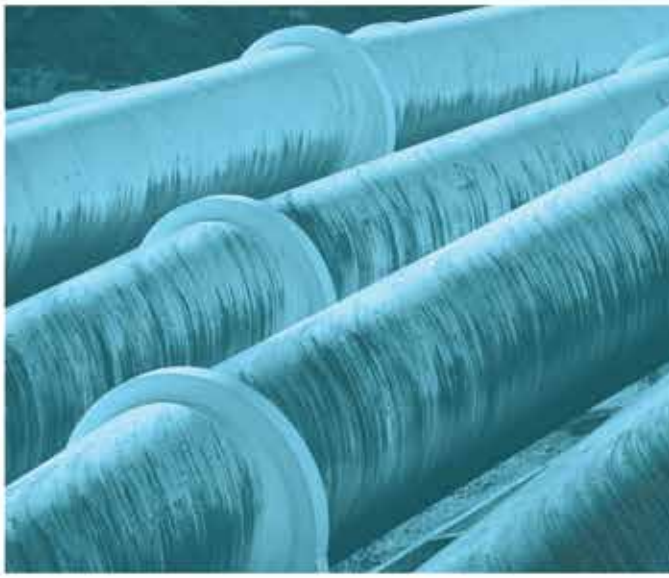



Wongawilli Colliery Modification Report

PA 09_0161 MOD 2 - North West Mains Development
Volume 13 - Appendix M (Part 2)

Prepared for Wollongong Coal Limited
December 2020

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Appendix M - Part 2

Historical heritage assessment and statement of heritage impact

Plate 13: Interior of the powerhouse (photo Cummins 203)

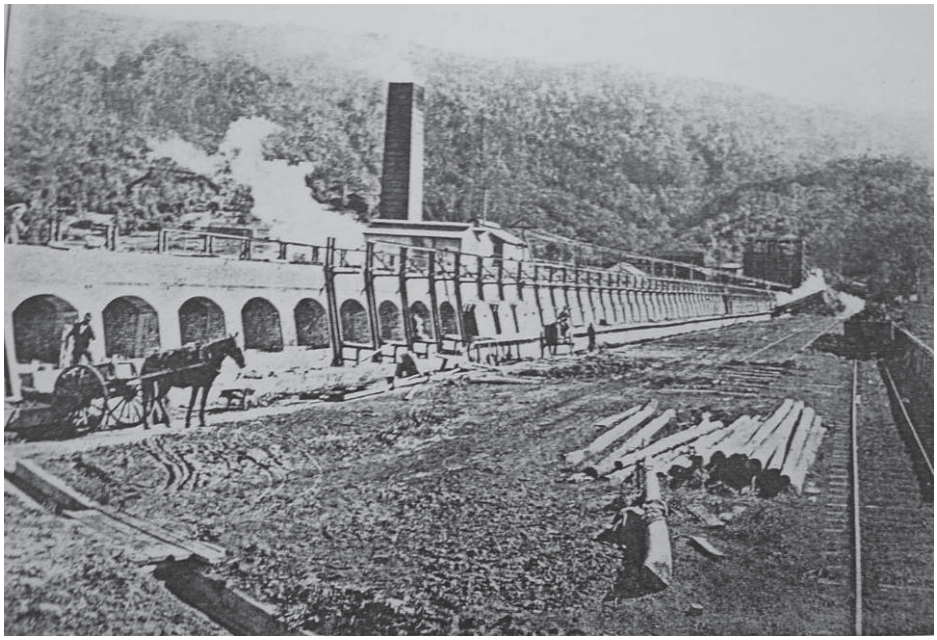

Plate 14: Coke ovens with chimney and powerhouse in background.

Initially a row of 40 ovens was installed and the resulting coke was transported to Lithgow by rail. In 1925 a further 40 ovens were added. To meet the increased demand for coke with the erection of the Port Kembla blast furnace the Wongawilli battery was increased from 80 to 120 ovens in 1927. These ovens were Belgian non-by-product ovens (*Illawarra Mercury* 4/3/1927; Hoskins 1969; Hoskins 1995).

Plate 15: Coke ovens from the washeries (Illawarra Images P03176)

In 1919 the company donated land at Wongawilli to the Parish of St Luke's, Dapto and a Church hall was built. Hoskins' foresight in developing this mine

was vindicated when Wongawilli became an essential factor in the development of the Port Kembla Iron and Steel Works (Hoskins 1995).

In 1929 two new tunnels were opened, one on the Number 6 seam and one in a seam already worked but further south, possibly the Woonona Seam. Three haulage motors were in use and eight pumps, all driven by electricity, presumable generated at the mine's own power station, which was located at the north end of the coke ovens.

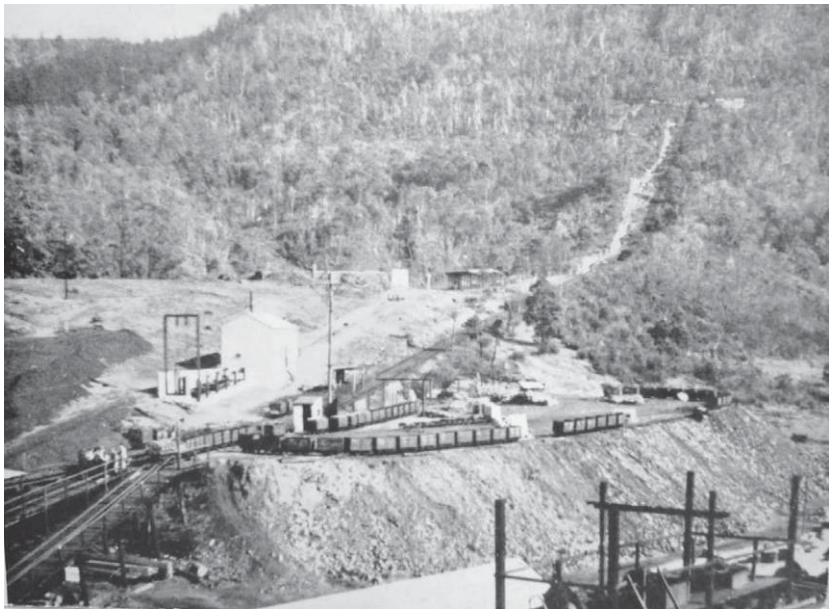

Plate 16: Wongawilli coal haulage incline c1935 (No 1 Transport Drive left of centre)

Hoskins had difficulty in developing his Lithgow steel works because of the rising cost of freight, and the need to transport both raw materials and finished products. After securing extensive high-grade iron ore reserves in Western Australia, it was clear that a coastal site would provide considerable advantage. In 1924 Hoskins bought 400 acres at Port Kembla, near the recently completed new government-built port, and borrowed £300,000 to erect a blast furnace, jetty and ancillary works. The company then pressed the NSW government to build a rail line from Moss Vale near Marulan on the Great Southern Line (where Hoskins had recently acquired extensive limestone deposits) to Port Kembla.

Hoskins Iron and Steel Company, however, was not able to mobilise enough capital on its own to finance the venture and so negotiations were begun with two British Steel companies, Dorman Long and Baldwins Limited, with the latter transferring its little-used rolling mill from Sydney. The shipping company Howard Smith also joined in the group to form Australian Iron & Steel (AIS) Limited in May 1928. AIS therefore became the owner of the Lithgow Ironworks, the Port Kembla Works, the Wongawilli mine and coke ovens, and various other facilities.

Unfortunately for this new venture, the new steel works had hardly begun production when the Great Depression struck the Australian economy causing the Port Kembla Steel works, coal mines and other industries to reduce production by up to 90% and by 1933, employment in the mines declined to half the 1929 level (Hagan & Wells 1997:60-1).

Inability to compete with BHP's Newcastle works, and an untenable contract with BHP for supply of ore, led AIS in October 1935, to approach BHP with an offer to merge (Hagan & Wells 1997: 60-62).

Mining and haulage methods

Prior to Hoskins purchase of the colliery, coal mined at Wongawilli was hauled by horses, with four teams being employed to transport 11 tons of coal per day to Dapto railway station. In February 1909 about 40 horses and 10 bullocks were hauling 200 tons of coal per week to Dapto station. Two weeks later work at Wongawilli mine had been partially suspended and the draymen stood down. (*Reynolds, 2001*)

George and Cecil Hoskins significantly improved the Wongawilli Colliery and built a branch railway from the main South Coast Railway near Brownsville to the coal washery and coke works. Coal was lowered down the escarpment by a self acting skip incline, opened in 1916 with rope haulage on 2'10" gauge. It would appear that this haulage was immediately south of the current decline conveyor and is identifiable by the winding house and tensioning tower at the base of the incline, and remnants of trackway and loading area at the top. The junction to the main line was opened on 25 October, 1916 and by 1917 coke was being railed from Wongawilli to Lithgow (Epps 1987).

Hoskins purchased a small 0-4-0 saddle tank locomotive for use as a construction loco when they began to build the Wongawilli railway line. The loco was overhauled and named "Wonga". This loco was found to be too small after the mine went into operation, a larger one was provided and the "Wonga" was only used for shunting purposes.

In 1933, the adjoining South Kembla Colliery was purchased and absorbed into Wongawilli. The opening of new by-products coke ovens at Pt Kembla in Jan 1938 led to washed coal being transported directly from Wongawilli to Port Kembla. The Wongawilli coke ovens were then shut down, opening again between June 1938 and July 1945 due to the increase demands of the war, but subsequently demolished. The powerhouse was refurbished in about 1950 and partly used as a mine office until the new mine office at the pit top (the current office) was built in the 1960s.

Until 1940 mine workers had to walk up the steep slope to the pit top,

presumably using the Ambulance Track, which is now the mine road access. However, in that year the No 1 Man Transport was installed parallel to the 1916 coal haulage incline. Coal was lowered from 1949 via a counterbalance coal haulage incline. The present decline conveyor, installed in 1959-60, replaced the coal incline, and so freed it up for conversion in 1960, into the current man transport.

The sequence of development is not entirely clear but the following is an approximate chronology of changes to incline.

- 1916 – Self-acting coal only incline installed
- 1935 - Endless rope installation underground
- 1936 - Self acting incline changed to endless rope incorporated with pit top installations for underground.
- 1939-40 - new No 1 Man Transport constructed & installed on an endless rope system south of 1916 skip haulage way and was phased out several years after No 2 Transport was installed circa 1962
- 1947 - Existing No1 North direct rope 1 ton skip haulage replaced with increased capacity direct Rope Haulage capable of lowering and hauling 10 ton capacity mine cars to and from the 1 North area. This haulage was an integral part of the mechanisation of the mining operations in 1North.
- 1949 - Automatic Friction Drive installed on skip incline replacing endless rope system. (Original 1935 system now redundant).
- 1959 - Decline conveyor belt installed between original skip decline and No 1 Man Transport.
- 1959 - Dumper house and skip incline become redundant.
- c1960 - New No 2 man transport commissioned from converted coal incline - current man transport [2]
- c2005 - Incline out of use

It would appear that the Transports No 1 & No 2 operated simultaneously for several years during the 1960's. A drawing dated 1961 shows a proposal for a walkway and shelter shed at lower bathroom) using the auto friction dive system as installed in 1949. It was only after concerns were raised about the rope on No 1 that it was taken out of service but until then it acted as a backup and was used by individuals wanting transport during the shift, whereas the No 2

[2] 'The drive system of what is now known as the No2 Man Transport was originally installed underground in 1949 near the small skip weigh bridge site and operated as an automatic friction hoist Incline Coal Haulage system using 4x15 ton hoppers, 2 full, 2 empty moving up and down the Incline . Following the installation of the Decline Belt Conveyor system in 1959 the Incline Coal Haulage drive system was moved c.1960/61 to its present location on the surface and converted to man transport duties'. (pers. com. Ron Cairns. 25.3.07).

transported the main body of men at shift change times. Drawings (& photographs) indicate that in 1961 (or just previous) the No 2 Man Transport was on paper at least (or possibly had already installed), the drawing indicating a proposal for additions to bathroom and No 2 Man Transport Shelter backing up the 1960 commissioning of the No 2 Man Transport installation (Pers. Comm. Brian Sheldon 13/11/2006, Sheldon 2006).

BHP expanded its Illawarra coal operations through the purchase of the Bulli and Mount Keira collieries in 1936 and '37. In 1945 it acquired the Mt Kembla mine and then opened the Nebo mine in 1946. Mechanical Coal cutters were introduced at Wongawilli and Mount Keira in 1938 and other mines progressively mechanised. At the same time the endless rope haulage was installed. This was the largest of its type I the world at the time. The drive system, or what remains of it, is in place underground adjacent to the skip weighbridge (pers. com. Ron Cairns 25.3.07).

A 2ft or 2ft 2in gauge railway track was introduced at the mine in 1943 for track-mounted coal cutters which were used as part of the contract mining system. The 3ft 6in. gauge track was not introduced until 1947 when the mine commenced mechanised mining (pers. Com. Ron Cairns 15.3.07). Battery electric locos and 10-ton cars were introduced in 1947 as part of the mechanisation.

Plate 17: No 1 Man Transport tracks c.1940 (photo Wongawilli Colonial Dance).

Plate 18: Skip incline on left (now friction drive) and No 1 Man Transport tracks on right as viewed from the pit top area c.1950 (photo Brian Sheldon).

Also in 1947, J. Robinson, in charge of AIS Port Kembla construction switched to supervising the operation and maintenance of Jeffrey L400 coal loaders and 29L cutting machines (Mines Department Annual Report 1947:46). 26-ton Malcolm Moore diesel locos were introduced on main haulage in 1948. Trackless continuous mining equipment was introduced in 1952, and shuttle car haulage in 1957. Belts to convey the entire coal output were installed in 1960, but diesel locos were still on intermediate haulage with single engine loads up to 1961 (Macdonald, 2001).

In 1951 AIS (the name the BHP subsidiary still traded under) acquired an 85 ton diesel-electric locomotive and 10 thirty ton wagons to haul coal from the mine to the Port Kembla steelworks (*Illawarra Mercury* 23/7/1951).

From 1958, new mining methods were developed in the colliery involving a form of bulk extraction of pillars. Known as the "Wongawilli Method" and exported to other Illawarra Collieries and around the world, this was developed initially within the Wongawilli Seam

Longwall mining had been in use for mining thin steeply dipping seems in Britain since at least the 18th century. More commonly, however, Bord and Pillar mining was carried out in Australia, which involved mining passages on a grid

and leaving Pillars of coal between to support the roof. Mechanised pillar extraction was only permitted by legislation in Australia from the early 1950s. This was also when the first continuous miners were introduced. New systems had to be developed to utilise the mechanised miners efficiently with a number of mines experimenting with different methods, the system on the South Coast that gained the most support was the Old Ben system as used at the Old Ben Mine in the US. This was progressively developed into the Wongawilli method which was trialled in the Huntley, Port Kembla No 2, Wongawilli, Coal Cliff (Bulli Seam) and Darkes Forest Collieries, among others (Brian Sheldon pers. comm.). While the Wongawilli Method differed from modern longwall mining, it provided an alternative to traditional hand mining methods and so increased efficiency and production in the mines in which it was used.

Plate 19: Anderson and Boyes Dreadnought Coal Cutter coal cutter on display at Wongawilli Colliery.[3]

Wongawilli was also among the first Australian colliery where the Joy continuous miners were used in Australia, while the decline conveyor also set a record as the first of its type designed to lower coal 191 m in elevation at a rate of 600 tons per hour (OHM Consultants 2006:Wongawilli Data sheet).

Three Joy continuous miners were shipped to Australia by the Joy Manufacturing Company in 1951. One of these 4JCM machine was installed at the Nebo Colliery, but possibly as a result of a fatal accident, was returned to the surface and then in October 1952 was transferred to Wongawilli and placed in regular

[3] This machine has been erroneously identified as a Samson coal cutter in the Wongawilli Heritage study (Walker et al.). There were two Samson coal cutters used in the mine, but they are believed to have been abandoned underground when the Contract system ceased in the 3 North and 1 North areas in 1949 (pers. com. Ron Cairns 15.3.07).

production. This machine was superseded by later model Joy continuous cutters and was sold to a mine operator in the Lithgow area. Another of the original machines was delivered to Huntly Colliery and the third to a mine in Queensland (pers com. Ron Cairns 25.3.07).

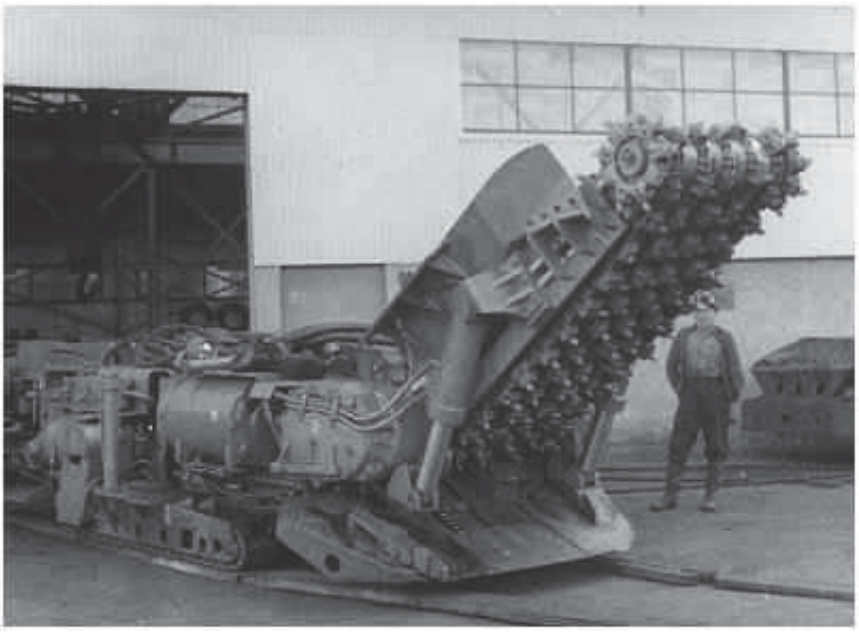

Plate 20: Joy 6CM Continuous Miner (Photo Brian Sheldon)

The Wongawilli mine extracted coal from the Wongawilli Seam in a holding of 5,000 acres where the workable section was nine foot thick. By the 1960s the mine was also working the Bulli (No 1 Seam). The evidence of these two separate seams can still be seen in the surviving mine portals on two separate levels. Access to the Bulli seam was via a drift up from the existing No 3 seam workings from below (pers. com. Ron Cairns 25.3.07).

The Wongawilli Colliery section is the only section still operating of the old West Dapto Railways. It is supplying coal to the BHP steelwork's coke ovens and receiving coal washery refuse for emplacement at Wongawilli (Reynolds 2001).

Workers

By the 1920s a village had been established for the miners who worked at Wongawilli Colliery. The first residents built squatters huts below the colliery at the western end of the road. This area became known as 'the Hill', Wongawilli Hill, or ‘Bankbook Hill’. These houses were made from whatever material was available, including bush timber, were lined with corn bags and either whitewashed or papered over for insulation. Although a few of these houses still stood in the 1990s, all but one have now been demolished (*Southern Wollongong News*, 1994).

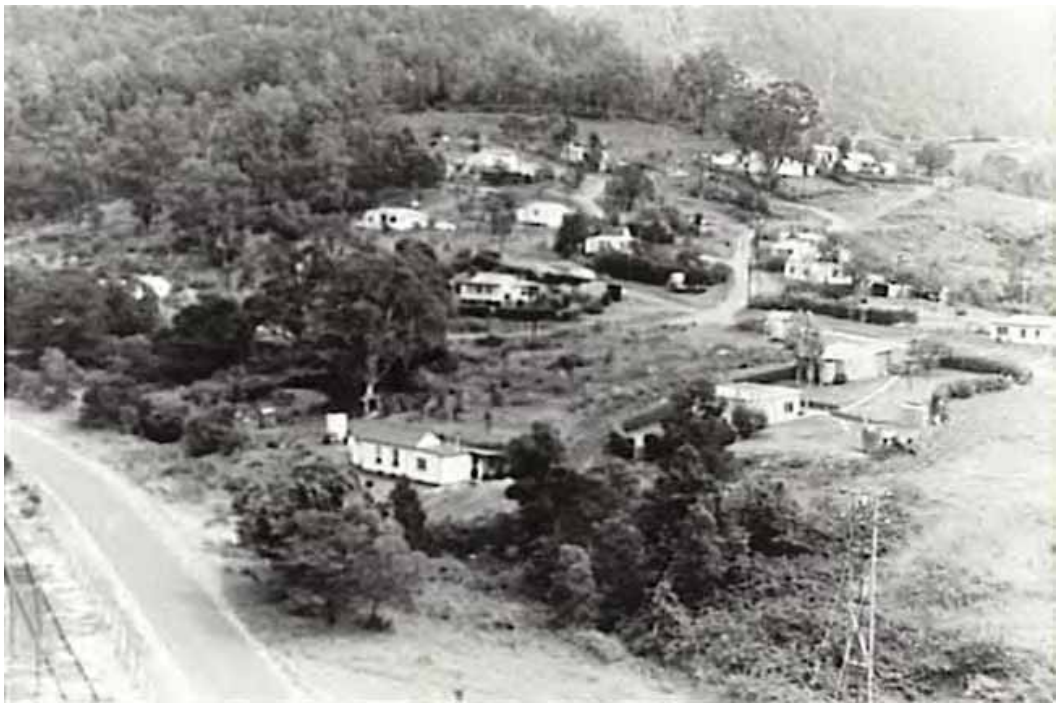

Plate 21: Bankbook hill, (Photo courtesy Wollongong City Library)

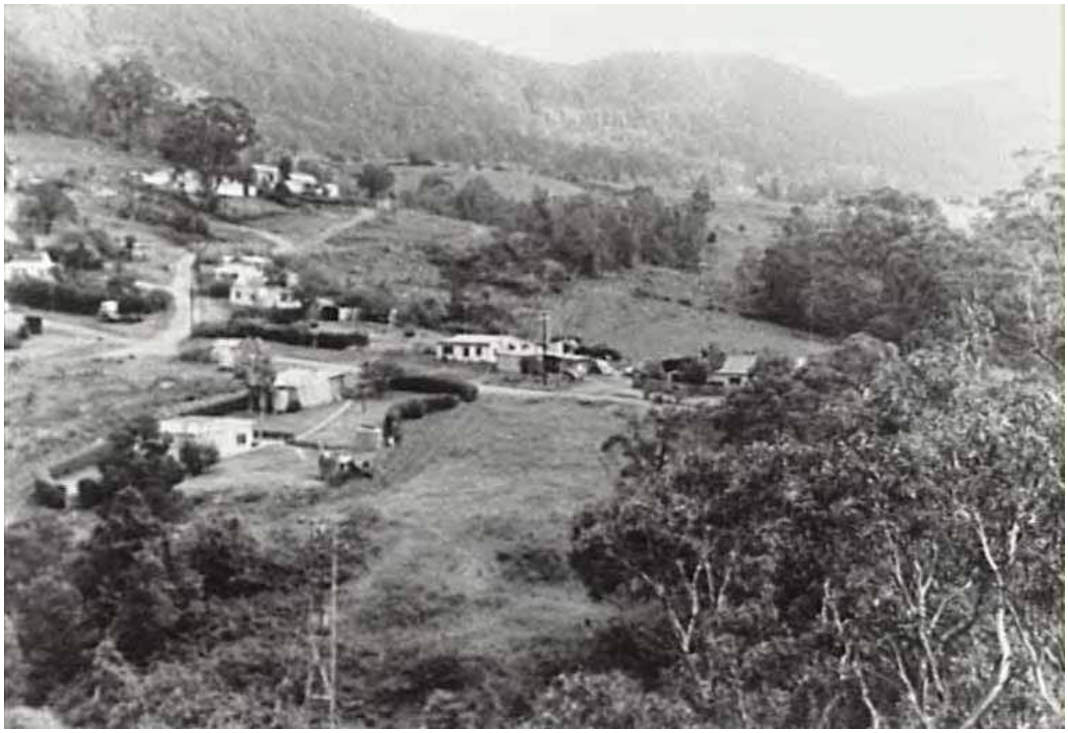

Plate 22: Bankbook hill, (Photo courtesy Wollongong City Library)

The more formal village subdivision on the south side of Wongawilli Road was created on BHP-owned land in 1936 when miners were encouraged to move off Bankbook Hill (Drummond 2006). The oldest house in the later Wongawilli village is on lot 20 and it was built prior to 1927 (*Dapto & District Heritage*

Trail - Northern Section).

Hannah Towers, who lived at Wongawilli from 1926 recalls her father worked at Wongawilli Colliery in the 1920s and '30s and her husband from 1933 to the 1970s:

> *In those days they had to walk up the incline and they sometimes used to hop on the skips (that carried the coal) to get a lift up to the top. They had draft horses in the pit. They used to pull up the empty skips. There wasn't much machinery in those days it was all pick and shovel. (Southern Wollongong News,* 1994*)*

Wongawilli mine had its share of accidents with Mining Inspector's reports recording three deaths in 1924, out of a workforce of 176. Other fatalities occurred in the mine such as 17 year old William Robertson who was "crushed between empty skips when clipping off when he held on to the rope too long" (Mines Department Annual Report 1935: 71). While regulation of safety in the mines was a matter of constant concern, with prosecutions regularly being noted for matters such as being in possession of matches, failing to report gas or failing to use safety lamps properly, there appears to have been a general acceptance of high rates of injury and death with comparisons being made to British mines in terms of the ration of thousands of tons of coal won per death.[4]

In 1950, J. L. Moulton, from the Wongawilli colliery (described by Ron Cairns as a cadet in training or of similar staff status) was killed when he was crushed between a mine car and timber pit prop when he was visiting the Nebo Colliery (Annual Report 1950:52). He had been run down by a battery locomotive and train of 10 mine cars at a ventilation door (pers.com. Ron Cairns 25.3.07).

Accidents in the latter part of the 20th century appear to have been less severe with one incident involving a fire on the incline when burning grease resulted in the 3 ½ inch plough steel endless rope parting from the transport car, which then ran down the incline track, stopping only 150 yards from the bottom terminus (Annual Report 1951:63).

While gas continued to be a constant problem, the last death at the mine appears to have been in 1961, when a machine man was killed, not working underground (Annual Report 1961:61)

Employee numbers fluctuated considerable as demand for coal varied Reports for the first decade reveal the following figures:

[4] for example see Mines Department Report 1910; 'Diagram showing quantity of mineral; raised per fatality in New South Wales and Great Britain 1878 to 1910 inclusive', and Annual Report 1959 p.56 'Coal and Shale Mines Number of Deaths and Persons Injured 1939-58'.

Year	Total workers	Underground
1917	50	32
1918	85	43
1923	133	47
1924	176	94
1925	243	143
1926	45	10
1928	316	206
1929	350	255

Table 3: Number of workers at Wongawilli colliery 1917-29.[5]

Mr Les Duley worked for 26 years at Wongawilli before transferring to A I S, where he remained another 24 years working on its coke ovens. He was one of the first 12 men taken on by the late Sir Cecil Hoskins to drive the incline into the pit. He said ‘Dapto never looked back after Wongawilli opened on June 6, 1916. It was a country village, with little work available for the residents. There was a great rejoicing the day the pit opened. I remember women calling out in the street, "God Bless Cecil Hoskins"’ (*Illawarra Mercury, 1976*).

Improvements were undertaken to the mine in the post war period to provide better amenities and conditions. In 1927 the Mines Department decreed that colliery bath-houses had to be completed in accordance with General Rule 44, Section 54 of the Coal Mining Regulations. The original Wongawilli mine bath house was erected in an area south of the still existing Power House Building either before or soon after 1927 when the legislation was enacted on the provision of bath houses. This building was demolished in about 1949 (pers.com. Ron Cairns 25.3.07).

A new bath house had been constructed at Wongawilli by 1949 this is the now abandoned bath house at the base of the incline. The Mines Department Annual Reports begin to include comments on bath houses from the 1930s, possibly as a result of the *Coal Mines Regulation Amendment Act* of 1931, which came out of the 1929-30 Royal Commission into Coal mining (NSW Mines Department Annual Report 1931).

Ron Skerritt worked at Wongawilli mine for 39 years commencing in 1946 at the age of 16. "In about 1949 the mines became mechanised and the horses were eased out and we were given locos to wheel with. Cutting machines were brought in to bore the holes and tons of coal was blasted on to the floor. A loader would then be bought in to load the coal into 10 ton wagons. The locos bought in the wagons and shunted the full ones. Another loco, a flat wheeler, would take them to a flat where they were hooked to a haulage rope and pulled outside and emptied into another bin. In about 1960 a machine called a continuous miner was

[5] (Annual Report NSW Department of Mines 1916-26)

introduced to the mine.[6] It cut the coal from the face into shuttle cars, which held 10 tons and later, 15 tons. Blasting was no longer needed. They dumped the coal straight onto a belt which conveyed the coal straight to the surface." (*Dapto Oral History* 1994, p. 69).

Reopening as Elouera Mine and sale by BHP

Elouera Colliery was officially opened in 1993, after the amalgamation of the Nebo, Kemira and Wongawilli coal mining leases. Utilising one longwall, Elouera mines the Wongawilli seam, produced coal that was low in sulphur and phosphorous with excellent carbonisation properties. Blended with Bulli seam coal, it provides premium hard coking coal. (BHP Steel Collieries Division, 1993).

Raw coal was stockpiled at the mine during periods of peak production before being railed from the mine to the Dendrobium Washery, located within BlueScope Steelworks at Port Kembla, for further processing and stockpiling. BHP determined to close the mine in mid 2005, with Wongawilli Seam coal being sourced from the Dendrobium mine, located adjacent to the Elouera Colliery (BHP Billiton, 2004).

The detailed history and development of the Wongawilli Mine is not fully documented, although Brian Sheldon has compiled data from various sources, including ex-mine employee Mr Ron Cairns – refer to the Chronology in the appendices of this report (Sheldon 2004).

Gujarat NRE took over operation of the mine and undertook several improvements to the pit head, constructing a new Conveyor portal, modifying the transport portal and erecting new bath house, shed, office and car park accommodation.

[6] Ron Skerritt's memory is inaccurate on this as the continuous miner commenced operations in 1952, see above (pers.com. Ron Cairns 25.3.07).

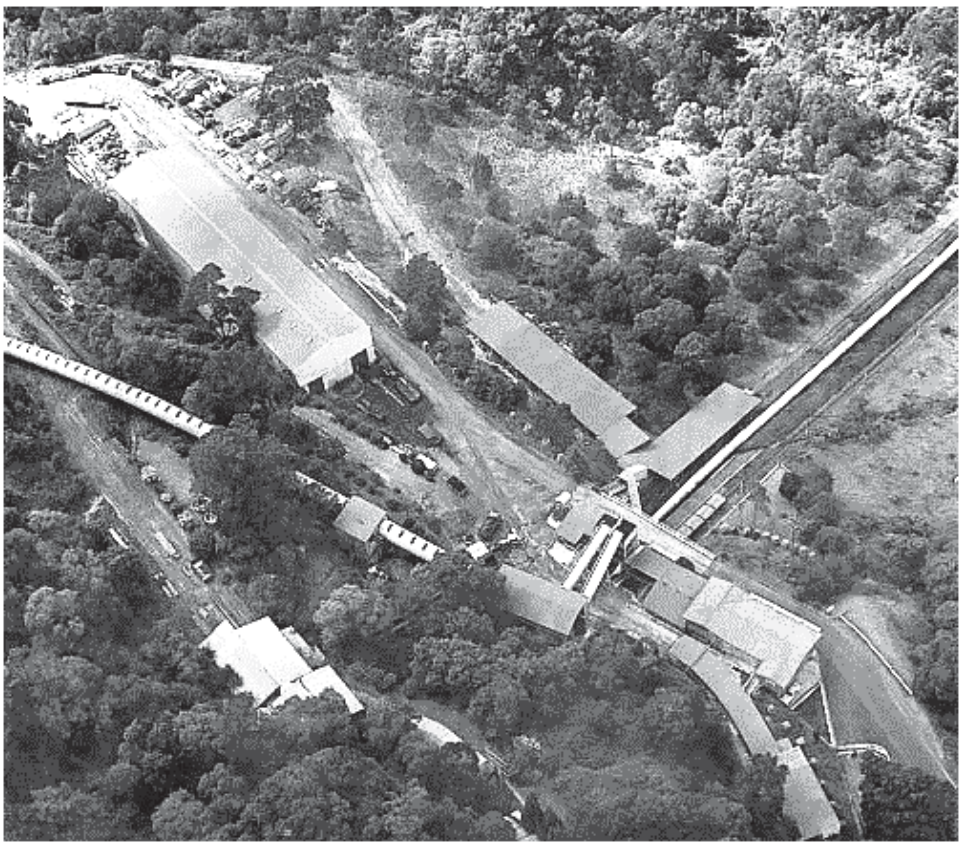

Plate 23: Main Pit top Bench c1960s (Photo Brian Sheldon)

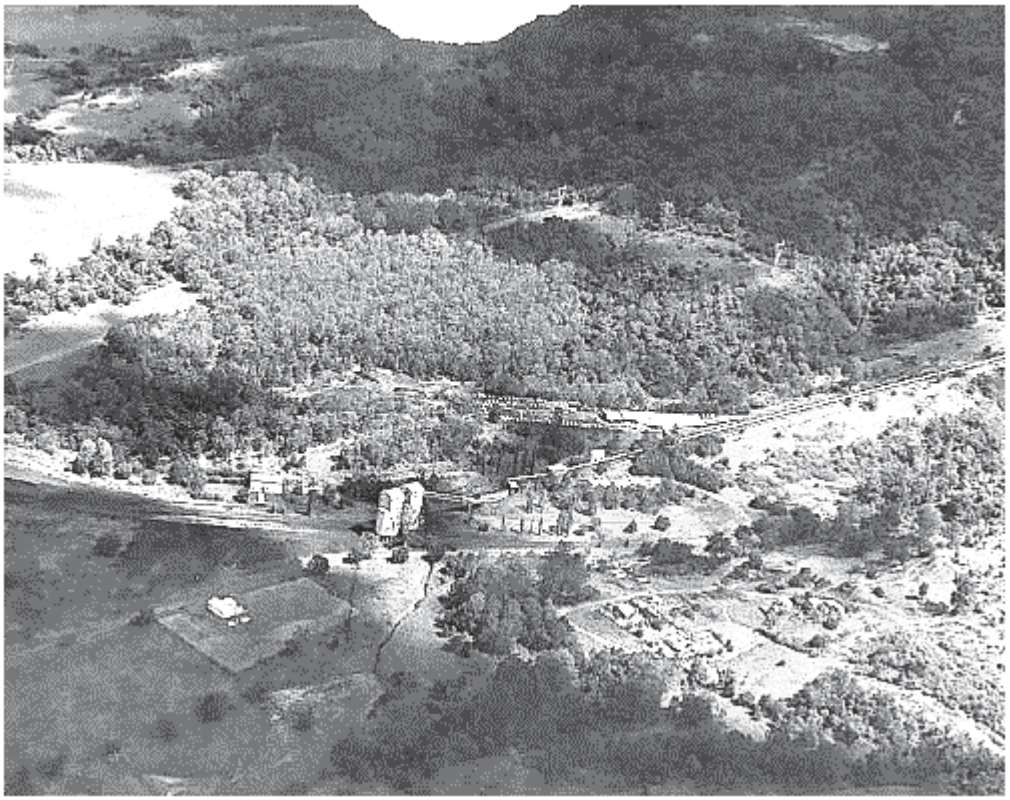

Plate 24: View to coal handling area – note Bankbook Hill settlement on right, c1960s (Photo Brian Sheldon)

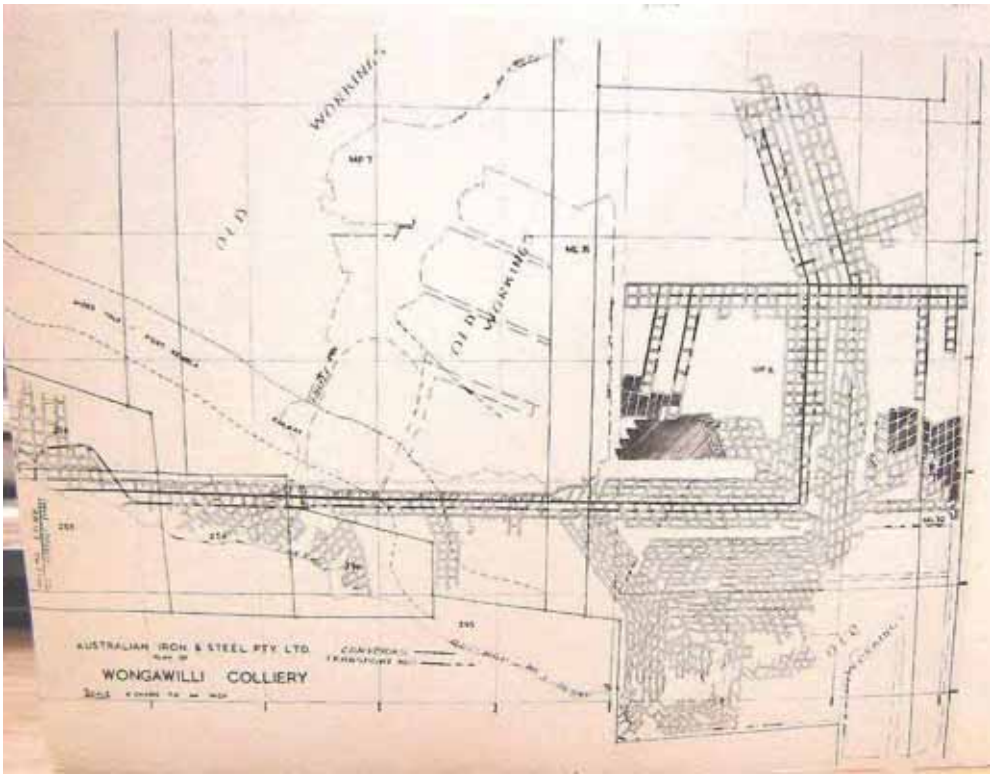

Figure 3: Underground workings at Wongawilli Mine c 1950.

3.4 Ability to demonstrate

The surviving components of the Wongawilli colliery reflect the progressive changes in coal mining and handling techniques and social conditions for workers over nearly a hundred years. As such not all functions, historic themes or activities are represented from all periods. The site reflects the combination of some surviving features form earlier activities, either modified and adapted or obsolete and abandoned, as well as items from later periods which have replaced evidence of earlier forms. There are also items which were new to the site, not being represented in earlier forms. Therefore the following table has been prepared to understand the layering of history in relation to the surviving fabric, and to summarise the relevance of each component in demonstrating one or more aspect of the site's history.

Table 4: Summary of construction dates and uses of structures

Item	Period of operation	Original and later function	Current use
B1 Old Fan Room	1916	mine ventilation	redundant
B2 Old Offices, lamp room, bath room, entry stairs and garden	1916	office	redundant
B3 Carpenters Shop	1947	maintenance	redundant
B4 Dumper house	1947	coal handling	redundant
B5 Loco Charging Station –	1947	mine transport	storage
B6 Storage Shed – Old Workshops	1947	workshop	storage
B7 Fire Station	1960s	fire station	storage
B8 Office	1970s	office	office
B9 Breaker Building and Transfer Bunker	1950s	Coal handling	Coal handling
B10 Decline Conveyor coal bins and stack out conveyor	1950s	Coal handling	Coal handling
B11 Man Transport	1916 1939 1960	Rope haulage Coal incline man transport	redundant
B11a Man Transport Shed	Post 1960	man transport	redundant
B12 Diesel Shed	1970s	locomotive storage	redundant
B13 New Workshops	1970s	workshop	Workshop and bath house (temporary)
B14 Bath House	1948	bath house	redundant
B15 No 1 Man Transport Winding House	1939-40	winding house	redundant
B16 Old Powerhouse	1916	Power generation	redundant
B17 Coal Bins and Loading-out Gantries	1949 1962	Coal handling	Coal handling

Item	Period of operation	Original and later function	Current use
B 18 'Wonga' – Mine Manager's Residence	1916	Residence	Vacant (proposed reuse as information centre)
Modern Buildings – B19 new bath house, B20 fan shed near transport portal, roof structure over bunded oil store	2010	Bath house and storage	Bath house and storage
W4 Rangers Portal	1930s?	Mine access	redundant
W5 Daylight Entry Portal	1930s?	Mine access	redundant
N6, N7 Forest 11 Entries Portal	1930s?	Mine access	redundant
W6A Rubber-Tyred Vehicle Transport (RTV) Portal	1960s	Mine access	Mine access
W6 Main Transport (Track) Portal	1960s	Mine access	Mine access
W7 Old Prospect Tunnel (no surface evidence)	1916?	Mine access	redundant
W8 Belt Conveyor Inspection Portal	1959	Mine access	inspection
W9 Belt Conveyor Portal	1955	Mine access	Mine access
W10 Loco Track Portal	1950s	Mine access	Mine access
W11 Old Portal	1947	Mine access	redundant
W11A Old Main Rope Haulage Drift Portal	1917	Mine access	redundant
W11B "Wombat Hole" (access to W11)	1930s?	Mine access	redundant
W12 Old Main Fan Portal	1916	Mine ventilation	redundant
W13 Old No 1 South Track Portal	1920s	Mine access	redundant
W16 New Conveyor Portal	2010	Mine access	Mine access
F1 Dam	1916	Water supply	Water supply
F2 Archaeological evidence of coke ovens	1920s	Coal processing	Demolished
F3 Bankbook Hill	1920s	Residence (squatters)	One house remaining

4.0 PHYSICAL EVICENCE

4.1 Description of Wongawilli Colliery

The site of the Wongawilli Colliery comprises two main works area joined by an incline haulage and conveyor. The lower area comprises the Bathhouse Bench, coal bins, loaders and former coke Ovens Site, while the upper area comprises what is known now as the Wongawilli Top Bench, located about half way up the Illawarra Escarpment, with a number of mine portals, offices, workshops and various other buildings.

The site is located in Crown Portion 255 just east of the boundary of Portion 294, Parish of Kembla.

The portals are located between the 250-270 m contours, locating them between the Top Seam/Bulli Seam and Balgownie and Wongawilli Seams. They are on two main levels at the Top Bench, the original mine portals dating back to 1916, are on the upper-level immediately above the incline. Later portals are on the north bench about 10 metres lower down.

A tramway bench (currently called the Fire Station Bench) was constructed south from the main mine bench after World War Two, and possibly associated with the introduction of mechanised mining, although Ron Cairns notes that the bench was not in existence in 1952, but was created when the modern office and personnel man cars were introduced. The tramway bench was probably only used to store unused mine cars, and also provided space for a maintenance bridge on the tracks, a powder magazine and makeshift hose drying tower.

The historic core of the site includes the buildings and portals associated with the earlier (i.e. pre 1960s) mine operation, the range of buildings at the southern end from the dumper house down (i.e. Carpenter shop, old offices, bathrooms, lamp room, old fan room etc.), the old workshops and blacksmith (now loco charging station and storage), garden beds, stone retaining walls, the man haulage, and possibly the fire station. At the bottom level, the old power house is obviously important, and the 1959 coal bins and decline conveyor have considerable visual and landscape impact, but as they are more recent, their heritage value may be minimal.

While the 1960 Man Transport is not part of the earlier period of operation, it reuses the alignment and possibly some of the structure of the 1939 coal haulage and is immediately adjacent and parallel to the earlier 1916 rope haulage.

Other more modern buildings are located at the top of the incline, including the Main Office Block, Switch Room, Diesel Shed, Breaker Building and large steel/-framed workshop building. A number of smaller modern sheds are located on the North Bench. This includes the oil storage sheds, compressor shed and fuel bay. Further new structures were erected in 2010 as part of upgrading the mine by Gujarat NRE. This included a new bath house to the north of the former man transport shed, a fan shed near the reworked transport portal, a roof over the bunded areas (oil store) a new conveyor portal and access above old tumbler bench and a new car park south of the main bench. None of these new structures are considered to have any heritage values.

The locations of the mine areas are shown in Figure 1 and the detailed layout of the features is shown in Figure 4.

In the following discussions, the structures, portals and buildings have been identified as being of Primary, Contributory or Associative Significance.

Primary Significance means the structure relates directly to the period or themes that are generally important for the significance of the site as a whole – that is, they reflect the early operations of the coal mine under Hoskins pioneering ownership, and the methods of mining and processing employed in the period 1916 to pre 1960.

Contributory significance means the structures assist in interpreting the operation and history of the site as a whole, but may be more substantially altered or constructed later.

Associative significance means the structures are not critical to understanding the history of development of the place, but gain significance from being associated with the Wongawilli colliery.

Structures and features not marked in these Primary, Contributory or Associative Significance, are considered to have no significance.

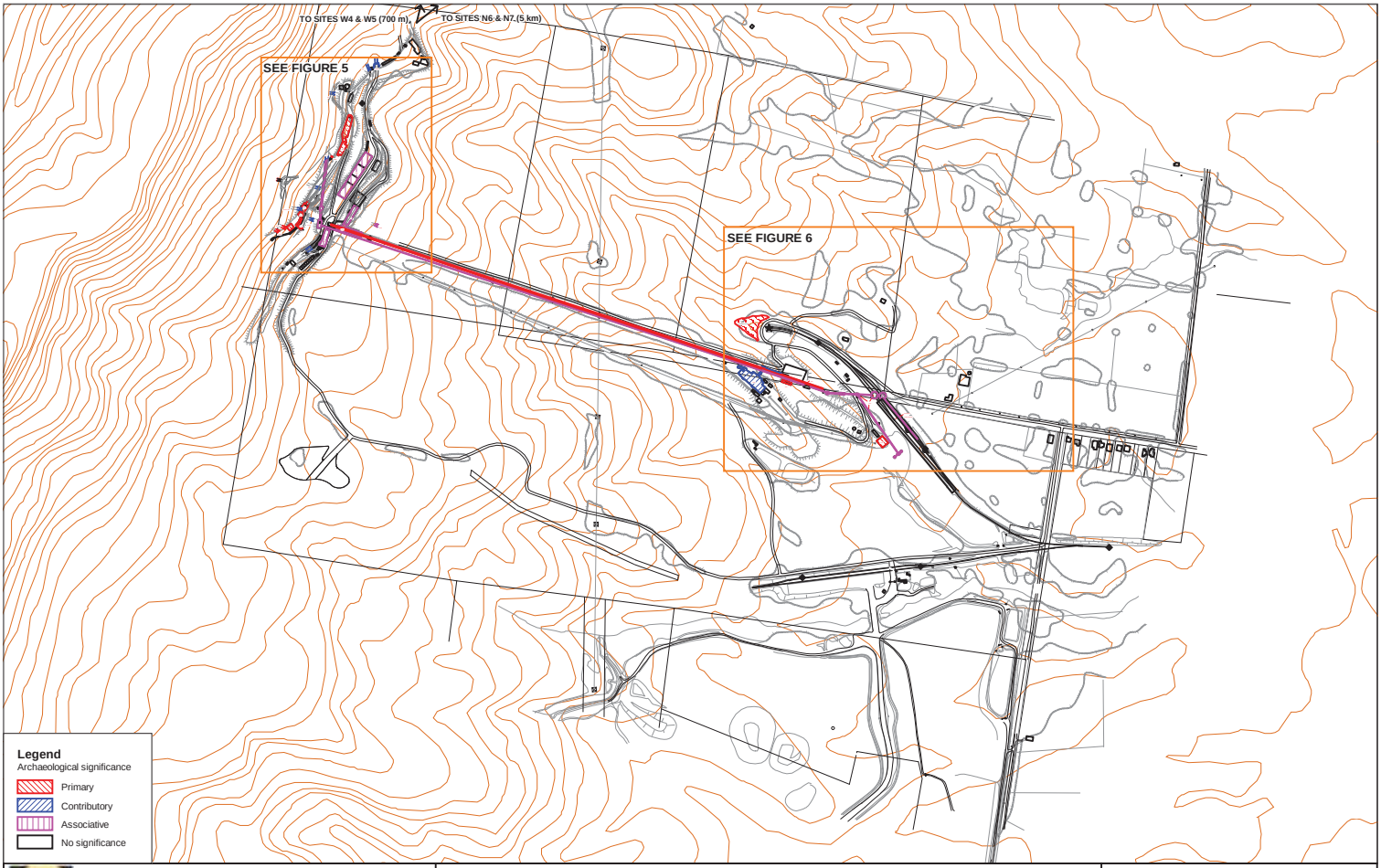

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Figure 4: General Plan, Wongawilli Colliery

DATE: 19 January 2012
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Location: P:\12900s\12988\Mapping\Report Figures\12988 Figure 4.wor

Scale: 0 75 150 225 300 375 metres

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Figure 4: General Plan, Wongawilli Colliery

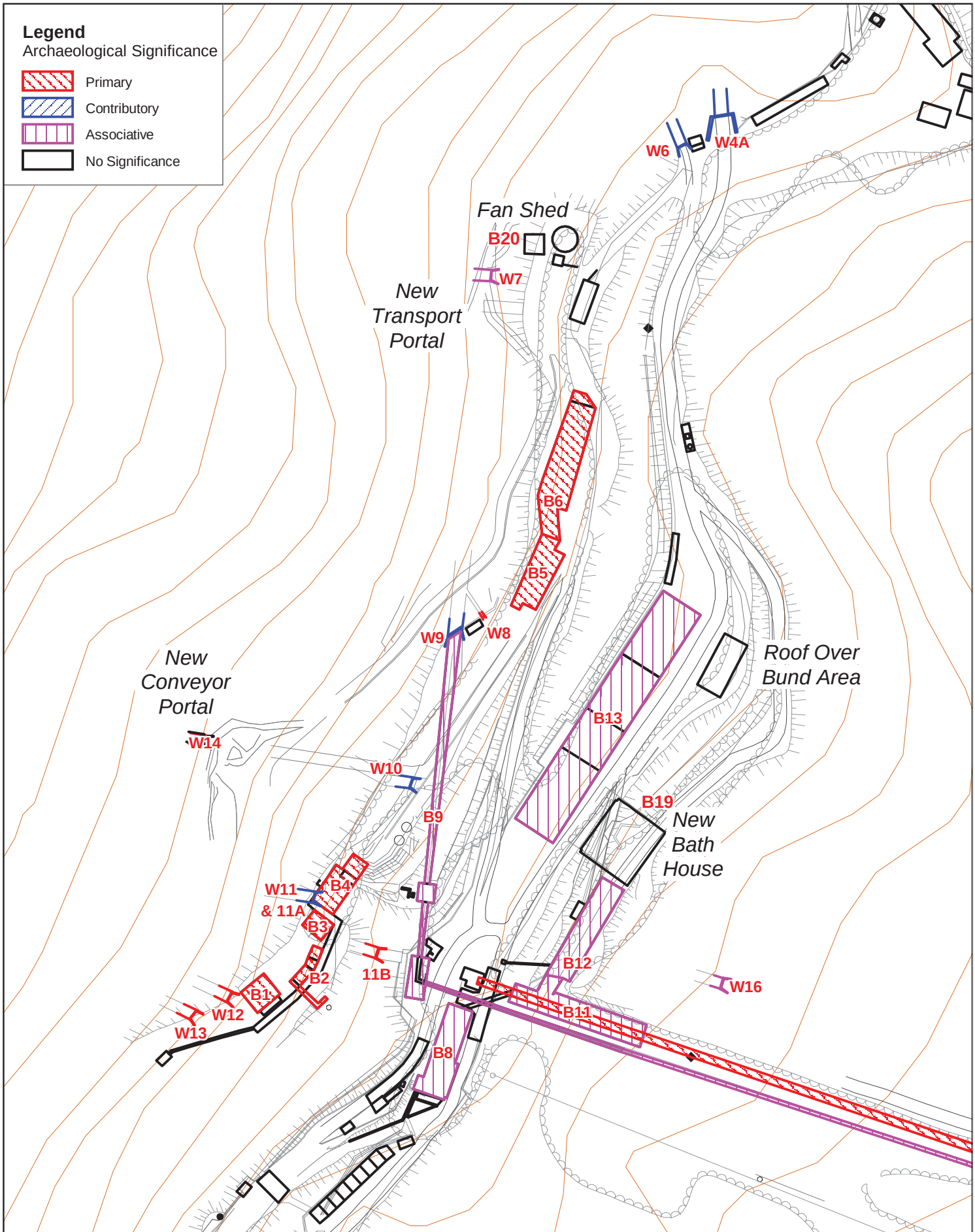

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Figure 5: Historic features at Main Pit Top, Wongawilli Colliery

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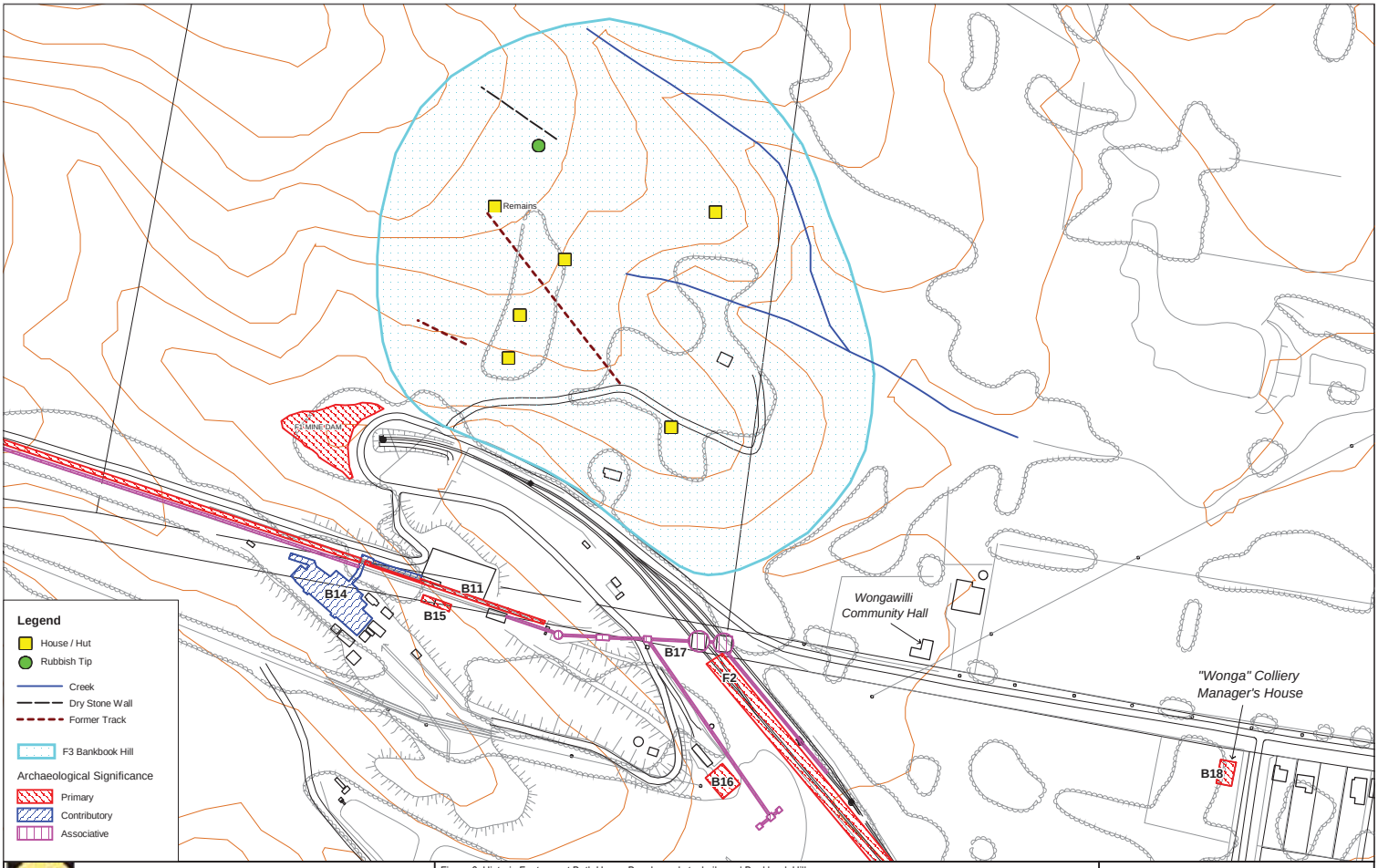

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Figure 6: Historic Features at Bath House Bench, coal stockpile and Bankbook Hill

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File number: 12988

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Scale: 0 25 50 75 100 125 metres

Figure 6: Historic Features at Bath House Bench, coal stockpile and Bankbook Hill

4.2 Buildings

4.2.1 B1 Old Fan Room

This building is a tall, square-plan brick structure with render, erected about 1916 to house the main ventilation fan for the expanded mine under the Hoskins ownership. The fan was decommissioned in 1950 when South Kembla fan installed. This in turn was replaced in 1972 by the No 1 Fan (a vertical fan installation on No 1 Shaft near the Avon Dam).

The building contains surviving early 20th century switch gear and electrical control boards, with the fans located within an excavated area at the rear of the building. (see above W13 Portal).

Concrete mounting blocks are in place for the electric motors and transfer shaft bearings, but these have been removed. Other fittings, including original timber doors, mounting brackets for other equipment and operation and safety signs.

Primary Significance.

Plate 25: Original Wongawilli Colliery fan, still in situ

4.2.2 B2 Old Offices, lamp room, bath room, entry stairs and garden

This group of small cement-rendered solid bridge buildings appear to date for the expansion of the mine under the Hoskins from 1916. According to Brian Sheldon, and interpretive signs attached to the buildings, they were last used in the 1940s for their original functions as offices, change rooms and showers, after which they were converted for use as storage. Steel pipe racks remain in the lamp room. Ron Cairns suggests that the buildings were in use up to 1952 (when he left the mine) and probably into the 1960s (pers. com. Ron Cairns 25.3.07). One room still contained (in early 2006) large quantities of paper documents including plans and engineering drawings of the mine.

At the north end of the building is the top of the entry stairs, which come under a bridge to the mine office, providing a checkpoint for underground workers and staff coming on to the mine site. Prior to the building of the new bath house in 1947 the lamp cabin was one of the top bench buildings and the underground workers and Staff continued to use the steps from the top of the No1 Transport to the lamp cabin.

Primary Significance.

Plate 26: Old Wongawilli Colliery pay office?. Note stairs in foreground, originally leading down to lower level.

Plate 27: Lamp room and Offices

Plate 28: Stone terraces and landscaping north of early group of mine buildings

The remnants of landscape features including garden bends and stone terraces are located to the west of this group of buildings. These were constructed and

maintained by miners from early on in the mine's history, but have been neglected for several decades. Their structure and design, and some of the more robust plants, however, still survive and contribute to the setting of the early group of buildings. The stone retaining walls also served a practical function in supporting the terraced areas on this very steep hill slope.

4.2.3 B3 Carpenters Shop

This steel and timber framed, and corrugated iron clad building is attached to the Dumper House. This building was erected as an original design in 1947 to house the No1 North direct rope haulage. This haulage lowered the empty and hauled the full 10 ton cars from 1 North to the Surface Dumper House until it was replaced by the 1 North Conveyor System. The Haulage was removed in 1960 for use in sinking the Belt Drift at Appin Colliery. The building was converted to a Carpenters Shop soon after. A stone grinding wheel remains in the south east corner of the building, while an overhead crane gantry extends out through split full height double doors to the east and over the adjacent cliff face.

Primary Significance.

Plate 29: Interior of Carpenters Shop showing large double doors on east side.

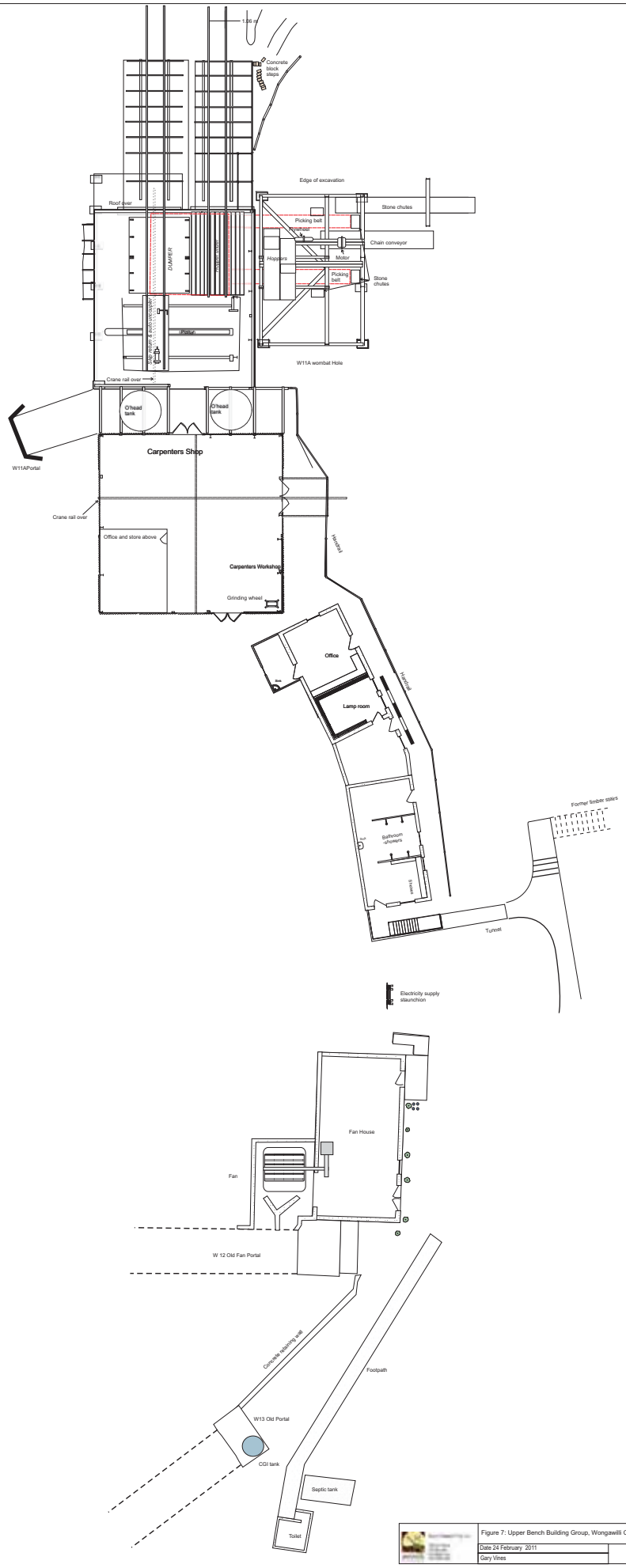

Figure 7: Upper Bench Building Group, Wongawilli Colliery, General Plan

Date 24 February 2011

Gary Vines

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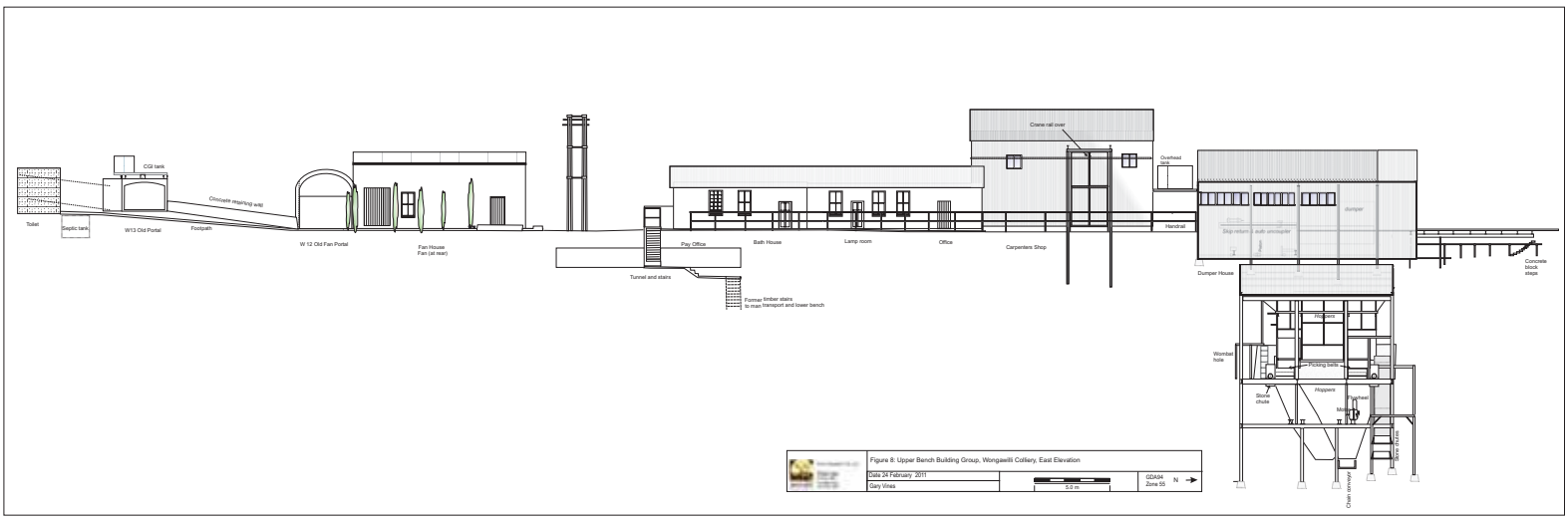

Figure 8: Upper Bench Building Group, Wongawilli Colliery, East Elevation

Date 24 February 2011

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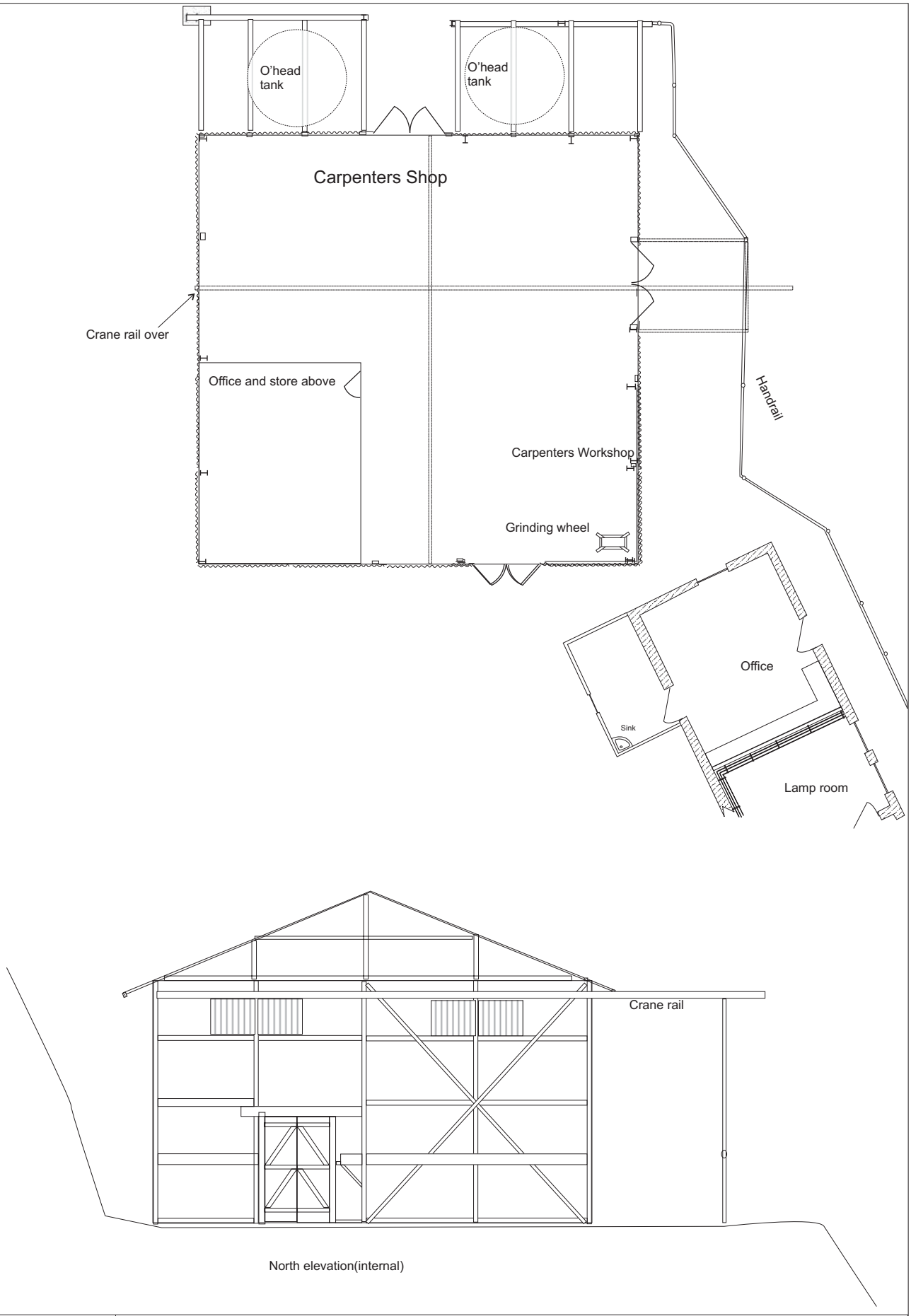

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Figure 9: Carpenters Workshop Plan and North Elevation

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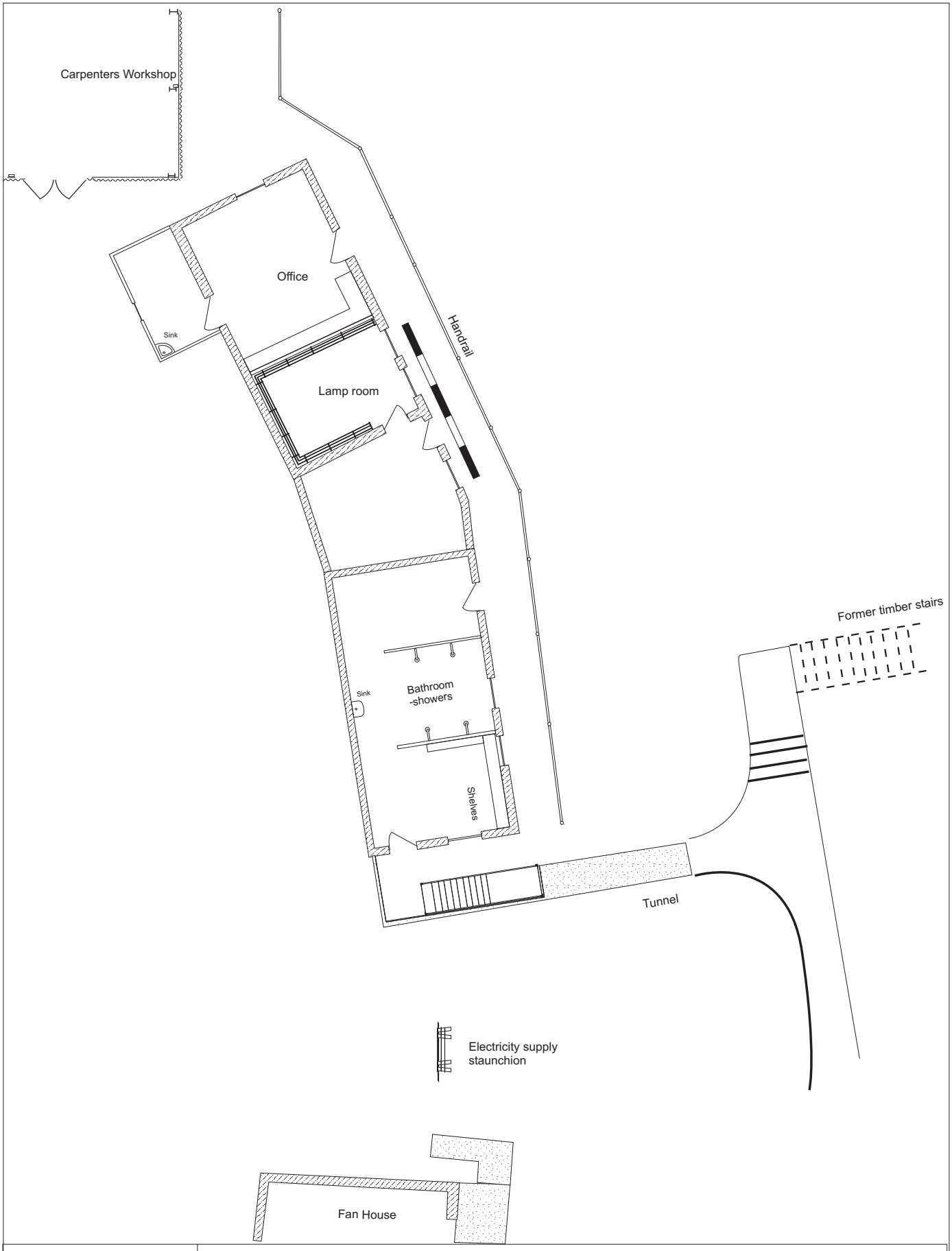

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Figure 10: Lamp-room, bathhouse & Offices

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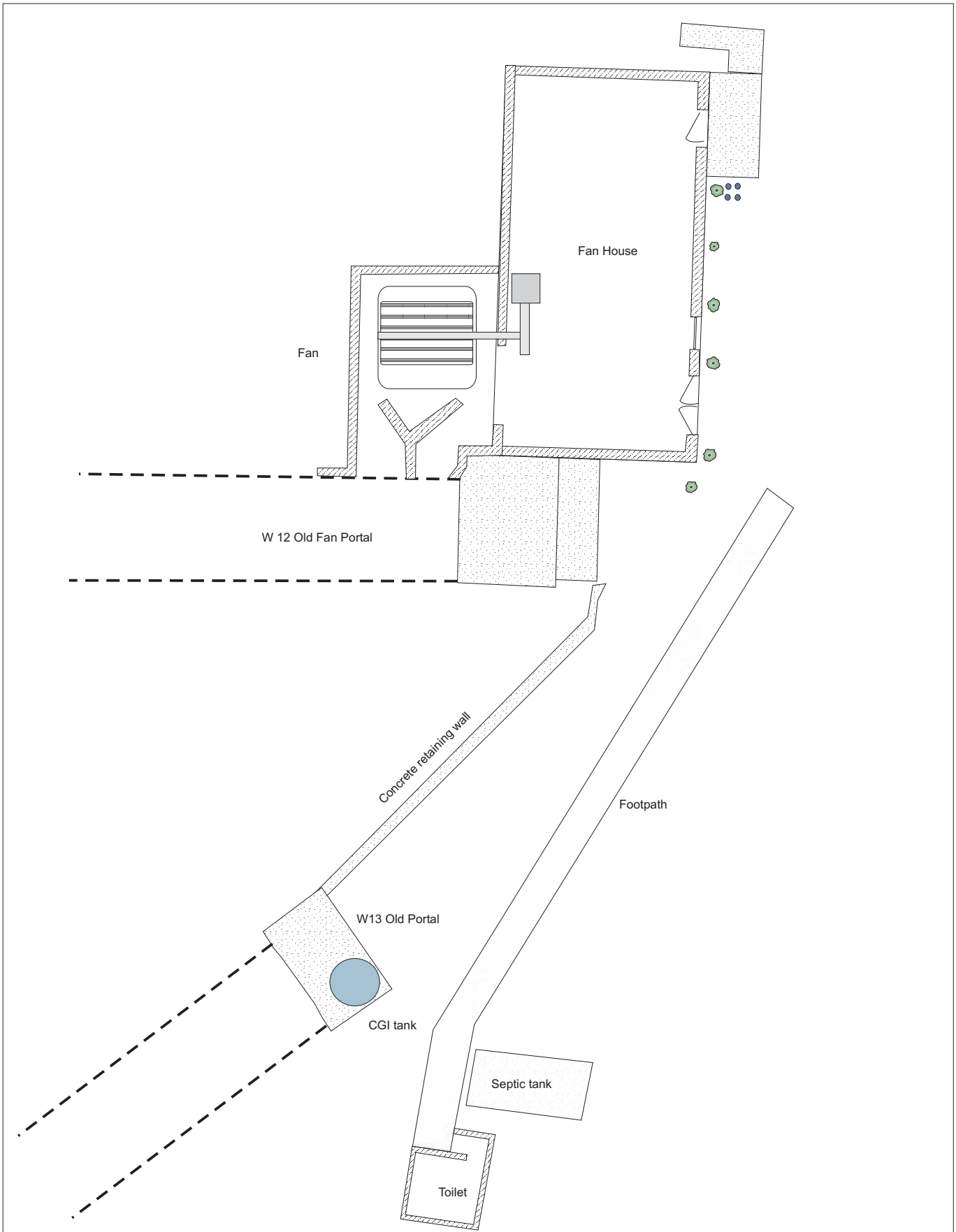

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Figure 11: Fan house & portals W12 & W13, Plan

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4.2.4 B4 Dumper house

This steel framed building appears somewhat later than the group of buildings to the south. It came into operation with the 1 north endless Rope Haulage installed in 1947, although parts may be earlier. The structure includes a steel and timber bridge over a drainage line. The timber work is very dilapidated and this bridge forms the only access to the early group of buildings and W12 and W13 portals to the south.

The Dumper House is constructed partly on a bench reached from the upper portal level, and partly in an excavation which extends down to near the base of the breaker building. This steel framed building appears somewhat later than the group of buildings to the south (Carpenters workshop, offices, lamp room etc.). It came into operation with the 1 north endless Rope Haulage installed in 1947, although parts may be earlier.

The structure is entirely of welded steel frame construction, with a range of rolled steel joist (RSJ) sizes used, almost all carrying BHP name stamps. The main hopper structure sits on a series of uprights with two separate equipment floor levels, as well as a series of coal hoppers and chutes supported on girders and beams. These are cross braced with diagonals at the main supporting structure.

The structure includes a steel and timber bridge over a drainage line which carries the inward and outward tramway tracks to the rotary skip dumper. The timber planking over the bridge is in a very dilapidated state. This bridge forms the only access to the early group of buildings and the W12 and W13 portals to the south. The bridge is constructed using large RSJ beams and welded steel posts and cross beams.

Plate 30: Dumper House from the north looking across bridge.

Plate 31: Upper level of Dumper House from the south east.

A gravity system was used in conjunction with a compressed air operated transfer incline, so that skips could be released to roll into the dumper (on a 1 in 130 grade), emptied and then pushed onto the incline to be raised to a parallel track where they would roll back down.

Figure 12 shows the schematic operation of the skip unloading system.

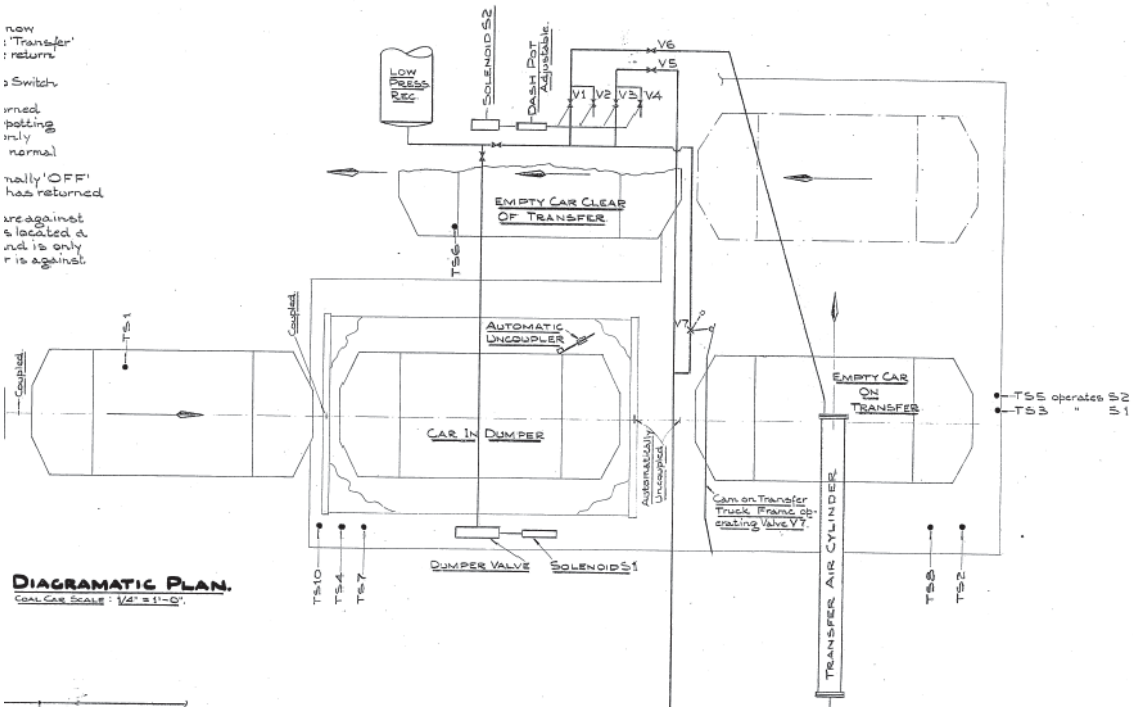

Figure 12: Diagrammatic Plan of operation of Dumper House, AIS 1948.

The main upper level in the Dumper House is enclosed by a steel framed pitched roof building clad in corrugated iron. A row of timber framed windows sits high along the east wall, while the north and west sides are open. The south end has a framework of steel and timber, but no cladding. Instead a section of part roofing and part overhead water tanks bridges above the space between the Dumper house and the Carpenters' Shop. This space between the buildings also gives access to the W 11 portal.

Plate 32: Interior of Dumper House showing rotary mechanism and Skip Transfer.

The coal unloading equipment comprises the rotary mechanism, with a section of track supported in two steel gear rings, and rollers, operated by a compressed air cylinder. The empty coal skips are moved by automatic uncoupler to a transfer truck frame which is pushed up to the upper level by a large compressed air ram. The transfer truck then aligns the skips with the return track. The Transfer and air cylinder are supported on welded steel angle framework.

Plate 33: Coal skip transfer mechanism, compressed air ram on left.

A timber floored walkway supported on steal beams runs around three sides of the main upper floor level, with an extension cantilevered off the west side to provide access around the rotary mechanism to a control both.

The roof structure is a welded steel king-post truss with rail purlins and corrugated iron cladding. A crane rail runs above the dumper and lower transfer position, with a chain block still attached. One of two horizontal diagonal braces to the lower chords of the roof trusses has been cut away, and a larger beam has been positioned on an oblique angle above. This was probably associated with some later modification to the building and/or equipment.

The level below the main floor has control cabinets and the top of the coal hoppers with pulleys for part of the crusher drive mechanism. Access to this level is limited.

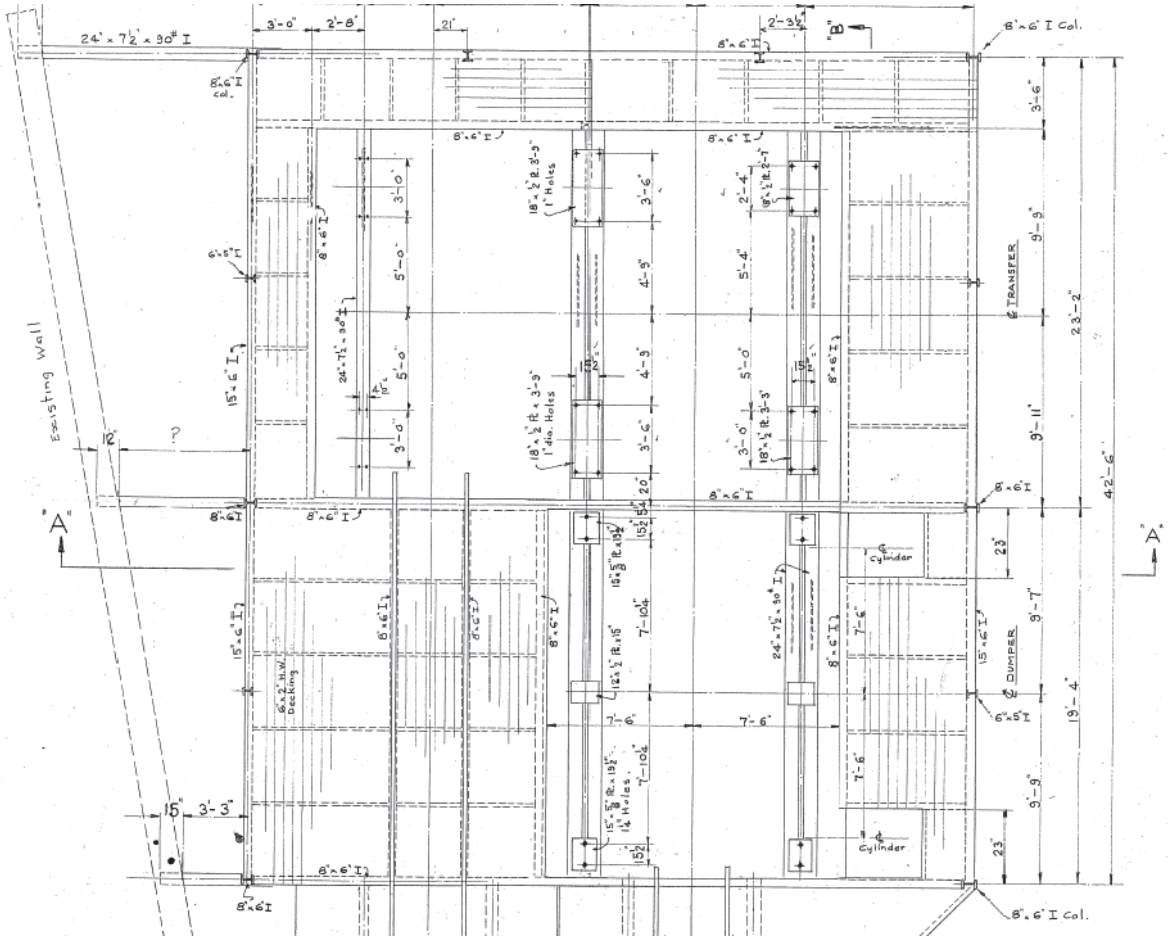

Figure 13: Plan of Dumper House upper level, note – the building does not appear to have been constructed as shown.

Plate 34: Floor level above coal bins, crusher drive pulleys on right.

The crusher level is within the supporting framework of the hoppers, and incorporates a series of very large RSJs for mounting jaw crushers and electric drive motors.

The crusher and picking table level is also difficult to access, as the access bridge and some of the flooring has rotted away. Two chutes extend from this level to the east, probably intended for discharging stone from the picking belts to hoppers or a truck, for disposal. The chutes are fabricated from steel channel and plate. A chain conveyor is positioned at the base of the crushers for discharge of caulk.

Plate 35: Crusher level of Dumper House – note collapsed foot bridge in right foreground and stone chutes to left.

It is not clear how coal was transferred from this building to the incline haulage, although it is understood that the coal haulage once extended up to this level. The installation of the breaker house, conveyors and decline conveyor in the late 1950s, probably resulted in the removal of other structures between the Dumper House, the stone bins, and the top of the haulage.

Some further evidence of the operation of the Dumper House has been provided by a former employee Mr Greg Ryan, in discussion with David Clarkson of NRE. Mr Ryan recalled that originally, "…timber and stone were hand picked out of the product at the picking tables and dropped into the stone and timber chutes. The material simply stayed in the chutes which were stopped at the ends. A truck would back up to the chutes and unstop them, allowing the material to fall into the truck for transport to disposal. The coal was delivered (by means currently unknown) to the decline conveyor.

Plate 36: Crusher level of Dumper House – outlet from hopper with picking tables

In 1976 a section of the Main North drivage that housed the transport road suffered a significant collapse. This led to the need to drive a new bypass transport road. The decision was taken to utilise the Dumper House for the coal that was mined from the Bypass Road. As the continuous miner extracted coal it was loaded into small rail cars that were then sent to the Dumper House tumbler (tippler) and the coal was dropped through to the picking tables. The picking tables as well as the stone and timber chutes were repaired and re-plated for the exercise. A conveyor was installed from the base of the Dumper House into the Main North Conveyor. This temporary use of the Dumper House lasted until around 1979 when the Bypass Road was completed and the conveyor to the Main North Conveyor was removed."[7]

Detailed measured drawings of the site as it currently stands are provided in an appendix to this report, along with copies of original construction drawings, and a selection of images from the archival photographic recording, keyed into a locality plan.

Primary Significance.

[7] Pers com David Clarkson Gujarat NRE, 21 April 2011.

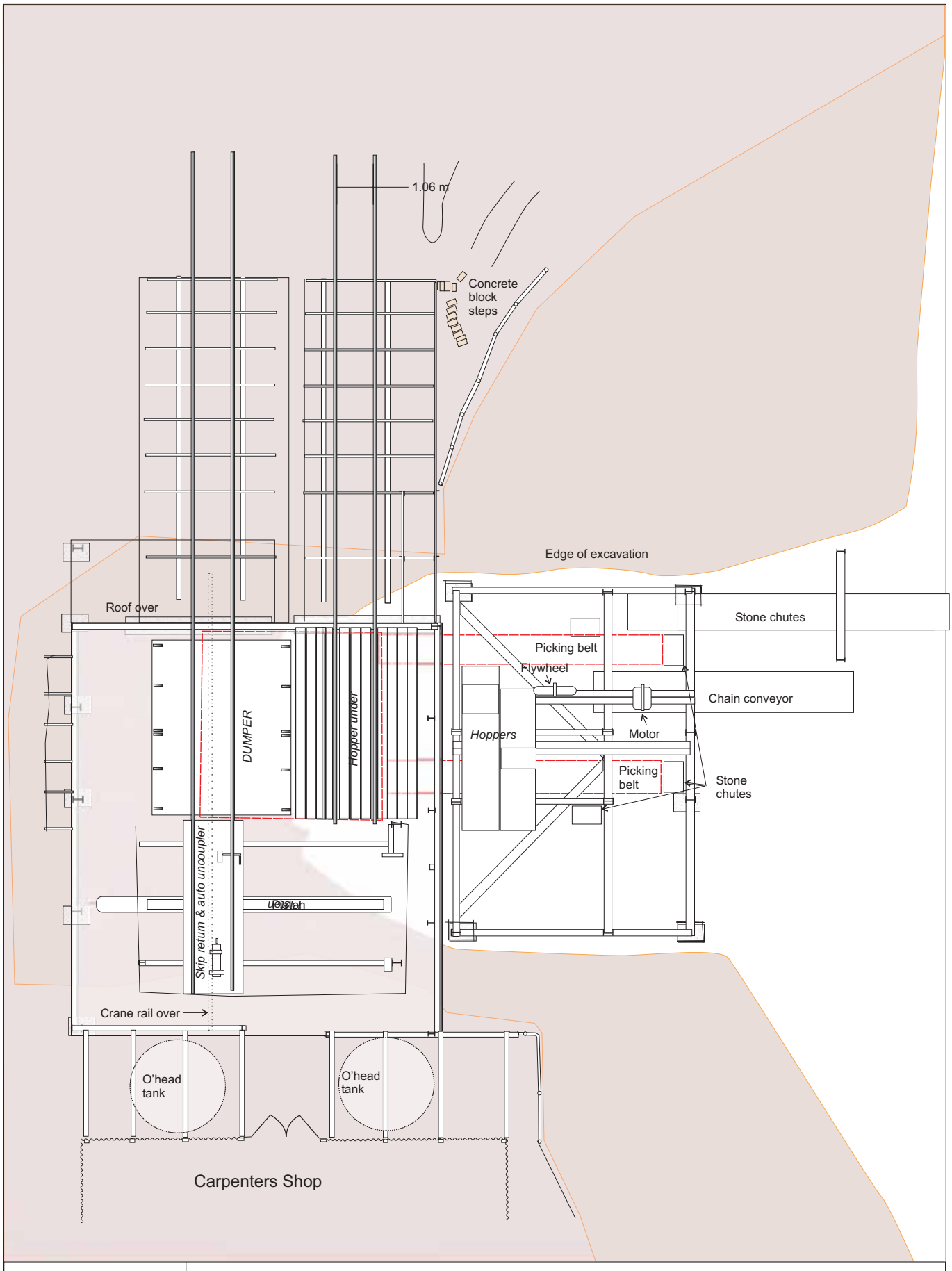

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Figure 14: Dumper House, Plan

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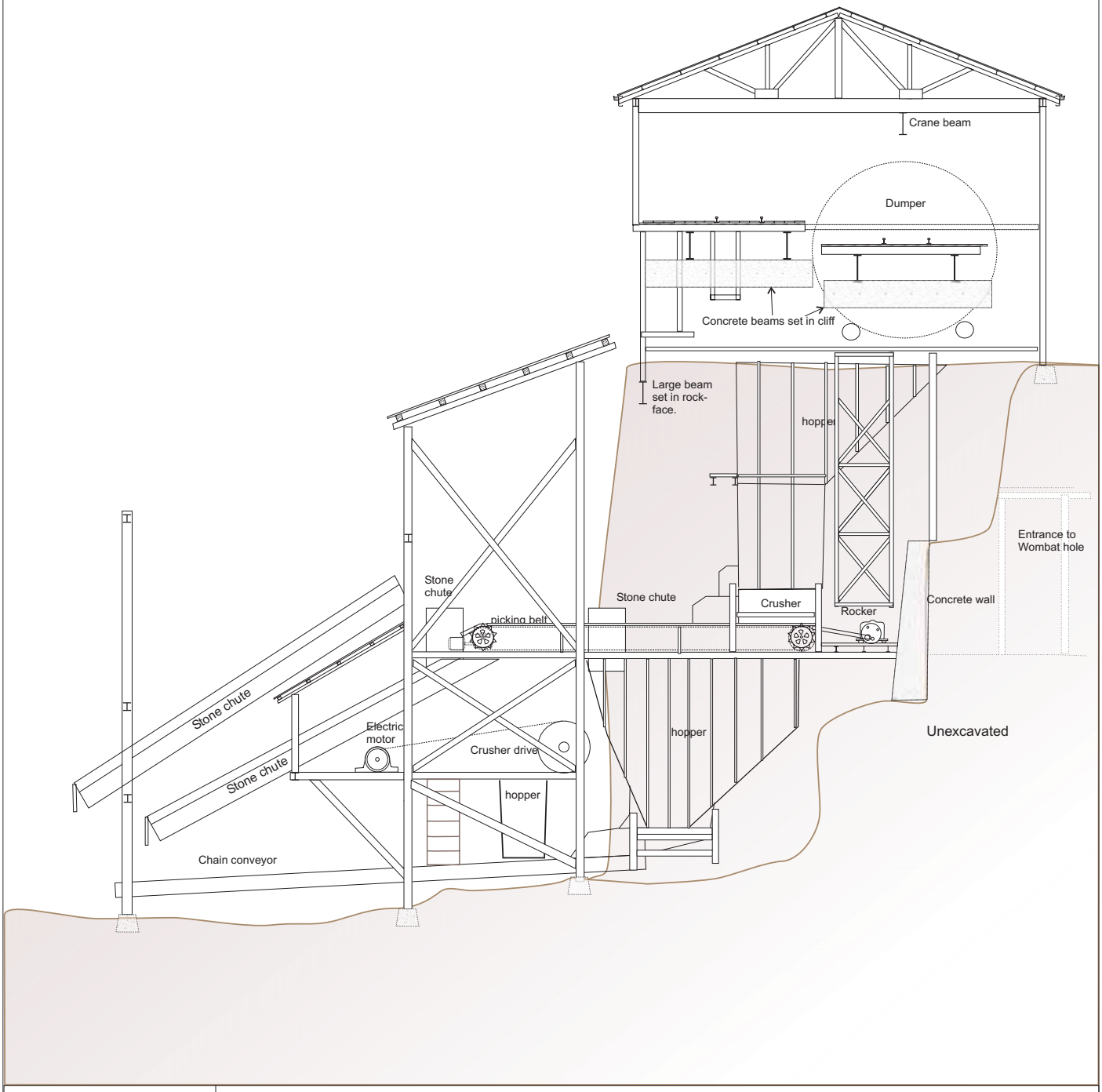

Figure 15: Dumper House, North Elevation

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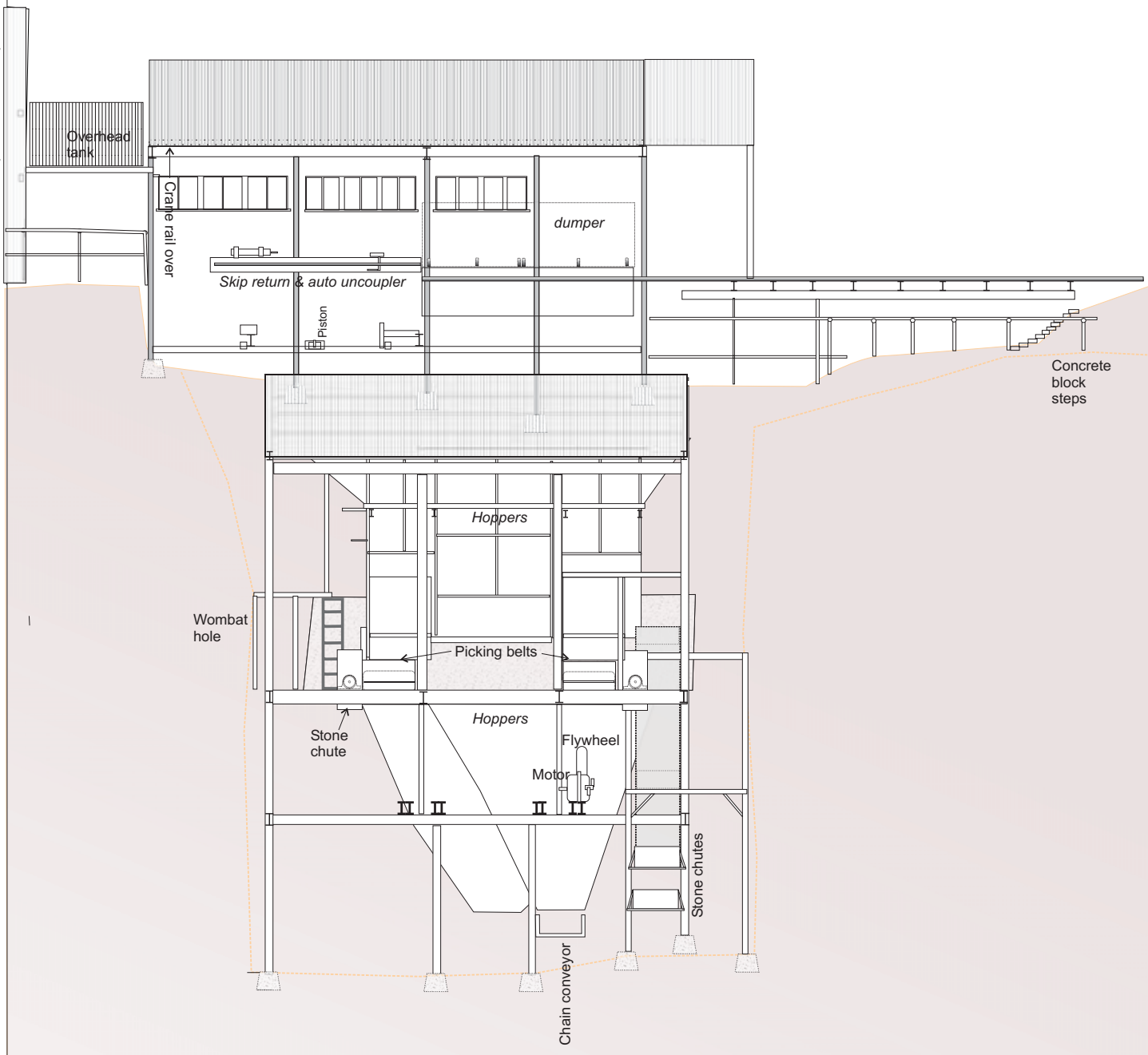

Figure 16: Dumper house, East Elevation and section

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4.2.5 B5 Loco Charging Station –

This steel and timber framed building is clad in corrugated iron, has a steep pitched double-gable roof, and is open ended (with one side open at the lower part of the wall). According to Ron Cairns, it was erected in 1947 although construction details suggest an earlier date. It was built for maintaining the battery locomotive fleet and charging the locomotive batteries. It contained three motor generator sets, a below ground maintenance pit and lifting equipment.

It was converted from workshops, (when it was probably more enclosed) to a storage area in the 1960s.

Primary Significance.

Plate 37: Former workshops

4.2.6 B6 Storage Shed – Old Workshops

This building of timber frame and corrugated iron clad was erected in 1947 as a two storey Mine Store and single storey a Main Mine Workshop adjoining the Loco Charging Building B5. It retains a blacksmith shop with coke fired forge at the north end, in an attached, low-roofed structure.

Primary Significance.

Plate 38: Blacksmith shop near old loco charging station.

Plate 39: Loco Charging Station.

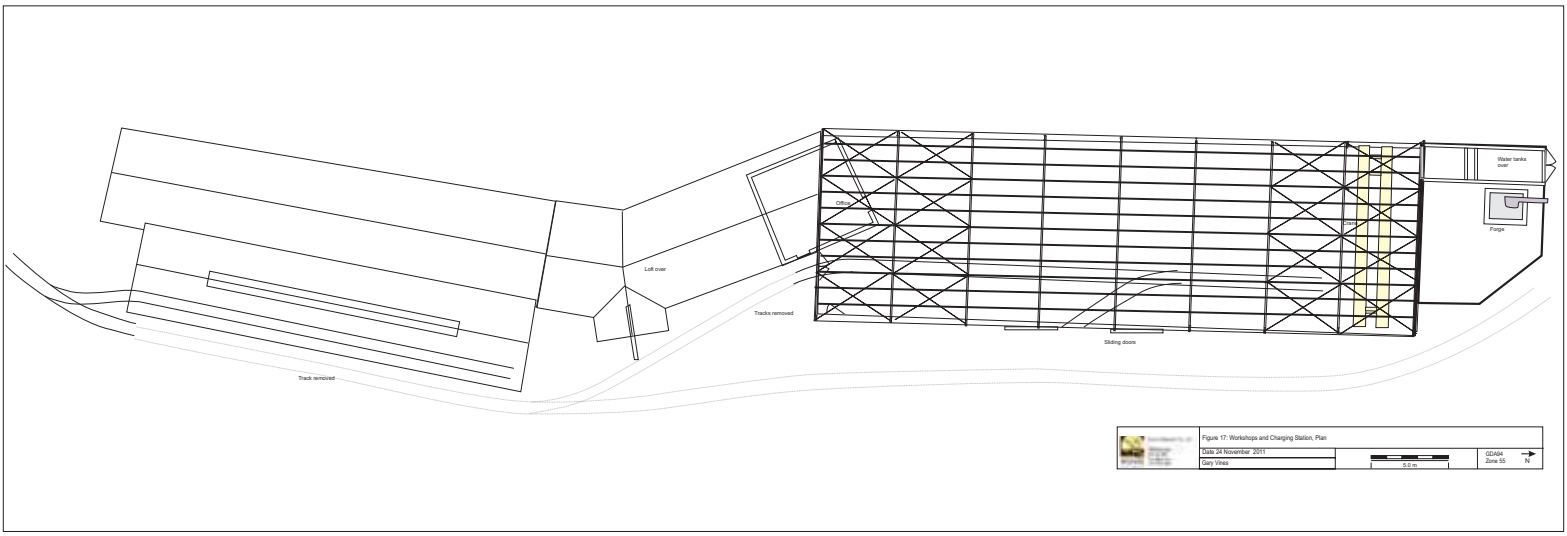

Figure 17: Workshops and Charging Station, Plan

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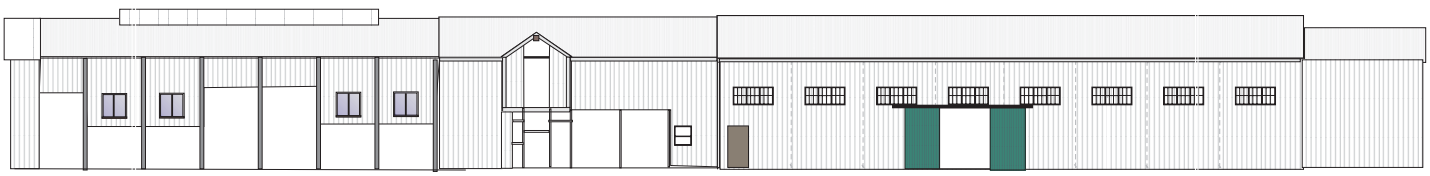

Figure 18: Workshops and Charging Station, East Elevation

Date 24 November 2011

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4.2.7 B7 Fire Station

This is a somewhat different styled building because of its concrete block walls, low pitched roof and high steel windows. Stylistically and functionally the building relates to the later period of the colliery when safety matters were better regulated. The building was erected in the 1960's when the Regulations for fire fighting and provisions for equipment for that purpose were rewritten.

Contributory Significance.

Plate 40: Fire Station building.

4.2.8 B8 Office

This is a two-level, brick veneer and steel decking clad building from the 1970s. It represents the upgrade of the site and modernisation under a new management regime.

Associative Significance.

Plate 41: Main mine office from c1960s.

4.2.9 B9 Breaker Building and Transfer Bunker

This large complex of structures includes the belt conveyor, which extends into the underground workings, the drive house, breaker building, transfer bunker, and associated structures. These were installed in 1959 along with the Decline Conveyor, but altered in subsequent decades.

Associative Significance.

Plate 42: Top of breaker bunkers (photo David Clarkson).

4.2.10 B10 Decline Conveyor coal bins and stack out conveyor

This conveyor was installed in 1959-60. It was the longest single flight conveyor in the world when installed, dropping coal down 650 ft. at 600 tones per hour. It is connected to a range of structures at the lower level, with receiving chute and hoppers, overhead conveyor, coal bins, stackout conveyor and loaders. While these structures provide the most prominent visual landmark for the colliery, particularly the coal bins, which can be seen for several kilometres away, the facilities are typical of the later 20th century installations on a number of mines in the Illawarra and elsewhere in New South Wales.

Associative Significance.

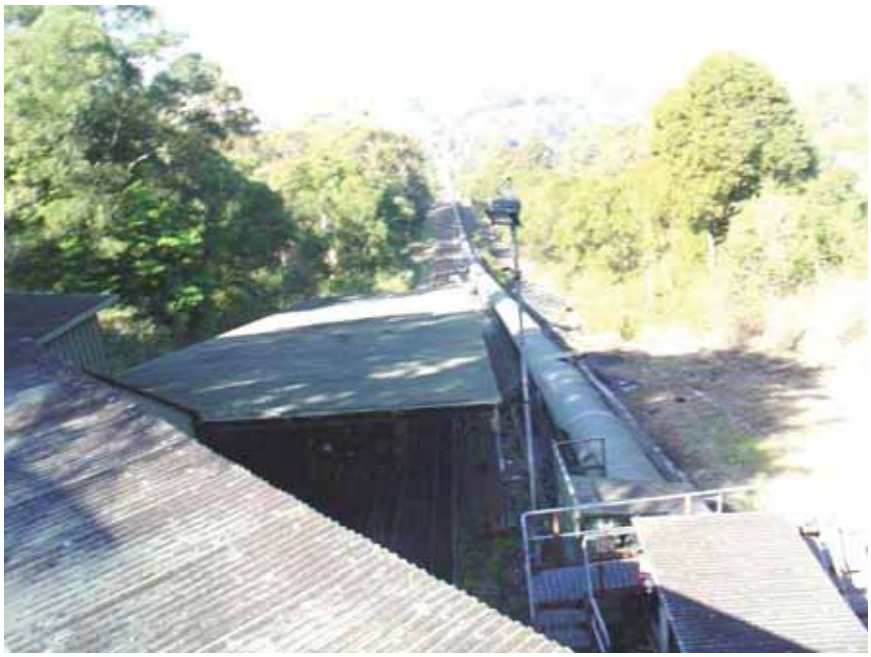


Plate 43: Decline conveyor and top of man transport.

Plate 44: Stone Bins. (photo David Clarkson).

4.2.11 B11Man Transport

The Number 2 Man Transport was opened on 4 September 196, having been developed on the converted 1939 coal incline and evidently reusing the alignment that goes back to the original 1916 rope haulage. The incline comprises a cleared and graded strip about 10 m wide, ballasted in part and containing heavy rail on timber sleepers. The winding gear is at the top of the incline while halfway down is a passing loop where the counterbalance cart and man car are able to pass. The winch drive is located on the upper level, under the road bridge to the north of the main office block. A large pulley is visible as you descend the stairs to the platform.

At the bottom end of the incline is a cable tensioning structure, designed to take up the slack in the cable and maintain even tension. This comprises a bolted and welded steel framework built against the slope beyond the end of the incline and carrying a weighted trolley on rails (see Plate 45). The two cars of the Man Transport were built by B.C.S. Engineering of Lidcombe NSW and have operators' controls at each end. It is a fully automatic and fitted with a radio type remote control system having on board controls fitted to two of the cars in the train for the manual starting and stopping the haulage. The system also has controls at the upper and lower stations so the cars can be run from outside.

Primary Significance

Plate 45: Cable tensioner, No 2 Man Transport

Plate 46: Top wheel on Man Transport

Plate 47: Man Transport car at top station

4.2.12 B11a Man Transport Shed

The current shelter over the No 2 Man Transport top station was erected some time after 1960, possibly in conjunction with the Diesel Shed (B12).

Associative Significance

4.2.13 B12 Diesel Shed

This steel and corrugated iron structure was constructed in the 1970s to shelter vehicles transferring miners from the man transport to the mine tunnels. It is a simple welded steel portal structure with open sides and has a roofed connection to the Man Transport shelter.

Associative Significance

4.2.14 B13 New Workshops

Large steel framed clear-span workshops built in the 1970s-80s, and recently having a new bath house constructed at one end, replacing the lower bath house and meaning that miners would no longer use the man transport, but park vehicles at the pit top.

Associative Significance

4.2.15 B14 Bath House

This large brick bathhouse (the second at the colliery) and office building were erected in 1949 as part of a range of improvements to the mine, in the post war period. The NSW Department of Mines Annual Report for 1949 (page 42) refers to a new bath house at the Wongawilli Mine having been constructed under 'Rule 44' of the Mining Regulations. Other additional were made to the bath house in about 1960 to cope with expansion and the construction of the new Man Transport. A connecting shed and covered walkway was built with a bridge across the decline conveyor and incline tracks to allow miners to move between the transport and bath house with some protection from the weather. The earlier No 1 Man Transport platform and shed is still extant, located just to the north of the bath house.

Contributory Significance

Plate 48: Bath House on lower bench view from the east.

4.2.16 B15 No 1 Man Transport Winding House

The original Number 1 Man Transport was on the south side of the current c/v belt (decline conveyor). The lower shed with electric motors for driving the Number 1 Man Transport and equipment for tensioning the cables is still visible between the lower Bath House level and the bottom of the incline. This was built in about 1939-40. It provided a means for workers to get to the mine without having to climb the steep slope from Wongawilli Road.

When the No1 Man Transport was placed in service in 1940 all the employees were accommodated in the original c.1927 Bath House near the Power House and they walked to and from the No1 Transport lower station. Initially the lower and upper stations were completely exposed to the elements as were the trolleys on the transport train. The trolleys were later provided with a canvas covering and later again a covered steel structure was erected at the lower station with the upper station remaining unchanged throughout the operating life of the system.

The building is a timber framed, and corrugated iron clad, gable-roofed structure with the cable tensioning tower located in the open on the downhill side. Wire rope, rollers and sleepers are still evident on the incline, although the steel rails have been removed. Access doors are on the long elevations and a small opening on the upslope end allows the haulage rope to enter the building.

Primary Significance

Plate 49: No 1 Man Transport drive house.

Plate 50: No 1 Transport showing trolley parked at lower station and Start push button on pole c1939-40 (photo Brian Sheldon).

Plate 51: No 1 Man Transport drive house from the west.

4.2.17 B16 Old Powerhouse

This solid brick building is possibly the oldest surviving structure on the Wongawilli Colliery site, dates to the initial period of Hoskins reconstruction of the mine and establishment of the coking plant from 1916. The building originally housed steam engines and generators for providing electricity to the mine, both for lighting and haulage. It has more recently been used as an electrical store, although switch gear and transformer controls continue to be housed in the building.

The building has an asymmetrical gable roof suggesting it has been extended on the west side at some stage. This is confirmed by photographs that show a symmetrically roofed building in the 1930s. Segmental arches are provided over window and door openings, although the large opening for the loading doors on the east side has been modified to take a crane rail. Internally the building retains an overhead crane and timber roof trusses, while tone corner has a partitioned office, believed to have been the original mine office (Pers. Comm. Brian Sheldon 2006).

Early photographs show that there were other similar buildings on the south-east and north-west sides. A large square chimney was located just behind the power house, clearly the chimney for the first bank of coke ovens, which were located to the north east of the power house, and extended in a line to the south-east for

several hundred metres. These other structures have been demolished but as fill appears to have been placed in the areas, it is likely that some buried structures and foundation remain.

Part of the lower and upper level floors on the eastern side of the building were converted to become the Main Mine Office in about 1946.On the lower floor partitioning was erected to accommodate an entrance Foyer area, Colliery Clerk, Time Keepers and Mine Managers Offices. A set of stairs linked to the upper floor where the mine Surveyor's Office and Staff Bath Room was located. The main entrance door to the Office was through the eastern wall on the north eastern corner of the Power House Building. Some evidence remains of the entrance foyer and enquiry counter.

The original Mine Office was adjacent to the public road east of the coal storage bins and a near the two remaining palm trees. It was a four room domestic home like building with a hall through the centre and rooms either side. This building was demolished c.1947 (pers. com. Ron Cairns 25.3.07).

Primary Significance.

Plate 52: Old Powerhouse, north-east elevation

Plate 53: Old Powerhouse, north-west elevation

Plate 54: Interior of Old Powerhouse

4.2.18 B17 Coal Bins and Loading-out Gantries

The initial installation at the bottom of the Incline provided for the discharge of coal from the Decline Conveyor possibly into a hopper originally forming part of the Incline Rail Haulage System replaced by the Decline Conveyor 1959 or directly on to an elevating Conveyor for delivery into the Steel storage bin erected in 1949. In c.1962 a second storage bin was erected to enable the coal mined in the No1Bulli seam to be stored and dispatched separately from the coal mined in the No3 Wongawilli seam. The two bins have a capacity of 1800 tonnes. Rail lines were laid under the bins to facilitate direct loading out of coal. A conveyor, fed from a hopper at the base of the decline conveyor, raised the coal to the top of the bins.

The separation of the coal from two different seams required the provision of a control system with the remote operation of that system being made from the surface Control and Switch Room Cabin at the pit top (a small building adjacent to the road bridge over the No2 Man transport).This system included provisions for remotely controlling the discharge of coal from the two (No1 & No3 seams) storage bins in the mine on to the Main 1 North Conveyor and the Decline Conveyor and a cross conveyor on top of the two steel storage bins at the bottom of the Incline.

The stack out conveyor and stockpile facility was installed around the time of the renaming of the combined Nebo, Kemira and Wongawilli Collieries as Elouera in the 1990s era (pers. com. Ron Cairns 25.3.07).

The structures are fabricated from welded steel, and while they are the most visually prominent features of the mine, visible for many kilometres, they are typical of many later twentieth century coal mine installations in New South Wales and elsewhere in Australia.

Associative Significance.

Plate 55: Conveyors and coal bins at bottom of decline conveyor

4.2.19 B18 "Wonga" Managers House and tennis courts

The establishment of the Wongawilli village came about in about 1916, when land was subdivided for Hoskin's new mining undertaking and provision of accommodation for his workers. A total of about 25 allotments were set out on the south side of the road to the mine, including provision for a church, school and hall. The Mine manager's residence was strategically placed at the corner of Wongawilli Road and Jersey Farm Road, commanding the route that all the workers would take to and from the mine, as well as overlooking the rail line that was constructed about the same time.

The mine manager appears to have changed regularly, and so it is difficult to association any particular individual with the house for any length of time. Mr L. A. Westcott was manager for a relatively long period in the 1920s and until about 1937, but went on to other significant roles in the Hoskins companies and mining industry.

The adjoining tennis court would appear to have been created about the same time as the house was built, and along with the four bedroom accommodation within the house, indicates the occupation of the site by a relatively large family.

Stylistically, the house is typical of the slightly more elaborate timber residences of the interwar period, while the size of the largest planted trees (mainly Pinus radiata), near the house also suggest its establishment in this period.

M. McGrath was operating a “profitable little boarding house” in Wongawilli in 1918, which would have by necessity needed to be one of the larger houses in the area but it is unlikely this was “Wonga” as its sale would not have been possible without a land subdivision. ***Primary Significance***

Plate 56: “Wonga” Wongawilli Mine Managers House

“Wonga” is a timber-framed, weatherboard-clad and corrugated iron-roofed house of six main rooms, with wrap-around enclosed verandah on the north and east sides, and skillion additions at the rear containing laundry, toilet, pantry and storage room.

The central lounge room shares a fire place with the front master bedroom, with three more bedrooms and a bathroom on the west side. There is a small central L-shaped entry hall. The Plan of the house is shown in Figure 19. (Trim Building Services 2010).

The house has a hipped corrugated iron clad roof with projecting gable end, which also features a small timber shade hood over the north-facing window. The return verandah has picket railing and extends beyond the projecting bay.

“Wonga” has been subject to minor alterations since its construction in about 1920. These changes include infilling of the front verandah with canvas screens,

additional lean-to structures at the rear, refitting of the bathroom and kitchen cabinets and equipment, and minor internal cosmetic alterations in paint finishes, floor coverings and fittings.

An asphalt-paved tennis court surrounded by a white-painted timber fence with wire mesh is located on the west side of “Wonga”, separated by garden plantings from the house. This would appear to be contemporary with the house construction. Rail lines used as tall posts beside the court, suggest it was formerly illuminated and have a minor tangible historical link to Hoskins’ steel and railway undertaking.

Plate 57: Tennis court beside “Wonga” with mature pines at rear of house.

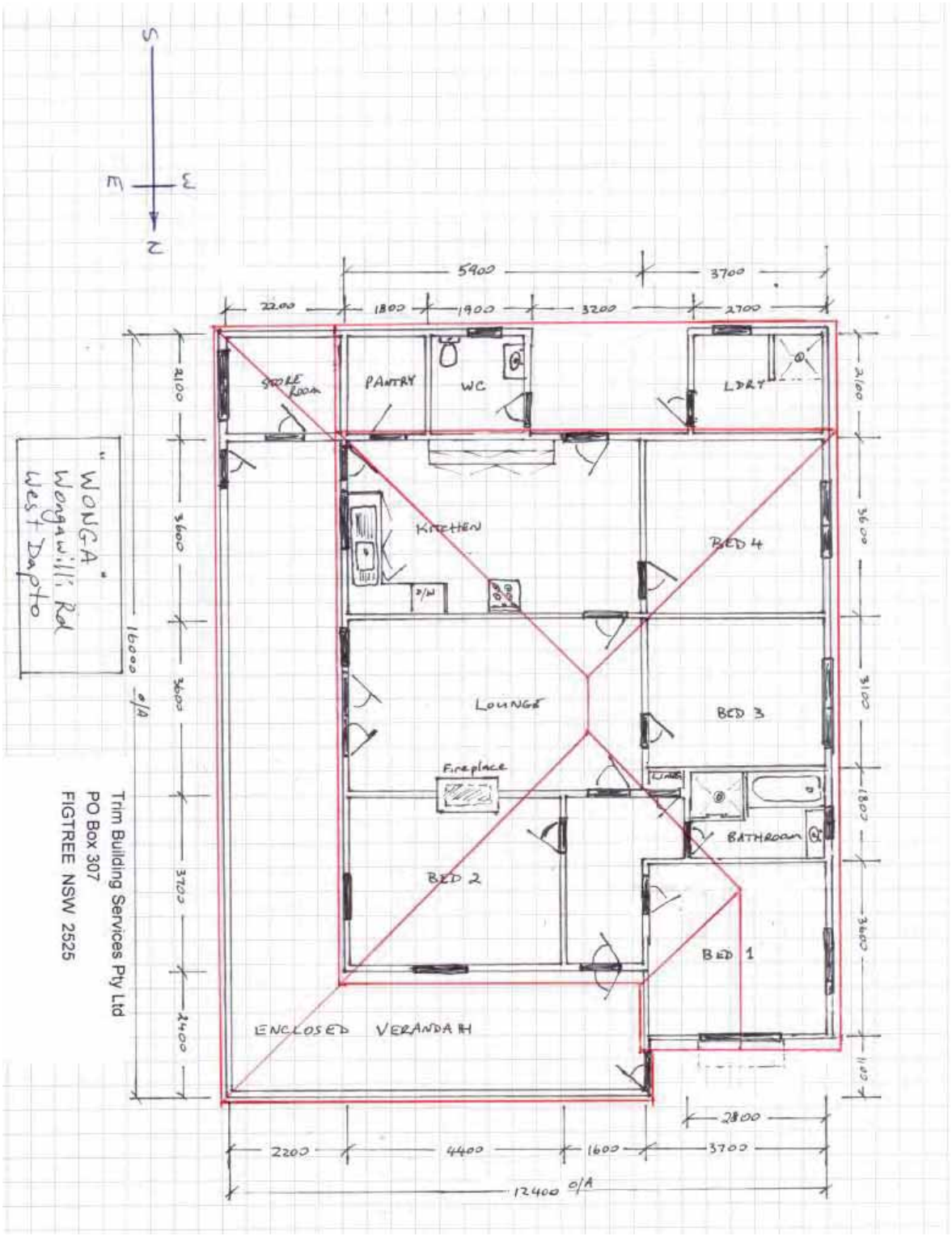


Figure 19: Sketch Plan of "Wonga" (Trim Building Services 2010)

4.2.20 Modern Buildings

A number of new buildings of simple construction were erected in the last few years as part of improvements by Gujarat NRE. These include the bath house erected north of the old man transport shed, on an elevated platform. This comprises prefabricated portable structures. A fan shed was erected near the reworked transport portal, and a roof structure erected over the bunded areas (oil store). None of these new structures are considered to have any heritage values.

No significance

Plate 58: Fan Shed near reworked transport portal

Plate 59: New Bath House

Plate 60: Roof structure over bulk liquid storage area

4.3 Portals

4.3.1 W4 Rangers

This portal is located on the side of a steep escarpment approximately 1200m north-east of the Wongawilli Pit top. (Grid Ref MGA e293136 n6184167). It has been functioning as a not-essential intake airway, but has fallen in and is the fall is straddled by a very large tree. Access into the workings is via a fall of a few metres behind the original portal. A large amount of dry leaf litter is on the floor of the seam inbye of entry. Some signs of a track nearby suggest there may have been external use of the portal but there is no evidence of structures or other features near the portal (Sheldon 2005).

Associative Significance.

4.3.2 W5 Daylight Entry

This portal is located about 500m north of the Wongawilli Pit top. (Grid Ref MGA e292894 n6184162). It is on leasehold coal within the State Recreation Area. There is no visible evidence on the surface of this entry. It has apparently fallen in and been covered in natural surface rubble. There are no features evident near the portal (Sheldon 2005).

Associative Significance.

Plate 61: Approximate location of Daylight Entry portal (photo Brian Sheldon)

4.3.3 N6, N7 Forest 11 Entries

Two portals referred to as the Forrest 11 Entries are located some 4.5km north east of the Wongawilli Pit Top and about 65m apart. Access is extremely poor but can be undertaken on foot. They are on a steep escarpment with very little evidence of associated infrastructure visible on the surface apart from a mine water discharge into nearby creek and three sediment ponds. The two portals are constructed using steel arched ribs approximately 5m wide x 3m high and standing out about 5m from the outcrop, with arch-work extending into the outcrop. The entries are fenced with steel mesh and the floors of the entries have accumulated silt and leaf litter. The Eastern Portal is approximately 1.5m below the floor of the Wongawilli Seam (Sheldon 2005).

Associative Significance.

Plate 62: Forrest 11 Entry eastern portal.

4.3.4 W6A Rubber-Tyred Vehicle Transport (RTV) Portal

Concrete lined portal entrance, with arched tunnel roof and opening, drops steeply from lower bench. This is the northernmost of the Wongawilli Portals which came into use in the 1960s. It is linked by access road to the Man Transport Incline platform, as well as the main mine entrance. The outer face of the portal slopes to match the stabilised slope behind. Wire caged gabions have been used to stabilise the area on each side of the portal.

Associative significance

Plate 63: Rubbered tyred vehicle portal

4.3.5 W6 Main Transport (Track) Portal

This is the most recent portal at the north end of the lower bench near the RTV Portal. It has tracks from the former railed vehicle man transport. These are still in place although rubber tyred transport has been more commonly used in recent operations. The Portal is constructed of reinforced concrete with tapered wing walls and a small parapet wall over the entrance lintel to hold back and rock falls from the hill slope.

Associative significance

Plate 64: Main Transport (track) portal 2005

The Transport portal was reconstructed in 2010 by Gujarat, involving cutting back the hillside and demolishing the concrete portal, with a new portal made using shotcrete treatment. A new fan shed was erected to the north of the portal.

Plate 65: Reworked Main Transport portal 2010

4.3.6 W7 Old Prospect Tunnel (no surface evidence)

The portal site is known only from the position of underground tunnel workings and plans. The surface area is a steep bank possibly with some rock fall) at the back of the top bench. The original opening may have been partially excavated when the top bench was enlarged to accommodate the water supply tanks and pumps just to the north of this site.

Contributory significance

4.3.7 W8 Belt Conveyor Inspection Portal

An inspection door near the W 9 Belt conveyor portal was created as part of the works to accommodate a straight line exit for the 1 North Conveyor from the mine to the surface in 1959. The door aligns with the original 1 North rail track portal shown in Plate 67 although the outer structure has been removed. The portal has rail lines supporting the roof and both reinforced concrete and concrete block-work on the walls. The surface structure is of concrete block-work with red brick stringcourses, part of a retaining wall which extends from behind the storage building B5, to the Belt Conveyor Portal W9.

Primary significance for underground features Contributory Significance for External block-work.

Plate 66: W8 Belt Inspection portal – site of original Wongawilli Mine Portal

Plate 67: New portal establishment for conveyor in 1959.W10 Loco Track Portal to the right (photo Brian Sheldon)

4.3.8 W9 Belt Conveyor Portal

This portal is enclosed by the concrete block and brick retaining wall, with the conveyor exiting to a corrugated iron-enclosed elevated structure.

Contributory Significance.

4.3.9 W10 Loco Track Portal

This low roofed portal has reinforced concrete, concrete block-work and brickwork evidently of several periods. It is located midway along the upper bench and retains rail tracks. The Portal is currently closed off with a steel pipe and mesh fence.

Contributory Significance.

Plate 68: W10 Loco track portal.

Plate 69: W11 Old Portal from between dumper house and carpenter's shop

4.3.10 W11 Old Portal

This portal was created in 1947 to provide a surface crib room and later fitted out to provide Report Rooms for underground staff. It is located on the upper bench is currently hidden behind the extension to the Dumper House. The portal started

life as a crib room excavated from the outcrop, and was later holed into to provide access. Concrete blockwork lines the portal in part.

Contributory Significance.

4.3.11 W11A Old Main Rope Haulage Drift Portal

The lower portal associated with the endless rope haulage constructed in c 1917. In 1949 it became the rope way to and from the incline for the Incline Friction Hoist drive system installed underground. The portal is assumed to be located behind the later Breaker Building and Transfer Bunker and is heavily overgrown with Lantana. It is likely that this portal was used in conjunction with the rope haulage in the 1930s, but was superseded when the 1959 decline conveyor was installed and ceased to be used after 1960.

Primary Significance.

Plate 70: Wongawilli Mine portal at top of incline, 21.5.1917, probably site of W11A portal (photo Illawarra Images)

4.3.12 W11B "Wombat Hole" (access to W11)

This small entrance is located near the back of the Dumper House, behind the coal bins, and was used for inspection only. Access can be made from behind the stone bins on the crusher level, but the dumper/crusher structure is unstable.

Contributory Significance.

4.3.13 W12 Old Main Fan Portal

Located on the Wongawilli pit-top on the high (upper) terrace south of the Old Dumper Building. This is an explosion door portal serving the old fan installation.

A brick-arched entry into the seam extends for a considerable distance, with two further brick-arched openings at right angles to the portal entry to provide intake into the centrifugal fan. The brickwork is generally out bye of the outcrop of otherwise has very little overburden cover, but is relatively sound condition. The tunnel appears intact through the coal seam beyond the brickwork.

The portal opening has been modified with a concrete arched structure on the outside incorporating steel frames for the blast doors. Vegetation has grown thickly around the portal opening.

The remains of the fan are still in place and are intact but severely rusted. It incorporates a Horizontal axis fan in two parts with drive to an electric motor (marked by a concrete foundation block) mounted outside the mine.

Primary Significance.

Plate 71: Old fan portal

4.3.14 W13 Old No 1 South Track Portal

This portal was used to deliver the skips filled with coal mined in 1North by the contract system to the underground weighbridge until about 1949. The haulage system involved the combined efforts of a surface direct rope haulage and a battery locomotive assisted by an overhead trolley wire DC supply. The locomotive hauled the skips out of 1North with the assistance of the haulage and overhead trolley wire system then across the top bench from the 1 North Portal into the South Track Portal and around to the weigh bridge area. The locomotive returned with a supply of empty skips for the contract miners and delivered them into the 1 North area. The present concrete portal is about 3.5m wide x 2.5m high. The roof has fallen about 20m inbye portal entry. The portal comprises a segmental arch reinforced concrete roof, probably constructed in the 1920s.

Primary Significance

4.3.15 W18 New Conveyor Portal 2010

This new portal was constructed by Gujarat in 2010, above the old tumbler bench with an access road from near the transport portal. It comprises a rock-faced entry treated with shotcrete.

Plate 72: New Conveyor Portal under construction

4.4 Archaeological evidence

Potential archaeological remains can be identified from visible surface features and comparison with historical photographs and plans. The main areas where substantial archaeological evidence may survive are in the area of the former coke ovens, the dam site and the Bankbook hill squatters settlement.

Most of the other parts of the Gujarat NRE landholdings at the Wongawilli Colliery are heavily disturbed by mining activities, so that where existing buildings and benches are located there is little potential for earlier buried archaeological evidence. Similarly much of the undisturbed areas are on very steep and unstable and heavily vegetated slopes, making identification of both aboriginal and historic archaeological features very unlikely.

4.4.1 F1 Dam

The mine dam was established at the foot of the gully in line with Wongawilli Road, probably by 1916. While the dam wall would appear to have been enlarged, at some point, it is recognisable as one of the original features of the site. The dam provided water for use in the miners' village, and for mine works, possibly including the washery.

Primary Significance

Plate 73: Wongawilli Mine Dam, date unknown (photo Illawarra Images)

Plate 74: Wongawilli Dam 2011.

4.4.2 F2 Coke ovens

The coke ovens were located to the north-east of, and parallel to the power house, extending for several hundred metres. While there is no above ground evidence of these left, the brick foundations (and probably also the underground flues) were left intact after the above ground structures were demolished. The position of the ovens can be recognised in current aerial photographs, and some brickwork and concrete is occasionally visible on ground when the coal stockpile is drawn down. A concrete tilt-slab retaining wall has been constructed along the edge of the coal stockpile area, which crosses the coke oven site, the area beyond the wall is covered with regenerated vegetation.

Contributory Significance

Plate 75: Location of coke ovens archaeological area near Coal stockpile (powerhouse centre bottom).

4.4.3 F3 Bankbook Hill

Located on the north side of the western end of Wongawilli Road, this area formerly contained several dozen residences, which were informal miners huts. By the 1920s a village had been established for the miners who worked at Wongawilli Colliery. The first residents built squatters huts below the colliery at the western end of the road. This area became known as 'the Hill', Wongawilli Hill, or 'Bankbook Hill'. These houses were made from whatever material was available, including bush timber, were lined with corn bags and either whitewashed or papered over for insulation. The land was owned by the Wongawilli Mine and provided casual accommodation, presumably leased by Hoskins and the Wongawilli Mine management (Mayne-Wilson 2011).

In 1964 there were around 50 dwellings, and a few of these houses still stood in the 1990s, but by 2006 only one house remained (*Southern Wollongong News*, 1994).

Inspection in December 2011 showed that while considerable regrowth vegetation had obscured much of the area, tracks, building platforms, structural remains and other debris were evident across the hillside. Exotic plants also mark former gardens, while some remnants of buildings remain, along with the two surviving buildings.

Plate 76: Hut remains and bamboo grove at Bankbook Hill.

5.0 CULTURAL SIGNIFICANCE

5.1 Basis of Assessment

An assessment of significance encompasses a range of heritage criteria and values. The heritage values of a site or place are broadly defined in the Burra Charter as the 'aesthetic, historic, scientific or social values for past, present or future generations' (Marquis-Kyle & Walker 1992, Australia ICOMOS 1999). This means a place can have different levels of heritage value and significance to different groups of people.

The NSW Heritage Office is the state government body responsible for protecting non-Aboriginal heritage places in New South Wales, including buildings, gardens, shipwrecks and historical archaeological sites. The NSW Heritage Council, through the Heritage Office, administers the *Heritage Act 1977*, and has provided a detailed set of criteria for assessing cultural heritage significance. These are divided into two categories: nature of significance and comparative significance. The criteria are detailed in the *NSW Heritage Manual* (NSW Heritage Office 1996) and are listed in Appendix 1. The Heritage Council also has a set of criteria to determine if a heritage place should be considered for addition to the NSW State Heritage Register.

Heritage places, can be considered for addition to the State Heritage Register if they have State significance. However, *all* heritage places are given statutory protection, irrespective of their level of significance. Known sites are included on the State Heritage Inventory, a database of statutory listed heritage items that also includes the State Heritage Register and items protected by heritage schedules of local environmental plans (LEPs) and regional environmental plans (REPs).

This assessment is intended to enable decisions on the future management of the place to be based on an understanding of its significance. It is important that the future decisions do not jeopardise the cultural significance of the place.

A Statement of Significance has been developed for the site as a whole, and for the individual buildings assessed as being significant, which contribute to the group.

5.1.1 The Burra Charter

Article 26.1 of the Burra Charter states that:

"Work on a place should be preceded by studies to understand of the place which should include analysis of physical, documentary and other evidence, drawing on appropriate knowledge, skills and disciplines."

Once the place has been studied, the cultural significance can be assessed.

Article 1.2 of the Burra Charter defines cultural significance as the "aesthetic, historic, scientific social or spiritual value for past, present or future generations."

5.1.2 Comparative assessment

Coal mining items appear under-represented on the LEP and State Heritage Registers, with only about 14 sites related to coil mining listed on the Wollongong LEP. Most of these are miners' cottages, mine managers residents, mine offices, or mine workers' halls.

Only five relate to actual mine workings, associated with the Coalcliff, Mount Kembla, Corrimal, Metropolitan and Bulli mines. The following significant items are included in the Wollongong LEP

- Coalcliff Colliery, cliff face, Coalcliff, Entrance Portal (local significance)
- Illawarra Coke Co, Coke Ovens, Coalcliff (State)
- Bulli Colliery No 1 and 2 shafts, head frame, winding gear. (Local)
- Old Bulli Colliery pit top, furnace shaft and portal (Regional)
- South Bulli Colliery (State)
- Corrimal Colliery, No 1 Headframe (State and Regional components)
- Belmore Basin coke works coke oven (State)
- Mount Kembla Mine workings, air shaft, portal (Regional)
- Pioneer Kerosene works site (State)
- Metropolitan Colliery Helensburgh (Local)
- South Clifton Colliery – Scarborough (Local)

The State Register has only the Lithgow Valley Colliery and Richmond Main Colliery while other locally identified sites in the Hunter Valley include the Lambton Colliery at Redhead (NSW Dept. Commerce 2009). Therefore, there may be a case for the rarity of surviving coal mining sites reflecting late nineteenth to mid twentieth century workings.

The City of Wollongong has recently prepared a thematic heritage assessment for coal mining in the Illawarra. Discussions with the consultant on the report (David McBeath of OHM Consultants) and the Manager of Strategic Planning at the City of Wollongong (Peter Crystal) indicate an outcome of this study is the preparation of a new Local Environment Plan component covering the coal mines across the length of the Illawarra escarpment. This addresses the conservation management of historic mine sites based on their relative significance in the local and regional context. It is in this context that the Wongawilli Colliery site might meet the local significance threshold.

The McBeath study also addresses the environmental management of these sites by proposing a graded response to conservation. It is unclear at this stage what implications this may have for particular rehabilitation projects being undertaken by BHP Billiton Illawarra Coal, but the principle should be followed of causing least change to any existing fabric, consistent with appropriate environmental and safety issues. The preferred option in sealing up and making safe the Wongawilli Colliery portals, would therefore be to allow the surface features to remain intact, so that the site is available for any future interpretive or commemorative activities.

Much of the mining heritage of the Illawarra has been removed, partly due to the redundancy of most excarpment mines and the consequent rehabilitation of the former mine sites. For Example, extensive works have been undertaken to sites such as the Kemira colliery and Port Kembla No 2 in recent years, with the result that most of the surface workings have been removed or buried so that native vegetation can be regenerated on the sites. See for example the Port Kembla #2 Colliery Rehabilitation undertaken by Select civil in 2009.[8]

[8] http://www.selectcivil.com.au/pic/C-T2-W25-85.jpg)

Plate 77: Port Kembla No 2 rehabilitation works (Select Civil)

Plate 78: Kemira colliery rehabilitation works (Select Civil)

5.1.3 The State Heritage Register

The evaluation criteria for the assessment of cultural significance were developed by the NSW Heritage Council in association with amendments to the NSW Heritage Act 1977. They were developed with the goal of national consistency and community understanding and replaced the previously used State Heritage Inventory (SHI) assessment criteria.

The State Heritage Register (SHR) criteria were gazetted following amendments to the Heritage Act and have been in force since April 1999. Assessments in this Conservation Management Plan were made using these criteria for listing on the State Heritage Register.

Criteria are outlined in the publication Assessing Heritage Significance – Heritage Office 2000. Under each criterion a place is assessed to be of STATE or LOCAL or NO heritage significance.

HISTORIC	Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
	Criterion (b): An item has strong or special association with the life or works of a person or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).
AESTHETIC	Criterion guidelines: An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
SOCIAL	Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area).for social, cultural or spiritual reasons.
SCIENTIFIC	Criterion (e): An item has the potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
RARE	Criterion (f): An item possesses uncommon, rare or endangered aspects of the area's cultural or natural history (or the cultural or natural history of the local area).
REPRESENTATIVE	Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments. (or a class of the local area's cultural or natural places, or cultural or natural environments.)

5.1.4 Grading of Significant Fabric

A five-tier system has been adopted based upon the grading listed in Assessing Heritage Significance (NSW Heritage Office, 2001). The recommended treatment for each level of significance is explained in the General Conservation Policies. The term interpretation or interpretability is used in the sense of the ability to explain the meaning of the place/item, so as the significance of the place understood.

Table 5: Grading of significance

NSW HO Grading	Study Grading	Justification	Status
EXCEPTIONAL	Primary	Rare or outstanding element directly contributing to an item's local or State listing.	Fulfils criteria for local and State significance.
HIGH	Contributory	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
MODERATE	Contributory	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
LITTLE	Associative	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
INTRUSIVE	None	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

Table 6: Implications of assessment

GRADING	IMPLICATION	Numerical Scale
EXCEPTIONAL	Elements to be conserved in terms of the Burra Charter.	5
HIGH	Elements to be conserved in terms of the Burra Charter but conservation is to be balanced by an assessment of the practical consequences for the continued conservation and use of the item.	4
MODERATE	Acceptable options include retention, recycling and	3

	replacement by new construction in a way that has either minimal adverse effect on, or enhances the significance of Tier 1 and Tier 2 elements.	
LITTLE	Acceptable options include removal, modification replacement by new construction in order that the significance of related Tier 1, 2 or 3 elements are enhanced.	2
INTRUSIVE	The preferred option is for the removal of the element or its modification in such a way so that its adverse impact is eliminated	1

Table 7: Schedule of significant fabric for the site

GRADING	ELEMENTS (study heritage level)
Exceptional	The surviving original fabric of the following Buildings and structures: B1 Old Fan Room (Primary) B2 Old Offices, lamp room, bath room, entry stairs (Primary) B11 Man Transport (Primary) B15 No 1 Man Transport Winding House (Primary) B16 Old Powerhouse (Primary) B18 "Wonga" managers house (Primary)
High	The surviving original fabric of the following buildings: B3 Carpenters Shop (Primary) B4 Dumper house (Primary) B5 Storage Shed – Old Workshops (Primary) B6 Loco Charging Station (Primary) F1 Mine Dam (Primary) F2 Coke Ovens archaeological area (Archaeological) F3 Bankbook Hill (Archaeological) W11A Old Main Rope Haulage Drift Portal (Primary) W12 Old Main Fan Portal (Primary) W13 Old No 1 South Track Portal (Primary)
Moderate	B7 Fire Station (Contributory) B14 Bath House (Contributory) W8 Belt Conveyor Inspection Portal (Contributory) W9 Belt Conveyor Portal (Contributory) W10 Loco Track Portal (Contributory) W11 Old Portal (Contributory) W11B "Wombat Hole" (access to W11A) (Contributory)
Little	B8 Office (Associative) B9 Breaker Building and Transfer Bunker (Associative)

GRADING	ELEMENTS (study heritage level)
	B10 Decline Conveyor coal bins and stack out conveyor (Associative) B11a Man Transport Shed (Associative) B12 Diesel Shed (Associative) B13 New Workshops (Associative) B17 Coal Bins and Loading-out Gantries (Associative) W4 Rangers Portal (Associative) W5 Daylight Entry Portal (Associative) W6A Rubber-Tyred Vehicle Transport (RTV) Portal (Associative) W6 Main Transport (Track) Portal (Associative) N6, N7 Forest 11 Portal (Associative)
Intrusive	Those items, which in their present form adversely affect the significance of the place: B19 New bathhouse (constructed 2010) B20 Fan Shed near reworked transport portal (constructed 2010) W7 New Transport Portal – former Old Prospect Tunnel (no surface evidence - reconstructed 2010) W16 New Conveyor Portal (constructed 2010)

5.2 Statement of Significance

The historical sites identified and recorded during this survey have been assessed using the NSW Heritage Office and NSW Heritage Council criteria (listed in Appendix 1). The significance assessments are presented below:

Criterion (a) - an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);

The Wongawilli Colliery is significant as representative of late nineteenth and early twentieth century coal mining practices in the Illawarra and is associated with early prospecting for coal, prior to the establishment of commercial production at the Wongawilli Mine.

It provides evidence of the long association between the iron and steel industry and coal mining in New South Wales through Hoskin's ownership as a major supplier of coke to the Lithgow Ironworks (1916-28) and Port Kembla Steelworks (1928 onwards).

Evidence of the relationship with the Bankbook Hill squatters settlement is a rare association as the layout and archaeological potential is evident, while the Wongawilli village is one of the last mining villages to be established in the Illawarra, and which has not been seriously impacted by later urban and suburban development.

Criterion (b) - an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

Wongawilli Colliery is associated with George & Cecil Hoskin, who were critical in the establishment of the steel industry, with its associated coal mining and coke production, in the Illawarra. Wongawilli is a pivotal site in Hoskin's investment in the district, which saw first the development of a coal mine suitable for coke production, then coke ovens and coal washeries, and ultimately the transfer of the Lithgow steel works to Port Kembla.

Criterion (c) - an item is important in demonstrating the aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

While the buildings and structures of the Wongawilli Colliery are generally functional and utilitarian, some of the buildings including the offices, fan house, and power house (on the lower bench) demonstrate the characteristic architectural treatment of the early 20th century as applied to industrial

buildings. As such they have an aesthetic value. The site of the mine also have important landscape values in both the natural setting and dramatic views across the Illawarra Plain from the mine bench, and the visual impact of the incline and decline, and prominently visible features on the escarpment. The 1960 coal bins also have a landmark value.

The site is of significance for technical innovations in the application of mechanised mining methods and machinery, the introduction of the Wongawilli method of modified Bord and Pillar extraction and the later development of Longwall extraction, the extremely long rope haulage and conveyor systems, man transport incline and later decline coal elevator.

The rotary coal dumper is a rare surviving coal handling technology which demonstrates the progressive development of early mechanical coal handling method, and therefore is a reflection of the less visible elements such as the underground use of mechanised coal cutters.

Criterion (d) - an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

While local community connections to the mine have diminished in the modern period, the survival of the Wongawilli mining village and the continuing operation of the mine, as well as the association of many former workers and their decedents, with the mine, who still reside in the district, means that the site has a strong social and cultural association.

The site is also significant in representing the characteristic relationship between mine and mining village with both the company housing of the Wongawilli Hill, the squatters settlement at Bankbook Hill and the private housing on Wongawilli Road. While most other mining villages have evolved to become more diverse towns or been consumed by suburban development, Wongawilli retains much of its original early 20th century character.

Also as part of the rapidly diminishing evidence of coal mining in the Illawarra escarpment, the site is of interest to the wider population of the Illawarra district.

Criterion (e) - an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);

As coal mining diminishes in importance on the Illawarra Escarpment (there are only two operating mines currently) and opportunities for direct experience of

mining are reduced, Wongawilli provides opportunities for interpreting and educating the public about the heritage of mining in the region.

An important aspect of the Wongawilli/Elouera mine's significance, is that it is still a complete and operational mining facility, which allows the range of activities and processes involved in coal mining, at least as it is currently undertaken) to be observed and understood. While public access to the mine is not currently available, the potential for public education and interpretation gives the mine a unique regional significance.

Criterion (f) - an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);

Not applicable

Criterion (g) - an item is important in demonstrating the principal characteristics of a class of NSW's

- cultural or natural places; or
- cultural or natural environments. (or a class of the local area's)
- cultural or natural places; or
- cultural or natural environments.

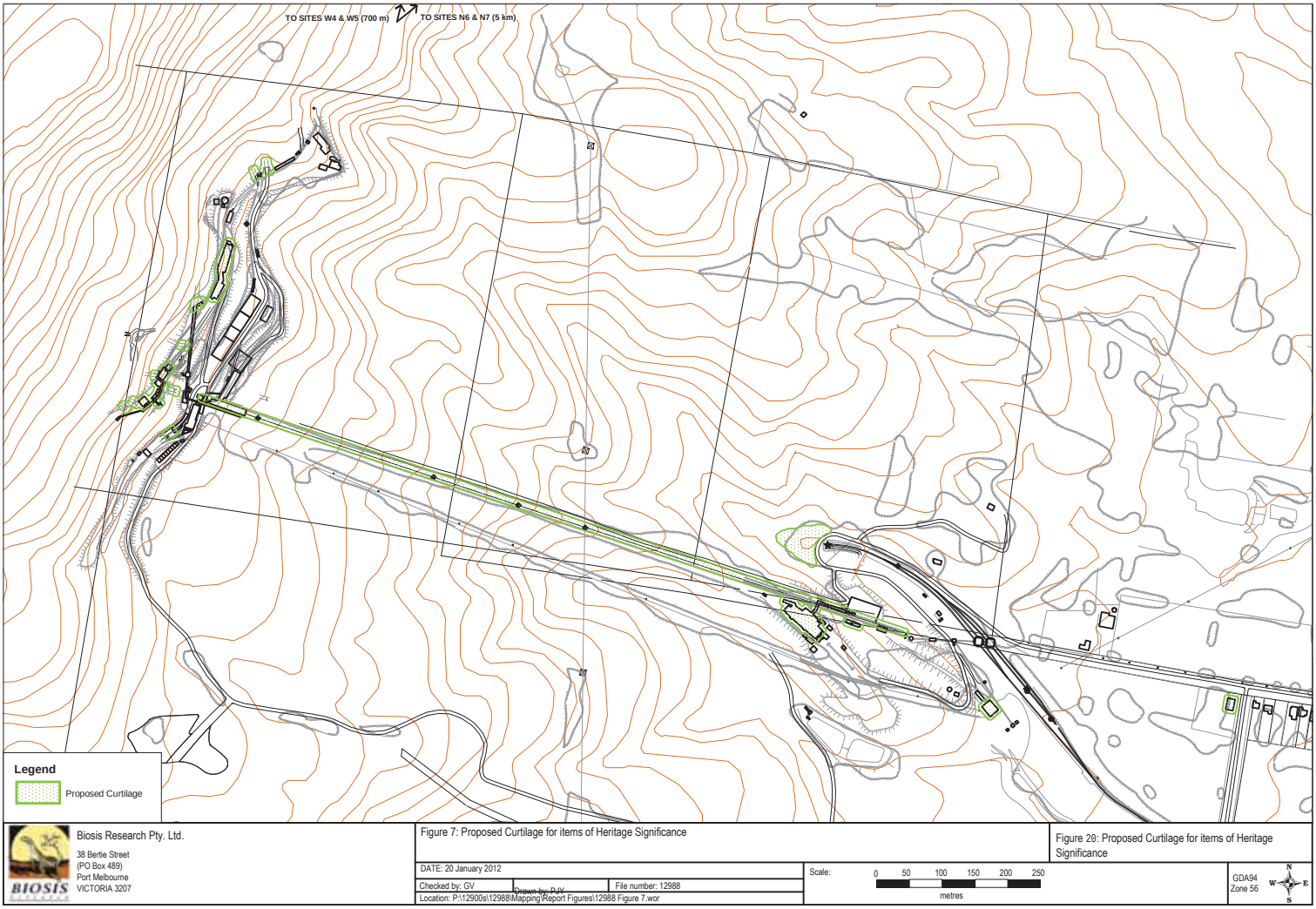
The Wongawilli mine represents the character of early prospecting of the Illawarra Coal seams in the late nineteenth and early twentieth century employing hand hewing methods. It also demonstrates the character of escarpment mining in the early twentieth century, and its progressive evolution with the advent of new mining techniques (such as the Wongawilli Method and later long wall) and technical development in mining machinery and associated equipment including the Joy continuous miner, and coal conveyor systems.

5.3 Curtilage

The extent of the various buildings and features of significance are shown in the accompanying figure. In general a curtilage is drawn around each building with at least 5 metres buffer and in some cases these are combined where buildings are in close proximity.

View lines are generally not critical, apart from that from the top of the incline, and looking up the incline from the end of Wongawilli road.

Heritage curtilage is identified in this way for the buildings of primary and contributory buildings



Biosis Research Pty. Ltd.
38 Bertie Street
(PO Box 489)
Port Melbourne
VICTORIA 3207

Figure 7: Proposed Curtilage for items of Heritage Significance

Figure 20: Proposed Curtilage for items of Heritage Significance

DATE: 20 January 2012
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Scale: 0 50 100 150 200 250 metres

GDA94
Zone 56

6.0 CONSTRAINTS AND OPPORTUNITIES

This Conservation Management Plan (CMP) has been prepared as good heritage practice in relation to planned future changes by the Gujarat NRE that may affect the Wongawilli Colliery buildings. The listing of the site on the Wollongong City Council's Local Environmental Plan (2009; 2010) as an item of Local heritage significance, including the associated LEP provisions, are likely to require specialist heritage consultant input for future changes on the site.

6.1 Heritage Listings

6.1.1 Aboriginal sites

A discussion that summarises legislation that applies to Aboriginal sites is detailed in Appendix 2. Aboriginal sites are protected under the National Parks and Wildlife Act 1974; which states:

> *A person who, without first obtaining the consent of the Director-General, knowingly destroys, defaces or damages, or knowingly causes or permits the destruction or defacement of or damage to, an Aboriginal object or Aboriginal place is guilty of an offence against this Act.*

The site inspection indicates that there is no potential for Aboriginal archaeological material to survive in the current and proposed works area of the Wongawilli Colliery, and therefore, there are no threats or impacts to Aboriginal archaeological sites from the proposed works from existing operations.

A particular issue in relation to statutory protection for Aboriginal sites recently arose through an emergency listing nomination for the Illawarra Mine sites, to the National Heritage List, which was submitted by several local groups in 2005. The assessment of the nomination found that there "…was insufficient information available to demonstrate that Indigenous people's use of the Illawarra Escarpment and Woronora Plateau, including the Illawarra Mine Sites, evidenced through physical material, historical accounts and oral history, was substantially different from their use of other areas in the Sydney region.

The Minister for Environment and Heritage, Ian Campbell, considered that: *"…the information to hand was insufficient for me to form the belief that the place may have outstanding heritage value to the nation under criterion (i) because of its importance as part of indigenous tradition. (He) also considered that the information to hand was insufficient… to form the belief that the place may have outstanding heritage value to the nation under criterion (g) because of its importance as part of indigenous tradition"* (Campbell 2005).

6.1.2 Local Planning Context

The relevant planning instruments covering Wollongong, the *WLEP 2009* and the *WLEP 2010*, are inconsistent in their current form with respect to the Study Area. Wongawilli village is located near the boundary between the WLEP 2009 and WLEP 2010.

The Wongawilli mine manager's house "Wonga", and tennis courts are included in Schedule 5 of the WLEP 2010 (Item No 61067).

Unusually, the Wongawilli Community Hall is also listed under item number 61067. "Wonga" is also incorrectly labelled on the relevant WLEP heritage map as Item 61020, which is also the Item number for the Cabbage Palms and Moreton Bay Figs at 40 Wongawilli Road (see Kottaras 2011).

The NRE Wongawilli Colliery has also been provisionally identified by Wollongong City Council as a local heritage item under Schedule 5 of the WLEP 2009. Both the WLEP 2009 and WLEP 2010 are now the applicable legislation and the NRE Wongawilli Colliery is identified as a local heritage item.

The Illawarra Escarpment Landscape Conservation Area, located directly west of the Wongawilli Mine, has also been identified by Wollongong City Council as a local heritage item under Schedule 5 of tile WLEP 2009. The Conservation Area includes parts of the Wongawilli Mine and Bankbook Hill. However, this area is some distance from "Wonga".

A number of other places in the vicinity of the subject site are also included in WLEP 2009 and WLEP 2010 as follows.

Table 8: Listed heritage places within and in the vicinity of the study area

Item name	Address	Property description	Significance	Item No
Wollongong Local Environmental Plan2009				
Wongawilli Rail Line	Wongawilli Road	Part Lot 14, DP 255284	Local	61066 (mapped in error from West Dapto schedule)
Wongawilli colliery	Wongawilli Road (note also designated as an Archaeological site)	Part Lot 14, DP 255284; Lot 1, DP 321054 and Part Lot 244, Part Lot 255 and Part Lot 258, DP 751278	Local	7100
Wollongong (West Dapto) Local Environmental Plan 2010				
Wongawilli Mine manager's cottage (former) and tennis court "Wonga"	Wongawilli Road	Part Lot 14, DP 255284	Local	61067 (61020 on Heritage Map)
"Coral Vale" homestead, hayshed, and outbuildings	Smiths Lane	Lot 2360, DP 1009483	Local	5978

Item name	Address	Property description	Significance	Item No
Coral Vale Kitchen building (former)	60 Smiths Lane	Lot 202, DP 1017684	Local	61071
Anglican Church (former)	Wongawilli Road	Lot 3, DP 18020	Local	61068
Wongawilli Community Hall	Wongawilli Road	Part Lot 42, DP 751278	Local	61067 (61020 on Heritage Map)
Wongawilli Rail Line (note council resolution to delete from LEP[9]	Wongawilli Road (located behind Wongawilli subdivision towards mine)	Part Lot 14, DP 255284	Local	61066
Cabbage Palms and Morton Bay Figs	40 Wongawilli Road	Lot 203, DP 1017684	Local	61020

It should be noted that Wollongong Council has recently undertaken a strategic management plan for historic coal mining sites in the Illawarra district (OHM Consultants 2006) which has informed the preparation of the Local Environmental Plan. The report of this study has identified the Wongawilli colliery as having historical and social significance at the state level and recommended that heritage impact statements be carried out before any of the listed items are removed from the site, as well as that it should be included in a regional coal mine plaquing program and an oral history program should be undertaken. Surprisingly, as the study identifies the site as being of state cultural significance and meets several of the State Heritage Register Criteria, the report does not specifically recommend any further statutory heritage protection. However a general statement under section 10.4 of the main report 'Final Outcomes for Stakeholders, notes in 10.4 that for the NSW Heritage Office an outcome is 'Inclusion of state significant mines onto the State Heritage Register' (OHM Consultants, McBeath 2006:70-71).

A heritage study has also been undertaken for the Wongawilli Township, which is part, identifies the historical significance of the former Wongawilli colliery, although it does not detail any particular elements of the mine.

Implications for the LEP

The DEC Guidelines identify that for an asset over 25 years not listed on any register, the minimum documentation required of activities or works with minor impact would be a Statement of Heritage Impact and works documentation. The legislative framework protecting the study site entails that the impact to the heritage significance of the development be considered prior to development.

[9] Draft planning proposal to amend the Wollongong Local Environmental Plan (West Dapto) 2010 (esp-100.01.017) - report of manager Environmental strategy and planning (JB) 7/09/10

This is in order to ensure that any development proposal does not adversely impact the heritage significance of the item. This heritage report assesses the significance of the item in its historical context and with regard to more recent alterations.

For items included in the Local Environment Plan, application needs to be made to the Wollongong City Council.

As the Wongawilli Colliery site also has potential for significant archaeological relics, in particular in connection with the pre WWII period of use, and specific items such as the 1930s continuous rope haulage drive. The site has been nominated to the State Heritage Register as a result of the recent Strategic Management Plan (OHM Consultants 2006; pers. com. NSW Heritage Office).

6.1.3 Zoning

The Wongawilli Colliery site is zoned RU1 Primary Production (in respect of the main bench area, incline and stockpile areas (Lot 423, 424, 425 & part of Lot 14, while the access road land (Part lot 14) and Bankbook Hill Area (lot 422, and part 423) are a combination of E2 and E3 (Environmental Conservation and Environmental Management). Gujarat landholdings around the Wongawilli village are zoned and RU2 Rural Landscape, and the railway reserve is zoned SP2.

The Zone Objectives for RU1 are:

• To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.

• To encourage diversity in primary industry enterprises and systems appropriate for the area.

• To minimise the fragmentation and alienation of resource lands.

• To minimise conflict between land uses within this zone and land uses within adjoining zones.

Permitted uses without consent include: Building identification signs; Extensive agriculture; Home occupations

Permitted uses which require consent area Agricultural produce industries; Agriculture; Animal boarding or training establishments; Business identification signs; Dwelling houses; Environmental protection works; **Extractive industries;**

Farm buildings; Forestry; Intensive livestock agriculture; Intensive plant agriculture; **Open cut mining**; Roads; Roadside stalls

Any development not specified in item 2 or 3 is prohibited.

Implications of the LEP

The Wongawilli Colliery site does not require re-zoning for current and proposed uses such as community facilities, sporting facilities. Re-zoning of the site may be required for use of the site, for other commercial uses if these are proposed.

6.1.4 State Heritage Register

The State Heritage Register (SHR), managed by the Heritage Branch, (OEH), contains items that are of State Significance to New South Wales. Items that appear on the State Heritage Register have undergone a rigorous assessment process and are protected by the *Heritage Act 1977* (amended 2010). Changes made to State Heritage Register listed items can only be made with approval from the Heritage Council; demolition is not permitted except in certain circumstances.

None of the items or land comprising the Wongawilli Colliery are presently listed on the State Heritage Register, although the site was identified as being of state significance in the OHM study, and so may in the future be nominated.

The Heritage Act allows some limited exemptions from this requirement listed in the "Standard Exemptions for Works requiring Heritage Office Approval". This document relates to specific activities such as building maintenance, minor repairs, and alterations to certain interiors or change of use. The document provides detailed definitions of these works and the extent to which they can be undertaken. Exemptions do not normally apply to excavation work.

6.1.5 Archaeological Relics

Under Division 9 of the Heritage Act, archaeological relics are protected in NSW. An excavation permit is required to "disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed" (*Heritage Act*, Section 139 [1]). Where a development is the subject of a Major Project application, an excavation permit is not required. Instead, the impact on archaeological relics should be an issue for consideration in the Environmental Assessment for the project. If mitigation measures are required

(such as controlled archaeological excavation), they should be provided for in the project approval.

In all other situations where development falls outside of a Major Project approval, an excavation permit may be necessary. Given that Wongawilli Colliery is listed in WLEP 2009 as "an archaeological site or a heritage site with an archaeological component", then it is likely that an archaeological assessment will be required if the proposed works involve excavation or the disturbance of archaeological features visible on the surface. This assessment should state whether or not an excavation permit under the Heritage Act (Section 140) is required.

If the archaeological assessment concludes that the work is minor, or does not impact on significant relics, it is possible to seek an exception for the works rather than an excavation permit. The Heritage Council must be notified that an exception is being sought and it may be granted under delegation. Sufficient information must be submitted so that the Heritage Council can determine whether an exception is appropriate.

The relevant forms and information regarding excavation permits and exceptions are provided on the Department of Planning – Heritage Branch website.[10]

6.1.6 Summary of likely approval requirements

Effect on Routine Operations

There is likely to be little effect on the routine operation of the colliery owing to the local heritage listings as most activities should be part of existing or likely approvals. The heritage listings may however impact on minor works which fall outside the routine operation of the colliery, for example minor upgrades to buildings and site infrastructure or maintenance and repair works. There are no minimum standards at a local level for the maintenance and repair of heritage items. The Wollongong DCP (Chapter E11; Section 9) provides guidance regarding what works Council would consider to be minor work, or maintenance and repair, and therefore exempt development. Guidelines are provided below for works as proposed by Gujarat NRE in the scope of works for this report.

[10] Department of Planning – Heritage Branch website (http://www.heritage.nsw.gov.au/03_subnav_01.htm)

General Guidelines

Table 9 identifies generic changes to the site and their associated actions as per the WLEP 2009 and the West Dapto LEP 2010.

Table 9: General approval requirements

ACTIVITY ON LAND WITH HERITAGE ITEMS	APPROVAL REQUIRED	ADDITIONAL INFORMATION
Demolition	**Yes** – under Clauses 5.10(2) and (3) of both LEPs Disturbing relics also requires approval under the *Heritage Act 1977*.	A **statement of heritage impact** (SoHI) or **Conservation Management Plan** (CMP) will be required in all instances where works at the colliery need Council's consent. If the proposed development is for demolition, then additional information requirements of the Wollongong DCP also apply. These include the following: Chapter E11; Section 16.1 (p 14) *(3)For any proposal involving demolition of a building due to structural integrity issues, the following matters must be addressed in the heritage impact statement or conservation management plan:* *(a) Comprehensive written and photographic evidence as to the current condition of the building fabric, including the condition of footings, load-bearing walls, building materials, pest infestation, water damage, sub-soil drainage, damage from natural occurrences, and whether it constitutes a danger to the users or occupiers of the building or the public;* *(b) A statement as to the capability of repair, restoration, stabilisation or reconstruction of the heritage building;* *(c) A statement outlining what other options have been examined instead of demolition and reasons why these options are not viable; and* *(d) A thorough and accurate financial assessment that considers the costs associated with restoration or conservation of the building, compared to alternative development options.* *The above statements must be prepared by suitably qualified persons such as a conservation architect or structural engineer."*
External alterations (structural or non-structural changes which alter the appearance of the item)		
Structural internal alterations to a building		
Disturbing or excavating archaeological relics		
Subdivision		
ACTIVITY ON LAND WITH HERITAGE ITEMS	**APPROVAL REQUIRED**	**ADDITIONAL INFORMATION**
The maintenance and repair of buildings and infrastructure provided this is done in such a way that significant fabric is protected and new fabric is sympathetic to significant fabric, or, the work is being done to elements of the site which do not contribute to the significance of the colliery	**No** - Clause 5.10 (3) (a) of the Wollongong LEP	Works that do not require consent under Clause 5.10(3) must be referred to Council to satisfy Council that the works are minor. If Council decides that the works is not 'minor' then a SoHI will be required PRIOR to approval being granted from Council. Each request is considered on a case-by-case basis. Clause 5.10 (3) (a) of the *Wollongong LEP 2009* establishes the following process for determining whether minor work does or does not require consent: ▪ The applicant must notify Council of the proposed development; ▪ Council will determine, on the basis of the information supplied by the applicant, whether the work is: ▪ minor work; or ▪ maintenance; and
Minor alterations and additions provided significant fabric is not affected and the proposed works are sympathetically designed		

ACTIVITY ON LAND WITH HERITAGE ITEMS	APPROVAL REQUIRED	ADDITIONAL INFORMATION
Painting of internal walls and ceiling of a building		▪ would not have an adverse impact on significance. ▪ Finally, Council must inform the applicant in writing that it is satisfied the development does not require consent under the Heritage Conservation provisions. When seeking notification from Council that consent will not be required under the heritage conservation provisions, the applicant must furnish Council with sufficient information to enable it to determine whether the LEP provisions have been met – as follows: Section 9 (4) (p 4-6) of Chapter E11 states that a request for exemption should be made in writing and contain the following information: ▪ *A sketch plan of the location of the proposed works in relation to the heritage item;* ▪ *Full details of the proposed materials, colours, fixtures, dimensions and detailing;* ▪ *Photographs showing the location of the proposed works in relation to the heritage item; and/or* ▪ *Brochures, photographs or colour charts that show the proposed colour or details of the proposed works* The DCP provides guidance for the preparation of statements of heritage impacts (Chapter E11: 6-8) and conservation management plans (Chapter E11: 8). The definition of minor works is also provided in the DCP (Chapter E11: 5). Consultation with Council is required for minor works to ensure that the work falls into the category of "minor". Prior to undertaking any work, ensure that the requirements of the LEPs and the DCP are understood and consult with Wollongong City Council.
Minor structures such as fencing, mailboxes, antennas, water-tanks, garden sheds etc., particularly where these are not visible from the street and where consistent with the controls and guidelines outlined in this DCP		
Tightening of fixtures to ensure such fixtures are securely held in place		
Re-hinging doors and gates		
Replacing broken windows, fly screens etc		
Minor repairs to any brickwork, metal work or roofing		
Other general maintenance work where no or minimal new fabric is required		
Pest control measures		
Repainting of external walls of a heritage item (where such surfaces have already been previously painted)		
Many internal alterations that do not affect the structural components of a building or significant detailing		
Conservation works being undertaken in accordance with an approved Conservation Plan		
Minor structures such as fencing, mailboxes, antennas, water-tanks, garden sheds etc., particularly where these are not visible from the street and where consistent with the controls and guidelines outlined in this DCP		

6.2 Impact assessment

6.2.1 Current uses

Current works proposed by Gujarat involve expansion plans to access coal resources in the Avon domain to the west of the Colliery's holdings. The expansion planning focuses on securing the next 20 years coal production and will occur in four phases:

- Construction of three new mine entries and driveages to the new extraction area in the Avon domain;
- Construction of a new ventilation shaft in the Avon domain;
- Upgrade of surface infrastructure to handle up to 6 Mtpa ROM coal production; and
- New longwalls in the Wongawilli seam and 1st working extraction in the Bulli seam in the Avon domain to the southwest of current workings.

A Rehabilitation and Environment Management Plan (REMP) will be developed in 2011 as part of the new Industry and Investment NSW (IIN) REMP process, the Guidelines for which are anticipated to be released in the first half of 2011. This REMP will include progressive rehabilitation of disused mine entries and other underground and surface facilities as the old mining areas are closed and the Colliery focuses operations in the new Avon domain. The Dumper House is located directly upslope of key operational areas and has been assessed by structural engineers as structurally unsound. It is currently subject of a development application to Wollongong City Council to demolish it for operational risk and safety reasons.

Previously BHP Billiton Illawarra Coal had undertaken works to secure disused adits at the former Wongawilli Colliery and close off various portals and other facilities that were no longer required for coal working. Their works involved:

- Seal redundant or non-essential ventilation shafts, mine portals and rehabilitate these sites where possible;
- Completion of mining operations;
- Removal and salvage of mining equipment and infrastructure;
- Cessation of artificial ventilation of underground workings .i.e. fans are switched off
- Cessation of pumping water from out of underground workings;
- Seal ventilation shafts and mine portals;
- Rehabilitate surface sites; and,

- Seek relinquishment of underground and surface mining leases where applicable.

Gujarat NRE purchased the mine in 2007 and undertook a variety of improvements. As a result some of BHP's proposed activities were reversed.

Gujarat's current works involve construction of new portals above the current pit top, and erection of ancillary buildings. Car parking has been increased with a new benched area south of the main pit top bench.

6.2.2 Proposed works

Gujarat has ongoing plans for operation and expansion of the Wongawilli Mine. Proposals in progress include the following:

- Remove Dumper House – a proposal to remove the duper house for safety and operation reasons in in abeyance, pending heritage considerations. The structure requires stabilisation or demolition. Options for its future management are still being considered
- Upgrade coal handling equipment, conveyors, etc.- medium to long term plans include construction of a new pit top coal conveyor and transfer house
- A second decline conveyor for transporting coal from the pithead to loading area may be required in 3-5 years
- Conversion of old workshops to offices – this proposal will fit out the interior of the old workshops and charging station with office accommodation. The external shelf and main structure of the building will be kept intact and interior partitions, floating floors and new services will be installed.
- Decommissioning and removal of man transport shed (B12)

6.2.3 Aboriginal site impacts

The area of proposed works has no potential for the survival of Aboriginal archaeological material, due to the impact of former mining activities and the effect of the excavation of the portals, and considerable rack falls and land slips in the vicinity.

The potential for Aboriginal archaeological relics in the mine areas is extremely low. The only potential for Aboriginal sites is in the areas above and below the mine site where mine excavation and benching have neither excavated natural ground nor buried under fill. Natural land slippage and erosion may have disturbed any Aboriginal archaeological material in these areas in any case due to the extreme steepness and instability of the slopes.

The proposed works at the Wongawilli Colliery will have no impact on Aboriginal archaeological sites because the work is to be carried out in areas where the natural ground has already been extensively disturbed.

Therefore, there are **no further requirements** for managing Aboriginal archaeological sites as long as any proposed works are confined to the existing areas of the mine benches, works areas and access tracks.

6.2.4 Historic Site Impacts

If site rehabilitation work as defined in the project brief is carried out as described, it would have considerable impact on the significance of the site. However, as the mine is currently continuing to operate, and there appears no immediate imperative to undertake demolition work on an extensive scale, a more sympathetic approach would appear to be possible.

It is understood that decisions on the future management and rehabilitation of any redundant structures at the Wongawilli Colliery, will take into account historical significance. Therefore, recommendations have been made with this in mind.

Discussions with Greg Kinninmonth[11] of the Department of Minerals indicates that the standard guidelines for rehabilitation of former mine shafts, adits and portals (generally involving complete demolition, sealing and revegetation), can be varied where heritage values need to be considered. Sealing methods involving securely plugging the adit, stabilising and protecting the portal and ensuring rock-fall or other events do not occur or put people in danger can be considered and individual proposals should be submitted to the department of Trade and Investment Mines Safety Branch for approval.

Impacts to other buildings and structures should be assessed against the identified level of significance and alternatives to demolition or removal considered where the item is of primary or contributory significance according to the following conservation policy.

[11] Pers com 12/1/2012.

7.0 CONSERVATION POLICY

7.1 Introduction

7.1.1 Objective

The objective of the policies in this plan is to achieve the conservation of the cultural heritage significance of the Wongawilli colliery and associated structures consistent with the ongoing operation of the place as a working mine.

7.1.2 Definitions

The definitions for conservation terms used in this report are those adopted in The Burra Charter (The Australia ICOMOS Charter for places of cultural significance),[12] a copy of which is provided at Appendix 4. The Burra Charter is the standard for cultural conservation acknowledged by government heritage agencies around Australia. Key definitions are provided below.

Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Cultural significance means **aesthetic, historic, scientific, social or spiritual value** for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

Fabric means all the physical material of the place including fixtures, contents and objects.

Conservation means all the processes of looking after a place so as to retain its cultural significance [as listed below].

Maintenance means the continuous protective care of the fabric, and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.

Condition (not a Burra Charter definition) means the state of a place or component of a place —the extent to which it is well maintained and is physical sound.

[12] Australia ICOMOS 1999

Integrity (not a Burra Charter definition) means the degree to which a place or component of a place retains the form and completeness of its physical fabric, historical associations, use or social attachments that give the place its cultural significance.

Preservation means maintaining the fabric of a place in its existing state and retarding deterioration.

Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

Reconstruction means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.

Adaptation means modifying a place to suit the existing use or a proposed use. [Article 7.2 states regarding use that: a place will have a compatible use]

Compatible use means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Interpretation means all the ways of presenting the cultural significance of a place.

7.2 General Policies

7.2.1 Statement of Conservation Policy

The following policies are recommended for the conservation and future development

7.2.2 Fabric and Setting

Policy 1 Significance the basis for management planning and work

The statements of significance set out in above shall be a principal basis for future management planning and work.

Policy 2 Period of Significance

That Wongawilli colliery, Wongawilli/West Dapto New South Wales be regarded as primarily significant for its development from 1916 to c.1960.

Implications: The physical appearance of the buildings should principally reflect the appearance around the time of operation c 1960.

Policy 3 Conservation of Significant Fabric

That the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter) and its associated guidelines, provide the basis for conservation of the building

Implications: All work to the identified significant elements and within the curtilage of significant elements on the property, whether subject to Planning Permit conditions or not, will be required to be undertaken in accordance with the provisions of the Burra Charter.

Policy 4 Applicability of Conservation Policy

That this Conservation Policy apply to the whole extent of the current site.

Implications: All works on the site, including new buildings and associated structures, should take into account the character of the original buildings and the site.

Policy 5 Appropriate conservation processes

That all items of primary and contributory significance be conserved with:

a) Items of primary significance being accorded the highest priority; and

b) Preservation, restoration and reconstruction (in that order) being the preferred conservation action.

Implications: A strategy for the implementation of these conservation policies should be implemented that addresses detailed plans for the conservation of the primary and contributory areas of the buildings.

Buildings of historic significance have been identified in Figure 5 and Figure 6 and the following table. As described above buildings (and portals) have been defined according to three levels of significance: Primary, Contributory, and Associative. A separate Archaeological significance category has been identified where values are for the archaeological relics and landscape characteristics rather than buildings and structures.

Table 10: Summary of buildings and their significance level.

Building number	*Building name*	*Significance level*
B1	Old Fan Room	Primary Significance
B2	Old Offices, lamp room, bath room, entry stairs	Primary Significance
B3	Carpenters Shop	Primary Significance
B4	Dumper house	Primary Significance
B5	Storage Shed – Old Workshops	Primary Significance
B6	Loco Charging Station –	Primary Significance
B7	Fire Station	Contributory Significance
B8	1960s Office	Contributory Significance
B9	Breaker Building and Transfer Bunker	Associative Significance
B10	Decline Conveyor	Associative Significance
B11	Man Transport Shed	Associative Significance
B12	Diesel Shed	Associative Significance
B13	New Workshops	Associative Significance
B14	Bath House	Contributory Significance
B15	No 1 Man Transport Winding House	Primary Significance
B16	Old Powerhouse	Primary Significance
B17	Coal Bins and Loading-out Gantries	Associative Significance
B18	'Wonga' Mine managers house	Primary Significance
F1	Mine Dam	Primary Significance
F2	Coke Ovens archaeological area	Archaeological Significance
F3	Bankbook Hill settlement area	Archaeological Significance

It is recommended that those buildings identified as being of primary significance should be considered as essential to maintain with their visual and structural integrity preserved, and active conservation works should be carried out to ensure their preservation. Such works need only involve ensuring the buildings remain structurally sound and have adequate external integrity to prevent ingress of rain. These are the buildings which most closely relate to the significant historical periods of the mine's operation, and provide the best opportunities for future interpretation if public access is ever to be provided to the mine site.

Buildings of Contributory significance should be conserved to the extent that no demolition work, removal of building fabric or other major disturbance should be carried out. Active conservation of these buildings and structures need only be carried out in the event of future upgrading or reuse being necessary. The guiding principal for such work should be to maintain the structural and visual integrity of the buildings.

Buildings and structures of associative significance need only be retained and conserved where required. However, if demolition or removal is required, then consideration should be given to the impact of this action on the potential future

use and conservation of the primary and contributory buildings. For example, an important aspect of the mines cultural significance is that it is one of few operating coalmines on the Illawarra escarpment, which gives greater opportunities for both understanding how the mines work, and potential for interpreting them to the public. Removal of a key element that would prevent future operation may therefore impact on the viability of the mine to keep operating in any form.

Note that a different strategy for managing portals of associative significance has been described above.

One aspect of the rehabilitation of redundant mines that can come into conflict with heritage values is the sealing of adits, shafts and portals, and in particular sealing them in such as way that no evidence of the structure remains. This approach has been particularly used on Illawarra escarpment some mines where they are within or adjacent to the Escarpment Conservation Areas. It is understood that this is a preferred approach of NSW National Parks.

DPI guidelines for the backfilling and sealing of adits and drifts (established under Section 92 – Section 97 inclusive of the Coal Mine Health and Safety Act 2002) suggest that as part of making safe and sealing disused mine entrances, earth may be mounded over the portal to remove any visible evidence of the structures.[13] These guidelines are intended to ensure safety at disused mine sites. However, the guideline for burying the portal under earth, as opposed sealing the portal internally, would appear to be optional rather than obligatory. It states: "Where possibly, the adit bulkhead and surrounds should be completely covered by mounding earth over the area". The guideline also states that: "any man-made structures or fittings in the adit, which can be safely removed, should be removed". The guidelines would therefore appear to be sufficiently flexible to allow the retention of historic surface features where this is consistent with the safe sealing of the adit.

The Wollongong Council (and various heritage bodies - see Pearson & McGowan 2000, Mining Heritage Manual) recognises the important contribution coal mining has made to the history of the region, and that each of the sites of mining has a story to tell. The recently completed "Strategic Management Plan for Historic Coal Mining Sites of the Illawarra", also confirms local heritage policy is to retain evidence of historic coal mining activity in the Illawarra region (OHM Consultants/McBeath 2006)

[13] *Guideline for the Permanent Filling and Capping of Surface Entries to Coal Seams* MDG 6001, NSW Department of Primary Industries, www.dpi.nsw.gov.au/minerals/safety

Therefore all existing portals in the vicinity of the Wongawilli Top Bench should be treated so that there is minimal disturbance to the surface structures and immediate surrounding area as far as practical considering health and safety regulations. The retention of surface features will ensure that the heritage significance of the sites, as evidence of early coal mining and prospecting, will be retained.

In line with proposed procedures for sealing portals (Sheldon 2005:9), the recording and surveying of the site should be carried out on completion of the works, a plaque placed in a clearly visible location at each portal, indicating the colliery name, adit name and date of sealing. If possible, this should also include the historical date of operation. Copies of documentation, including this report, should be provided to the Illawarra Local History Library.

Those portals identified as being of **primary significance** should be considered as essential to retain, at least to the extent of their external structure, with their visual and structural integrity preserved. Although mine safety guidelines suggest covering sealed portals with earth, because of the historical significance of the portals, an exception should be made in this instance.

These are the portals which most closely reflect the significant historical periods of the mine's operation, and provide the best opportunities for future interpretation if public access is ever to be provided to the mine site.

Table 11: Summary of mine portals and their significance level.

Portal number	***Portal name***	***Significance level***
W4	Rangers	Associative significance
W5	Daylight Entry	Associative significance
W6A	Rubber-Tyred Vehicle Transport (RTV) Portal	Associative significance
W6	Main Transport (Track) Portal	Associative significance
W7	Old Prospect Tunnel (no surface evidence reconstructed 2010-11)	Intrusive significance
W8	Belt conveyor Inspection Portal	Primary significance
W9	Belt Conveyor Portal	Contributory Significance
W10	Loco Track Portal	Contributory Significance
W11	Old Portal	Contributory Significance
W11A	Old Main Rope Haulage Drift Portal	Primary Significance
W11B	"Wombat Hole" (access to W11A)	Contributory Significance
W12	Old Main Fan Portal	Primary Significance
W13	Old No 1 South Track Portal	Primary Significance
N6 N7	Forest 11 Portals	Associative significance
W16	New Conveyor Portal (constructed 2010-11)	Intrusive

The South Kembla Portals, located north of the Wongawilli Mine, and Southern Entry, located several hundred metres south of the Wongawilli Pit Top, have been assessed in separate reports (Vines 2005).

7.2.3 Use

Policy 6 Primary Use

That the continuing use of the site as working collier is appropriate to the conservation management of the site, where this does not impinge on conservation of significant fabric.

Implications: Management of further development of the mine may be impacted by the need to retain significant fabric and curtilage.

7.2.4 Interpretation

Policy 7 Interpretation

Photographs, plans and historical information should be displayed in a location accessible to visitors to the place.

That interpretative material be displayed within the building to demonstrate its former use and appearance.

Implications: Copies of this document should be retained on site for future reference.

7.2.5 Management

Policy 8 Management

That the management of the property, its future development, and ongoing maintenance, be undertaken in a manner which permits the Statement of Conservation Policy to be implemented.

Implications: It is important that the Conservation Policy is retained by the owners and/or tenants of the property and understood by all those connected with the use, future development and maintenance of the property. This includes the property owners and management, as well as any consultants and contractors involved with work on the site.

7.2.6 Control of Physical Intervention in the Fabric

Policy 9 Physical intervention in significant fabric

That only limited physical intervention to areas of the fabric defined as Primary significance is undertaken.

Implications: Alterations to the Primary Significant areas, namely the Old Fan Room, Old Offices, lamp room, bath room, entry stairs, Carpenters Shop, Dumper house, Storage Shed – Old Workshops, Loco Charging Station – No 1 Man Transport Winding House, Old Powerhouse, Mine Dam, Wonga, and Mine managers house should be limited, particularly penetrations to the existing walls or alterations to the external envelope of the buildings..

7.2.7 Future Development

Policy 10 New developments

That new works or buildings should not dominate or compromise significant aspects of the existing; and

That new structures, shall be designed to relate to the original building; and

That only limited physical intervention to the fabric of the significant building be permitted.

Implications: New development should be respectful in scale, form and detail to the existing early to mid century buildings where they are in visual proximity, Openings connecting the existing building and new structures should be limited in size and number. Existing openings should be utilised when possible.

Reuse of the Old Workshops (B6) for offices is appropriate if works can be undertaken so as to retain the main structural elements and external

7.2.8 Moveable heritage

Policy 11, Management of Moveable Heritage Items

That historically significant moveable heritage items including objects, photographs, plans and documents, should be retained on site; and

That an inventory of the items prepared and maintained; and

In the event that they are no longer required by the mine company, should be offered to a suitable archive or museum (for example the Illawarra Regional Library, or Wollongong regional Archives depository)

Rationale: Potential and identified moveable cultural heritage is intrinsic to the cultural heritage of the Wongawilli site. Such items range from the mechanical coal cutter displayed at the lower car park entrance, to hand tools and plans found in some redundant buildings. A collection of papers and plans was noted in the Lamp room and old offices some years ago and other more carefully managed documents may make up part of the current administrative files and archives of the mine.

7.2.9 Recording

Policy 12 Recording

Where an item of local or state significance (i.e. a primary or contributory element) is to be altered or removed, a record of the physical condition should be prepared prior to any works commencing. This record should entail existing conditions architectural drawings, photographs and an inventory of components, finishes, fittings, moveable items and other details.

It is likely that recording of the modification or removal of significant fabric will be a part of the DA conditions of consent

7.2.10 Adaptive Reuse

Policy 13 Adaptive Reuse

That opportunities for compatible reuse of buildings are investigated in the event of buildings becoming redundant, or mining cease on the site.

In determining potential for adaptive reuse, the following constraints should be observed:

- External envelope should be maintained
- New openings should be limited to unobtrusive locations
- Existing wall and roof cladding and finishes should be retained and conserved.

- Internal spaces and dividing walls should be retained where possible, if spaces require enlarging or subdividing, such work should be reversible and identifiable.

7.2.11 Adoption and Review

Policy 14 Adoption of Conservation Policy

Gujarat NRE should formally adopt the Conservation Plan.

Rationale: The Conservation Plan sets out a strategy for managing the place to best maintain its cultural significance. If the Conservation Plan is not formally adopted and implemented, there is a likelihood that the cultural significance of the place will be jeopardised.

Policy 15Review of Policy

That the Conservation Plan be reviewed on a regular basis, preferably at least once every ten years, or when new material which has the potential to supplant a present policy, is discovered.

Rationale: This will ensure that new material or analysis can be properly assessed and if necessary incorporated into revisions of the Conservation plan.

7.2.12 Report Lodgement

This report has been distributed to:

- Gujarat NRE FCGL Pty Ltd
- Department of Environment and Conservation
- New South Wales Heritage Office
- Wollongong City Council

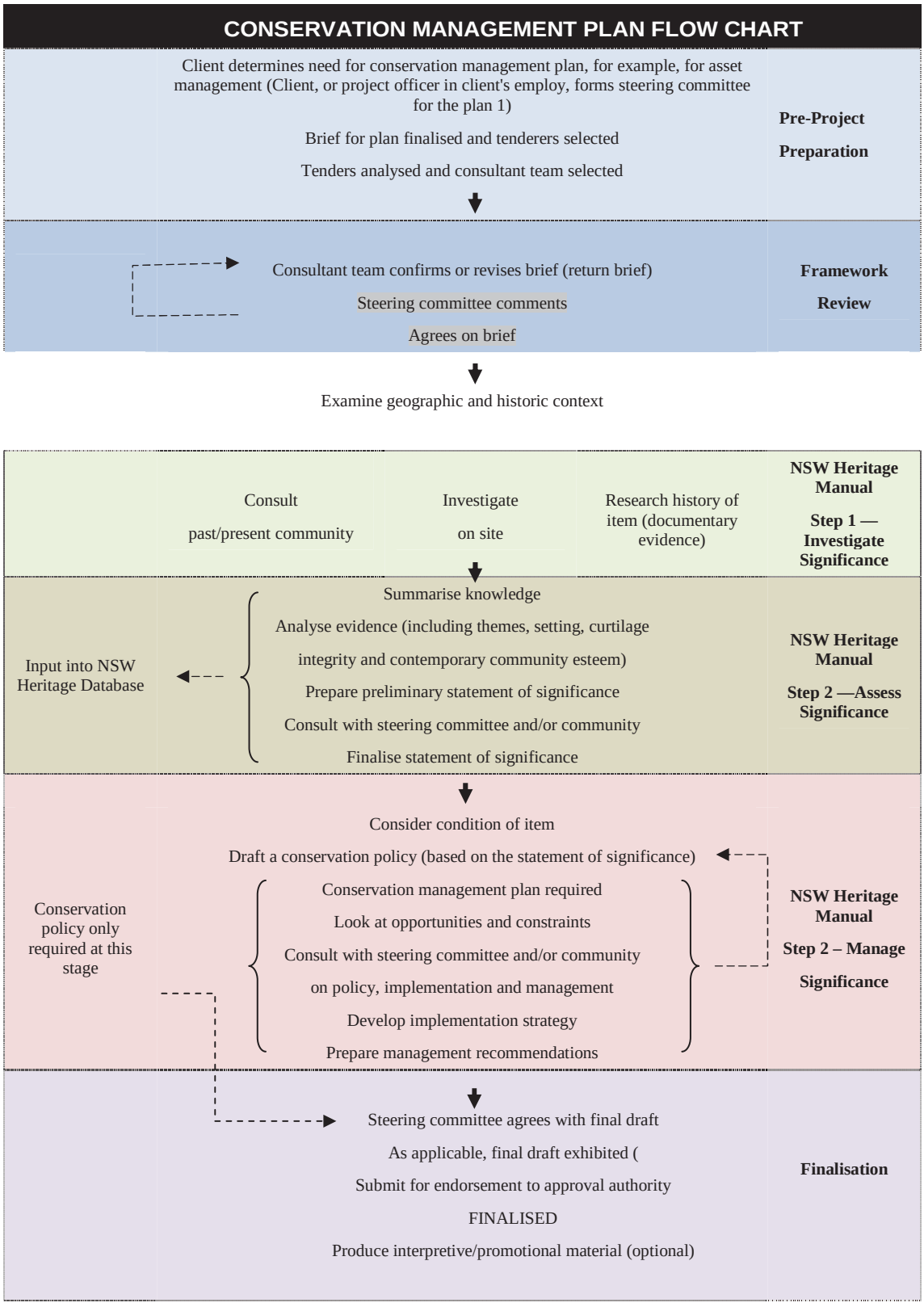
7.2.13 Independent Review of Reports

Archaeological reports and the management recommendations contained therein will be independently reviewed by the Cultural Heritage Services Division of the NSW Department of Environment and Conservation, the relevant Aboriginal community and the NSW Heritage Office.

Although the findings of a consultant's report will be taken into consideration, recommendations in relation to managing a heritage place should not be taken to imply automatic approval of those actions by the Department of Environment and Conservation, the Aboriginal community or the Heritage Office.

APPENDICES

APPENDIX 1 Conservation management plan flow chart



Note *Public consultation.*

(1) *In some circumstances, a conservation policy or management plan may be requested*

(2) *Exhibition refers to conservation management plans and is at the discretion of the approval authority*

APPENDIX 2 Assessment Of Heritage Significance

Introduction

Assessing the significance of a cultural heritage place is undertaken to make decisions about the best way to protect and manage that particular heritage place. The category and significance of a heritage place will also determine if it is to be given statutory protection. The statutory issues that affect heritage places are discussed in detail in Appendix 2.

Places that are assessed as having National heritage significance can be added to the Commonwealth Register of the National Estate, those of State significance to the NSW State Heritage Register. A heritage place can also be protected under a planning scheme administered by local government. The National Trust maintains a list of significant heritage places, and local historical societies and Aboriginal communities will often have substantial knowledge about local heritage places.

Assessment of the significance of a heritage place can be complex and include a range of heritage values. The cultural heritage values of a site or place are broadly defined in the Burra Charter – the set of guidelines on cultural heritage management and practice prepared by Australia ICOMOS (International Council on Monuments and Sites) – as the "aesthetic, historic, scientific, social or spiritual value for past, present or future generations" (Australia ICOMOS 1999). Various government agencies, including the Australian Heritage Commission and the NSW Heritage Office, have developed formal criteria for assessing heritage significance. These have been included at the end of this appendix and used in this report as applicable.

Cultural Heritage Significance

The NSW Heritage Office is the state government body responsible for protecting non-Aboriginal heritage places in NSW, including gardens, buildings, shipwrecks and historical archaeological sites. The *Heritage Act 1977* is administered by the NSW Heritage Council, through the Heritage Office.

The NSW Heritage Office has prepared a detailed set of criteria for assessing the State's cultural heritage. These criteria are divided into two categories: nature of significance, and comparative significance.

Heritage assessment criteria in NSW fall broadly within the four significance values outlined in the Australia ICOMOS Burra Charter. These are:

- **historical** significance (evolution and association)
- **aesthetic** significance (Scenic/architectural qualities, creative accomplishment)
- **scientific** significance (Archaeological, industrial, educational, research potential and scientific significance values)
- **social** significance (contemporary community esteem).

The NSW Heritage office has also issued a more detailed set of criteria to provide consistency with heritage agencies in other states and to avoid ambiguity and misinterpretation.

The detailed criteria are based on criteria used by the Australian Heritage Commission for the assessment of potential items for the Register of the National Estate (RNE). The Heritage Council of NSW determines the criteria for State significance and issues guidelines to assist in their application. The following criteria were gazetted following amendments to the Heritage Act which came into effect in April 1999.

Criterion (a) - an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (b) - an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (c) - an item is important in demonstrating the aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

Criterion (d) - an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

Criterion (e) - an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (f) - an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (g) - an item is important in demonstrating the principal characteristics of a class of NSW's

- cultural or natural places; or
- cultural or natural environments. (or a class of the local area's)
- cultural or natural places; or
- cultural or natural environments.

An item is not to be excluded from the Register on the ground that items with similar characteristics have already been listed on the Register.

The heritage guidelines on assessing significance also include set of gradings of significance these are used to assist in assessing any diminishment of significance due to loss of integrity or condition.

GRADING	JUSTIFICATION	STATUS
EXCEPTIONAL	Rare or outstanding item of local or State significance. High degree of intactness. Item can be interpreted relatively easily.	Fulfils criteria for local or State listing.
HIGH	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.

MODERATE	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
LITTLE	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
INTRUSIVE	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

LEVELS OF HERITAGE SIGNIFICANCE

Items, places, buildings, works, relics, movable objects or precincts can be of either local or State heritage significance, or have both local and State heritage significance.

Local heritage items

Local heritage items are those of significance to the local government area. In other words they contribute to the individuality and streetscape, townscape, landscape or natural character of an area and are irreplaceable parts of its environmental heritage. Collectively, such items reflect the socio-economic and natural history of a local area. Items of local heritage significance form an integral part of the State's environmental heritage.

State heritage items

State heritage items, places, buildings, works, relics, movable objects or precincts of State heritage significance include those items of special interest in the State context. They form an irreplaceable part of the environmental heritage of New South Wales and must have some connection or association with the State in its widest sense.

Regional heritage items

In past years assessments of geographical regions in NSW - such as the Illawarra and the North Coast - have been undertaken. These surveys have added a third level - regional significance - between local and state. To simplify the assessment process the Heritage Act now uses only local and State significance as statutory terms. However, it remains the case that an item may have significance beyond the local area but not be of State significance.

A comparative analysis of an item with other like items is usually necessary to assist in determining a level of significance.

APPENDIX 3 STATUTORY REGULATIONS

Aboriginal Sites

i) NSW Aboriginal cultural heritage legislation

The State *National Parks and Wildlife Act* 1974 provides protection for material and places relating to the past Aboriginal occupation of Australia, both before and after European occupation. This includes individual artefacts, scatters of stone artefacts, rock art sites, ancient camp sites, human burials, scarred trees, and ruins and archaeological deposits associated with Aboriginal missions or reserves. Aboriginal Objects (any material evidence of the indigenous occupation of NSW) are protected under Section 90 of the Act. Aboriginal places (areas of cultural significance to the Aboriginal Community declared by the Minister) are protected under Section 84 of the Act. The Act also establishes administrative procedures for archaeological investigations and the mandatory reporting of the discovery of Aboriginal sites. The NSW Department of Environment and Conservation administers *the National Parks and Wildlife Act.*

The NSW Department of Environment and Conservation also provides guidelines for standard archaeological reporting and assessment (NSW NPWS 1997). These guidelines are currently being updated and are in draft form (NSW NPWS n.d.).

The *National Parks and Wildlife Act* requires that a permit from the Director General be obtained before archaeological fieldwork involving disturbance to an Aboriginal site is carried out.

ii) Commonwealth Aboriginal cultural heritage legislation

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act* 1984 provides protection for Aboriginal cultural property. Certain powers and responsibilities are managed by the NSW Department of Environment and Conservation. Whereas the State Act provides legal protection for all the physical evidence of past Aboriginal occupation, the Commonwealth Act deals with Aboriginal cultural property in a wider sense. Such cultural property includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. There is no cut-off date and the Act may apply to contemporary Aboriginal cultural property as well as ancient sites. The Commonwealth Act takes precedence over State cultural heritage legislation when there is conflict.

Queries and applications to excavate or disturb an Aboriginal archaeological site for purposes of archaeological fieldwork, should directed to Cultural Heritage Unit Manager at the relevant DEC Aboriginal Heritage Division regional Office:

Non-Aboriginal Sites

i) NSW cultural heritage legislation

The Heritage Act 1977

The *Heritage Act* 1977 details statutory responsibilities for historic buildings and gardens, historic places and objects, historical archaeological sites, and historic shipwrecks. The Act is administered by the Heritage Council of New South Wales, through the NSW Heritage Office.

The *Heritage Act* protects all historical archaeological sites, places and relics in NSW older than 50 years, regardless of their level of cultural heritage significance.

An excavation permit is required for any works, excavations or activities, associated with an archaeological site. Excavation permits are issued by the Heritage Council of New South Wales in accordance with sections 60 or 140 of the *Heritage Act*. It is an offence to disturb or excavate land to discover, expose or move a relic without obtaining a permit from the NSW Heritage Council. Excavation permits are usually issued subject to a range of conditions that will relate to matters

such as reporting requirements and artefact cataloguing, storage and curation.

The State Heritage Register is a list of places and items with State heritage significance endorsed by the Heritage Council and the Minister that came into effect on 2 April 1999. The register was established under the *Heritage Amendment Act* 1998. It replaces the earlier system of Permanent Conservation Orders as a means for protecting items with State significance. The processes of listing and monitoring the conservation and protection of items are essentially the same.

Items are added to the register by the Minister on the recommendation of the Heritage Council, following an assessment of their significance and consultation with owners and the broader community. The Heritage Council has established the State Heritage Register Committee to recommend items to the Minister for inclusion in the register.

A permit may be required from the Heritage Council of NSW for works or activities associated with a registered place or object.

General queries about site issues and permit applications can be made to the archaeological officers at the Heritage Office. The contact details are:

NSW Heritage Office
3 Marist Place
PARRAMATTA NSW 2150
Ph: (02) 9873 8500
Fax: (03) 9873 8599

Consultation and discussion with the NSW Heritage Office should begin well before lodging an application for a permit to disturb or destroy a historical archaeological site.

Environmental Planning and Assessment Act 1979

The *NSW Environmental Planning and Assessment Act* may have relevance for certain projects because it requires that environmental impacts are considered in land-use planning and decision making. The definition of 'environment impacts' includes impacts on the cultural heritage of the project area. The Act has three relevant parts: Part III, which governs the preparation of planning instruments; Part IV, which relates to development where consent is required under an environmental planning instrument (EPI); and Part V, which relates to activity where development consent is not required but some other government approval assessments are needed.

Under the Act, local government authorities and The Department of Infrastructure, Planning and Natural Resources (formerly Planning NSW) prepare local and regional environmental planning instruments (LEPs and REPs) to give statutory force to planning controls. These may incorporate specific provisions for conserving and managing archaeological sites.

Integrated Development Assessment (IDA) was introduced under the *Environmental Planning and Assessment Act* so that all matters affecting a development application would be considered by the consent authority in an integrated way.

Integrated Development is one which requires development consent as well as one or more approvals from different government agencies. Such agencies may include NSW DEC or the NSW Heritage Council. If a development is likely to impact a heritage item, the consent authority must refer it, to NSW DEC (for Indigenous objects) or the NSW Heritage Council (for sites listed on the State Heritage Register) prior to approval determination.

The Local Government Act 1993

The Wollongong (West Dapto) Local environment Plan includes specific objectives and measures for managing heritage assets under Section 5.10 Heritage conservation

(1) Objectives

The objectives of this clause are as follows:

(a) to conserve the environmental heritage of the Wollongong local government area,

known as West Dapto and Dapto Regional Centre,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

(2) Requirement for consent

Development consent is required for any of the following:

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):

(i) a heritage item,

(ii) an Aboriginal object,

(iii) a building, work, relic or tree within a heritage conservation area,

(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land:

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land:

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

(3) When consent not required

However, development consent under this clause is not required if:

(a) the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development:

(i) is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and

(ii) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or

(b) the development is in a cemetery or burial ground and the proposed development:

(i) is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and

(ii) would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or

(c) the development is limited to the removal of a tree or other vegetation that the Council is

satisfied is a risk to human life or property, or

(d) the development is exempt development.

(4) Effect of proposed development on heritage significance

The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6).

(5) Heritage assessment

The consent authority may, before granting consent to any development:

(a) on land on which a heritage item is located, or

(b) on land that is within a heritage conservation area, or

(c) on land that is within the vicinity of land referred to in paragraph (a) or (b),

require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.

(6) Heritage conservation management plans

The consent authority may require, after considering the heritage significance of a heritage item and the extent of change proposed to it, the submission of a heritage conservation management plan before granting consent under this clause.

(7) Archaeological sites

The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the Heritage Act 1977 applies):

(a) notify the Heritage Council of its intention to grant consent, and

(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

(8) Aboriginal places of heritage significance

The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:

(a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and

(b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent.

(9) Demolition of nominated State heritage items

The consent authority must, before granting consent under this clause for the demolition of a nominated State heritage item:

(a) notify the Heritage Council about the application, and

(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

ii) Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The Commonwealth Australian Heritage Commission Act was recently repealed and in its place amendments to the EPBC Act and the provision of an Australian Heritage Council have also been made in new legislation.

Under the EPBC Act Amendments (No 88, 2003) two mechanisms have been created for protection of heritage places of Commonwealth or National significance. Initially places in Commonwealth ownership may be placed on the Commonwealth list with similar protection measures as under the previous AHC act. In addition the National list provides protection to places of cultural significance to Australia. By law, no one can take any action that has, will have, or is likely to have, a significant impact on any places of national heritage value, without approval. Such actions must be referred to the Australian Government Minister for the Environment and Heritage.

APPENDIX 4 BURRA CHARTER

Australia ICOMOS

The Burra Charter (The Australia ICOMOS charter for places of cultural significance)

Preamble Explanatory notes

Considering the International Charter for the Conservation and Restoration of Monuments and Sites (Venice 1964), and the Resolutions of the 5th General Assembly of the International Council on Monuments and Sites (ICOMOS) (Moscow 1978), the Burra Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS) on 19 August 1979 at Burra, South Australia. Revisions were adopted on 23 February 1981, 23 April 1988 and 26 November 1999.

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members.

Conservation is an integral part of the management of places of cultural significance and is an ongoing responsibility.

Who is the Charter for? The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians.

Using the Charter

The Charter should be read as a whole. Many articles are interdependent. Articles in the Conservation Principles section are often further developed in the Conservation Processes and Conservation Practice sections. Headings have been included for ease of reading but do not form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained in the following Australia ICOMOS documents:

- Guidelines to the Burra Charter: Cultural Significance
- Guidelines to the Burra Charter: Conservation Policy
- Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports
- Code on the Ethics of Coexistence in Conserving Significant Places

What places does the Charter apply to? The Charter can be applied to all types of places of cultural significance including natural, indigenous and historic places with cultural values.

The standards of other organisations may also be relevant. These include the Australian Natural Heritage Charter and the Draft Guidelines for the Protection, Management and Use of Aboriginal and Torres Strait Islander Cultural Heritage Places.

Why conserve? Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. They are historical records, that are important as tangible expressions of Australian identity and experience. Places of cultural significance reflect the diversity of our communities, telling us about who we are and the past that has formed us and the Australian landscape. They are irreplaceable and precious.

These places of cultural significance must be conserved for present and future generations.

The Burra Charter advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.

Articles

Article 1

Definitions

For the purposes of this Charter:

1.1 Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

The concept of place should be broadly interpreted. The elements described in Article 1.1 may include memorials, trees, gardens, parks, places of historical events, urban areas, towns, industrial places, archaeological sites and spiritual and religious places.

1.2 Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

Places may have a range of values for different individuals or groups.

The term cultural significance is synonymous with heritage significance and cultural heritage value.

Cultural significance may change as a result of the continuing history of the place.

Understanding of cultural significance may change as a result of new information.

1.3 Fabric means all the physical material of the place including components, fixtures, contents, and objects.

Fabric includes building interiors and sub-surface remains, as well as excavated material.

Fabric may define spaces and these may be important elements of the significance of the place.

1.4 Conservation means all the processes of looking after a place so as to retain its cultural significance.

1.5 Maintenance means the continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.

The distinctions referred to, for example in relation to roof gutters, are:

maintenance — regular inspection and cleaning of gutters;

repair involving restoration — returning of dislodged gutters;

repair involving reconstruction — replacing decayed gutters.

1.6 Preservation means maintaining the fabric of a place in its existing state and retarding deterioration.

It is recognised that all places and their components change over time at varying rates.

1.7 Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

1.8 Reconstruction means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.

New material may include recycled material salvaged from other places. This should not be to the detriment of any place of cultural significance.

1.9 Adaptation means modifying a place to suit the existing use or a proposed use.

1.10 Use means the functions of a place, as well as the activities and practices that may occur at the place.

1.11 Compatible use means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

1.12 Setting means the area around a place, which may include the visual catchment.

1.13 Related place means a place that contributes to the cultural significance of another place.

1.14 Related object means an object that contributes to the cultural significance of a place but is not at the place.

1.15 Associations mean the special connections that exist between people and a place.

Associations may include social or spiritual values and cultural responsibilities for a place.

1.16 Meanings denote what a place signifies, indicates, evokes or expresses.

Meanings generally relate to intangible aspects such as symbolic qualities and memories.

1.17 Interpretation means all the ways of presenting the cultural significance of a place.

Interpretation may be a combination of the treatment of the fabric (e.g. maintenance, restoration, reconstruction); the use of and activities at the place; and the use of introduced explanatory material.

Conservation Principles

Article 2 Conservation and management

2.1 Places of cultural significance should be conserved.

2.2 The aim of conservation is to retain the cultural significance of a place.

2.3 Conservation is an integral part of good management of places of cultural significance.

2.4 Places of cultural significance should be safeguarded and not put at risk or left in a vulnerable state.

Article 3 Cautious approach

3.1 Conservation is based on a respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible.

The traces of additions, alterations and earlier treatments to the fabric of a place are evidence of its history and uses which may be part of its significance. Conservation action should assist and not impede their understanding.

3.2 Changes to a place should not distort the physical or other evidence it provides, nor be based on conjecture.

Article 4 Knowledge, skills and techniques

4.1 Conservation should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the place.

4.2 Traditional techniques and materials are preferred for the conservation of significant fabric. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate.

The use of modern materials and techniques must be supported by firm scientific evidence or by a body of experience.

Article 5 Values

5.1 Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others.

Conservation of places with natural significance is explained in the Australian Natural Heritage Charter. This Charter defines natural significance to mean the importance of ecosystems, biological diversity and geodiversity for their existence value, or for present or future generations in terms of their scientific, social, aesthetic and life-support value.

5.2 Relative degrees of cultural significance may lead to different conservation actions at a place.

A cautious approach is needed, as understanding of cultural significance may change. This article should not be used to justify actions which do not retain cultural significance.

Article 6 Burra Charter Process

6.1 The cultural significance of a place and other issues affecting its future are best understood by a sequence of

collecting and analysing information before making decisions. Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy.

The Burra Charter process, or sequence of investigations, decisions and actions, is illustrated in the accompanying flowchart.

6.2 The policy for managing a place must be based on an understanding of its cultural significance.

6.3 Policy development should also include consideration of other factors affecting the future of a place such as the owner's needs, resources, external constraints and its physical condition.

Article 7 Use

7.1 Where the use of a place is of cultural significance it should be retained.

7.2 A place should have a compatible use.

The policy should identify a use or combination of uses or constraints on uses that retain the cultural significance of the place. New use of a place should involve minimal change, to significant fabric and use; should respect associations and meanings; and where appropriate should provide for continuation of practices which contribute to the cultural significance of the place.

Article 8 Setting

Conservation requires the retention of an appropriate visual setting and other relationships that contribute to the cultural significance of the place.

New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

Aspects of the visual setting may include use, siting, bulk, form, scale, character, colour, texture and materials.

Other relationships, such as historical connections, may contribute to interpretation, appreciation, enjoyment or experience of the place.

Article 9 Location

9.1 The physical location of a place is part of its cultural significance. A building, work or other component of a place should remain in its historical location. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival.

9.2 Some buildings, works or other components of places were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other components do not have significant links with their present location, removal may be appropriate.

9.3 If any building, work or other component is moved, it should be moved to an appropriate location and given an appropriate use. Such action should not be to the detriment of any place of cultural significance.

Article 10 Contents

Contents, fixtures and objects which contribute to the cultural significance of a place should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and preservation; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit and it is culturally appropriate.

Article 11 Related places and objects

The contribution which related places and related objects make to the cultural significance of the place should be retained.

Article 12 Participation

Conservation, interpretation and management of a place should provide for the participation of people for whom the place has special associations and meanings, or who have social, spiritual or other cultural responsibilities for the place.

Article 13 Co-existence of cultural values

Co-existence of cultural values should be recognised, respected and encouraged, especially in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In this article, the term cultural values refers to those beliefs which are important to a cultural group, including but not limited to political, religious, spiritual and moral beliefs. This is broader than values associated with cultural significance.

Conservation Processes

Article 14 Conservation processes

Conservation may, according to circumstance, include the processes of: retention or reintroduction of a use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaptation and interpretation; and will commonly include a combination of more than one of these.

There may be circumstances where no action is required to achieve conservation.

Article 15 Change

15.1 Change may be necessary to retain cultural significance, but is undesirable where it reduces cultural significance. The amount of change to a place should be guided by the cultural significance of the place and its appropriate interpretation.

When change is being considered, a range of options should be explored to seek the option which minimises the reduction of cultural significance.

15.2 Changes which reduce cultural significance should be reversible, and be reversed when circumstances permit.

Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action.

15.3 Demolition of significant fabric of a place is generally not acceptable. However, in some cases minor demolition

may be appropriate as part of conservation. Removed significant fabric should be reinstated when circumstances permit.

15.4 The contributions of all aspects of cultural significance of a place should be respected. If a place includes fabric, uses, associations or meanings of different periods, or different aspects of cultural significance, emphasising or interpreting one period or aspect at the expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.

Article 16 Maintenance

Maintenance is fundamental to conservation and should be undertaken where fabric is of cultural significance and its maintenance is necessary to retain that cultural significance.

Article 17 Preservation

Preservation is appropriate where the existing fabric or its condition constitutes evidence of cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

Preservation protects fabric without obscuring the evidence of its construction and use. The process should always be applied:

where the evidence of the fabric is of such significance that it should not be altered;

where insufficient investigation has been carried out to permit policy decisions to be taken in accord with Articles 26 to 28.

New work (e.g. stabilisation) may be carried out in association with preservation when its purpose is the physical protection of the fabric and when it is consistent with Article 22.

Article 18 Restoration and reconstruction

Restoration and reconstruction should reveal culturally significant aspects of the place.

Article 19 Restoration

Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric.

Article 20 Reconstruction

20.1 Reconstruction is appropriate only where a place is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the fabric. In rare cases, reconstruction may also be appropriate as part of a use or practice that retains the cultural significance of the place.

20.2 Reconstruction should be identifiable on close inspection or through additional interpretation.

Article 21 Adaptation

21.1 Adaptation is acceptable only where the adaptation has minimal impact on the cultural significance of the place. Adaptation may involve the introduction of new services, or a new use, or changes to safeguard the place.

21.2 Adaptation should involve minimal change to significant fabric, achieved only after considering alternatives.

Article 22 New work

22.1 New work such as additions to the place may be acceptable where it does not distort or obscure the cultural significance of the place, or detract from its interpretation and appreciation.

New work may be sympathetic if its siting, bulk, form, scale, character, colour, texture and material are similar to the existing fabric, but imitation should be avoided.

22.2 New work should be readily identifiable as such.

Article 23 Conserving use

Continuing, modifying or reinstating a significant use may be appropriate and preferred forms of conservation.

These may require changes to significant fabric but they should be minimised. In some cases, continuing a significant use or practice may involve substantial new work.

Article 24 Retaining associations and meanings

24.1 Significant associations between people and a place should be respected, retained and not obscured. Opportunities for the interpretation, commemoration and celebration of these associations should be investigated and implemented.

For many places associations will be linked to use.

24.2 Significant meanings, including spiritual values, of a place should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.

Article 25 Interpretation

The cultural significance of many places is not readily apparent, and should be explained by interpretation. Interpretation should enhance understanding and enjoyment, and be culturally appropriate.

Conservation Practice

Article 26 Applying the Burra Charter process

26.1 Work on a place should be preceded by studies to understand the place which should include analysis of physical, documentary, oral and other evidence, drawing on appropriate knowledge, skills and disciplines.

The results of studies should be up to date, regularly reviewed and revised as necessary.

26.2 Written statements of cultural significance and policy for the place should be prepared, justified and accompanied by supporting evidence. The statements of significance and policy should be incorporated into a management plan for the place.

Statements of significance and policy should be kept up to date by regular review and revision as necessary. The

management plan may deal with other matters related to the management of the place.

26.3 Groups and individuals with associations with a place as well as those involved in its management should be provided with opportunities to contribute to and participate in understanding the cultural significance of the place. Where appropriate they should also have opportunities to participate in its conservation and management.

Article 27 Managing change

27.1 The impact of proposed changes on the cultural significance of a place should be analysed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes following analysis to better retain cultural significance.

27.2 Existing fabric, use, associations and meanings should be adequately recorded before any changes are made to the place.

Article 28 Disturbance of fabric

28.1 Disturbance of significant fabric for study, or to obtain evidence, should be minimised. Study of a place by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the conservation of the place, or to obtain important evidence about to be lost or made inaccessible.

28.2 Investigation of a place which requires disturbance of the fabric, apart from that necessary to make decisions, may be appropriate provided that it is consistent with the policy for the place. Such investigation should be based on important research questions which have potential to substantially add to knowledge, which cannot be answered in other ways and which minimises disturbance of significant fabric.

Article 29 Responsibility for decisions

The organisations and individuals responsible for management decisions should be named and specific responsibility taken for each such decision.

Article 30 Direction, supervision and implementation

Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.

Article 31 Documenting evidence and decisions

A log of new evidence and additional decisions should be kept.

Article 32 Records

32.1 The records associated with the conservation of a place should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

32.2 Records about the history of a place should be protected and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

Article 33 Removed fabric

Significant fabric which has been removed from a place including contents, fixtures and objects, should be catalogued, and protected in accordance with its cultural significance.

Where possible and culturally appropriate, removed significant fabric including contents, fixtures and objects, should be kept at the place.

Article 34 Resources

Adequate resources should be provided for conservation.

The best conservation often involves the least work and can be inexpensive.

APPENDIX 5 TIMELINE

- extract from Illawarra Coal Timeline (Sheldon 2004) and Wollongong City Library History Website.

1770 Captain James Cook sights Mt Kembla and describes it as "a round hill the top of which looked like the Crown of a hat"

1791 Coal was first discovered in Australia at Newcastle by escaped convicts

1796 Matthew Flinders records Mt Kembla as Hat Hill

1797 Illawarra coal deposits first officially documented by George Bass (near Coalcliff

1810 Cedar getters commence felling Cedar Trees in the area

1821 Construction of O'Brien's Road, passing between Mt Keira and Mt Kembla

1828 Australian Agricultural Co. has monopoly on coal - Shoobert is blocked from opening a coal mine.

1836 Westmacott, Capt. Robert Marsh - purchases 300 acres land from Cornelius O'Brien

1837 Plunkett, John Herbert - on his property "Keelogues" ("Gundarun") 1280 acres

1839 Australian Agricultural Co. complains that Capt. Westmacott has opened mine at Bulli on land purchased from O'Brien (not proceeded with)

1839 Rev. W. B. Clark, Geologist, commences examination of South Coast coal measures.

1841 Owen, Robert purchases coal land

1844 Cattle stealing was said to have been carried on to some extent at Bulli.

1844 Construction of Belmore Basin completed.

1846 Owen, Robert (later Judge Owen), purchases land at Jamberoo

1848 Albert Mine (aka Shoobert's Mine) - Tunnel in 5m seam (Wongawilli sm.) under Mt. Keira by James Shoobert.

1849 Albert Mine (aka Shoobert's Mine) - Tunnel in second seam (1.2m), the 4' seam (Albert sm.), located above first.

1849 First coal mined for sale taken to Wollongong harbour by horse dray (27th August) by James Shoobert. Mined from the 4' seam. loaded on SS "William the Fourth"

1849 Oil bearing shale from Mount Kembla tested by Rev. W. B. Clarke.

1855 Shoobert's Mine (aka Albert Mine) - closes 17' seam (Wongawilli), 4'2" seam (Balgownie) still producing still low. (SMH-27th Sept).

1856 Albert Mine - plus Mt. Keira home (137 acres) auctioned by Rod Shoobert

1857 First coal shipped from Bellambi Harbour (17/12/57)

1857 Osborne-Wallsend Colliery - first coal from the No. 1 or Bulli seam was shipped on April 16.

1859 Osborne - Wallsend Coal Mine Co. formed to build tramway to Wollongong (Capital of $500,000)

1863 Overseas trade started when the Ironside carried the first shipment of coal to Shanghai.

1863 Wheeled vehicles began using the Bulli Pass.

1887 The Wollongong to Clifton section of the South Coast railway was opened

1888 Extract from the Annual Report by Mr J. Mackenzie, the Examiner of Coal-fields. "Seams of coal and strata proved by adits, etc. by Mr. J. Biggar, on his property near Dapto, and adjacent to his authorities to mine." (pp103) "About 120 chains SSW of the foregoing, in Por. 294 Parish of Kembla, considerable prospecting had been carried out. " Professor David reports on prospecting operations by J. Biggar:- "On the property of the late Mr J. Biggar 2, the tunnels are in a better state of repair…" (pp102) 2 now called Wongawilla (sic).Notes from L. F. Harper, "Geology and Mineral Resources of the Southern Coal-field", 1915.

1890 Professor David inspector for Dept Mines, refers to prospecting operations 3 miles south west of Mt Kembla in the neighbourhood of Portion 125, Parish of Kembla. At which time it was held by the Ocean View Coal Company

1902 Mount Kembla Colliery disaster 31 July 1902. 96 men and boys die

1902 Royal Commission into the Mt Kembla Colliery disaster begins

1905 Cordeaux Dam under construction

1905 Memorial to the victims of the Mount Kembla Colliery disaster unveiled on 12 August

1906 Coal mine to be opened at Wongawilli, 3 1/2 miles from Dapto Railway Station and 7 miles from Wollongong.

1907 A coal seam at West Dapto [Por. 263, Parish of Kembla, County of Camden, south of and adjacent to J. Biggar's Por. 294 – B.S.] was being prospected in 1907 by Mr. Andrew Lang (possibly

brother of Walter Lang)– inspected by L. F. Harper (Gov. Geological Surveyor) in 1907 and reported in his 1915 report stating that the seam had not previously been worked by any South Coast colliery.

1908 The press in 1908 reported that strong possibility that the Wongawilli mine may be sold to powerful company prepared to install a branch line to Brownsville.

1909 Dec 1909 reported that coal still being mined at Wongawilli with 4 teams employed to haul 11 tons per day to Dapto Railway Station.

1910 Feb 1910 reported that night and day shifts employed, 200 tons per week, 40 horses 10 bullocks hauling coal to Dapto Railway Station.

1910 March 1910 work is partially suspended and draymen stood down – company intended to reduce costs by installing an incline from the tunnel mouth to the lower level with rail to the Government rail link (this infers that previously coal was hauled from mine entrance by road)

1910 40 horses and 10 bullocks with 8 drays were drawing coal to Dapto Station 40 tons of coal a day was being produced.

1916 Wongawilli Colliery is purchased by G & C Hoskins for coke to supply Lithgow works. (required a stronger coke than one made from Lithgow coal) Hoskins improved the colliery, established a washery and beehive coke ovens below mine adit. A rail line was built from the washery to Brownsville, opening on 25th October 1916 and in November 1917 coke was being railed to Lithgow from Wongawilli. Coal was lowered down the escarpment via self acting skip incline.

1916 The Railway to Wongawilli was being built and excavations for the coke works were proceeding

1916 Wongawilli mine was opened and developed by G & C Hoskins Limited to supply coke to Lithgow. 150 tons at grass face. A railway to transport the coke was needed. Hoskins sought a railway link from Wongawilli

1916* Wongawilli Colliery established by G & C Hoskins Ltd in the Wongawilli ($3^{\#}$) seam.

1917 Men arrived to work at the Wongawilli mine. 20 out of 40 coke ovens were completed and in use. The incline to the colliery was also ready for use.

1918 Wongawilli sent 1600 tons of coke from the coke works, crusher installed to crush coal for coking.

1922 After a closure whilst the works were improved, there were now 52 ovens available. Direct Dapto to mine transport was required and a school needed.

1923 The coke trade was brisk with 27 trucks to Lithgow. 3 coal washing machines were installed and a direct road to Dapto was needed.

1925 An Episcopalian Church Hall was erected 'a few years ago' close to the mine. A further 40 coke ovens are built.

1927 Construction of Unanderra - Moss Vale railway line commences.

1927 Additional 25 coke ovens were operational making 105

1927 Wongawilli Public School was opened in the Church Hall and the Wongawilli and Citizens Association formed. Hoskins commissions a blast furnace at Port Kembla.

1928 AI & S formed to operate blast furnace at Port Kembla in August 1928 with Wongawilli coke

1928 Wongawilli Public School was opened by W. Davies ex. M.L.A.

1932 Unanderra - Moss Vale line opens - marks northern boundary of Kembla Grange

1935* BHP purchases Wongawilli Colliery and Port Kembla steelworks from G & C Hoskins Ltd. (1928?)

1936* Longest coal haulage incline in world established at Wongawilli.

1938 The opening of new by-products coke ovens opened at Pt Kembla in Jan 1938 led to washed coal being transported directly from Wongawilli to Port Kembla and the Wongawilli coke ovens shut down, opening again between June 1938 and July 1945 due to the increase demands of the war. (Reynolds 2001).

1938 Two coal cutters introduced at Wongawilli

1939 Mount Pleasant Loco No. 2. transferred to Wongawilli Coke Ovens

1940$^{\#}$ Incline Man Transport Train installed.

1942$^{\#}$ Trolley Wire Locomotive System used to supplement 1 North Direct Rope Haulage (30cwt skips filled by contract miners).

1943 Mount Pleasant Loco No. 1. transferred from Mt Pleasant to Wongawilli Coke Ovens

1946$^{\#}$ Coal mined at Nebo Colliery road transported to Wongawilli Washery for treatment.

1947$^{\#}$ 1 North 500HP Direct Rope Haulage installed. Rake of 10 empty 10 ton mine cars lowered under gravity to 1 North Marshalling Yard and 10 full cars hauled to surface for rotary dumping.

1947[#]	Incline and underground endless rope haulage system replaced by automatic friction drive incline hoist comprising 2 x 15 ton track mounted self dumping trippers on the incline. The system operated on 1 pair of 15 ton cars loading at pit top while another pair was self dumping at the incline bottom.
1947	Mechanised mining commenced using Jeffrey Cutters, loaders, battery locomotives and 10 ton Differential Mine Cars. (Jeffrey equipment was manufactured under licence in Australia at BHP Newcastle and AI & S Port Kembla Works).
1948[#]	Wongawilli Coke Ovens cease operations and are demolished.
1948[#]	Wongawilli washery ceases operations and is demolished. The Coal Preparation Plant commences operations at AI & S Port Kembla.
1950[#]	1 North workings hole into old South Kembla Mine and thus to surface to create a new return airway for the mine. A new mine fan is installed at the South Kembla Mine Site. Original Wongawilli fan located at pit top becomes redundant and is shut down.
1950	About this time the Australian Iron & Steel Company undertook the formidable and costly task of re-organising and modernising the old Bulli Colliery and its outmoded rail transport system
1951	85 ton AIS electric diesel loco hauls load from Wongawilli to steel works
1952[#]	Joy 4JCM [continuous miner] placed in service (first 4JCM in Australia??)
1957[#]	Joy 10SC 415Volt AC shuttle cars placed in service.
1958[#]	The installation of panel and trunk conveyor belts commences.
1959[#]	1 North underground conveyor commissioned. 450HP drive, 8,700 feet centre to centre, 171 feet lift. 600 tph ROM capacity. (Longest single flight conveyor in Australia at time).
1959[#]	Incline 30 ton capacity friction hoist taken out of service. (Drive later converted to man transport).
1959[#]	Surface Decline Conveyor installed. 450HP drive, 4,700 feet centre to centre. (Was first conveyor in world designed to lower coal 600 feet in elevation at a rate of 600 tph ROM.)
1960[#]	Joy 15SC shuttle cars placed in service.
1960[#]	Joy 6CM continuous miners placed in service.
1961*	Wongawilli commences mining in the Bulli ([#]1) seam.
1970[#]	Incline haulage system converted to man transport duties.
1970[#]	Jeffrey 120H Heliminer put in service. (first 950/1000Volt Jeffrey continuous miner in Australia).
1971[#]	Wongawilli No. 1 Ventilation Shaft completed. (sunk adjacent to Avon Dam).
1972[#]	Vertical shaft, axial flow fan installed on Wongawilli No. 1 Shaft. (First fan of this design installed at a coal mine). Takes over duties from the fan at South Kembla which is then shut down.
1976	Wongawilli Public School Closed
1977*	Mining in the Bulli seam ceases.
1987	NPWS draft management plan, for Illawarra Escarpment conservation areas.
1991*	Mining in the Bulli seam re-commences for the Elouera roadways.
1993	Wongawilli has remained a unique hamlet which is part of Wollongong's mining history.
1993	Wongawilli Colliery was consolidated with Kemira and Nebo mines to become the Elouera Colliery officially opened on 1 February 1993. BHP Billiton gives the go ahead to the $200 million Dendrobium mine at Mount Kembla. The first mine to be built on the southern coalfields in 20 years
1993*	Elouera Colliery established from the consolidation of Wongawilli, Nebo and Kemira Collieries 1/2/1993.
1993	Elouera Longwall No. 1 commences 3/2/1993, Wongawilli No 1 shaft is decommissioned by not sealed or backfilled
1999	1.81 mill raw tonnes produced from Elouera
2005	July, Elouera Colliery ceases production
2005	October, renamed Delta Colliery by Delta Mining Co, with new company leasing and operating the colliery.[14]

[14] # Information supplied by Mr. Ron Cairns, who commenced his career as an electrical apprentice at Wongawilli Colliery in 1944 and retired while employed as Manager Engineering, BHP Steel Division, Collieries, in 1986.
* BHP Steel, Collieries Division, "The Collieries Handbook", December 1993.
Other information from Brian Sheldon – Illawarra Coal Website

APPENDIX 6 GLASARY OF COAL MINING TERMS[15]

ABM20: A type of continuous miner, manufactured by Voest-Alpine, that allows simultaneous coal cutting and roof support. Used for gateroad development.

Adit: A horizontal or gently inclined passage or opening from the surface into a hillside, for the purposes of exploring, accessing an ore deposit, removing mined material, drainage, or ventilation. Sometimes called drive.

Aerial ropeway / flyingfox: A system of transporting ore or fuel by means of ropes or cables suspended from towers or timber frames.

Air receivers A cylindrical riveted iron container, like a boiler shell but with no door access, both ends being riveted convex plates. Used to store compressed air under 90–100 psi pressure, for supply to machinery such as rock drills, loaders, cutters etc.

Air shaft A shaft driven to connect with underground workings to provide ventilation. Sometimes with a fan at the surface to provide forced air. A chimney was sometimes built over an air shaft to increase draught and was called an 'air stack'.

Ball mill: A grinding machine in which ore or concentrates are fed into a rotating drum or cylinder and ground by the rolling action of steel balls.

Bath-house: An ablutions block, most commonly found at coal mines, but also present at some other mines, where miners showered after a shift, and where work clothing could be stored, in coal mines on drying racks that could be raised to the ceiling.

Belt or panel: The process of extending the conveyor belt and other services as a panel is advanced or retreated.

Bench - A horizontal section of coal seam included between parting of coal or shale. Also a level cut into a hillside for constructing buildings and works areas.

Bituminous coal: Is a black coal that has a high heat value, low moisture content and can be used to generate electricity.

Bolting machines or rigs: Equipment used to install bolts into the roof, sides or floor surrounding mine roadways.

Bord and pillar: A continuous miner system of mining whereby a series of parallel roadways or headings are driven into the block of coal and interconnected by roadways known as cut-throughs to form solid coal blocks or pillars. Pillar dimensions vary from 10 to 110 metres.[16]

Box-cut: The initial opening used to access coal seams in an open-cut operation.

Brattice / brattice cloth: Heavy sacking or fire resistant fabric placed in mine passages and shafts to separate haulage

Breaker line supports ("BLS") or mobile roof supports ("MRS"): Hydraulically powered mobile roof supports used to provide strata stability in the face area of partial extraction panels. Used in conjunction with continuous miners during secondary coal extraction.

Bullwheel: A wheel, operating freely, around which passes the rope in a balance - gravity - power system. Most are equipped with brakes.

Cage: An enclosed platform attached to the winding rope and used to transport men and materials in a mine shaft.

Chain pillar: The pillar of coal remaining between adjacent longwall panels.

Coal blending: Coal that is mixed in predetermined and controlled quantities to give a uniform feed or product.

Coal block: A section of in situ coal that may range in size, generally pillar to longwall block.

Coal clearance system: A system used to transfer coal from the working faces to the surface.

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[15] Adapted from Michael Pearson & Barry McGowan *Mining Heritage Places Assessment Manual* and Centennial Coal Ltd, *Glossary Of Mining Related Terms*

[16] http://www.uow.edu.au/eng/pillar/html/meth_willi.html

Coal cutter: An electrical coal cutting machine generally consisting of a series of cutters fitted to an endless chain surrounding a cutting head that extended from the machine. Various forms of cutter were used. The first coal cutters were introduced into Australia in 1889, but even by 1946 only 36% of coal in NSW, for example, was cut by machine (Hargreaves 1993:113).

Coal handling and preparation plant, CHPP or CPP: A plant used to upgrade the quality of coal including crushing, sizing and drying. Usually refers to the reduction of ash forming mineral in coal.

Coal reserve: The economically mineable part of the coal resource, as defined in the JORC Code. It includes diluting materials and allowances for losses.

Coal resource: Coal in the ground with reasonable prospects for eventual economic extraction, as defined in the JORC Code.

Coal Seam or Bed: A stratum (layer) of coal.

Coal sizing plant: Plant used to size, crush or screen coal to market specifications.

Coke oven: An enclosed vessel in which coking coal is converted to coke for use in steel making.

Coke: Generated from coking coal after being heated at high temperature in an atmosphere substantially devoid of oxygen, passing through a transient plastic stage in which the coal successively softens, swells and resolidifies into a coherent cellular coke ready for use in the steel making process.

Coking coal: Coal suitable for coke making – used inblast furnace for making steel. Also known as metallurgical coal

Continuous miner: A remote-controlled, track-mounted, electrically powered coal cutting and loading machine used to form mine roadways and extract coal pillars.

Decline: An inclined roadway or drift used to provide surface access to an underground coal seam or underground access between seams or to different levels within the one seam.

Development activities: The process of establishing a mining panel (pillars or longwall block).

Dip: Refers to the natural inclination of the coal seam relative to horizontal. Hence “down-dip” refers to a downward sloping part of the mine.

Downcast: The passage through which air is drawn through the mine.

Dumper: see Tippler

Drift shafts and tunnels: Shafts and adits dug to test or work auriferous alluvial deposits near the surface (as opposed to ‘deep lead’ workings). ‘Drift’ was also used to describe relatively loose alluvial material, and an inclined adit or shaft accessing an underground coal deposit.

Dyke and sill: An intrusion of igneous rock that displaces the coal seam.

Energy, steaming or thermal coal: Coal used to provide heat for steam raising as part of the electricity generation process.

Exploration Tenement: A licence granted under the Mining Act 1992 to allow exploration to be undertaken with the objective of determining the occurrence and extent of a coal resource and to assess the potential for mining.

Extracted on retreat: Coal that is recovered from coal pillars once the panel has been fully developed to its designed boundary by retreating and extracting the previously formed pillars. Often in conjunction with the use of hydraulic supports (breaker line supports or BLSs) to protect the immediate working-area.

Face: The end wall at the working extremity of any excavation in a mine. The place where a miner works in excavating coal and rock.

Fan / fan-house: Feature of deep mines and especially coal mines, to provide artificial ventilation. Usually associated with a separate air shaft connecting with the underground workings, and consisting of a usually masonry structure housing a centrifugal fan, such as the ‘Sirocco’ fan. Before mechanical fans were introduced, generally from the 1880s onwards, coal.

Fault and dyke structures: Discontinuities in the coal seam that may impact upon the mineability or quality of the surrounding coal.

Firedamp: Explosive gas such as methane released from coal and producing the risk of explosion in coal mines. The risk led to the ventilation of coal mines by furnace and fans, the invention of the safety lamp, and the early introduction of compressed air and electrical equipment.

Gate roads: Access roadways connecting the longwall working face with the main roadways.

Goaf / gob(voids): The space left following extraction of the coal seam where the roof material is allowed to collapse. see bord and pillar.

Grizzly: A set of parallel bars or grating across which ore is passed, separating out the larger pieces for further primary crushing.

Inbye A term relative to position, meaning nearer to the coal face, and opposite to the term outbye. Sometimes it is used on the surface to mean that an individual is in the mine.

Incline: A inclined shaft or passage, or cable hauled tramway called a self-acting incline if the descending loaded trucks were used to pull up an empty truck on the other end of the cable. inclined shaft was sometimes called an underlay.

Lamp room: A room or building at a coal mine used to store and recharge cap-lamps.

Level: An excavation or passageway driven in the coal, establishing a base from which other workings begin. A colliery level does not mean a passageway excavated on a horizontal plane. A level is generally excavated in one or more slight inclines.

Lift: All the workings driven upwards from one level in a steep pitching seam.

Longwall changeover: The process of relocating longwall equipment from one panel to another; often coincides with major planned maintenance.

Longwall continuity: Critical to economic well being of a longwall operation. Longwall continuity is achieved when the expected time-lag between the completion of one panel and the start of the next relates purely to the time taken to transfer equipment, i.e. no additional time is required to shape-up the next longwall block to its designed dimensions because of insufficient development.

Longwall mining: A system of mining that involves the extraction of large blocks of coal, with the coal being mined on retreat in slices up to 1.0 metre thick from the longwall face. Key longwall mining equipment includes:
•a beam stage loader (commonly referred to as the BSL), used to transfer the coal from the face to the longwall panel conveyor;
•a crusher, used to size the coal; and
•a shearer, used to cut and load the coal from the face;•a steel chained armoured face conveyor (commonly referred to as the AFC), used to transfer the coal across the face;
•self advancing, high capacity, hydraulic longwall supports, used to support the immediate face area as the coal is mined;
•the pantechnicon that incorporates the longwall services, including power supply.

Longwall panel/block: A large contiguous block of coal, typically 100-300 metres wide and 1-3.5 kilometres long, suitable for longwall extraction.

Low strip-ratio: An overburden to coal ratio, measured in bank cubic metres to in-situ tonnes. The lower the ratio generally means a lower cost of extraction.

Low sulphur and ash content coal: Coal that is generally less than 0.4% total sulphur and 18% ash.

Main / tailgate drives: High capacity motors, situated at either end of the longwall face, used to power the armoured face conveyor that removes the cut coal from the coal face to the main drift conveyor.

Main roadways: Roadways that are used as the means of primary access/egress, to supply materials, provide ventilation and enable coal to be conveyed to the surface.

Maingate (“M/G”) and tailgate (“T/G”): Underground roadways formed on either side of longwall block. Maingate refers to the roadway(s) containing the conveyor belt, stage loader and other services to the face area. Tailgate refers to the roadway on the return side of the longwall face.

Marketable reserve: The beneficiated or otherwise enhanced coal product, as defined in the JORC Code, after accounting for impact of mining, dilution and processing.

Methane: A gaseous compound of carbon and hydrogen naturally emitted from coal that can be explosive when mixed with air or oxygen between certain limits. (see firedamp)

Mine plan: A two-dimensional representation of the proposed or existing mine workings, usually prepared as part of an economic assessment of the coal reserve (through the JORC process).

Mining Lease: Title granted under the Mining Act 1992 that provides rights to mine a coal resource.

Nitrogen inertisation: The process of introducing inert gases into the vicinity of a heating or unstable atmosphere in order to lower the percentage of oxygen in the atmosphere.

Old Ben: pillar extraction system based on developing multiple headings, usually three, to the limits of the area to be extracted. These panels, along with newly formed pillars (in the virgin coal) were extracted in retreat (developed at the Old Ben Colliery in Illinois, USA)

Open-cut: A type of mining where the Overburden is removed to expose coal seams and allow their extraction by surface means.

Outbye - Relative to position, meaning farther from the coal face, opposite to inbye. It is loosely used at times by miners to signify the surface.

Overburden: Top soil/strata overlying the coal seam.

Overcast: A ventilation device that allows stale return air to pass over or cross fresh intake air without contamination.

Partial extraction: A continuous miner system of mining whereby some of the coal pillars in a panel, or parts thereof, are systematically extracted. The total recovery factor (coal extracted as a percentage of coal in-situ) is generally in the range of 40 – 60%.

PCI Coal (Pulverised Coal Injection): Is a coal that is suitable to be pulverised and then injected into the base of the blast furnace in the production of hot metal.

Picking belts / picking table: A conveyor belt at the pit top of a coal mine that transports broken coal and rock past a series of men and boys called 'pickers' who removed any rock and break up large lumps of coal before the coal was loaded for dispatch.

Pillar: A column or body of coal left unmined to support the roof.

Pillar extraction panel: A continuous miner system of mining whereby coal pillars are systematically extracted. The total recovery factor (coal extracted as a percentage of coal in-situ) generally exceeds 60%.

Pillar quartering: A secondary system of mining, involving the formation of smaller sized pillars to improve overall coal recovery.

Pithead pit top: The area of working at the top of a coal mine shaft or haulage. It includes the associated structures and machinery used in the retrieval and processing of coal.

Poppet head: An iron, steel or timber structure of legs built over a shaft. It is equipped with pulleys over which the ropes or cables run that raise and lower the cages in the shaft. See also headframe.

Portal: Surface entrance to an adit or tunnel.

Prop: A wooden post or support used in a mine, such as to support the caps in a timbered drive.

Pit-bottom: An area where the mine drift used to access the coal seam intersects with mine workings.

Place change or cut 'n' flit: A continuous miner system of mining used to develop a panel, typically seven headings wide, that involves the continuous miner cutting out a designated length of roadway and flitting to another working face in a predetermined sequence within the panel. A roof bolting machine then moves into the place left by the miner and installs roof support concurrently with coal production in another roadway.

Product dilution: Non-coal or poorer quality roof or floor coal that is mined and included in the coal product.

Production under management: Total production that is derived from mines under Centennial management, i.e. includes production from mines not exclusively owned by Centennial.

Ramp-up/down: An adjustment to the mining rate to account for panel start-up or completion.

Recoverable reserve: Similar to coal reserve, a term used to describe the amount of coal that can physically be mined from a reserve at an acceptable cost, as defined in the JORC Code.

Return or return side: Refers to an area of an underground mine containing ventilating air that has passed the face area or some other work area in the mine.

Rib: The sidewalls of an underground roadway. "Rib spall" refers to the periodic slabbing of coal from the sidewalls.

Rocsil, PUR, cavity filler: Chemical products that are pumped or injected into coal, surrounding strata or roof cavities to assist in re-establishing stability in geologically disturbed areas.

ROM or run-of-mine: Raw coal as mined that has not undergone any screening, crushing or beneficiation.

Self-acting incline: See inclined tramway

Semi-soft coal: A type of coking coal that can be blended with a hard coking coal to produce an acceptable hard coke.

Shear: The strip of coal, usually about 1m thick, that is cut from the longwall block during each cycle of the longwall face.

Slack/ slack coal Small sized coal disposed of as a lesser grade of coal. Forms mounds found at many coal mines.

Skip: A rail mounted wagon or container used for hauling material at a mine. Either fitted with a door for easy unloading, or able to be tipped.

Step-around or Side-step: The process of moving longwall equipment a relatively short distance within the same panel to avoid mining through a specific section of the panel, e.g. to avoid mining through a major geological feature or mining beneath a sensitive surface feature.

Sub-bituminous coal: Is a coal that has a lower rank, lower heat value and higher moisture content than bituminous coal.

Subsidence Management Plan ("SMP"): Detailed environmental assessment and monitoring, requiring early mine planning to determine the impact of proposed mining prior to receiving consent to mine a particular area.

Subsidence: Movement of strata resulting from the extraction of coal and incorporates vertical ground movement (strain) and differential vertical movement (tilt).

Super panel: A continuous miner system of mining used to develop a panel, typically seven headings wide, that involves the concurrent use of two continuous bolter miners in the same panel to increase productivity.

Super place change: A continuous miner system of mining used to develop a panel, typically seven headings wide, that involves the concurrent use of two continuous miners and a mobile bolter in the same panel to increase productivity.

Surface mining: A generic term used to describe any type of mining where the coal seam is accessed from a surface location, or where machinery and/or persons are not required to work underground.

Swilley: A localised change in the level of the coal seam, resulting in a part of the mine workings at a lower elevation to the surrounding areas. Often associated with localised water accumulations and wet conditions.

Tandem unit: A system of gate road development where two continuous miners operate in the same panel, one in each heading.

Tippler / tipple / tumbler dumper: A method of emptying skips, where the skip rails ran onto a framework that allowed the whole skip and rail section to be tipped or rotated over an ore storage bin or onto screens. Most commonly used in coal mines.

Tuff: A type of rock sometimes found above or below the coal seam, often associated with difficult or "heavy" ground conditions.

Wongawilli method: a modified bord and pillar extraction method the was a precursor of longwall mining, involving.[17]

Yield: Usually refers to the proportion of saleable coal derived from ROM production following washing or beneficiation.

[17] http://www.uow.edu.au/eng/pillar/html/meth_willi_modern.html

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