## ASSESSMENT OF HERITAGE VALUE

#### TARCOOLA GOLDFIELD AND GOVERNMENT BATTERY, TARCOOLA, SA

#### **DESCRIPTION OF THE PLACE**

Scattered across the Tarcoola Goldfield are multitudinous remains of mining efforts ranging from small teams to larger, sophisticated concerns, working across nine decades. Mining activities historically concentrated on quartz veins running through the Tarcoola Range, a hilly outcrop roughly 3.5km long (north-east/south-west) and up to 850m wide, and to a lesser extent Brown Hill further north and Tarcoola Hill to the north-east. The mines are located 3-7 kilometres north-west of Tarcoola township, itself about 400km north-west of Port Augusta. Prominent amongst the mining efforts were small concerns extracting gold ores from small open cuts or simple mine shafts, which today literally dot the landscape.

It is proposed the Tarcoola Goldfield listing consist of historic features within Area 1 and Area 2, as well as Geologists Well, Well No. 2, and remains in the nearby Machinery Dump, indicated in site maps towards the end of this assessment).

#### Area 1: Government Facilities

The Tarcoola Government Battery facility stands within a fenced area of under 3 hectares, around 1.6 km north-west of Tarcoola Township. The battery building is a rectangular, corrugated iron, gabled structure with shed extensions on its north and south side. The building's timber framing appears to be in good condition but sections of siding have come away leaving exposed parts of the interior. The battery contains ten gravity stamps, an oil engine, Wifley concentrating tables and associated equipment.

In the north-west corner of the battery property is the remains of an abandoned, gabled, stone house with timber kitchen and verandah extensions. The stone section remains standing, although part of its back wall has collapsed, the kitchen has collapsed entirely and the verandah has lost most of its corrugated iron roof. Nearby, a very simple corrugated iron structure that served as an office remains in fair condition, missing part of its roof. A stone outhouse stands in good condition. An iron weighbridge, used to determine the amount of ore brought to the facility, remains in place and in good condition. Old equipment litters the property, including machinery, water tanks and boilers, some of which remain in-situ, others moved over the many decades since the facility's construction in 1901.

The State Government funded the sinking of a number of wells in and around its battery. At least one was sunk on site and at least four others flank the property in a rough semi-circle; Geologists Well (No.1), No. 2, No. 3 and the Glory Quale.

Just north of the Government Battery, is the original location of Tarcoola Township, surveyed in 1901 and abandoned from 1919. DENR's 2006 survey found the area, particularly at its southern end, still features a number of abandoned standing structures and ruins likely related with the original town. A roofless gabled stone cottage is in fair condition with its roof material stacked around its walls. A stone chimney connected with a small corrugated iron hut stands adjacent. Around 150m east is a gabled corrugated iron house with shed attachment, a dilapidated corrugated iron shed, concrete foundation and improvised metal and mesh outbuilding. A lone stone chimney endures a little to the north. A homestead complex, including two houses and two corrugated iron buildings, remains towards the southwest boundary of the original township, all or some of which may post-date Tarcoola's relocation. In addition, a chimney and scattered fabric is all that remains of at least two houses roughly 200 meters south-west of the battery, outside the township's boundary.

#### Area 2: Remains of Private Mining Concerns

The most productive mining area of the goldfield was located towards the south-western end of the outcrop, within the 1900 claims of the Tarcoola Blocks Company. This area presents a rich archaeological landscape filled with artefacts, structures and ground surface modifications from working and reworking by numerous of groups over nine decades. The Fabian (or Fabian Underlie) Shaft and the Main Shaft, centre of the most productive ore extraction efforts of the field, remain intact and in good condition. The Fabian Shaft features a rough-cut timber lined inclined entry, probably retaining its original early-1900s construction, and is in good condition. The Main Shaft features a tall steel headframe and ore crushing bin constructed in the 1980s over a vertical shaft, which may well feature all or part of its 1907 timber lined construction.

Surrounding the Fabian and Main Shafts are evidence of associated historic ore processing activities. Around each shaft are large mullock heaps, made of waste rock coming from the mines. Ore processing waste, known as tailings, originally dumped on piles at the bottom of the slope, were treated on two occasions and now exist in rectangular heaps around 150 metres south of the Main Shaft. Historic battery stamp equipment lies dumped just south and below the Main Shaft.

Much of the Tarcoola Blocks Company ore processing plant (operated from 1901-1911) remains *in situ*, although in a ruinous state. Buildings and machinery bases remain as foundations, with a few walls and one chimney still standing. Most cyanide tanks remain in place, in various stages of decay. At the top of the hill, above the mine and processing facilities, is the foundation and chimney of a house, probably associated with nearby mining activities. West of the foundation is the stone foundation to a company water tank while to the east is an iron tank erected by the State Government in 1935 to augment the water supply at the Government Battery.

The area is littered with evidence of mining the several rich gold veins found here. Historic maps suggests dozens of shafts were sunk to intersect with extensive underground workings below. Clearly visible are the numerous open cuts (or open stopes) that trace the different ore veins where they meet the ground surface. Four earthen mounds sitting atop the Tarcoola Range evidence the Tarcoola Proprietary Company's concerted, and ultimately failed, efforts to find riches in extensions of the Tarcoola Blocks Company's finds.

Disused iron equipment associated with mining lies dumped in an area at the base of the Range, west of Area 2. The equipment includes battery remains, machinery parts, a water wheel and a range of parts and equipment.

#### STATEMENT OF HERITAGE SIGNIFICANCE

The Tarcoola Goldfields is the largest reef goldfield and one of the largest goldfields ever exploited in the State's history. Far removed from the nearest town and located in an isolated part of the State, the area has had relatively little disturbance and thereby represents a rich historical mining landscape that speaks to mineral exploitation efforts across the twentieth century.

The field evidences intensive private efforts to find gold, most notably the Tarcoola Blocks Company, which was one of the State's most successful mining companies up to that time and well publicised across the State. Initially viewing the field as comparable to the major Victorian goldfields, the State Government invested considerable capital and energy in support of mineral exploitation by groups of all sizes. Such was the interest in the area that government support went beyond that given to other goldfields for many years. Tarcoola was the focus of Depression-era policy, with State and Federal investment to promote employment and economic activity over those difficult years. As a result, many small groups tried their luck here for over fifty years. The history of the development of the mines and the associated small township of Tarcoola provides interesting insights into the interaction of government and private enterprise in mineral exploitation, still clearly visible in the landscape today.

#### **RELEVANT CRITERIA (Under Section 16 of the Heritage Places Act 1993)**

# Criterion a: It demonstrates important aspects of the evolution or pattern of the State's history.

The Tarcoola Goldfield is the largest reef goldfield and one of the largest goldfields ever exploited in South Australia. The Tarcoola Goldfield presents a rich mining landscape that reflects the range of activities undertaken over nine decades of mineral exploitation. Early successes attracted a small rush to the field, with up to 500 people living in mostly improvised housing and working small mines largely without mechanised equipment. Of all groups coming to the field, the Tarcoola Blocks Company dominates: from 1900-1918 it recovered over half the gold ever found, valued at over £140,000. Key components of the company's industrial facilities remain *in situ*, many as ruins, including its chief shafts (the Fabian and the Main), a hoist engine base, and buildings and equipment cascading down the hillside used to processing gold ores. Prospected and worked by groups into the late-1980s, Tarcoola Blocks Company lands evidence changes in mining approaches and technologies over most of the twentieth century.

Physical remains, particularly around the eastern end of the Tarcoola Range, reflect the extensive government involvement in mining here, in the interests of possible economic and employment benefits. Initially regarded as comparable to Victoria's famous goldfields, the South Australian government constructed a government battery, complete with cyanidation plant, to process the ores of mining groups that could not afford to build their own. In addition, the supply of water, mining expertise, a formally laid out town, as well as occasional financial and practical assistance broadened the field's appeal to large and small concerns alike, who worked the field until the battery's closure in the mid-1950s. The Tarcoola goldfield became an avenue for the State and Federal Governments to generate economic activity and jobs during the 1930s Depression. By repairing and upgrading the Tarcoola Government Battery, and making monitory grants available, the government attract up to 60 men to the field at a time, who prospected and opened new mineral areas.

# Criterion c: It may yield information that will contribute to an understanding of the State's history, including its natural history.

Separated from the present day Tarcoola Township and located in an isolated part of the State, the Tarcoola goldfield is little developed outside the purposes of mining, and has been relatively well preserved from human intervention. Extensive evidence of mining and related activities of all periods remain, from buildings and foundations, to equipment and mines, and the site would be an excellent candidate for an industrial archaeology study.

#### **BRIEF HISTORICAL BACKGROUND**

Worked since 1900, the Tarcoola Goldfield represented the most productive goldfield in the state until the opening of Olympic Dam in the 1980s and remains the largest reef gold producer. The field saw a great number of companies and prospectors exploit the lands fairly intensely to the 1950s and then more sparsely to the late-1980s, that the State Government supported though the supply of information, management and infrastructure, most notably the Government Battery. By far the most notable mining company on the field was the Tarcoola Blocks Company, which built its own infrastructure to win over half of all gold recovered from the area.

While prospectors had found small alluvial deposits around Tarcoola from 1893, it took until 1899 for groups to identify and claim commercially valuable mineral areas there. Hon. A Tennant, M.L.C. and Mr C H Hakendorf headed the most successful of these groups, after arranging with nine prospectors of the Western and South Australian Border Prospecting Association to inspect the area. The prospectors identified the gold veins that would sustain the field's most intensive mining efforts for decades, leading to formation of the Tarcoola Blocks Company with claims on 10 20-acre blocks. The company acted swiftly; erecting an ore extraction and processing system centred on its Fabian Underlie Shaft. By 1901, it had opened several shafts and tunnels, and erected a 10-stamp battery and cyanidation facility complete with ore processing technology and tramway transportation system. By 1904, 170 people worked for the company, which by then boasted a 20-stamp (900 lbs.) battery, electric plant for drilling and lighting, mine dewatering equipment providing water for ore processing facilities, water condensers, and a range of associated mining equipment.

The Tarcoola Blocks Co. continued this mining system through its most prosperous years, focusing extraction between the Sullivan's and McKechnie's reefs. In designing its ore processing facilities, the company took advantage of the sloping landscape by using gravity to move ores through the process. After being brought to the surface via tram, ores were automatically tipped into an ore bin, then crushed. Ores were then trammed to the battery where automatic feeders gradually fed ore through the stamps. The output was sorted for gold, first on a concentrating table, and then through cyanide vats staged down the hillside. The landscape today reflects this process: waste rock, sorted from richer ores early in the process, was dumped on mullock heaps high on the hill near the ore crushers, while processed ores, known as tailings, were dumped below the cyanide vats on tailings piles. Workmen accessed the underground workings via shafts over Ward's Reef, west of Fabian's Reef, while air circulated through the mine via openings across the area. The company constructed a relatively sizeable residence on the slopes above its ore-processing facilities and a second west of its battery.

By the end of 1906, the Tarcoola Blocks Company had exhausted the most accessible ores surrounding the Fabian Underlie Shaft and shifted extraction work downhill. Production

slowed for a year while workmen upgraded the 'Main Shaft' to host heavy operations. Measuring 12 feet by 4 feet to a depth of 280ft and entirely timbered in jarrah with three independent compartments, this shaft hosted the company's main operations until its closing and a number of subsequent mining efforts. In a brief attempt to better accommodate this new operational location, the company relocated their battery in 1911 to just west of the Main Shaft but soon abandoned this in favour of the Government Battery. From 1907, gold recovery levels fell to more modest levels, and significantly dwindled from 1912-1917. The company ceased operations and surrendered its claims in 1918 having realised over  $\pounds140,000$  of gold since commencing work.

The South Australian Government also took a keen interest in the field, believing Tarcoola represented an opportunity to develop a significant economic activity, prosperous town and commercial district. This stance was in line with the Government's increasingly active role on Sate goldfields, visible in its purchase of a battery complex on the Mount Torrens goldfield in 1894, and construction of a new battery facility at Peterborough three years later. Tarcoola, though, would see the most intensive Government involvement of all goldfields of that era.

Positive assessments of the Government Geologist and others supported the view that Tarcoola could support a vibrant, long-term mining community. Two Victorian mining experts visiting in October 1901 declared the field was "likely to be another Bendigo or Ballarat" (*Chronicle*, 2/11/1901, p29a). The Government responded by investing considerable energy and capital into developing a well laid-out town, civil and industrial support infrastructure, as well as the provision of expertise and published geological studies.

From 1900, Government surveyors divided the landscape into mining parcels and laid out Tarcoola Township. That year, Parliament approved funding for construction of a public battery and cyanide plant to service mining companies that could not afford to build their their own. Commencing operations in October 1901, the Government Battery was lighter than its Tarcoola Blocks Company counterpart, with a small crushing engine and ten 650 lbs. stamps connected to cyanide treatment facilities via narrow gauge tramways. The complex also featured one cupelling and two refining furnaces, a small office, four-room stone house and a range of equipment associated with refining gold. The government promoted mining by prospecting, even starting its own mine in 1900, 'The Government Mine,' which it made available to the public for exploitation. The battery became a regional base for ore processing, with battery staff also operating the Government's battery at Glenloth, some 50km south-east, as demand required.

Mining groups initially faced a very limited water supply and saline water in many areas, forcing some to pay for carted water at prices as high as 4 to 6 pence per gallon. Since water was essential for people and ore-reduction equipment alike, the Government funded a number of water supply projects in the interests of the future of the field. Geologists Well, sunk in 1900, supplied 1,000 gallons of good quality water a day, and was soon augmented

by Wells No.2, 3 and later the Glory Quale. Even with these, water supply remained a scarce resource and a number of additional sources were tapped as circumstances allowed, seeing a reduction in carted water rates to ½ pence per gallon.

The positive initial accounts attracted considerable interest in the field and up to 500 people inhabited the area during the early boom years. People initially erected temporary housing; most miners camped in tents on the goldfield, or stayed at the 'boarding house' – one of the first semi-permanent structures on the field, described as follows:

In those days there was no building material on the field. The walls of the boarding house were forked sticks, covered with hessian. Rails for rafters were laid across and rested in the forks. The rafters were covered with boughs and brush, which constituted the roof. It was a long building capable of seating up to 100 men at a sitting. The tables and seats reached the full length of the building. They were constructed of brush timber; the legs of the forms and tables were posts in the ground – topped over with packing case wood. . (Observer 5/11/1924 p47c)

The Government camp comprised a group of tents shaded with brushwood 'wigwams', and was home to two troopers, the doctor, Mine Warden and other officials. The hospital camp comprised a large canvas and brushwood 'ward', tent accommodation for the two resident nurses, and iron kitchen. Inhabitants requested a school be built as early as June 1901, and land was set aside in the survey for one, but the school was not built until 1904. These early rough conditions allowed a typhoid epidemic to thrive, killing miners and government officers alike, and filling the small hospital.

The official government township of Tarcoola, was surveyed and laid out in April 1901 and one hundred and seventy five quarter acre allotments in the town soon became available for purchase. These lots were hotly contested by local and interstate investors, with 121 blocks sold for a return to the Government of £4,629, representing a sizable offset against the field's establishment costs. By the end of the year, the township of Tarcoola comprised two hotels, two stores, the premises of the Bank of Adelaide and about a dozen other business places, a hospital, Post Office, racecourse and cemetery. A number of the new structures featured wood and corrugated iron construction.

The design of town and the initial private sector interest in it spoke to a vision of what many hoped Tarcoola might become, a vision that was never fully realised. As the Tarcoola Blocks Company reached the end of its richest ore (around 1907) and miners recognised a more modest view of the field's potential, local population levels dwindled, and with it, investment in the settlement. In the end, only around fifteen buildings were built within the township. In 1919, the Government surveyed a new town roughly 1.5 km south-east, adjacent the Trans-Australian Railway completed in 1917, to which inhabitants moved many structures. Access to the railway benefitted the mining region by increasing its access to goods and lowering transportation costs.

Mine workings across the field ranged from prospect pits, shafts, adits and small open cuts to multi-levelled underground mines. The Tarcoola Proprietary, for instance, had seventeen claims but concentrated on two located above the Tarcoola Blocks Company through which rich lodes extended. The company expended a great deal of money and effort sinking four shafts with crosscuts but found little gold. Similarly, living conditions varied considerably from houses to improvised habitations made of scrap materials or tents, both within the town or along the range.

No mine operation ever matched the scale of the Tarcoola Blocks Company's mines. After the company closed in 1918, work on the field slowed and Government invested further to attract and continue mining. In 1923, a suction gas plant with wood-fuel producer replaced the steam plant powering the battery. In 1924, Tarcoola residents requested the Government dewater the Main Shaft for mining. The Government agreed, paying all costs to lower water levels below the working area. The Chief Inspector of Mines subsequently examined the workings, finding ores not susceptible to ordinary treatment and making recommendations for the proposed work. As an additional measure of support, the government installed a Wifley concentrating table at the battery in 1928, specifically to process difficult sulphide ores found in the field.

Economic conditions during the Depression prompted new interest in gold mining, which the Government promoted to increase economic activity and get people working. While the price of other minerals had fallen and remained low at the close of the First World War, the price of gold rose dramatically; following the flotation of gold prices in 1931, its value had doubled by 1934 and quadrupled to £16 per troy ounce by 1949. This combined with the difficult employment landscape to make peripheral mining areas more attractive to miners. The South Australian Government used these circumstances to promote employment through gold mining and in 1932 undertook maintenance works to the Government battery, laying a new foundation under one side of the building and replacing two mortar boxes. The Federal Government came to recognise mining as an avenue for unemployment relief a few years later and provided money to the states for further support. Of £35,000 given to South Australia, £10,000 was earmarked for battery construction and upgrades. The Tarcoola battery received new cyanide vats and a new oil engine. The Government also took advantage of its dewatering activities at the Tarcoola Blocks Mine by investing in a new pumping station that sent water to a tank above, where acidity was neutralised, before piping it to the Government Battery, thereby augmenting processing capacity. The funds supported construction of an entirely new battery facility at the nearby Glenloth goldfield to avoid the costly transportation of ores to Tarcoola. In 1940, the Federal Government provided a further £1,000 to gold producers in the State, which the State passed to producers on the field at 3 shillings per ton or ore crushed.

The favourable economic climate for gold mining spurred selective work across the field including at the former Tarcoola Blocks Mines, from which a number of small operations

recovered modest amounts of gold. In From 1935-1939, the Tarcoola Sands Company retreated the tailings from the Tarcoola Blocks Battery, erecting six 75-ton vats below the former cyanide facility for the treatment of 2,350 tons of tailings. The re-treatment plant structures have since been moved or demolished, likely part of re-treatment work by Tarcoola Gold Ltd. in the 1990s. The Standard Mining Company brought a more systematic approach to the Tarcoola Blocks Mines. After a favourable geological investigation completed in 1948, the company repaired and expanded mine workings, and installed new equipment on the mullock platform surrounding the Main Shaft. Working only a few years, the company found some good results, winning over 7,310 oz. gold before closing in 1953. The Standard Mining Company was the last major mining effort on the field and the Government Battery ceased operations in 1955.

In 1974, Emperor Mines Ltd. reconditioned the Main Shaft but did not proceed to mining. From late-1986, Tarcoola Gold Ltd. invested in the field, erecting headframes and a camp in the vicinity of the Main Shaft, mapping and test drilling the area. The company relocated equipment from a mine in Kalgoorlie, Western Australia. The operation won a mere 261 oz gold by mining but also recovered around 1,000 oz reprocessing gold tailings associated with the Tarcoola Blocks' and Government's batteries. Many remains surrounding the Main Shaft, including the steel headframe, likely relate to the works of Tarcoola Gold Ltd., standing beside Tarcoola Blocks era structures.

The Tarcoola goldfield was the most productive of South Australia's goldfields prior to adoption of mass-mining technologies. Estimates of total gold production vary considerably but *Mining Review* accounts record over 80,000 oz of gold coming from the field from 1900-1955. While the mining experiences vary greatly, two aspects stand out: around 55,000 oz (68%) of all gold came from the original Tarcoola Blocks Mines' land claims and around 44.5% passed through the Government battery.

#### REFERENCES

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## SITE RECORD

## [TARCOOLA GOLDFIELD, TARCOOLA]

FORMER NAME:	n/a	
DESCRIPTION OF PLACE:	Mine workings and equipment, gold processing battery and original Tarcoola township n/a	
DATE OF COMPLETION:		
REGISTER STATUS:	Description: Date:	Nominated - 3 February 1986 (goldfield) - 2008 (Battery – Survey recommendation)
CURRENT USE:	Description: Dates:	Abandoned
PREVIOUS USE(S):	Description: Dates:	Mining and ore processing 1899 – 1989
ARCHITECT:	Name: Dates:	n/a
BUILDER:	Name: Dates:	various
SUBJECT INDEXING:	Group: Category:	Mining and Mineral Processing Mine
MISCELLANEOUS INDEX:	Calegory.	Nume
LOCAL GOVERNMENT AREA: LOCATION:	Description: Unit No.: Street No.: Street Name: Town/Suburb: Post Code: Region No.: Region Name: Title Type: Volume: Folio:	Unincorporated N/A N/A Tarcoola 5710 13 Far North and Far West CR 5750 379
	Lot No.: Section: Hundred:	1219 Out of Hundreds (Tarcoola) Various other titles and owners list to be tabled at meeting.

# SITE RECORD (Cont.)

## [TARCOOLA GOLDFIELD AND GOVERNMENT BATTERY, TARCOOLA]

AMG REFERENCE:	Zone:	UTM 53S
	Easting:	455612
	Northing:	6602656
	Map Sheet No.:	
	Map Scale:	1:32,818
OWNER:	Name:	
	Address:	
	Town/Suburb:	
	Post Code:	

#### FILE NO.: 20767

## LOCATION PLAN

#### TARCOOLA GOLDFIELD AND GOVERNMENT BATTERY



Location of the Tarcoola Goldfields. Adapted from Google Maps, 2010.

SITE PLAN

## FILE NO.: [20767]



## SITE PLAN

#### TARCOOLA GOLDFIELD



Aerial view of Area 1 and surrounds, containing the Tarcoola Government Battery, remains of the original Tarcoola township, and other government works designed to support the goldfields.

## SITE PLAN

#### TARCOOLA GOLDFIELD



Aerial view of Area 2 and surrounds, indicating remains from the Tarcoola Blocks Company and later companies. This was the most productive area of gold recovery in the goldfields.

## **PHOTOGRAPHS**



Area 2: Modern headframe standing over the Main Shaft, looking SW. Left is a small cutting in the Little Gem Reef. Late-1980s tailings piles lie in the background (DENR 2006).



Area 2: Tarcoola Blocks ore processing facility remains, looking SW (DENR 2006).

# **PHOTOGRAPHS (Cont.)**



Dump of old machinery parts near Area 2 (DENR, 2006).



Area 1: the Government Battery complex, including the battery (left), the manager's house (centre) and the corrugated iron offices (right) with tailings in the foreground (DENR 2006).

Meeting Date: 17 November 2010



# **PHOTOGRAPHS (Cont.)**

Interior of the Tarcoola Government Battery. The equipment comes from a variety of periods with updates over time. The battery stamps stand in their Depession-era mortar boxes, labelled 'Forwood Down & Co. Ltd. Adelaide'. Two Wifley tables stretch out beyond the stamps (DENR 2006).

## PHOTOGRAPHS (Cont.)



Area 1: Abandoned house standing within the original Tarcoola township area (DENR 2006).



Area 1: abandoned stone houses within the original Tarcoola township area (DENR 2006).