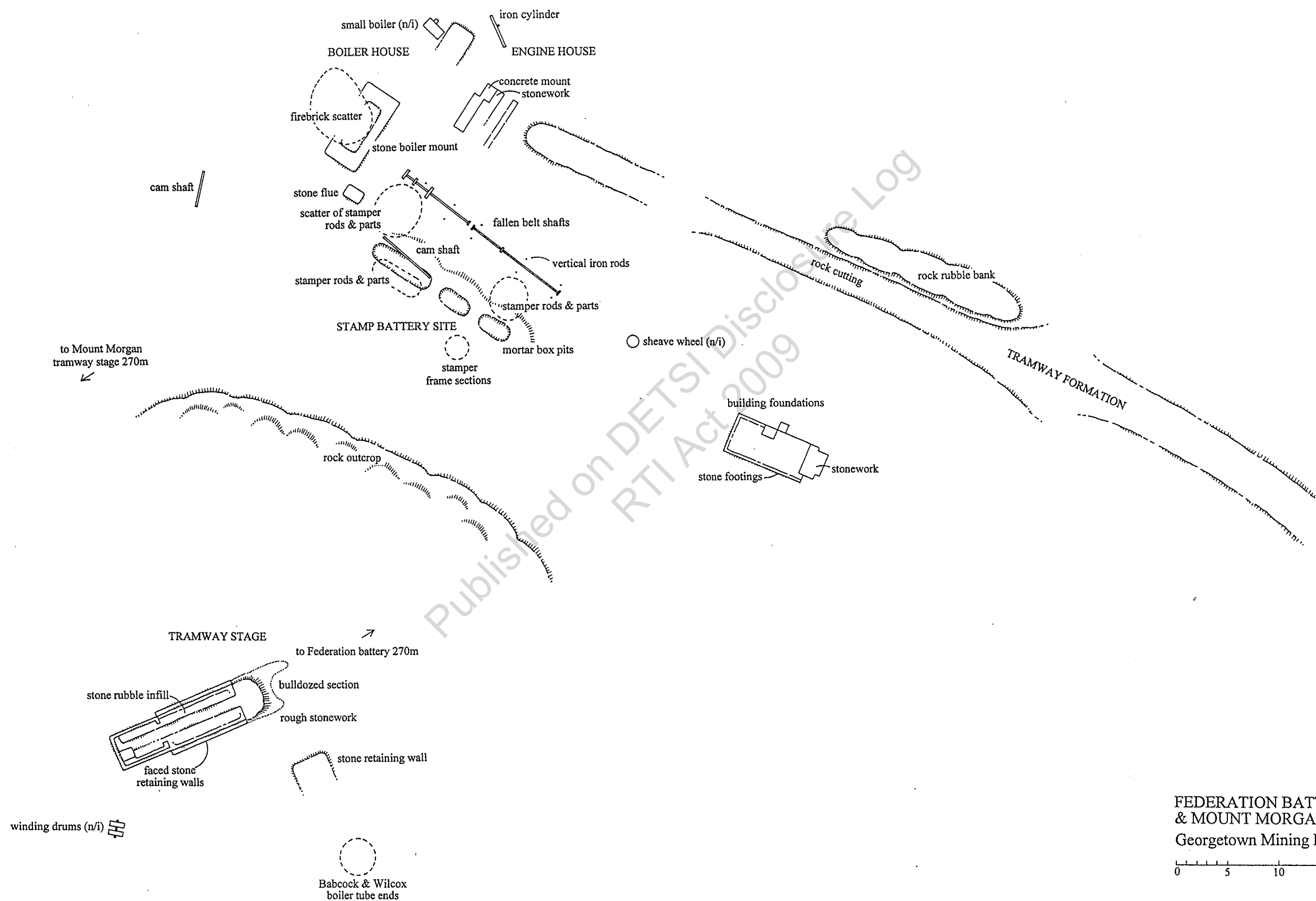


Mount Morgan tramway stage stonework,
looking SW.



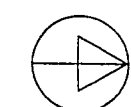
Tramway stage (background left) with B & W
boiler tube ends (foreground).

R



FEDERATION BATTERY
& MOUNT MORGAN TRAMWAY
Georgetown Mining District

0 5 10 20 Metres



Queensland Mining Heritage Places Study
H Pearce 1994

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MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GILBERTON TOWNSHIP BATTERIES

Other Names: (Commissioner's Hill batteries)

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Gilbert River

Local Government Area: Etheridge Shire

Map Sheet: Gilberton 7659. 1:100,000. AMG 803667

Latitude: 19.16.24 S (by GPS)

Longitude: 143.40.03 E (by GPS)

Land Tenure: Township Reserve

Exploration Permit (M): EPM 5672 Eltin Minerals Pty Ltd

Mineral Lease: ML 3555 ? Robert Herbert Townson

Location and Access:

Located at Gilberton, 75 km south of Forsayth on the Einasleigh - Gilberton road. The places are situated opposite the township site and on the south bank of the Gilbert River.

Heritage Boundaries:

North: Northern bank of the Gilbert River.

South: East-west line passing through a point at the top of Commissioners Hill.

East: Course of a north-south trending creek about 100 metres east of a stone hut.

West: North-south line passing through a point 500 metres west of the road on the southern bank of the crossing.

HISTORY OF PLACE

Gilberton was the first township to be formed on the Etheridge Goldfield after Richard Daintree found gold on the Gilbert River in 1869. The subsequent rush resulted in 3,000 men gathering at Gilberton and down the river to its confluence with the Percy River.

The Commissioner's Hill diggings were among the first worked at Gilberton. The Commissioner's, Armageddon and Artemus Ward reefs were opened in 1869, with the first crushings in 1871. (de Havelland, 1989:286). The town survived until 1873 when the Palmer River rush and Aboriginal attacks caused a mass exodus and abandonment of the town. (Hooper, 1993:59).

By 1878 European and Chinese miners were returning. In 1883 the town was re-established with three hotels, four Chinese stores and a butcher. The Gilberton Gold Mining Company had a 15 head battery near Commissioner's Hill. But in 1887, most buildings and population moved to Graniteville and Gilberton was all but deserted again. (Hooper, *ibid*).

In 1891 there was a revival with two hotels, two stores, a butcher shop and the crushing mill recommissioned. Between 30 and 100 men were fossicking in 1900. (Wegner, 1990:91). In 1909 the town was deserted for the Oaks goldfield rush.

In 1911 McGallon installed a three head battery and cyanide plant. In 1917 the Mining Warden described the industry of Gilberton as consisting of a little unsuccessful fossicking, a couple of mines and a cyanide works. (Wegner, 1990:132).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mining Settlement

Operational Status:

Abandoned

Structural Condition:

Unstable Ruin

Structural Fabric:

Stonework

Bush Timber

Structural Components:

Mill/Battery Foundations

Mining Settlement/Camp

Boiler Foundations/Mount

Description of Place:

The place contains very minimal surviving evidence of two separate batteries within 150 metres of each other on the southern bank of the river and on the western side of the road. The easterly site has been heavily disturbed by pigs and cattle but still contains the remnants of a stone mount for a boiler, short timber stumps for a building and a stunted palm tree. The westerly site contains three short iron rods spanning a distance of 3 metres, which may have been associated

with engine or stamper foundations. A mine and mullock dump are on the river bank about 200 metres further west. A stone hut or store with partly collapsed walls and a separate fireplace are located on the eastern side of the road. One of the surviving walls contains a small loophole or air vent. All evidence of the township site on the northern bank of the river has been destroyed by recent mining operations.

Plant: Nil

STATEMENT OF SIGNIFICANCE

The Gilberton Battery Sites are of significance in Queensland's history for illustrating the development of the gold mining at Gilberton from 1869 to 1917 when the field was largely abandoned. Although there are minimal structural remains, the combination of battery sites and the walls of a stone building below Commissioner's Hill is important in demonstrating early development within the original township.

The place satisfies criteria (a) and (b) of the *Queensland Heritage Act 1992*.

REFERENCES

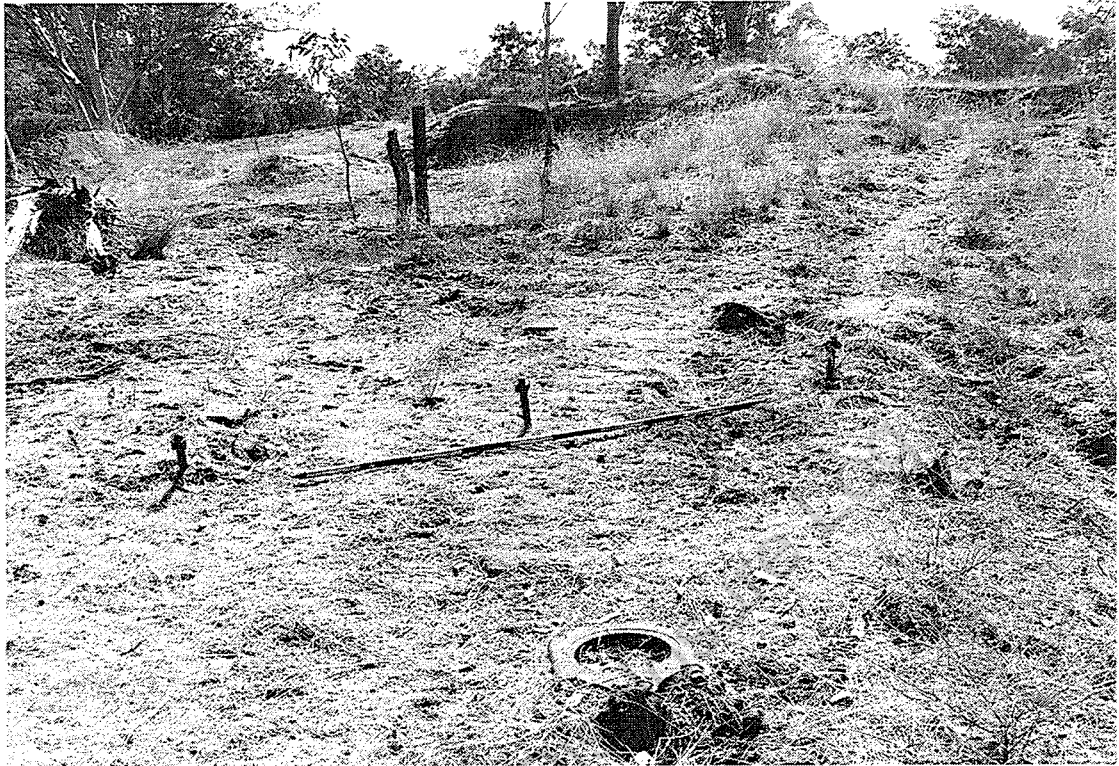
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 286
- Hooper, Colin. 1993, *Angor to Zillmanton*, p. 58-9.
- Wegner, Janice. 1990. *The Etheridge*, Studies in North Queensland History No.13, James Cook University, Townsville, p. 132.



Eastern battery site: collapsed stonework
of boiler mount, looking N. (Refer to plan)



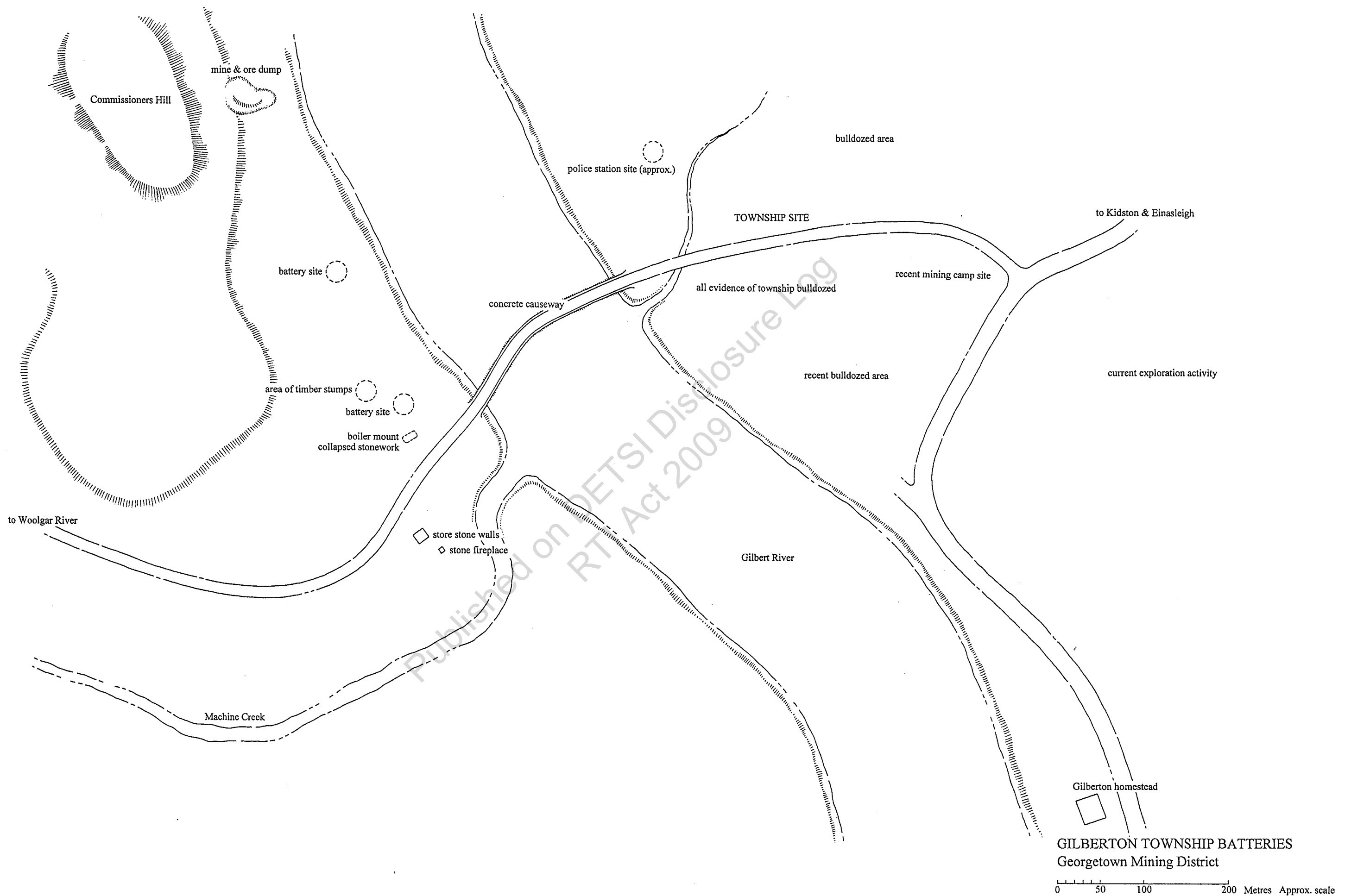
Area of timber stumps, looking S.
(Refer to plan).



Iron bolts at western battery site,
looking NE. (Refer to plan).



Store stone walls, looking SW.



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GOLDEN GATE CONSOLS MINE

Other Names: GOLDEN GATE No 8 NORTH MINE

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Golden Gate Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 264927

Latitude: 18.09.07 S (by GPS)

Longitude: 142.11.50 E (by GPS)

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 4988 (Golden Gate 3) Central Coast Exploration NL

Location and Access:

Located 8 km north-west of Croydon on the Gulf Development Road. Access by a track north, east of Golden Gate Creek.

Heritage Boundaries:

Portion of the Golden Gate cultural heritage area bounded by:

North: East-west fenceline about 200metres north of the battery boilers.

South: Gulf Development Road.

East: North-south line 250 metres east of the battery boilers.

West: North-south line 150m west of the west bank of Golden Gate Creek.

HISTORY OF PLACE

The Golden Gate reef was first worked in 1886, but was abandoned by 1890, after only a few crushings and was not reopened until 1893, when a rich gold-bearing shoot was discovered in the No. 8 North Golden Gate Claim, later called the Croydon Consols. The large, well defined, north-north-west bearing reef contained gold-bearing quartz with abundant sulphides and was mined over a total

length of 2.5 km. Records suggest that payable ore was limited to a vertical depth of approximately 90m. Its most productive years, between 1886 and 1911, showed a yield of 483,000 ozs of gold from 244,364 tons of ore. This production totalled more than one-third of the entire Croydon yield. During Rands' 1895 inspection, the area and Golden Gate township boasted a population of 250 (de Havelland, 1989:425).

This mine has often been called the Golden Gate No. 8 North and is at the western end of the Golden Gate complex, between Rogers Gully and Golden Gate Creek. No. 4 shaft (Croydon Consols) is situated 61m north of No. 8 North underlie. No.3 shaft (Croydon Consols) reached a vertical depth of 128m through an underlie shaft from the 78m level. A 1.3m reef was located at 26m in 1893 which produced 363 ozs that year. In 1894 the mine was sold to an English company for £16,000, to be paid in instalments.

The Croydon Consols Limited had a nominal capital of £100,000 in 400,000 shares. The new company managed the mine well, straightening and timbering the shaft, erecting a headframe and introducing steel buckets instead of greenhide ones. The purchasers of the mine were handsomely repaid as the company declared a dividend in 1896 of £28,000 which was in excess of any profits obtained from any mine on the Croydon goldfield so far. The mine produced 22,815 ozs of gold in that year. They also sank the shaft to 116m, then the deepest mine on the field, a feat which did not impress the warden as it was done using a whip pole and with scant regard for the miners' safety. The following year they did further sinking and produced 11,390 ozs of gold from 2,871 tons of quartz. (Kerr, 1992).

1898 was a momentous year for the mine and company in several ways. There was no production whatsoever and there was a heavy influx of water which cost £3,374 to pump out. They had to apply for an exemption from labour conditions in September 1898. In July 1898 the company made a call of £8,000 for machinery and let a contract for £3,000 to Walkers Limited of Maryborough for the pumping machinery. Emslie Limited of Croydon obtained the contract to erect the pumping plant in the first six weeks of 1899. This was claimed to be the most up-to-date pumping machinery in Queensland, valued at £3,700 and it commenced baling operations on 12 February 1899. In 1901 it was described as having one single and one double winding gear, and three steam engines of 54h.p., six pumps, an air compressor, and one rock drill, valued at £7,000, by far the most valuable equipment on the field. (Kerr, 1992). It was also described as having the best mine machinery on the field. (Q.G.M.J., Mar 1901).

The company was not successful in prospecting in 1899. Water was a constant problem and the pump was being used to deliver water to the Golden Gate Milling Company in 1900. They discovered a rich leader which sent the shares up to a shilling in September 1900. From then on for ten years it was one of the leading producers on the whole goldfield, yielding 81,629 ozs from 32,877 tons of stone

(average of 2.48 ozs per ton) or 19% of the total gold produced from quartz crushing in the period. (Kerr, 1992).

The new shaft sunk in 1900 was equipped with winding plant (engine and boiler) made locally by Messrs. Stuart and McKenzie of the Union Foundry. The plant was christened by Miss Stuart with a bottle of champagne at a very enthusiastic demonstration of the plant operating and attended by directors, shareholders and manager. (Q.G.M.J., 15 Oct. 1903:524).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Structural Components:

Winding Engine Foundations/Mount

Mullock Dump

Boiler Foundations/Mount

Mine Shaft/Adit

Retaining Wall

Description of Place:

Located about 200 metres north of the Gulf Development Road, on the east side of Golden Gate Creek, and over 500 metres south-west of the Croydon Consols battery site. The place comprises a timbered incline shaft to the north-east of the winding plant area. A high mullock dump with sections of rock retaining walls rises immediately on the north-western side. The plant includes a twin cylinder two drum steam winding engine on a concrete mount aligned with the incline shaft about 40 metres south-west. The winding plant is manufactured by the local Croydon foundry of Stuart & McKenzie and is probably the only insitu unit surviving. The engine components have been removed. A concrete mount for an air compressor is located in front of the winder. A colonial boiler with an iron base and a semi-portable boiler are aligned end to end alongside the winding plant and compressor mount. The remnants of a stone mount for a third boiler are located alongside the portable boiler. The flue, or chimney base, of the colonial boiler is located nearby. Seven ships tanks are scattered around the site.

Plant:

- Two cylinder, two drum, steam winding engine - Stuart & McKenzie (Union Foundry) Croydon.
- Colonial boiler - no brand.

- Semi-portable boiler - R.Hornsby & Sons Limited Grantham England.
Firebricks - Gartcraig.

STATEMENT OF SIGNIFICANCE

The Golden Gate Consols mine is significant in Queensland history as the deepest mine on the Croydon Goldfield and one of the most productive.

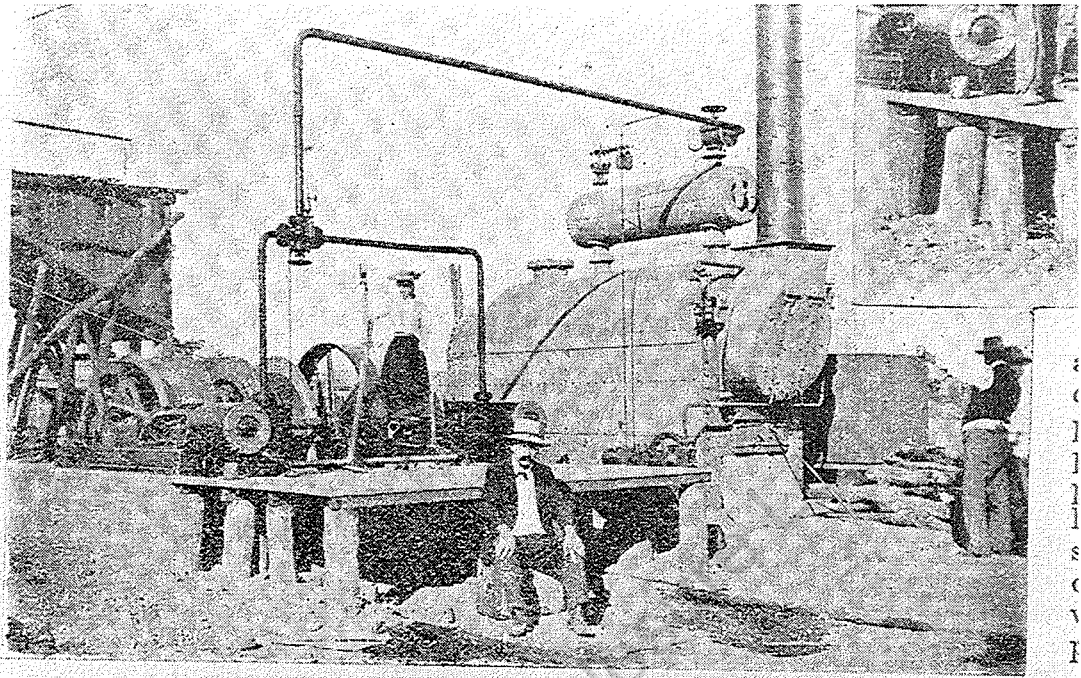
The winding engine installed in 1903 was probably the first locally manufactured winder, and the only one to survive insitu.

The incline shaft is unusual and the combination of remaining plant, mine and mullock dump in context is noteworthy. The surface remnants testify to significant capital expenditure on the mine's development.

The place satisfies criteria (a) (b) (d) and (f) of the *Queensland Heritage Act 1992*.

REFERENCES

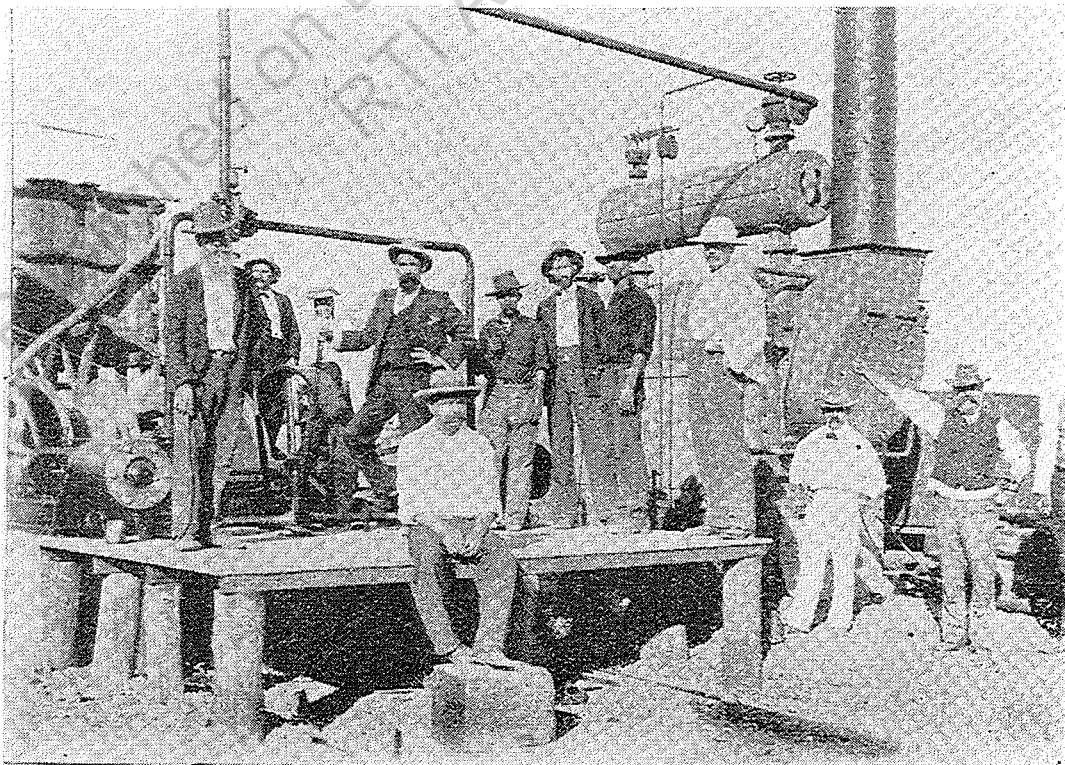
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 425.
- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.
- Queensland Government Mining Journal*,
March 1901, p. 24.
15 October, 1903 p. 524.



GOLDEN GATE CONSOLS MINE, CROYDON
Christening of a Locally-made Winding Plant.

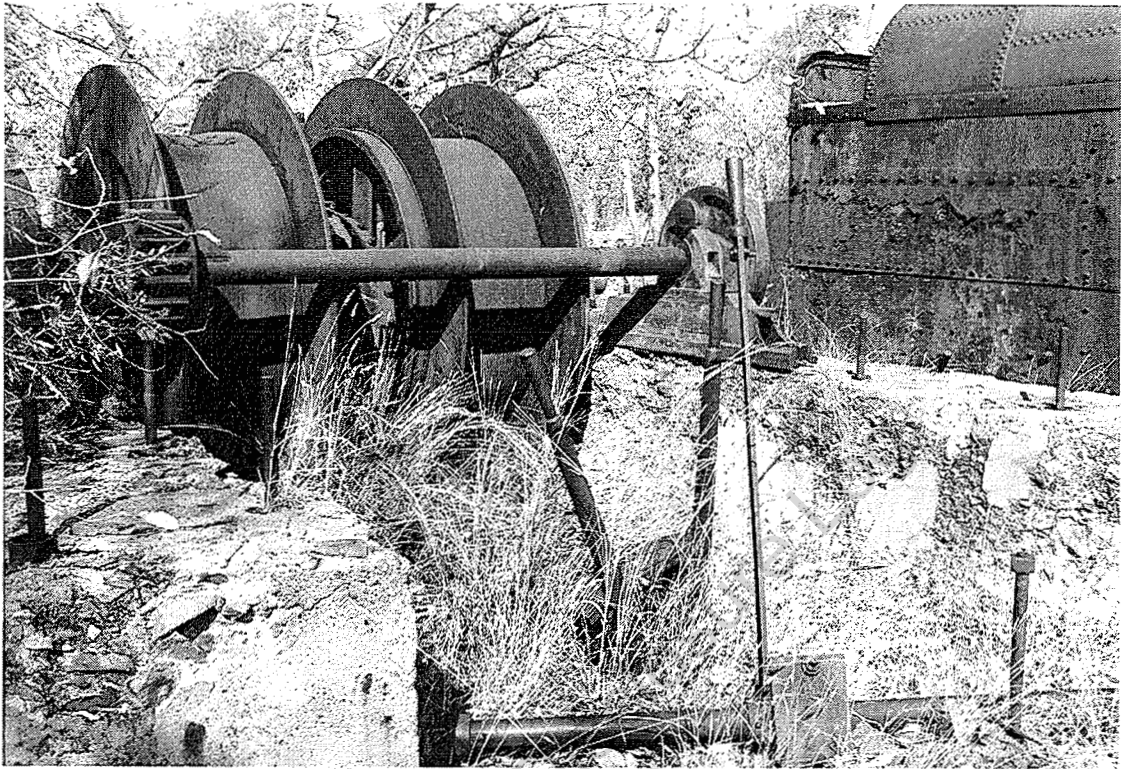
Exper

Christening of the Stuart & McKenzie
winding engine. Looking SE.
Q.G.M.J. 15 October 1903, p.524.



Christening of the Stuart & McKenzie
winding engine.
Q.G.M.J. 15 October 1903, p.524.

R



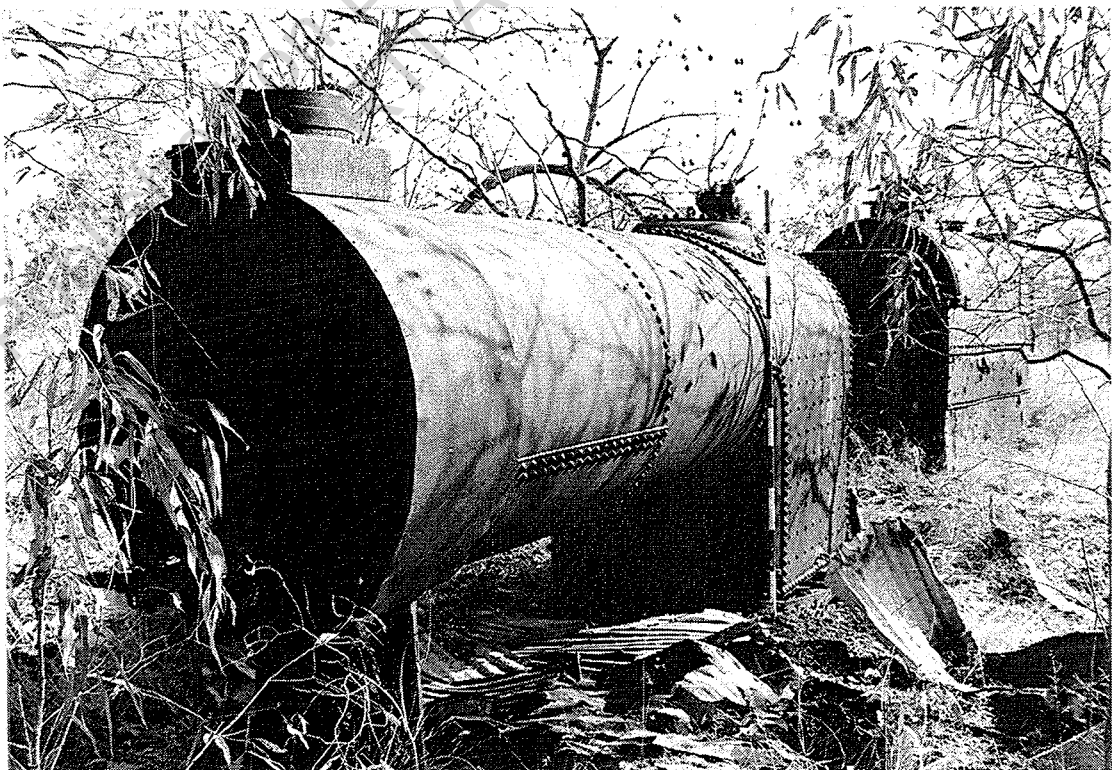
Stuart & McKenzie winding engine with the colonial boiler in the background. Looking SE.



Stuart & McKenzie winding engine and colonial boiler, looking SE.



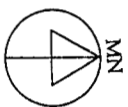
Winding engine (left), Hornsby portable boiler (centre) and colonial boiler (right). Looking NE.



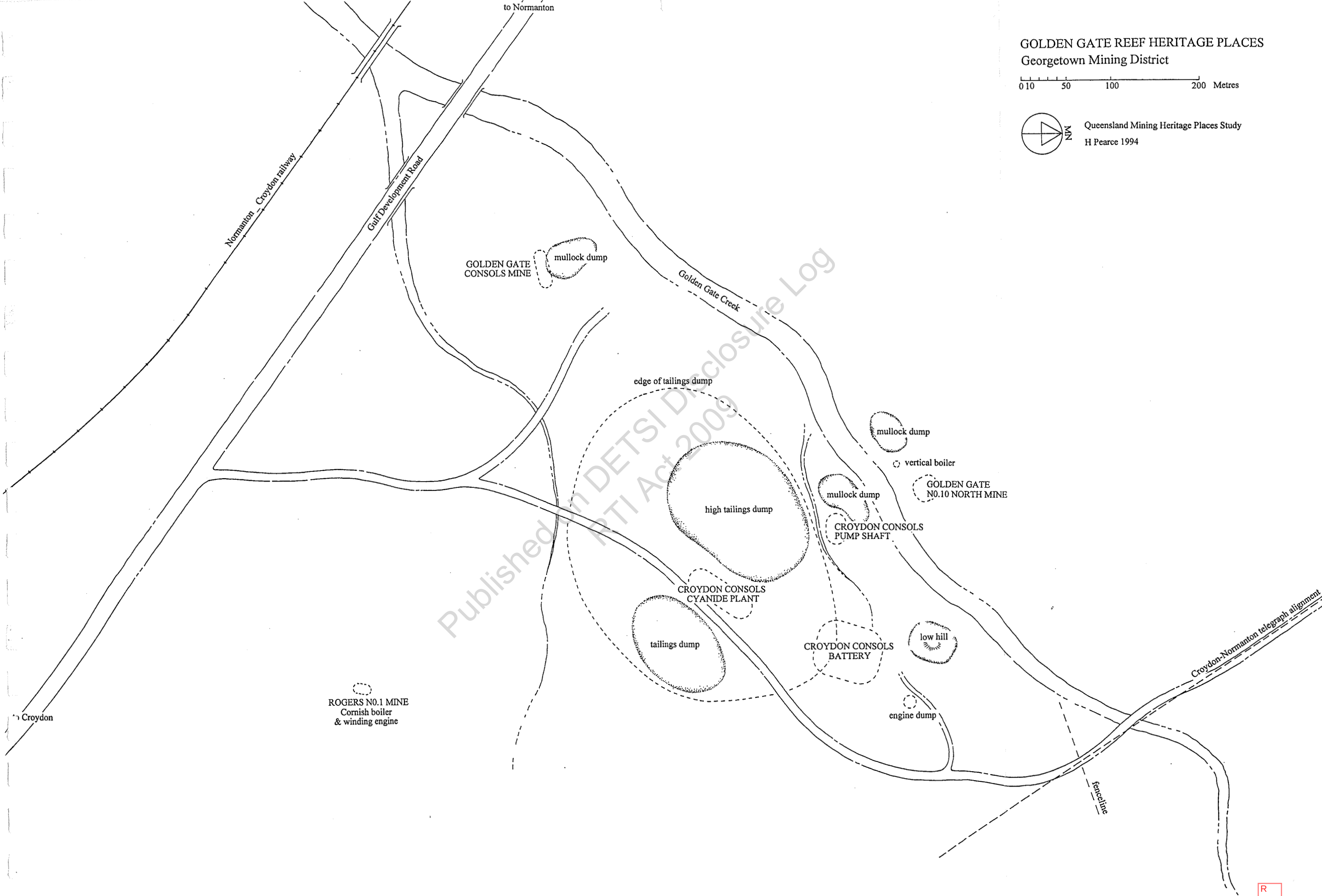
Hornsby portable boiler, looking S.

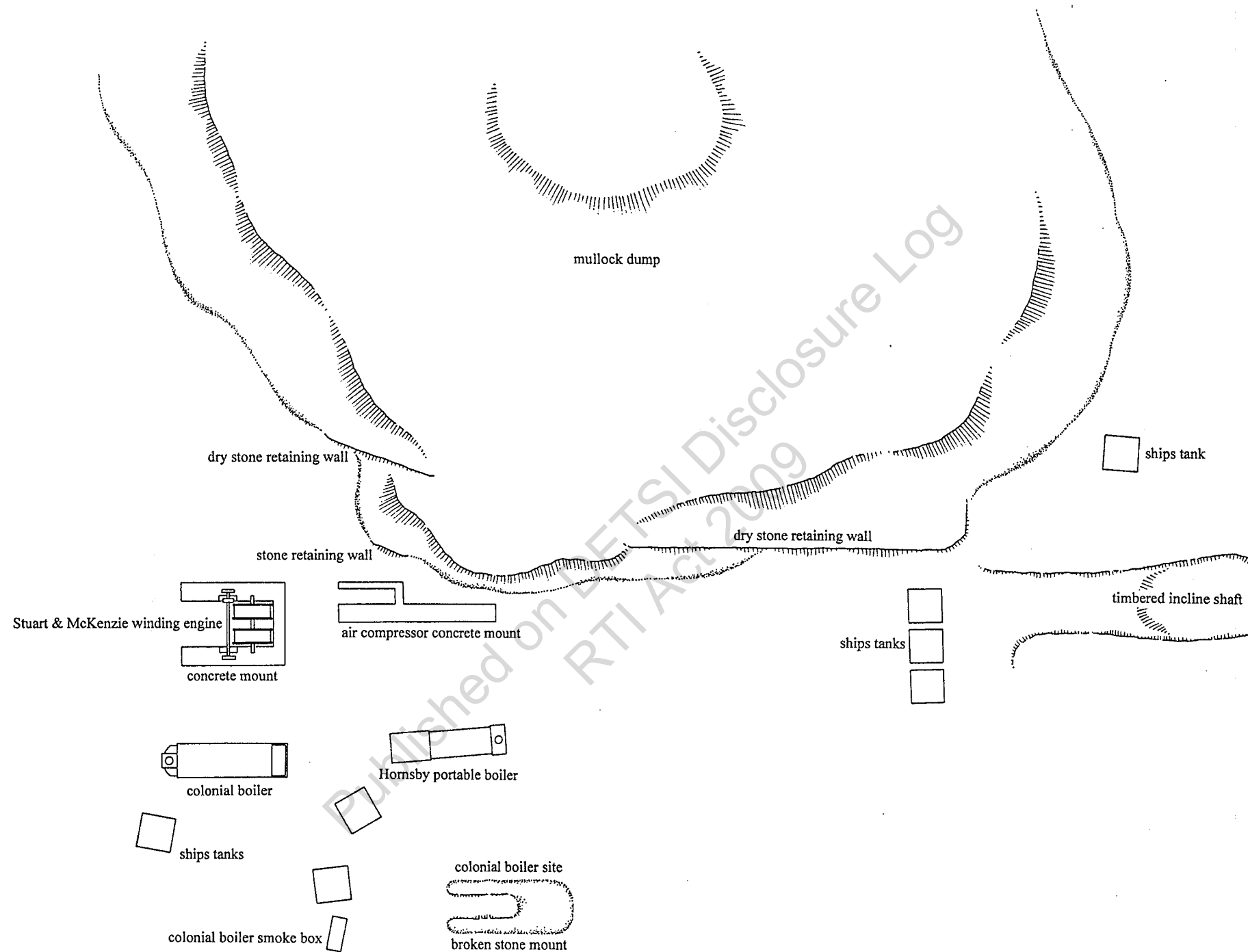
GOLDEN GATE REEF HERITAGE PLACES
Georgetown Mining District

0 10 50 100 200 Metres



Queensland Mining Heritage Places Study
H Pearce 1994





GOLDEN GATE CONSOLS MINE
Georgetown Mining District

0 5 10 Metres



Queensland Mining Heritage Places Study
H Pearce 1994



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GOLDEN GATE No 10 NORTH MINE

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Golden Gate Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 266931

Latitude: 18.08.52 S (by GPS)

Longitude: 142.11.47 E (by GPS)

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 4988 Central Coast Exploration NL

Location and Access:

Located 8 km north-west of Croydon on the Gulf Development Road. Access by a track north, east of Golden Gate Creek.

Heritage Boundaries:

Portion of the Golden Gate cultural heritage area bounded by:

North: East-west fenceline about 200metres north of the battery boilers.

South: Gulf Development Road.

East: North-south line 250 metres east of the battery boilers.

West: North-south line 150m west of the west bank of Golden Gate Creek.

HISTORY OF PLACE

It is not known when the Golden Gate No. 10 mine on the northern edge of the Golden Gate reef commenced operations. It is shown on Rands' 1896 map.

At the northern end of the line of reef, at varying distances from Golden Gate Creek, a number of prospecting shafts were sunk to try and find a continuation of the reef which had proved so productive to the south. No. 10 North was at the northern end and here the reef became well-defined although there was a

convergence of faults. Mining operations were conducted on a large scale in exploring the reef up to 1906 (Q.G.M.J., 18 April 1906: 186).

Morgan's Block shaft was used in 1904 to test the deep ground in the Golden Gate No. 8 (Croydon Consols) and No.10 lines. (Kerr, 1992). Despite this testing there are no production records from the 1904 period. In 1923 there are again records of work: by August Messrs. Hayman and Ah Foo, supported by a strong local syndicate, had dewatered the mine and were sinking a monkey shaft in the No. 2 North level in the hope of picking up the reef (Q.G.M.J., 15 Sept 1923: 345). By September 1923 the shaft had been sunk 3m (Q.G.M.J., 15 Oct 1923: 394).

In 1923 Golden Gate No. 10 North was the only mine working in the Croydon district, but efforts to locate the continuation of the reef past the fault were disappointing. A shoot at the 34m level yielded 55 oz of gold from a crushing of 16 tons (Annual Report, 1924: 9). There are no further records after this time.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Earthwork

Structural Components:

Mine Shaft/Adit

Mullock Dump

Description of Place:

Located on the western bank of Golden Gate Creek about 150 metres north of the Croydon Consols pump shaft and about 200 metres west of the Croydon Consols battery site. The area surrounding the mine and surviving plant has recently been cleared of vegetation resulting in bulldozer damage and disturbance of plant. The most significant item of plant is a rare undertype semi-portable steam engine with a self-contained winching unit. The boiler unit has been removed and is now situated alongside its base. A two drum winding unit attached to the base is still coupled with the engine. A dozed pile of earth partly covers the winching plant which is aligned with a partly caved mine shaft. A large (4.5 metre high) vertical boiler is located on its side immediately north-west of the undertype. Nearby a twin cylinder steam winding engine and several ships tanks have been bulldozed into a heap at the edge of the clearing. A smaller vertical boiler remains insitu on the creek bank south of the shaft.

Plant:

- Two-cylinder undertype semi-portable steam engine with self-contained winching unit (boiler not insitu) - no brand (Robey)
- 2 Vertical boilers (one insitu) - no brands.
- Two cylinder, two drum, steam winding engine (not insitu) - no brand

STATEMENT OF SIGNIFICANCE

The Golden Gate No. 10 Mine is significant in Queensland's history as part of the later mining development along the Golden Gate reef on the Croydon Goldfield. It was worked intermittently from 1896 to 1924 and was the major mine involved in operations to relocate the Golden Gate reef beyond its northern break.

It contains a very rare undertype engine and winching unit and the 4.5m high vertical boiler is the largest of this type recorded in North Queensland.

The place satisfies criteria (a) and (b) of the *Queensland Heritage Act 1992*.

REFERENCES

Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.

Queensland Government Mining Journal.

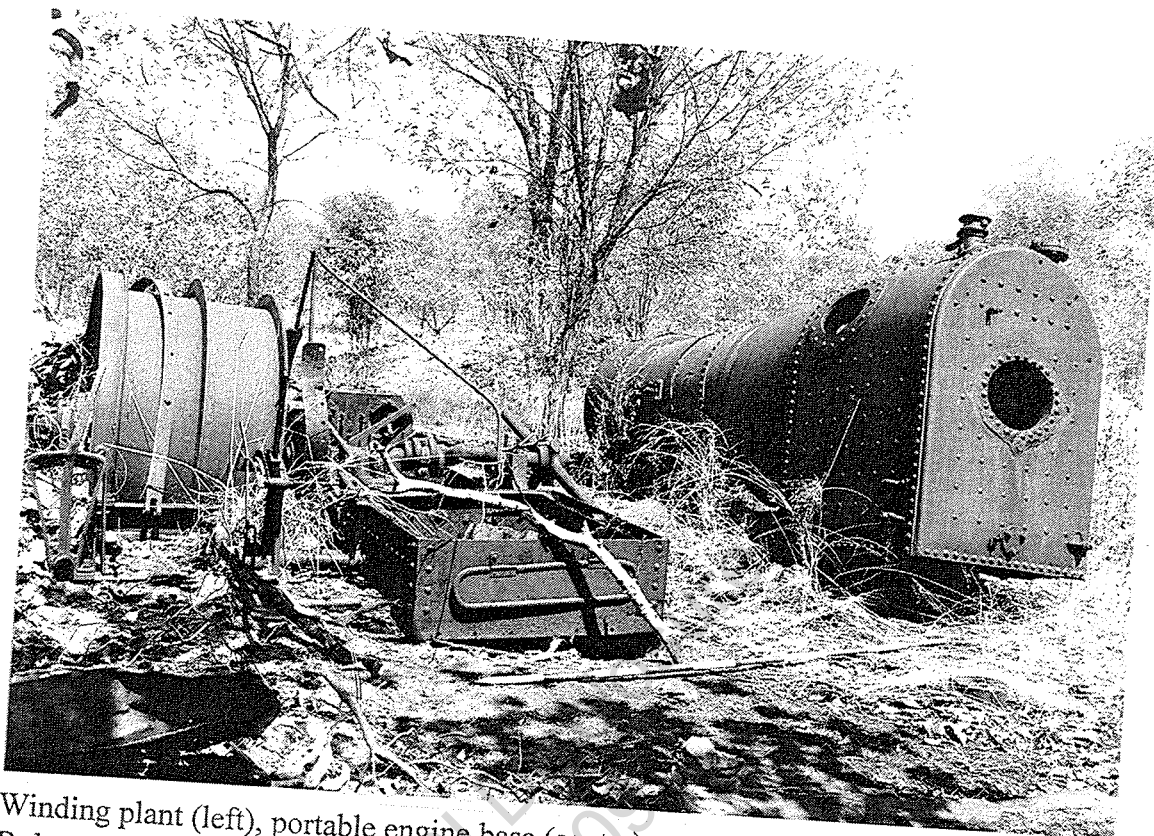
18 April 1906, p. 108.

15 January 1923, p. 33.

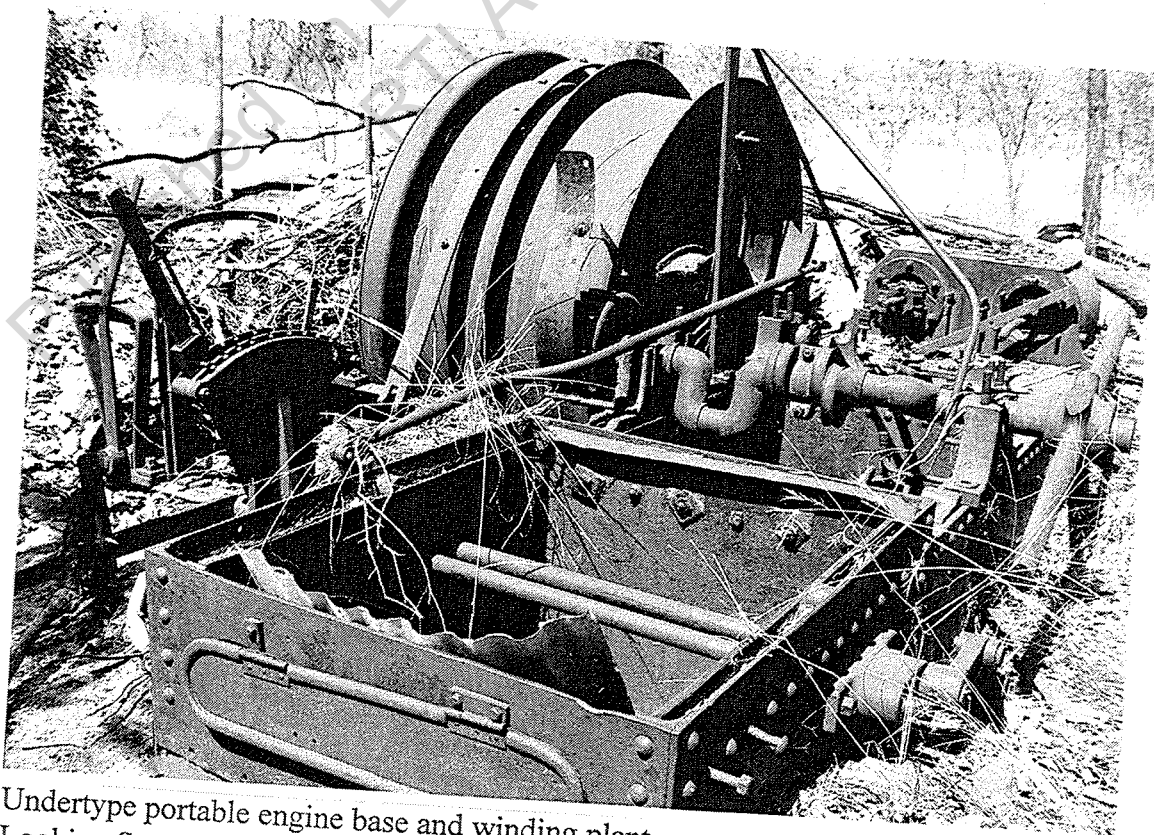
15 September 1923, p. 345.

15 October 1923, p. 394.

Mines Department. 1924. *Annual Report*, p. 9.



Winding plant (left), portable engine base (centre)
Robey undertype portable engine (right). Looking SW.



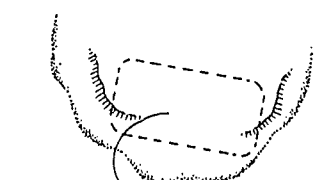
Undertype portable engine base and winding plant.
Looking S.



Vertical boiler (n/i), looking S.

Published on RTIA

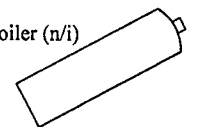
R



2 cyl. winding engine & ships tanks (n/i)
bulldozed into a heap

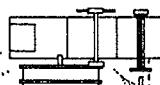
recent bulldozed area

vertical boiler (n/i)



Robey 2 cyl. undertype
portable engine

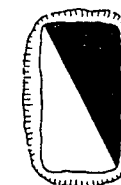
boiler & firebox (n/i)
bulldozed off engine base



portable engine base
& winding plant

earth bulldozed over winding plant

recent bulldozed area



caved shaft

mullock dump

vertical boiler



Golden Gate Creek

GOLDEN GATE No.10 NORTH MINE
Georgetown Mining District

0 5 10 Metres



Queensland Mining Heritage Places Study
H Pearce 1994



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GOLDEN GATE: CROYDON CONSOLS BATTERY &
CYANIDE PLANT

Other Names: GOLDEN GATE MILLING COMPANY MILL

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Golden Gate Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 268930 - Battery

Latitude: 18.08.54 S (by GPS) - Battery. 18.08.58 S (by GPS) - Cyanide

Longitude: 142.11.57 E (by GPS) - Battery. 142.11.55 E (by GPS) - Cyanide

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795

Mineral Lease: ML 4988. Central Coast Exploration NL

Location and Access:

Located 8 km north-west of Croydon on the Gulf Development Road. Access by a track north, east of Golden Gate Creek.

Heritage Boundaries:

Portion of the Golden Gate cultural heritage area bounded by:

North: East-west fenceline about 200metres north of the battery boilers.

South: Gulf Development Road.

East: North-south line 250 metres east of the battery boilers.

West: North-south line 150m west of the west bank of Golden Gate Creek.

HISTORY OF PLACE

Ore from the Golden Gate line of reefs was crushed initially at the Enterprise battery on Station (now Belmore) Creek. In 1893 a rich shoot was discovered in the No. 8 North Golden Gate (later called the Croydon Consols) and this probably led the new owners, the English company Croydon Consols Limited, to erect a

battery. This was comprised of 15 head of stamps and was shown on Rands' 1896 map with the notation that it was formerly the Railway Mill on Machine Area 28 on Belmore Creek south of the railway line. It is not known when the extra 15 head of stamps was added, as the surface evidence now shows iron tension rods for 30 head of stamps in six mortar boxes. A photograph of the battery in operation in 1901 exists but it is not possible to discern the number of stamps. (Q.G.M.J., Mar 1901:26).

Cyanidization of tailings commenced on the Croydon Goldfield in 1894. (Hooper, 1993:163). The Croydon Consols cyaniding plant commenced in 1897 and ceased operations in 1904. In 1897 it comprised one 12h.p. steam engine, ten vats each of fifty tons each, two sumps each of fifty tons, two solution vats each of 50 tons, four recovery boxes, six pumps, valued at £3,000. It was reduced in 1901 to a 6h.p. steam engine, four 40 ton vats, two sumps each 3,960 gallons, one solution vat of 4,000 gallons capacity, two recovery boxes and a pump, valued at £1,500. It is reasonable to assume that the excess equipment went to establish the Enterprise cyanide mill owned by Andrew Richardson in 1902. Croydon Consols Company Limited treated 9,500 tons of tailings for a yield of 7,000 ozs of gold bullion between 1897 and 1904. (Kerr, 1992,3).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Stonework

Concrete

Bush Timber

Structural Components:

Tailings Dump

Mill/Battery Foundations

Constructed Tank/Pond

Power Plant Foundations

Cyanide Plant/Foundations

Boiler Foundations/Mount

Description of Place:

The place contains the largest surviving assemblage of early plant on the Croydon Gold Field. The two main component groups are a battery, and a cyanide plant about 150 metres south. The battery site includes three boilers (2 Cornish and 1 colonial) in a stone mount. A concrete engine mount and a condenser are situated in line between the boilers and the stamper foundations which comprise an earth

trench with broken concrete remnants and iron tension rods for thirty head of stamps in six mortar boxes. An engine and spare parts dump north of the battery contains two portable engines in reasonable condition and a colonial boiler. An earth formation for a tramway runs southward from the battery towards two small tailings dumps.

The cyanide plant is centred a further 100 metres south with a recent tailings dump (centred on coordinates - 18.08.57 S - 142.11.54 E) extending some distance to its west. This dump covers the site of Golden Gate township. Sections of a chain of tailings buckets are located (not insitu) at the battery end of the cyanide plant. The surviving plant includes a Cornish boiler seated in the remains of a stone mount with a twin cylinder portable engine alongside. Iron hoops, stump foundations and supports for ten timber cyanide vats, in two rows of five, extend south alongside three in-ground square concrete settling ponds. A small one cylinder portable engine has been removed to the southern end of the site.

Plant:

- 2 Portable steam engines (in dump - no brand)
- Colonial boiler (in dump) - no brand.
- Cornish boiler (at battery) - Langlands Foundry Limited Melbourne 188?.
- Cornish boiler (at battery) - no brand.
- Colonial boiler with steam receiver (at battery) - no brand.
- Cornish boiler (at cyanide plant) - no brand.
- Two-cylinder portable steam engine (at cyanide plant) - no brand.
- One-cylinder portable steam engine (at cyanide plant) - Clayton & Shuttleworths Patent. E898.
- Tailings bucket chain (at cyanide plant) - Ley's Derby D8012 (on buckets).
Ley's Patent Drive Chain 704 (on chain).

STATEMENT OF SIGNIFICANCE

The Croydon Consols Battery and Cyanide Plant at Golden Gate is significant in Queensland history for the scale, demonstration and diversity of gold treatment processes. It has a close physical association with the range of Golden Gate mines. It contains the largest assemblage of boilers and engine plant recorded in North Queensland.

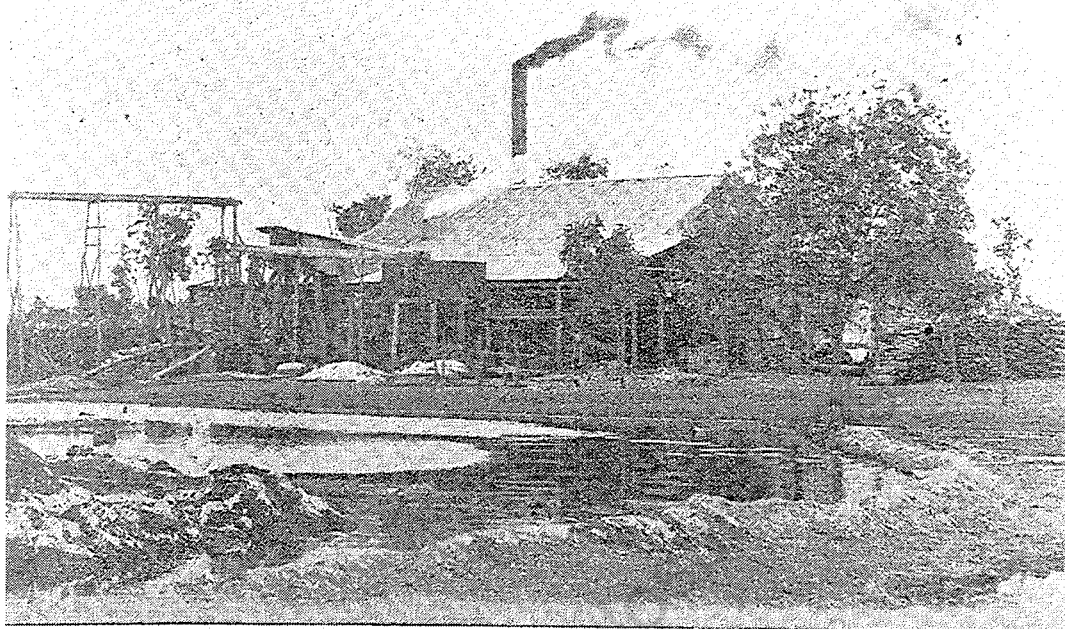
The cyanide plant is amongst the earliest and most intact recorded in North Queensland and the tailings bucket chain and stumps and supports for the vats are unusual remnants. The associated tailings dump is a significant feature of the place.

The place satisfies criteria (a) (b) (d) and (f) of the *Queensland Heritage Act 1992*.

REFERENCES

- Hooper, Colin. 1993. *Angor to Zillmanton*, p. 163
- Kerr, Ruth S. *Queensland Historic Mining Sites Study*, Vol. 3.
Queensland Government Mining Journal, March 1901, p. 26.

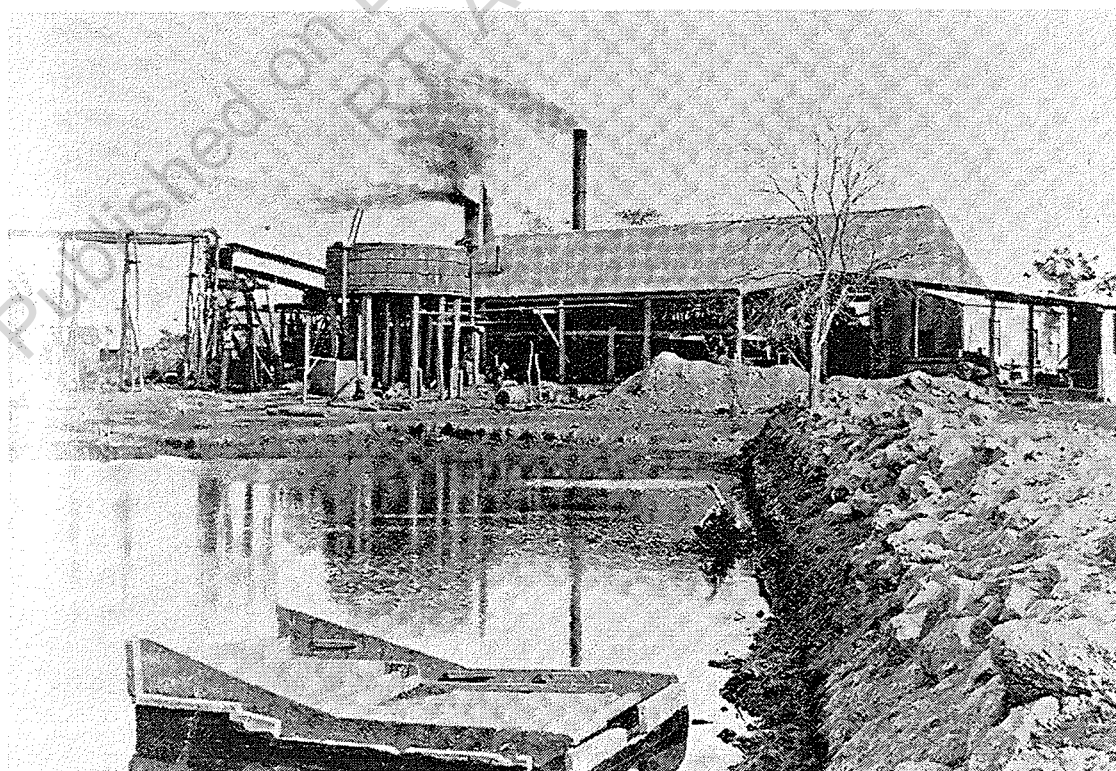
Published on DETSI Disclosure Log
RTI Act 2009



MILL, GOLDEN GATE, CROYDON.

Golden Gate mill.

Q.G.M.J. Special Edition, March 1901, p.26.



Golden Gate mill.

Mines Department Annual Report, 1901, p.48.

R



Battery boiler and engine house site,
showing Langlands Cornish boiler (centre).
Looking SW.



Battery boiler house site, looking NW.



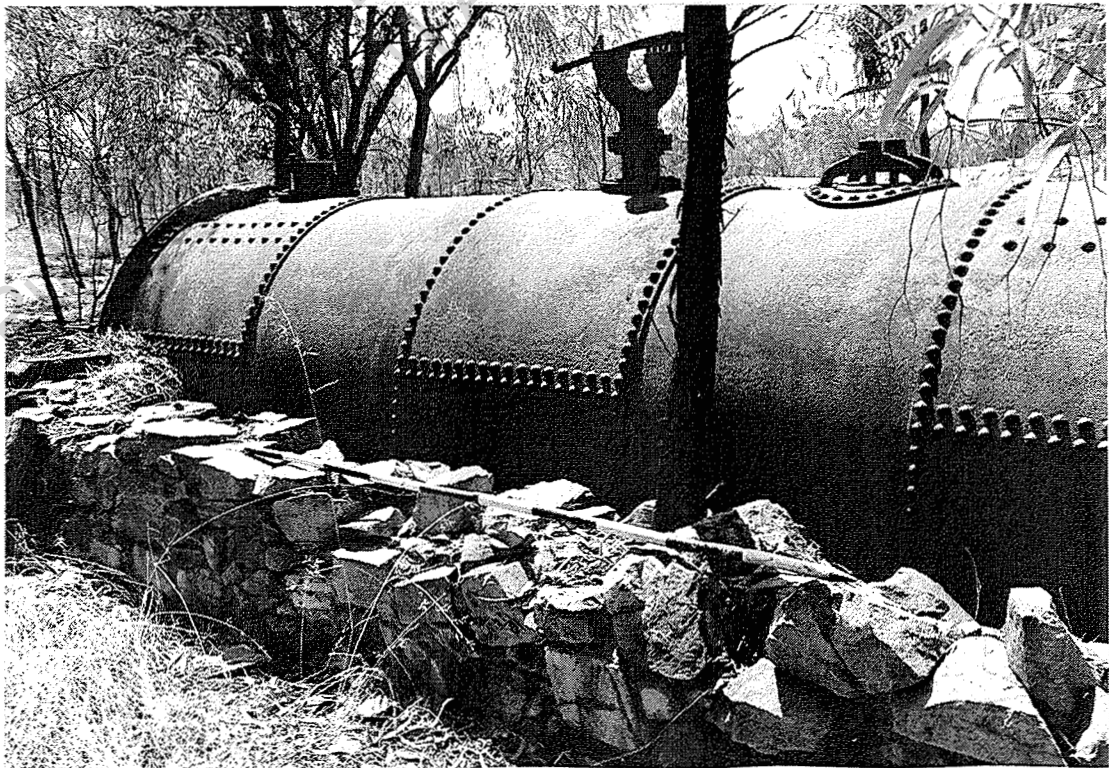
Stamp battery mortar box pits and standard stay rods, looking W.



Engine parts dump, looking SW.



Cyanide tanks site near battery, looking SW.



Cyanide plant Cornish boiler, looking E.



Cyanide plant 2 cyl. portable engine,
looking S.



Cyanide plant Clayton & Shuttleworth portable
engine, looking S.

R

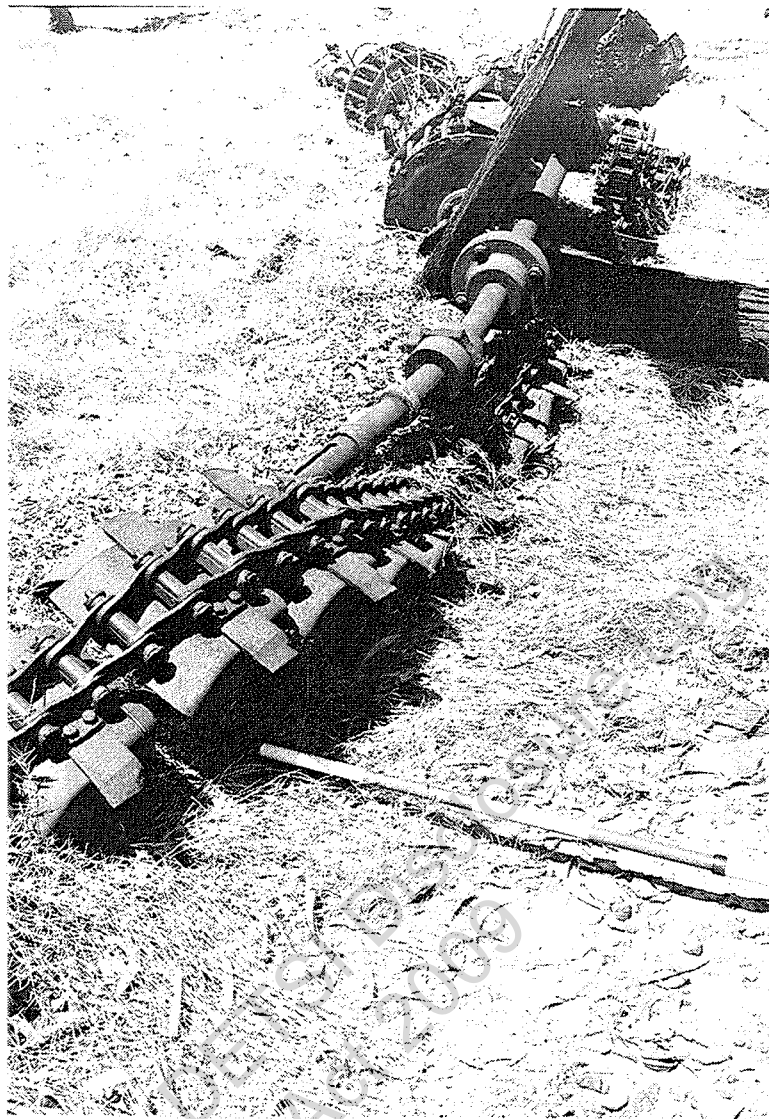


Cyanide vat timber stump mounts on tailings.
Looking S.



Cyanide plant site showing iron hoops from
timber vats (foreground). Looking NE.

R



Ley's tailing bucket chain section.

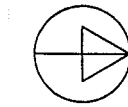


Roger's No.1 mine site showing Cornish boiler with bulldozed winding engine and ships tank.

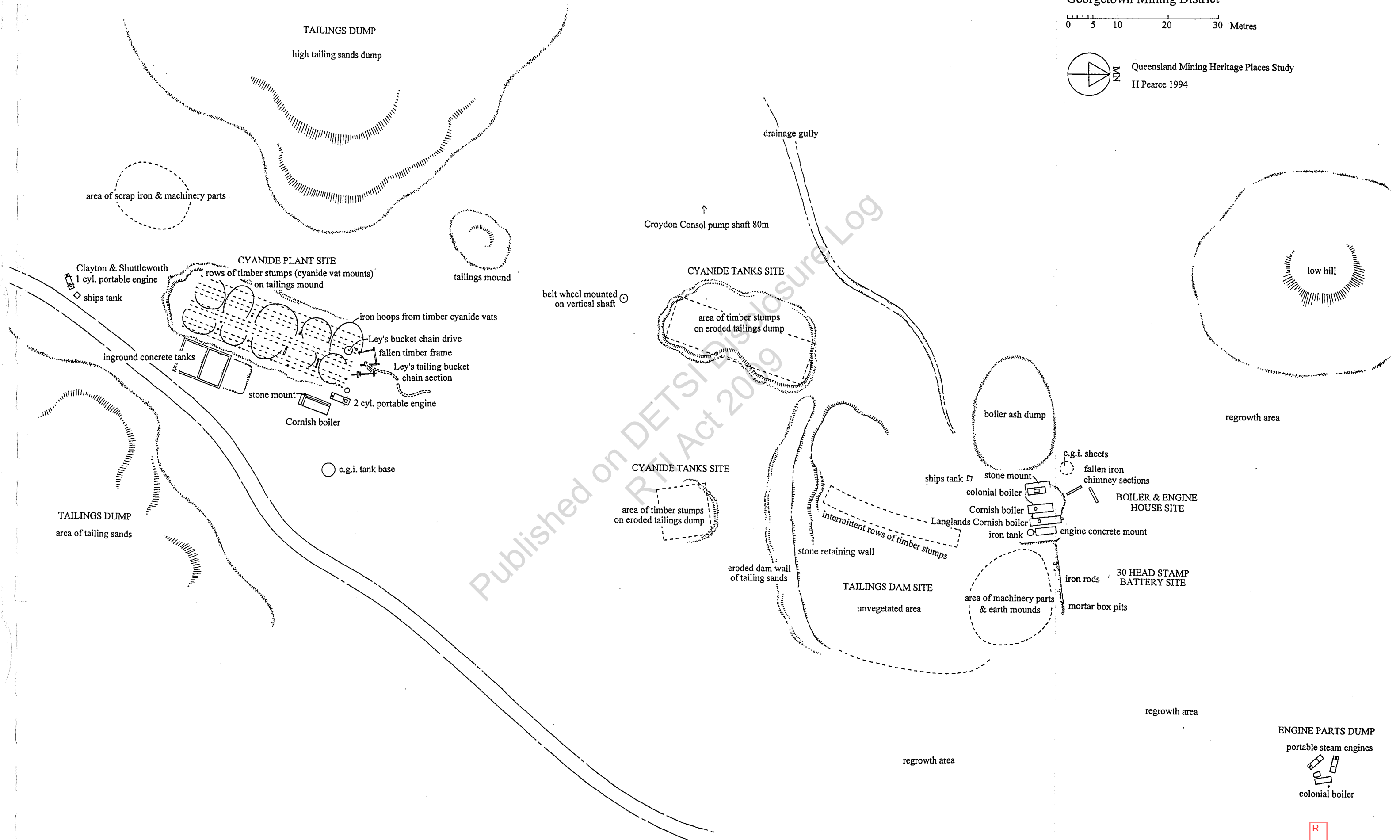
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GOLDEN GATE:
CROYDON CONSOLS BATTERY
& CYANIDE PLANT
Georgetown Mining District

0 5 10 20 30 Metres



Queensland Mining Heritage Places Study
H Pearce 1994



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GOLDEN GATE: CROYDON CONSOLS PUMP SHAFT

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Golden Gate Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 266929

Latitude: 18.08.55 S (by GPS)

Longitude: 142.11.52 E (by GPS)

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 4988 Central Coast Exploration NL

Location and Access:

Located 8 km north-west of Croydon on the Gulf Development Road. Access by a track northward, to the east of Golden Gate Creek.

Heritage Boundaries:

Portion of the Golden Gate cultural heritage area bounded by:

North: East-west fenceline about 200metres north of the battery boilers.

South: Gulf Development Road.

East: North-south line 250 metres east of the battery boilers.

West: North-south line 150m west of the west bank of Golden Gate Creek.

HISTORY OF PLACE

Croydon Consols mine (previously known as Golden Gate No. 8) operated from 1886 to 1911 and during this time produced almost one-third of the gold output of the Croydon field.

There was a huge influx of water into the Croydon Consols mine in 1898, then the deepest mine on the field. It cost £2,374 to pump it out. The Croydon Consols Company, an English company, sought exemption from labour conditions on the

mine in September 1898 and let a contract of £3,000 with Walkers Limited of Maryborough for pumping equipment. The plant was installed by Emslie Limited of Croydon in the first six weeks of 1899 and it commenced operation in February of that year. In 1901 it was described as being both single and double winding gear, with three steam engines of 54h.p., six pumps, an air compressor and a rock drill, valued at £7,000. It was by far the most valuable pumping equipment on the goldfield and the most technically up-to-date.

The pump was also used to deliver water to the Golden Gate Milling Company mill in 1900. The pumping equipment was used until the closure of the mine in 1911. (Kerr, 1992,3).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Structural Components:

Mullock Dump

Mine Shaft/Adit

Power Plant Foundations

Winding Engine Foundations/Mount

Description of Place:

Located about 150 metres north-west of the Croydon Consols cyanide plant, between the western end of the tailings dump and the eastern bank of Golden Gate Creek. The place contains a high mullock dump which extends on the west to the bank of the creek. A concrete collared two-compartment shaft is located at the base of the mullock on the east. A pump arm extends east from the shaft to a set of substantial concrete and bed log mounts for a pump engine and an air compressor. The engines have been removed but several large moving parts remain including two cog wheel shafts and a half section of a large (3.8 metre diameter) flywheel. A two drum winding unit with control levers is situated behind the engine mounts in alignment with the mine shaft. Vertical iron rods and steel plates alongside appear to have been associated with the winding engine. A portable boiler which has been moved from its mount is located on the southern side of the winding unit. The boiler is fitted with a strengthened mount for a high chimney stack.

Plant:

- Semi-portable boiler - no brand.
- Two drum winding unit - no brand.
- Beam pump arm.

STATEMENT OF SIGNIFICANCE

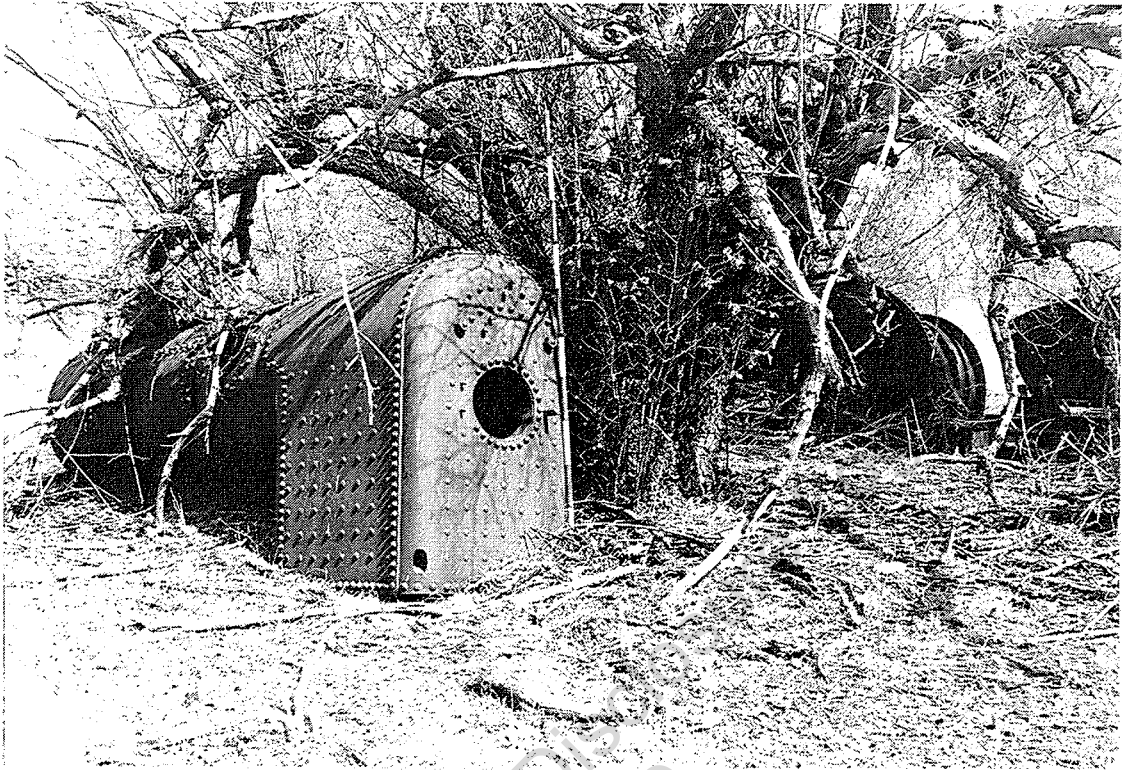
The Croydon Consols Pump Shaft at Golden Gate is significant in Queensland's history as a place illustrating the technical achievement in controlling water in the mine. It contains the only surviving beam pump arm recorded in the Georgetown-Croydon district and one of two concrete collared mine shafts recorded at Croydon. It is also significant as an example of capital expenditure to overcome mine water problems.

The place has direct functional association with the Croydon Consols battery and cyanide plant as their water supply.

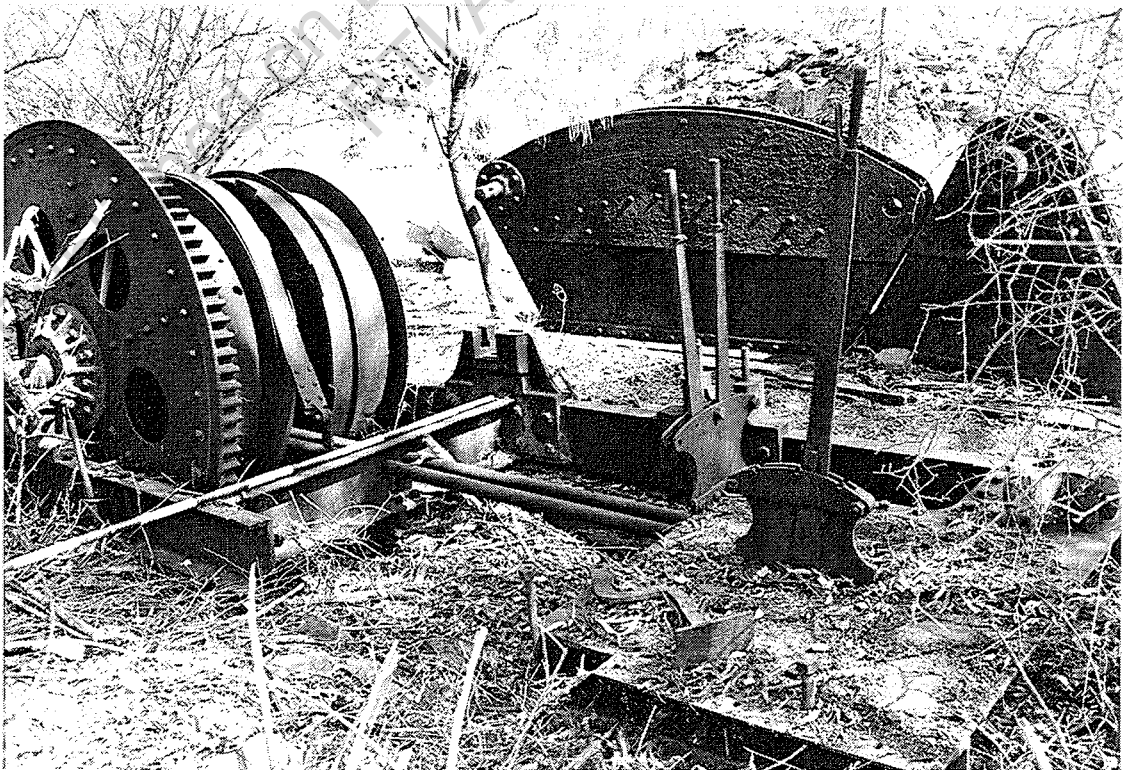
The place satisfies criteria (a) (b) and (f) of the *Queensland Heritage Act 1992*.

REFERENCES

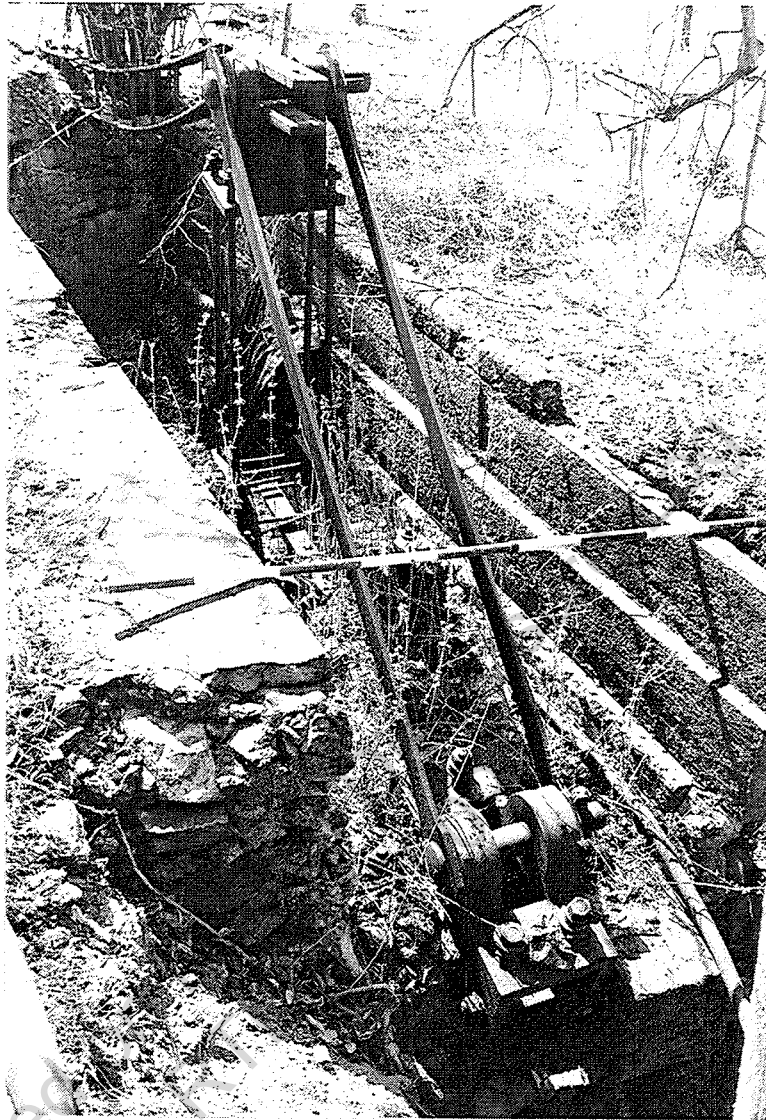
- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.



Portable boiler, looking NW.



Winding plant, looking N.



Pump arm from pump shaft (foreground).

large tailings dump

watercourse

mullock dump

mullock dump

stone retaining wall

ships tank

baling bucket

ships tank

water pipe (n/i)

PUMP SHAFT

concrete collared
pump shaft

concrete pump arm recess

broken sheave wheel

PUMP ARM

half section of large flywheel

large cog wheel, shaft & cam

AIR COMPRESSOR

bed log

compressor concrete mount

scrap metal

bulldozed area

steel cylinder (n/i)

pump arm section (n/i)

portable boiler

tree

winding plant

stone mount 2m high

vertical iron rods

heavy steel plates ?

winding engine site
broken concrete surface

WINDING PLANT

GOLDEN GATE: CROYDON CONSOLS PUMP SHAFT

0 5 10 Metres



Queensland Mining Heritage Places Study
H Pearce 1994

R

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GOLDEN VALLEY BATTERY & TOWNSHIP

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Christmas Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 426026 - Battery

Latitude: 18.03.38 S (by GPS) - Battery

Longitude: 142.20.49 E (by GPS) - Battery

Land Tenure: OL 711 (Tabletop station)

Exploration Permit (M): EPM 8795 Union Mining NL

Mineral Lease: ML 5163 Central Coast Exploration NL

Location and Access:

Located 16 km north-east of Croydon. Access by the Croydon - Tabletop homestead road with a turn off east, south-east of Tabletop homestead for Parrot Camp Dam. The battery is situated on the side of a hill overlooking the dam to the south-east.

Heritage Boundaries:

North: East-west line passing through a point 400 metres north of the Cornish boiler.

South: East-west line running through a point 200 metres south of the Cornish boiler.

East: North-south line passing through a point 300 metres east of the Cornish boiler.

West: North-south line passing through a point 150 metres west of the Cornish boiler.

HISTORY OF PLACE

Golden Valley township sprang up around the eighteen or so reefs on this northern-eastern outlier of the Croydon Goldfield from 1886. (de Havelland, 1989:425).

The main reefs at Golden Valley were Australian Beauty, Isabella, Grace Leigh, Vasco de Gama, Belfast, Monkland, Don Juan, Queen of Sheba, Glencoe, Hercules, Alice, Venture, Defiance and King of Wallabadah. There was a population of between 300 and 400 in 1887 when the township contained three stores, three hotels and several other businesses. The Australian Investment Company erected a 15 head battery with a 45hp stationary engine. Known as Clarke's mill it commenced crushing on 30 January 1888. The opening of the battery was pure speculation and by the end of 1888 Golden Valley was almost deserted.

An English company acquired the claims and mill in 1891. Two berdan pans were added to the mill. The population gradually increased again and miners did quite well. (Kerr, 1992,3). By 1890 the town had four hotels, two stores, a post office, a bakery, Wesleyan Church, butchery, blacksmith, branch of the Queensland National Bank and a police station, although the latter was removed after 1891. (Wegner, n.d.) The post office operated from 1887 to 1908. (Hooper, 1993:169). The town declined after 1894 and by 1916 had a population of one. (Wegner, n.d.).

G. Blunt, who had erected the cyanide plant for the Croydon Quartz Crushing and Gold Mining Company, erected a small portable cyanide plant at Golden Valley in 1894 also. It comprised six ore vats each of 10 tons, four solution vats each of 2,000 gallons, a winding engine, tip trucks and excavators. The vats were set on frames on the ground, every article having been painted and numbered. There were 4,000 tons of tailings available for treatment. (Kerr, 1992,3). The Golden Valley also had a government well and Rands 1896 map shows a dam site across Christmas Creek above the battery. In 1898 the dam was cleaned out. (Hooper, 1993:169). There was also a Chinese market garden nearby.

When other Croydon mines were running out of ore, Golden Valley mines - King of Wallabadah (4,905 ounces of gold), Australian Beauty, Grace Leigh, Gilded Rose, Alice, Isabella and Jumbo - produced 18,794 ozs of gold from 14,082 tons of quartz in 1897. David Rollaston and party continued cyaniding tailings and slimes successfully. Their reducing machinery in 1900 comprised a steam engine of 35hp, 16 stamps of seven hundredweight, eight berdan, wheeler or other type of pan, and two pumps, valued at £1,800. The cyaniding plant consisted of an eight horsepower steam engine, six vats each of 16 ton capacity, two sumps each of 10 tons capacity, two recovery boxes and two pumps, valued at a total of £1,700. At that time Golden Valley was producing 18.75% (5,888 ozs) of the field's gold bullion production, being the second producer behind the Croydon Quartz

Crushing and Gold Mining Company. Another pan was added in 1901 as the King of Wallabadah mine had become a more prominent producer. The King of Wallabadah produced 540 ozs of gold from 244 tons of quartz in 1901 and 673 ounces from 250 tons in 1902. A new party had worked a rich shoot until 1905 and stopped raising ore when it ran out. By 1903 the cyanide works were down to 528 ozs of bullion from 750 tons of tailings and Miller and Moore had taken over the battery and cyanide plant. Cyaniding declined further in 1904 to 195 ozs of gold from 300 tons of tailings, only 1% of the field's gold bullion production. In 1905 they were on to new tailings - 130 tons for 67 ozs of gold bullion increasing the next year to 340 tons of tailings for 140 ozs of gold bullion.

A new party had taken on the King of Wallabadah and in 1910 were proposing to have their ore crushed at the Day Dawn battery at nearby Tabletop, indicating that the Golden Valley battery had ceased work. (Kerr, 1992,3). Although another report says the owners quarrelled with the owners of the Golden Valley battery. (Wegner, n.d.).

Continuing water problems in the mines, rising costs of supplies and labour shortages caused by World War 1, contributed to the mines lack of success and mining at Golden Valley ceased in 1916. (Wegner, n.d.).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Brick

Stonework

Structural Components:

Mill/Battery Foundations

Boiler/Furnace Flue

Mining Settlement/Camp

Well/Water Shaft

Boiler Foundations/Mount

Description of Place:

The place includes a large (7.5 metre) Cornish boiler formerly in a brick mount of which only surface foundations and scattered bricks remain. A stone flue and chimney base is at the head of the boiler. Several sections of the iron chimney lie nearby. Sections of corrugated iron wall remain embedded in the ground indicating the southern extent of the boiler house and battery shed. There is now no surface evidence of the former power plant and engine mounts in a gap

between the boiler and stamper site. Likewise there is no surface evidence of concrete foundations at the stamper site. The site contains a line of three earth filled pits which mark the locations of 3 five head mortar boxes, together with a cogged drive shaft with belt wheels, two stamper camshafts and scatters of stamper rods, shoes and cams. A pair of moulds are lying near a group of ships tanks (not insitu) west of the boiler. The former battery dam is located about 70 metres north-west. Stone and earth surfaces and stone fireplace hearths occur intermittently along the creek flat from about 100 metres north of the battery marking the location of Golden Valley township. The extent of the township was not surveyed.

Plant:

- Cornish boiler - D.& W. Robertson Blackwattle Works Sydney.

STATEMENT OF SIGNIFICANCE

The Golden Valley Battery and Township are significant in Queensland's history as an example of an outlying mining settlement on the Croydon Goldfield from 1896 to 1916.

The battery site contains few remnants except for an unusually large Cornish boiler manufactured in Sydney. The battery dam to the north remains and scattered stone surfaces and fireplace hearths marking dwelling sites in the former township are evident..

The place satisfies criteria (a) and (b) of the Queensland Heritage Act 1992.

REFERENCES

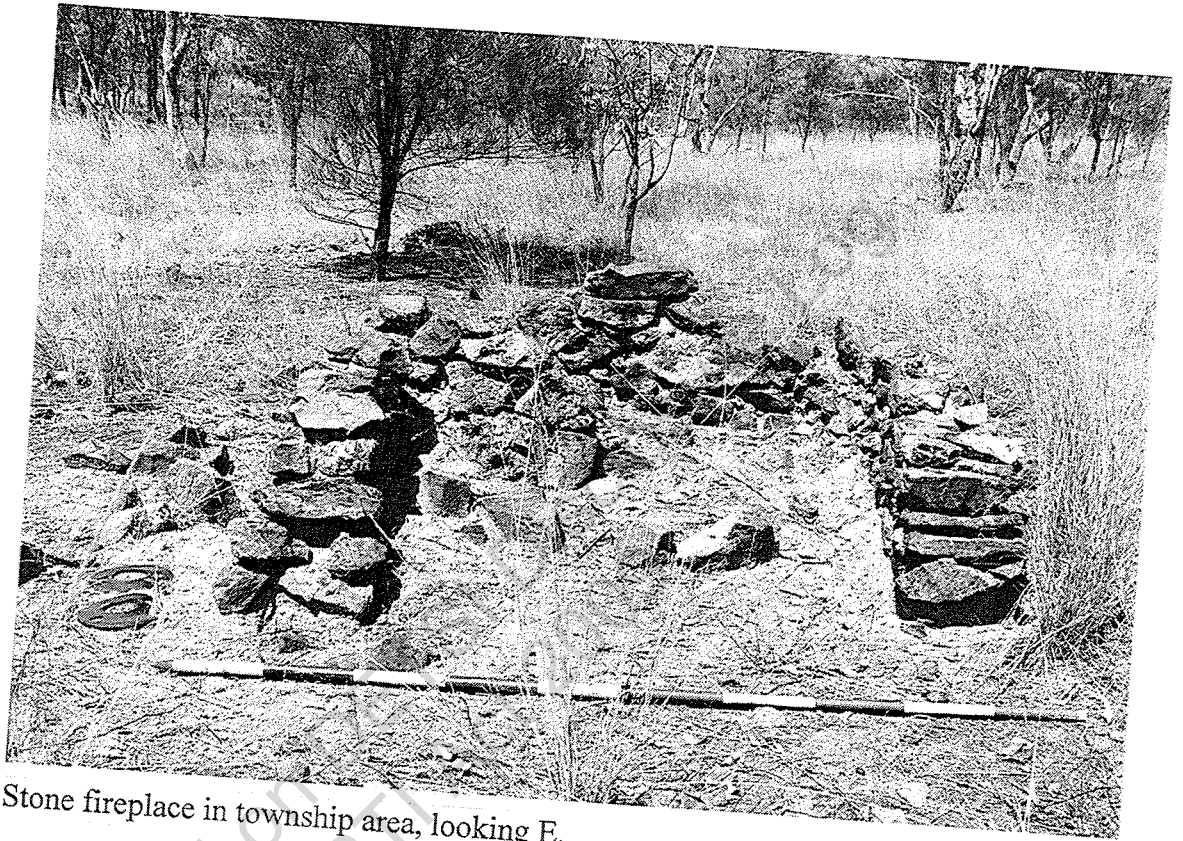
- | | |
|--------------------|---|
| de Havelland, D.W. | 1989. <i>Gold and Ghosts</i> , Vol. 4, p. 425 |
| Hooper, Colin. | 1993. <i>Angor to Zillmanton</i> , pp. 168-169. |
| Kerr, Ruth S. | 1992. <i>Queensland Historic Mining Sites Study</i> Vol. 3. |
| Wegner, Janice. | (no date). <i>Report to the Croydon Shire Council on the King of Wallabadah mine and mill site.</i> |



Fallen stack section with chimney base and
Cornish boiler in the background. Looking W.



Robertson Cornish boiler, looking E.

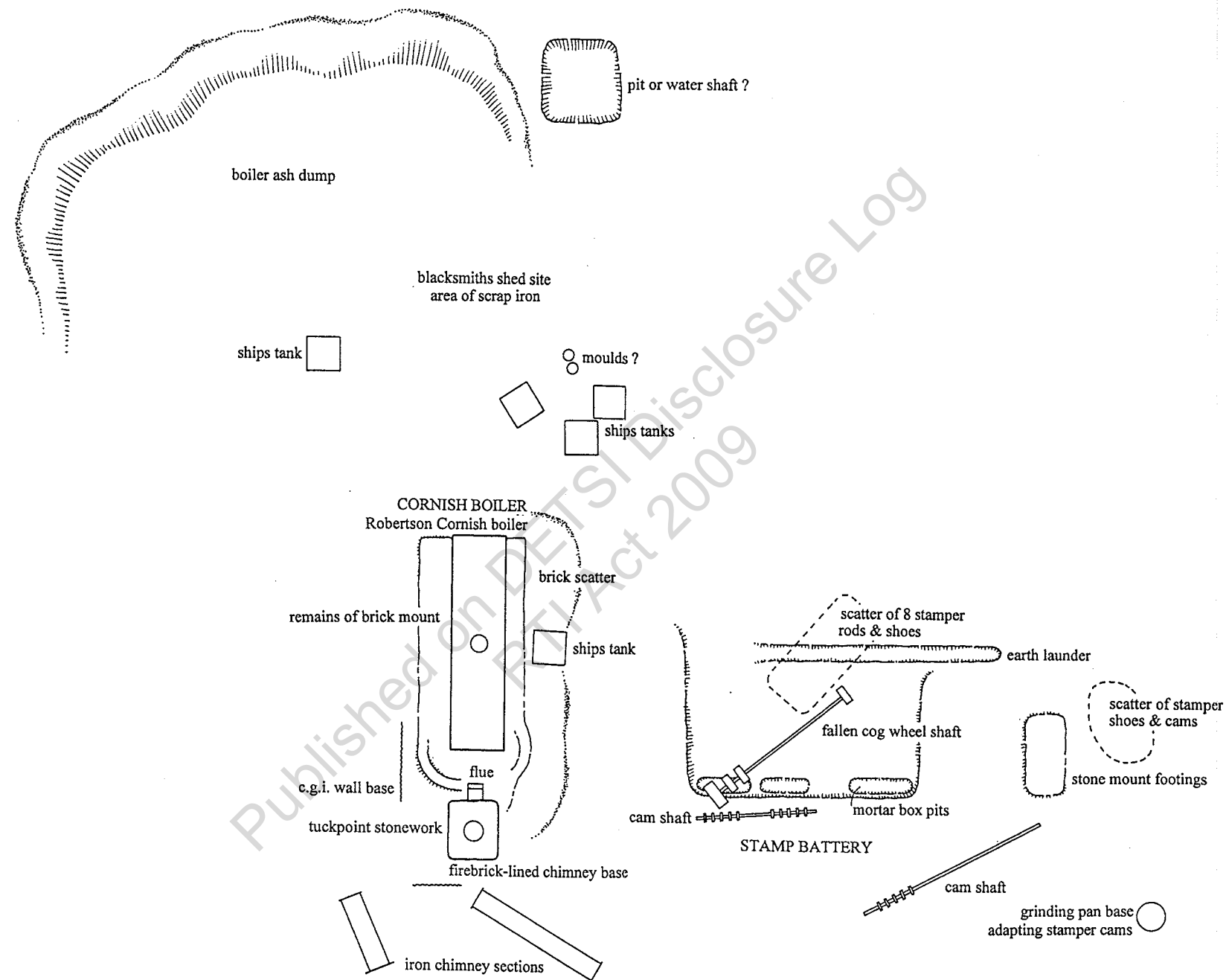


Stone fireplace in township area, looking E.



Stone fireplace in township area, looking E.

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GOLDEN VALLEY BATTERY
Georgetown Mining District

0 5 10 Metres



Queensland Mining Heritage Places Study
H Pearce 1994

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: GOLDSMITH CREEK HUT

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Goldsmith Creek

Local Government Area: Etheridge Shire

Map Sheet: Forsayth 7660. 1:100,000. AMG 829360

Latitude: 18.38.53 S (by GPS)

Longitude: 143.40.50 E (by GPS)

Land Tenure: OL 197 (Goldsmith station)

Exploration Permit (M): EPM 9604 Odin Australia Ltd

Mineral Lease: ML 30096 ? ML 30097 ? John James Fitzgerald

Location and Access:

Located 11 km south-east of Forsayth on the Goldsmith Creek road. Access by a mining track north to Goldsmith Creek. The place is located about 200 metres north of Goldsmith Creek.

Heritage Boundaries:

Heritage boundaries would form a square around the place, 10 metres out from the stone fence on all four sides.

HISTORY OF PLACE

Reefs at Goldsmith Creek were worked from 1880 to 1897. Chinese miners were there in the early 1880s. In 1889 the Etheridge Gold Mining Company had two ten head batteries at Goldsmith Creek, but only one was working and that for only two months due to the shortage of ore (Wegner, 1990:54).

In 1891 there was one hotel, two stores and a population of 27. A postal receiving office existed from 1888 to 1903 (Hooper, 1993:74).

By 1900 the reefs at Goldsmith Creek were practically abandoned except for two men working the Canadian reef. The deserted Caledonian reef had produced 7,142 oz from 5,040 tons of stone (Cameron, 1900: 13).

In 1909 the Chillagoe Company appears to have taken over the mine and battery.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mining Settlement

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Stonework

Structural Components:

Mining Settlement/Camp

Description of Place:

The surviving hut on Goldsmith Creek is a one room stone building with mud mortar walls. The building has one entrance facing south towards the creek, but no windows or loop-holes. The stonework is constructed around six bush timber uprights, including one in each corner. No roof timbers or evidence of a roof remains due to recent reconstruction. The place was reconstructed and fenced about 1989 under a youth training program. A parasol roof of corrugated iron on round timber was erected over the building at this time. The building is surrounded on all four sides by a crude stone fence without a gateway. A wire fence has recently been erected immediately outside the stone fence. Recent bulldozing associated with an adjacent creek mining lease has occurred up to the edge of the wire fence. The building was associated with the Goldsmith mining settlement at the junction of Goldsmith and Caledonia creeks. Prior to its reconstruction it was the most intact surviving structure relating to this settlement. The original purpose of the building is no longer evident in the fabric.

Plant: Nil

STATEMENT OF SIGNIFICANCE

The Goldsmith's Creek hut is significant in Queensland's history as one of the most intact early gold field structures in the Georgetown-Gilberton district. However because of reconstruction the original form of the building is not clear and its former function is uncertain. The crude stone fence remaining is an unusual feature.

The place satisfies criteria (a) of the *Queensland Heritage Act 1992*.

REFERENCES

- Cameron, Walter. 1900. *The Etheridge and Gilbert gold fields*, Geological Survey Publication, No. 151.
- Hooper, Colin. 1993. *Angor to Zillmanton*, p. 74.
- Wegner, Janice. 1990. *The Etheridge*, Studies in North Queensland History No.13, James Cook University, Townsville, p. 54.

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MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: HALL'S BATTERY

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Percy River

Local Government Area: Etheridge Shire Council

Map Sheet: Gilberton 7659. 1:100,000. AMG 907952

Latitude: 19.00.58 S (by GPS)

Longitude: 143.45.39 E (by GPS)

Land Tenure: Percyvale Pastoral Holding (Percyvale station)

Exploration Permit (M): EPM 9603 Odin Australia Ltd

Mineral Lease:

Location and Access:

Located 50 km south-east of Forsayth. Access north from the Einasleigh - Gilberton road to Percyvale homestead, then by station tracks west to the Percy River. The place is situated 1.5 km west of Percyville township on the north bank of the Percy River.

Heritage Boundaries:

North - East-west line passing through a point 200 metres north of the battery.

South - North bank of the Percy River.

East - North-south line passing through a point 200 metres east of the battery.

West - North-south line passing through a point 200 metres west of the battery.

HISTORY OF PLACE

No record of Hall's battery has been located. However local information indicates that the five-head battery with wilfley table and berdan pans was erected on the Percy River just west of Percyville township in 1936. The owner was Bill Hall who lived in the abandoned Percyville police lock-up (Barns, pers. comm.).

Hall was carting and crushing stone from several local mines including the Percy Queen which was located about 2.5 km south of the township. This mine was first worked in the 1890s, then in 1918, then again between 1936 and 1940 (de Havelland, 1989:296). The last period coincides with Hall's operations. Hall's battery ceased operation in 1940. It is not known what became of Bill Hall. The battery was abandoned and was not used again following the war (Barns, pers. comm.).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Bush Timber

Structural Components:

Mill/Battery Foundations

Description of Place:

Hall's battery is the most recent and most intact of three batteries in the vicinity of Percyville township. Remains include a five stamp mortar box with stamper rods, on a concrete foundation. The stamper frame of local cyprus timber has been destroyed by fire. The camshaft, fitted with a 2 metre diameter belt wheel, has fallen due to fire. The site includes a concrete mount for a small diesel engine and evidence of a wilfley table and berdan pan mounts. A ships tank has been adapted as an ore bin feed for the battery. A stone forge and iron water tank are also evident. No tailings survive.

Plant:

- Five head mortar box and stamper rods - no brand.

STATEMENT OF SIGNIFICANCE

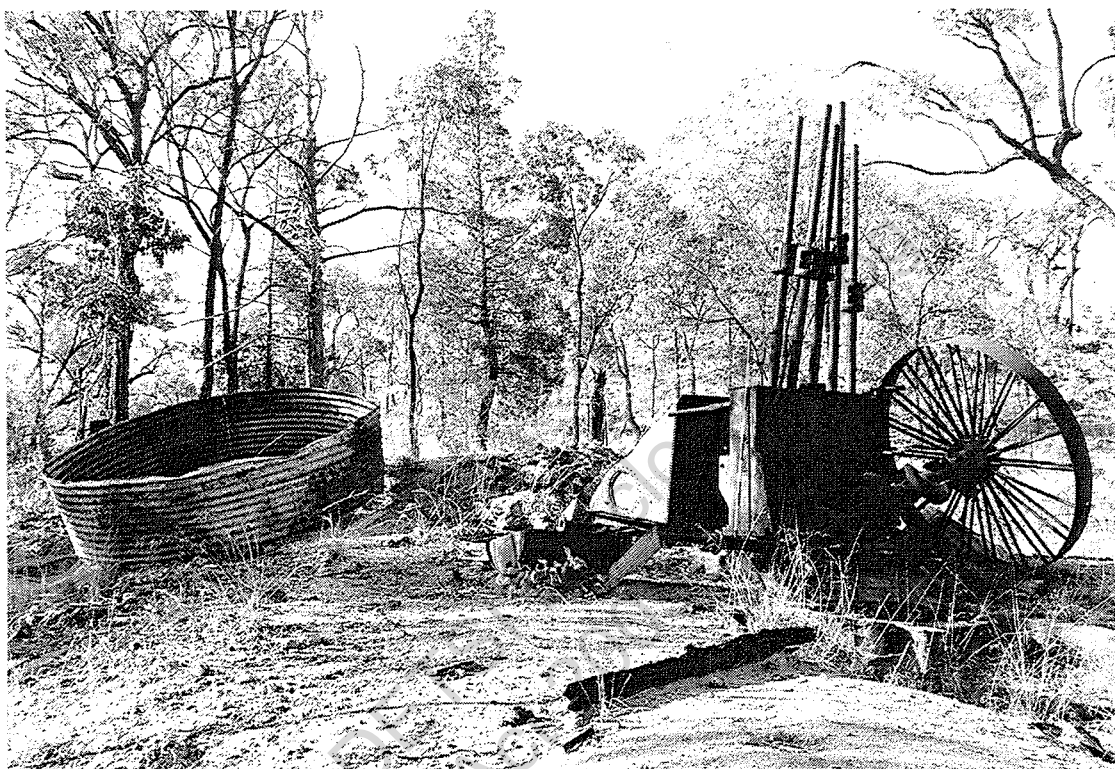
Hall's battery is representative of the 1930s Depression phase of mining activity on the early Percyville reefs. It is typical of the small-scale, isolated operations of the period up until the 1940s with virtually no records kept.

The place satisfies criterion (a) of the *Queensland Heritage Act 1992*.

REFERENCES

- Barns, John. 1994. Personal communication.
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 296.

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RTI Act 2009



Battery site with five head mortar box,
looking N.

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: HAVELOCK MILL & TRAMWAY FORMATION

Mineral Type - Historical: COPPER. GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Havelock Creek

Local Government Area: Etheridge Shire

Map Sheet: Forsayth 7660. 1:100,000. AMG 745404 - Mill

Latitude: 18.36.31 S (by GPS) - Mill

Longitude: 143.36.05 E (by GPS)- Mill

Land Tenure: OL 196 (Big Reef station)

Exploration Permit (M): EPM 8751 Union Mining NL

Mineral Lease: ML 3328 Union Mining NL. ML 7045 ? Salvatore Terranova.
ML 30075 ? John James Fitzgerald

Location and Access:

Located on the Goldsmith Creek road 2 km south of Forsayth and above the east bank of Havelock Creek.

Heritage Boundaries:

Northern: A line at right-angles to the general course of Havelock Creek passing through a point 150 metres north-west of the centre of the upper mill terrace.

Southern: A line in parallel with the northern heritage boundary line, passing through a point 300 metres south of the centre of the upper mill terrace.

Eastern: Forsayth - Goldsmith Creek road.

Western: Havelock Creek.

HISTORY OF PLACE

The Havelock Mine, originally known as the Sir Henry Havelock, was first worked in 1878 with surface oxidised ore being removed via an opencut, which by 1900 had removed about 400m of reef along the strike. Unlike most other reefs in the region, the gold content of the oxidised zone was not as rich as that in the Havelock's sulphide zone. Between 1878 and 1893, 2,141 tons of oxidised or "brownstone" ore yielded an average of 0.7 ozs of bullion gold per ton whereas

244 tons of pyritic ore crushed between 1894-97 returned an average of 1.1 ozs of bullion gold per ton. Considering that it is harder to extract gold from sulphide ore and that much of the bullion was probably lost during treatment, these returns are significant (de Havelland, 1989:302).

In 1908 a Melbourne company took an option over the Havelock, then the best gold-mine on the field, but it abandoned its option after spending £4,000 in development work, possibly because freight prices were prohibitive (Wegner, 1990:105). In 1910 the Chillagoe Company floated the Charleston (Forsayth) group of mines, including the Havelock as the Etheridge Gold Mines Limited.

The erection of a new battery was delayed in 1911 because of strikes in both England and Australia (Wegner, 1990:192). In 1912 the powerhouse with a 35m chimney was completed and stonebreakers, ore bins, tube and roller mills and agitators were being constructed. (Q.G.M.J., 15 Aug. 1913:417). In 1913 the site of the battery was described as "unfortunate" for a central mill for the group of mines because (a) there was no yard accommodation; (b) it was situated at the end of a back-shunt; (c) was on the top of a small round hill, the railway line coming up a steep grade on one side, with a road of similar grade on the other; and (d) the power plant was between the mill and the mine shaft and there was not enough room to stack fuel. (Q.G.M.J., 15 Aug. 1913:417).

The Havelock mill consisted of a jaw-breaker, geared rolls, Krupp table mill, 6 wilfley concentrating tables, Krupp tube mill, a mineral separation flotation plant and a cyanide plant for treating 50 tons per day of residues. The latter was considered unnecessary as the gold was in the mineral and not the quartz. (Q.G.M.J., 15 Aug. 1913:417). The power plant was of the best type: three Babcock and Wilcox water-tube boilers, one 300kW steam-coupled A.C. generator of 1,000volts, one Bellis and Morcom 800 cubic feet air-compressor, one 26kW electric lighting set of 230 volts, a surface condenser and cooling tower. It was overpowered for the volume of operation. Unfortunately too much capital was spent on surface equipment and not enough on mine development and stoping payable ore. (Q.G.M.J., 15 Aug. 1913:418). In 1915 the Chillagoe Company removed the Babcock boilers and the generating plant to the company's newly opened Mount Mulligan colliery.

The battery continued operating sporadically until the 1920s (Kerr, 1992:3). In 1934 the mine was reopened.

In 1942 a brace was erected along with a hopper for despatching ore to the railway. Dewatering was down to 25 feet in the No. 2 level. The ore was being treated at Chillagoe smelters, 316 fine ozs of gold, 374 fine ozs of silver and 2.5 tons of copper being obtained. The mine was reopened in February 1946 with four men working. A departmental plant was hired. They raised 177 tons of stone which yielded 314 ozs of gold when treated at Mount Morgan. Five men working there produced 42 tons of ore for a yield of 90 ozs of gold in 1947. H.B. Turner

and party produced 50 tons of stone for a return of 14 dwt per ton from Mount Morgan. Four men were working in 1949 and were down to a depth of 480 feet working on the last block of known payable stone. (Kerr, 1992, 3).

When the mine finally closed in 1950, a total of 12,158 tons of ore had produced 13,833 ozs of bullion gold, while a further 14,246 ozs of gold, 15,455 ozs of silver and 98 tons of copper had been derived from residues and concentrates (de Havelland, 1989:302).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mineral Haulage

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Concrete

Stonework

Earthwork

Structural Components:

Power Plant Foundations

Boiler Foundations/Mount

Mill/Battery Foundations

Railway/Tramway Formation

Constructed Tank/Pond

Primary Crusher Foundations

Description of Place:

The place is constructed in a confined position on a steep hillslope with the mill foundations descending to Havelock Creek. A tramway embankment terminates above the mill in an area which has been subjected to recent surface disturbance including the erection of a large watertank. The upper terraces of the mill, containing the boiler, power plant, primary crusher and tube mill foundations, are of heavy reinforced concrete construction. No shed structure or plant remains. The lower terraces including the cyanide plant surfaces are of earth with stone retaining walls. In recent years an area extending for over 300 metres along the creek immediately north of the mill has been extensively reworked on the surface involving the removal of all early dumps and mine workings.

Plant: Nil

Firebricks - Campbell.

Red bricks - AM.

STATEMENT OF SIGNIFICANCE

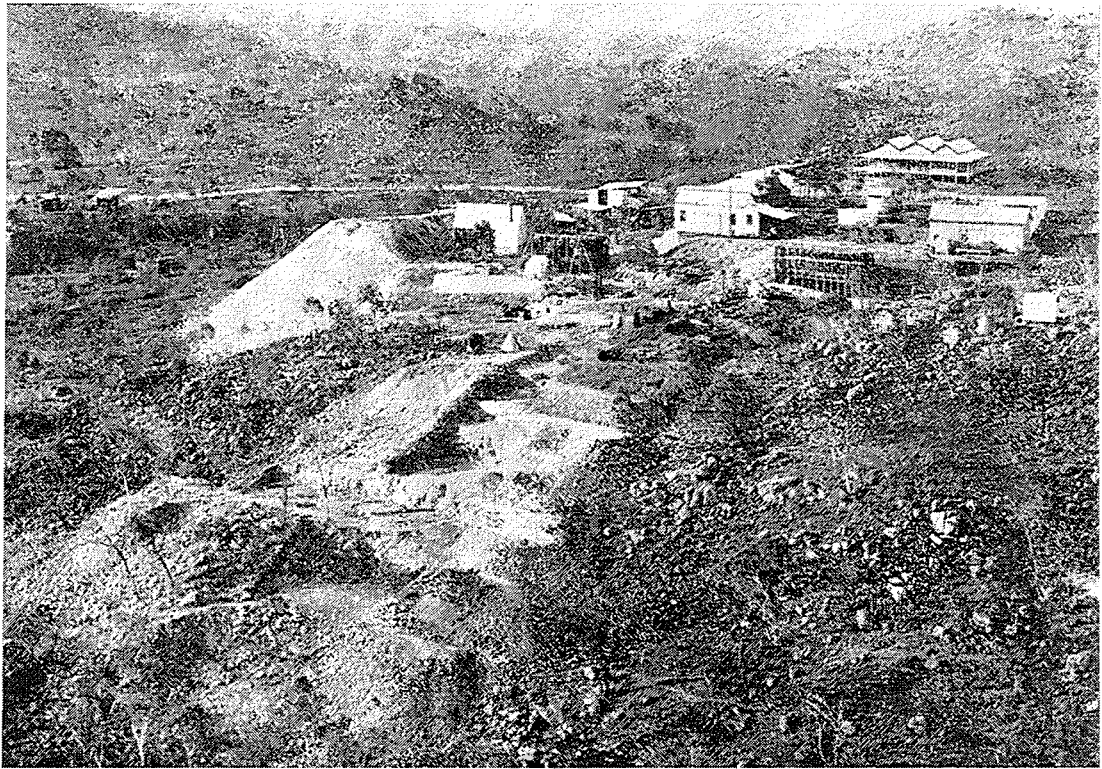
The Havelock Battery and tramway formation are significant in Queensland's history as they demonstrate heavy capital expenditure in the construction of the mill and tramway on the Etheridge field; this lavish expenditure was typical of the Chillagoe Company in developing regional infrastructure.

Havelock provides the only surviving evidence of a large company mill in the Georgetown district with massive concrete foundations and mounts for the batteries. The tramway formation including the switchback, a rare feature, is also evident.

The place satisfies criteria (a) and (b) of the *Queensland Heritage Act 1992*.

REFERENCES

- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 302.
- Kerr, Ruth S. 1992. *Queensland Historic Mining Sites Study*, Vol. 3.
- Queensland Government Mining Journal*,
15 December 1911, p. 625
15 August 1913, pp. 417-419.
- Wegner, Janice. 1990. *The Etheridge*, Studies in North Queensland History No. 13, James Cook University, Townsville.



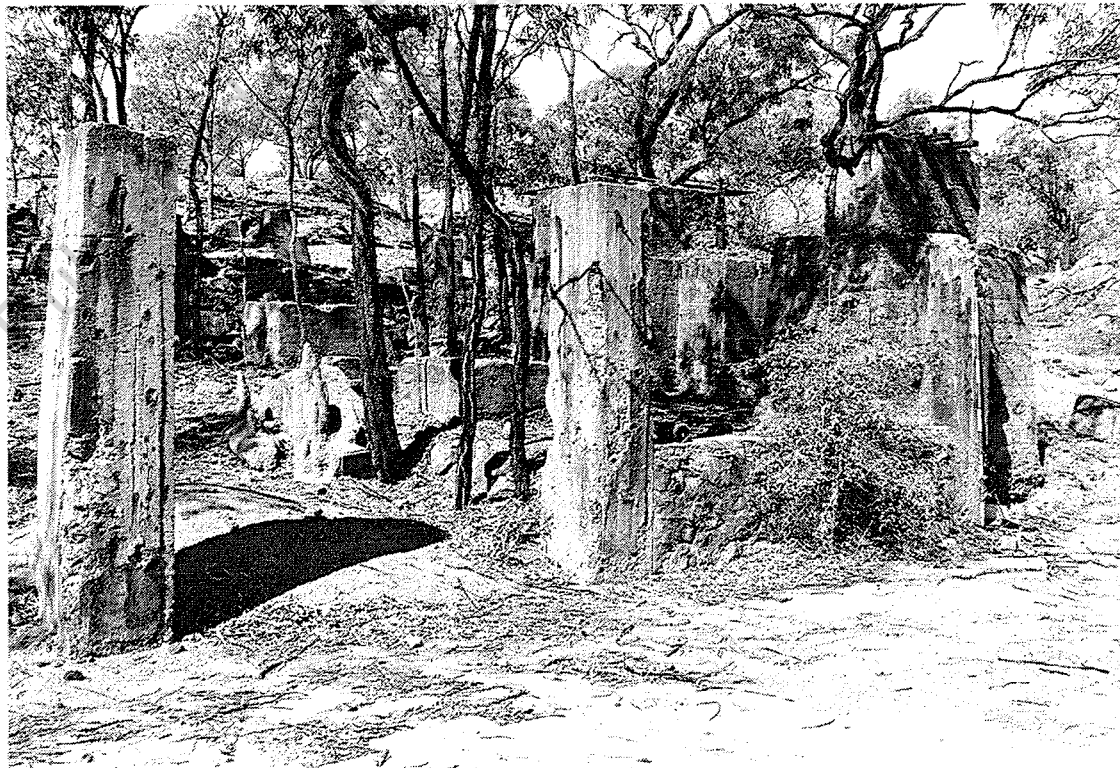
Havelock battery under construction.
Q.G.M.J. 15 December 1911, p.625.



Havelock battery c1913.
John Oxley Library No.22291.

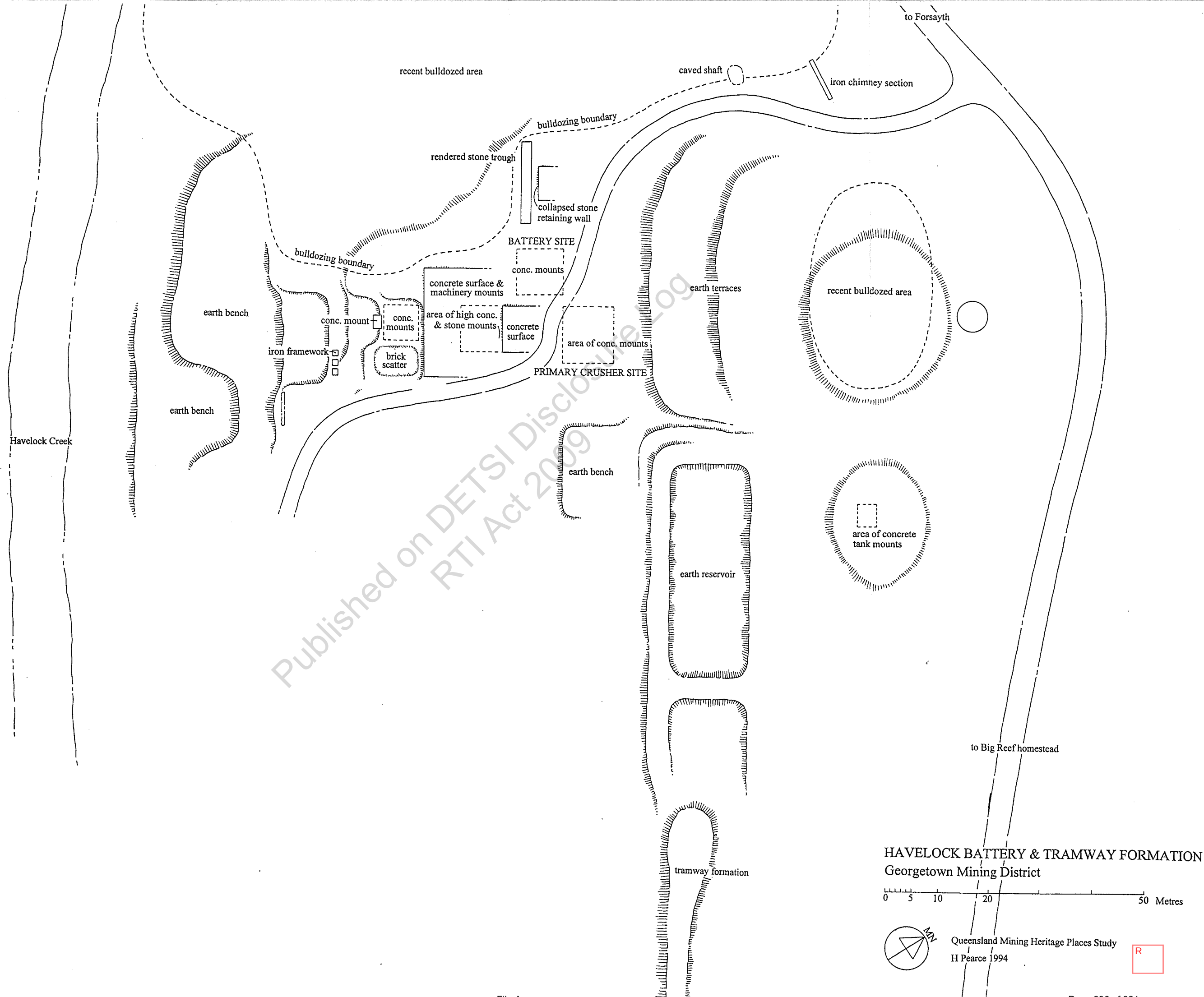


Battery concrete foundations and mounts
looking S.



Concrete foundations and mounts, looking E.

R



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: HOMEWARD BOUND BATTERY, WEIR & TOWNSHIP

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Croydon Gold Field

Major Catchment: Norman River

Minor Catchment: Waterfall Creek

Local Government Area: Croydon Shire

Map Sheet: Croydon 7361. 1:100,000. AMG 343926 - Dam wall

Latitude: 18.09.06 S (by GPS) - Dam wall. 18.09.01 S (by GPS) - Battery

Longitude: 142.16.11 E (by GPS) - Dam wall. 142.16.12 E (by GPS) - Battery

Land Tenure: Town Reserve

Exploration Permit (M): EPM 8795 Union Mining

Mineral Lease: ML 4995 Central Coast Exploration NL

Location and Access:

Located 7 km north of Croydon. Access by the Croydon - Tabletop homestead road with a turn off east along Waterfall Creek (locally known as Homeward Bound Creek).

Heritage Boundaries:

Northern: Top of the spur-line running roughly parallel with Waterfall Creek, about 300 metres north-west of the creek.

Southern: Top of the spur-line running roughly parallel with Waterfall Creek, about 300 - 400 metres south-east of the creek.

Eastern: A line crossing Waterfall Creek at right-angles, 800 metres north-east of the dam wall.

Western: A line crossing Waterfall Creek at right-angles, 300 metres south-west of the dam wall.

HISTORY OF PLACE

The Homeward Bound reef north of Croydon officially produced 22,280 tons of ore, for a yield of 25,335 ozs of gold, between 1886-1911. Work resumed between 1912-16 for a yield of 882 ozs of gold from 268 tons of ore and again between

1935-40, when 11.2 tons of ore returned 4.2 ozs of gold. (de Havelland, 1989:428).

The Homeward Bound battery commenced crushing on 28 February 1888 with 20 stamp heads. The main mines serving it were all situated along the Homeward Bound reef on or near the summit of the ridge above Waterfall Creek. Homeward Bound Extended Block No.1 North Company (with a nominal capital of £12,000 in 20,000 shares) owned several of the mines and Croydon Homeward Bound Gold Mining Company, the battery. The battery comprised a 20h.p. portable engine, 20 head of stamps and eight berdan pans, valued at £5,500. (Kerr, 1992,3).

Water was a problem throughout the field and a large dam with a stone pitched wall was constructed in 1888, by a Mr. Shoemaker (or Schumacher). (National Trust of Queensland file CRN2/8). Even so the Homeward Bound battery could not crush that year.

The Mountain Maid United Gold Mining Company (with a nominal capital of 56,000 ten shilling shares) took over the Homeward Bound battery in 1890 but relinquished it to the old company again in 1891. By then the Homeward Bound claim was almost abandoned. Although major companies had failed, it was revitalized in 1893 by co-operative parties who were getting good results. One old miner said in 1896 that the Homeward Bound "has had less public attention paid to it than any other line on this extensive goldfield but left to the stragglers like myself to scratch away". (Kerr, 1992,3).

When other Croydon mines were considering closing down in 1898 the Homeward Bound was producing almost two ounces of gold per ton of stone. In 1899 Homeward Bound No. 4 South had a spectacular crushing of 232 ozs from 68 tons.

Lane and Pate took over the battery in 1901 and cyaniding was commenced in 1902 using some of the equipment from the Pioneer cyanide works at Gorge Creek. In 1903, 144 ozs of gold were obtained from 156 tons of quartz. However by 1904, the Homeward Bound Company had lost the reef and others were only putting small crushings through and mining gradually petered out. (Kerr, 1992).

In the first year of cyaniding 510 tons of tailings were treated for a yield of 668 ozs of gold bullion, but production increased thirteenfold in 1903 so that it was the second largest cyaniding treatment plant on the field - 6,565 tons of tailings were treated for 5,059 ozs of gold bullion. They continued with 2,650 tons of tailings yielding 239 ozs of gold bullion in 1904; 3,120 tons of old tailings for 1,728 ozs of gold bullion in 1905; and 480 tons of old tailings for 223 ozs and 940 tons of new tailings for 637 ozs in 1906. The average bullion values were amongst the highest on the Croydon Goldfield. (Kerr, 1992,3).

The township was merely a small widely spread camp centred around a store, a boarding house and a postal receiving office from 1888 to 1893. (Hooper, 1993:177).

An open cut mine and carbon-in-pulp treatment plant operated from 1988-1990 near the Homeward Bound mining area and surface evidence from earlier workings was lost in the more recent operations.(Kerr, 1992,2).

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mining Settlement

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Stonework

Concrete

Structural Components:

Power Plant Foundations

Mill/Battery Foundations

Weir/Dam Wall

Well/Water Shaft

Mining Settlement/Camp

Description of Place:

The place contains three component groups - dam and weir, battery site and township site. The weir is expertly constructed of large blocks of rough-shaped stone. The stonework reaches a maximum height of 5 metres above the downstream creek bed and extends across the creek for about 40 metres from where an earth wall continues for a further 55 metres. The weir contains a spillway section. The top of the weir is concrete rendered for the length of its stone construction. A vertical boiler on a base of stamper dyes is located at the northern end of the wall at a former cyanide plant site. The dam is heavily silted and lined with acacia on the upstream edge of the wall. The clay bed of the dam extends north-east for about 250 metres.

The battery site, situated on the northern side of the dam, has been severely disturbed and stripped of all plant. Remaining are a broken concrete engine mount, concrete and aggregate foundations for twenty head of stamps, a twenty head camshaft with ten cams, and a beam pump arm. Homeward Bound settlement site on Waterfall Creek about 300 - 400 metres east of the battery contains several intact stone fireplaces, a stone bake oven and numerous stone surfaces. The extent of the settlement was not surveyed.

Plant:

- Vertical boiler - no brand.

STATEMENT OF SIGNIFICANCE

The Homeward Bound Battery, Weir and Township are significant in Queensland's history as one of the outlying mining camps on the Croydon Goldfield. The place illustrates a number of stages of Croydon Goldfield's development - British investment in ore crushing, then cyaniding to fully extract any remaining gold once a permanent water supply had been secured.

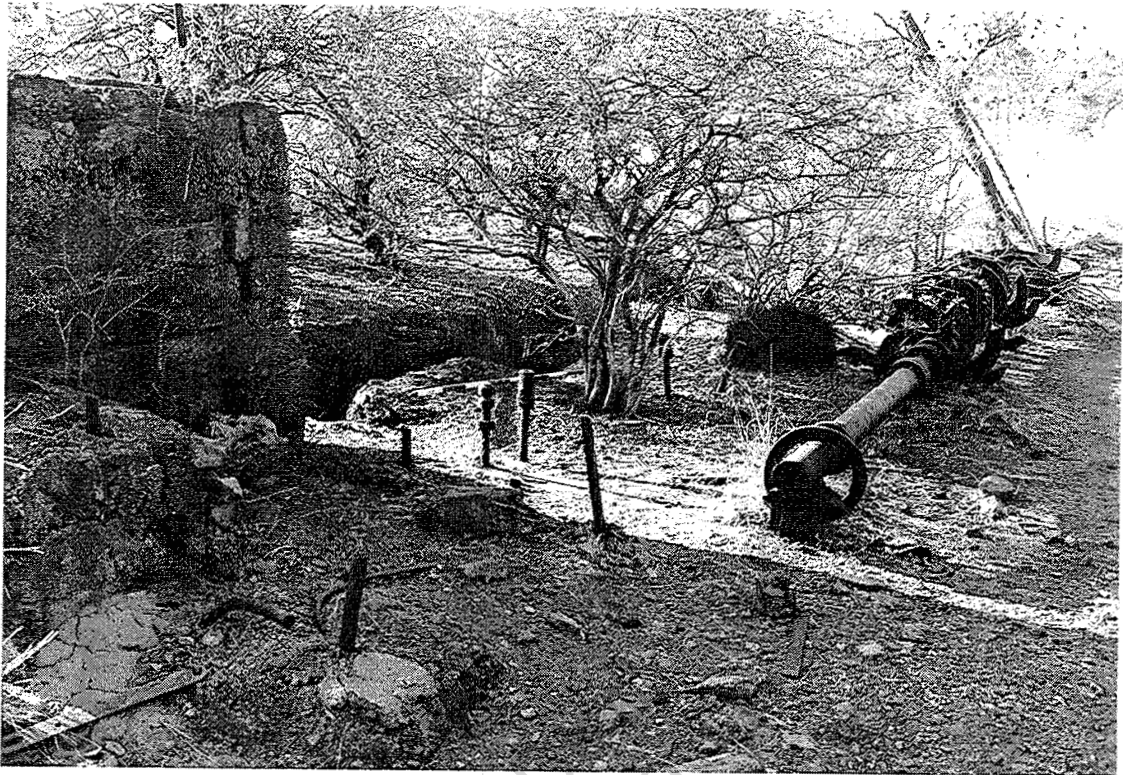
The dam wall is the most substantial structure surviving at Homeward Bound and is the largest and earliest (1888) associated with mining recorded in north Queensland. The size and quality of the stonework is noteworthy in a regional context. There were few dams constructed on the Croydon Goldfield even though lack of water was a perennial problem.

There are very few surface remnants at the battery and cyanide works, apart from a vertical boiler, and only a few stone fireplaces remain from the township.

The place satisfies criteria (a) (b) and (f) of the *Queensland Heritage Act 1992*.

REFERENCES

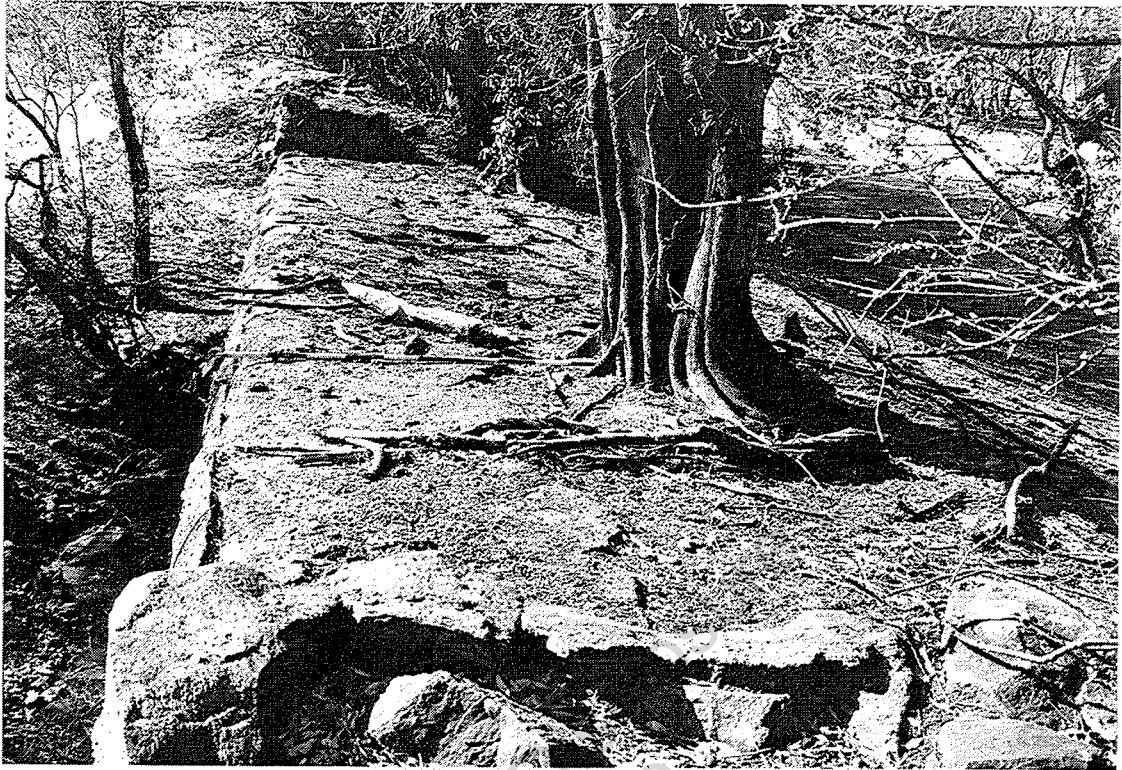
- de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, p. 428.
- Hooper, Colin. 1993. *Angor to Zillmanton*, p. 177.
- Kerr, Ruth. S. 1992. *Queensland Historic Mining Sites Study*, Vol. 2 & 3.
- National Trust of Queensland, file CRN2/8.



Battery site, looking N.



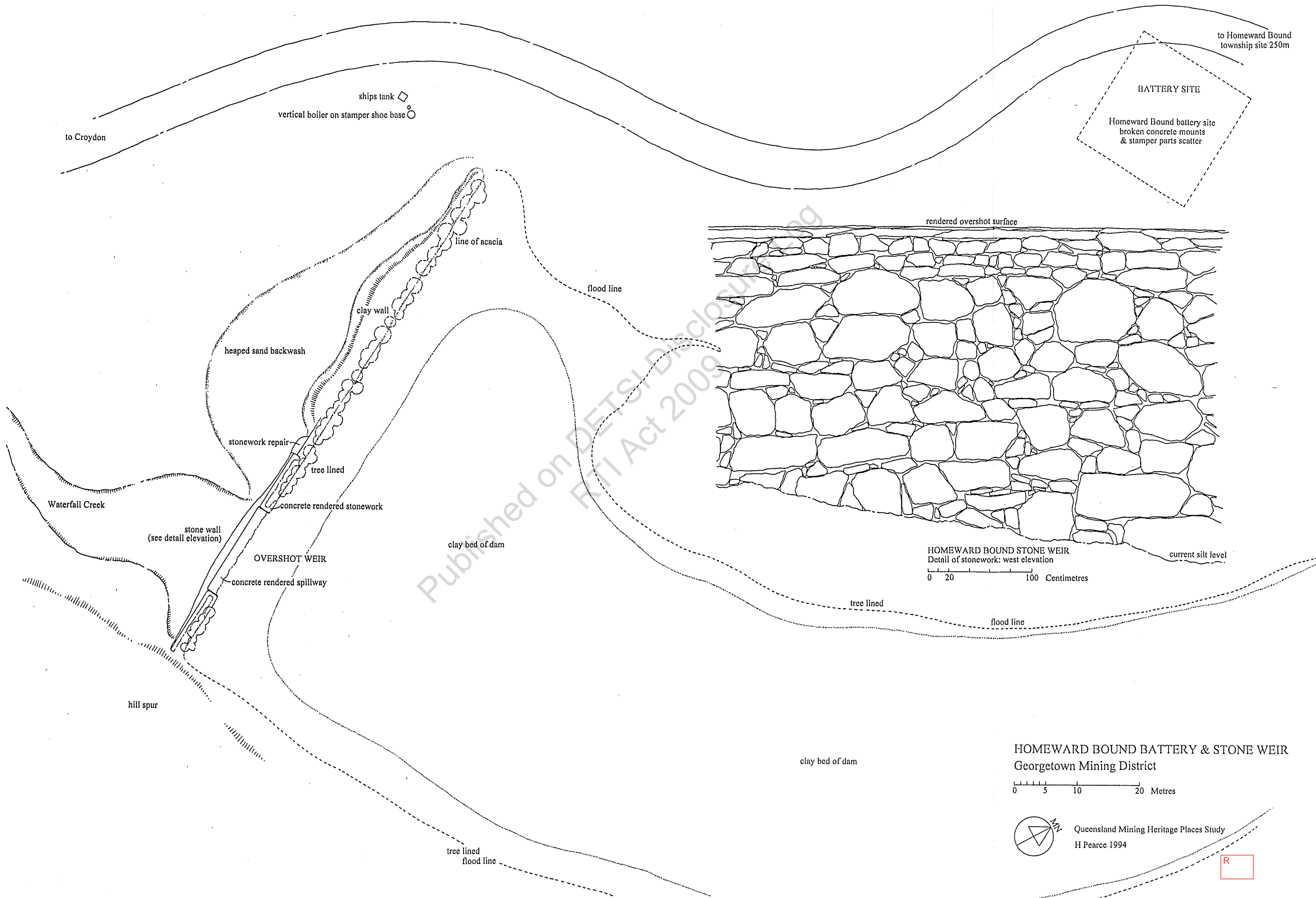
Overshot weir showing spillway. Looking N.



Overshot weir showing spillway, looking NW.



Homeward Bound township area: stone fireplace.



MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: JOSEPH MORRIS MINE

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: (unnamed creek)

Local Government Area: Etheridge Shire

Map Sheet: Gilberton 7659. 1:100,000. AMG 805685

Latitude: 19.15.28 S (by GPS)

Longitude: 143.40.05 E (by GPS)

Land Tenure: OL 277 (Mount Hogan station)

Exploration Permit (M): EPM 8677 Eltin Minerals Pty Ltd

Mineral Lease: MC 2676 ? Livio Giovanni Collesel

ML 30144 ? Eltin Minerals Pty Ltd

Location and Access:

Located about 74 km south of Forsayth alongside the Einasleigh - Gilberton road.

The place is situated above the east bank of a creek, 1.5 km north of Gilberton.

Heritage Boundaries:

North: East-west line passing through a point 200 metres north of the mine.

South: East-west line passing through a point 250 metres south of the mine.

East: North-south line passing through a point 200 metres east of the mine.

West: West bank of the adjacent watercourse.

HISTORY OF PLACE

The gold found around Gilberton occurred in a free state and was erratically distributed. Sometimes almost barren quartz yielded phenomenally rich patches of gold. For example, two tons of ore from the Joseph Morris field returned 48.23 ozs after rich specimens had been removed. (de Havelland, 1989:286).

Although the nearby Cosmopolitan line of reefs was worked from 1871, the Joseph Morris reef was not worked until 1903. The Joseph Morris mine was sunk

to 60m on a reef striking north. The remaining workings consist of a timbered shaft, open to the water level of about 30m and situated in the middle of a line of collapsed stopes.

A 60 oz nugget is reported to have been found near the Joseph Morris mine. The reef was well noted for its sometimes extremely rich returns. The mine was worked in 1903, 1907 and 1910 producing 403.2 ozs of gold from 37 tons of ore. (de Havelland, 1989:288).

Current local information claims that the mine was named after the son of an early owner. It has not been confirmed if this is correct or not.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mine

Operational Status:

Abandoned

Structural Condition:

Stable Ruin

Structural Fabric:

Brick

Stonework

Structural Components:

Mullock Dump

Boiler Foundations/Mount

Metal Water Tank

Mine Shaft/Adit

Boiler/Furnace Flue

Roasting Furnace/Foundations

Description of Place:

The mine workings are located immediately on top of a steep bank overlooking a creek. They comprise an open cut shaft with a drive extending along the strike of the reef which is about 8 metres in depth. A mullock dump descends from the shaft to the creek bed. A portable engine and a portable boiler are aligned to the mine workings. The boiler is a wet bottom type constructed with conical pointed rivets and possibly manufactured in the United States. Remnants of a stone mount for a Cornish boiler, located alongside the portable plant, are also aligned towards the mine. South of the machinery area is a rock scatter associated with a stone and mud mortar flue and chimney base which may have also been foundations for a Cornish boiler. Further south is an iron lined retort of stone construction, and a small top-fed kiln. There is no definite evidence of a battery, such as discarded stamps, cams or tailings. The only likely battery foundations are two short vertical iron bolts, 1.6 metres apart, aligned with the portable engine. However these were more likely tension bolts for an engine or winch. An extensive area on the

opposite bank of the creek extending west to the main road has been subjected to recent clearing and surface scraping.

Plant:

- One-cylinder portable steam engine - no brand (R. Hornsby or Ruston Hornsby).
- Portable wet bottom boiler - no brand.

STATEMENT OF SIGNIFICANCE

The Joseph Morris mine near Gilberton on the Etheridge goldfield is significant in Queensland history for demonstrating the range of gold yields in quartz ore from barren to exceedingly rich.

The wet bottom portable boiler on site is possibly of United States origin and is early and rare. It is the only wet bottom boiler recorded in North Queensland, and was probably used to power winding gear.

The place satisfies criteria (a) (b) and (c) of the *Queensland Heritage Act 1992*.

REFERENCES

de Havelland, D.W. 1989. *Gold and Ghosts*, Vol. 4, pp. 286-8.



Portable engine (left) and portable boiler (right), looking W.



Wet-bottom portable boiler, looking SE.

R

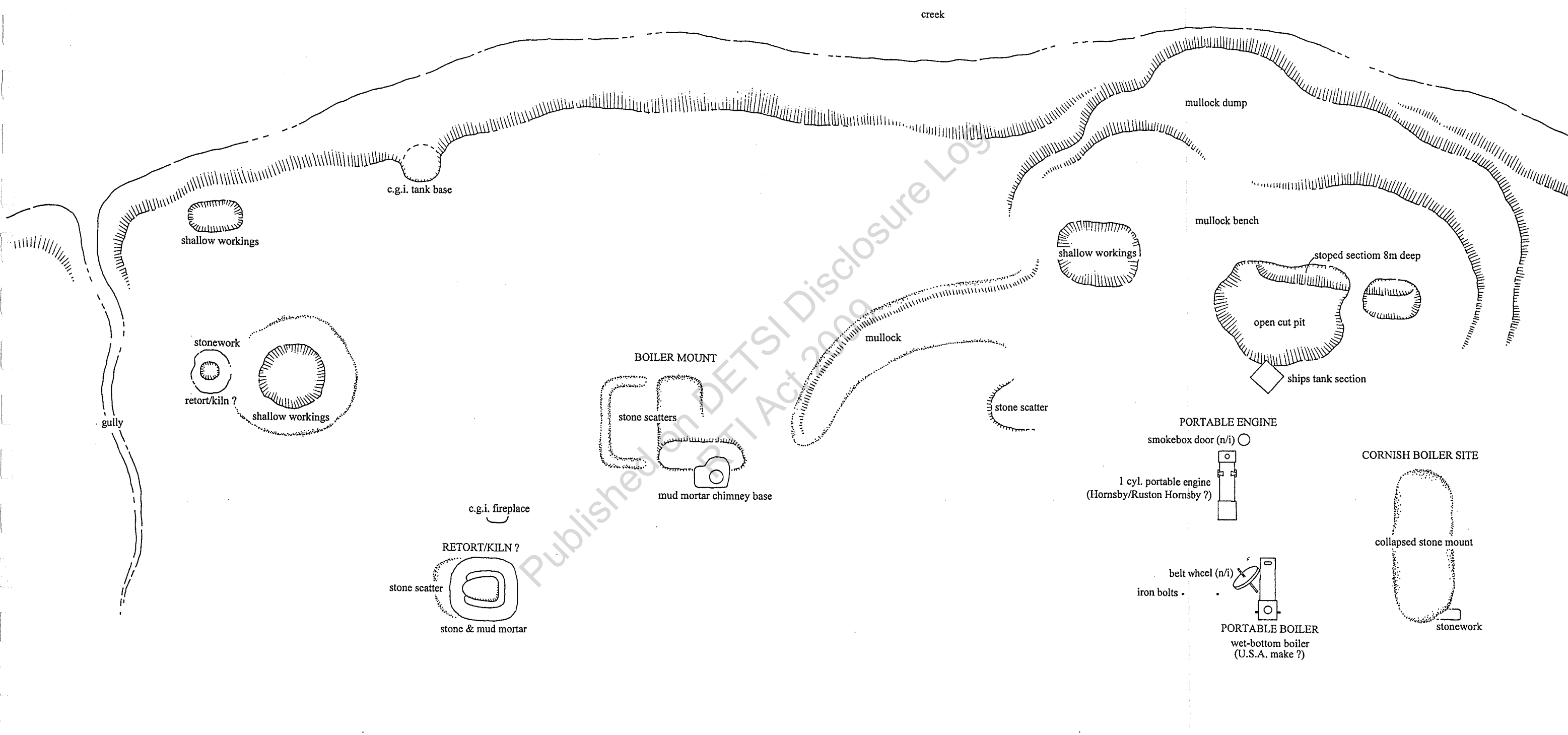


Portable engine, looking E.



Stone boiler mount site with chimney base
in the background. Looking E.

R



JOSEPH MORRIS MINE
Georgetown Mining District

0 5 10 Metres

portable plant front axle

Queensland Mining Heritage Places Study
H Pearce 1994

R

MINING HERITAGE PLACES RECORDING FORM

GEORGETOWN MINING DISTRICT

PLACE

Name of Place: KIDSTON STATE BATTERY, PUMP & HOUSE

Mineral Type - Historical: GOLD

LOCATION

Mining District - Current: Georgetown Mining District

Mineral Field - Historical: Oaks Gold Field, Etheridge Gold Field

Major Catchment: Gilbert River

Minor Catchment: Copperfield River

Local Government Area: Etheridge Shire

Map Sheet: Einasleigh 7760. 1:100,000. AMG 014101 - Battery

Latitude: 18.52.43 S (by GPS) - Battery

Longitude: 144.10.01 E (by GPS)- Battery

Land Tenure: Town Reserve

Mineral Lease: Nil

Location and Access:

Located 68 km south-east of Forsayth. Access by the Gregory Development Road with a turn off south to Kidston on the Gilberton road. Situated in Kidston township reserve on the west bank of the Copperfield River.

Heritage Boundaries:

Northern: A line parallel with the battery 100metres north-west.

Southern: Copperfield River.

Eastern: A line parallel with the battery 20metres north-east of the pump.

Western: A line parallel with the battery 100metres south-west.

HISTORY OF PLACE

Payable gold was discovered on the Copperfield River in September 1907 leading to the Oaks Rush as the field was initially known. It was declared the Oaks Goldfield in April 1908 and had a peak population of 1700 by June 1908 (Wegner, 1990:113).

By the dry season of 1909 the population fell dramatically to about 100 alluvial miners using dry blowers, but reefers had started work on the quartz veins. W. Brown's Pioneer mill of 5 head was erected in May 1909 and W Suhle and

Archbold's large Enterprise mill of five 1,000 lb stamps was transferred from Georgetown and operating by April 1910 (Q.G.M.J., 14 May 1910:257).

Kidston, as the township for the Oaks diggings was known, settled into systematic mining and was not directly effected by World War 1 or the closure of the Chillagoe smelters. Water supply problems were alleviated in 1915 when the government dam was built on Butchers Creek.

A period of high gold prices (1920-24) may have influenced the decision to build the Kidston State Battery (Pearson, 1995:5), but the gradual decline of the field and the inadequacy of existing crushing equipment also added pressure. In May 1920 the Government Geologist, Dr. H. I. Jensen, recommended that a modern battery be constructed at Kidston. By September the Union battery at Percyville was being dismantled and the machinery moved to Kidston, while other machinery was obtained from the Big Reef (Castleton). Between eleven and eighteen men were employed establishing a sawmill, supplying the timber and constructing the battery, which commenced operations in May 1922 (Whitmore, 1976:4).

During the 1920s, the Oaks Goldfield reached a stage where the large, low grade deposits were becoming too poor to work in bulk. Consequently, most miners developed smaller, richer reefs which produced low tonnages of ore that were insufficient to keep the battery fully engaged (Whitmore, *ibid*).

In 1923 the battery treated 57 lots of ore totalling 2,611 tons yielding 880 ozs of gold. In 1924 a number of improvements were made to the battery but owing to wet weather which cut off the battery from the mines, 781 tons of ore less were treated but the output rose to 1,391 ozs of gold. The battery operated from January to November 1925 treating 27 parcels of lower grade ore totalling 1,601 tons producing 760 ozs of gold. Mining quartz in bulk was unprofitable so only small rich leaders could be afforded to be worked. In 1926 only nine parcels of ore were treated - 500 tons yielding 456 ozs of gold. The battery was only working intermittently during the year owing to the lack of supplies.

In 1929 the battery operated efficiently for 78 days. The battery treated 14 parcels of ore totalling 428 tons in 1930 with a yield of 231.5 ozs of gold. Crushing was only done intermittently. Two additional berdan pans were added in 1930. The introduction of motor transport to the field in 1931 enabled larger amounts of ore to be hauled in to the battery. Water for the battery had to be obtained by sinking in the riverbed; 350 tons of stone were crushed for a yield of 156 ozs of gold.

The battery operated from January to June 1932 and stopped for lack of water. 2,310 tons of low grade (4.5 dwts per ton) stone were crushed for a yield of 491 ozs of gold. The battery operated almost continuously in 1933. A box race brought water to the battery from the Copperfield River. Although 4,420 tons of ore were treated it was of a much lower quality (surface loam) than previously, being only

of 3 dwt average per ton. There were many machinery breakdowns in the battery in 1934. Considerable repairs were necessary including replacement of the Ackroyd wood producer gas generator by a No.6 Hornsby producer gas generator to operate on either coke or charcoal. 5,677 tons of stone (much of it surface loam) were crushed for a yield of 756 ozs of gold (3 dwts per ton).

The cam shaft of the battery broke and the box drain for water from the river was insufficient in 1935 closing it down for repairs. The Hornsby engine was installed in February; 4,560 tons of stone were treated for a yield of 663 ozs of gold. The battery operated 4,094 hours in 1936 producing 980 ozs of gold from 6,951 tons of stone. G. Price at the Town View open cut had 750 tons treated at the Kidston battery for a yield of 55.77 ozs of gold. The box water race from Copperfield River worked well as did the new Hornsby gas producer. 57 parcels were dealt with during the year. 66 parcels of ore were treated in 1938. In 1940 8,020 tons of ore from 22 mines were crushed in 3,648 hours of running time for 1,201 ozs of gold.

The Oaks Battery did not operate during 1942 as miners had left the district and there was no ore available. It was decided to close down the battery for the duration of the war and a caretaker was placed in charge of the battery. The battery remained closed in 1946.

There was movement in 1946 to reopen the battery which attracted some prospectors back to the Oaks field. The battery was reopened in 1947 with Alf Hooley as manager and 1,238 tons of stone were treated for a yield of 94 ozs of gold. Most of the stone treated was bulk samples obtained by H Dickinson from the surrounding hills. Crushing ceased early in 1949 and the battery did not operate after 1950 (Kerr, 1992,3).

To the east of the battery, near the junction of Poverty Gully and the Copperfield River is the two cylinder pump which supplied water to the battery. Above the pump, the Battery Manager's house is located. It may predate the battery.

DESCRIPTION OF PLACE

Function of Place - Historical:

Mill/Battery

Mining Settlement

Operational Status:

Abandoned

Structural Condition:

Good Condition

Structural Fabric:

Bush Timber

Concrete

Structural Components:

Metal Water Tank
Workshop/Smithy
Mill/Battery Shed (standing)
Ore Bin/Hopper
Mining Settlement/Camp
Pump House/Foundations
Workshop/Smithy

Description of Place:

The place comprises three components, the battery and an associated house and water pump. The battery shed comprises a bush timber frame on heavy bush timber uprights. The shed is clad in corrugated iron. Surviving components of the battery include timber ore chutes to two primary crusher pits (one crusher remains insitu), connected by two ore bucket elevators to the ore bins feeding 3 five head stamp batteries. The two bucket elevators have been removed however their vertical housings form a distinctive feature. The battery launders are intact but there are no copper amalgam plates. Only one of three tables remain. A gas engine which formed the main power plant has been removed. Two berdan pans and a grinding pan remain insitu. A lean-to section alongside the battery building contains a smithy and a small workshop. Two large elevated iron tanks alongside the battery are fed by pipes connecting with a partly intact twin cylinder pump which is mounted beside the river. A corrugated iron clad cottage above the pump may have been the battery manager's house. The house is in fair condition and contains garden plots and buildings.

Plant:

- Jaw crusher - no brand visible.
- Five-head stamp battery - Maryborough Tooth & Co Vulcan Foundry Queensland (on mortar box), Tooth & Co (on iron standards).
- Five-head stamp battery - Stuart & McKenzie Croydon Union Foundry (on mortar box), Tooth & Co (on iron standards).
- Five-head stamp battery - (no brand on mortar box), Tooth & Co (on iron standards).
- Separation table.
- 2 Berdan pans.
- 2 Grinding pans (one insitu).
- Gas producer plant (not insitu).
- Two-cylinder ram pump - no brand (power unit removed).

Items missing since a 1977 survey by M. Whitmore include -
a gas engine (R.Hornsby & Sons Ltd Grantham & Stockport England - No 60741), 2 separation tables, 2 berdan pans, 1 switchboard & marble mount, 2 generators and 1 rheostat.

STATEMENT OF SIGNIFICANCE

The Kidston Battery complex (including the pump and manager's house) is significant in Queensland's history because of the role it played in extending the

life of gold mining in North Queensland after the second-last major alluvial gold rush in Queensland's history (the Oaks Rush, 1907). Its development and maintenance as a State battery from 1920-50 is significant in Queensland's history as a demonstrated support for regional industrial development.

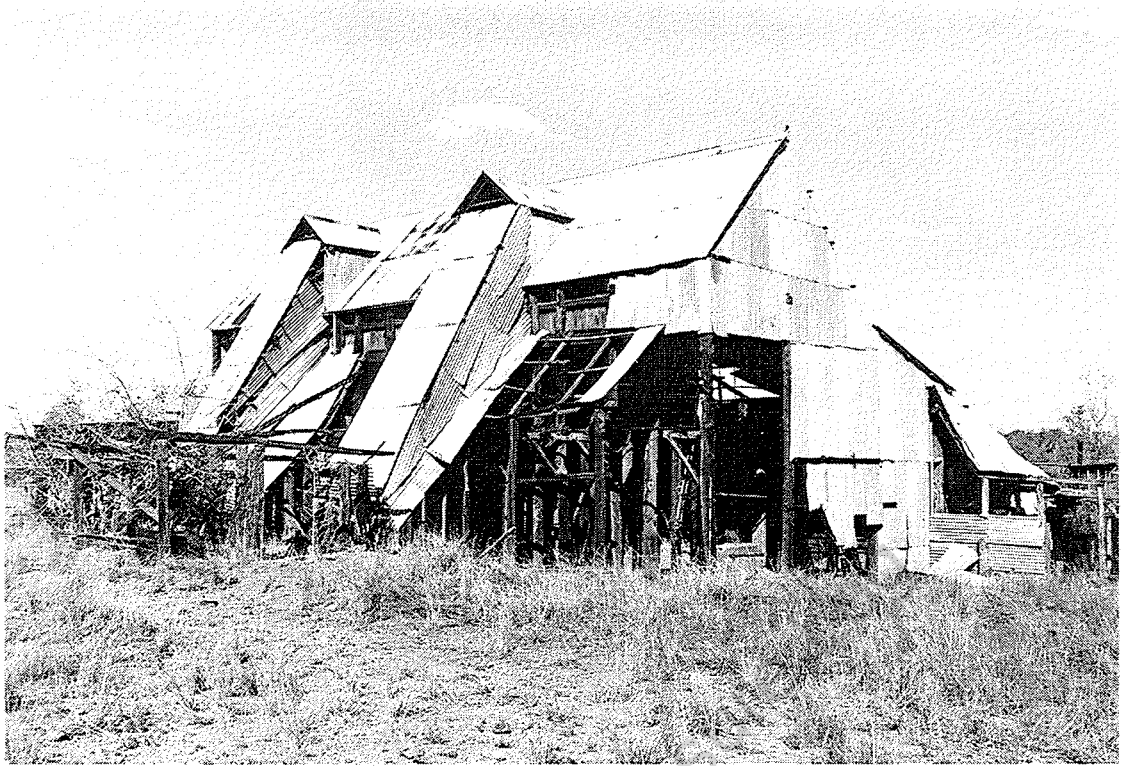
The survival of a 15 head battery is rare and only the Venus Battery at Charters Towers has more stamps (20) surviving. The combination of the battery manager's house and pump in relation to the battery and the surviving buildings in the township add value to the complex and its rarity.

The battery demonstrates standard technology of the period and the high degree of self-efficiency common to most isolated and remote mining operations in North Queensland.

The place satisfies criteria (a) (b) (d) of the *Queensland Heritage Act 1992*.

REFERENCES

- Kerr, Ruth S. 1992 *Queensland Historical Mining Sites Study*, Vol. 3.
- Pearson, Michael 1995 *Kidston Township Cultural Heritage Study*, 41 pp.
- Queensland Government Mining Journal*, 14 May 1910, p.257.
- Wegner, Janice. 1990. *The Etheridge*, Studies in North Queensland History No. 13, James Cook University, Townsville.
- Whitmore, Mark. 1976. *Kidston Gold Battery*, Report for the National Trust of Queensland, Brisbane.



Battery shed, looking E.



Battery shed ore elevator housing, looking E.



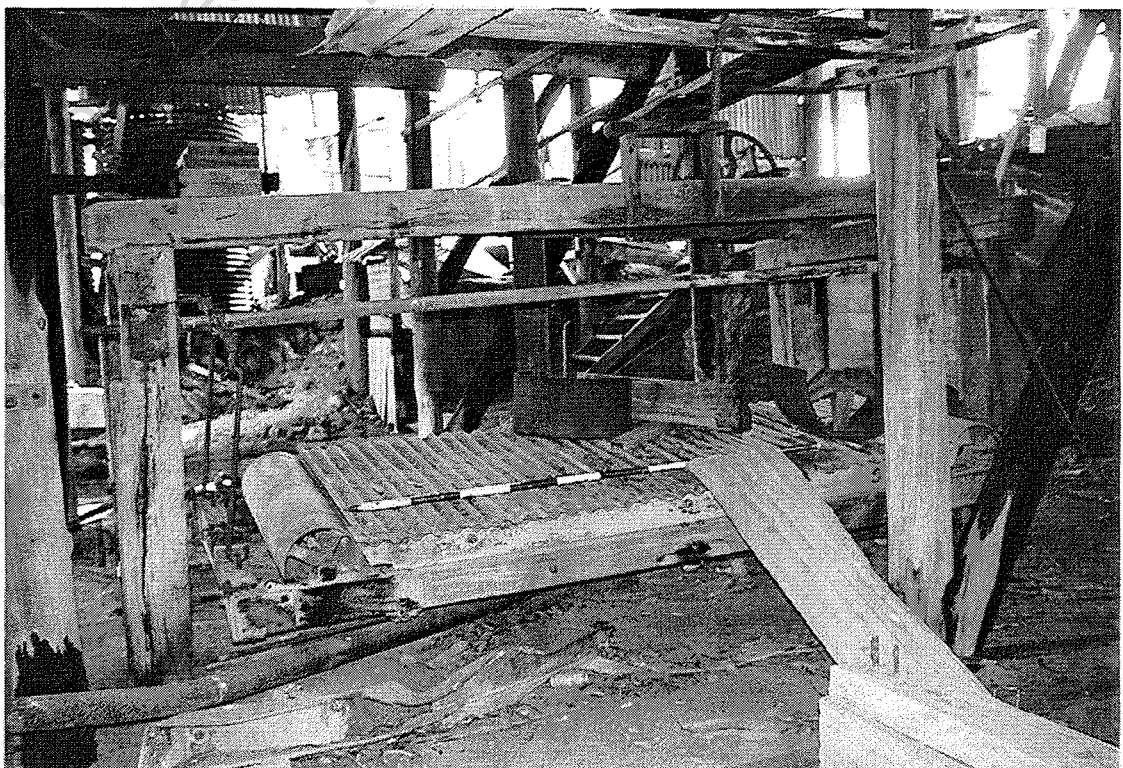
Rear of battery shed, looking W.



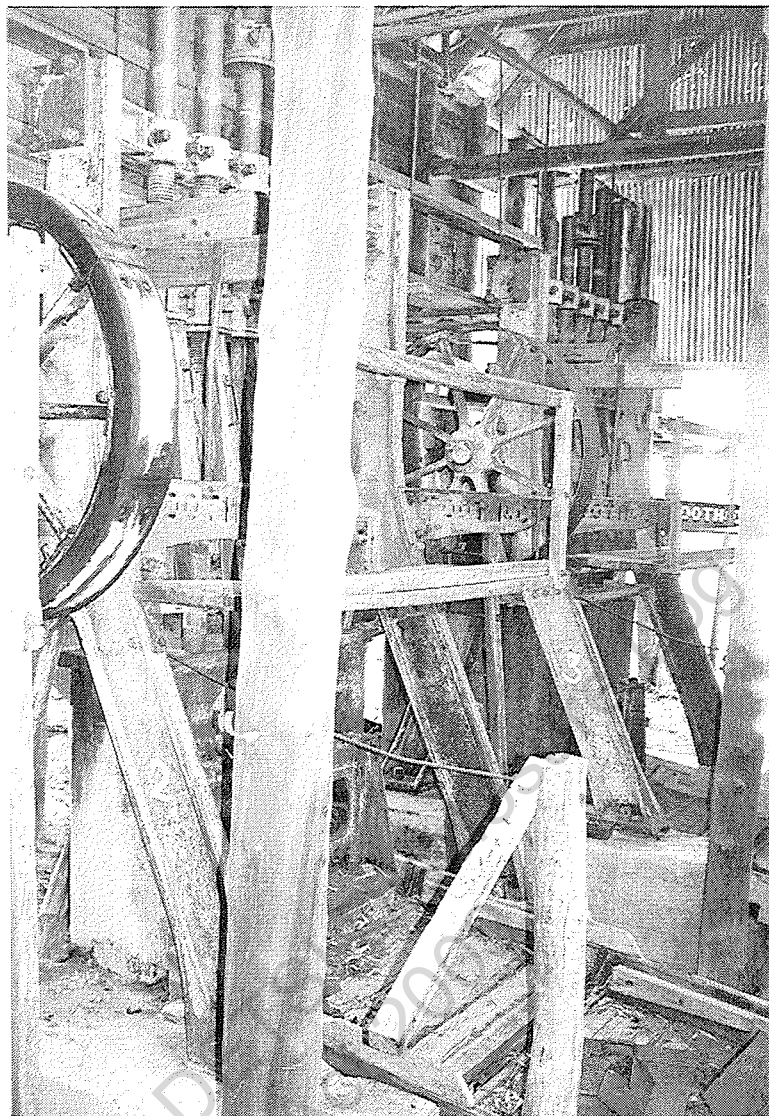
Elevated timber ore bins, looking W.



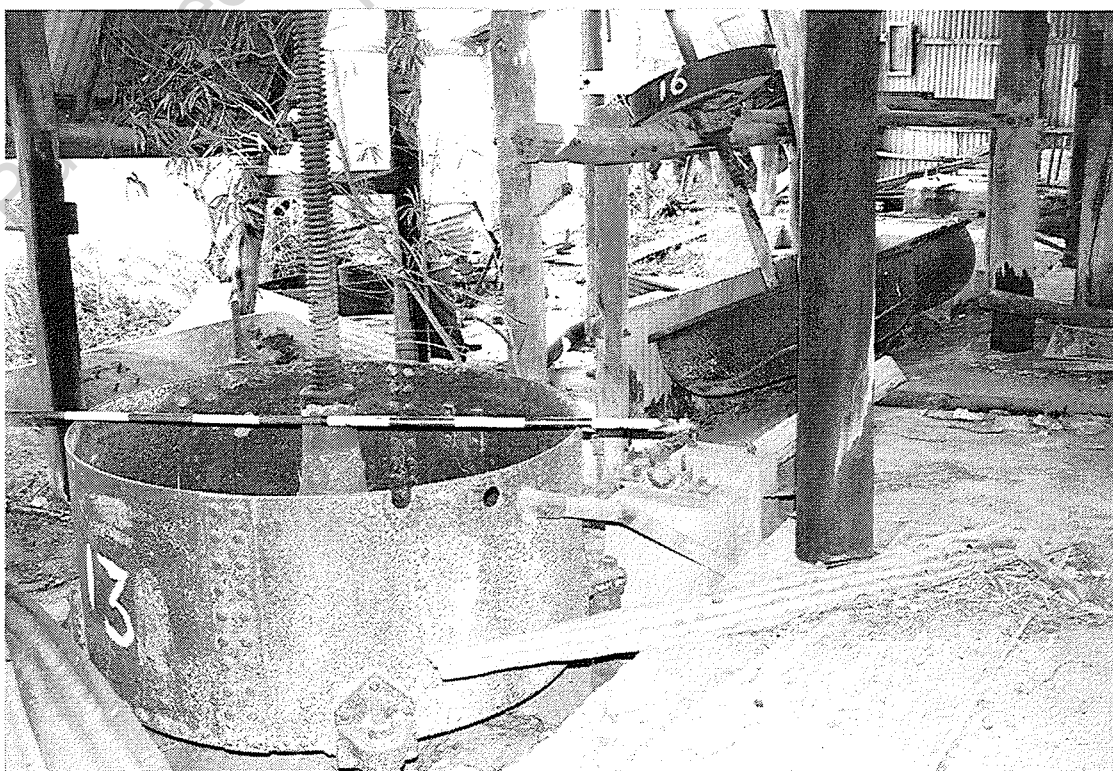
Feed from ore bins to mortar boxes,
looking SW.



Slimes table, looking SW.



Stamp batteries, looking N.

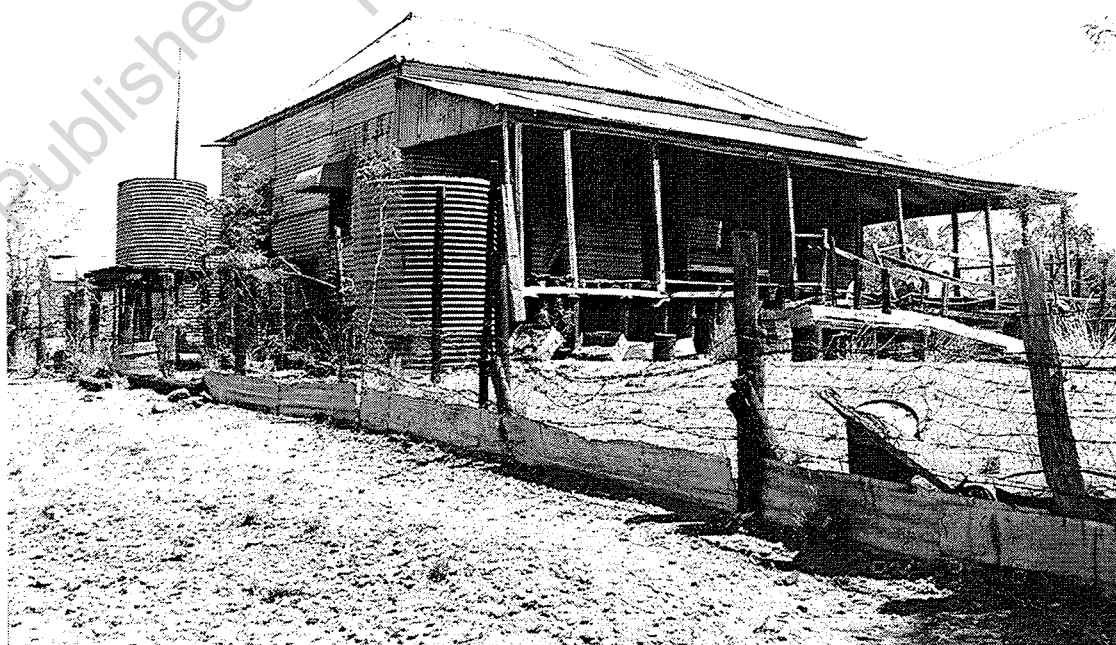


Grinding pan with berdan pans in background.
Looking SW.

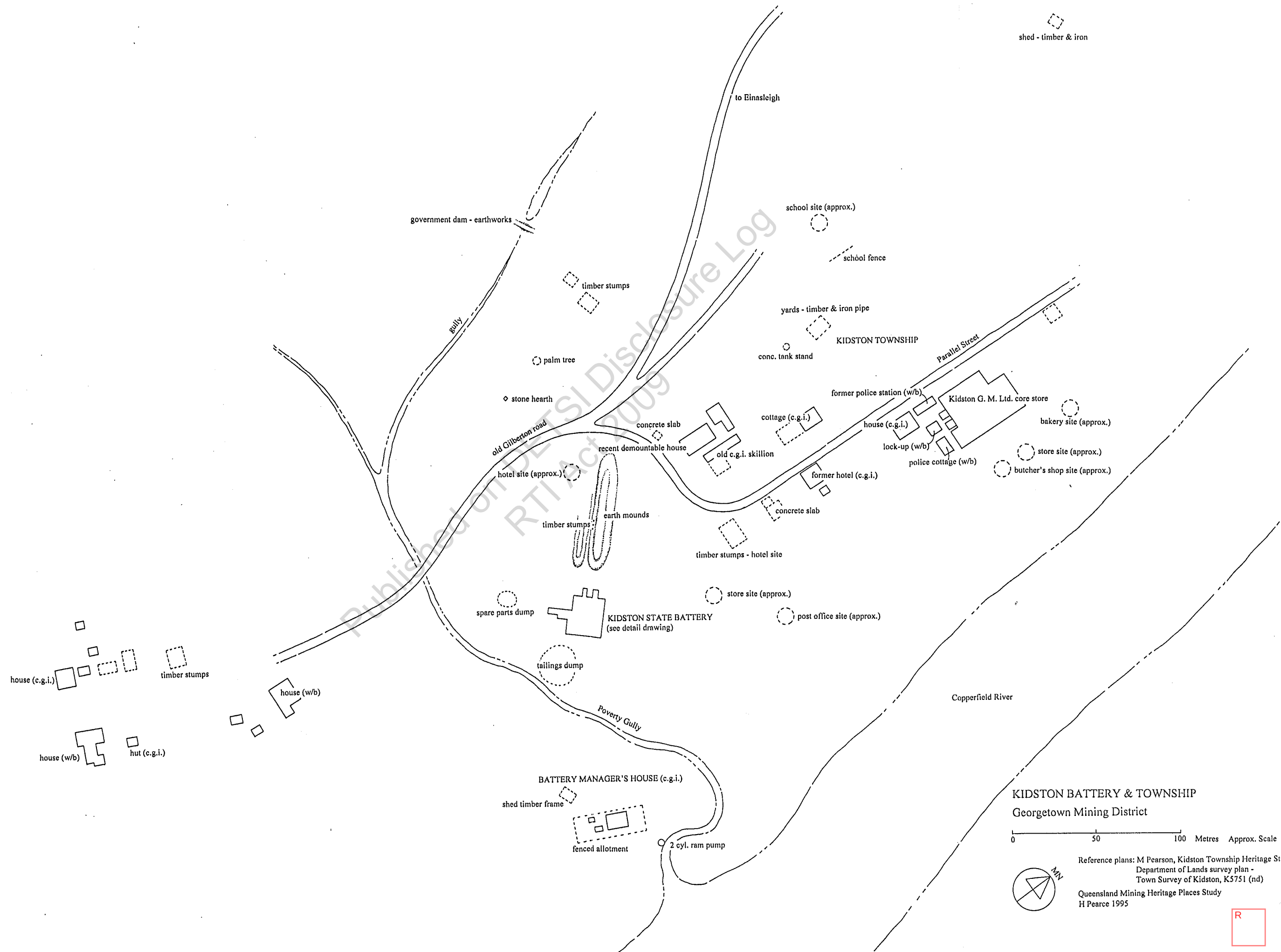
R



2 cyl. ram pump on the bank of the Copperfield River. Looking S.



Battery manager's house, looking W.



KIDSTON BATTERY & TOWNSHIP
Georgetown Mining District

0 50 100 Metres Approx. Scale



Reference plans: M Pearson, Kidston Township Heritage Study, 1995
Department of Lands survey plan -
Town Survey of Kidston, K5751 (nd)
Queensland Mining Heritage Places Study
H Pearce 1995



