

**BETTER HERITAGE INFORMATION
SUMMARY OF STATE HERITAGE PLACE
Former Mount Torrens Cyanide Works**



Former Mount Torrens Cyanide Works SHP 13288, 22 December 2010.

Source: Swanbury Penglase Architects Pty Ltd.

ENTRY IN THE REGISTER

Description or notes with respect to a place entered in the South Australian Heritage Register in accordance with either the *South Australian Heritage Act 1978* or the *Heritage Places Act 1993*.

The South Australian Heritage Council may correct errors or inaccuracies in the Entry in the Register in accordance with s21 of the *Heritage Places Act 1993*.

NAME: Former Mount Torrens Cyanide Works

PLACE NO.: 13288

ADDRESS: Lot 26 Onkaparinga Valley Road, Mount Torrens
CT 5812/283 Lot 26 FP15441; CT 5963/86 Lot 22 FP155437
Hundred of Talunga

CONFIRMED IN THE SOUTH AUSTRALIAN HERITAGE REGISTER:

20 November 1986

COMMENTARY ON THE LISTING

Additional information provided as a part of the content of the South Australian Heritage Register in accordance with s14(6) of the *Heritage Places Act 1993* 'hold information in association with the Register'.

KNOWN AS: Mount Torrens Government Battery, Mount Torrens Gold Battery

ADDRESS Peramangk Country

STATEMENT OF HERITAGE SIGNIFICANCE

Built privately between 1889 and 1892, leased and later acquired by the state from 1894 and rebuilt in 1935–1936, the Former Mount Torrens Cyanide Works demonstrates the active role taken by the South Australian government to spur gold mining and prospecting during periods of economic depression. From the mid-1890s onwards, the government provided access to crushing, amalgamation, cyanidation and other facilities which individuals and small mining syndicates could not afford to establish themselves. The crushing and amalgamation facilities are intact and two cyanidation plants, while ruinous, demonstrate a comparatively high integrity.

Elements of Significance

Elements of heritage significance include:

- Battery shed, store, weighbridge, pump house, and northwest shed,
- Stamp battery, amalgamation tables, Wilfey table, engine, feed floor, and associated equipment (including moveable components),
- Eastern and western cyanidation plants (including moveable components),
- Administration buildings (ruins),
- Ponds (5),
- Boiler platform,
- Tailing stockpiles.

Elements not considered to contribute to significance of place include:

- Vegetation and fencing.

INDICATIVE CRITERIA (under section 16 of the Heritage Places Act 1993)

(a) it demonstrates important aspects of the evolution or pattern of the State's history

The Former Mount Torrens Cyanide Works demonstrates the active role taken by the South Australian government in encouraging gold mining and prospecting, in particular during periods of economic slump from the mid-1890s onwards.

By providing access to gold processing facilities at strategic locations proximate to goldfields throughout the state, the South Australian government spurred gold prospecting and mining, in particular by individuals or small syndicates lacking capital to invest in their own processing plants. Gold-bearing rock requires processing to yield pure gold, and by the end of the nineteenth century a variety of mechanical and chemical processes had been devised to accomplish this task, including crushing, amalgamation and cyanidation. Notably, the cyanidation process enabled the recovery of fine gold particles that could not be collected easily through other means. Gold processing facilities also provided a source of local employment during economic depressions.

Built privately between 1889 and 1892, the Former Mount Torrens Cyanide Works was leased, overhauled and subsequently operated by the South Australian government from 1894 to guarantee access to cyanidation facilities in the colony. The Former Mount Torrens Cyanide Works offered a ten-head stamp battery, amalgamation tables and a cyanidation plant among other facilities, and was the first of five similar government-owned and operated facilities across South Australia. The facility was rebuilt during 1935–1936 and closed in c.1956. The crushing and amalgamation facilities remain highly intact and two cyanidation plants, while ruinous, demonstrate a comparatively high integrity.

SITE PLAN

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Aerial view of Former Mount Torrens Cyanide Works*

Elements of heritage significance include (but are not necessarily limited to):

- Battery shed, store, weighbridge, pump house, and northwest shed,
- Stamp battery, amalgamation tables, Wilfey table, engine, feed floor, and associated equipment (including moveable components),
- Eastern and western cyanidation plants (including moveable components),
- Administration buildings (ruins),
- Ponds (5),
- Boiler platform,
- Tailing dumps.

Elements not considered to contribute to significance of place include (but are not necessarily limited to):

- Vegetation and fencing.

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LEGEND

-  Parcel boundaries (Indicates extent of Listing)
-  Outline of Elements of Significance for State Heritage Place

*Red outline is indicative of elements of significance, noting imperfect alignment of aerial imagery with parcel cadastre.

PHYSICAL DESCRIPTION



Aerial view of Former Mount Torrens Cyanide Works

- | | |
|------------------------------|---|
| 1. Weighbridge (remnants) | 7. Administration buildings (ruins) |
| 2. Store | 8. Northwest shed |
| 3. Battery shed | 9. Ponds (5) |
| 4. Western cyanidation plant | 10. Boiler platform |
| 5. Eastern cyanidation plant | 11. Tailing stockpiles (8, not all indicated) |
| 6. Pump house | |

The Former Mount Torrens Cyanide Works comprises the following key elements:

- Weighbridge (remnants),
- Store (c.1889, possibly originally housed stamp battery): stone, brick, timber frame and corrugated iron-clad construction, with hipped monitor roof, flanked by skillion-roofed aisles,
- Battery shed (1935–1936): timber frame and corrugated iron-clad construction, with asymmetrical gable roof,
- Stamping plant and associated machinery, comprising 10-head stamp battery, amalgamation tables, engine and raised feed floor, and Wilfey table, housed in battery shed,

- Western cyanidation plant (1935–1936, ruinous),
- Eastern cyanidation plant (ruinous),
- Pump house,
- Administration buildings (ruins),
- Northwest shed,
- Ponds (5),
- Boiler platform,
- Tailing stockpiles,
- Moveable components associated with the stamping and cyanidation plant.

Additional features of the store include:

- stone walls to east and west ends,
- timber-framed, corrugated iron-clad walls to north and south ends,
- brick quoins to ends and window openings,
- casement windows,
- two iron tanks on southern side, raised on dwarf walls,
- low-level openings on eastern side, bricked in,
- flat-roofed shelter on southern side, with associated hearth and chimney,
- internal timber structural posts and floor plates,
- drive shafts and pulleys mounted to posts,
- timber and gravel floor,
- timber and concrete footing for machinery (removed) with in-situ bolts.

Additional features of the battery shed include:

- earthen ramp to western side, retained by concrete walls,
- sliding doors to western elevation,
- concrete plinth to southern side,
- lean-tos on northern and southern sides,
- chimney associated with southern lean-to,
- flat-roofed shelter on dwarf walls to eastern side,
- freestanding, concrete-lined steel tank on concrete plinths and steel tank stand (sans tank) on southern side,
- rainwater tank on northern side.

Additional features of the western cyanidation plant include:

- elevated steel trolleyways on concrete piers and timber posts,
- elevated steel and wrought iron tanks on concrete plinths,
- in-ground concrete tanks and sumps,
- in-ground concrete channels from battery shed,
- engine shed and 2 conveyers,
- shed,
- timber jetty, derrick and associated machinery,

- pond,
- timber-framed revetment to pond,
- stone retaining walls.

Additional features of the eastern cyanidation plant include:

- elevated steel trolleyways on timber poles,
- wrought iron, cast iron and steel tanks,
- steel in-ground tank,
- t-shaped engine shed,
- concrete retaining wall.

Elements of Significance:

Elements of heritage significance include:

- Battery shed, store, weighbridge, pump house, and northwest shed,
- Stamp battery, amalgamation tables, Wilfey table, engine, feed floor, and associated equipment (including moveable components),
- Eastern and western cyanidation plants (including moveable components),
- Administration buildings (ruins),
- Ponds (5),
- Boiler platform,
- Tailing stockpiles.

Elements not considered to contribute to significance of place include:

- Vegetation and fencing.

HISTORY OF THE PLACE

Gold mining and processing in South Australia to 1945

South Australia pioneered metal mining by Europeans on the Australian continent. Wheal Gawler (1841) was Australia's first colonial metal mine and produced the continent's first mineral exports of silver and lead for British and European markets.¹ While copper mining played a larger role in the South Australian economy during the nineteenth century, gold mining also made an important contribution to the development of the colony and had a marked effect on short-term population movements within the state.²

Native gold typically occurs in veins or reefs embedded in rock and is often associated with quartz or pyrite. Over time gold, which is one of the least reactive chemical elements and does not oxidise nor dissolve in water, is displaced from its parent rock through erosion and is deposited in the alluvial beds of creeks, rivers or other watercourses, which may comprise silt, sand, clay or gravel or a mixture of these components.

During the nineteenth and early twentieth centuries, reef gold was mined by excavating costeans (trenches), shafts (vertical excavations), adits (horizontal or inclined tunnels opening to the surface) and drives (horizontal tunnels opening to a shaft) to facilitate access to subterranean reefs.³ Ore in reefs was typically excavated from below, leaving behind voids (stopes). Gold-bearing ore was processed by crushing or stamping the ore in a large plant called a battery, typically powered by a steam engine. Crushed ore was mixed with water to form a slurry and gold was then extracted from the slurry using a variety of mechanical or chemical processes. The latter included amalgamation and cyanidation. In amalgamation, gold was dissolved in mercury to form an alloy and the resulting amalgam smelted to drive off the mercury, leaving behind pure gold. In cyanidation, gold-bearing ore was dissolved in a solution of potassium, sodium, calcium or bromo-cyanide, then precipitated into pure gold.⁴ Cyanidation enabled the recovery of fine gold particles that could not be recovered effectively through other means.

Alluvial gold was typically recovered by playing water on alluvium, washing away the lighter sediment tailings and allowing the denser, heavier gold, which naturally sinks, to be more easily collected. This could be achieved by various methods, from manually swirling sediment in a metal pan, to complex systems of races and flumes feeding sluice boxes with running water,⁵ supplied by dams. Reef mining typically demanded greater investment in plant and equipment than alluvial mining.⁶ Waste rock (mullock) was left in heaps and eventually trenches, shafts and other excavations slumped through erosion, contributing to the characteristic appearance of an abandoned gold mining landscape.⁷

In South Australia, gold was first recognised by Europeans on 4 April 1846 at what became known as the Victoria Mine near Castambul in the Adelaide Hills, northeast of Adelaide. Afterwards, gold was reported at several other localities including South Rhine (near Cambrai, 1846), Kanmantoo (1847), Sixth Creek (1847), and Gumeracha (1849).⁸

Europeans found gold in Ballarat in 1851, leading to a mass exodus of working men from South Australia, creating a severe labor shortage and leading, in turn, to a serious downturn in the colonial economy. In response, on 18 December 1851, the South Australian government offered a conditional £1,000 reward for the reportee of the first payable goldfield in South Australia. During the following year, the *Bullion Act 1852* averted general bankruptcy of the colony by providing a South Australian market for diggers' gold exceeding that paid by Victorian bullion merchants. Between March 1852 and December 1853, the Act also offered monthly armed gold escorts, led by Police Commissioner Alexander Tolmer, to provide secure passage for diggers returning with gold into South Australia from the Victorian goldfields. These measures, as well as promulgating regulations governing the issuance of licences to search and dig for gold in South Australia, encouraged prospectors and miners to remain in the colony to search for gold, rather than travelling elsewhere.⁹

In 1852, William Chapman found gold at Donkey Gully,¹⁰ and shortly afterwards at Chapman's Gully near Echunga and led to the development of South Australia's first payable goldfield. Now known as the old Echunga goldfield, the area was worked extensively between 1852 and 1858, yielding an estimated £18,000 worth of gold.¹¹ Ten years later in July 1868, Thomas Plane and Henry Saunders found gold at Jupiter Creek, 3km southwest of Chapman's Gully, leading to further intensive mining (see Jupiter Creek Diggings below). The total yield from the greater Echunga goldfield, including Old Echunga and Jupiter Creek, is estimated to stand at 6,000kg of gold, making it South Australia's most productive.¹²

During 1858, gold was also reported at Spike Gully, south of Sandy Creek, and later at Parra Wirra (1869), Birdwood and Uloomoo (1870), Waukaringa (1873) and Woodside (1879). These mines, which became known as the Barossa goldfield, became South Australia's second-most productive, yielding 3,110kg of gold, mainly from alluvial workings. Waukaringa became South Australia's largest individual gold mine. Elsewhere, sporadic prospecting occurred around Algebuckina on the Neales River from 1870.¹³

The finding of rich silver-lead lodes at Silverton (1875) and Broken Hill (1883) in New South Wales (NSW) encouraged the construction of a railway line between Petersburg (Peterborough after 1918) and Cockburn near Broken Hill, completed in 1887. The construction of the railway brought regular visitors to the surrounding country and resulted in the identification of gold at Manna Hill (1885), Teetulpa (1886), Kings Bluff (1887), Wadnaminga (1888) and Mount Grainger (1891) near Oodlawirra and

Dawson. Collectively, the mining leases opened up by the railway were known as the Northeastern Goldfields. Gold was reported at Tarcoola in 1893 and worked between 1900 and 1912, producing 2,400kg of gold, while the nearby Glenloth Goldfield (1899) produced around 315kg.¹⁴ Tarcoola developed into one of the largest goldfields in the state.¹⁵

In 1894, the South Australian government leased the Mount Torrens Cyanide Works and the neighbouring Criterion Mine, which it operated until c.1956 and 1917 respectively. This marked the first active involvement by the government in mining and processing gold ore in South Australia. The government subsequently built new cyanide works, including stamp batteries, at Petersburg (1897–c.1990, see Petersburg Cyanide Works below), Arltunga NT (c.1897) and Tarcoola (1901–1955),¹⁶ and subsequently purchased a further existing battery at Glenloth (1907–1924).¹⁷



Stamp battery and operators at the Arltunga Cyanide Works, NT, c.1898.

Source: B 18350 SL5A

Government batteries and cyanide works served to encourage prospecting and mining in South Australia during times of economic depression, by providing access to crushing, amalgamation, cyanidation and other facilities that individuals and small syndicates could not afford on their own. The South Australian government also encouraged gold prospecting and mining through measures such as subsidies and new legislation. For example, the *Gold Dredging Act 1905* allowed the issue of leases

over former alluvial goldfields no longer considered capable of being profitably worked by traditional alluvial mining methods.¹⁸

During the twentieth century, gold was mined at Deloraine, near Kersbrook in the Mount Lofty Ranges (1909) and Mongolata, northeast of Burra (1930). The Moonta-Wallaroo Mines also produced an estimated 3,200kg of gold as a by-product of copper mining between 1860 and 1938.¹⁹

In 1931, the price of gold, previously fixed at £4 per troy ounce, was floated and began to rise steadily. Men left unemployed as a result of the depression were again encouraged to turn to prospecting on abandoned goldfields, and the government provided aspiring miners with equipment and improved access to processing plants in the form of new, rebuilt or upgraded batteries and cyanide works. The South Australian Department of Mines also offered generous subsidies to new mines and the Commonwealth offered bounty on all new gold production.²⁰

Establishment of Mount Torrens

The Peramangk People are the traditional custodians of the eastern Adelaide Hills region.²¹ As settlement advanced and the camping, hunting and ceremonial lands of the Peramangk People were fenced by colonists, these original inhabitants were displaced from the region, resulting in their diminished presence by the early 1850s.²²

Land in the vicinity of Mount Torrens became available for purchase following the Special Survey of the Sources of the Torrens for the South Australian Company in 1839.²³ The six sections where the town of Mount Torrens now stands were taken up over the following two years, including by brothers George and James Dunn in 1841 and 1842 respectively.²⁴ The development of the Mount Torrens township was promoted by the Dunn Brothers and after copper was found at Kapunda, Burra and Reedy Creek in the early- to mid-1840s, Mount Torrens, with abundant permanent water, became an important stopping place on the road to Adelaide.

In 1851, when gold was discovered in Victoria, the immediate effect on South Australia was catastrophic. Many residents rushed to the goldfields, resulting in a severe shortage of capital and labour.²⁵ Burra Burra, Reedy Creek and most other copper mines closed. However, the population on the goldfields provided a new opportunity to market South Australian produce.

After Gumeracha miller William Randall opened the Murray River cargo trade between South Australia and Victoria, the township of Mannum became an important port. The closest convenient route between Mannum and Adelaide passed through Mount Torrens, and as such, from 1853 until well into the 1860s, a significant portion of the goods and passengers travelling to Adelaide from any point on the River Murray passed through the township.

Mount Torrens Cyanide Works

Gold was found at Blumberg, now Birdwood, in 1870. During the following July, gold was also found at Mount Torrens, resulting in the establishment of numerous mining companies and mines. These included the Criterion Quartz Mining Company which in late 1870 began mining what became known as the Criterion Reef, in the vicinity of what is now Mount Torrens Cyanide Works.²⁶ A 10-head stamp battery was reportedly installed at the Criterion Mine in 1871.²⁷ Mining on the Criterion Reef by the Criterion Company and others ceased by 1876,²⁸ and it is likely the 1871 stamp battery was liquidated by this time.

The Mount Torrens Gold Mining Company was established to mine the Criterion Reef in November 1887.²⁹ The new company resumed mining by July the following year under a 25-year lease,³⁰ and a processing plant was installed and inaugurated on 7 August 1889.³¹ This plant comprised a steam power plant with two Cornish boilers, a stone-breaker, 10-head stamp battery, furnaces, and retorts.³² The mine was known as the Mount Torrens Gold Mine. Major development occurred at the mine between 1888 and 1889, including the establishment of pumping and winding plant and a 10-head stamp battery, purchased from the Woodside Goldfields. The battery became operational on 7 August 1889.³³

During the early 1890s, the Mount Torrens Gold Mining Company began experimenting with gold cyanidation. After successfully trialling the Macarthur-Forest potassium cyanide process,³⁴ the Mount Torrens Gold Mining Company built a large cyanidation plant, assisted by a £500 subsidy from the South Australian government.³⁵ This action was funded, in part, by a vote by shareholders to increase the nominal capita of the £50,000 by the issue of 20,000 new shares. This occurred in January 1892.³⁶ The Mount Torrens Gold Mining Company also borrowed a 'considerable overdraft' from the Melbourne-based Federal Bank of Australia.³⁷

The cyanidation plant, employing the Macarthur-Forest process under licence,³⁸ was housed in a building with three floor levels and was capable of treating 120 tons per week.³⁹ Key components of the plant included eight feed tanks of 400-gallon (approx. 1800-litre) capacity on the upper level, seven large cyanidation vats of 500-gallon (approx. 2200-litre) capacity on the middle level, and a wooden precipitation trough on the lower level.⁴⁰ Some of the machinery was manufactured by Hawke & Co, Kapunda. The Mount Torrens Cyanide Works, comprising the existing and new plants, was formally opened on 9 November 1892.⁴¹

On 30 January 1893, the Federal Bank of Australia was caught up in the Australia-wide banking crisis of that year, resulting in its failure. The Mount Torrens Gold Mining Company was consequently forced to suspend mining and processing,⁴² and offered its plant for sale. In January 1894, to guarantee access to cyanidation facilities in the colony and in turn stimulate the economy, the South Australian government proposed

to lease the Mount Torrens Cyanide Works for three years at £300 per annum, with a right of purchase for £3,000. In March,⁴³ the government overhauled the works and made changes 'to bring ... control of the different parts' of the works 'more under supervision.'⁴⁴ Other changes included the installation of a stonebreaker and a weighbridge.⁴⁵ Once operational, the government expected the Mount Torrens Cyanide Works would lead to the direct and indirect employment of 400 men, including those engaged in mining the surrounding district.⁴⁶

The plant, sometimes known as the State Cyanide Plant,⁴⁷ was reopened under government control by April 1894,⁴⁸ becoming the first of five government cyanide works. The first parcel of ore to be treated at the Mount Torrens Cyanide Works under government control was mined at the Black Snake Mine north of Birdwood, weighed 164 tons (approx. 166 tonnes) and yielded approximately 84 ounces (2.3kg) from the battery and approximately 36 ounces (1kg) from cyanidation.⁴⁹ In 1894, the Works directly employed 19 men.⁵⁰ It is believed a new, external cyanidation plant supplemented the original internal plant from May 1895. This external plant is believed to have been located roughly on the site of the present eastern cyanidation plant.⁵¹

In 1907, plant and machinery at Mount Torrens comprised one crushing steam engine, 22 horsepower; two winding steam engines, 33 horsepower each; one 10-head stamp battery, each head weighing 7 hundredweight or 784 pounds; reducing machinery, comprising five settlers and two stonebreakers; a shaker concentrator; mining machinery comprising one double winding gear, one single winding gear, four steam pumps, one Cornish pump; two cupelling and three refining furnaces; four tramways with a length of 397 yards; and nine cyanide vats. The total value of the plant and machinery at Mount Torrens amounted to £2,756; as such, compared to other mining facilities, the works is considered to have been a relatively small-scale operation.⁵²

Concurrently to operating the Cyanide Works, the South Australian government also operated the Criterion Mine, predominantly to keep the Mount Torrens Cyanide Works occupied when not supplied with ore from elsewhere.⁵³ The Criterion Mine was worked in this way until 1917, producing an estimated total 1,500 ounces of gold (approx. 46kg) from 3180 tons (approx. 3130 tonnes) of ore crushed.⁵⁴

By 1908, at least 44 mines and alluvial gold claims existed or had existed in the Hundred of Talunga alone, of which Mount Torrens forms part,⁵⁵ Ore from many of these mines was processed at the Mount Torrens Cyanide Works. During 1932, the Mount Torrens Cyanide Works processed 85 tons of ore from the New Deloraine Mine near Kersbrook, yielding 166 ounces of gold (approx. 4.6kg) by battery and 19 ounces (approx. 0.5kg) by cyanide treatment.⁵⁶

In 1935, a grant from the Commonwealth Unemployment Relief Funds Scheme financed the installation of a crude oil engine, a Wilfey table (an oscillating table using gravity to sort ore from mullock), alterations to the battery to accept heavier stamps,

and a new cyanidation plant. The battery itself was also relocated further west on higher ground.⁵⁷ During construction of the new battery shed, the old battery shed was retained after the demolition of other redundant structures on site, to keep the battery working for as long as possible prior to its relocation.⁵⁸

The new battery commenced crushing on 3 July 1936.⁵⁹ The new cyanidation plant opened later and was still under construction during September 1936.⁶⁰ This is believed to be the existing western cyanidation plant. The crude construction of parts of the eastern cyanidation plant, including trolleyways raised on natural timber poles, and the presence of riveted iron rather than steel tanks, suggest it is older than the western cyanidation plant.

In total, the Former Mount Torrens Cyanide Works is estimated to have treated 24,060 tons (approx. 24,445 tonnes) of ore yielding 15,890 ounces (approx. 450 kg) of gold. Approval to close the Works was granted by Cabinet on 28 November 1956.⁶¹ After closure, some components of the battery plant were relocated to the former Petersburg Cyanide Works (SHP 14252), which continued operating into the 1990s.⁶²

The Former Mount Torrens Cyanide Works was confirmed in the Register on 20 November 1986. Some site components including a large Cornish boiler and above-ground features of the weighbridge were removed prior to 2010. The office buildings were damaged during the Cudlee Creek bushfire on 20 December 2019 and remains of the timber-framed structures were subsequently removed.⁶³

Gold stamping, amalgamation and cyanidation process

The gold stamping and amalgamation process occurred as follows:

1. Ore is delivered to the weighbridge and weighed.
2. If necessary, the ore is broken up to ensure no stone exceeds approximately 3 inches (75mm) in diameter.
3. Ore is fed to the stamp battery and crushed to the consistency of fine sand.
4. Stamped ore is mixed with water to form a slurry, which passes through a screen and across amalgamation tables, consisting of copper plates coated with mercury. Free gold amalgamates with the mercury, while the tailings pass outside to the sand pits.
5. Amalgam is scraped from the plates at regular intervals.
6. Amalgam is heated in the adjoining retort room. Mercury is driven off as a gas, while gold and other heavy metals remain in the retort.

The cyanidation process occurred as follows:

1. Tailings are transferred to leaching vats where they are stirred with cyanide solution over a period of hours.
2. Cyanide solution containing dissolved gold is drained to the precipitation box where gold is precipitated onto zinc wire.

3. Cyanide solution is drained to the cyanide sump for recovery and reuse.
4. Zinc and gold precipitate is smelted to recover pure gold.



Aerial view of the Former Mount Torrens Cyanide Works in 1949.

Source: EnvMaps

Aboriginal Cultural Considerations

The *Heritage Places Act 1993* makes provision for the identification, recording and conservation of places and objects of non-Aboriginal heritage significance. The protection and preservation of Aboriginal heritage is provided for under the *Aboriginal Heritage Act 1988*. Contact the Aboriginal Heritage Unit for listings.

CHRONOLOGY

Year	Event
1839	Land in the vicinity of Mount Torrens becomes available for purchase following the Special Survey of the Sources of the Torrens for the South Australian Company.
1841	Wheal Gawler at Glen Osmond is Australia's first metalliferous mine. Brothers George and James Dunn take up land which later becomes the township of Mount Torrens.
1842	Copper is found at Kapunda.
1845	Copper is found at Burra and Reedy Creek
1846	4 April, gold is first recognised by Europeans in South Australia at Castambul in the Adelaide Hills.
1846	Gold is reported at Rhine, near Cambrai.
1847	The London-based Australian Mining Company opens a copper mine at Reedy Creek. Gold is reported at Kanmantoo. Gold is reported at Sixth Creek.
1848	George Dunn opens a hotel at Mount Torrens.
1849	Gold is reported at Gumeracha.
1851	Gold is reported at Ballarat, causing a mass exodus of working men from South Australia and a serious downturn in the colonial economy. The Reedy Creek mine is abandoned. 18 December, the South Australian government offers a conditional £1,000 reward for the reportee of the first payable goldfield in South Australia.
1852	The <i>Bullion Act 1852</i> averts general bankruptcy of the colony by providing a South Australian market for diggers' gold exceeding that paid by Victorian bullion merchants. March, the first armed gold escort under Police Commissioner Alexander Tolmer provides secure passage for diggers returning with gold into South Australia from the Victorian goldfields. 23 August, William Chapman, his father and two friends, Hampton and Hardiman, report the discovery of gold at Donkey Gully, near Echunga, to the Treasury. The area becomes known as the Echunga Goldfield and, later, the old Echunga Goldfield. December, Tolmer leads the last gold escort from the Victorian goldfields.

- 1853 William Randall's PS Mary Ann steams to Swan Hill in Victoria, marking the beginning of the River Murray cargo trade.
- 1858 Mining ends on the old Echunga Goldfield.
Gold is reported at Spike Gully, south of Sandy Creek.
- 1868 Thomas Plane and Henry Saunders identify gold at Jupiter Creek, leading to intensive mining in the surrounding area.
- 1870 Gold is reported at Blumberg (now Birdwood), Mount Torrens and Uloomoo.**
The Criterion Quartz Mining Company begins mining the Criterion Reef in the vicinity of what becomes the Mount Torrens Cyanide Works.
Sporadic prospecting occurs around Algebuckina on the Neales River around this time.
- 1871 A 10-head stamp battery is reportedly installed at the Criterion Mine.**
- 1873 Gold is reported at Waukaringa.
- 1875 A silver-rich lode is identified at Silverton, NSW.
- 1876 Mining on the Criterion Reef by the Criterion Quartz Mining Company and others has ceased.
- 1879 Gold is reported at Woodside.
- 1883 A silver-rich lode is reported at Broken Hill, NSW.
- 1885 Gold is identified at Manna Hill.
- 1886 Gold is identified at Teetulpa.
- 1887 November: the Mount Torrens Gold Mining Company is established to mine the Criterion Reef.**
- 1889 7 August: an ore processing plant at the Mount Torrens Gold Mine is inaugurated, comprising a steam power plant, stone-breaker, 10-head stamp battery, furnaces and retorts.**
A railway line is opened between Peterborough and Cockburn.
- 1890s The Mount Torrens Gold Mining Company begins experimenting with cyanidation.**
- 1892 Shareholders of the Mount Torrens Gold Mining Company vote to increase the nominal capital of the company to £50,000 by the issue of 20,000 new shares.
9 November: the Mount Torrens Cyanide Works, integrating the existing processing plant with a new cyanidation plant, is formally opened.
- 1893 30 January 1893: the Federal Bank of Australia fails during the Australian banking crisis of 1893.

Gold is identified at Tarcoola. Worked between 1900 and 1912, it develops into one of the largest goldfields in the state, producing 2,400kg of gold.

- 1894** January, the South Australian government proposes to lease the Mount Torrens Cyanide Works to guarantee access to cyanidation facilities in the colony.

March, the South Australian government overhauls the Mount Torrens Cyanide Works.

April, the Mount Torrens Cyanide Works reopens under government control. Concurrently the South Australian government reopens the Criterion Mine.

- 1895** **A new external cyanide plant is built to supplement the existing internal plant at the Mount Torrens Cyanide Works.**

- 1899 Gold is identified at Glenloth.

- 1905 Passage of the *Gold Dredging Act 1905*.

- 1917** **The South Australian government closes the Criterion Mine.**

- 1931 The price of gold, previously fixed at £4 per troy ounce, is floated and begins to rise steadily. Men left unemployed as a result of the depression are encouraged to turn to prospecting on abandoned goldfields.

- 1935-1936** **A grant from the Commonwealth Unemployment Relief Funds Scheme finances the installation of a crude oil engine, a Wilfey table, alterations to the battery to accept heavier stamps, and a new cyanidation plant. The battery itself is also relocated further west on higher ground.**

3 July, the new battery at the Mount Torrens Cyanide Works commences crushing ore.

September, a new cyanidation plant is under construction.

- c.1956** **The Mount Torrens Cyanide Works closes.**

- 1986** **20 November 1986: the Former Mount Torrens Cyanide Works is confirmed in the Register as Mount Torrens Gold Battery.**

- c.1987 Tarcoola Gold Ltd. successfully tenders for the removal of tailings from the Former Mount Torrens Cyanide Works site, however, removal of the tailings is not carried out as proposed.

- 2011 January: removal of asbestos linings to buildings and replacement with fibre cement sheet and removal of collapsed toilet building (DA 473/V017/10).

- 2019 20 December: administration buildings at the Former Mount Torrens Cyanide Works are damaged during the Cudlee Creek bushfire and remains of timber-framed structures are later removed.

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- Swanbury Penglase, Mount Torrens Gold Battery Conservation Management Plan, November 2025, ref 24184

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South Australian Government Gazette 20 November 1986

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- 'Criterion Quartz Mining Company, Mount Torrens-Road.' in *Express and Telegraph* 18 August 1870 p. 1
- 'The Gold-Fields. The Reefs.' in *Express and Telegraph* 15 November 1870 p. 2
- 'The Southern Districts. Our Weekly News-Budget.' in *Mount Barker Courier and Onkaparinga and Gumeracha Advertiser* 24 February 1883 p. 2
- 'Mining ... The Mount Torrens Gold Mining Company, No Liability.' in *South Australian Register* 6 June 1888 p. 8
- 'Mining. Our Mineral Wealth, The Mount Torrens Gold Mine.' in *Adelaide Observer* 7 July 1888 p. 24
- 'Mining Intelligence ... The Mount Torrens Mine.' in *South Australian Chronicle* 16 March 1889 p. 21
- 'Starting of the Mount Torrens Machinery.' in *South Australian Chronicle* 10 August 1889 p. 22
- 'Intercolonial News. ... South Australia. Adelaide, Friday.' in *The Age* (Melbourne) 16 January 1892 p. 10
- 'Gold Extraction in South Australia' in *South Australian Register* 31 March 1892 p. 4
- 'Mining. ... Miscellaneous.' in *Advertiser* 5 November 1892 p. 6
- 'The Mount Torrens Cyanide Plant. An Object Lesson in Mining.' in *Adelaide Observer* 27 January 1894 p. 11
- 'The Cyanide Process. Mount Torrens Plant.' in *South Australian Chronicle* 27 January 1894 p.22
- 'State Cyanide Plant' in *Telegraph* (Brisbane) 31 January 1894 p. 5
- 'Imperial Parliament Again in Session.' in *South Australian Register* 13 March 1894 pp. 4-5
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- 'The Celebration at Blumberg.' in *Mount Barker Courier and Onkaparinga Advertiser* 11 May 1894 p. 3
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SITE DETAILS

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens

DESCRIPTION OF PLACE:	Former cyanide works including weighbridge, store, battery shed, battery and amalgamating tables, east and west cyanide plants, associated structures, administration building ruins, tailing dumps and ponds.	
HISTORIC THEME/S	5. Developing South Australia's economies 5.1 Mining (including copper mining)	
DATE OF CONSTRUCTION:	1889; 1892; 1894; 1935–1936	
REGISTER STATUS:	Nominated: 5 June 1985 Recommended: 17 July 1985 Provisionally entered: 12 December 1985 Confirmed: 20 November 1986	
CURRENT USE:	Disused c.1956–present	
PREVIOUS USE(S):	Battery, 1889–1892 Cyanide works, 1892–c.1956	
LOCAL GOVERNMENT AREA:	Adelaide Hills Council	
LOCATION:	Address:	Lot 26 Onkaparinga Valley Road, Mount Torrens SA 5244
LAND DESCRIPTION:	Title	CT 5812/283 A26 FP155441;
	Reference:	CT 5963/86 A22 FP155437
	Hundred:	Talunga

PHOTOS

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens

The following black and white images are from DEW Files.



Battery shed with part of new cyanide works in foreground (both built 1935–1936), March 1985.



Store, probable former battery building (built c.1889), note rising damp in corner, March 1985.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens

The following black and white photographs are from DEW Files.



New cyanide works (built 1935–1936), March 1985.



Stamp battery plant (built 1889, relocated 1935–1936), March 1985.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Office complex prior to fire, eastern side, March 1985.



Office complex prior to fire, western side, March 1985.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens

The following colour photographs were taken by Swanbury Penglase Architects Pty Ltd on 22 December 2010; copies held in DEW Files. Used with permission.



Battery shed, view from south.



Battery shed, view from east, with western cyanide works in foreground.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Battery shed viewed from the west, note earthen ramp and retaining wall in foreground, covered weighbridge pit on right.



Battery shed viewed from north.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Store, viewed from the southeast.



Store, viewed from the south.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Store, viewed from the northwest.



Store (left) and battery shed (right) viewed from the north.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Stamp battery.



Interior of store.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Western cyanidation plant, viewed from north.



Western cyanidation plant, viewed from west.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Eastern cyanidation plant, viewed from west.

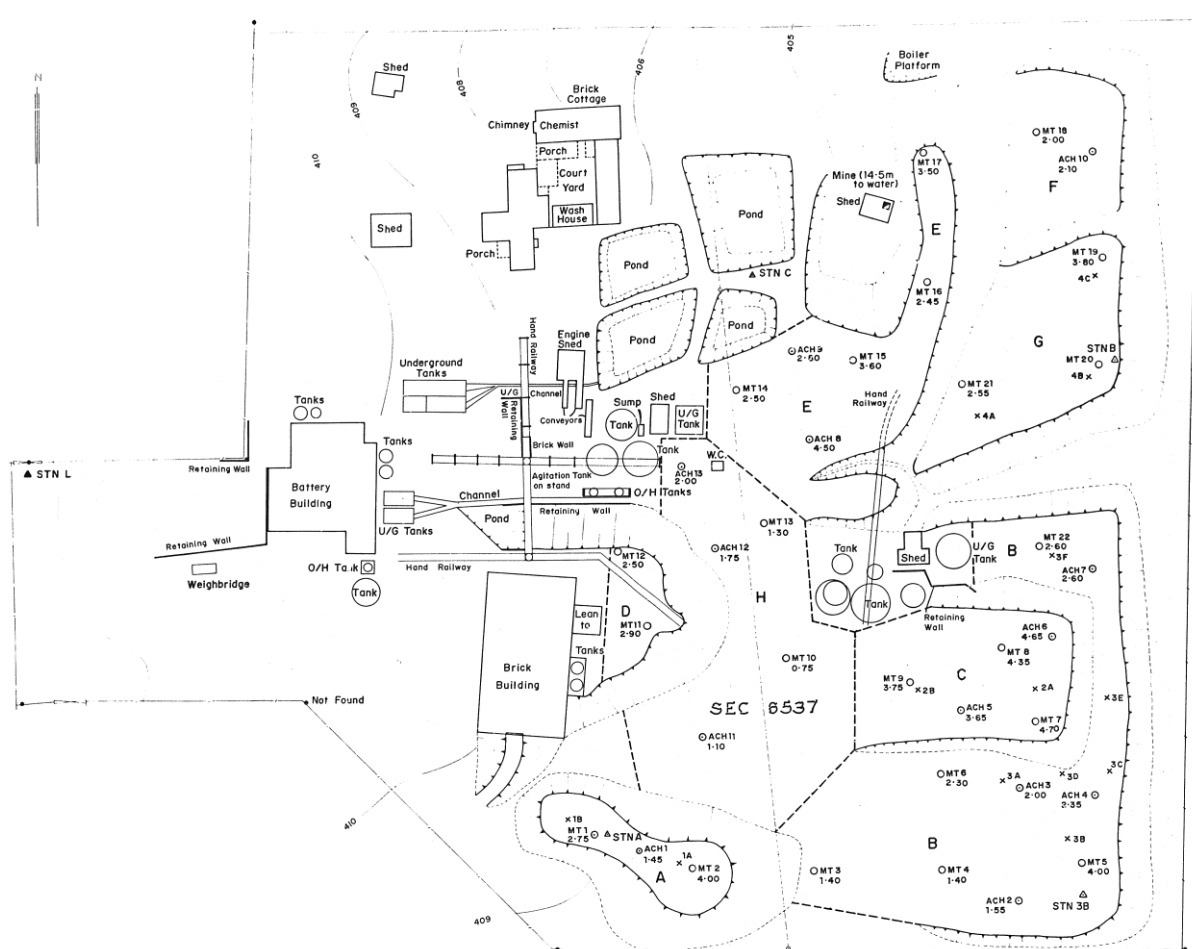


Eastern cyanidation plant, viewed from east.

Former Mount Torrens Cyanide Works

PLACE NO.: 13288

Lot 26 Onkaparinga Valley Road, Mount Torrens



Indicative plan of Former Mount Torrens Cyanide Works, August 1983.

Source: Adapted from Department of Mines and Energy South Australia/DEW Files

REVISIONS

Date	Changes

¹ Bernard O'Neil, 'Mines and Mining' Wilfred Prest (ed), *The Wakefield Companion to South Australian History* (2001) Kent Town SA: Wakefield Press p. 356

² C. M. Horn and W. P. Fradd, 'Gold mining in South Australia: the first fifty years' in Jonathan Shelby (ed) *South Australia's Mining Heritage (Special Publication No. 7)* (1987) Adelaide SA: Department of Mines and Energy South Australia/Australian Institute of Mining and Metallurgy p. 63; Government of South Australia, Energy & Mining, Historical Gold Mines https://www.energymining.sa.gov.au/home/events/discover_gold/historical_gold_mines

³ Michael Pearson and Barry McGowan, *Mining Heritage Places Assessment Manual* (2000) Canberra ACT: Australian Council of National Trusts and Australian Heritage Commission p. 171

⁴ Michael Pearson and Barry McGowan, *Mining Heritage Places Assessment Manual* p. 175

⁵ Michael Pearson and Barry McGowan, *Mining Heritage Places Assessment Manual*

⁶ Greg Drew, *The Echunga Goldfields: Geology, History and Selected Newspaper Readings* (2012) Adelaide SA: Government of South Australia Primary Industries and Resources SA p. 12

⁷ Michael Pearson and Barry McGowan, *Mining Heritage Places Assessment Manual* p. 175

⁸ C. M. Horn and W. P. Fradd, 'Gold mining in South Australia: the first fifty years' p. 63

⁹ C. M. Horn and W. P. Fradd, 'Gold mining in South Australia: the first fifty years' pp. 65-66

¹⁰ J. F. Drexel, *Mining in South Australia: a pictorial history* (Special Publication No. 3) Adelaide SA: Department of Mines and Energy of South Australia p. 103

¹¹ Register Research Programme 1982/1983, Historical Research Report: Echunga Goldfield, DEW Files

¹² Government of South Australia, Energy & Mining, Historical Gold Mines (web)

¹³ C. M. Horn and W. P. Fradd, 'Gold mining in South Australia: the first fifty years'

¹⁴ Government of South Australia, Energy & Mining, Historical Gold Mines (web)

¹⁵ J. F. Drexel, *Mining in South Australia* p. 103

¹⁶ J. F. Drexel, *Mining in South Australia* p. 129

¹⁷ Peter Bell, Carol Cosgrove, Susan Marsden & Justin McCarthy, Historical Research Pty Ltd, 'Twentieth Century Heritage Survey Volume 2, Report to Department for Environment and Heritage' (2008) p. 236

¹⁸ Act No. 881 of 1905 'An Act to provide the Issue of Leases for Dredging for Gold' (*Gold Dredging Act 1905*)

¹⁹ Government of South Australia, Energy & Mining, Historical Gold Mines (web)

²⁰ Government of South Australia, Energy & Mining, Historical Gold Mines (web)

²¹ AIATSIS, 'Map of Indigenous Australia' <https://aiatsis.gov.au/explore/map-indigenous-australia>

²² Adelaide Hills Council, 'History and Heritage' <http://www.ahc.sa.gov.au/discover/history-and-heritage>

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- ²³ George Goyder, Report on Disposal of Crown Lands in South Australia 1890, South Australian Parliamentary Paper No. 60 of 1890 p. 24.
- ²⁴ General Registry Office DP 81 of 1857, Land Titles Office Hundred Books: Talunga.
- ²⁵ W.R.C. Jacques, 'The Impact of the Gold Rushes on South Australia 1852-1854', BA (Hons) thesis, the University of Adelaide (1963) pp. 19-56; Paul Sendzuik and Robert Foster, *A History of South Australia* (2018) Cambridge: Cambridge University Press pp. 40-41.
- ²⁶ 'Gold in the Hills. The Blumberg Field. English Capital at Work. No IV.' in *Advertiser* 22 March 1901 p. 6; 'Criterion Quartz Mining Company, Mount Torrens-Road.' in *Express and Telegraph* 18 August 1870 p. 1; 'The Gold-Fields. The Reefs.' in *Express and Telegraph* 15 November 1870 p. 2
- ²⁷ C. M. Horn and W. P. Fradd, 'Gold mining in South Australia: the first fifty years' in Jonathan Shelby (ed) *South Australia's Mining Heritage* p. 75
- ²⁸ Swanbury Penglase, Mount Torrens Gold Battery Conservation Management Plan, November 2025, ref 24184
- ²⁹ 'Mining ... The Mount Torrens Gold Mining Company, No Liability.' in *South Australian Register* 6 June 1888 p. 8
- ³⁰ 'Mining. Our Mineral Wealth, The Mount Torrens Gold Mine.' in *Adelaide Observer* 7 July 1888 p. 24; 'Mining Intelligence ... The Mount Torrens Mine.' in *South Australian Chronicle* 16 March 1889 p. 21
- ³¹ 'Starting of the Mount Torrens Machinery.' in *South Australian Chronicle* 10 August 1889 p. 22
- ³² 'The Government Cyanide Works, At Mount Torrens.' *Mount Barker Courier and Gumeracha Advertiser* 11 May 1894 p. 3
- ³³ Swanbury Penglase, Mount Torrens Gold Battery
- ³⁴ Swanbury Penglase CMP 2025; the MacArthur-Forrest process was developed by three Scottish chemists, Robert W. Forrest, John S. MacArthur, and William Forrest.
- ³⁵ 'The Mount Torrens Cyanide Plant. An Object Lesson in Mining.' in *Adelaide Observer* 27 January 1894 p. 11
- ³⁶ 'Intercolonial News. ... South Australia. Adelaide, Friday.' in *The Age* (Melbourne) 16 January 1892 p. 10
- ³⁷ 'The Southern Districts. Our Weekly News-Budget.' in *Mount Barker Courier and Onkaparinga and Gumeracha Advertiser* 24 February 1883 p. 2
- ³⁸ 'The Cyanide Process. Mount Torrens Plant.' in *South Australian Chronicle* 27 January 1894 p.22
- ³⁹ An early draft of this BHI SSHP concluded this building was most likely demolished prior to extensive alterations to the Mount Torrens Cyanide Works undertaken during the mid-1930s. New research undertaken by Swanbury Penglase during the preparation of the Mount Torrens Cold Battery Conservation Management Plan suggests the existing store building housed the 1892 cyanide plant. Notably, three original floor levels may be inferred from the physical fabric of the existing store, consistent with contemporary newspaper reports.
- ⁴⁰ 'The Government Cyanide Works, At Mount Torrens.' *Mount Barker Courier and Gumeracha Advertiser* 11 May 1894 p. 3
- ⁴¹ 'Gold Extraction in South Australia' in *South Australian Register* 31 March 1892 p. 4; 'Mining. ... Miscellaneous.' in *Advertiser* 5 November 1892 p. 6
- ⁴² 'The Southern Districts. Our Weekly News-Budget.' in *Mount Barker Courier and Onkaparinga and Gumeracha Advertiser* 24 February 1883 p. 2
- ⁴³ 'Imperial Parliament Again in Session.' in *South Australian Register* 13 March 1894 pp. 4-5
- ⁴⁴ 'The Cyanide Process. Mount Torrens Plant.' in *South Australian Chronicle* 27 January 1894 p.22
- ⁴⁵ Swanbury Penglase, Mount Torrens Gold Battery
- ⁴⁶ 'The Cyanide Process. Mount Torrens Plant.' in *South Australian Chronicle* 27 January 1894 p.22
- ⁴⁷ 'State Cyanide Plant' in *Telegraph* (Brisbane) 31 January 1894 p. 5
- ⁴⁸ 'Mining News. Mining at Mount Torrens.' *Advertiser* 14 April 1894 p. 6
- BHI Summary of State Heritage Place: 13288
Confirmed in the South Australian Heritage Register on 20 November 1986
Draft BHI SSHP for Consultation 18 June 2026 to 18 September 2026

⁴⁹ 'The Celebration at Blumberg.' in *Mount Barker Courier and Onkaparinga Advertiser* 11 May 1894 p. 3

⁵⁰ 'The Government Cyanide Works, At Mount Torrens.' *Mount Barker Courier and Gumeracha Advertiser* 11 May 1894 p. 3

⁵¹ Swanbury Penglase, Mount Torrens Gold Battery

⁵² Swanbury Penglase, Mount Torrens Gold Battery

⁵³ 'South Australia. Adelaide, Thursday Afternoon.' in *Barrier Miner* (Broken Hill) 14 July 1899 p. 4

⁵⁴ C. M. Horn and W. P. Fradd, 'Gold mining in South Australia: the first fifty years' in Jonathan Shelby (ed) *South Australia's Mining Heritage* p. 75

⁵⁵ H. Y. L. Brown, *The Mines of South Australia, Fourth Edition* (1908) Adelaide SA: Department of Mines pp. 269-284

⁵⁶ Register of State Heritage Items, Item Evaluation Sheet, Gold Battery Site Mount Torrens, Ref. No. 6628-13288, DEW Files.

⁵⁷ Register of State Heritage Items, Item Evaluation Sheet, Gold Battery Site Mount Torrens, Ref. No. 6628-13288, DEW Files.

⁵⁸ Swanbury Penglase, Mount Torrens Gold Battery

⁵⁹ Swanbury Penglase, Mount Torrens Gold Battery

⁶⁰ 'S.A. Mining Activities, Department Report for August' in *Advertiser* 5 September 1936 p. 11

⁶¹ Register of State Heritage Items, Item Evaluation Sheet, Gold Battery Site Mount Torrens, Ref. No. 6628-13288, DEW Files; Swanbury Penglase, Mount Torrens Gold Battery

⁶² Register of State Heritage Items, Item Evaluation Sheet, Gold Battery Site Mount Torrens, Ref. No. 6628-13288, DEW Files.

⁶³ CFS, Bushfire History <https://www.cfs.sa.gov.au/about/about/bushfire-history/>