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# NEW SOUTH NEW MOON BATTERY SITE

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## Location

BEELZEBUB GULLY ROAD SAILORS GULLY, GREATER BENDIGO CITY

## Municipality

GREATER BENDIGO CITY

## Level of significance

Heritage Inventory Site

## Heritage Inventory (HI) Number

H7724-0317

## Heritage Listing

Victorian Heritage Inventory

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Hermes Number 12109

Property Number

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## History

Contextual History:History of Place:

Heritage Inventory History of Site:

1867-1930s: New Moon Company - most successful mine of the Moon Reef was the New Moon Company. The mine commenced operations in 1867, their claim being south and adjoining the Robin Hood Co. Capital consisted of 16 shares of £75 each. In a short time, after only £160 had been called up, payable quartz from a depth of 173 feet enabled dividends of £2778 ... In 1870 a registered company was formed with capital of £24,000 ... There were two shafts on the lease, each 280 feet in depth, while work had commenced on a new engine shaft and the erection of a winding plant.

The company purchased the Robin Hood's lease and plant in 1878. The Robin Hood shaft became the New Moon main shaft and was eventually deepened to 2,400 feet. The New Moon Company was re-registered in 1886 as a No Liability Company with capital of £12,000 ... and the mine developed into one of the best-managed and

most economically worked mines on the Bendigo goldfield ... This company, at the close of 1906 declared its 200th dividend ... From 1878 to 1890 had been lean years for the company when many calls were made to shareholders, while for a period of 6 years the mine was let tributors who crushed 6417 tons for 415 Ozs ... dividends were paid from 1892 to 1913 ... mine closed down in 1917

Apart from public crushing, the company crushed 545,289 tons of stone during its existence, all dug from its own mine ... yielded 230,601 ozs of gold, and paid shareholders the sum of £377,400.

The former great mine was taken over by the Bendigo Amalgamated Company from 1917 to 1922.

It was re-opened in 1928 only to close in 1932

Later, cyaniders treated the sand, and this great dump was removed from its original position and dumped across the road into Napoloen Gully, where it buried the site of the New Moon Company's original, as it was better known, south shaft.

1878: Robin Hood Company was founded in the mid-1860's and one report in The Bendigo Advertiser 14 July 1865, stated that a new whim was in the course of erection to enable further shaft sinking to proceed. Two years later, when the shaft had been sunk to 300 feet, the mine was not paying, but in June 1868, the company crushed 130 tons of quartz for 86 ozs, their largest return to date. By 1871 the Robin Hood Company had been reformed into a Registered Company with capital of £20,000 ... This company was not successful, and in 1878 their lease, on which the shaft had been deepened to 400 feet and a winding plant erected, was purchased by an adjoining company, the New Moon Company who were later to recoup a fortune from the Robin Hood claim.

June 1883: On the Moon line of reef prospecting is going on, and some good returns have been obtained by tributors.

September 1883: On the Moon line the tributors are getting good returns.

May 1887: The Great Northern returns have been moderate. The New Argus and the New Hopeful are getting fair yields, while the New Moon and adjacent companies are hopefully prospecting the shallow ground.

June 1887: The New Moon Company, the principal mine on the north end of the line, is about to sink its shaft to prospect the deeper ground.

Sept 1887: The New Argus, New Hopeful, and New Moon, have been getting moderate returns. At Lightning Hill, the General Gordon Company are slowly prospecting.

1897: There was a succession of out-standing yields from several mines, some of which had produced only indifferently before. 1890 Johnson's Reef had been the premier mine; in 1891 it was the New Red, White and Blue; in 1892, the New Chum United. The Johnson's Reef Company became the chief gold-spinner in 1893-4 with the Princess Dagmar also outstanding. In 1895, the Lady Barkly and the New Prince of Wales headed the dividend lists. A year later they had been toppled by the New Chum Railway and Koch's Pioneer Mine. The procession continued. In 1897 it was the Great Southern and the Victoria Quartz, the St Mungo and the New Moon. In 1898 the Garden Gully United staggered the mining world with its returns and retained pride of place in the dividends catalogue until the turn of the century.

1890s: These four great mines - New Moon, South New Moon, Suffolk United & North New Moon - their leases extending for almost a mile from the southern boundary of the Whipstick yielded in all 555,906 ozs of gold ... To obtain this amount of gold 1,194,002 tons of quartz was reduced to sand ... Excavations to mine this amount of crushing material entailed the removal of 29,253,049 cubic feet of quartz. In comparison to the great amount of quartz removed the volume of gold recovered was almost negligible. It would have amounted to only 32.84 cubic feet.

1 October 1896: [Mr Thompson spoke] ... His firm were at present negotiating for the erection of a new engine at the New Moon battery, where they were at present using 98 tons [of wood] per week. They proposed to save 43 tons per week...

1897, February 10: New Moon Mine - The company's fine plant is proving specially valuable now that their work is so extensive. This is specially so regarding the air compressing plant which enables them to push ahead work rapidly. They have at work seven drills and the air winch. The crushing plant is also proving a fine investment and when the improvements which Messrs Thompson and Co. of Castlemaine have in hand completed, the saving is expected to be much greater.

1898, Annual Report: list of mines from which ore has been treated and dividends paid during 1897 [including]:  
New Moon

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June 1899: New Moon - This ground, on which is a 71-head battery has an area of 84 acres ... for the past seven years it has been a regular dividend-producer ... The New Moon Co. was formed in 1867 as a co-operative company in 10 shares ... An air-winch has recently been erected at the south shaft, the baling of which has begun, and the erection of an aerial tramway from the mine to the battery is in contemplation.

1900, Annual Report - list of principal companies and mines from which ore has been treated and dividends made during 1900: [including] New Moon

1906, December: [Prospectus of New Moon Company, No Liability]

Machinery - Winding Engine, pair 20 inch cylinders, 4 feet stroke, 8 feet drums. Air Compressor, capable of driving 20 rock drills (also spare Compressor). Crushing Battery, 71 heads of stamps, situate 100 yards south-east of Mine, and connected with Mine by Cable Tramway. Gates Rock-breaker at Mine, and Challenge Ore Feeders at Battery. Electric Motors driving Tailings Pumps, and Lighting Battery and Mine on Surface, and Plats below Surface.

With regard to the opening of the South shaft, it is generally known that the Company's crushing machine, situated about 400 yards south east of the main shaft and comprising 71 heads of stampers, has been partly used crushing for the public, and the advisability of using more batteries on the Company's stone has been under serious consideration for some time past. About twelve months ago it was thought the introduction of double decked cages at the main shaft would provide sufficient quartz for the whole of the battery of 71 heads, but it was found that, although they worked well and effectively, the shaft would require to be almost continually in use and a breakdown would be a serious matter, besides which the cost of underground trucking from south end by hand labour is very expensive and inconvenient in working.

In the meantime, a level has been completed from the main shaft at 449 feet and holed to the workings of the south shaft at 415 feet, and, as mentioned in last half-yearly report, showed large quantities of crushing material. Prospecting has since been continued in this locality with favourable results, and it has now been decided to equip this shaft with machinery and direct tram road to battery, so that in the event of either shaft being out of order at any time the battery can be kept going to a limited extent at least from one shaft

Reverting to the old history of the Company, this so called South shaft was the original main shaft from the year 1869 to 1883. Prior to 1869 (in 1867) when the original Co-operative Company was formed in 16 shares, they sunk a shaft further west and after expending £160 (being 10 calls of £1 each per share) obtained payable quartz at 173 feet below the surface, enabling dividends to the amount of £2728 or £17 10s per share. Machinery was erected and the Company registered in 1870 in 24,000 shares.

Dividends continued after registration in 1870 and 1871 to the extent of £6600 or 5/6 per share; Calls then followed during the next six years, when in 1878 four dividends of sixpence per share were obtained from the old workings between 180 feet and 240 feet. In this year the adjoining lease north was purchased, this included the present main shaft, then down 400 feet, with a suitable winding plant erected complete

Dividing the experience into three terms, viz: four years, 1892 to 1895, the next five years, 1896 to 1900, and the five years 1901 to 1905; the first term shows the highest cost per ton; in the second term the purchase of a crushing machine in 1896, situated 400 yards from the main shaft, and a large increase in the output, considerably reduced the average cost; in the third term, notwithstanding the fact that the workings were gradually extending deeper (a large quantity being mined at 1545 feet compared with 685 feet in 1892), a low average cost has been maintained by added and improved machinery, notably a complete tram with rock breaker and automatic feeders

[Explanatory notes to table of running costs] The item of CARTING includes some crushing paid for prior to the purchase of battery in April 1896. This item disappears when the tramway was erected in 1900

Battery Manager's Report - The machinery consists of 71 heads of stampers, 9 boxes of 4 heads, weight 700lbs each, and 7 boxes of 5 heads, weight, 900 lbs each, driven by a compound Tandem Corliss Condensing Engine giving out 112 indicated horse power. The engine is in the centre of the battery, there being about an equal weight of stampers on either side. Two Boilers, 'Lancashire Jackass' type, working at 120 lbs to the square inch, 16 feet by 8 feet with 90 three inch tubes in each. Tailings and water pumps are driven by electricity, the main engine shaft drives a 25 KW machine and generates the power for two 10HP Motors, which raise the tailings 50 feet in two ordinary sand pumps, and the necessary water is similarly raised for crushing, condensing and concentrating. The machiner also supplies the necessary lighting throughout the battery, the mine, and the Manager's house. The system has proved very effective compared with raising the tailings by rope gearing as

formerly attached.

Eighteen months ago a lathe was purchased, and gradually a complete Fitting and Smith's Shop has since been established, enabling the necessary turning and fitting required at the battery, besides repairing and renewing rock drills from the mine, and building new rock drills when required, this has already proved a great acquisition to the Company.

There are four water storage dams, three being used for battery work, and the other for boiler feed at both mine and battery, the latter will hold about three million gallons and can be replenished if necessary from the Lightning Hill Syphon at a small cost.

The tailings site is all that could be desired.

The quartz is delivered at the crushing machine by an endless cable tramway, into large ore bins, and fed into the batteries automatically, except the portion used by the public which is hand fed. The total quantity crushed will average 1000 tons per week, and the fuel consumption will average 60 tons of firewood per week.

We favor the light class of stamps, say 850 lbs per head, running at 75 to 80 drops a minute, with about 8 inches drop, gratings 180 holes to the square inch. We have no refractory ore to deal with, the gold being practically free. We crush for amalgamation, the heavy and quick stamps are designed more for cyaniding.

For some time past attention has been directed to testing the value of the pyrites by the different classes of Concentrators, the last under trial is the 'Harrison', of unique design and true pan motion; the 'Phoenix Weir' has shown the best results to date, but the 'Harrison' bids fair to be a strong rival and better adapted to our particulare class of concentrates.

Engineer's Report - The plant consists of one pair of winding engines, one 20 drill air compressor, one 10 drill air compressor, one rock breaker, and one tramway engine; steam being supplied by three boilers.

Poppet legs 60ft high of tubular steel

The winding machinery, air compressor, and condenser were designed and erected by Messrs A. Harkness & Co.

Boilers - Three high pressur eboilers, two being of the 'Lancashire Jackass' type, 7 feet 6 inches by 16 feet with 88 tubes each, the third is of the 'Cornish' type, 7 feet 6 inches by 24 feet

1910, Aug 3: In Saturday's Advertiser it was shown that the fuel costs at the New Moon battery, where steam power is used, covering a period of 13 years, was a fraction over 6 1/2d per ton. In a great many instances wood fuel costs for battery power are considerably higher than at the New Moon, which is, perhaps the best example that can be cited in regard to economy of steam power.

1912, July 13: New Moon Mine. The company was formed in 1867 as a co-operative company in 16 shares, with a holding of 114 yards on the line of reef. Early in 1868, after the expenditure of £160, payable spurs were uncovered at 173 ft., and resulted in dividends to the amount of £2728 till 1870 when the company was registered in 24,000 shares. The registered company continued on the dividend list until July 1871, 5/6 per share, or £6600, being distributed. Machinery was then erected, but the gold yield fell off, and calls became the order for the next three years. In 1874 5300 shares would not bring a sixpenny call. In the following year a dividend of 6d per share resulted, principally from tribute percentages. In 1878 old workings between 180ft. and 240 ft. were re-opened, and dividends to the extant of £2400 declared. During the next 14 years very indifferent success followed the company's operations, calls being necessary at rather frequent intervals, although a fair amount of gold was being produced throughout that time. However, in 1892, a payable run was was uncovered at 685 feet, and since then the company has been a fairly regular gold producer ... During the past 20 years, 1892 to 1912, crushed 466,818 tons, yielding 186,817ozs. gold, value £741,181; averaging per ton, 8dwt. Dividends £353,400 (£14/4/6 per share); expended in machinery £34,731.

1912-14: By 1912 wage increases of up to 15 per cent had been achieved despite the recession in the industry. It was not only in the matter of wage claims, however, that the new militancy was asserting itself. Since the passing of the Goldbuyers Act, aimed at stamping out gold-stealing in the mines, the question of the searing of miners rankled bitterly.... Local mine-managements and miners laid charges and counter-charges. Strikes occurred [in 1912] at the New Moon.

1915, September 7: Bendigo Mining Companies - Dividends, Calls and Scrip Values - The war census, which is now being taken, and the income tax schedules, which will shortly have to be filled in, impose on holders of mining scrip the responsibility of recording dividend received and the amount paid in calls, together with a statement of the value of scrip held. In order to assist the investing public in the compilation of the statistics we have compiled the records of the Bendigo mining companies. The following is the list of Bendigo mining companies: [including] New Moon.

1918, 21 June: New Company Formed - Vigorous Developmental Policy - A definite basis of agreement has been

reached by the representatives of the proposed new company that is to work certain leases on the Eaglehawk section of Bendigo mining field and the Bendigo Amalgamated Gold Mining Company taking over of the New Moon, Clarence United, New Argus and Suffolk United leases, and the purchase of certain plant. Mr Dickenson stated last night that negotiations had been completed between the new venture and the Amalgamated company. The syndicate he represented, the Bendigo A1 company, had arranged to take over the leases mentioned, and the purchase of the plant at the New Moon, Clark and Neangar shafts had been effected.

Mr E.C. Dyason, managing director of the Bendigo Amalgamated Co., in the course of an interview, said satisfaction should be felt in the fact that the negotiations for the formation of the new company to operate at the north end of the field were likely to be completed shortly. The area embraced portion of the Bendigo Amalgamated Goldfields holdings on the Garden Gully, Paddy's Gully and Derby lines of reef, and included the Suffolk, New Moon, Clarence and part of the New Argus properties.

1919, 30 January: Bendigo A1 Company - The New Moon shaft will be deepened 200 ft to intersect the Clarence reef. The amount of expenditure at the different properties [included]:- New Moon, £2808/2/.

1935: South New Moon dewatered the Garden Gully line from the Great Southern (at the south end of the field) to beyond the New Moon (at the northern end) to a depth of 580 feet below the surface at the South New Moon shaft. the water was kept at a depth of 530 feet from the surface in the New Moon shaft for several months with one 85hp seven-stage centrifugal station pump and one 25hp single-stage sinking centrifugal pump. The pumps deliver 152,000 gals per 8 hours, using power from 10pm to 6am, at a cost of 23s daily.

1936: The following table, supplied by the Mines Department, Bendigo, shows the amount of gold won for the year ending December 16, 1936: [including]  
Mr O'Halloran, New Moon and Virginia: 1000: 0

1936: New Moon - This shaft was sunk to 2,400 feet, and from 260 feet to 1,538 feet no fewer than sixteen levels were tested. Probably no mine on the Bendigo field has been so exhaustively worked. The stone did not prove particularly rich, averaging about 8 dwt, but consistency and economy have been the keynote of operations. Most of the lodes worked have been large deposits of quartz which appear to have a little gold distributed throughout with occasional rich patches. Gold produced totalled 236,980 oz. and dividend payments £371,728.

1937? summary : O'Halloran Brothers, who have commenced cyaniding at the New Moon dump about four years ago, were the first to realise the value of the heaps and their returns from the same dump continue to be profitable. The party is now operating the Moon dump and Clarke's dump, and last year recovered 840oz.

1937 - 1951: Cyanidation of tailings - operations of the Gold Dumps Company.

The ores mined on Bendigo and Eaglehawk goldfields are of a type from which valuable constituents can be liberated from the gangue by a comparatively coarse comminution of the ore. Stamp milling followed by plate amalgamation (a comparatively simple method of treatment), when coupled with gravity concentration of the sulphides which are of paragenic origin, has given a sufficiently high percentage recovery to permit a continuance of mining operations with outstanding success.

This method of treatment, however, has not been 100 per cent. efficacious, and has resulted in the accumulation of millions of tons of lowgrade residues (or tailings as they are more commonly known), the gold content of which was considered as irrecoverable prior to the discovery that gold was soluble in alkaline cyanide solutions, and that it could be precipitated from these solutions by chemical reaction with zinc.

With this discovery as a beginning, methods for the recovery of gold from tailings were evolved, and the cyanidation of tailings eventually grew into the present-day commercial enterprise capable of producing profits on a moderate capital outlay.

Most plants with small throughput were erected by parties of cyaniders and the better grade of ree-leaching sandy materials treated with success. These parties made use of the leaching vat and relies almost entirely upon natural percolation of solutions through the material being treated, followed by the precipitation of the gold from the pregnant solutions by reaction on zinc shavings. Precipitation by using charcoal was attempted with doubtful success.

The treatment of the lower grade tailings was of necessity left to the company or party possessing sufficient capital to install the machinery necessary to ensure a satisfactory throughput.

Gold Dumps Pty. Ltd. which was formed in 1937, with a capital of £100,000 divided into 100,000 shares of £1 has operated continuously in Victoria for 14 years, and has pioneered the large-scale treatment of the lower grade tailings.

With the experience gained in the treatment of alluvial slum at Rutherglen, Carisbrook, etc, operations at Bendigo were commenced with a specific knowledge of tried and proven flowsheets for the different classes of materials,

and of the machinery required to ensure a steady, maximum plant throughout.

... Three plants were erected by this company in the Bendigo and Eaglehawk districts:-

- 1) On the Red, White and Blue dumps at Golden Square;
- 2) On the dumps produced by the Devonshire group of mines at California Gully, Eaglehawk; and
- 3) On the New Moon Mine dumps at Sailor's Gully, Eaglehawk.

... the erection of the plant at Golden Square, the plant being centrally placed to allow of the treatment of the Red, White and Blue Mine dumps, the Great Southern Mine dumps, and the current tailings produced by the North Deborah Mine No 1 treatment plant. After operating this plant for a number of years, operations were suspended early in 1949 because of low grade values and low slum content.

Prior to the cessation of operations at the Golden Square plant, a similar plant was in the course of erection at the New Moon dumps, and a still large plant at the dumps of the Devonshire group of mines, the operations which will be briefly described. As in the case of the Golden Square plant, the additional plants were centrally placed to enable the treatment of other dumps in the locality.

Process:

Breaking down the dumps - dumps sluiced and material collected in a sump, which is then lifted by four class J.M.S 4-inch Thompson pumps and conveyed by pipeline to the hydro-seperator.

A hydro-seperator of the Dorr pattern is used, the material delivered to the unit being subjected to seperation into a coarser material consisting chiefly of andy particles, and a finer material which overflows with the solutions and passes to the pumping circuit for delivery to the mill section of the plant.

Settling Areas - With a view to obtaining sufficient room for initial operations the free sand removed by the classifier was stacked to a height of approximately 20 feet on the east side of an elevated area to the north-west of the site of the dumps. The sands, together with all sands classified from the circuit in the future, will be placed on the areas from which the original dump materials have been removed.

Treatment Plant - at the mill the pulp is fed into the first of six agitation tanks, each of which is 25 feet in diameter and 12 feet deep, and constructed of 5/8-inch welded mild steel plate

Filtering - The pulp on leaving the last of the agitation tanks is pumped to a Moore-type vacuum filter in which the solid content is seperated from the solutions, and the latter allowed to pass to a Merrill-Crow precipitating unit.

Precipitation and smelting. Not described

... Water used in the plant is obtained by pumping from the South Devonshire mine shaft ... At this plant an average of 33 men are permanently employed on shift work ... The operations at the New Moon plant are similar to those carried out at the Devonshire plant, and differ only in connection with the unit of plant used to classify the pregnant solutions, and the positioning of the classifier for removal of sands.

At this plant the whole of the dump materials are transferred to the mill where the sands are classified from the circuit and passed to settling dumps. Seperation of the solids from the solutions is obtained by the use of two Oliver drum-type filters, each being 12 feet in diameter and capable of removing an average of 450 tons of solids every 24 hours.

1951: Cyanidation of tailings - operations of the Gold Dumps Company... Gold Dumps Pty. Ltd. which was formed in 1937, with a capital of £100,000 divided into 100,000 shares of £1 has operated continuously in Victoria for 14 years. Three plants were erected by this company in the Bendigo and Eaglehawk districts: [including]  
3) On the New Moon Mine dumps at Sailor's Gully, Eaglehawk.

1947: Gold Dumps Pty Ltd has operated continuously on the Big Blue dump ... The company has erected extensive plant at Sailor's Gully to treat the large dumps of the old New Moon, South New Moon and Virginia mines

March 1948: Gold Dumps Pty Ltd has erected extensive plant at Sailor's Gully to treat the large dumps of the old New Moon, South New Moon and Virginia mines. This plant is treating 500 tons daily.

1951: Cyanidation of tailings - operations of the Gold Dumps Company... Gold Dumps Pty. Ltd. which was formed in 1937, with a capital of £100,000 divided into 100,000 shares of £1 has operated continuously in Victoria for 14 years. Three plants were erected by this company in the Bendigo and Eaglehawk districts: [including]  
3) On the New Moon Mine dumps at Sailor's Gully, Eaglehawk.

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