CAVE HILL QUARRY

MELBA AVENUE, LILYDALE

CONSERVATION MANAGEMENT PLAN

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Cover image:

Cave Hill employees on the quarry floor, c. 1880s (Source: John Mitchell Private Collection)

Cave Hill Quarry

Melba Avenue, Lilydale

Conservation Management Plan

Prepared for
Places Victoria (on behalf of Sibelco)

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1.0 INTRODUCTION

1.1 Background and brief

This Conservation Management Plan (CMP) for the Cave Hill Quarry, Lilydale, was commissioned by Places Victoria on behalf of Sibelco, the quarry owner. It was prepared by Lovell Chen Architects & Heritage Consultants in collaboration with Andrew Long & Associates (ALA) and Lookear. ALA undertook research relating to the site's historical (non-indigenous) archaeological values and elements. ALA also prepared a brief 'Aboriginal Heritage Assessment' (Attachment A). 'Interpretation Concepts' for the site were explored by Lookear in conjunction with Lovell Chen (Attachment B).

The primary purpose of this CMP is to clarify the nature and extent of the site's cultural heritage significance, and to ensure that the conservation and future uses, adaptation and development of the place have regard for its heritage significance.

In anticipation of the imminent cessation of the extraction and processing of limestone at Cave Hill, Sibelco has initiated the development of a master plan to guide future development at the site. This CMP forms part of the master plan process. Lovell Chen previously prepared a report tiled *Heritage Assessment & Recommendations (Draft)* relating to the Cavehill Limestone Quarry, Lilydale, dated January 2011. This CMP builds on research undertaken for the preparation of that document.

Note: Over time the subject site has been referred to by a number of names, including the David Mitchell Estate, the Cave Hill Estate, the Cave Hill Farm and Lilydale Quarry. For the purposes of this report it is referred to generally as the Cave Hill Quarry or Cave Hill.

1.1.1 *Description*

Cave Hill Quarry is located approximately 40km east of Melbourne and 1km south-west of Lilydale township. It is within the Yarra Ranges local government area. The site is bordered to the west by Mooroolbark Road, to the north-west by Maroondah Highway, to the east by modern industrial development and Swinburne University's former Lilydale campus, and to the south and south-east by modern residential development. Hull Road forms the site boundary to the south-west. Access to the 164ha site is from Melba Avenue to the north. The Lilydale-Melbourne rail line bisects the site north-south (Figure 1).

The site includes the quarry pit, overburden dumps (including the large dump to the east of the quarry) and areas of undeveloped land to the south and west of the quarry pit. The majority of the heritage assets (buildings, elements and areas) at the site are located to the north of the pit (Figure 2). Limestone processing plant is generally located to the north-west of the pit ('Limestone processing precinct', Figure 2), and a former farm is located to the north-east of the pit ('Farm precinct', Figure 2). Also identified in this report are the 'Arrivals precinct' at the north end of the site, and the 'Quarry precinct' to the south of the limestone processing area.

Cave Hill Quarry is a much altered landscape. The pit has been excavated to approximately RL0; the crest of the original hill is estimated to have been RL150m. Overburden has been dumped to all sides of the quarry pit. The area to the north of the site (the location of the cricket pitch and entrance driveways) is generally at natural ground level (typically RL120m). The land slopes up to the west of the rail line towards Maroondah Highway.

Figure 1 Aerial view of Cave Hill Quarry, with the site boundary (approximate) indicated
Source: www.nearmap.com (accessed 18 August 2015)

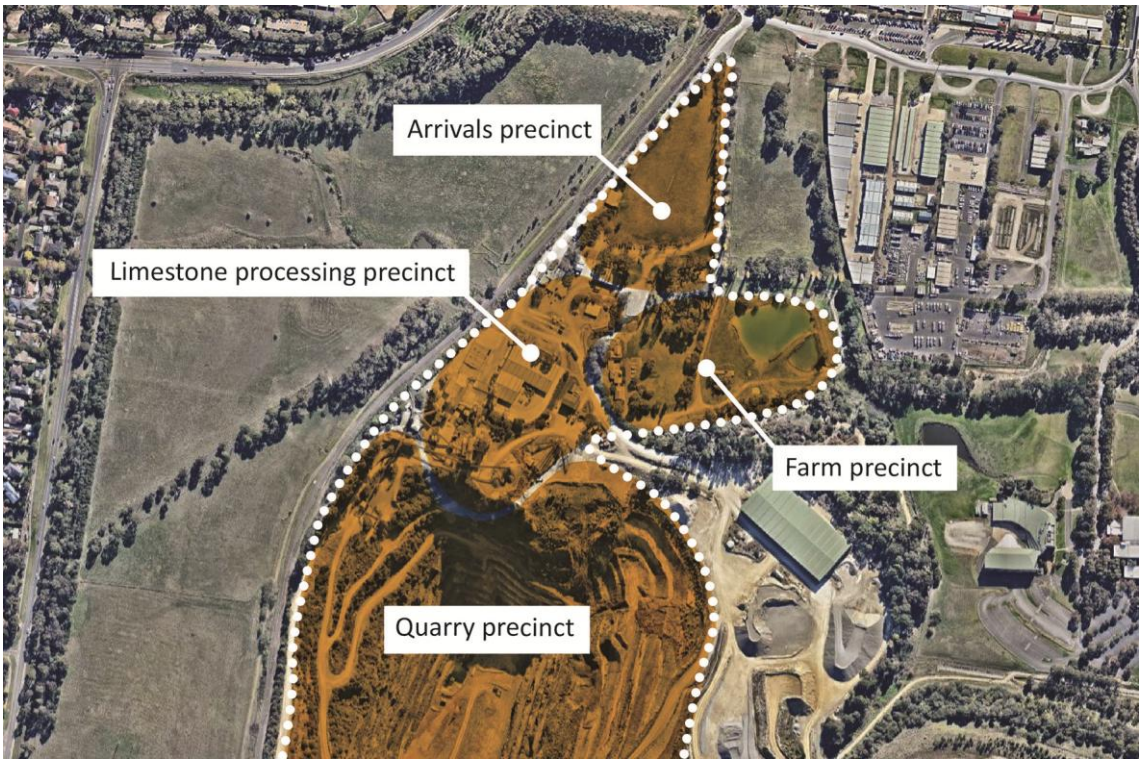


Figure 2 Detail of the area north of the site, including part of the quarry pit
Source: www.nearmap.com (accessed 18 August 2015)

1.2 Report structure

This CMP broadly follows the format of the Australia ICOMOS (International Council on Monuments and Sites) guidelines for the preparation of conservation plans,[1] and the principles set out in the *Australia ICOMOS Burra Charter*, 2013, adopted by Australia ICOMOS to assist in the conservation of heritage places.

The document provides a history of the development of the place and a description of the key areas and elements (chapters 2 and 3), then assesses the heritage significance based on that information (chapter 4). Implications arising from significance, conservation policies and management guidelines are provided at chapter 5.

1.3 Limitations

Historical research: Consistent with the *Burra Charter* approach, the aim of the historical research undertaken for this report was to gather information about the place sufficient to understand significance.[2] It was beyond the scope of the report to access all of the historical documentation that relates to both the Cave Hill Quarry and the life and times of David Mitchell, although it would be desirable for this detailed research to be undertaken. Both the Yarra Ranges Regional Museum and the Lilydale & District Historical Society hold extensive primary sources relating to the Mitchells and the estate. In 2014 the quarry donated a large amount of historic material to the museum, and it is likely that a close examination of this material would provide a more comprehensive understanding of some aspects of the site.

Building condition: A detailed analysis/assessment of the current condition of buildings and structures at the site was beyond the scope of this report. However, an assessment of condition should form part of a suite of works involving conservation and adaptation.

Building additions: Buildings in the Lime Processing Precinct in particular have been subject to additions and accretions over time. While this report identifies, as a general principle, the opportunity to remove additions to the buildings and structures, it does not include a detailed overview or inventory of all additions. Further investigation on a case by case basis would clarify an appropriate response to removal of additions, from a heritage perspective.

Archaeology: Archaeological testing was not undertaken in the preparation of this report.

Related places: Features and elements historically related to the operation of Cave Hill that are beyond the present site boundaries were not inspected during research for this report, and are not addressed here. These elements include evidence of the former tramway established to transport timber to the kilns for burning, and elements associated with water management, including the former water race.

1.4 Statutory heritage listings

1.4.1 *Heritage Act, 1995*

Cave Hill Quarry is not included in the Victorian Heritage Register (VHR), maintained by the Victorian Heritage Council.

The quarry was nominated for inclusion in the VHR by the Shire of Yarra Ranges in 2008. In 2013, Heritage Victoria requested further information including: a Certificate of Title; comparative analysis with similar places in Victoria; and an explanation of why the place warrants inclusion in the VHR.[3] This information has yet to be supplied.

Victorian Heritage Inventory

Heritage Victoria maintains an inventory of known and recorded historic archaeological places – the Victorian Heritage Inventory (VHI). A circular brick well at the north-west corner of the subject site, close to the Maroondah Highway, is included in the VHI. The site is known as the 'Melbourne Road Well Site' (H7922-0245).

1.4.2 *Planning and Environment Act, 1987*

Some areas and buildings at the Cave Hill Quarry are included in the Schedule to the Heritage Overlay of the Yarra Ranges Planning Scheme (Figure 3). These are:

- The 'Old Cave Hill Butter, Cheese and Bacon Curing Factory, David Mitchell Estate', designated as HO57; and
- 'Cave Hill Limestone Works' designated as HO201.

The present mapping is an outcome of Amendment C90 Part 2 to the Yarra Ranges Planning Scheme, gazetted on 14 October 2010. This amendment corrected an anomaly, whereby HO57 and HO201 were included in the Schedule to the Heritage Overlay, but were not mapped. The Schedule to the Explanatory Report for C90 notes that the 'HO maps were … deleted accidentally' from the property at no. 4 Melba Avenue, Lilydale as part of Amendment C60 to the Yarra Ranges Planning Scheme. Amendment C60 was gazetted on 3 April 2008.

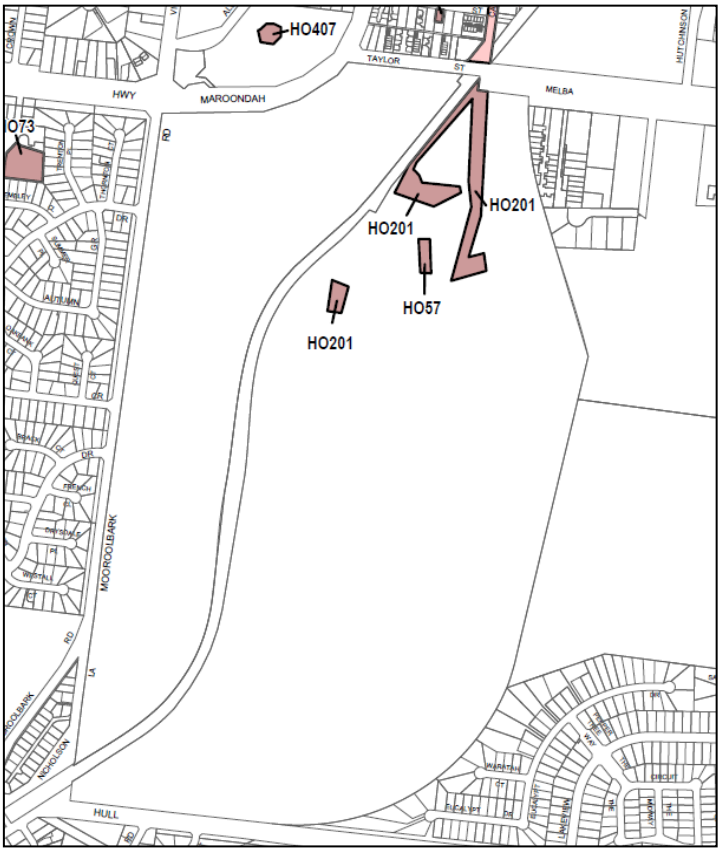


Figure 3 Excerpt from the Yarra Ranges Planning Scheme, showing HO57 & HO201, elements of Cave Hill Quarry.
Source: Yarra Ranges Planning Scheme online.

Comment

The findings of this CMP are inconsistent with the Heritage Overlay entries for HO201 and HO57 in the Planning Scheme. A larger area within Cave Hill Quarry is recommended for heritage controls and protection. This is illustrated in Chapter 5.

Further, the mapping for HO201 'Cave Hill Limestone Works' includes the two driveways, land occupied by the milking shed and silage store (associated with the farm), the Tunnel and an area to the south of the cricket pitch. This is inconsistent with the citation prepared by Context (see Section 1.4.3), which identifies 'The Cave Hill Limestone Works, with its associated quarry, tramway, water race and other features' as being of potential state significance. This area also excludes the later generations of lime processing equipment (the upgrades in the 1920s and the post-war period).

1.4.3 *Heritage studies*

The limestone works (and related elements) and the factory buildings associated with the farm at Cave Hill were identified in the *Yarra Ranges Heritage Study*, prepared by Context Pty Ltd (2000). The citations are included at Appendix B.

1.5 Previous reports

Several previous reports have been referred to in the preparation of this report. They include:

- Lovell Chen Architects & Heritage Consultants, Heritage Assessment & Recommendations, Cavehill Limestone Quarry, Lilydale (Draft), prepared for WSP Fitzwalter (WSPF) Development and Project Managers, January 2011
- Biosis Research, Proposed Residential Subdivision at Lilydale Quarry (Area A) Lilydale Victoria, Cultural Heritage Management Plan, April 2010
- Biosis Research, Lilydale Quarry Preliminary Heritage Assessment, October 2007

1.6 Terminology

The terminology used in this chapter is of a specific nature. The following definitions are from the *Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013* (Article 1), as endorsed by all statutory and national heritage bodies.

> *Place* means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.
>
> *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.
>
> *Fabric* means all the physical material of the *place* including elements, fixtures, contents and objects.
>
> *Conservation* means all the processes of looking after a *place* so as to retain its *cultural significance*.

Maintenance means the continuous protective care of a *place*, and its *setting*.

Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Preservation means maintaining a *place* in its existing state and retarding deterioration.

Restoration means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements 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.

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

Use means the functions of a *place*, including the activities and traditional and customary practices that may occur at the place or are dependent on the place.

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

Setting means the immediate and extended environment of a *place* that is part of or contributes to its cultural significance and distinctive character.

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

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

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

Meanings denote what a *place* signifies, indicates, evokes or expresses to people.

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

2.0 HISTORY

This chapter provides a summary history of Cave Hill Quarry since the 1840s. A discussion of the industrial operation of the site, and the history of buildings relating to different periods, is at Chapter 3.

2.1 1850s-1878

2.1.1 *Ownership and use of the site*

The subject site is situated on land which was originally Crown allotments 20 and 21 of the Parish of Mooroolbark (Figure 4). These allotments, along with the adjacent allotment 26, were acquired from the Crown by William Nicholson on 13 December 1855.[4]

Nicholson was a prosperous merchant and land owner and a member of both the Legislative Council and Legislative Assembly in the Victorian parliament during the 1850s and 1860s. He held the position of premier briefly in 1855 and again in 1859-1860, and died in March 1865.[5]

Nicholson's three allotments comprised approximately 514 hectares (1,270 acres), and encompassed land between Melba Avenue and the Old Gippsland Road at the north, Mooroolbark Road at the west, Hull Road to the south, with the eastern boundary following the approximate line of the now closed southern continuation of Mangans Road, Lilydale.

The property was known as Cave Hill Farm as early as 1864, a reference to the prominent escarpment and the numerous caves (karst landscape) within it.[6] It was leased to Allan Fisher and James Cashin for a period of 20 years from 1861.[7] Cave Hill farm appears to have operated as a mixed use farm run by Fisher, with a notice published in the *Argus* in 1864 reporting the sale of 'horses, cows, farming and dairy utensils, pigs, hay, potatoes'.[8] In 1871 and 1875, notices were published in the *Argus* advertising the farm was for lease.[9] The property was again advertised for lease in February 1878, and was soon after acquired by David Mitchell.[10]

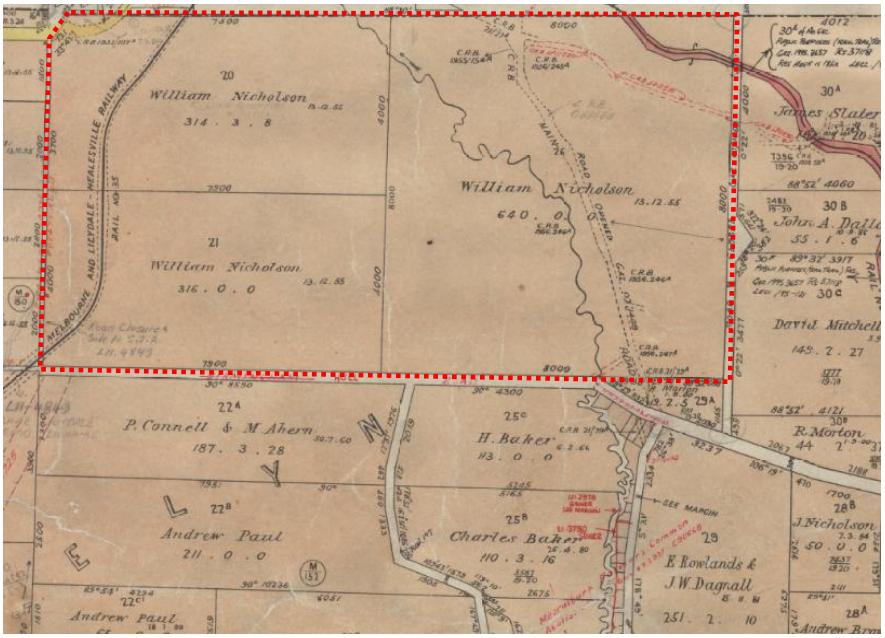


Figure 4 Detail of plan of Parish of Mooroolbark, with Nicholson's land indicated
Source: VPRS 16171, Public Record Office Victoria

2.1.2 *Recognition of the Cave Hill lime resource*

The Government geological surveyor, Alfred Selwyn undertook the Geological Survey of Victoria between 1853 and 1869, concluding his survey of the district east and north of Melbourne in 1856. Selwyn identified Cave Hill as having the 'only limestone beds in the entire area,' although the limestone was not visible from the surface. His report went on to describe the hill:

> On descending the steep slope of a small hill ... one comes suddenly on what appears to be the mouth of an old well. It is however, the entrance to a cave, 120 feet in depth, extending the whole way through thick strata of solid crystalline marble, a grey and brownish red limestone ... the passage is often so narrow as to scarcely to admit a man's body, but at the bottom opens out into a small chamber, the floor being on a slope of about 20°.[11]

An 1856 plan of the Parish of Yering, immediately to the north of the Parish of Mooroolbark, noted a 'Cave – 130 feet deep', in the approximate location of quarry.[12]

It has been suggested that the cave was used for recreational purposes. Though there is little documentary evidence to corroborate this, it appears likely it was used for such purposes. Reminiscences of 'old Lillydale' published in local newspapers in the interwar period did refer to the cave as a local attraction in this early period, with groups being windlassed down the cave.[13]

2.1.3 *Development of Lilydale*

Lilydale comprises land which was originally part of the parishes of Yering and Mooroolbark, with the original township surveyed on land within the parish of Yering. Crown land sales of allotments in Yering began from 1852 and in Mooroolbark from 1855.[14] Early uses of the land included cattle grazing and timber felling. The population of the district remained sparse into the 1850s, with only 40 people recorded in Mooroolbark and 179 in Yering in 1854.[15] There were a number of owners of multiple allotments in both parishes, but the largest landowner in the district was Paul de Castella, after whose pastoral station the parish of Yering was named. An early industrial site, Cashin's Flour Mill, was located on allotment 30A in the Parish of Mooroolbark, and much of the wheat grown in the district was ground there. Established in the early 1850s, it was fed by water races from the Olinda Creek, before closing in 1876.[16] By the 1870s, agriculture in the area had diversified to include dairying, fruit growing and viticulture.[17]

The township of Lilydale (originally known as Lillydale) was surveyed in 1859, and the first land sale of town lots was held the following year. Lilydale was the largest of the early farming townships in the Yarra Ranges district (Figure 5).[18] By 1862 the town had a small number of stores and a hotel.

With the discovery of gold at Wood's Point north-east of Melbourne in the early 1860s, Lilydale became an important stop for traffic on the way to the goldfields, and a number of new businesses were opened up catering for the increased population.[19] The Upper Yarra Roads Board, which comprised the parishes of Nunawading, Warrandyte, Yering and Mooroolbark, was established in 1856, and constituted as the Shire of Lillydale in 1872.[20]

Figure 5 View of the township of Lilydale looking south along Castella Street, c. 1880
Source: National Library of Australia

The opening of the railway line from Hawthorn to Lilydale in 1882 was the next catalyst for further development in the township. The rail link to Melbourne was a boon for local businesses, bringing tourists and day-trippers in 'search of health and pleasure', and enabling local products to be quickly and more cheaply transported to the city markets. [21]

2.1.4 *Acquisition of the site by David Mitchell*

David Mitchell officially acquired the 'freehold estate known as Cave Hill Farm' from the estate of William Nicholson on 1 May 1878 for £8000.[22] This property comprised the 1,280 acres (518 hectares) of allotments 20, 21 and 26. At the same time, he also leased an additional 320 acres (130 hectares) from a Mr Twentyman, which included the site of Cashin's Mill on Olinda Creek.[23] Mitchell had leased property in the district from as early as 1868, and in 1875, became a councillor of the Shire of Lilydale, serving until 1883.[24] He was voted president of the Shire of Lilydale in March 1883, after having served as vice-president the previous year.[25]

As part of this acquisition, an early termination of the leases on the land was agreed to.[26] Interestingly, the net annual value of the property as recorded in the rate books, did not increase substantially after the establishment of the quarry, being £310 in 1878 and £365 in 1881.[27] After the construction of the railway, and the resultant increase in production and higher land values in Lilydale, the net annual value of the property increased to £600 in 1885 and to £1,016 in 1892.[28]

2.2 1878-1916

2.2.1 *David Mitchell*

Personal life

David Mitchell was born on 16 February 1829 in Forfarshire, on the east coast of Scotland. In 1846 he began a four-year apprenticeship to a master mason, James Watson, in the town of Kirriemuir. After completing his apprenticeship, he sailed to Melbourne, arriving on 24 July 1852. He established himself as a building contractor and built a shanty on land in Richmond. With business in Melbourne poor due to the gold rush, he travelled to Sandhurst (Bendigo), but returned to Richmond the following year, having found little success on the goldfields. In 1856 he tendered successfully for the masonry work for St Patrick's Cathedral, Eastern Hill, the same year he married Isabella, daughter of James Dow.[29] They lived at Doonside, a self-built house at Mitchell's premises on Burnley Street, Richmond. The couple had ten children, including Helen Porter Mitchell (Dame Nellie Melba), who was born at Richmond on 19 May 1861.[30]

Building contractor

From the 1860s to the end of the nineteenth century, David Mitchell was one of Victoria's leading building contractors. The Menzies Hotel on William Street (completed 1857); the Paterson, Laing & Bruce warehouse, Flinders Lane (1871); Scots Church, Collins Street (1874); the Exhibition Buildings at Carlton Gardens (1880); the Masonic Hall, Collins Street (1888); and the Equitable Insurance Building (1893) were among the more prestigious of the many Melbourne buildings completed by his company during this period. By the late 1870s, he was a prominent and well-known member of the Melbourne community (Figure 6).

Figure 6 Engraving of David Mitchell published in the *Australian Illustrated News,* 1880
Source: State Library of Victoria

In the late-1860s, Mitchell had acquired property at Steel's Flats, between Lilydale and Healesville, where he and his family spent their holidays. Mitchell later became a councillor of the Shire of Lilydale, serving from 1875 until 1883.[31] Also during this period he acquired the Colbinabbin Station near Rushworth and properties near Camperdown (Jancourt) and Mansfield (Dueran).[32]

Mitchell's wife Isabella died in 1881, and for a short time he relocated to Port Mackay, Queensland with his two eldest daughters. In 1886, as the Commissioner for Australia to the Indian and Colonial Exhibition, he travelled to London.[33] Mitchell retired from the building contracting business in 1899, from which point he concentrated on other interests (discussed below).[34] Although he spent much time in Lilydale, his primary residence was in Richmond.

In later years, Mitchell's individual achievements were somewhat eclipsed by the celebrity status of his daughter, opera singer Dame Nellie Melba; from the early twentieth century, newspaper reports would often refer to him as 'the father of Madame Melba'.[35] David Mitchell died in March 1916, aged 87.[36] He had been actively involved in the running of Cave Hill until only a few days before his death.

Diverse interests

As well as his career as a contractor, Mitchell had a range of other business and property interests. In 1859, he established a factory for steam-made and pressed bricks at his Richmond works. Gold mining also continued to be a favoured pursuit. In 1870, Mitchell formed the Evelyn Tunnel Gold-mining Company, to construct a tunnel at Pound Bend, Warrandyte, to divert the Yarra River and allow a stretch of the river bed to be mined. The venture was not a success, but the 195m (639ft) long tunnel survives.[37] He became a partner in the Darley Firebrick works at Bacchus Marsh in 1898, and the majority shareholder in 1902.[38]

In 1890 Mitchell commenced production of plaster ('Adamant')[39] and Portland cement at his Burnley works, using materials from Cave Hill,[40] and in the late 1890s he went into business with the engineer John Monash. Since 1894 Monash had been in partnership with Joshua Anderson; Monash & Anderson were civil, mining and mechanical engineers, and patent agents.[41]

In 1897, Anderson met Frank Moorhouse Gummow, a Sydney contractor-engineer whose firm Carter, Gummow held the Australian parent rights for Monier reinforced concrete construction. Anderson negotiated an arrangement where Monash & Anderson became Gummow's Victorian agents. This resulted in the company pioneering the use of reinforced concrete in Victoria. Ultimately, the arrangement also enabled Monash to make his fortune.

In 1899 Monash & Anderson entered into a lengthy legal battle relating to non-payment for services rendered on the construction of a Monier reinforced concrete bridge at Fyannsford, Geelong. The case was not resolved until 1902. As noted by Geoffrey Serle, Monash's biographer, 'To general amazement, the eventual judgement granted Monash & Anderson only about one-fifth of their claim; although the judges, in effect, declared justice was on their side, the law was not'.[42] The case resulted in a loss of approximately £3,000 (equivalent to approximately $100,000 today) in unpaid fees and legal costs to Monash & Anderson.[43]

Mitchell was incensed at the court's treatment of Monash, and resolved to offer financial support. This was forthcoming in the form of capital to establish the Monier Pipe Co Ltd of Victoria (established 1901), with Monash & Anderson and Mitchell holding 40 per cent of

shares each, and the rest distributed among officers of the company. Mitchell also offered land for the venture next to his Burnley cement works on condition that his products were used.[44]

By 1913, Monash – by then practicing independently of Anderson – was worth over £30,000 (equivalent to approximately $1 million today).[45] When Mitchell died in 1916, Monash 'could never forget how he befriended me when I needed help so badly'.[46] Of course, the venture was not entirely altruistic on Mitchell's part. As noted by Serle, 'Mitchell's linking of his Richmond cement factory with the neighbouring reinforced concrete pipe factory and its later development was the major interest of his old age'.[47]

Role in the development of the lime industry

David Mitchell was a founding member and shareholder of the Melbourne Builders' Lime and Cement Company (MBLCC), which was associated with the second wave of lime production in Victoria. Industrial-scale production began to replace the earlier generation of small-scale owner-operators, who generally operated in the vicinity of Geelong and the Mornington Peninsula.[48]

This second wave of lime production had its origins in 1874, at a meeting of the Builders' and Contractors' Association, which resolved to take steps to form a company for 'the purpose of breaking up the existing monopoly of the lime trade [and] to regulate the price and quality of lime'.[49] The contractors were concerned that a small number of lime merchants, notably the Limeburners' Company, had secured a monopoly of Geelong lime supplies by buying all the lime burning licences in the district.[50]

The expansion of the rail network also provided an alternative to sea transport, meaning that inland lime resources became more viable.[51] With improvements in the production of Portland cement throughout the nineteenth century, cement had additionally begun to replace lime mortar as the most common construction material by the 1880s.[52]

2.2.2 *Hawthorn to Lilydale Railway line*

From the mid-1870s pressure mounted on the government to extend the rail line from Melbourne's eastern suburbs to Healesville, via Lilydale. A deputation to the Railways Minister noted the rich agricultural and mineral resources of the area, including the deposits of limestone and marble, 'which it was confidentially stated ... would pay'.[53] By the time the new route from Hawthorn to Lilydale was confirmed by the passing of the Railway Construction Bill in November 1878, the limestone was described as 'an unlimited supply'.[54]

An 1887 article suggested that although the quantity of limestone at Cave Hill had long been recognised, the cost associated with transporting the lime to Melbourne had been considered prohibitive.[55] Given his official involvement in local affairs, Mitchell would have been well aware of plans to extend the railway to Lilydale when he purchased the Cave Hill property. The quarry was in operation by the time the route of the new line was being surveyed and it appears likely that, due to his considerable influence and standing in the district at this time, Mitchell was able to influence both the route of the line and the subsequent construction of a railway siding to his quarry. A c.1880 plan of the alignment of the railway 'as described in the Railway Act of 1880', showed the line originally extending around the east side of Cave Hill. The line was subsequently redrawn around the west of the quarry, with a siding at the north (Figure 7), a route more suited to Mitchell's requirements.[56] This siding was under construction by April 1882, and the railway line itself was opened in December 1882.[57]

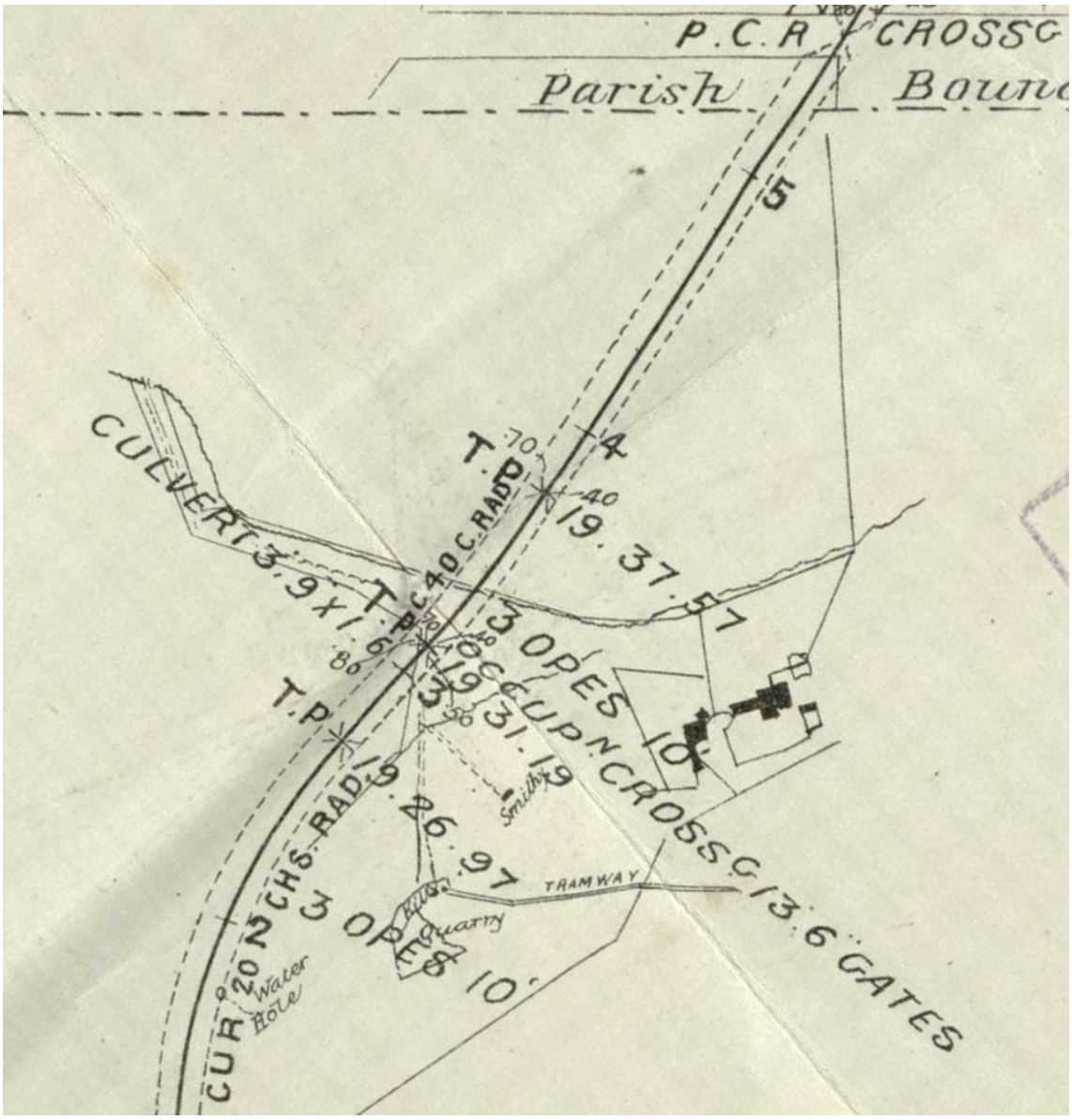


Figure 7 Victorian Railways plan of route of Lilydale railway line, late 1880s, showing buildings at Cave Hill including a smithy, and two larger buildings, which possibly include the homestead the quarry and kilns are indicated at bottom centre
Source: State Library of Victoria

2.2.3 *Development of Cave Hill quarry*

Soon after acquiring the property, Mitchell hosted a gathering of '30 gentlemen' on 2 April 1878 to celebrate the opening of the limestone and marble quarries at Cave Hill. The report in the *Argus* the following day noted that the quarry was 'most peculiarly situated':

> The stone crops out all up the sides of a steep hill, at the foot of which there is a natural shaft extending about 100ft. deep, and opening out into large caverns ... The lime was pronounced by the contractors present to be of the finest quality; and as the body of stone is almost inexhaustible, the discovery is one of the greatest importance to the colony.[58]

The quarry's potential to supply Melbourne with its lime requirements once the railway was completed was noted.[59] By 1882, the quarry was producing 1,000 bags per week, and it was anticipated to increase to 3,000 bags following the construction of a new kiln and the rail siding.[60] This expected increase in demand and production prompted Mitchell to expand his operations at the quarry, replacing the 'slow and expensive' horses and drays in transporting the limestone from the quarry floor to the kiln, with a system of water wheels and pulleys to lift the stone from the quarry and deposit it at the kiln.[61] At this time, pot kilns were in use at the site (See Chapter 3 for an overview of the early operation of the quarry). Prior to the construction of the railway line, lime was transported to Melbourne by a team of 60 horses.[62]

By 1887, there were 70 men working at the quarry, with kilns operating 'night and day' during the week, and two steam cranes were soon to be installed (Figure 11). A cutting and tunnel through the north side of the hill directly to the lime resource had been made by this time, and a horse-drawn tramway for transporting wood was already two miles long. The extent of the Cave Hill lime workings can be seen in a pre-1900s photograph showing the quarry, rail siding tunnel, kilns and associated structures (Figure 8).

Other development on the site in this general period included a homestead which had been constructed by 1887 for an onsite manager of the quarrying and farming operations.[63] An undated photograph (Figure 12) of the homestead, demolished in the 1960s, shows it as a hipped roofed building, with a verandah, and surrounded by garden and trees. It can also be seen in a 1907 panoramic photograph of Cave Hill (Figure 9), and the residence is likely to one of the buildings depicted in the c. late-1880s Victorian Railways plan (Figure 7), along with another substantial building, a 'smithy' and the beginning of the tramway line.[64]

Such was Mitchell's confidence in the commercial potential of Cave Hill, he is believed to have considered forming Cave Hill into a public company from as early as 1888, but this did not occur until after his death.[65]

Mitchell began selling his Emu brand of cement from Cave Hill in 1891, described in one editorial as 'equal to the best Portland [cement]'. In 1892, the Shire of Lillydale rated Cave Hill at the significant net annual value of £1,016.

By the mid-1890s, one observer wrote of the limestone workings:

> It's a hive of industry ... carried out to the utmost extent of perfection regardless of time, trouble or expense. That remarkable chasm which indicates the spot from whence limestone is taken is the focus of a great industry itself, surrounded as it is by kilns of the most approved pattern, steam winches for hoisting the stone, a tramway and locomotive for the carriage of firewood, a blacksmith's shop for the repairing of machinery, tools &c and all worked by a little army of skilled limeburners, quarrymen and mechanics.

Figure 8 Early (likely pre-1900s) view of the cutting and tunnel leading into the quarry pit. The building to the left of the image was the early crusher
Source: Yarra Ranges Regional Museum

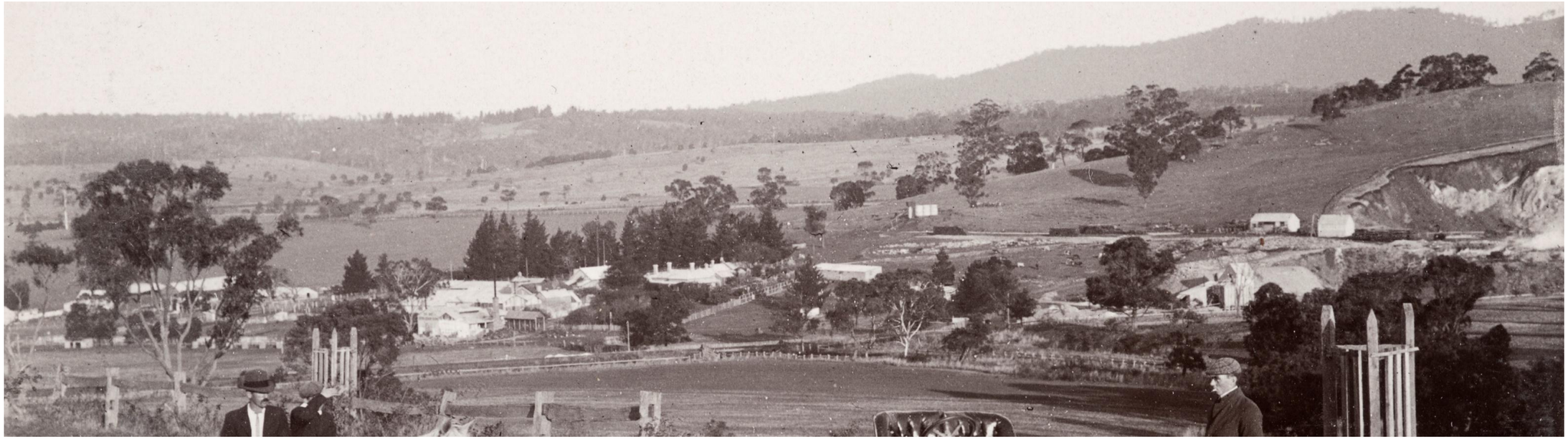


Figure 9 Detail from April 1907 photograph of the Cave Hill farm complex, taken from what is now Maroondah Highway. Visible to the left of image are the concentration farm buildings and the homestead (latter with multiple chimneys at centre image). The Melbourne-Lilydale railway line is also visible in the foreground
Source: Russell Grimwade Collection, University of Melbourne Archives

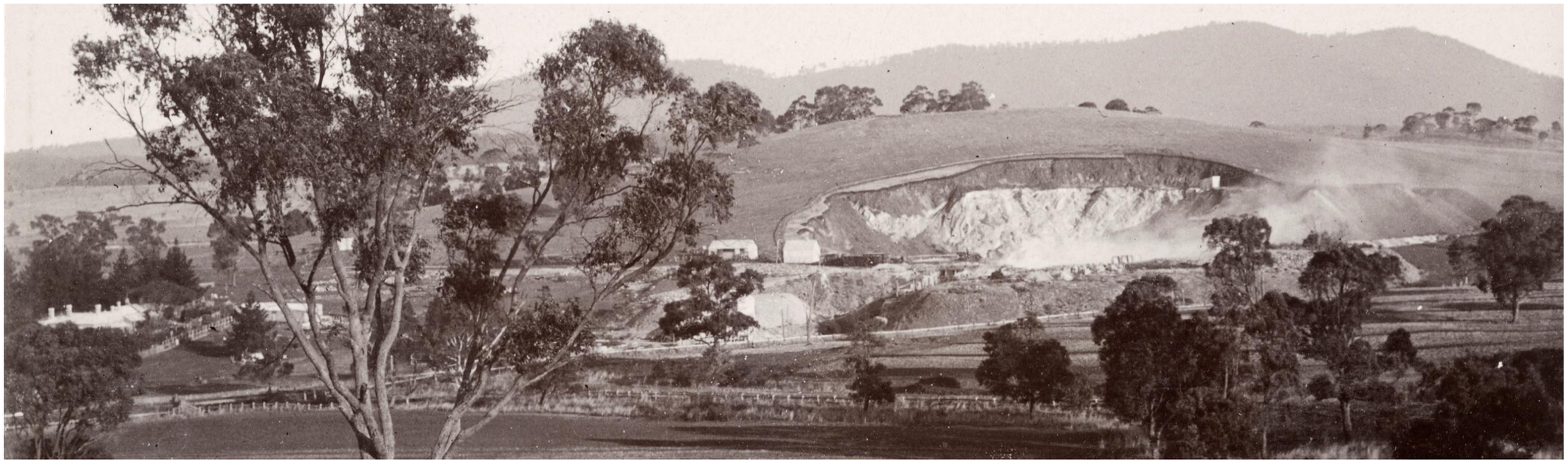


Figure 10 Detail from the April 1907 photograph, showing the quarry and the cutting (Tunnel)
Source: Russell Grimwade Collection, University of Melbourne Archives

Figure 11 Photograph of workers on the quarry floor, c. 1880s/90s. Note the horses to the rear of the men
Source: John Mitchell collection

Figure 12 West elevation of the Cave Hill homestead (undated, c. mid-twentieth century)
Source: Sibelco

2.2.4 *Light rail and water management*

In order to access the amount of water required for the kilns and to power 'chaff cutting, threshing and bonecrushing machinery', Mitchell had constructed a water race from the Olinda Creek, two miles from the quarry. This water was returned to the creek through a brick and cement tunnel, and also supplied the managers' residence and farming operations.[66] Steam was used to power much of the site during the 1890s 'in the quarries, the ice-making, the milking, the butter and cheese making, in cleansing the works.'[67]

The process of burning lime required vast amounts of timber as fuel for the kilns. In order to transport timber to the kilns, as noted above a tramway was constructed, shown in the c.1880s plan of the site (Figure 7), and described in an article of the 1890s.

As the operation of Cave Hill expanded, so too did the requirement for supplies of timber. In the early twentieth century, Mitchell expanded his landholding, and constructed what became an extensive network of tramway or light rail lines, to transport the timber from land east of the site to the quarry.[68] By this time, steam locomotives were used to pull the timber-laden trolleys.

At its most extensive, approximately 16 kilometres of tram line had been constructed as part of the network.[69] The tramway had a 'main line' which ran east from the quarry to Olinda Creek, and then south and east towards the present day Silvan Reservoir (Figure 14).[70] The Lilydale Shire Council supported Mitchell's expansion of the tramway, which also ran through land not owned by him, with one councillor noting that the 'tramway would prove a boon to the settlers for many miles around'.[71] In 1903, Mitchell purchased two steam tram engines (Figure 13) from the Bendigo Tramways, which had been made redundant following the electrification of that network.[72] The tramway operated until 1934, when the transport of timber by much improved local roads had become viable.[73]

Figure 13 Undated photograph of one of the steam locomotives on the tramway transporting timber to the Cave Hill quarry
Source: Yarra Ranges Regional Museum

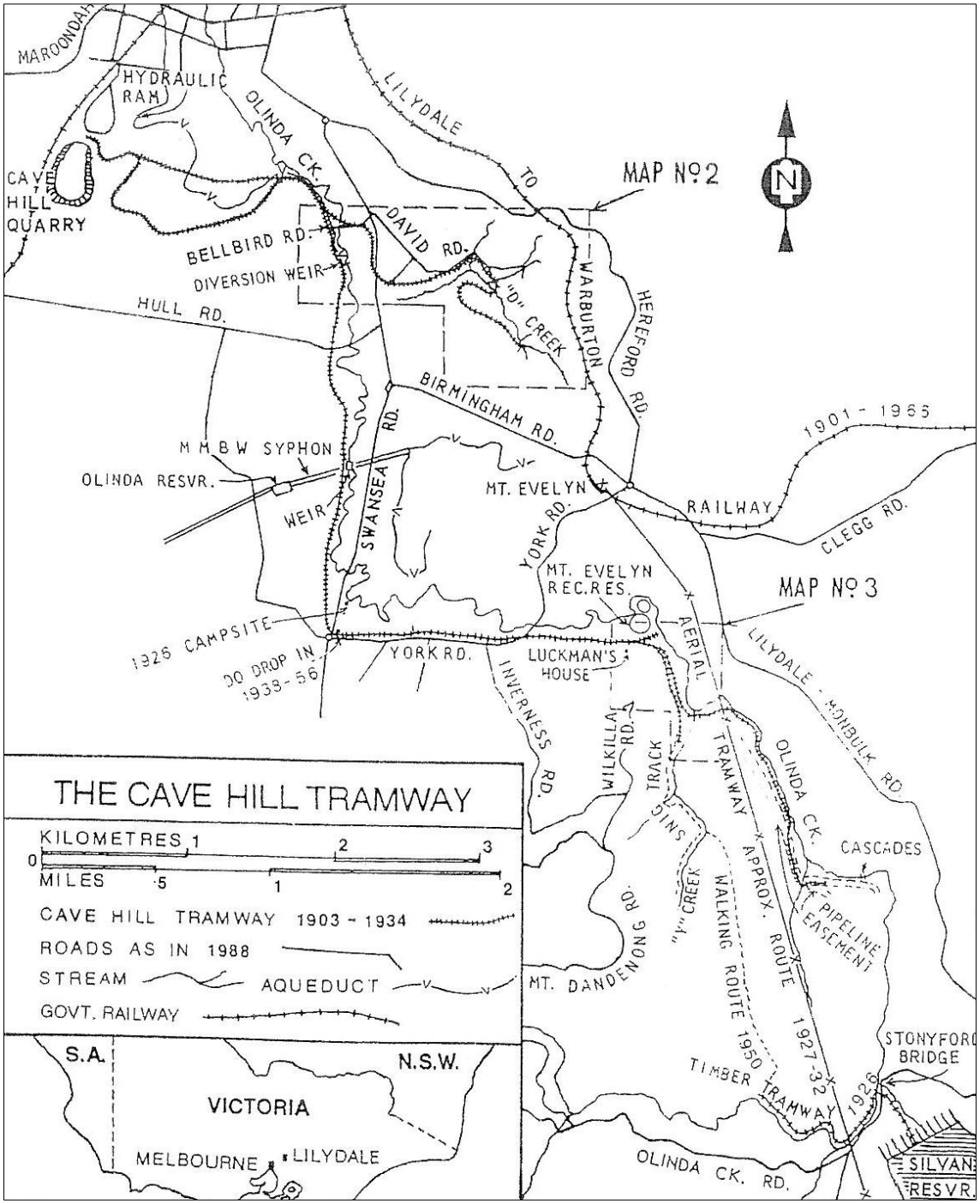


Figure 14 Map showing the route of the Cave Hill light railway and aqueduct. The quarry is at top left of plan
Source: *Light Railways*, number 111, January 1991, p. 5

2.2.5 *Farming operations under Mitchell's ownership*

As well as a profitable quarry, the Cave Hill estate supported a large scale farming operation, which commenced in the mid-1880s. Dairying operations commenced at Cave Hill in 1885, with particular emphasis being given to David Mitchell's herd of pure bred Holstein (Fresian) cattle, well suited to high quality dairy products.

Mitchell diversified the farming operations to develop butter and bacon the early 1890s (Figure 15). This may have been a response to the economic depression of the 1890s which had a significant impact on the construction industry.

Butter/Cheese Factory

From 1891, Mitchell began to explore the prospect of establishing a butter factory at Cave Hill. Canvassing local dairy farmers at public meetings held in Lilydale and Yarra Glen, Mitchell sought to guarantee supply from local farmers, who appear to have been willing to change their associations away from the Melbourne buyers. The site for the new butter factory, to the east of the homestead, was decided in November 1891.

In September 1892, Charlie Mitchell hosted a gathering of, 'about 60 of the leading residents of Lilydale and district' to open the Cave Hill butter factory.[74] John Lithgow JP, a long-time resident of the Lilydale area, was given the honour of starting the machinery. William H Jordan, who had by then left his role as manager of Cave Hill, noted that the new factory was, 'the greatest boon conferred on the farming community of the Lilydale district.'[75]

Mitchell's butter factory was widely welcomed in the district, and was given much attention by the local press. One report noted that 'the commercial prospects of the town are brighter than they have been for some time', with the likelihood of local employment at the factory.[76] As John Lithgow noted at the opening ceremony, 'milk producers of the Lilydale district have been at the mercy of the middle men of Melbourne.'[77] It is understood that the butter factory is built of massed concrete.[78]

As well as supplying local markets, shipments of the butter were sent to the London markets, 'eager to obtain further supplies'.[79] By 1894, the butter factory was producing up to 800 gallons a day.[80]

One journalist in 1896 described the butter factory as:

> One of the most perfect of its kind in the colony ... with all the latest improvements up to date. Nothing more eloquent or impressive can be said with reference to this branch than that the Cave Hill butter and cheese tops the English market.[81]

From early 1893, cheese production commenced at Cave Hill, and was quickly established as a profitable enterprise. In 1896 it was reported that Mitchell had, 'secured the lion's share of the Government butter bonuses'.[82]

The Cave Hill Mitchell dairy was the first farm utilised by the Pure Milk and Dairy Company Ltd for the production of pasteurised milk in Victoria. Mitchell, 'placed his refrigerating plant and premises at [the company's] disposal for experiments,' and the treatment of the milk 'by the best approved scientific method, free from chemicals' was deemed a resounding success by witnesses of the medical profession, veterinary experts and scientists in December 1897.[83] The production of pasteurised milk saw the suspension of cheese making, which was resumed in 1898 after the demand for the Pure Milk and Dairy company's products became too great for the Cave Hill facilities.[84]

Bacon Factory

In 1893 the, 'energetic proprietor ... decided to go into the bacon-curing export trade'. Mitchell constructed the bacon factory building to the north of the butter factory. It comprised a 'cutting down room', which was provided with a 'patent floor of cement and granite chips', and a double-storey smoking room with a tower 40 feet tall, and a cooling room and drying room (Figure 16). Each room of the factory could process hundreds of sides of bacon at a time.[85]

The bacon factory was run by the newly appointed manager, Mr Jeffereys.[86] It appears that Mitchell undertook major improvements to the factory in 1895, contracting Vecht and Co., London bacon curers, to establish a bacon works for 'the mild curing of bacon for export to London.[87] It was reported that foundations were completed in August 1895.[88] In 1896, the ham and bacon curing works were noted to be

> … where the famous mild-cure is effected, and where a hundred pigs are often put through in a forenoon with less fuss than an ordinary farmer would make in killing his one pig.[89].

The bacon factory produced 'beautiful bacon', and in adjacent buildings in the farm complex sheep and cattle were killed supplying local butchers, a boiler steamed bones, and a mill ground-up bones for fertilising soil.[90] The products of the factory were sold in butchers across Melbourne, and interstate. Bacon continued to be produced into the early part of the twentieth century.[91]

Farming operations in the twentieth century

By the early 1900s, the farm complex had expanded eastwards. A 1907 panoramic photograph of the Cave Hill Estate (Figure 9) indicate a densely developed collection of buildings around the butter and bacon factories. A soap and candle factory was also established at the property in c.1900, and products from the Cave Hill estate were shown at local and metropolitan agricultural shows, including a display at the Combined Ringwood and District show in 1904.[92]

The size of the Cave Hill farming operations was of a scale not common in the area, and the associated buildings were of a picturesque style atypical for agricultural buildings. The farming operations demonstrate Mitchell's emphasis on efficient and economic industrial production, and avoidance of waste, as noted by his great-grandson, John Mitchell in 1978:

> The milk obtained was made into cheese and butter. The whey from the butter was fed to the pigs and when fattened these were slaughtered and cured as ham and bacon. The leftovers from the butchering were in turn boiled down and the fat used in soap.[93]

Following Mitchell's death in 1916, the dairy and bacon operations were wound up by c. 1921.[94]

Figure 15 Cave Hill butter (left) and bacon factories (right), c. 1980. These buildings survive
Source: John Collins collection, State Library of Victoria

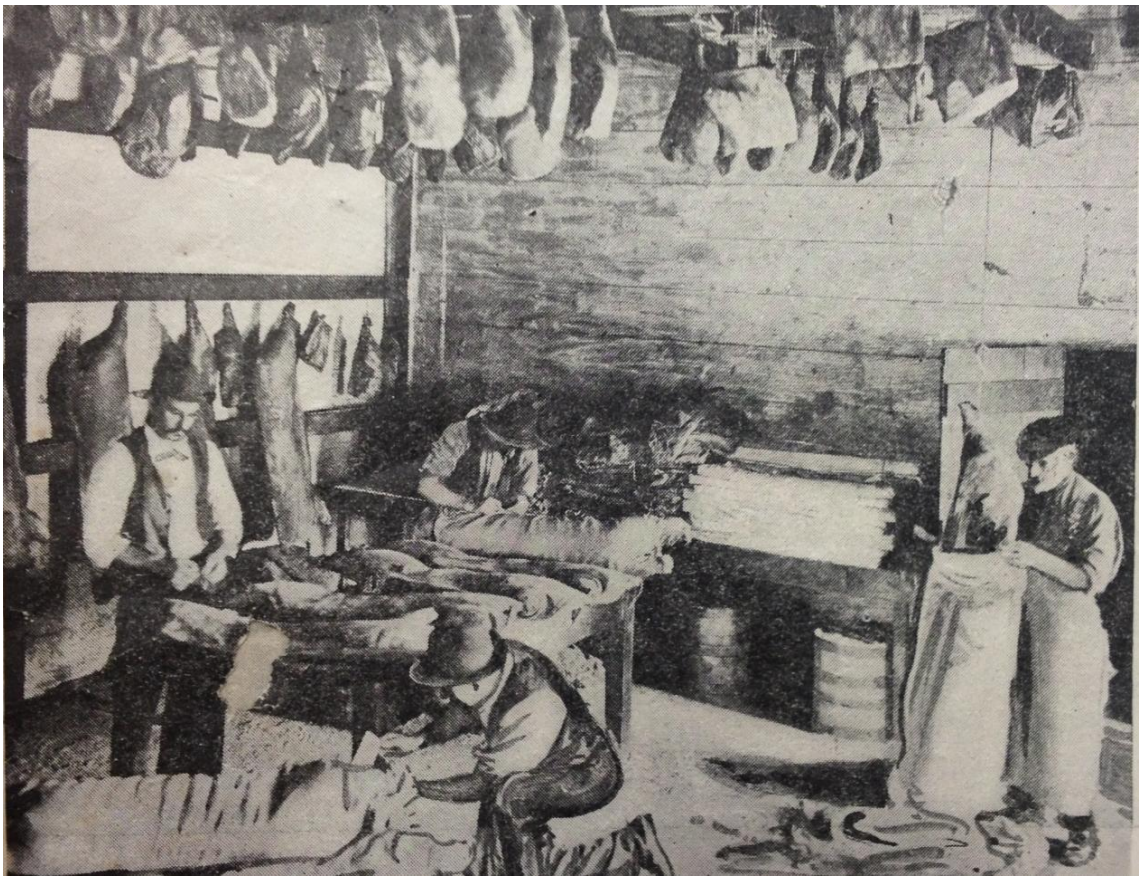


Figure 16 The bacon packing room, 1906
Source: *Australasian*, 7 April 1906, copy held by Lilydale Historical Society

2.2.6 *Operation of Cave Hill Estate*

Though Mitchell appears to have been heavily involved in the quarry, he employed on-site managers for the day-to-day running of the estate, the quarry and the farm operations. From as early as the mid-1880s until his retirement in the mid-1890s, the Cave Hill quarry was managed by William Henry Jordan. He was followed initially by his son Jim Jordan, who died unexpectedly in 1897, and then A B Taylor.[95] David Mitchell's eldest son, Charles (Charlie or C J), worked as a farm manager from as early as 1893, when aged 22, and became the general manager of the estate in the early 1900s.[96] He was assisted by the quarry manager, Isaac Fuller, who had been employed at the quarry from its early operation.[97] A satirical article entitled 'A Trip to Dillydale' published in the *Evelyn Observer, and South and East Bourke Record* in 1890 noted that the Cave Hill lime works had added lustre to Mitchell's name and conferred prosperity on the township.[98] This article also noted the 'supreme command' of the manager, William Jordan: 'Cave Hill would be lost without [him].'[99] An annual employees' picnic was held in the 1890s, with 400 travelling to Brighton Beach for the 1892 event.[100]

With C J Mitchell and his family residing at the Cave Hill homestead from c.1902 until 1917, the involvement of the Mitchells with their employees was consolidated. By the early 1900s, the garden around the homestead was well established (Figure 20), and appears to have been used for Cave Hill social events. An annual Christmas party was hosted at the residence for the employees' children; presentation events were held for long term staff of the quarry; and a celebratory picnic was held with the wives and children of the estate's employees for the second birthday of C J Mitchell's son David in 1903.[101]

The most high-profile social event at the quarry, however, was the triumphant return by David Mitchell's daughter Dame Nellie Melba to Australia, and her childhood home of Lilydale, in 1902. Melba had left Melbourne for Paris in 1886, and after years spent in Europe and North America, her singing career had made her an international celebrity.[102] Melba had 'kindly consented' to a request by the estate's employees to welcome her to Cave Hill (Figure 17-Figure 19).[103] An arch was erected at the entrance of the estate, which was decorated with flags and the words 'Dame', 'Melba' and 'Employees Greet You'. The 'spacious enclosure' surrounding the residence of her brother, Charlie, was turned into a foliaged private park, and a platform erected for the reception of Melba. After an address by quarry manager Fuller, expressing 'deep feelings of pride and pleasurable satisfaction at being permitted the honour of welcoming' the 'gifted daughter' of Lilydale, David Mitchell spoke on her behalf. He noted that she appreciated the affection and kindness of those attending, and explained that she had taken a 'deep interest' in the welfare of the employees of Cave Hill.[104]

Cave Hill workers

Employment at the estate peaked in the early twentieth century, at approximately 200, when the farming factories were fully operational, as well as the quarry.[105] Many of these workers likely lived in Lilydale, possibly in the nearby John Street and Cave Hill Road, and at various times workers were also accommodated at the site.[106] In 1907, when electricity was installed at Cave Hill, the *Lilydale Express* noted:

> Mr C J Mitchell's residence is lighted all throughout ... lights have [also] been provided in the bacon factory, slaughter house, stables, cow sheds, boiler house engine room and men's quarters.[107]

Figure 17 Dame Nellie Melba arrives at Cave Hill, November 1902. Visible is the southern elevation of the dairy, and eastern portion of the residence at left of image
Source: National Library of Australia

Figure 18 Crowd at public reception of Dame Nellie Melba at Cave Hill, November 1902
Source: National Library of Australia

Figure 19 Presentation to Melba by Cave Hill quarry manager Isaac Fuller, with C J Mitchell's residence behind
Source: National Library of Australia

Figure 20 The garden of the manager's residence, 1906
Source: *Australasian*, 7 April 1906, copy held by Lilydale Historical Society

In 1909 tension arose when a number of men joined a workers' union. The issue escalated quickly: on 8 June it was reported that 30 men had attended a union meeting, and three days later 'a serious rupture occurred ... between the majority of the quarry and kiln hands' and their employer.[108] Mitchell declared that no unionists would be employed by him, and 24 union members were immediately dismissed.[109] The dispute was widely reported in newspapers around the country. At the time, employees at the quarry worked from 7am until 5pm, with a half-hour break in the morning and an hour lunch break, totalling 50 hours across six days.[110] Following a week-long picketing of the site by unionists attempting to prevent non-union labour from replacing the dismissed workers, the union members reached an agreement with Mitchell, whereby if they returned to work they would be paid for the time of the dispute.[111]

The Cave Hill estate was a significant employer in the Lilydale district, and important in the economic development of the town. In 1887 the *Lilydale Express* described Mitchell's undertakings as an 'extensive industry' and noted that the procurement of local supplies and labour increased the business of local tradesmen.[112] As a journalist in the *Evelyn Observer, and South and East Bourke Record* noted, 'the prosperity of Lilydale is largely wrapped up with the success of the Cave Hill works'.[113] The association between the property and the town remained important for many decades.

2.3 1916-1958: David Mitchell Estate Trust

2.3.1 *Operation by the David Mitchell Estate Trust (Newbigin)*

David Mitchell died in 1916, and ownership of Cave Hill and the Burnley cement works passed to his seven children Francis, Charles, Ernest, Helen (Nellie), Ann, Isabella and Dora as tenants in common, with Francis and Edward Albert Newbigin as trustees.[114] Cave Hill formed a significant part of Mitchell's estate, which also included landholdings in the parishes of Mooroolbark, Yering, Gruyere, Jika Jika with a capital value of £123,678.[115] The plant and equipment at the Cave Hill estate was valued by its different aspects including the kilns, butter, bacon and soap factories and a blacksmiths shop (Figure 21). In 1919, the trustees sold 450 acres of the Cave Hill estate, which had been subdivided into 64 allotments.[116] This significantly reduced the landholding. Further trustees' realising auctions were held in the mid-1920s for land to the south and east of the quarry, again reducing the landholding.[117] The trust estate was controlled by the trustees, who were as follows:

1916-1921 E A Newbigin and F D Mitchell

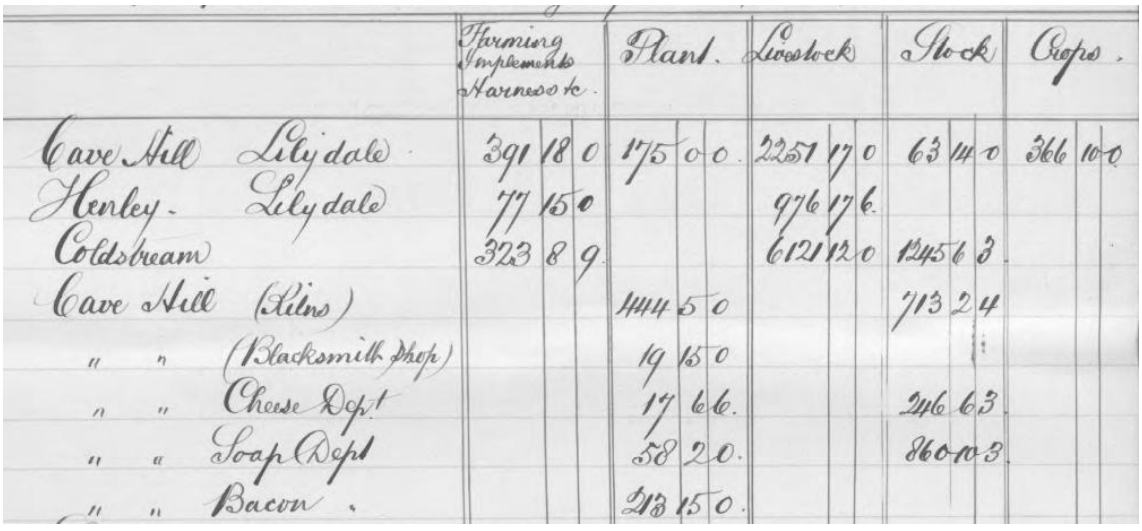
1921-1925 E A Newbigin and E L Newbigin

1925-1927 E L Newbigin and W H E Mitchell

1927-1939 E L Newbigin and Trustees Executors & Agency Co. Ltd

1939-1958 Trustees Executors & Agency Co. Ltd

The operation of the David Mitchell Estate Trust came into the hands of the Newbigin family, who had a long association with David Mitchell. In the late nineteenth century, John Newbigin had been a close friend of Mitchell's, and a manager of his building contracting business. His son, Edward Albert Newbigin, an accountant was joint trust manager with Mitchell's son, following the death of David Mitchell. Newbigin had been David Mitchell's works manager during the 1910s. After E A's death in 1925, his son Edward Leslie Newbigin took his father's position, but died unexpectedly aged 39 in March 1939.[118]



	Farming Implements Harness &c.	Plant.	Livestock	Stock	Crops.
Cave Hill Lilydale	391 18 0	175 0 0	2251 17 0	63 14 0	366 10 0
Henley. Lilydale	77 15 0		976 17 6		
Coldstream	323 8 9		612 12 0	124 5 6 3	
Cave Hill (Kilns)		1444 5 0		713 2 4	
" " (Blacksmith Shop)		19 15 0			
" " Cheese Dept		17 6 6		246 6 3	
" " Soap Dept		58 2 0		860 10 3	
" " Bacon		218 15 0			

Figure 21 Summary of the value of the plant, stock and equipment of the Cave Hill Estate upon David Mitchell's death
Source: David Mitchell probate file, 1916, VPRS 28/P2/633, Public Record Office Victoria

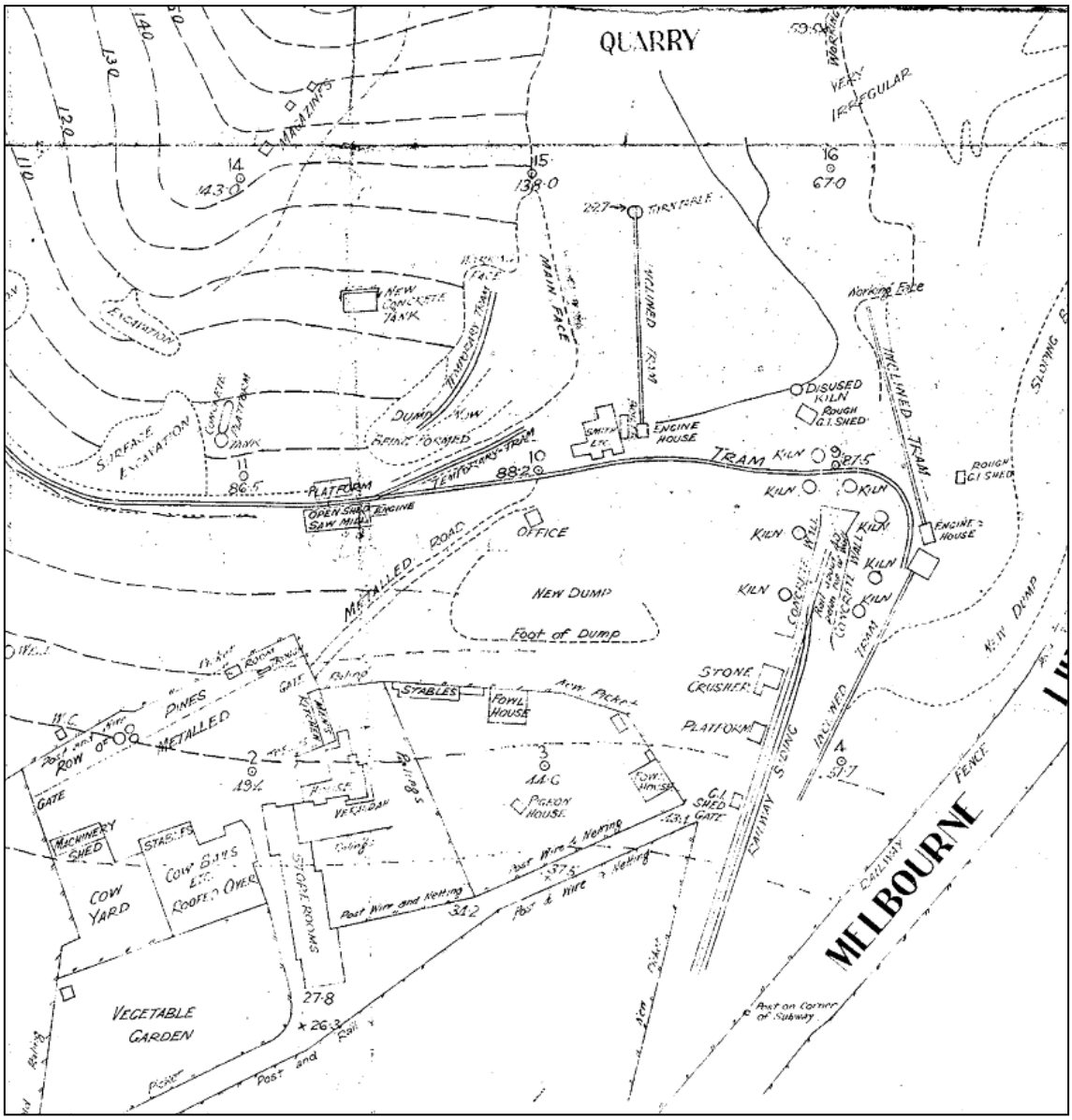


Figure 22 Plan of Cave Hill, 1922
Source: Sibelco

In the 1920s, the Estate undertook a significant program of works to upgrade the machinery and plant at the quarry.[119] A description of this upgrade, and the extant elements associated with it, is provided in Chapter 3. This upgrade also saw the introduction of Limil (Figure 25), an almost pure lime product that 'forms what is practically a perfect lime putty in dry powder form'.[120] From as early as 1922, the former butter and bacon factories were in use as storerooms (Figure 22).

By the late 1920s, the company employed 110 men at the quarry, many of whom had worked at the site for over 30 years, having 'grown up with the estate'.[121]

The new State highway between Camberwell and Mansfield, to be known as the Maroondah Highway, was declared in 1948.[122] At this time, reliance on rail for the main transportation of quarry products began to give way to road transport, possibly due to improvements made to the highway. It was in this period that access to the site also changed, and the twin

entranceways were established, providing more direct road access between the quarry and the highway. As can be seen on a c. 1940s plan of Cave Hill, by this time many of the farm buildings had been removed, and an overburden dump was situated to the north of the quarry (Figure 24). The homestead was proposed for alterations into three individual flats in the late 1940s, though it is unknown if this conversion was carried out.[123] By 1952, a caretaker's residence had been constructed to the east of the tennis courts, and by 1972 the homestead had been demolished.[124]

Indicative, perhaps, of the state of the company during this period, in 1954, William (Ernest) Mitchell, sued the Trustees Executors and Agency Co. Ltd, the trustees of the estate, stating that the trustee company was not paying him the correct income from his interest in the estate.[125] The outcome of this court action is unknown.

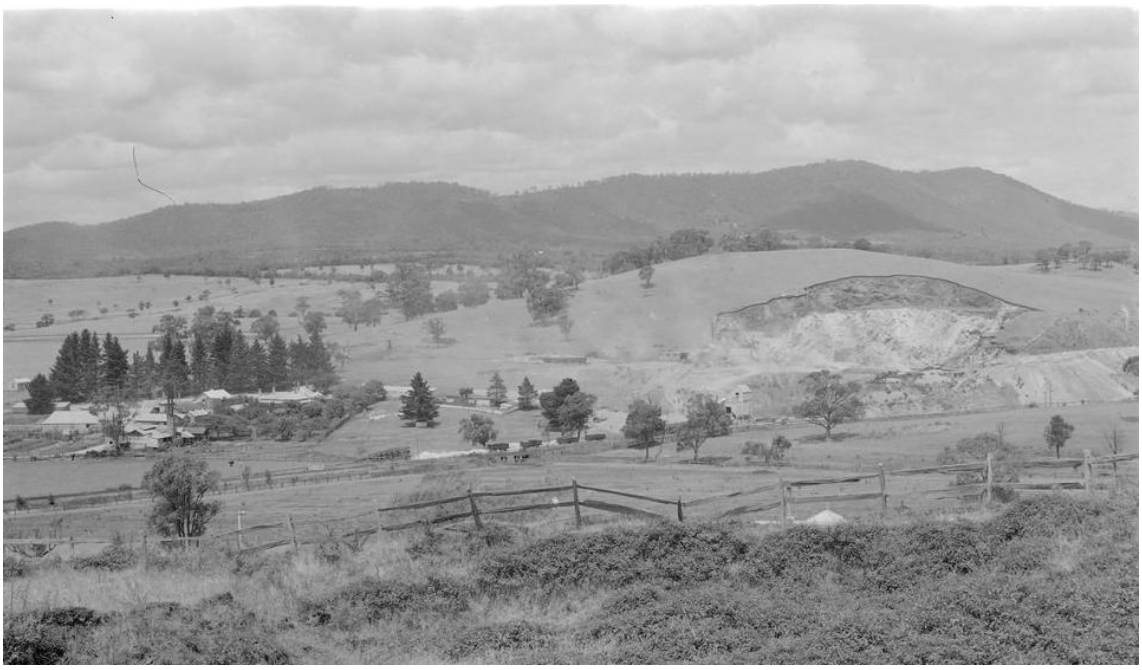


Figure 23 View of quarry (right) and farm complex (left), c. 1920
Source: Rose Postcard Collection, State Library of Victoria

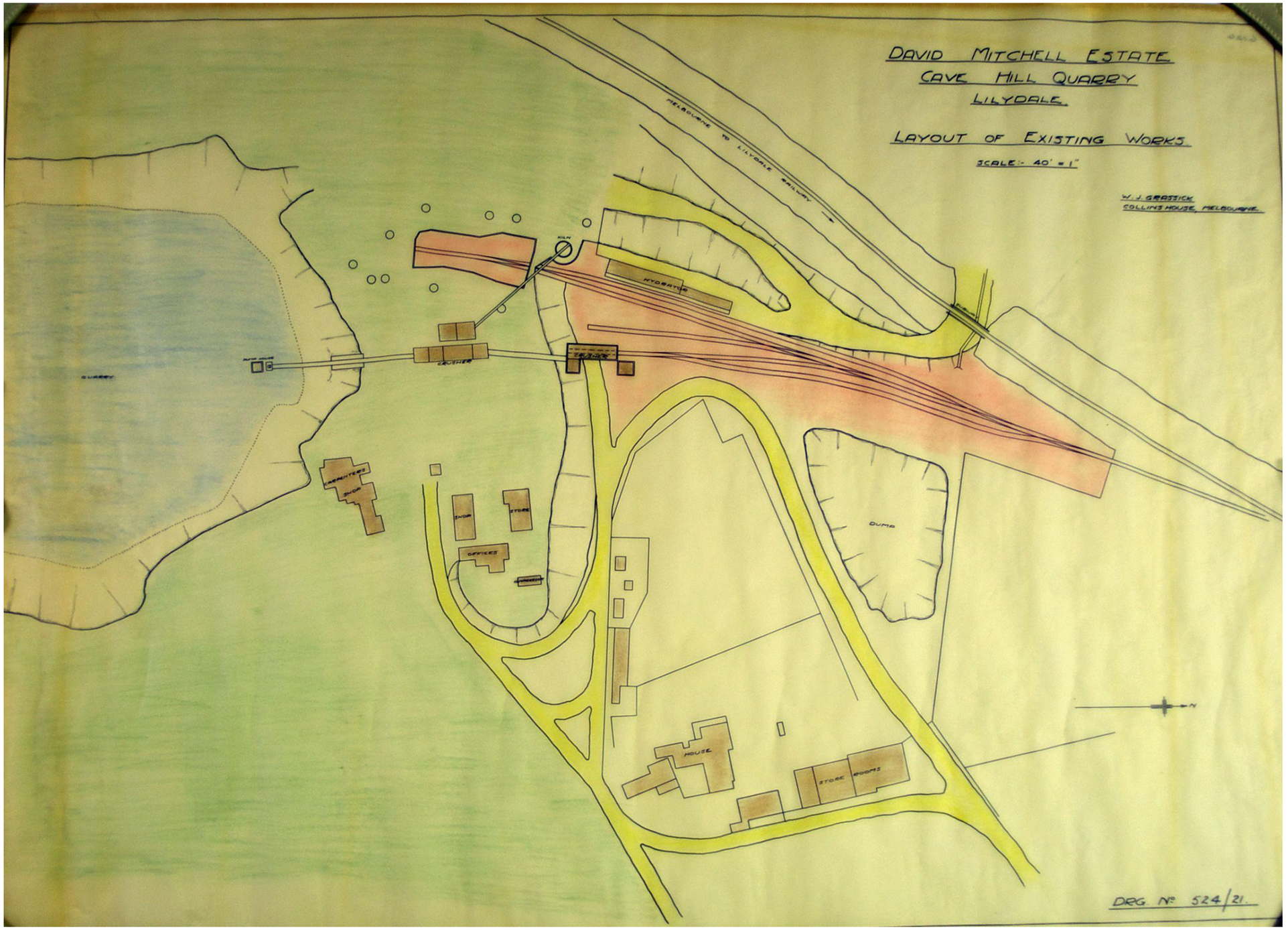


Figure 24 Plan of Cave Hill estate, c. 1940s
Source: Yarra Ranges Regional Museum

Figure 25 Workers stacking bags of the Cave Hill product, Limil, c. 1900s
Source: Sibelco

Figure 26 Worker inspecting crushed limestone on conveyor, c. 1950s
Source: Sibelco

Figure 27 Cave Hill workers, c. mid-twentieth century
Source: Sibelco

Figure 28 Early photograph of Cave Hill war memorial gates, opened by Mrs C J Mitchell, 16 November 1947. The 'DME' stands for David Mitchell Estate
Source: Yarra Ranges Regional Museum

2.3.2 *Cave Hill Social Club*

In the mid-1930s, Cave Hill management established the Cave Hill Social Club.[126] A cricket oval was established by 1936 on land now situated between the two entrance drives, with the club hosting (and winning) matches in their debut season. Management also temporarily made available a 'large room', in which the workers 'spent many happy hours at billiards, cards and harmony'.[127] In May 1937, a club room was opened adjacent to the oval. This building was apparently originally used as part of the cheese factory operations, and relocated for social club usage. The club room, with its 'snug and attractive appearance', boasted a fire, and the billiard table was said to have belonged to David Mitchell.[128] The families of the workers were also able to access these facilities. In 1939, tennis courts were constructed to the south of the oval, though it is unclear how long they were in use, as they appear unmaintained in an aerial of 1952 (Figure 33). The *Healesville and Yarra Glen Guardian* noted that the provision of such facilities meant that residents who otherwise would not have access to 'such pleasant pastimes' were appreciative of the opportunity.[129]

At the entrance to the second roadway, memorial gates were erected with honour boards on each pillar acknowledging the Cave Hill workers who had fought in the war. The memorial gates were officially opened by Mrs C J Mitchell, on 16 November 1947 (Figure 28).

2.3.3 *Artistic representations of Cave Hill*

The striking landscape of Cave Hill quarry has been the subject of paintings and artistic representations from as early as 1889, and continuing into the late twentieth century. The scenic qualities of the lime processing complex sited within a pastoral landscape, appears to have been a popular artistic subject. Artists including Arthur Streeton, John Perceval and Fred Williams painted from a vantage point to the north, setting the buildings against the quarry face and the hills behind.

Known examples of paintings of Cave Hill include:

- *A Victorian Dale*, James Alfred Turner, c. 1889;
- *The Lime Kiln* (also known as *Mitchell's Lime Quarry*), Arthur Streeton, 1935 (Figure 29);
- *View of Cave Hill*, James Peter Quinn, c. late 1930s;
- *The Quarry, Lilydale*, Ernest Buckmaster, undated;
- *Lilydale Lime Quarry*, Ivy Burton Fox, c. late 1950s (Figure 30), Fox also depicted the site in two ink drawings;
- *Lime Quarry, Lilydale*, John Perceval, 1956 (Figure 31);
- *Lilydale Landscape with Blue Train*, Fred Williams, 1974 (Figure 32), Williams also depicted Cave Hill in *Lilydale Triptych I*, 1974 and *Lilydale Triptych II: Cave Hill*, 1974;
- *Cave Hill*, Jennifer Paull, 1985;
- *Butter and Bacon Factories* and *Cave Hill Quarry*, Dora Wilson, undated.[130]

Figure 29 'The Lime Kiln Lilydale, 1935', Arthur Streeton (Yarra Ranges Regional Museum)
Source: Plan Cave Hill, http://www.plancavehill.com.au, accessed 2 August 2013

Figure 30 'Lilydale Lime Quarry', Ivy Burton Fox, c. late 1950s
Source: State Library of Victoria

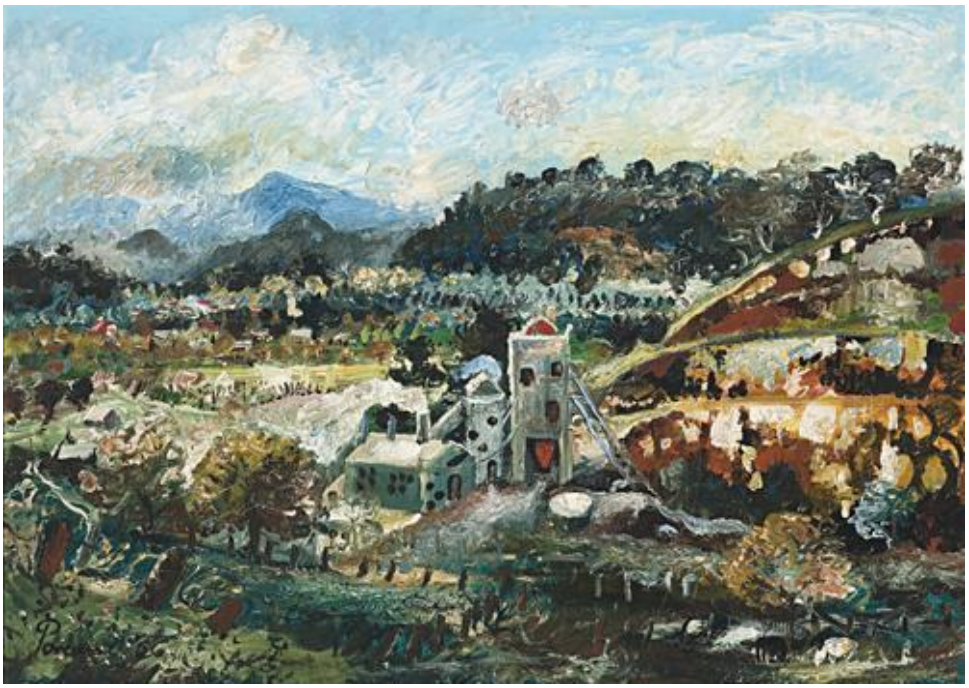


Figure 31 'Lime Quarry, Lilydale', by John Perceval, 1956, unknown collection
Source: Deutscher and Hackett, http://deutscherandhackett.com/node/4000041/, accessed 15 October 2013

Figure 32 'Lilydale landscape with Blue Train', Fred Williams, 1974, private collection
Source: Isiiad, http://www.isiiad.com.au/index.php/arts/exhibitions/239-boundary-line, accessed 15 October 2013

Figure 33 1952 aerial photograph of site, with farm (centre) and quarrying (left) buildings visible, as well as the cricket pitch (see wicket at top right) and social club rooms
Source: Laverton Aerial Photography, Land Victoria

2.4 1958-2002: Operation as a proprietary limited company

2.4.1 *David Mitchell Estate Ltd*

In 1958, after the death of the last of David Mitchell's children (his daughter Dora Lempriere), the trustee company was no longer bound by David Mitchell's will. In June 1958, a circular was distributed to the estate's business contacts announcing that from 1 July the newly formed 'David Mitchell Estate Limited' company would be operational.[131] The limited company was made up of a Board of a maximum eight members, five of whom were representatives of the five 'family groups' of Mitchell family descendants and a Managing Director. The two additional places were considered for the inclusion of outsiders with 'technical ability', though the extent to which this occurred is unclear.[132] D B Doyle, who had been manager of business for 30 years was appointed managing director. Lady Pamela Vestey, granddaughter of Dame Nellie Melba, was later appointed to the board of the company in 1976.[133]

In October 1958, the eastern two-thirds of the property were excised from the quarry site, giving the southern part of the property its curved boundary.[134] Much of this land was subdivided into housing estates, and the Lillydale Lake was created on land which was formerly part of William Nicholson's Crown allotment 26.

In 1962, it was noted that during the company's prior operation as a trust estate, it had not been possible to find capital to enable the update of the plant operating at the quarry.[135] Similarly, another report referred to mistakes of the previous management, including that 'substantial overburden ... was put on the wrong place', a place where lime could be quarried.[136] The estate's last annual profit, in the year to June 1958, was £79,382.

At the establishment of the limited company, it was decided that investment in new quarry crushing and conveying equipment was necessary, and approximately £130,000 was spent on new machinery between 1959 and 1962.[137] The new equipment included a crusher, which was planned to be installed in July 1960, and a kiln and hydrator, both of considered 'indispensible' to increased production and improved quality of the lime product.[138] In 1959, a survey was undertaken of the quarry by Gold Mines of Australia Ltd., which concluded there was 'sufficient lime for another 140 years at the present rate of production', or another 75 years should production increase.[139] The report noted that another 70 years supply also existed on the western side of the railway line, and that in 50 years time (ie. by 2009), it would be 'necessary to consider the diversion of the railway ... around the east side of the quarry workings', in order to access this supply.[140] As it happened, by the 2000s the diversion of the railway was no longer considered an option. In 1976, all three kilns were converted from oil to natural gas, and in 1977, a larger crusher was installed at the top of the quarry replacing the earlier crusher on the west face.[141] The company diversified with the introduction of 'Ag-Lime', a lime product used for agricultural purposes, and the gravel-based Lilydale toppings.

2.5 2002-present

In November 2002, Unimin Australia purchased David Mitchell Limited, 'the nation's leading independent producer of limestone products', ending the Mitchell family association with the Cave Hill quarry site, after nearly 125 years. At the time, the company had 53 shareholders, and had a net profit the previous year of $4.1 million.[142] The Unimin group of companies was based in the United States, controlled by SCR Sibelco, a company started in Belgium in 1872. The company established operations in Australia in 2000, and in 2011, the company changed its name to Sibelco.[143]

In 2012, the company determined that the quarry would not be viable in the longer term. Sibelco and the Victorian Government urban renewal authority, Places Victoria, entered into an agreement to master plan the future development of the site.[144]

3.0 PHYSICAL ANALYSIS

Only part of the large Cave Hill Quarry site is of interest from a heritage perspective, specifically the quarry pit and the area to the north of the quarry pit and south of Melba Avenue. For the following physical analysis, this area has been sub-divided into precincts reflective of function (historic and/or on-going) and character, as demonstrated in the existing built form and landscape. The precincts are as follows (see also Figure 34):

- Limestone processing precinct, including a section of the north face of the quarry pit
- Farm precinct
- Arrivals precinct
- Quarry precinct

The extent of topographical change at the quarry site is such that there are few historic determinants to define precinct boundaries. The primary intention of identifying precincts in this CMP is to give emphasis to the historic associations of the various areas with particular activities.

The study area also includes extensive areas of land that are of little or no significance from a heritage perspective, including undeveloped land to the west of the rail line and to the south of the quarry. These areas are not addressed in the following analysis. Likewise, modern ancillary structures (stores, workshops, silos and the like) are not addressed here.

The descriptors of buildings and elements used in this chapter correspond with the site plan at Figure 35. Photographs in this chapter were taken in 2013, unless otherwise stated.

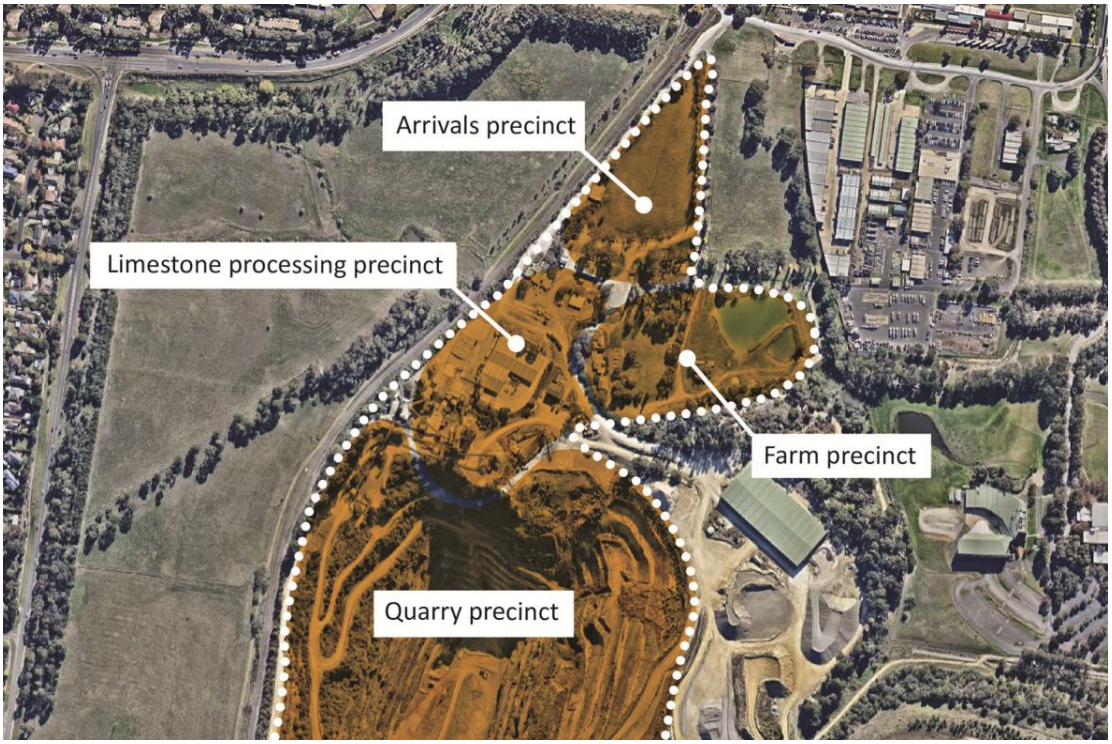


Figure 34 Area of heritage interest: only part of the quarry precinct is indicated

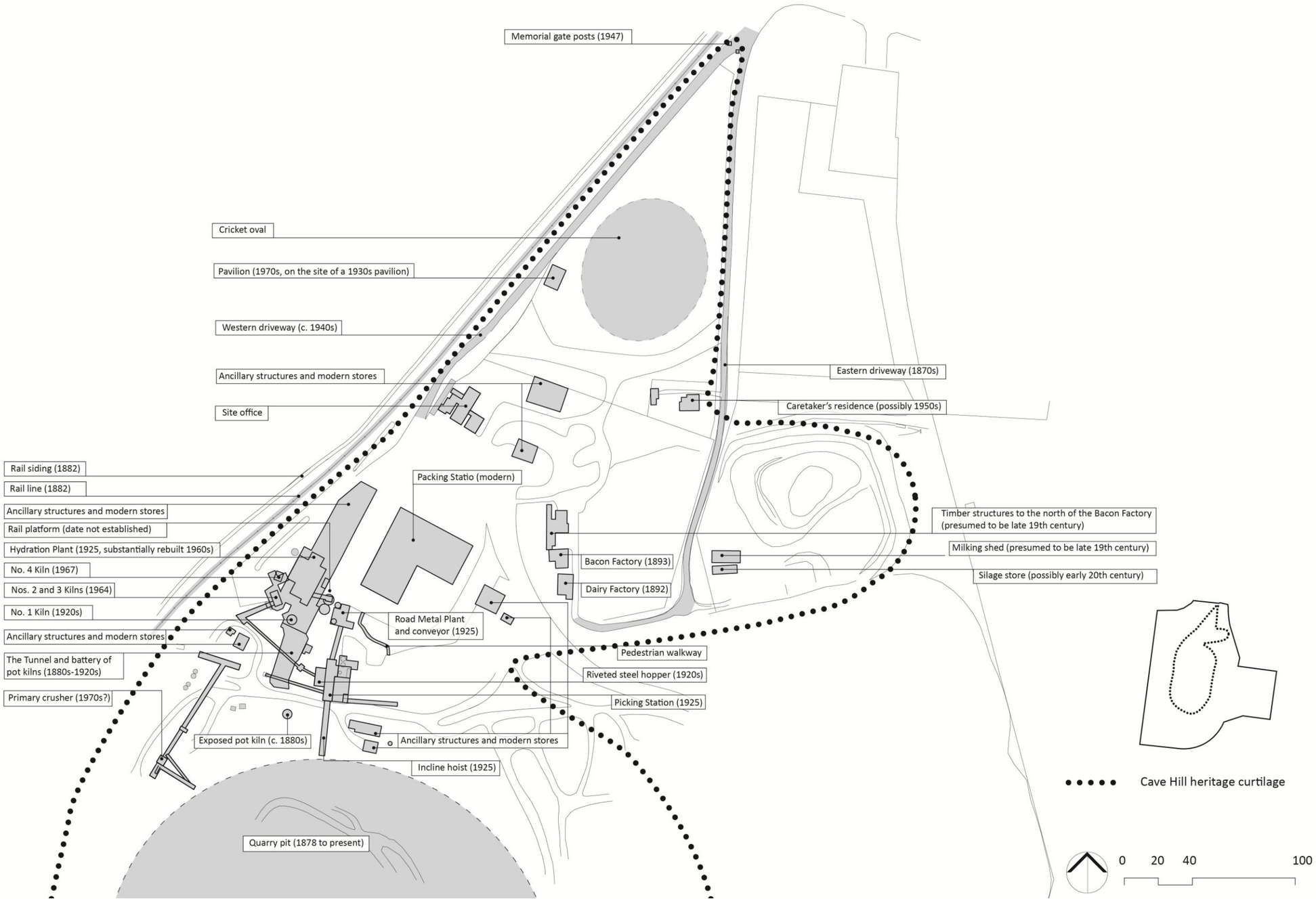


Figure 35 Plan of the area of heritage interest identifying buildings and elements, including the quarry pit (part)

3.1.1 *Sources*

Sources referenced in the preparation of the physical analysis include:

- aerial photographs from 1952, 1956, 1960, 1972 and 1981
- historic photography from the late-nineteenth century to the 1970s, supplied by John Mitchell, great-grandson of David Mitchell
- historic drawings supplied by Sibelco, including a site plan dated 1922
- historic drawings in the Yarra Ranges Regional Museum collection, specifically: David Mitchell Estate, Cave Hill Quarry, Lilydale, 'Layout of Existing Works', Drg No. 524/21 (undated, 1920s); David Mitchell Estate, Cave Hill Quarry, Lilydale, 'Outline of Proposed Works etc,' Drg, No. 524/19 (undated, but inter-war); and Untitled site plan, 1941, believed to show existing conditions

3.2 Limestone

3.2.1 *Geology*

Limestone is a sedimentary rock. It is formed from the compressed remains of corals, shells and skeletons.[145] Limestone occurs in marine and non-marine environments; the Cave Hill deposit is an example of the former, the land having previously been submerged.[146] As is the case at Cave Hill, limestone is typically found in bedding planes between other types of sedimentary rock, including clay and sandstone. Joints between the bedding planes mean that limestone formations are permeable and prone to processes of erosion, both on the surface and below ground. The dissolution of limestone layers means that cave formations are a common characteristic of limestone deposits (karst landscapes).

Pure lime is distilled from limestone by heating the raw materials to a minimum of 812 degrees Celsius, a process known as calcination. The end products are calcium oxide (CaO), or quicklime, and carbon dioxide (CO2). Calcium oxide (quicklime) reacts with water to become calcium hydroxide (Ca(OH)2), or hydrated lime. When dried calcium hydroxide absorbs carbon dioxide from the atmosphere it reverts to calcium carbonate (Figure 36).[147]

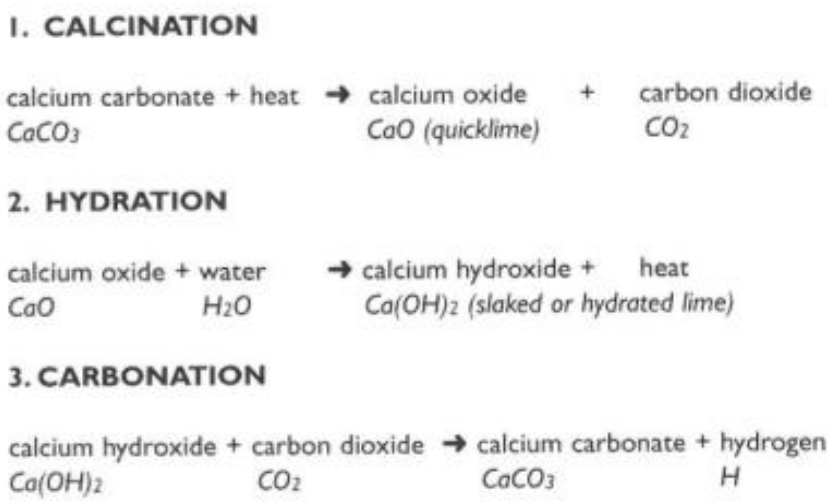


Figure 36 Chemical reactions of lime
Source: Jane Harrington, Heritage Council Victoria, 2000, p. 3

3.2.2 *Uses of lime*

Lime is the cheapest form of alkaline material.[148] It has multiple applications in the construction industry and in agriculture. It is also used in metallurgy, chemicals manufacture, sanitation, pulp and paper processing, ceramics and the petroleum industries, among many others. At Cave Hill lime was originally processed for use in the construction industry.[149] The diversification of products generated at Cave Hill occurred following the significant upgrade of the plant in the mid-1920s (see Section 3.6.2).

An enduring product generated at Cave Hill is Limil, a hydrated lime with a breadth of building, garden and agricultural applications. At Cave Hill, lime hydration was facilitated by the introduction of the hydration plant in the mid-1920s (and replaced in the 1960s). Cave Hill is also well known for its toppings ('Lilydale toppings'), which are a limestone by-product. Lime of insufficient purity for burning is also crushed for road metal and aggregates.

From the late-1980s, the David Mitchell Estate Ltd worked with the Department of Agriculture to develop products that could assist primary producers in countering Victoria's highly acidic soils. Today, agricultural lime (AgLime) accounts for approximately 50 per cent of Cave Hill's commercial output (150,000 tonnes); in 1988 this figure was approximately 10,000 tonnes.[150]

3.2.3 *Limestone processing*

Historically, limestone was extracted, broken down and sorted by hand. Mechanisation introduced from the early years of the twentieth century has transformed the process. Core components of contemporary limestone processing sites include:

- A means of transporting the stone from the quarry floor to the works area (typically by truck)
- Stone crushers (at Cave Hill the primary crusher is a Jaques saw crusher, relocated from the Snowy Mountains hydro scheme following its completion in the mid-1970s)
- A means of conveying crushed stone to processing areas, which may include lime burning kilns, road metal processing plant and overburden dumps for impure materials
- Vibrating pan feeders to sieve crushed stone
- Laboratories, for chemical testing of materials
- Lime burning kilns (there are three operational vertical shaft kilns at Cave Hill)

Intermittent kilns

As noted by Jane Harrington, 'most of the advances in kiln design and technology have occurred since 1900 … prior to this, there was little difference between nineteenth century kilns and those used in antiquity'.[151]

Up to the interwar period, kilns were typically built into hill sides (often in coastal locations), and comprised brick-lined shafts with a draw hole and chamber for extracting burned lime at the base (Figure 37). There was considerable variety in the shape of the kilns (examples included 'D' shaped kilns, conical forms, broad and shallow cylinders or kilns that tapered at the base). These early kilns – often referred to as pot or bottle kilns – were top loaded with alternating layers of limestone and fuel (typically timber). The load was then lit and allowed

to burn through. It is from this single burn that the descriptor 'intermittent' derives. Once the load had cooled, the burnt lime was extracted from the base. As well as the limitations of a single burn, this model was also inefficient in terms of the energy required to produce lime; it is estimated that 8-10 gigajoules are required for each tonne of lime produced.[152]

At Cave Hill, the kilns are believed to have been narrow brick-lined cylinders with perpendicular sides, which tapered at the base. These were similar to the 'Perpetual Kilns' illustrated in an 1886 publication, suggesting that Mitchell may have been aware of early initiatives to overcome the limitations of intermittent kilns (Figure 38). The Cave Hill kilns line the Tunnel; effectively two artificial hill sides. By the 1920s a battery of approximately 10 pot kilns surrounded the Tunnel. The feed holes at the top of these kilns have been sealed. However, one survives unsealed, at the southern end of the tunnel, overlooking the quarry (see Figure 35, Element 4).

Continuous kilns

Continuous kilns (also known as running or draw kilns) were introduced during the early decades of the twentieth century. They are based on the principal of zones or bands; there are zones for storage and drying, preheating, calcinating and cooling in the freestanding brick-lined vertical shaft. When burned lime is drawn from the bottom, the bands drop down.[153] A section through a typical vertical shaft kiln is at Figure 39.

A degree of skill is required to operate a continuous kiln. The lime burner judges when the limestone closest to the base of the kiln has been converted to lime, and the volume of raw material to add to the shaft, while always maintaining a consistent temperature in the various zones/bands. There are four vertical shaft kilns at Cave Hill. Kiln no.1 (built during the interwar period, and subsequently modified) has been decommissioned. Kiln nos. 2, 3 and 4 (1960s) remain in use.

Later developments in kiln technologies – not demonstrated at Cave Hill – include horizontal shaft kilns (a variation on the vertical shaft model) and twin shaft regenerative kilns, which are distinguished by a pair of vertical shaft kilns connected by a cross-channel.

Advances in lime burning technologies relate primarily to achieving increased efficiencies. A twin shaft regenerative kiln requires approximately 3.9 gigajoules for each tonne of lime produced, a marked improvement on the historic pot kilns.

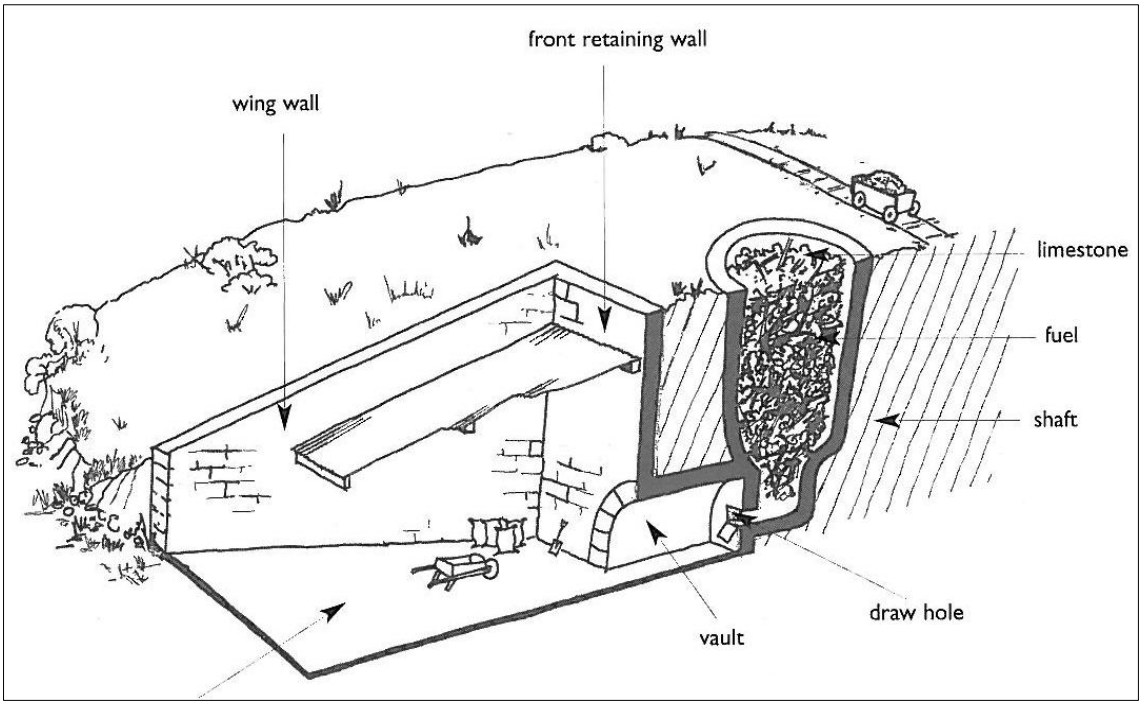


Figure 37 Cross-section of a typical hillside vertical shaft mixed-feed kiln
Source: Jane Harrington, 2000, p. 15

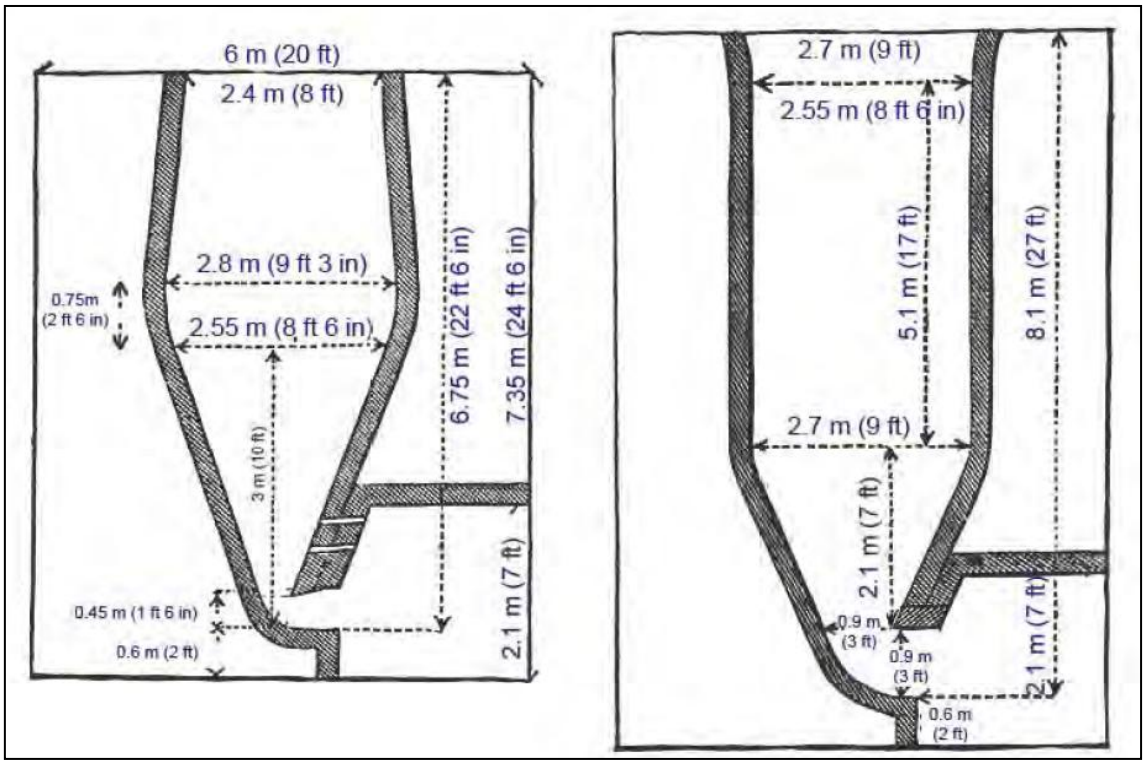


Figure 38 'Perpetual Kilns', 1886, of the type believed to have been built at Cave Hill
Source: Miles Lewis, *Australian Building Analysis*, reproduced from Q A Gillmore, *Practical Treatise on Limes, Hydraulic Cements, and Mortars* (8th edn New York 1886 [1863]), p 128

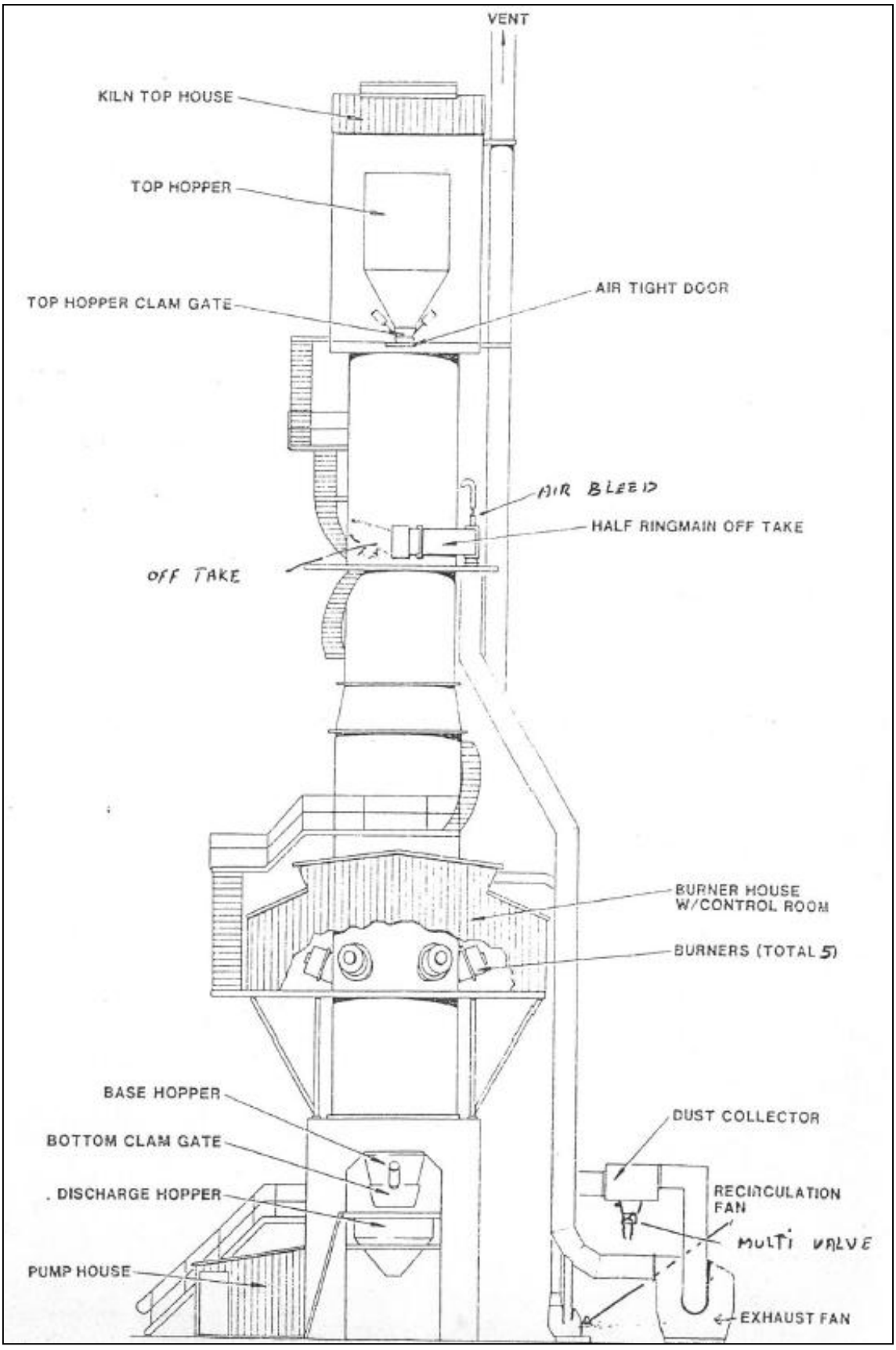


Figure 39 Section through a typical vertical shaft kiln
Source: Sibelco

3.3 Access and circulation

Access to Cave Hill Quarry, and circulation within it, has changed considerably over time. The historic point of access was the present east driveway, accessed from Melba Avenue. The west driveway, parallel with the rail line, was introduced in the mid twentieth century (c. 1940). It is possible that a driveway dedicated to the lime works was required because road transport had superseded rail as the principle means of taking products off-site.

Other routes and pathways of longstanding at the site include the internal road extending from the east driveway and providing access to the farm factory buildings. Historically, this was part of a loop road that extended past the homestead (demolished) into the lime works and returned to the south of the cricket oval – this arrangement is indicated at Figure 40. Today, there is a roadway to the south of the oval connecting the two driveways. This is of relatively recent origin. There is a pedestrian pathway linking the upper section of the Limestone Processing Precinct (where the Picking Station is located) to the lower level (see Figure 35, Element 27). The date of this walkway has not been established. However, it is not shown on the 1922 site plan.

The rail line extending through the Cave Hill property dates to 1882. The point where the siding branched off into the site remains evident, to the west of the present weigh bridge. A section of the early platform survives, to the east of the hydration plant.

Tram lines leading east from the lime works into nearby forested areas were established at the site from 1878; timber was required to burn the lime. Historically, tram lines were also used on the quarry floor (Figure 43) and, from the 1880s to the 1920s, to transport limestone from the quarry floor to the top of the pot kilns. Today, there is no evidence of tram lines at the site.

The present haul road extending from the lime works to the AgLime store (directly through the site of the former homestead) was introduced in the 1990s.

3.4 Landscape character

The historic uses of the lime processing and farm precincts is demonstrated in the landscape character of the two areas, with the former a harsh, denuded, industrial setting, and the latter comparatively lush. Historically there was a treed wind row (pines) to the south of the farm (Figure 41).

There is little formal landscaping at the site. The east entry driveway is lined with Desert Ash (west side) and Poplar species (east). These plantings are of relatively recent origin (c. 1960s). The west driveway has a mixed plantation, including a mature Monterey cypress at its northern end.

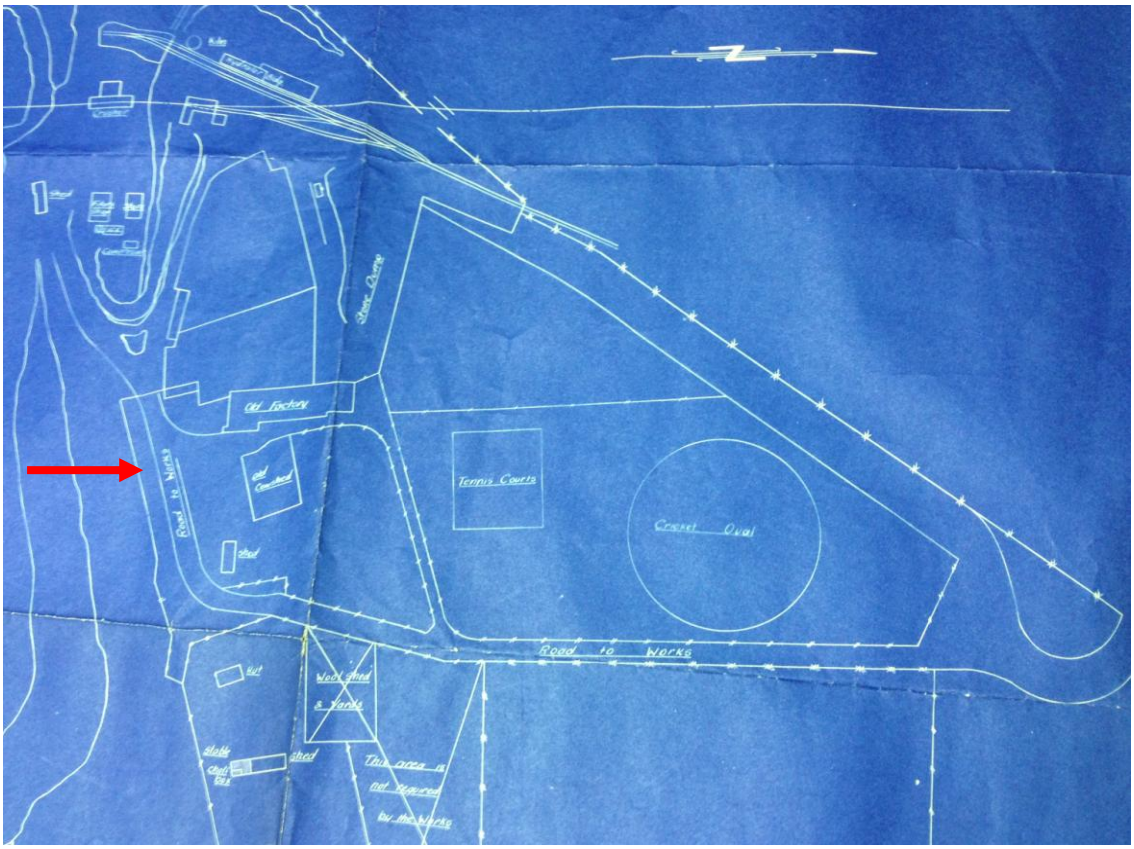


Figure 40 Site plan, 1941: note the 'road to works' (indicated) extending through the farm to the lime processing area
Source: 'Layout of Existing Works, Drg No. 524/21(Lilydale Historical Society)

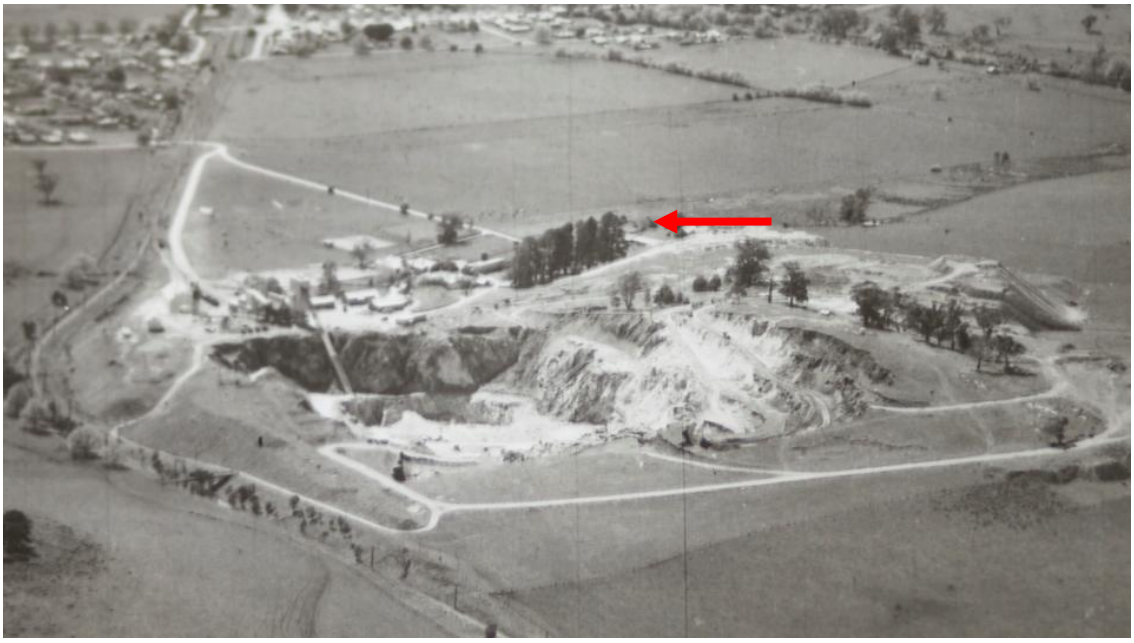


Figure 41 Oblique aerial looking north-east over the quarry, 1952; the windbreak to the south of the farm precinct is indicated
Source: Sibelco

3.5 Quarry precinct and overburden dumps

Prior to 1878 the site of the present quarry pit was a hill, the crest of which is understood to have been at a similar height to the present basalt outcrop to the south of the quarry (RL150m approx).[154] The limestone deposit is estimated to be 350 million years old.[155] It comprises bedding planes (or layers) of limestone plan of varying quality, interspersed with shales, sandstones and clay, which are dumped as overburden.[156] The presence of caves in the limestone deposit is discussed at Section 3.2.1 and in Chapter 2.

Limestone extraction began at the north of the present quarry site by July 1878.[157] Over the past 137 years the quarry has expanded to the south, east and west, with considerable increases in activity following the upgrades of the plant during the 1920s and 1960s.

In the 1920s, limestone extraction was occurring at depths of 30-60m, and following World War II the extent of the quarry was in the order of 215m long by 150m wide. The present dimensions of the quarry are estimated as 600m long by 400m wide, and the quarry floor is approximately RL0.[158]

Prior to the late 1880s quarried limestone was transported from the quarry floor along tracks to the top of the pot kilns, initially by horse power and subsequently by water power including steam cranes.[159] The tracks extended north along the west face of the quarry (Figure 42). This arrangement was replaced in the mid-1920s by an incline hoist extending from the quarry floor to the top of the Picking Station. The incline hoist survives at the site; its base indicates the level of the quarry floor in the 1920s. At this time, a network of tramlines extended across the quarry floor (Figure 43).

The present means of transporting raw materials from the quarry floor is by trucks along haul roads around the sides of the quarry. Concrete footings – believed to have been part of a former haul road – are visible in north face of the quarry. The pit is accessed from the north-west, to the east of the primary crusher.

Evolving methods of mining and extraction have shaped the form of the quarry. Earlier extraction methods resulted in irregular forms, as demonstrated in the upper section of the quarry's north face (Figure 44). Contemporary blasting techniques tend to create more regular, stepped forms (Figure 45). In addition, the north face is 'green'; the south, east and west faces are generally free of vegetation.

Since the 1870s overburden has been dumped to all sides of the quarry pit. A large 'dump' is shown on the site of the present site offices (to the east of the weighbridge) on the interwar site plan.[160] By the 1950s, waste materials were being dumped in areas to the south of the farm.[161] The present overburden dump to the east of the quarry is of relatively recent origin.

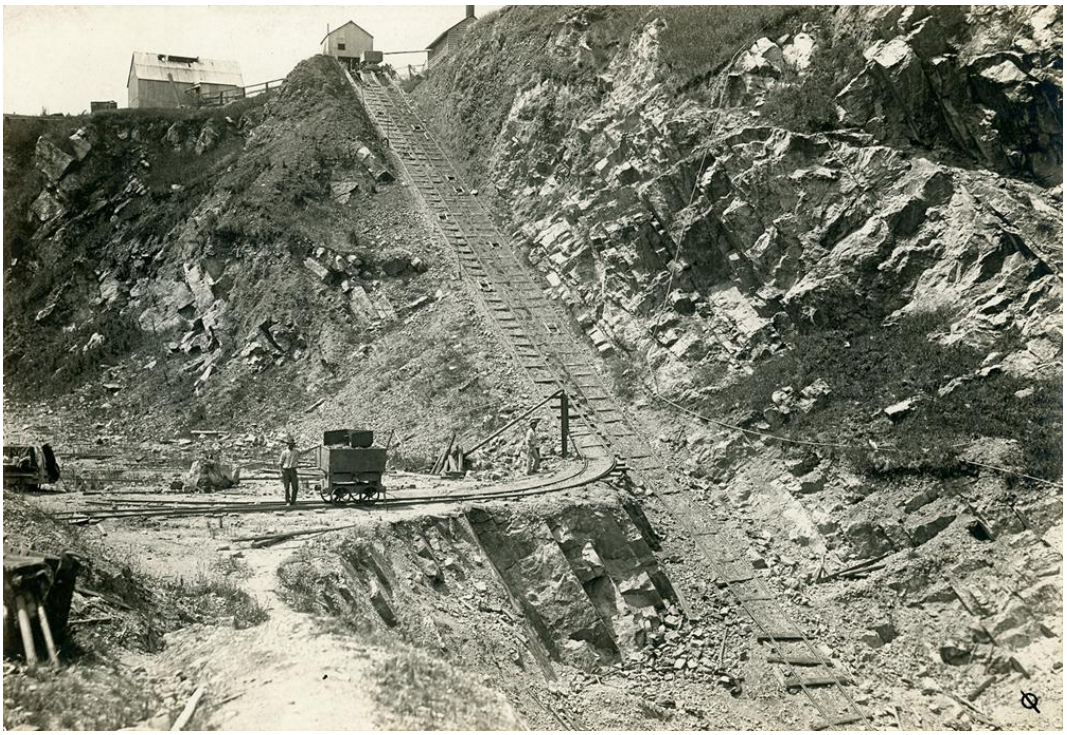


Figure 42 Track leading from the quarry floor, c. 1910s
Source: John Mitchell Private Collection

Figure 43 View down to the floor of the quarry pit from the Picking Station, 1920s. The steep grade of the incline hoist is evident at bottom of image
Source: John Mitchell Private Collection

Figure 44 North face of the quarry pit: the Picking Station is visible above

Figure 45 View looking south over the quarry pit

3.6 Limestone Processing Precinct

The area to north of the quarry pit has been used for lime processing since 1878. It is an industrial landscape that comprises multiple layers of development. The following discussion is structured around the three primary phases of lime processing and handling equipment, these are as follows:

- 1878-interwar period – extant elements relating to this phase are the Tunnel, the encircling battery of pot kilns and the exposed pot kiln to the south of the Tunnel
- Interwar upgrade – extant elements include the Picking Station, Road Metal Plant, No. 1 Kiln, the riveted steel hopper and incline hoist
- Post-war upgrade – extant elements include the three West's kilns

3.6.1 *1878 to interwar period*

History

Challenges confronting David Mitchell when he acquired Cave Hill included: how to burn lime at a site without natural cliff faces; how to optimise his lime resource with the limitations of contemporary burning technologies (pot kilns); and how to transport his products off-site in the absence of a rail line.

The answers to the first two questions were combined. From the 1880s Mitchell oversaw the construction of a cutting directly into the north end of the limestone resource, in the process creating hill sides into which pot kilns could be constructed. The length of the cutting enabled multiple kilns to be constructed – five kilns were recorded at Cave Hill in 1888, collectively producing 300 tonnes of lime per week.

An 1887 description of the lime burning process at Cave Hill is as follows:

> In the first place, the stone when quarried is drawn up an inclined road in trucks by means of horse power, and upon the truck reaching the necessary elevation, its contents are 'tipped' direct into the kiln destined to receive them [Figure 46]. The necessary quantity of wood is at hand and once the material is placed in position in the kiln it does not again come to the surface, but after undergoing the necessary preparation is loaded direct from what is technically known as the 'eye' of the kiln into the railway trucks a branch line having been constructed to a position which may be described as under the furnace, the natural formation of the hill facilitating the adoption of this ingenious mode of construction.[162]

The 1880s site plan shows the cutting extending into the quarry, with a tramway at the north end of the cutting, to transport timber into the site for the lime kilns (Figure 47). Tram lines were a major feature of the site until the later decades of the twentieth century.

At the south end of the cutting a brick-lined tunnel was constructed, providing access into the quarry (the cutting and tunnel are referred to collectively as the Tunnel). A tram line was built across the top of the tunnel, carrying quarried rock and timber to the kilns for top loading (Figure 48).

Retaining walls were constructed to the north end of the tunnel, the space in between being spanned by horizontal props and struts (tree trunks) set in abutments that appear to have been constructed of massed concrete (Figure 49).

Figure 46 Top loading a pot kiln, 1906: view looking north towards Lilydale township
Source: The *Australasian*, 7 April 1906, copy courtesy of Lilydale Historical Society

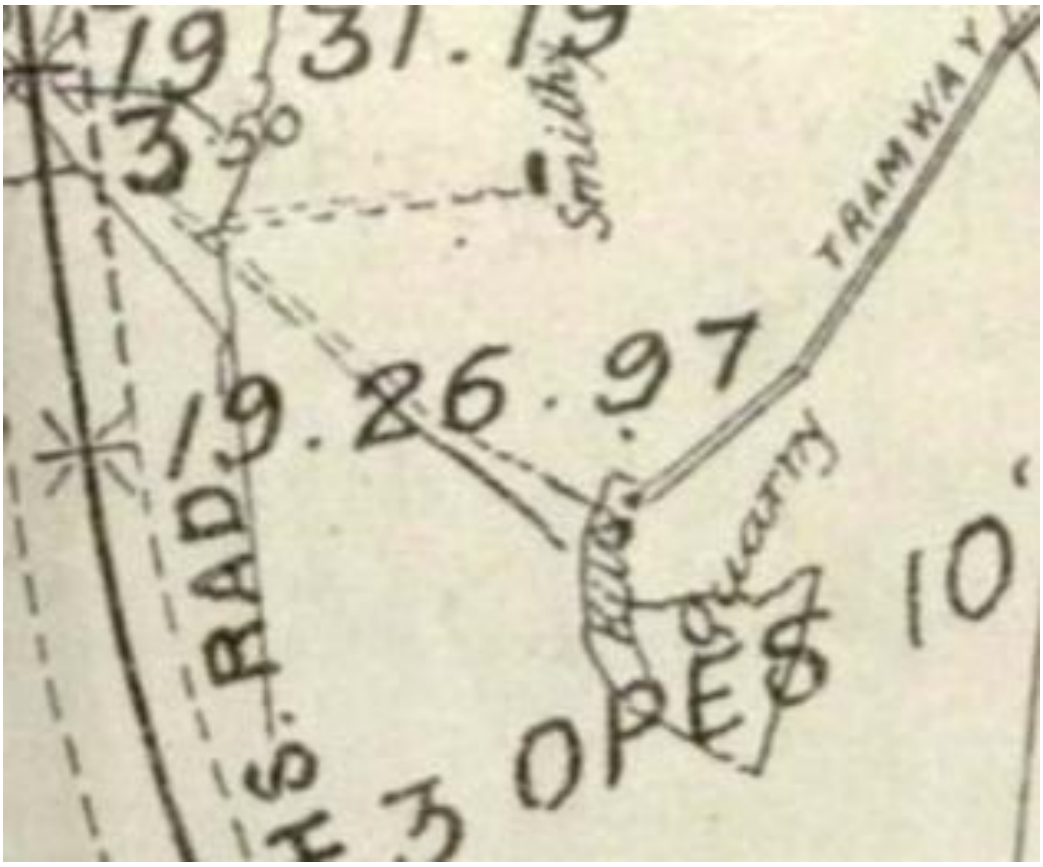


Figure 47 Detail of 1880s plan prepared for the Victorian Railways: note the 'kilns' (the Tunnel) extending into the quarry
Source: State Library of Victoria (Line Batten Percy collection)

The stumps of some of the props are evident in the present Tunnel. A retaining wall was also constructed to the west of the tunnel at its north end. This had a wall of rough-hewn coursed stonework, with brickwork at the corner (Figure 49).

As noted in Chapter 2, Mitchell overcame the problem of transporting his products to Melbourne (and beyond) by lobbying successfully for the rail line to travel through his site. The siding from the line extended to the north end of the Tunnel from approximately 1883.

The Tunnel is an evolved structure. Additions include the replacement of the timber props by steel I-beams, which had occurred by 1906 (Figure 50), and the introduction of pot kilns to the north end of the cutting. The 1922 site plan indicates approximately 10 pot kilns lining the Tunnel (Figure 51).

As described below, the space has also been lined with off-form concrete retaining buttresses, extending to a height of approximately 13m (a description of the Tunnel is provided below). These works are undated. However, it is noted that Mitchell established his Portland Cement factory at Burnley (using materials from Cave Hill) in 1890.

It has not been established what other buildings/elements were at the site in the early years. A smithy is indicated on the 1880s site plan (Figure 47), and two structures sheathed in galvanised corrugated metal sheeting are located to the east of the entry to the cutting. The southernmost of the structures, elevated on timber posts (Figure 49), may have been a stone crusher – see also 1922 site plan, Figure 51.

Description

The 'Tunnel' is part cutting and part brick-lined tunnel. It is located to the north of the quarry. The evolved structure dates to at least the 1880s, with alterations and additions dating to the early twentieth century.

The brick-arched tunnel itself is approximately 5-6m high, 3-4m wide and 20m long. The round-headed arch is brick-lined, and the walls are rough-hewn coursed stonework. To the north of the tunnel entrance, the brick-lined structure broadens and becomes taller. The cutting to the north of the tunnel is broader again, and asymmetrical on plan. It extends almost to the base of No. 1 Kiln (see Section 3.6.2). The distance from the south end of the Tunnel to the base of No.1 Kiln is approximately 60m; the width of the Tunnel is a minimum of c. 10m and a maximum of c. 17m.

The cutting was originally unenclosed. The skillion roof (corrugated sheet metal) was added in the 1960s. By the 1920s there was a bridge at the north end of the cutting. The steel beams that span the space survive but all boards and handrails have been removed.

The sides of the cutting are lined with massively-scaled concrete retaining walls with integrated piers. The piers include formed hips which carry steel I-beam props that span the space. In its earliest incarnation, the props were tree trunks. These were replaced by steel I-beams. The sawn-off ends of timber props and earlier I-beams are evident in the sides of the cutting. Some of the piers partially block built the entrances to the brick arched openings.

The Tunnel has a flat floor of modern poured concrete. There is no evidence of the rail tracks that extended into the space.

Figure 48 View of the Tunnel c, 1930s: note the tram tracks adjacent to the kiln openings
Source: John Mitchell Private Collection

Figure 49 View of the Tunnel from the north, late nineteenth century (1880s-1890s)
Source: Yarra Ranges Regional Museum

Figure 50 'Filling trucks at the bottom of kilns': view looking south into the Tunnel, 1906
Source: Nellie Melba Museum (http://nelliemelbamuseum.com.au), citing the *Australasian*, 7 April 1906

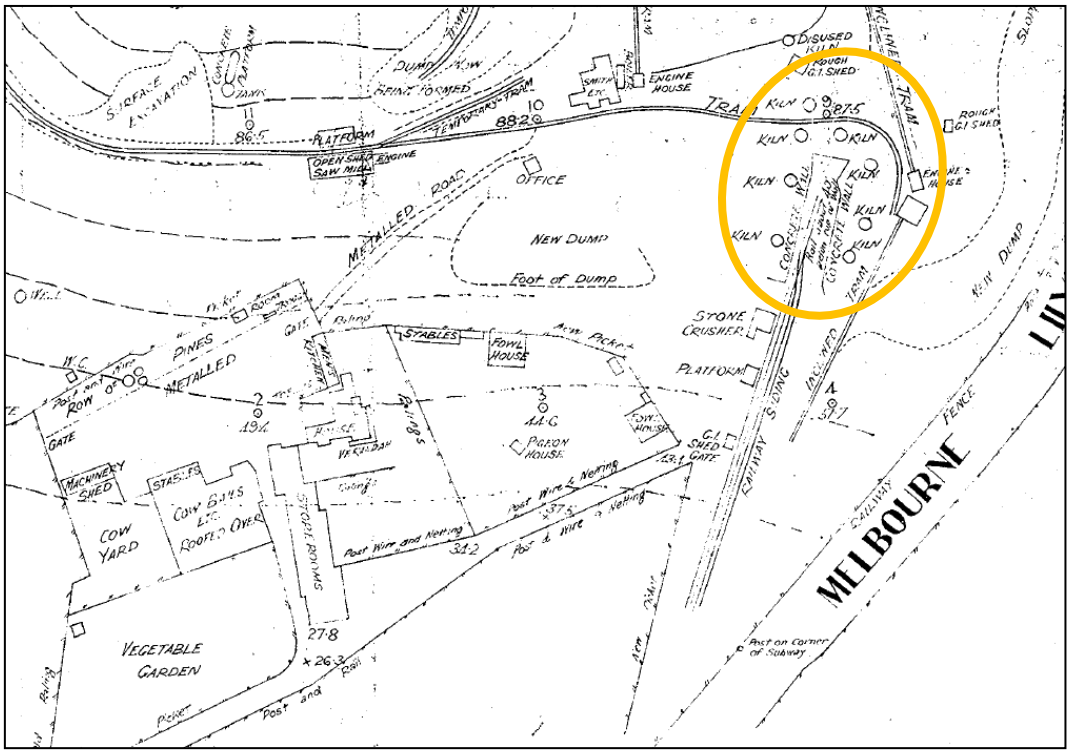


Figure 51 Survey plan, 1922: note the battery of pot kilns around the Tunnel (indicated)
Source: Sibelco

Figure 52 Left: Looking south towards the narrow section of the tunnel; Right: View into the tunnel from the south

Figure 53 Left: Exposed shaft of c. 1880s pot kiln. Right: Base of a pot kiln in the Tunnel
Source: Hin Lim (right)

Figure 54 The Tunnel: view from the north of the cutting towards the brick-lined tunnel

Figure 55 View looking down into the Tunnel from the east

Figure 56 Detail of the west side of the cutting

Approximately 10 pot kilns are indicated in the vicinity of the Tunnel in the 1922 site plan. These have been sealed at the surface, but the shafts are assumed to be extant. The shaft of one pot kiln is evident at the south end of the tunnel. Weathering has revealed its brick-lined cylindrical shaft (Figure 53). To the south of the tunnel the remnants of a track leading from the quarry floor are evident.

There are eight arched brick chambers along the length of the Tunnel (Figure 53). These were the spaces where crews unloaded burned lime. Each of the kilns retains its draw hole, and some remain sealed with metal bars and brick work. These bars are removable. In these cases it is likely that the kilns are full of burned lime. The chambers are of varying depth and form; some of the chambers at the south of the end of the space have inner and outer arches of different dimensions (Figure 53). Within the cutting, there are five chambers – three to the west and two to the east.

3.6.2 *Interwar upgrade*

History

The limestone processing works at Cave Hill underwent a major upgrade during the 1920s. Outcomes of the £75,000 investment included new equipment for crushing, lime burning, road metal processing and hydration.[163] Associated infrastructure included an incline hoist extending from the quarry floor to the top of the new crusher, and a petrol-driven locomotive for charging the pot kilns (the pot kilns remained in use well into the 1930s, and possibly beyond).

The upgrade was an early initiative of the David Mitchell Trust Estate. Principles underpinning the layout included maximising mechanical handling, and organising the processes of crushing, screening and storage to optimise gravity. The scheme was designed by Gilbert McAuliffe Pty Ltd, consulting engineers of Melbourne, and the equipment was manufactured by Chas Ruwolt Pty Ltd, Richmond. Contemporary descriptions noted the innovative qualities of the new plant:

> … the main features cannot fail to interest many engineers for not only are the production methods unusual, but the novelty of design attracts the attention of all who have studied this plant and its operation … Credit is due to the David Mitchell Estate for their enterprise in adopting such a radical departure from the usual methods …;[164] [and]
>
> … the plant … ranks high in the industrial plants of this country.[165]

The remodelled plant, illustrated at Figure 57 and Figure 58, was operational by 1925. It included:

- an integrated limestone crushing, screening and storage facility (generally referred to here as the Picking Station)
- an integrated road metal crushing, screening and storage facility (the Road Metal Plant);
- a hydration plant; and
- a network of conveyors, including a twin track incline hoist from the quarry floor

The automatic vertical shaft kiln (No.1 Kiln) was built in the mid-1920s, and brought into service in February 1936.[166] The small timber structures in the foreground of Figure 58 may also have been introduced in the 1920s. These were, from left, the carpenter's shop, a smaller workshop and offices. A store was under construction to the rear.[167]

The plant upgrade enabled the David Mitchell Trust Estate to double its output. Between 1878 and 1928, an estimated 625,000 tons of lime were produced at Cave Hill, equivalent to 12,500 tons annually. That figure increased to an estimated 25,000 tons per year from 1925.[168] The upgrade also enabled the Estate to optimise the commercial potential of the raw materials available at Cave Hill, and to increase product diversity (Figure 59). Prior to 1925, Cave Hill products were almost exclusively for use in the construction industry. The upgrade facilitated the development of products for metallurgy and agriculture. The development of Limil, a hydrated lime with a range of applications (including domestic gardens, agriculture, white washing, livestock sanitation and construction) was enabled by the new hydration plant.[169] Limil remains a core Cave Hill product. The David Mitchell Trust Estate also tailored products to the specifications of end users, a notable example being the preparation of road metal for the Victorian Country Roads Board.

The 1920s works had a transformative effect on the appearance of the site. The landscape was now characterised by tall structures, notably the Picking Station (which remains among the most prominent elements at the site) and elevated conveyors. It was at this point that the site took on the appearance of a large-scale industrial processing site intelligible to contemporary eyes.

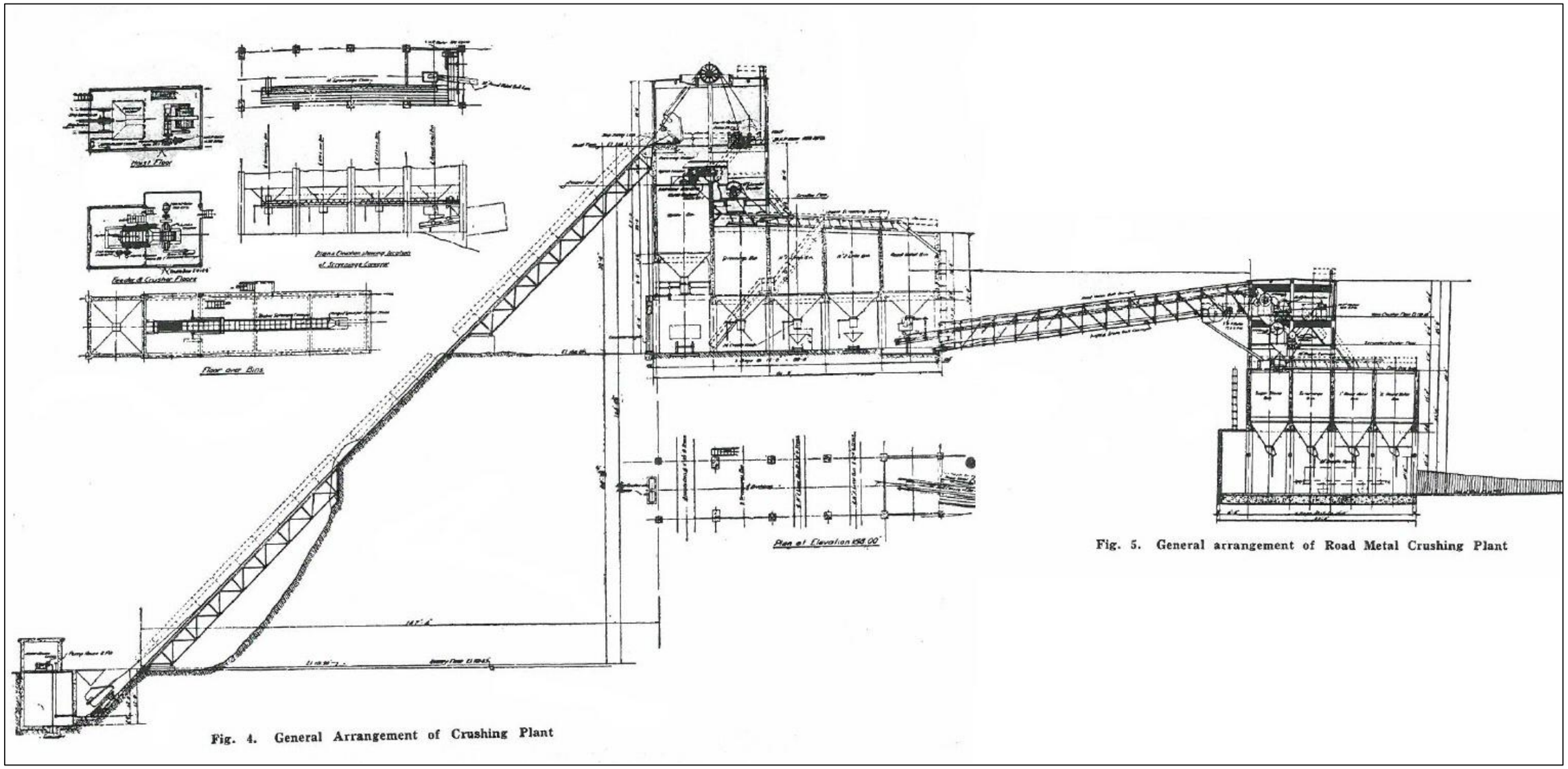


Fig. 4. General Arrangement of Crushing Plant

Fig. 5. General arrangement of Road Metal Crushing Plant

Figure 57 Cross sectional elevation showing, from left, the hoist incline, the primary crushing plant and the road metal plant
Source: The *Commonwealth Engineer*, 2 November 1925

Figure 58 View looking north-west over the lime processing area, 1920s: the Picking Station is in the centre of the image; the Road Metal Plant, on lower ground, is to the right (north)
Source: John Mitchell Private Collection

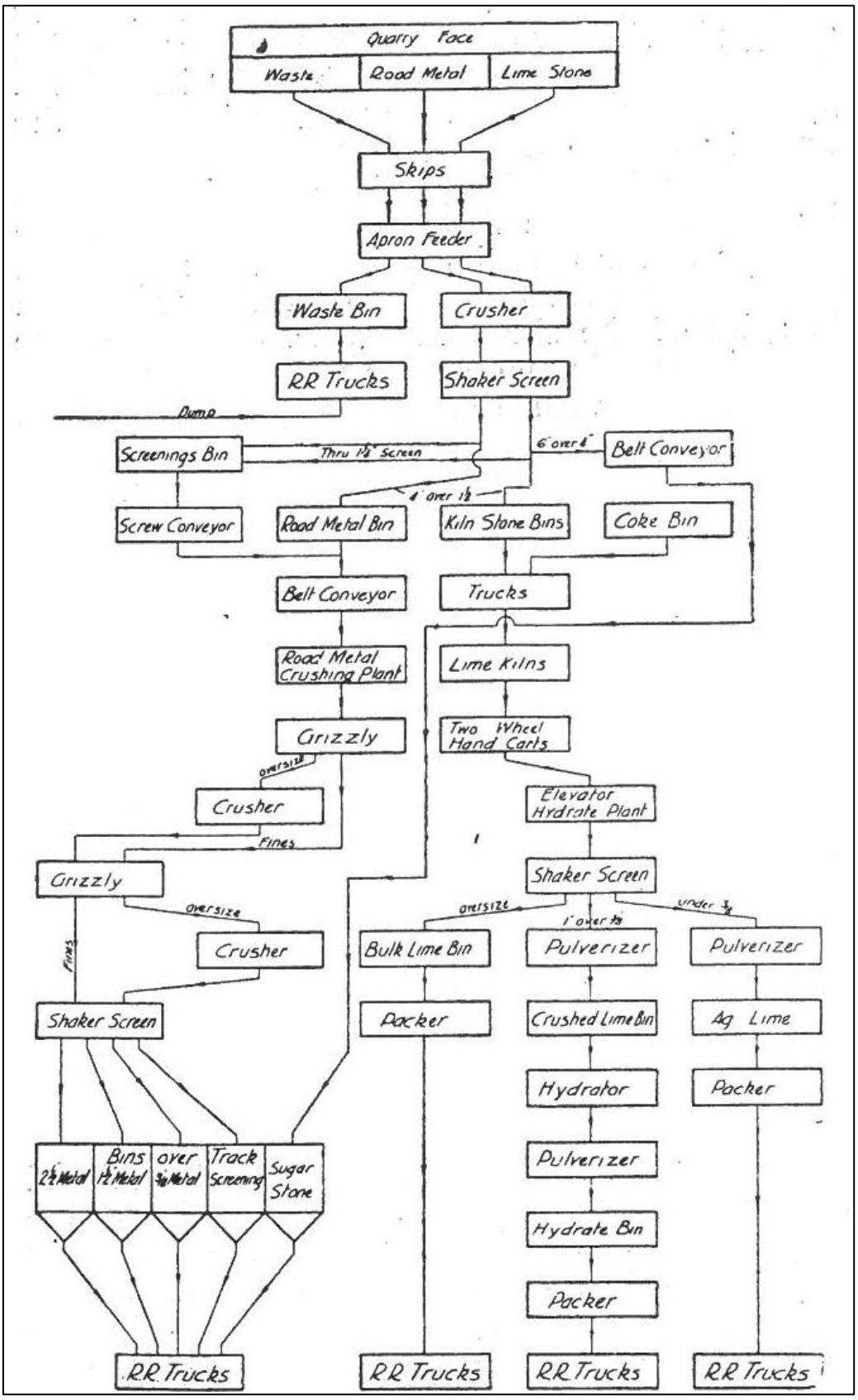


Figure 59 Flow chart demonstrating the sequence of raw materials processing at the Cave Hill Limestone quarry following the 1920s upgrade
Source: The *Commonwealth Engineer*, 2 November 1925

Figure 60 The Road Metal Plant (foreground) and Primary Crusher under construction, early-1920s
Source: Yarra Ranges Regional Museum

Figure 61 The Road Metal Plant (left) and Primary Crusher looking south-east, mid-1920s
Source: Yarra Ranges Regional Museum

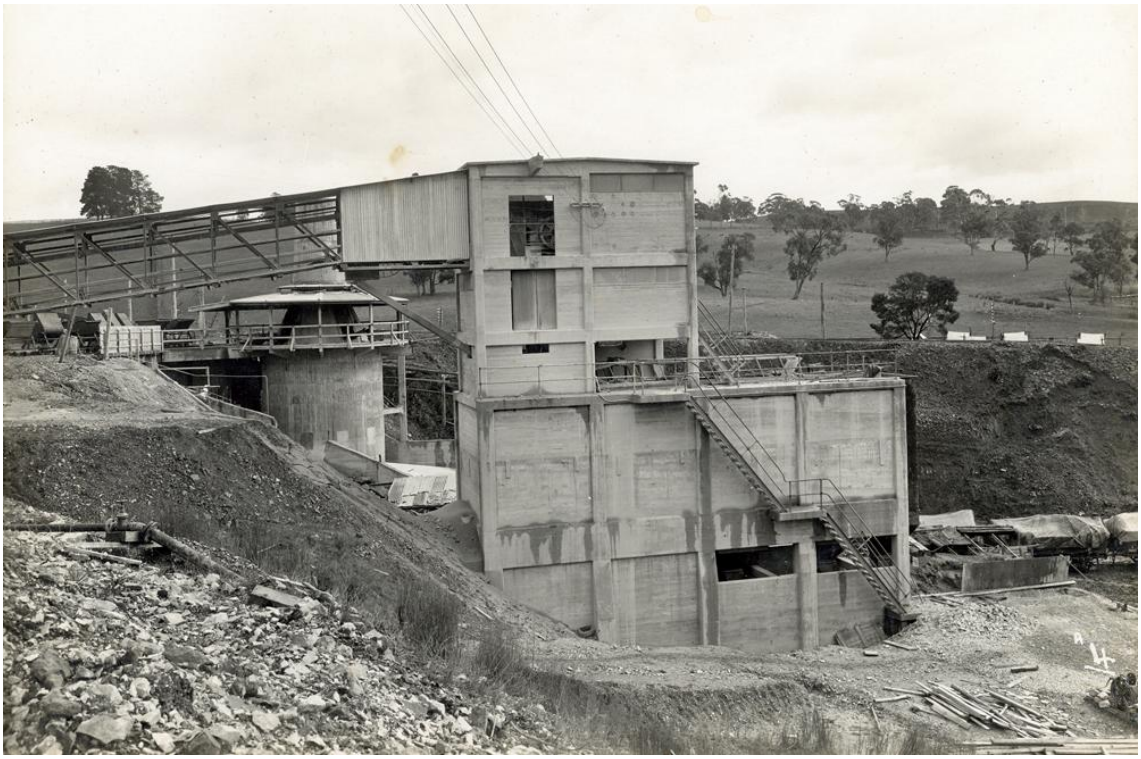


Figure 62 East elevation of the Road Metal Plant, 1920s. Note No. 1 Kiln at the rear
Source: John Mitchell Private Collection

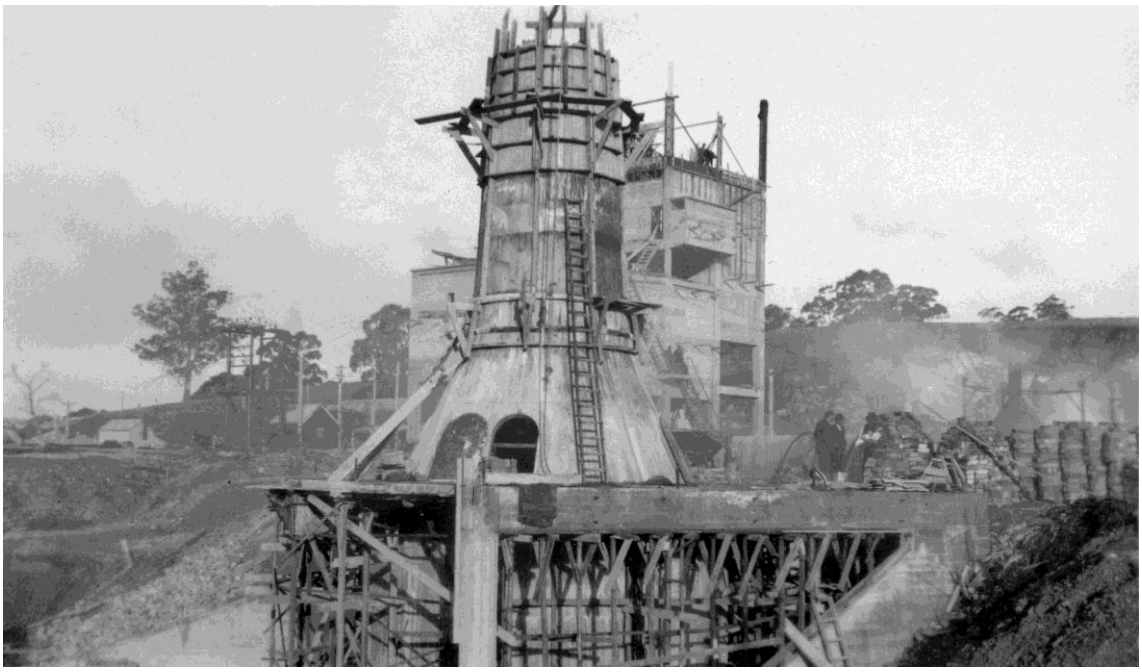


Figure 63 No. 1 Kiln under construction, 1920s
Source: University of Melbourne Archives

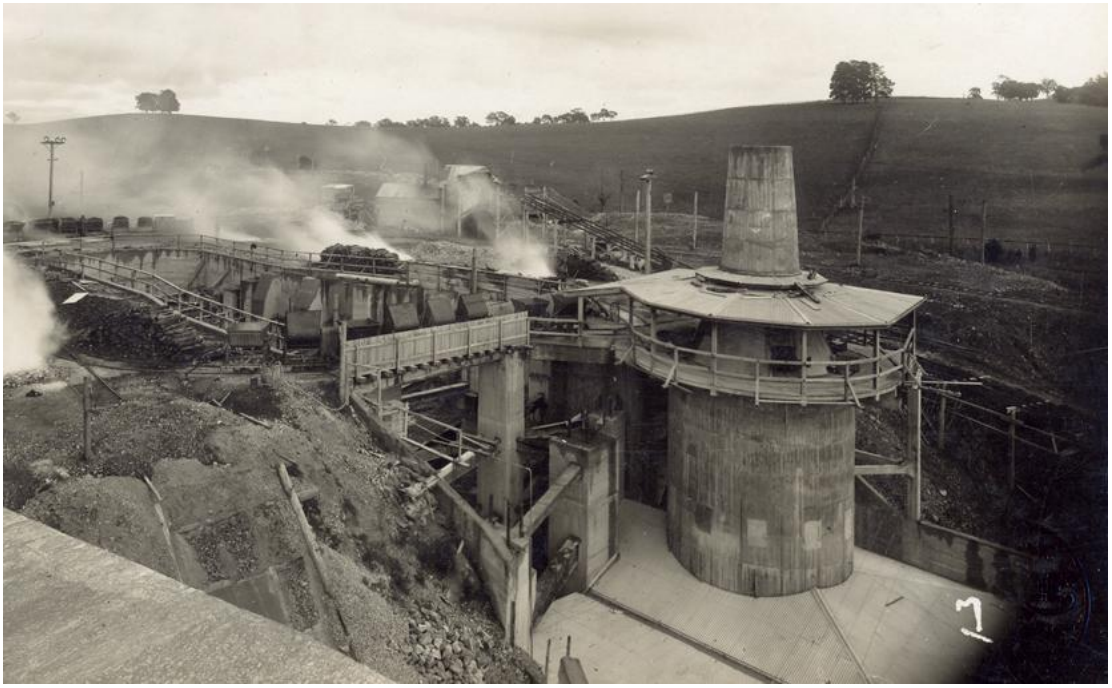


Figure 64 View of no. 1 Kiln and the entrance to the Tunnel 1920s. The pot kilns remained in service well into the 1930s
Source: Source: John Mitchell Private Collection

Description: Picking Station & Road Metal Plant

The Picking Station (also known as the primary crusher and the stone selection centre) and Road Metal Plant, constructed in the 1920s, are both multi-level buildings constructed of slip form reinforced concrete panels set in expressed reinforced concrete frames. The buildings' simple, cubic, unadorned form, as well as the conveyors that connect them and the site generally, is expressive of their function. They are components of a broader industrial operation.

The Picking Station is located on highest part of the site, overlooking the quarry. It is four storeys high, and rectangular in plan. The upper two levels, originally housing the crushers, extend approximately half the length of the lower two levels (Figure 65).

As built, raw materials were transported from the quarry floor by the incline hoist. The materials were fed into the crushers, and then passed to a screening floor fitted with a vibrating screen (or shaker table). The different stone sizes were then gravity fed to the ground level bins, which collected the waste, road metal and lime for burning. Road metal was transported to the Road Metal Plant, a short distance to the north, by a conveyor. Lime for burning was transported to the pot kilns (and to No. 1 Kiln from 1936).

The crushers and screens could be adjusted depending on the quality of the material being processed. For instance, discharge openings over the kiln stone bins could be closed off when processing road metal and the speed of the crusher motors could be adjusted depending on the nature of the raw material. Most of the equipment and plant in the Picking Station has been replaced over the years, and the upper two levels are no longer in use.[170] A large opening in the in the floor of the top levels (originally for plant) has created a double-height space in the upper section of the building (Figure 65). In recent years a new steel structural frame has been introduced to the base of the building (Figure 65).

Figure 65 Left: South and east elevations of the Picking Station; the modern structural support is indicated; Right: Double-height space at the top of the Picking Station

The Road Metal Plant is located on lower ground to the north of the Picking Station. It is a four level structure and rectangular in plan. The upper two levels extend approximately half the length of the lower two levels. It accommodates crushers, a vibrating screen and ground level bins to receive the processed stone. The vibrating screen (shaker table) is original (Figure 67); the jaw crusher in the top level is a replacement (Figure 68). Ceiling heights to the south of the shaker table level are low. The Road Metal Plant was in use from 1925 to 2003. In recent years, steel supports have been introduced internally to arrest structural decline.

Openings in the Picking Station and Road Metal Plant are purely functional, including high level slit windows for the screening level in the Road Metal Plant, and a large opening at the south of the Picking Station to receive quarried stone. Both buildings have open under crofts, for ease of manoeuvring processed products. Access to the different levels varies depending on function and topography – the screening floor in the Road Metal Plant is accessed by a bridge from natural ground. Vertical circulation is typically by steel stairs fixed to the sides of the buildings; there are metal ladders fixed to some levels of the walls of the Picking Station. The buildings are connected by an enclosed conveyor, dating to 1925 (Figure 69).

Accretions and additions added over time have in part obscured an understanding of the physical and functional relationship between the Picking Station and the Road Metal Plant (Figure 70). The large diamond-shaped riveted steel hopper to the east of the Picking Station (Figure 70), the date of which has not been established (possibly 1920s), also contributes to this.

Figure 66 West elevation of the Road Metal Plant

Figure 67 Shaker-screen conveyor in the Road Metal Plant

Figure 68 Top level of the Road Metal Plant: the Jaques jaw crusher in not original

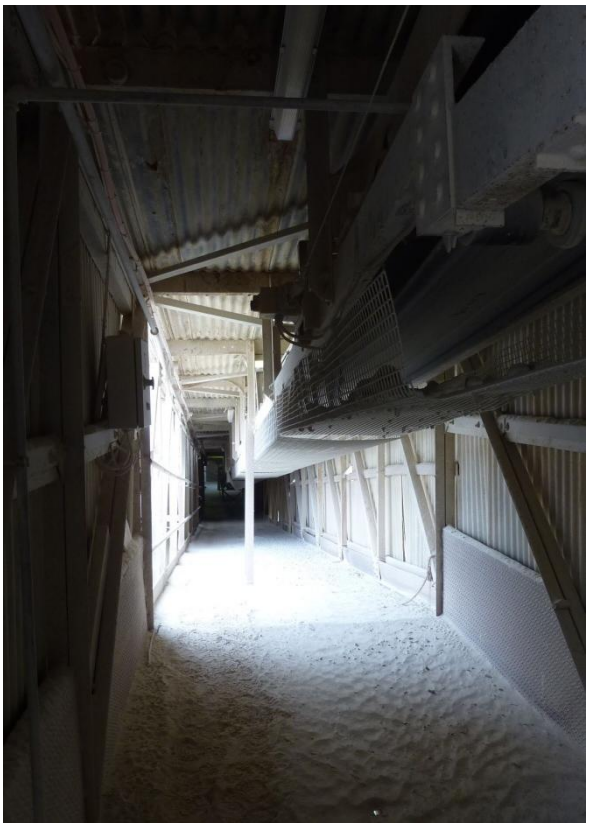


Figure 69 Interior of the conveyor that connects the Road Metal Plant and Picking Station

Figure 70 View of the Picking Station (at top right) from the north: note the accretions and additions, and the riveted steel hopper to the right of picture (indicated)

Description: Hydration plant

The Hydration Plant was also part of the 1925 upgrade. In its original form it was a three-storey building with a basement. A new plant was constructed on the site of the original – to the north-west of the Tunnel – in the 1960s. The present plant incorporates some sections of the original, including parts of the slip form reinforced concrete panels and the basement, but is substantially a new building, sheathed in corrugated sheet steel.

Internally, the Hydration Plant includes a variety of volumes whose dimensions respond to the hydration process (Figure 73). The large steel chamber, in which water is added to burned lime and heated at 107 degrees Celsius, is located on the upper level. The Hydration Plant remains in use.

Figure 71 The original Hydration Plant is to the right of the picture (c. 1940s)
Source: Sibelco

Figure 72 Contemporary view of the Hydration Plant (to the right of the photograph)

Figure 73 Hydration Plant interior

Figure 74 View looking south towards the rebuilt upper section of No. 1 Kiln

Figure 75 Base of Kiln No. 1

Description: Kiln No. 1

No. 1 Kiln was built in the 1920s, but did not come online until February 1936.[171] The automatic vertical shaft mixed feed kiln was the first continuous kiln built at Cave Hill, and is understood to have been an early example in Australia. It operated for 28 years, until 1964, when it was superseded by two oil-fired 'West's' vertical shaft kilns.

The cylindrical kiln is located to the south of the Tunnel. It comprises a broad base built of slip form concrete, and a comparatively narrow upper section built of brick and wrapped in regularly-spaced steel bands to manage expansion and contraction (Figure 74). As built the upper section was tapered and built of slip form concrete (Figure 64). It is not known when it was extended. It is possible that the works were contemporary with the small brick control room located to the south-west of the kiln. The present brick upper section is surmounted by a steel cap. This originally received a conveyor for top loading kiln stone. The conveyor has been removed.

It has not been established whether the present wraparound walkway is at the same height as the original (Figure 64). As built the walkway was roofed, and extended the height of the tapered link element that connected the upper and lower sections of the kiln. A discharge hopper is extant at the base of the kiln (Figure 75).

Description: Incline hoist and conveyors

The incline hoist was part of the 1920s upgrade. Skips with a 1 cubic yard (five tonne) capacity carried quarried limestone to the Picking Station, powered by a pump house on the quarry floor. The hoist was disused by the end of the 1950s. By then the depth of the quarry floor had increased appreciably. The incline hoist is comprised of a steel truss framework with timber sleepers and twin tracks laid on top. The central section of the hoist rests on concrete footings built into the quarry face. A steel balustrade is to the west side of the hoist, suggesting that the access by quarry personnel may have been required, for inspections. The incline hoist was inaccessible during the site visit. It has been disused for approximately 70 years.

Figure 76 Views of the incline hoist 1920s (left) and c. 1950s (right)
Source: Sibelco

Figure 77 View from the top of the Picking Station c. 1950s
Source: John Mitchell Private Collection

Figure 78 Upper section of the incline hoist

3.6.3 *Post-WWII upgrade*

History

Two oil-fired vertical shaft continuous 'West's' kilns were commissioned in 1964, supplemented by a third in 1967 (Figure 80 and Figure 79). They remain in use, and are referred to as Kiln numbers 2, 3 and 4. As built, they used a 'Catagas' (cracking oil) system. Following the construction of the first two kilns, the Lilydale Gazette reported, '… there are only two [Catagas] kilns operating – at Beswick in England … As a result we have at Lilydale probably one of the most modern lime plants in the world'.[172] The kilns were converted to natural gas firing in 1976, following the oil crisis of the early 1970s.[173] The kilns significantly increased output at the plant: each produces c. 50 tonnes of lime per day.

Description

The automatic vertical shaft kilns are located to the west of No.1 Kiln, extending towards the rail line. The top loaded kilns are comprise discrete zones: a hopper at the top, for storage and drying; a pre-heating zone; burning zone (calcination); and a base hopper, from which the burned lime is extracted once cooled. The Cave Hill controls each have two enclosed areas clad in corrugated sheet metal, a loaded zone at the top and control rooms close to the base. The control room for Kiln no. 4 is raised on piers, approximately a third of the way up the cylindrical shaft. The control room for Kiln nos 2 and 3 is illustrated at Figure 81.

There is a commemorative plaque at the base of an electricity pylon to the north-west of the large packing station (Building 30, Figure 35). This acknowledges '45 years of executive service 1948-1993' by Charles Maple, a long-standing member of the David Mitchell Estate staff.

Figure 79 From right, Kiln nos. 2, 3 and 4, pictured in the 1960s
Source: John Mitchell Private Collection

Figure 80 Left: Kiln no. 4 (foreground), viewed from the north, 1960s; Right: View from the east
Source: John Mitchell Private Collection

Figure 81 Kiln nos. 3 and 4 control room

3.7 Farm Precinct

History

Under David Mitchell's guidance, farm operations at Cave Hill commenced in the mid-1880s, and were wound up in 1921 (after Mitchell's death, in 1916). During this period the operations diversified from dairying (milk, butter and cheese) to cured meats. In the early twentieth century, soap and candles were manufactured using the fat of slaughtered animals. A more detailed description of the farm operations is included in Chapter 2.

As indicated in the 1907 panorama (Chapter 2) at its peak the farm was a major enterprise, with buildings extending down the slope east of the homestead to the property boundary. Today, only a handful of buildings survive: the dairy factory, bacon factory, timber sheds and a concrete silage store. The footings and slabs of former buildings are evident in the area. A dam was introduced in the north-east of the farm precinct in the 1960s, for overflow from the quarry floor. This area was previously occupied by farm buildings.

The original planning and function of the two factory buildings has been described by John Mitchell, great-grandson of David Mitchell and architect of the adaptation of the dairy factory to office use in the early 1970s[174]:

> The Cave Hill buildings are interesting as straightforward responses to particular functional requirements. The Ham and Bacon factory is of brick and built over two levels, the lower level being mostly below ground. Butchering, curing and associated operations were done on the higher level and then the carcasses were lowered by a pulley suspended from the top of the corner tower into the heavily insulated cool rooms below which were cooled by circulating water. The building is of brick with timber floor and roof structures. The cheese factory is of similar design with two working levels and a vertical circulation tower, but the lower level was not required to be below ground. It differs from the [dairy and ham factory] in having stuccoed walls and fretted patterns to the eaves [barge boards].[175]

Figure 82 East elevation of the Dairy Factory, c. 1970s
Source: Sibelco

The use of the descriptor 'factory' for these two agricultural buildings is instructive, illuminating Mitchell's emphasis on industrial production. The factory buildings had fallen into dereliction by the 1970s (Figure 82). Both have been adapted for office use.

Description: Dairy Factory

The Dairy Factory, which dates from 1892, is located to the west of the Farm Precinct. The land slopes down from south to north, and to the east. It is a two-storey structure built of massed concrete with walls approximately 500mm thick.[176] It was completed two years after Mitchell started manufacturing Portland Cement at his Richmond works.

The building has a pitched roof clad with corrugated sheet metal. There is taller tower element with a pyramidal roof to the south-east. A skillion-roofed wing is located to the north. The whole is rendered, and ashlar-ruled. There are carved bargeboards to the pitched roof, and the eaves to the tower roof are bracketed (Figure 83 and Figure 84). A non-original post-supported verandah is located to the east elevation, enclosing a modern concrete walkway that returns to the north. There is a large central window opening to the south elevation of the building, with a smaller door opening to the west. An elevated metal walkway has replaced an early flight of steps to this doorway. Openings to the east elevation are irregularly spaced, possibly reflecting aspects of the building's original operation. There are tall arched openings to the south and east elevations of the tower; the south opening is blind. There is a concrete-lined trench to the south elevation and the south end of the east and west elevations.

The building was adapted to offices in the 1970s. The present fit-out dates to 2003. In its original form the two levels of the main building were single open-plan spaces, and there was no internal connection with the skillion-roofed wing to the north.[177] The extent of original timber joinery in both the Dairy and Bacon factories not been established. The link element connecting the factory buildings is understood to date to the early 2000s.[178]

Figure 83 Dairy Factory: east and north elevations. Note modern link between the factory buildings at right of the picture

Figure 84 Dairy Factory: south elevation (2010)

Description: Bacon Factory

The Bacon Factory, constructed in 1893-5, is located north of the Dairy Factory. It comprises two parallel brick buildings (unrendered) with pitched roofs. The larger building (to the east) was built in 1893, and comprised a 'cutting down room', a smoking room with a tower 12.2m (40 feet) tall, a cooling room and a drying room (Figure 85). This was supplemented by a two-chamber smoking room in 1895 (Figure 86). The square vents to the smoking rooms are extant. There is a narrow gap (c. 150-200mm) between the buildings. All roof areas are clad with galvanised corrugated sheet steel. A brick chimney is located to the west slope of the original building, partially concealed from ground level. The barge boards are plain compared to the Dairy Factory.

As built, and as noted above, carcasses butchered on the upper level were lowered by a pulley projecting from the tower to the cool room at the lower level. There is no evidence of the pulley. There are thick steel pipes just below the ceiling of a small room to the north-east corner of the ground floor; it is possible that these related to the cooling process. The ground level spaces are accessed internally from the north elevation. Multiple alterations have been carried out to the north elevation over the years, as demonstrated in the number of bricked-in openings at both the ground and first floors.

Fenestration is minimal and irregular. There are three rectangular window openings to the east elevation, upper level, with a further opening (square) to the east of the north elevation (upper level). This has been sheeted over. There is a doorway to the basement at the approximate centre point of the east elevation, and a double-width doorway to the north elevation at ground level. Access to the smoke house is by a door in the north elevation, upper level, connected to ground level by a non-original steel flight of stairs.

Internally, the former bacon factory has been adapted for office use. The two chambers of the 1895 smoke house retain their original pyramidal timber-lined ceilings.

A concrete enclosure to the west of the Bacon Factory is believed to provide access to a passage under the building. The use of this space has not been established, and access was not possible during the site inspection.

Figure 85 The Bacon Factory from the north-east: the 1893 wing is in the foreground.

Figure 86 The 1895 smoke house to the west of the original Bacon Factory

Description: Timber buildings to north of the Bacon Factory

Historically, buildings and structures extended north from the Bacon Factory. Today, this space includes an area of open space directly to the north of the factory building, an open-sided enclosure of apparently mid-twentieth century origin and three timber-framed structures with pitched roofs. Of these, two are oriented to the north-south, and one is oriented east-west (Figure 87). The history of the timber buildings has not been established. Their location, to the north of the Bacon Factory, suggests that they may have been related to slaughtering livestock. An 1894 newspaper report also noted that buildings adjacent to the Bacon Factory were used as abattoirs and for processing carcasses for local butchers and as a soil fertiliser.[179]

The largest of the three structures, to the east, is built on brick and stone footings, with a timber framed superstructure clad with weatherboards. A number of the weatherboards are missing. The south wall is galvanised corrugated steel sheeting. It is a double-height structure, and is open to the north. The pitched roof is clad with galvanised corrugated sheet steel. There is a smaller timber-framed building to its west, of comparable structure and orientation. This is on higher ground, and has a concrete hard-stand to its north. The timber-framed building that is oriented east-west has been re-sheeted in modern corrugated metal. A top-hung timber door survives to the east elevation (Figure 89).

Figure 87 View of the timber stores from the north

Figure 88 The area to the north of the Bacon Factory viewed from the south-west

Figure 89 Top-hung timber door retained with the southern-most of the timber buildings to north of the Bacon Factory

Description: Silage store

The silage store is located to the east of the farm precinct, adjacent to the east driveway. It is oriented east-west. The store was constructed for the fermentation of green vegetable matter as sustenance for swine. Its date of construction has not been established (possibly 1890s).

The silage store is built of slip-form concrete, with walls approximately 300mm wide. It is rectangular on plan (approximately 8m x 5m), with an internal wall dividing the space into two chambers. The walls are approximately 3.5m high. There is a door opening in the centre of the west elevation to the west chamber (boarded up) (Figure 90). The east wall of the east chamber was demolished c. 1960s, following an explosion triggered by quicklime that was exposed to the elements.[180] A layer of render has been applied to the lower c. 1.5m of the wall, on the exterior and interior. The structure is not roofed. It is possible that a roof was carried on bush poles attached to the north and south walls – a number of poles survive to the north and south.

Description: Milking Shed

This timber shed, located to the north of the silage store, is a remnant of the farming activities at Cave Hill which ceased in 1921 (Figure 91). It is known by long-term employees as the milking shed, but it is not certain that it ever served this purpose. The shed appears to have been built in at least two stages. The west end is slightly taller than the east. The west end of the shed is enclosed by timber boards fixed vertically. Boards to the east end are fixed horizontally. The pitched roof is enclosed in corrugated galvanised sheet steel.

Figure 90 Silage store: west elevation

Figure 91 View of the milking shed from the north

3.8 Arrivals Precinct

History

The view from Melba Avenue is the public interface with the site. The area includes two driveways extending from the same entrance point close to the intersection of Melba Avenue with the railway line. The east driveway is the historic entrance, and is assumed to date to the 1870s if not earlier (i.e. it may have been the point of access to the pre-Mitchell farm). The west driveway, parallel with the rail line, dates to the mid-twentieth century. Today the driveways frame a cricket oval (introduced in the 1930s). There is an area of open pasture to the east of the east driveway. The south-eastern corner of the precinct may have supported farm operations in the late nineteenth and early twentieth century; aerial photography dating to the 1952 indicates what appear to be livestock pens in this location.

The Arrivals Precinct is at the natural ground level; the topography in this area appears not to have been modified over time.

Description: Driveways

The east driveway is the historic point entry to the site. The west driveway dates to the mid-twentieth century, and is primarily associated with lime processing. See Section 3.4 for a description of the plantings flanking the driveways. Evidence of former tramlines is located at the north end of the east driveway. Their origins have not been established. Historical data viewed for this report does not indicate tram lines in this location.

Description: Memorial gates and gateposts

The memorial gates and gateposts are located at the north end of the west driveway. They commemorate the David Mitchell Estate employees who served during World War II. The gates were opened in 1947 (Figure 92). The two gate pillars, c. 1.5m high, are clad with stone. Each has a plaque fixed to its north face, listing those who served during World War II. The letters 'DME' are set into the wrought iron gates (Figure 93). The opening has been widened since 1947 (date not established) and the gates have been either modified or replaced (compare Figure 93 and Figure 94).

Figure 92 The memorial gates and gateposts were opened on 16 November 1947
Source: Yarra Ranges Regional Library

Figure 93 Views of the gateposts in 2013
Source: Hin Lim

Figure 94 Caretaker's residence

Description: Cricket oval and pavilion

An oval was introduced in the 1930s. A pavilion was also constructed at that time. The present pavilion dates to the 1970s.

Description: Caretaker's residence

The caretaker's residence is located to the south-east of the arrivals precinct. It was built for the site manager, possibly in the 1950s, and later occupied by the paymaster. It is generally referred to at the caretaker's residence, a reference to a couple who lived at the property for approximately 30 years from the late-1970s.[181]

3.9 Historical archaeology

An archaeological desktop investigation of the Cave Hill Quarry Estate was undertaken by Andrew Long & Associates. The assessment, which provided the basis for an archaeological predictive model, was based on an examination of historical plans and photographs, and a physical inspection.

One of the principal resources used in the development of the historical archaeological predictive model was a number of historical photographs which include views of the early workings of the quarry as well as the house and farm complex located to the north of the quarry. Through a comparison of the photographs with the current physical state of different locations with the study area a broad predictive model of archaeological potential was developed. This sought to identify areas where later disturbances are unlikely to have impacted on the archaeological remains of earlier structures and or activities. The predictive model concentrates specifically on identifying archaeological potential related to nineteenth and early twentieth century structures and activities.

The archaeological predictive modelling has established that the study area contains only very limited opportunities for the survival of archaeological materials associated with its nineteenth century and early twentieth development and occupation. Factors informing this conclusion include:

- the expansion of the quarry workings and associated works areas and infrastructure;
- the continued use, maintenance and upgrade of the few remaining early structures; and
- the installation of services and utilities within remaining open space.

Generally speaking the expansion of the quarry and associated works areas has led to an incremental disturbance and removal of the locations of the majority of earlier structures. Most significantly the location of the main homestead of the David Mitchell Estate was destroyed through the construction of a haul road for the removal of spoil. It is also noted that the locations of the majority of the earliest structures associated with the quarry have been subsumed within the current processing areas of the study area. As a consequence the potential for archaeological remains associated with these features is essentially nil.

Of the numerous structures which made up the original house and farm complex of the estate, only a handful are extant and of these a substantial number have been modified for use as offices and administration functions. The land immediately adjacent to these structures, if not disturbed directly by works associated with the quarry itself, has been impacted by the modernisation of the location – through the provision of car parking facilities, paths and service connections. Moreover, in general terms the original uses of these structures are such that significant archaeological deposits are unlikely to have developed in association with them.

Of the limited open space areas which ostensibly have not been recently redeveloped or disturbed and which appear to have been the location of documented historical use these appear upon closer inspection to have been subject to a limited suite of later impacts associated with the ongoing use of the estate and the conversion for use as administrative or maintenance uses of those original buildings which remain extant.

Given the predominantly low archaeological potential of the majority of the study area the present study does not outline in detail the developmental sequence of built fabric of the study area as a whole prior to identifying areas of archaeological potential.

Only one principal area of limited archaeological potential is present within the study area comprising an area of open space located to the north and east of the location of the former main house. This area is discussed in greater detail below.

Former farm complex

Photographic evidence dating to 1907 indicates the farm complex area as a concentration of structures located to the north and east of the main homestead (Figure 9). The complex included the extant bacon and dairy factories as well as a large number of structures presumably associated with the workings and activities of the farm. Only limited information is available regarding the number, organisation, use and fabric of these structures. By the middle of the twentieth century the majority of these structures had been either removed or allowed to fall into disrepair and collapse.

An aerial photograph dating to 1952 shows the area located to the east of the still extant butter and bacon factories as essentially vacant (Figure 33). There are indications of the locations of former structures, but it is unclear whether these are collapsed buildings or the remnants of paved surfaces over which structures were formerly positioned. With the exception of further regrowth of vegetation little appears to have changed throughout the 1960s and into the 1970s (Figure 95 and Figure 96). In an aerial photograph dating to 1981 there is some evidence of disturbance occurring in this area with the apparent cutting of a new roadway or path as well as what appears to be a drainage channel indicating a level of at least peripheral disturbance to this area (Figure 97).

As noted above, little is known about the fabric and use of the structures formerly located in this area, however, it is assumed that the majority would have been of timber construction and many were most likely unenclosed. As such the archaeological signatures of these structures are likely to be quite ephemeral being largely restricted to post holes. Whether any or all of these structures were furnished with paved floors (cobble, concrete or gravel) is uncertain, however, if this was the case this would increase their archaeological visibility.

Although of unclear function, it can be assumed that these structures were used for tasks and activities associated with the farm and may have been associated in some direct way with the adjacent structures which remains extant and for which functions and uses are known. For example the presence of the extant dairy and bacon factories to the west may indicate that former structures and features within this location were associated with stock control (pens and yards), butchery, and milking. For practicality, it is likely that such buildings would have been located in proximity to the principal meat and dairy processing sites. On this basis this area most likely formed an integral link between the production and processing areas of the farm where livestock for slaughter were penned and potentially dispatched prior to processing. Similarly, given the proximity of the butter factory it is likely that the dairy/milking shed and associated yards was also located within this area.

The archaeological remains of these structures are likely to be relatively ephemeral. However, the apparent absence of extensive disturbance suggests that the location does have archaeological potential. Given the presumed function of the these structures it is considered unlikely that extensive or complex archaeological deposits would have accumulated with the corollary that anticipated archaeological evidence is likely to be restricted to structural remains primarily in the form of post holes and possibly remnant paving.

The archaeological potential of this area relates to the possibility that it may enhance an understanding of the internal organisation and layout of the farm complex.

Figure 95 Aerial photograph, 1960: the farm complex is in the centre of the image
Source: Laverton Aerial Photography, Land Victoria

Figure 96 Aerial photograph, 1972: the farm complex is in the centre of the image
Source: Laverton Aerial Photography, Land Victoria

Figure 97 Aerial photograph, 1981: the farm complex is in the centre of the image

4.0 ASSESSMENT OF SIGNIFICANCE

This chapter contains an assessment of the heritage values of Cave Hill Quarry. It draws on the historical information in Chapter 2, and the physical analysis in Chapter 3. The assessment utilises the Victorian Heritage Council Criteria for the Assessment of Cultural Heritage Significance as adopted on 7 August 2008; it also has regard for the *Victorian Heritage Register Criteria and Threshold Guidelines* endorsed by the Heritage Council on 6 December 2012.[182]

The assessment is values based or driven, examining in turn the historical, aesthetic/physical, technical/scientific and social heritage values/attributes of the place. There are also some crossovers or links between these values.

4.1 Analysis of historic value

This analysis addresses the following Heritage Council criteria:

Criterion A	*Importance to the course, or pattern, of Victoria's cultural history*
Criterion B	*Possession of uncommon, rare or endangered aspects of Victoria's cultural history.*
Criterion C	*Potential to yield information that will contribute to an understanding of Victoria's cultural history.*
Criterion H	*Special association with the life or works of a person, or group of persons, of importance in Victoria's history.*

Limestone production

Cave Hill Quarry has been one of the primary sources of limestone in Victoria since 1878, operating continuously since that time. The quarry is associated with the second-wave of lime production in Victoria, superseding the smaller-scale and generally coastal-based producers processing lime primarily near Geelong, the Mornington Peninsula and Portland. The expansion of Victoria's rail network was a significant factor in making the extraction of inland lime resources commercially viable.

The establishment of the Cave Hill Quarry coincided with the construction boom of the 1880s, a phenomenon with which David Mitchell, founder of the quarry and Melbourne's pre-eminent building contractor of the era, was strongly associated.

The diversity of lime-based products generated at Cave Hill Quarry over the years reflects both the versatility of lime (the cheapest form of alkaline), and the ebb and flow of Victorian industry. In the early years, the quarry's primary market was the construction industry. Subsequent products were tailored to the needs of the Country Roads Board, to support the expansion of the road network during the interwar period; and to the agricultural industry, to manage the high levels of acidity in Victorian soils. Products generated at Cave Hill have achieved state-wide recognition and application (notably 'Lilydale toppings'). Lime's versatility is a significant factor in the longevity of Cave Hill.

There are three generations of lime processing plant and equipment at Cave Hill, demonstrating the evolution of lime burning technologies from the nineteenth century to the 1960s. The Tunnel is believed to be the most extensive battery of pot kilns in Victoria. The co-location of multiple pot kilns was Mitchell's response to the limitations of intermittent burning technologies, enabling round-the-clock production. During the 1920s the plant was

remodelled with an emphasis on mechanisation and modern technologies. Extant elements relating to this upgrade are the Picking Station, Road Metal Plant, the network of conveyors at the site and No. 1 Kiln, understood to be one of the earliest continuous mixed-feed vertical shaft kilns in Australia. The upgrade had a transformative effect on the presentation of the site, its commercial viability and the diversity of products generated at the site. In the 1960s, three vertical shaft 'West's' kilns were commissioned at the site; they remain in use.

While an exhaustive comparative survey of limestone quarries was beyond the scope of this report, the project team is aware of:

- no other limestone quarry in Victoria that has operated consistently since the late-1870s; and
- no other limestone quarry that retains evidence of three generations of lime processing equipment, dating from the late nineteenth century to the 1960s.

Collectively, the Cave Hill kilns have the potential to contribute to an understanding of developments in lime production processes from the nineteenth century to the 1960s.

Cave Hill Quarry has also made a considerable contribution to the economic and social development of Lilydale and its hinterland since the 1870s.

Cave Hill Farm

The land at Cave Hill was farmed (grazing) from at least the 1850s, with farming activities intensifying and diversifying from the mid-1880s, when Mitchell commenced dairying operations. By 1900, Cave Hill farm was producing butter, cheese, bacon and cured meats, soap and candles. The farm operations were a boon to local employment during the economic depression of the 1890s. The farm was strongly associated with David Mitchell, and expanded to become a major enterprise in the early twentieth century.

The farming operation was atypical in scale and approach. It was set up to process raw products from local suppliers, providing them with an alternative to Melbourne buyers, and enabling Mitchell to scale-up his output. The various farming activities were also interconnected, to minimise waste and increase efficiencies – for instance, swine were fed with lime-enriched vegetable matter to enhance the quality of the meat, and waste from slaughtered animals was recycled for use in candles, soap and soil fertilizer. As discussed below, the two factory buildings were also highly unusual in the context of agricultural buildings of the late nineteenth century.

Concrete construction

It is probable that David Mitchell used Cave Hill as a proving ground for his materials, including concrete and Portland Cement – his cement works were established at Richmond in 1890. The Dairy Factory (1892) was an early application of mass concrete for structural rather than cosmetic purposes in Victoria, and was approximately contemporary with other pioneering engineering projects in mass concrete (notably the Beetaloo Dam in South Australia of 1888).[183] The construction of the slip-form concrete retaining walls to the Tunnel at Cave Hill has not been dated. However, a c. 1880s/90s photograph appears to indicate the use of concrete abutments for the timber props at the north end of the cutting. The silage store, also built of slip-form concrete is likely to date to the 1890s or early twentieth century, the heyday of the farm operation prior to its closure in 1921. These three buildings are contemporary with a period of considerable advances in the sophistication of

Victorian cement manufacture from the 1880s, and an increasing acceptance of concrete for structural purposes.

David Mitchell

Cave Hill has a strong association with David Mitchell (1829-1916), a building contractor and entrepreneur who became a prominent figure in Victoria, with a diverse range of business interests and involvements in public life, from the latter decades of the nineteenth century. Mitchell was born in 1829 in Forfarshire, Scotland, and arrived in Melbourne in July 1852, in the early years of the Gold Rushes. Mitchell acquired the Cave Hill estate in 1878, after leasing property in the district from 1868, and becoming a councillor in the Shire of Lilydale in 1875.

Mitchell's success as a contractor and the international fame achieved by his opera singer daughter Dame Nellie Melba are the reasons for which he is best known. His interests in farming, viticulture, gold mining and modern industrial processes, as well as his diverse business activities, are less widely acknowledged. These business interests continued in the years after his retirement as a contractor (1899), and included a major shareholding in the Monier Pipe Co Ltd of Victoria (later the Reinforced Concrete & Monier Pipe Construction Co Ltd) established with John Monash in 1901.

As a result of the breadth of Mitchell's activities he is associated with a range of buildings, places, events and individuals. Notable Victorian landmarks whose construction he oversaw include the Royal Exhibition Building and St Patrick's Cathedral. He is strongly associated with Burnley, where he lived for over 60 years from the mid-1850s; he also maintained extensive business premises in Burnley. 'Doonside,' the residence he built in the mid-nineteenth century, was demolished in the 1931.[184] The property, which also included the former cement works, was subdivided in the 1930s.[185] 'Enfield,' at no 144 Burnley Street, Richmond, was built in 1901 as Mitchell's town residence. It is included in the Schedule to the Heritage Overlay of the Yarra Planning Scheme (HO234).

The strength of the association between Cave Hill and David Mitchell is particularly strong. The site retained a connection with the Mitchell family from 1878 to 2002, when Unimin Australia purchased David Mitchell Ltd. There is also no other site associated with Mitchell that has the ability to demonstrate such a range of his activities and interests, including industrial production, farming and building technologies.

4.1.1 *Conclusion/summary*

Cave Hill Quarry is of historical significance as one of the primary sources of limestone in Victoria since 1878. Its association with the second generation of limestone extraction and production in Victoria, which commenced in the second half of the nineteenth century, is significant, as is its retention of physical evidence from this period. The property in fact reflects three generations of lime processing, demonstrating the evolution of lime burning technologies from the nineteenth century to the 1960s. The Tunnel is believed to be the most extensive battery of pot kilns in Victoria, with their co-location indicative of Mitchell's response to the limitations of intermittent burning technologies, enabling round-the-clock production. The 1920s phase of plant remodelling introduced a greater emphasis on mechanisation and modern technologies; extant elements from this upgrade include the Picking Station, Road Metal Plant, network of conveyors and No. 1 Kiln, the latter one of the earliest continuous mixed-feed vertical shaft kilns in Australia. Well known products of Cave Hill include 'Lilydale toppings'.

The co-located Cave Hill farm, with its diverse farming operations and outputs, and emphasis on minimising waste and increased efficiencies, is of historical significance. The surviving farm buildings, including the 1890s Dairy and Bacon factories, provide evidence of Mitchell's innovative farming activities.

The likely use of Cave Hill as a proving ground for the use of concrete and Portland Cement is also of significance. The 1892 Dairy Factory was an early application of mass concrete for structural rather than cosmetic purposes in Victoria, complemented by similar work in the Tunnel and silage store. The three Cave Hill structures are contemporary with considerable advances in Victorian cement manufacture from the 1880s and an increasing acceptance of concrete for structural purposes.

Cave Hill's association with David Mitchell, one of Victoria's most outstanding nineteenth century entrepreneurs and public figures, is additionally of significance. In one location, it provides evidence of Mitchell's diverse and successful business interests. Cave Hill also has a comparatively high level of public recognition as a Mitchell property, more so than many other places with which he was associated during his long and distinguished career.

The historical values of Cave Hill meet Criteria A, B, C and H, at a State level.

The contribution of the Cave Hill farm and quarry to the economic and social development of Lilydale and its hinterland since the 1870s is of historical significance at a local level.

4.2 Analysis of aesthetic/physical values

This analysis addresses the following Heritage Council criteria:

Criterion D *Importance in demonstrating the principal characteristics of a class of cultural places or objects.*

Criterion E *Importance in exhibiting particular aesthetic characteristics.*

4.2.1 *Ability to demonstrate (the site)*

Cave Hill Quarry is an example of a place associated with the extraction and processing of raw materials. Broadly comparable places include coal mines and brick works. Characteristics and attributes of lime processing sites include:

- The proximity of processing plant to the resource (quarry)
- Topographical change – quarries and overburden dumps
- Means of transporting products off-site

Limestone processing sites are almost always in proximity to the limestone resource. The physical arrangement of the sites, as well as the extraction and conveying methods are necessarily responsive to local conditions and topography. At Mole Creek, Tasmania, the limestone resource is in a hillside above the processing plant;[186] while the former Geelong Cement works at Fyansford was on low ground, physically isolated from a processing plant raised on a promontory, requiring an innovative response to conveying materials long distances (Figure 98).

At Cave Hill, limestone extraction commenced at the north of the present quarry, close to the south end of the Tunnel. As noted, the Tunnel cutting was created to provide a hill face into which the 'pot' kilns could be built, and to facilitate access to the quarry floor as it then was. Limestone was transported from the quarry in horse-drawn carts and top loaded into the pot kilns. Once it had burned through, the lime was extracted from the draw holes at the base,

from which it was bagged up and loaded onto transport (initially horse-drawn wagons and subsequently rail and road). Despite changes to the depth and scale of the quarry and technical and transport upgrades over time (discussed below), the linear south-north arrangement of lime being raised from the quarry base, sorted and burnt, and packaged up and transported off-site (along the alignment of the former rail siding) is essentially unchanged.

The extraction of limestone on a large scale results in significant impacts on the landscape. Limestone is typically found in bedding planes between other types of sedimentary rock, including clay and sandstone. These layers generally have little commercial use, and are removed for overburden. Since the 1880s, overburden has been dumped to all sides of the Cave Hill quarry pit, most prominently in the large overburden dump to the east of the pit – this is of relatively recent origin (second half of the twentieth century). The pit itself is approximately 175m deep, 600m long and 400m wide, and is the major feature of the quarry complex.

The fundamental elements of lime processing have changed little over time: rock is hewn, broken down, sorted by size and quality and either burned for lime (high quality rock) or crushed for use in toppings, aggregates and road metal. What has changed is the efficiency of processing equipment. The West's kilns at Cave Hill consume less than half the energy required for the production of one tonne of lime in a pot kiln.

It is typical for industrial sites, where aesthetic presentation may not be a high priority, to retain superseded plant and equipment. That is the case at Cave Hill, where the 1920s and 1960s upgrades were built (primarily) to the east and west, respectively, of the earlier Tunnel.

Quarries require efficient means of transporting finished products to market. For sites established since the interwar period, this is typically by road. Cave Hill is unusual in that it demonstrates two means of transporting goods off-site: the rail line that was re-routed to its present alignment – believed to have been an outcome of lobbying by David Mitchell – and the west driveway that superseded the rail line in the 1940s.

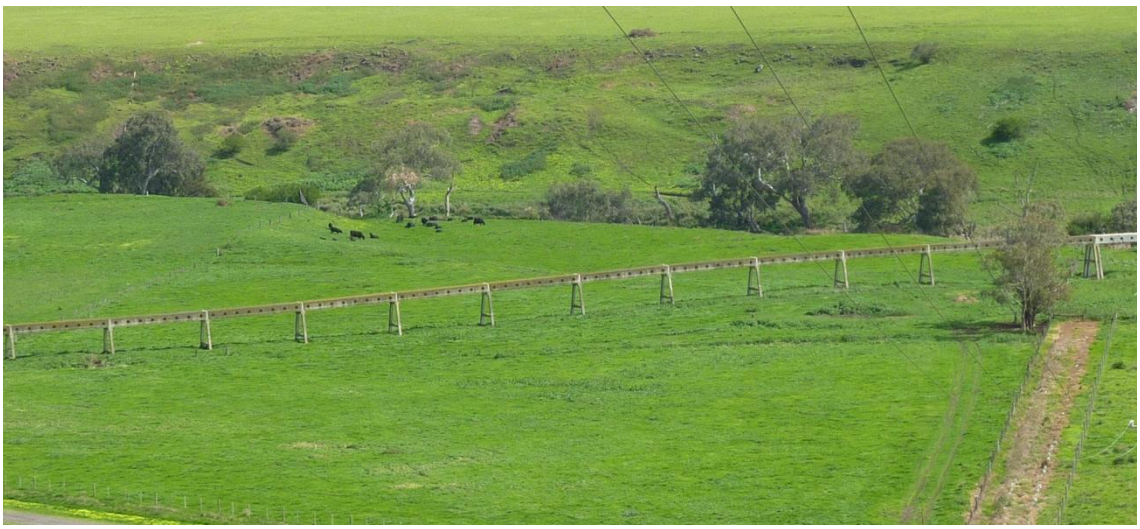


Figure 98 Remnants of the limestone conveyor at the former Geelong Cement site

4.2.2 *Aesthetic qualities*

Setting

Cave Hill Quarry is of aesthetic significance as an industrial landscape in an agricultural setting, with the Dandenong Ranges as a backdrop (Figure 99). The optimal vantage point from which to perceive the quarry in its broader setting is from the Maroondah Highway to the north-west of the site.

The scenic qualities of the lime processing complex (plant and buildings), sited within a pastoral landscape, and set against the earthen colours and textures of the quarry pit have attracted some of Australia's most revered 'modern' and contemporary painters, including Arthur Streeton, John Perceval and Fred Williams. In almost all paintings of the site since the 1920s, the Picking Station is the most prominent built element at the site (see examples at Chapter 2).

Individual elements

Individual buildings and elements at Cave Hill Quarry exhibit particular aesthetic characteristics, including the two factory buildings in the Farm Precinct and the Tunnel, Picking Station, Road Metal Plant, hopper and No. 1 Kiln in the Lime Processing Precinct.

The Tunnel is a physical manifestation of Mitchell's vision for the site, however its aesthetic qualities are not formal or 'designed'. Rather, the qualities derive from the spatial qualities of the multi-layered space, the brick-arched opening to tunnel itself (c. 1880s), the brick-arched chambers to the bottle kilns (1880s to early twentieth century) and the off-form concrete walls rising to a height of approximately 13m (possibly late nineteenth century) (Figure 100).

The intact remnants of the 1920s mechanisation of the plant (including the Picking Station, Road Metal Plant, the elevated conveyor between the two, the riveted steel hopper and No. 1 Kiln) generally share a common language of expressed concrete and a robust industrial aesthetic.

The Dairy and Bacon factories also display aesthetic qualities, including a picturesque character that is distinctive for agricultural buildings of the late nineteenth century, and belies the functions for which they were designed. The buildings are of different construction (massed concrete and brick), but are of comparable scale and presentation. Both have towers, functional in the case of the Bacon Factory (smoke house), and decorative in the case of the Dairy Factory (Figure 102). The gabled forms; pyramid roofs to the towers; roof vents; detailing to eaves, windows and doors; string courses; and the buildings' stepping up in grade, all enhance this value.

Figure 99 View of Cave Hill Quarry from the elevated ground to the north-west of the site

Figure 100 View of the Tunnel, looking north
Source: Hin Lim

Figure 101 The Tunnel: view from the north of the cutting towards the brick-lined tunnel
Source: Hin Lim

Figure 102 From left: the Dairy Factory, Bacon Factory and timber outbuildings

4.2.3 *Conclusion/summary*

Cave Hill Quarry is significant for demonstrating the principle characteristics of a place associated with the extraction and processing of raw materials, including limestone. These include the proximity of processing plant to the resource (quarry pit); the means of transporting products off site (rail line and roads); and topographical change, notably the quarry pit. Since the 1880s, overburden has been dumped to all sides of the quarry pit; the large overburden dump to the east of the pit is of relatively recent origin.

Cave Hill is also of aesthetic significance. The striking landscape has attracted artists and painters since the late 1880s, with the scenic qualities of the lime processing complex sited within a pastoral landscape being a popular artistic subject.

The Tunnel and the factory buildings also exhibit distinctive aesthetic characteristics. The Tunnel's qualities derive from the multi-layered volume of the space, the brick-arched chambers to the bottle kilns and the off-form concrete walls rising to approximately 13m. The Dairy and Bacon factories are aesthetically distinctive as agricultural buildings with a picturesque character that belies the functions for which they were designed.

The aesthetic/physical values of Cave Hill meet Criteria D and E at a State level.

4.3 Analysis of technical/scientific value

This analysis addresses the Heritage Council criterion:

> *Criterion F* *Importance in demonstrating a high degree of creative or technical achievement at a particular period.*

This criteria is partly addressed above under historical value (Criteria B and C) and Aesthetic/physical value (Criterion D).

In 1925 Cave Hill was described as one of the leading industrial plants in Australia,[187] and was recognised as an operation which had made a radical departure from traditional lime processing methods.[188] The accolades at this time related to the remodelling of the lime processing plant to designs by Gilbert McAuliffe Pty Ltd, consulting engineers of Melbourne, with bespoke equipment manufactured by Chas Ruwolt Pty Ltd, Richmond. The works included what is believed to be one of the earliest mixed-feed vertical shaft continuous kilns in Australia, as well as a hydration plant, specialised crushing equipment and elevated conveyors.

The 1920s site upgrade had a transformative effect on the appearance of the site. The landscape was now characterised by tall structures and elevated conveyors. The upgrade also enabled the David Mitchell Estate to optimise the commercial potential of the raw materials available at Cave Hill, and to increase product diversity.

Some of the elements relating to the 1920s upgrade have been modified, including the removal of machinery and all – to varying degrees – have been subsumed by later developments at the site.

As described above at Section 4.2.1, Cave Hill is also of technical significance for demonstrating the integrated process of extraction, processing and transporting products off site. Limestone extraction commenced at the north of the present quarry pit, close to the south end of the Tunnel. The later cutting was created to provide a larger 'hill face' into which pot kilns could be built, and to facilitate access to the quarry floor as it then was. Limestone was transported from the quarry and top loaded into the pot kilns. Once it had

burned through, the lime was extracted from the draw holes at the base, from which it was bagged up and loaded onto transport (initially horse-drawn wagons and subsequently rail and road). Despite changes to the depth and scale of the quarry and technical and transport upgrades over time, the linear south-north arrangement of lime being raised from the quarry base, sorted and burnt, and packaged up and transported off-site is essentially unchanged.

4.3.1 *Conclusion/summary*

Cave Hill is of technical/scientific significance. In the 1920s the quarry and lime processing operation was recognised as one of the leading industrial plants in Australia, and an operation which radically departed from traditional lime processing methods. The accolades related to the remodelling of the plant in this period, to designs by Gilbert McAuliffe Pty Ltd, consulting engineers of Melbourne, with bespoke equipment manufactured by Chas Ruwolt Pty Ltd, Richmond. The 1920s upgrade also transformed the appearance of the site, introducing the tall structure and elevated conveyors which still distinguish it. While some of the components of the upgrade have been modified or largely demolished, sufficient evidence survives to satisfy this criterion. Cave Hill is also of technical significance for demonstrating the whole process of extraction, processing, and transporting finished products off site. Despite changes to the depth and scale of the quarry and technical and transport upgrades over time, the linear south-north arrangement of lime being raised from the quarry base, sorted and burnt, and packaged up and transported off-site is essentially unchanged.

The technical/scientific values of Cave Hill meet Criteria F at a State level.

4.4 Analysis of social value

This analysis addresses the Heritage Council criterion:

> *Criterion G* *Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons. This includes the significance of a place to Indigenous peoples as part of their continuing and developing cultural traditions.*

Note: T his assessment does not address Aboriginal association or attachment to the place.

The contribution of the Cave Hill farm and quarry to the economic and social development of Lilydale and its hinterland, since the 1870s, is identified above under historical significance. This long and enduring aspect of the history of the place would indicate a level of local community attachment, at the very least based on an economic (employment) connection.

The connection with David Mitchell, a giant figure in the history of Lilydale, is also assumed to be valued by the community.

Historically, the site has been secure. As a result, an intimate knowledge of the place, including the quarry itself and the multiple layers of industrial history are generally known only to people who have worked there. Despite that, the site is (from the outside) highly visible and geographically prominent in the Lilydale context, and readily recognised and identified.

In terms of the workers and employees, the Cave Hill Social Club was established in 1937, providing an opportunity for members of the workforce and their families to interact and recreate. The focus of Social Club events is understood to have been on the pavilion and cricket oval within the Arrivals Precinct. This is no longer functioning, but interestingly the public interface is the 'worker's oval' addressing Melba Avenue and the memorial gates.

These were among the heritage elements identified by members of the community during consultation undertaken in 2013 to elicit input into the future of the Lilydale Quarry site, albeit the objective of the consultation was not to understand community connections to the place.[189] Other elements specifically referenced during consultation included the Dairy Factory and 'milking barn'. Also of interest, the kilns and quarry were not referenced.

4.4.1 *Conclusion/summary*

Accepting that this aspect of significance has not been formally tested, it is anticipated that the place has social value, at a local level, for a range of reasons including the long term operation of the quarry, and its role as a local employer; its highly visible location and geographical prominence in the Lilydale context; and the connection with David Mitchell, a giant figure in the history of Lilydale.

The social significance is at a local level.

4.5 Statement of significance

The following statement has been prepared for this CMP, and is based on the preceding analysis. The statement makes reference to the Heritage Council criteria.

> *What is significant?*
>
> Cave Hill Quarry is a limestone quarry and processing plant located approximately 40km east of Melbourne and 1km south-west of Lilydale. It was established in the late 1870s by David Mitchell (1829-1916), a Scottish born building contractor and entrepreneur who became a prominent figure in Victoria in the later decades of nineteenth century. The site covers 164ha, including a quarry pit (worked since 1878), overburden dumps, a limestone processing area to the north of the quarry pit, and a former mixed farm which was operational from the mid-1880s to 1921. There are areas of undeveloped land to the south and west of the quarry. The area to the east of the rail line is 119ha.
>
> The site retains a diversity of industrial and farm buildings and elements dating from the late-1870s through to the latter twentieth century. This includes buildings and equipment relating to upgrades of the lime processing plant, including a suite of elements that relate to the mechanisation of the plant in the 1920s.
>
> The site has a major physical presence within Lilydale, and has been a source of local economic development and employment since the 1870s.
>
> *How is it significant?*
>
> Cave Hill Quarry is of historical, aesthetic and technical significance to Victoria.
>
> *Why is it significant?*
>
> Cave Hill Quarry is of historical significance, meeting Criteria A, B, C and H at a State level. It has been one of the primary sources of limestone in Victoria since 1878. Its association with the second generation of limestone extraction and production in Victoria, which commenced in the second half of the nineteenth century, is significant, as is its retention of physical evidence from this period. The property reflects three generations of lime processing, demonstrating the evolution of lime burning technologies from the nineteenth century to the 1960s. The

Tunnel is believed to be the most extensive battery of pot kilns in Victoria. Their co-location is indicative of Mitchell's response to the limitations of intermittent burning technologies, enabling round-the-clock production. The 1920s phase of plant remodelling introduced a greater emphasis on mechanisation and modern technologies; extant elements from this upgrade include the Picking Station, Road Metal Plant, the conveyor between these two buildings, the riveted steel hopper, incline hoist and No. 1 Kiln, which is one of the earliest continuous mixed-feed vertical shaft kilns in Australia. Well known products of Cave Hill include 'Lilydale toppings'.

The Cave Hill farm, with its diverse farming operations and outputs, and emphasis on minimising waste and increased efficiencies, is of historical significance. The surviving farm buildings, including the 1890s Dairy and Bacon factories and the silage store provide evidence of Mitchell's innovative farming activities.

The likely use of Cave Hill as a proving ground for the use of concrete and Portland Cement is also of significance. The 1892 Dairy Factory was an early application of mass concrete for structural rather than cosmetic purposes in Victoria, complemented by similar work in the Tunnel and silage store. The three Cave Hill structures are contemporary with considerable advances in Victorian cement manufacture from the 1880s, and an increasing acceptance of concrete for structural purposes.

Cave Hill's association with David Mitchell, one of Victoria's most outstanding nineteenth century entrepreneurs and public figures, is of historical significance. The site provides evidence of Mitchell's diverse and successful business interests, including the development of products for the construction industry, lime extraction and farming. Cave Hill has a comparatively high level of public recognition as a Mitchell property, more so than many other places with which he was associated during his long and distinguished career.

Cave Hill is of aesthetic (physical) significance, meeting Criteria D and E at a State level. The site is significant for demonstrating the principle characteristics of a place associated with the extraction and processing of raw materials (limestone). These include the proximity of processing plant to the resource (quarry pit); the means of transporting products off site (rail and road); and topographical change, notably the large quarry pit itself. In 2013, the quarry pit measured approximately 175m deep, 600m long and 400m wide.

Cave Hill Quarry is of aesthetic significance as an industrial landscape in an agricultural setting, with the Dandenong Ranges as a backdrop. The scenic qualities of the lime processing complex (plant and buildings), sited within a pastoral landscape have been a popular subject for artists since the late nineteenth century, including some of the more celebrated Australian painters of the twentieth century (notably Arthur Streeton and John Perceval and Fred Williams).

The Tunnel and the factory buildings exhibit distinctive aesthetic characteristics. The Tunnel's qualities derive from the multi-layered volume of the space, including the brick-arched tunnel, the brick-arched chambers to the bottle kilns and the off-form concrete walls rising to approximately 13m. The Dairy and Bacon factories are distinctive as

agricultural buildings with a picturesque character that belies the functions for which they were designed.

Cave Hill is of technical/scientific significance, meeting Criterion F at a State level. In the 1920s the quarry and lime processing operation was recognised as one of the leading industrial plants in Australia, and an operation which radically departed from traditional lime processing methods. The accolades related to the remodelling of the plant in this period, to designs by Gilbert McAuliffe Pty Ltd, consulting engineers of Melbourne, with bespoke equipment manufactured by Chas Ruwolt Pty Ltd, Richmond. The 1920s upgrade also transformed the appearance of the site, introducing the tall structures and elevated conveyors which still distinguish it. While some of the components of the upgrade have been modified and/or subsumed by later development, and much of the equipment has been removed, sufficient evidence survives to satisfy this criterion. Cave Hill is also of technical significance for demonstrating the integrated process of extraction, processing, and transporting products off site. Despite changes to the depth and scale of the quarry and technical and transport upgrades over time, the linear south-north arrangement of lime being raised from the quarry base, sorted and burnt, and packaged up and transported off-site is essentially unchanged.

4.6 Summary of values

The table below (Table 1) provides a summary of values associated with the place, and based on the above assessment.

Table 1 Summary of cultural heritage values

Value	**Level of significance (State/local)**	**Related elements**
Historical		
Early (and operational) example of second-generation lime production complex	State	Limestone Processing Precinct: 19th century elements, including the quarry, pot kilns and the Tunnel
Association with David Mitchell	State	Pre-1920s lime processing plant in the Limestone Processing Precinct; and the Farm Precinct
Collection of three generations of lime processing plant dating from the late 19th century to the 1960s	State	Limestone Processing Precinct: Pot kilns, Kiln nos. 1, 2, 3 and 4, Picking Station, Road Metal Plant, Hydration Plant and elevated conveyors
Contribution to the economic and social development of Lilydale and its hinterland	Local	Limestone Processing and Quarry precincts

Value	Level of significance (State/local)	Related elements
Aesthetic		
Industrial site	State	Limestone Processing Precinct generally, including key buildings (the Tunnel, vertical shaft kilns, associated plant and conveyors); quarry pit; rail line, siding and section of rail platform
Buildings/elements within the limestone processing area	State	The Tunnel and intact elements of the 1920s mechanisation of the plant including the Picking Station, Road Metal Plant, the conveyor between these two buildings, the riveted steel hopper, incline hoist and No. 1 Kiln
Farm complex	State	Farm Precinct generally, including the two factory buildings and the silage store
Technical		
Commitment to progressive technologies	State	Limestone Processing Precinct: Components of the 1920s upgrade, including the Picking Station, Road Metal Plant, No. 1 Kiln and the incline hoist
Evidence of principle aspects of lime extraction, process and transportation off site	State	Limestone Processing Precinct: Linear south-north arrangement of lime being raised from the quarry base, sorted and burnt, packaged up and transported off-site
Social		
Focus of local attachment/connection, link to Mitchell, and a major physical presence in the township	Local	Limestone Processing, Farm and Arrivals precincts.

4.7 Levels of significance

The statement of significance provides an overview of the general nature of significance of the Cave Hill Quarry. The following schedule of levels of significance relates to individual components and elements, and details the contribution that these make to the overall

significance of the place. This assessment, or identification of relative levels of significance, also provides a framework for the conservation policies outlined in Chapter 5.

Two levels of significance have been identified for Cave Hill Quarry: 'primary' and 'contributory'. The definitions are set out in Table 3.

Table 2 Levels of significance: definitions

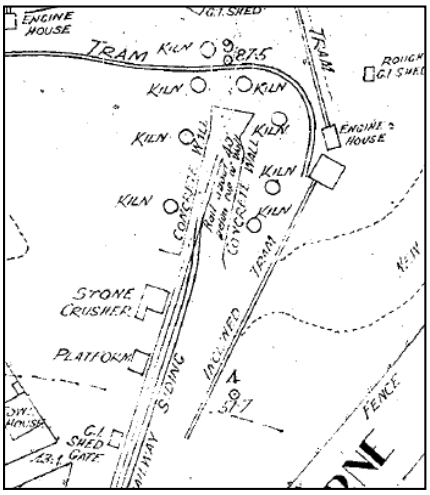
Level of significance	**Definition**
Primary (P)	Buildings, elements and areas of primary significance at Cave Hill Quarry include those that relate directly to the David Mitchell period of ownership, and the operation of the quarry and the farm during this period (1878-1916); and the mechanisation of the limestone processing plant in the mid 1920s. Some of these elements have been modified; much of the machinery has been removed; and almost all elements have been enclosed (at least in part) by later development. The 1947 memorial gates are also identified as an element of primary significance, as a memorial with a direct association to quarry employees.
Contributory (C)	Buildings, elements and areas of contributory significance contribute to an understanding of the evolved nature of the place and have some value from a cultural heritage perspective, albeit more limited than buildings, elements and areas of primary significance. Contributory elements generally post-date the Mitchell period of ownership and operation. Exceptions are the timber sheds/stores in the Farm Precinct. These may date to the late-nineteenth century. However, as compared to the highly distinctive factory buildings and the slip form concrete silage store, they are of generic construction and character. The hydration plant is a contributory element. It is substantially a c.1960s building, albeit on the location of the 1925 plant, and as such contributes to an understanding of a critical aspect of the mechanisation of the plant. The equipment in the hydration plant dates to the 1960s. The 1960s vertical shaft kilns are also contributory, with these elements demonstrating later technologies and the evolved nature of the site, although the 1960s kilns are not rare in terms of lime processing structures. Contributory elements, while retaining the majority of their form and fabric, may also have been altered or modified.

Buildings, elements and areas that are *not* identified as being of 'primary' or 'contributory' significance (see below) are generally of recent origin, and make little or no contribution to an understanding of the heritage values of Cave Hill Quarry.

4.7.1 *Schedule of levels of significance*

The levels of significance listed below are illustrated at Figure 103.

Table 3 Significant buildings, elements and areas: levels of significance

Building/element/area	Level of significance	Image(s)
Quarry Precinct and overburden dumps		
Quarry (1878 – present)	P	
Overburden dumps (1878 – present)	C	
Limestone Processing Precinct		
The Tunnel and battery of pot kilns (c. 1880s – early 20th century)	P	 

Building/element/area	Level of significance	Image(s)
Exposed pot kiln (c. 1880s)	P	
Rail line (1882)	P	
Rail siding (1882)	P	
Section of rail platform (date not established)	P	
Picking Station (1925)	P	

Building/element/area	Level of significance	Image(s)
Incline hoist (1925) and north face of quarry (section – extent not defined)	P	
Road Metal Plant (1925), including the enclosed conveyor and shaker table (internal)	P	
No. 1 Kiln	P	
Hydration Plant (1960s, built on the site of the 1925 hydration plant)	C	

Building/element/area	Level of significance	Image(s)
Riveted steel hopper (1920s)	P	
Nos. 2 and 3 Kilns (1964)	C	
No. 4 Kiln (1967)	C	

Building/element/area	Level of significance	Image(s)
Pedestrian walkway from the upper section to the lower section of the lime processing area (date not established)	C	
Farm Precinct		
Dairy Factory (1892)	P	
Bacon Factory (1893 and 1895)	P	 

Building/element/area	Level of significance	Image(s)
Silage store (possibly late 19th century)	P	
Timber stores to the north of the Bacon Factory (possibly late 19th century)	C	
'Milking shed' (possibly late 19th century)	C	

Building/element/area	Level of significance	Image
Arrivals Precinct		
Eastern driveway, extending into the Farm Precinct (c.1870s)	P	
Western driveway (c. 1940s)	C	See above
Cricket oval (1930s)	C	See above
Memorial gateposts (1947)	P	
Pavilion (1970s, on the site of a 1930s pavilion). This significance is principally to do with the historic connection of the pavilion to the Social Club. The building itself is of limited heritage interest.	C	
Caretaker's residence (c. 1950s). This significance is principally to do with the historic function of the dwelling. The building itself is of limited heritage interest.	C	

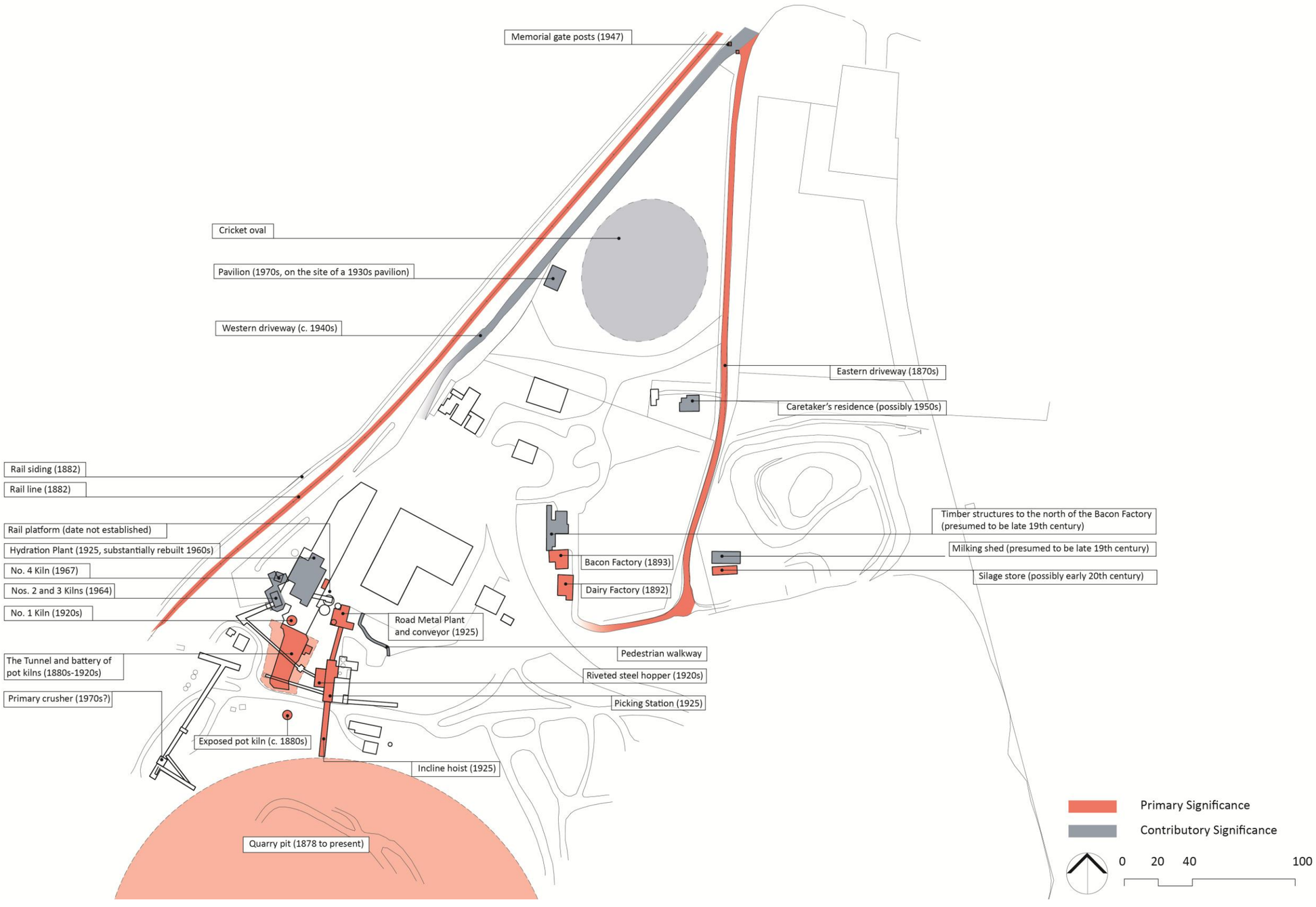


Figure 103 Levels of significance

5.0 CONSERVATION POLICY AND MANAGEMENT PLAN

This Conservation Policy is based on the preceding assessment of significance of Cave Hill Quarry. It has been developed with an understanding of:

- The heritage values and attributes of the site overall, as well as the particular values of the significant buildings, elements and areas;
- the varying levels of heritage sensitivity of areas within the site, with an emphasis on the area to the north of the site, which includes the Quarry Precinct, Limestone Processing Precinct, Farm Precinct and Arrivals Precinct
- the anticipated closure of the site, and its future redevelopment; and
- the relevant statutory heritage considerations.

The intention of the Conservation Policy is to provide direction, guidance and strategies for the conservation and management of Cave Hill Quarry, and to inform consideration of future change and development.

At the time of writing the site remained in use for limestone extraction and processing. There no intent or expectation that the recommendations included in this Conservation Policy will hinder the operations of the quarry.

5.1.1 *'Plan Cave Hill'*

In 2013, in anticipation of disposing of the site, Sibelco initiated a master planning process to guide site rehabilitation and future development. This CMP was commissioned as part of that process. The project is known as 'Plan Cave Hill'.[190] The detail of what is delivered will evolve over time. However, some fundamentals are unlikely to change, including:

- The quarry pit is to be filled, primarily with on-site over-burden (this will transform the current landscape character and topography of the site); and
- residential development is to be located to the west and south of the quarry pit.

5.2 Basis of approach

Having regard to the nature and level of significance of Cave Hill Quarry as assessed in this CMP, the conservation policies are framed to address the following overarching objectives:

- Maintain and conserve (preserve, restore, reconstruct as appropriate) elements and areas of primary significance in particular (the quarry pit as a whole and the overburden dumps are exceptions), within a policy framework that is robust, readily understood and implemented, and consistent in its approach;
- ensure future works to significant buildings, elements and areas at Cave Hill Quarry are consistent with Burra Charter principles, and in accordance with statutory heritage considerations;
- support a sensitive approach to future change at the site, including new development and changes in use, and implementation of an adaptive reuse and redevelopment strategy that will support the long-term conservation of the core heritage values of the place;
- maintain an understanding of the site's original functions; and
- provide for the conservation and maintenance of significant buildings and elements.

5.3 Implications arising from significance

The statement of significance in Chapter 4 concludes that Cave Hill Quarry is of historical, aesthetic and technical significance to Victoria. The key implication arising from the assessment is that the place should be considered for inclusion in the Victorian Heritage Register. The area recommended for inclusion is illustrated below at Figure 104 and Figure 105.

Other implications of the assessment which go directly to the conservation of the heritage values (historical, aesthetic and technical) include:

- Retain and conserve evidence of the historical operations and processes of the site, including the lime extraction and processing, and the farming activities.
- Retain the multi-layered character of the Limestone Processing Precinct, incorporating fabric and elements dating from the 1880s through to later stages of the industrial operations.
- Maintain evidence of the physical and operational relationship between the quarry pit and the Limestone Processing Precinct. It is not expected that the pit and overburden dumps will be retained in their entirety.
- Maintain the character of the Farm Precinct as a discrete zone within the site, having a physical and landscape quality distinct from the Limestone Processing Precinct.
- Enhance awareness and appreciation of the significant role played by David Mitchell in establishing Cave Hill Quarry, and pursuing limestone extraction and farming interests there from 1878.
- Emphasise the aesthetic values of the site generally and specific elements, including the Tunnel, the extant elements relating to the 1920s mechanisation of the plant (Picking Station, Road Metal Plant, the conveyor between these two buildings, the riveted steel hopper and incline hoist) and the Dairy and Bacon factories.
- Promote the use of early concrete construction at the site, including in the Dairy Factory (1892), Tunnel (late nineteenth century) and Silage Store (early twentieth century).
- Enhance an understanding of the technical significance of the site, including the surviving early elements and those associated with the mid-1920s mechanisation of the plant.

Regarding individual elements (elements of primary and contributory significance are identified in Chapter 4):

- Buildings, elements and areas of primary significance should be retained and conserved according to the principles of the Burra Charter, and guided by the policies and recommendations included in this chapter.
- Buildings, elements and areas of contributory significance should in preference be retained and conserved in accordance with the Burra Charter, but provide greater flexibility with regard to potential alteration, change and (potentially) demolition. Prior to any change or significant works being carried out at the site, including filling the quarry pit, a recording programme should be undertaken (see also Section 5.15).

5.4 Statutory considerations

5.4.1 *Yarra Ranges Planning Scheme*

Discrete areas of Cave Hill Quarry are included in the Schedule to the Heritage Overlay of the

Yarra Ranges Planning Scheme, specifically:

- the 'Old Cave Hill Butter, Cheese and Bacon Curing Factory, David Mitchell Estate', designated as HO57; and
- 'Cave Hill Limestone Works' designated as HO201.

For HO201, external paint controls, internal alteration controls and tree controls apply. For HO57, external paint controls and tree controls apply. Prohibited uses may be permitted for both HO57 and HO201. In accordance with Clause 43.01 'Heritage Overlay' of the Planning Scheme, planning permits are required to subdivide land, demolish or remove a building, construct a building or carry out works. In considering works, Yarra Ranges Council will have regard to the provisions of Clause 21.06-1 'Heritage Conservation' which promotes the conservation of places of cultural significance.

5.4.2 *Heritage Act 1995*

Cave Hill Quarry has been assessed in this CMP (Chapter 4) against the Heritage Council of Victoria criteria for the assessment of cultural significance, and has been identified as a place of significance to Victoria. As noted above, the place should be considered for inclusion in the Victorian Heritage Register, specifically the quarry pit and the area to the north of the pit (Figure 104 and Figure 105).

Implications of inclusion in the VHR

The *Heritage Act 1995* is the Victorian Government's key piece of (non-indigenous) cultural heritage legislation, which provides a legislative framework for the protection of a wide range of heritage places and objects. The statutory implications of the VHR listing are as follows.

Works permits and approvals

Permits are required from Heritage Victoria for works to registered places other than regular maintenance and repairs. When considering a permit application, the Executive Director of Heritage Victoria must consider:

- How the proposal would affect the significance of the place; and
- whether rejection of the proposal would affect the reasonable and economic use of the registered place, or cause undue financial hardship to the owner.

In addition, the Executive Director may consider:

- Any submissions received as a result of advertising;
- any other matter relevant to the preservation of the registered place; and
- the extent to which the proposal would affect the cultural heritage significance of any adjacent or neighbouring property that is protected under a Heritage Overlay in a planning scheme, or is in the Victorian Heritage Register.

Heritage Victoria typically requires permit applications to be accompanied by a heritage impacts statement (prepared by a heritage practitioner), describing the works, identifying any heritage impacts and assessing the works against the relevant policies of this CMP.

Heritage Victoria has 60 days in which to make a determination on a permit application, excluding periods during this time when Heritage Victoria may 'stop the clock' to ask for advertising of the application and invite submissions from members of the public; request further information; or in the case of potentially controversial applications, hold an interested parties meeting for those who made submissions. A pre-application meeting with Heritage

Victoria may also be held prior to lodging a new permit application, particularly for works of a more substantial nature, so as to introduce the application. Applicants or owners who are dissatisfied with a permit refusal or the conditions applied to a permit may appeal to the Heritage Council within 60 days, after which time a hearing will be held, with the Heritage Council decision following some time after the hearing.

Permit exemptions

Many properties included in the VHR have a 'permit policy' and suite of 'permit exemptions' – typically relating to maintenance and minor works – attached to the VHR citation and documentation. It is recommended that, should serious consideration be given to including Cave Hill Quarry in the VHR, a draft permit policy and suite of exemptions be prepared for Heritage Victoria to review and endorse for the area of the site recommended for the VHR. A heritage practitioner can provide guidance on this, which will also need input from the property owners to ensure all possible exempt works are identified.

Historical archaeology

Also subject to the provisions of the Victorian Heritage Act are historical (non-indigenous) archaeological sites, ruins, and sub-surface objects and artefacts. Heritage Victoria maintains an inventory of known and recorded historic archaeological places – the Victorian Heritage Inventory (VHI). Places included in the VHI have typically been identified through archaeological surveys. These sites are recognised, in many instances, as having the potential to yield artefacts and other material remains relating to past structures and buildings, and operations or activities formerly associated with the sites. However, the provisions of the *Heritage Act* apply to all archaeological remains of more than 50 years of age regardless of whether they have previously been identified. There is an inventory site at Cave Hill Quarry, a circular brick well close to the Maroondah Highway (the 'Melbourne Road Well Site', H7922-0245). See also Section 5.12.

5.4.3 *Code compliance*

Policy 1	Works undertaken to address compliance with current codes and other relevant Australian standards should have regard for the recommendations relating to significant buildings and elements in this Conservation Policy.

Re-use of buildings at Cave Hill Quarry, including industrial buildings, must consider the relevant construction codes and Australian standards, of which the most pertinent are the Building Code of Australia (BCA), Disability Discrimination Act (DDA) and environmental performance codes. In general, new buildings, and works to existing buildings are required to comply with the Australian standards. However, there exists some potential to balance access requirements with the heritage values/constraints of existing non-compliant elements of buildings and places of heritage significance.

Generally, works undertaken to meet compliance with codes should:

- Be informed by the level of significance and particular heritage values of the structure or building, and the recommendations relating to the management and conservation of significant fabric included in this CMP; and
- have regard, where possible, for avoiding or limiting physical and/or visual impacts on significant buildings by undertaking access-related works in less visible or sensitive areas; or in non-original or already altered or modified parts of buildings; or by designing such works to have a minimum level of physical change and

intervention into the heritage building.

It may be possible to apply for dispensations to the code requirements, or to investigate alternative approaches to the resolution of functional, safety or BCA requirements.

5.5 Heritage area

Policy 2	The heritage area (illustrated at Figure 104 and Figure 105) contains the buildings, structures, areas and elements of heritage significance at Cave Hill. This area should be nominated to the Victorian Heritage Register (VHR).

A 'heritage curtilage' has been defined as:

> ...the area of land (including land covered by water) surrounding an item or area of heritage significance which is essential for retaining and interpreting its heritage significance. It can apply to either:

- land which is integral to the heritage significance of items of the built heritage; or
- a precinct which includes buildings, works, relics, trees or places and their setting.[191]

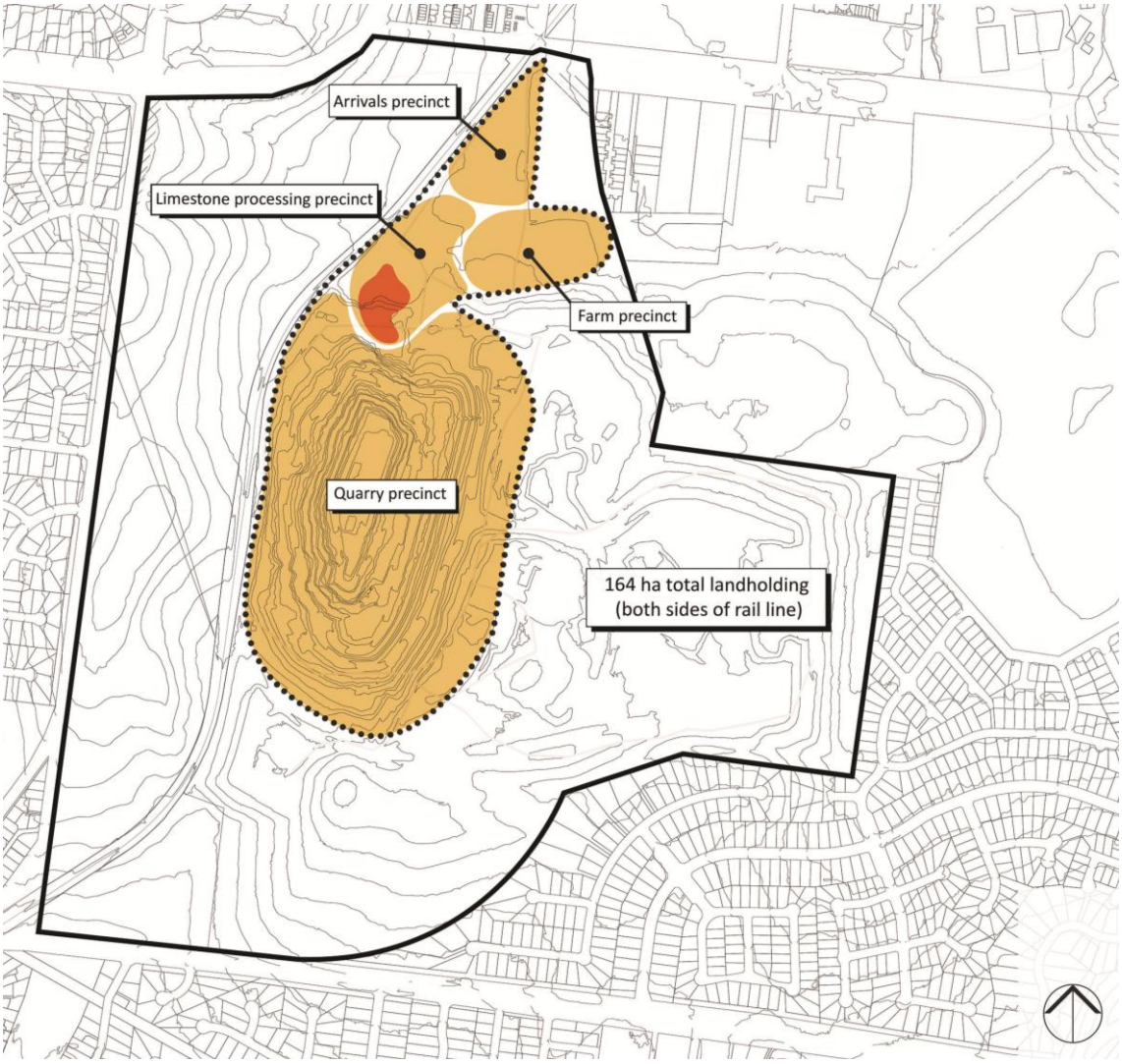


Figure 104 The Cave Hill heritage curtilage is the area within the black dotted line: the area indicated in red is a zone of greater heritage sensitivity

Figure 105 Cave Hill heritage curtilage superimposed on an aerial photograph: the heritage curtilage is the area within the black dotted line and the area indicated in red is a zone of greater heritage sensitivity

In regard to setting, Article 8 'Conservation principles' of the Burra Charter provides the following definition of 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 other changes which would adversely affect the setting or relationships are not appropriate.[192]

The recommended heritage area at Cave Hill incorporates the quarry pit (described here as the Quarry Precinct); Limestone Processing Precinct, including a section of the north face of the quarry; the Farm Precinct; and the Arrivals Precinct (Figure 104 and Figure 105). The

area identified includes space around the significant elements, which forms a curtilage or setting for the historic elements. This approach also enables retention of the historical connections and functional relationships between elements. For instance, including a section of the north face of the quarry pit in the Limestone Processing Precinct enables an on-going connection between the pit and processing plant. The recommended heritage area also acknowledges the common origins of the precincts at the site, and their ownership and operation by David Mitchell. The early elements of the precincts directly reflect Mitchell's vision for Cave Hill, and his technical innovations, including the early concrete Dairy Factory and the battery of pot kilns in the Tunnel.

This area – generally referred to here as the 'Cave Hill heritage curtilage' – should be nominated to the Victorian Heritage Register (VHR). A discussion of the process for listing in the VHR, and the implications of listing are included at Section 5.4.2.

As noted at Chapter 3, the primary intention of identifying sub-precincts within the 'Cave Hill heritage curtilage' in this CMP is to give emphasis to the historic associations of the various areas with particular activities. The extent of topographical change at the quarry site is such that there are few historic determinants to define the boundaries of these sub-precincts.

A 'zone of greater sensitivity' is identified within the Limestone Processing Precinct (Figure 104). This reflects the co-location of all elements of primary and contributory significance within the Limestone Processing Precinct – including the quarry pit – in a discrete area to the north-west of the pit. Constraints relating to future management, new works and development within this area arise as a result of the strong heritage preference for physical and operational relationships between significant elements to be revealed and expressed. See Section 5.9.2 for further information.

5.6 Site context

Policy 3	Cave Hill's historic and physical relationship with the township should be acknowledged in any future development of the site.

The relationship with Lilydale is an important aspect of the history and significance of Cave Hill. As identified in Chapter 4:

> The contribution of the Cave Hill farm and quarry to the economic and social development of Lilydale and its hinterland since the 1870s is of historical significance...

And:

> ...it is anticipated that the place [Cave Hill] has social value [for] the long term operation of the quarry, and its role as a local employer; its highly visible location and geographical prominence in the Lilydale context; and the connection with David Mitchell, a giant figure in the history of Lilydale.

Lilydale township was in its infancy when Mitchell acquired the Cave Hill site and commenced limestone extraction, with the site physically separated by open land from the town. Over the past 130+ years, however, the township and quarry have both expanded, and the original Cave Hill landholding has been subdivided and reduced. Urban and built up areas of Lilydale are now much closer to the quarry operation. Other industrial development and Swinburne University's former Lilydale campus are visible from the site. Residential development is located to the south-east and south of the site, albeit largely screened from view by overburden dumps. The process of urban encroachment has consolidated and reinforced the relationship between the quarry and township. Notwithstanding this changed

condition, Cave Hill Quarry remains a self-contained place with a strong and predominantly industrial identity.

The visual setting of Cave Hill Quarry as a large industrial site in a broader landscape, with a high level of external public visibility, is important. However, the reality is that the surrounds are changing, and the quarry site itself will also be subject to change. As noted above, the quarry pit when filled with on-site over-burden will transform the current landscape character and topography of the site. While this action will remove substantial evidence of the historic operation, future public access to what was historically a restricted place, and a program of recording (see Section 5.9 below), will go some way to balancing this loss. The buildings and other elements of primary significance are also to be retained.

5.7 General conservation policies

5.7.1 *Implementation of this CMP*

Policy 4	This CMP should be adopted and implemented by the present owner and future owners/managers of the 'Cave Hill heritage curtilage', with the conservation policies used to inform and guide planning, uses and works to the heritage place.

It is recommended that the present owner of the site, being responsible for the management of the Cave Hill heritage curtilage, should endorse and implement the conservation policies contained in this report. In the event of new management, it is also recommended that the new owner(s) endorse and adopt the policies, as a guide to future planning, uses and works to the heritage place.

5.7.2 *Burra Charter*

Policy 5	All future conservation and other works which affect significant elements, areas and attributes at Cave Hill Quarry should be carried out having regard for the principles of the Australia ICOMOS Burra Charter, 2013.

The care and conservation of significant buildings and elements at Cave Hill Quarry should have regard for the principles of the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter), as adopted by Australia ICOMOS to assist in the conservation of heritage places (see copy at Appendix A). The Burra Charter has been widely adopted across Australia by State heritage agencies as well as municipal authorities. 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.[193]

The principles of the Burra Charter have been referred to in the preparation of this Conservation Policy, and provide guidance on the conservation and adaptation of places and elements of cultural heritage significance. Where necessary, a qualified heritage practitioner can provide advice on the interpretation and implementation of the principles, but essentially they guide the care and management of heritage elements.

5.7.3 *Care and conservation of significant fabric*

The following conservation policies apply to the buildings and structures of primary and contributory significance at Cave Hill Quarry.

Policy 6	A detailed assessment of the physical condition of all significant buildings and elements should be undertaken and used to inform future conservation, maintenance and adaptation works, as well as a priority list of works to ensure the long-term conservation of the place.

Research for this CMP did not involve a detailed analysis/assessment of the current condition of buildings and structures at the site. However, an assessment of condition should form part of a future suite of works involving conservation, maintenance and adaptation. As a general comment, the majority of the significant buildings within the Limestone Processing Precinct were built to withstand intensive use for industrial purposes, and appear to be in generally sound condition. The Picking Station and Road Metal Plant have been subject to structural remediation works in recent times. A possible exception is the incline hoist, which has been disused for approximately 70 years and may be in poor condition.

Policy 7	Following the cessation of lime processing activities and rehabilitation works, cyclical maintenance programme should be implemented as the basis for ongoing care of the significant buildings and elements.

Buildings will deteriorate over time due to the effects of age, weather and use. Poor maintenance can hasten the decline and decay of fabric, which can be expensive to rectify if not promptly addressed. It may also result in the loss of significant heritage fabric which can in turn impact on the heritage values of a place (see 'Maintenance & Repairs' below). The establishment of a cyclical maintenance programme will help to retard deterioration and, following any refurbishment works, to prevent future deterioration of restored original or introduced new material. This is particularly important at Cave Hill, given the anticipated cessation of extraction and processing activities, and the potential for buildings to be un-used and un-occupied for a period of time.

Broadly, the approach to maintenance should firstly be to maintain and ensure that significant buildings do not deteriorate further, and secondly to maintain all existing fabric. Ad hoc repairs or patch ups should be avoided. Where existing fabric needs to be renewed, the replacement generally should match the original in design, materials and construction unless there are strong overriding functional reasons for altering the original design or materials. Generally, day-to-day maintenance work can be carried out in accordance with the conservation policies and without reference to a conservation specialist. However, major maintenance works should be undertaken under the direction of an appropriately qualified conservation practitioner. The primary aim of repair work should be to retain as much of the historic material as possible.

Policy 8	Once a future direction for the use and operation of the site has been resolved, following the cessation of lime processing activities, all work on buildings and elements of significance – with the exception of routine maintenance – should be undertaken by suitably qualified or skilled practitioners, and where necessary under appropriate supervision.

Utilising the input and expertise of experienced practitioners, including qualified heritage practitioners and specialist trades people where required (other than routine maintenance, see below), will assist in proper conservation and management of significant fabric. In preference, practitioners would have demonstrated experience with the conservation of industrial buildings.

5.7.4 *Maintenance and repairs*

Policy 9	All repairs and maintenance to significant buildings and structures should be carried out according to Burra Charter principles, and in a manner consistent with retaining their identified significance and significant attributes.

Maintenance addresses all existing components of the place, including fabric and setting. Introducing new elements (such as new structures) or changing and adapting existing buildings and objects are not matters of maintenance, and are addressed in policies and recommendations included elsewhere in this CMP.

Typical maintenance works include:

- Cleaning drainage systems and other water storage areas;
- securing and replacing roof and external wall fabric, glazing, timberwork and decorative features, in an appropriate and sympathetic manner (may require specialist input);
- servicing existing equipment and services;
- maintaining existing power or pipelines or other services where this involves no alteration to the fabric of the place; and
- replacing or upgrading services (may require specialist input for substantial works).

Regular monitoring of the condition of significant fabric is another important aspect of maintenance.

From a heritage perspective it is generally recommended that repairs of significant buildings and objects should involve replacing 'like with like,' i.e. the replacement of material (missing, deteriorated or broken) with fabric to match the existing. The advice of a qualified heritage practitioner should be sought on this. Wherever possible, only actual decayed fabric of a heritage structure should be replaced, instead of the whole host element.

Repairs to significant structures should also, in preference, be carried out by appropriately skilled staff or contractors, and may require in some cases prior analysis of the composition of the fabric to be repaired/replaced (i.e. mortars, renders and surface treatments).

5.7.5 *Hazardous materials*

Policy 10	Removal of hazardous materials from significant buildings and elements should seek to minimise physical impacts on those buildings/elements.

The Cave Hill quarry site includes some hazardous materials, as confirmed in a report prepared by AZCOR Consultants Pty Ltd, *Asbestos (Division 5/6) and Hazardous Materials Risk Assessment* for 4 Melba Avenue, Lilydale (July 2015). The report identifies that asbestos is present in some significant buildings and elements.

Where hazardous materials are present, the key consideration from a heritage perspective will be to conduct their removal with minimal physical impacts on the presentation and character of the significant buildings and elements.

5.7.6 *Plant and machinery*

Policy 11	Significant plant and machinery should, where possible, be retained in situ.

While original plant and machinery is intrinsic to an understanding of the function and significance of the industrial buildings and processes at Cave Hill, the majority of machinery has been removed from the site (exceptions are noted below). Where plant/machinery is extant it should be retained in situ, although it is acknowledged that the condition of some elements (such as the incline hoist or the enclosed conveyor) may preclude full retention. In instances where there is an imperative to remove the plant/machinery, these elements should first be recorded.

Significant plant* and machinery at the site includes the:

- shaker table in the Road Metal Plant
- incline hoist
- enclosed conveyor between the Picking Station and the Road Metal Plant
- riveted steel hopper

* For the purposes of this report, lime kilns are considered as structures (or buildings), as opposed to plant.

Extraneous and minor elements

The many extraneous and minor elements at the site, such as pipes, flues, props and ladders, have not been assessed in detail here. However, while they are part of current or former industrial processes, many of these elements are of utilitarian character, are associated with later works, and sometimes obscure an understanding of the physical and operational relationships between the more significant structure and buildings. On this basis, the removal of the extraneous elements, at least in part, is supported. This is also addressed below at Section 5.9.2, in regard to the 'cleaning up' of the site and the future appearance of the Limestone Processing Precinct.

5.8 Views and vistas

Policy 12	Views to Cave Hill Quarry from the elevated ground on Maroondah Highway, and views within the quarry looking south on the alignment of the former rail siding towards the opening to the Tunnel and from the upper section of the lime processing area into the pit are important attributes of the site and should be retained.

5.8.1 *Views to Cave Hill Quarry*

The assessment of significance (Chapter 4), examines the aesthetic significance and values of the site. The following are extracts:

> The striking landscape of Cave Hill quarry has attracted artists and painters since the late 1880s, when the quarry face on the outskirts of Lilydale became increasingly visible. The scenic qualities of the lime processing complex (plant and buildings), sited within a pastoral landscape, and set against the earthen colours and textures of the quarry proper, have been a popular artistic subject...

> Even to the lay person, the view of the site as an industrial landscape, visible from the Maroondah Highway, reveals a distinctive quality conspicuously at odds with the lush, agricultural setting and the backdrop of the Dandenong Ranges. The three West's kilns, the Picking Station and the network of elevated conveyors in particular form a distinctive group.

In regard to social significance:

> ...an intimate knowledge of the place, including the quarry itself and the multiple layers of industrial history are generally known only to people who have worked there. Despite that, the site is (from the outside) highly visible and geographically prominent in the Lilydale context, and readily recognised and identified.

The primary views of Cave Hill Quarry are from the elevated ground to the north-west of the site, close to the intersection of Maroondah Highway and Taylor Street. It is from this vantage point that the site has been painted and photographed since the late nineteenth century. This vantage point affords an appreciation of the relationships between the limestone processing plant and the quarry; the limestone processing area and the farm; and the Cave Hill Quarry and the township.

The importance and attraction of these views has been documented in this CMP (see also 'Site context' above at Section 5.6). It is also recognised that, as noted above, the quarry pit is to be filled with on-site over-burden, and this action will transform the current appearance of the site, and what is seen in views from the outside. Also as noted above, some balance will be achieved by providing future public access to what was historically a restricted place. The buildings and other elements of primary significance, including the collection of highly visible striking industrial structures, which sit in the foreground of these views, will also be retained.

Accepting that future development to the north and west may impact on some of these views, and that modification will occur to the quarry landscape, some visibility should be maintained where possible from the elevated ground to the north-west of the site. This includes, in particular, views of the lime processing buildings and plant.

5.8.2 *Views within Cave Hill Quarry*

Historically, view lines between the quarry and farm areas were not strong. The homestead, with its large garden enclosure, formed a physical barrier between the two areas, further emphasised by the row of screen plantings (pines) or windbreak visible in many of the historic images in preceding chapters. The plantings may also have acted as a barrier to repel lime dust.

By contrast, there has been a strong visual connection between the limestone processing area and the quarry pit since the 1870s. This connection should be maintained, and where possible enhanced; it also serves as a reminder of the historic operational connections between the pit and the processing area.

In addition, there are currently views from the upper section of the lime processing area into the pit. Historically, there were also views over the quarry from the south end of the Tunnel. It is recommended that such views be retained or reinstated, where possible, and also enhanced, with any new development.

Figure 106 View looking south towards the Tunnel entry, 1940s
Source: Sibelco

Figure 107 View looking south towards the Tunnel entry, 2013

A key within the site is looking south on the alignment of the former rail siding towards the opening to the Tunnel and the Road Metal Plant. Key elements and buildings – including the Tunnel, Road Metal Plant, Picking Station, the riveted steel hopper, No.1 Kiln and the extant section of rail platform – are visible from this vantage point, and collectively provide an understanding of the layering of plant at Cave Hill, and the south-north movement of machinery and products through the site. Later additions and plant have obscured the relationships between significant elements in the view (compare Figure 106 and Figure 107).

5.9 New works and development

Policy 13	Physical change and development of Cave Hill should be sympathetic to the heritage values of the place as identified in this CMP.

The Cave Hill heritage curtilage has been divided into areas reflective of their function (historic and/or on-going) and character, as demonstrated in the existing built form and landscape. An overview of the values of the precincts, and comments on their varying levels of sensitivity from a heritage perspective, is provided below.

Policy 14	Future development should provide revenue for conservation works to the heritage elements.

It would be appropriate for a sinking fund, or some similar financial provision, to be generated from proceeds of future site disposal to support the long term conservation and maintenance of significant heritage fabric.

5.9.1 Quarry Precinct and overburden dumps

Policy 15	Following the cessation of processing activities, and prior to the infilling of the quarry pit and site redevelopment, a comprehensive survey and recording program should be undertaken.

Since 1878 the dimensions and depth of the quarry pit have evolved consistently, and overburden has been dumped to all sides of the quarry. The pit is an element of primary significance, and the overburden dumps – including the large dump to the east of the pit – are contributory elements. It would, however, be unreasonable and impractical to place significant constraints on the future treatment of these elements as a consequence of their historical value.

The quarry pit has strong visual qualities. Prior to any redevelopment, including infilling and removal of over-burden, a comprehensive survey and photographic recording of the site should be undertaken.

The upper section of the north quarry face should be retained, and should desirably not be filled above the height of the access track leading to the Tunnel entrance. This will maintain important evidence of this aspect of the industrial operation.

In addition, future site interpretation should make reference to the substantial form and scale of these elements (see also Section 5.11 'Interpretation').

5.9.2 Limestone Processing Precinct

Policy 16	Future works and development in the Lime Processing Precinct should ensure the core of historic buildings and elements remains prominent, and the industrial character of the precinct is retained.

Limestone production commenced to the north of the quarry in 1878. The area contains

historic mechanical handling equipment, processing buildings and facilities, and storage plant. Collectively, these elements demonstrate lime processing technologies over a long period, including improvements in processing efficiencies from the late-nineteenth century to the 1960s. Much of this was at the leading edge of lime production technology at the time.

The historic core of buildings, kilns, and processing structures are contained in a discrete area to the north-west of the pit – this is the area described as the 'zone of greater sensitivity' at Figure 104 and Figure 105.

Additions to buildings/elements within this area may be contemplated to support an appropriate future use (see also Section 5.10). New works in the zone of greater sensitivity should be of recessive character and scale, to ensure that the prominence of significant buildings and the relationships between them remain evident. Desirably, future works should also support future interpretation and an understanding of lime processing operations.

Buildings and plant in the Lime Processing Precinct which are not identified as significant can be demolished. This will reveal the spatial and functional relationships between significant buildings and elements, including elements relating to the 1920s mechanisation of the site. This report does not include a detailed overview or inventory of all additions within the Lime Processing Precinct. Further investigation on a case by case basis would clarify an appropriate response from a heritage perspective.

New development on the lower ground to the north and east of the Limestone Processing Precinct (outside the zone of greater sensitivity) should be of low to medium height to ensure that the significant buildings and elements remain prominent.

Future public landscaping within the Limestone Processing Precinct should be of a contemporary character that responds to the utilitarian qualities of the area with a balance of hard and soft landscaping. Extensive grassed areas should be avoided. Consideration should be given to the delivery of a linear open space on the alignment of the former rail siding – between the rail line and the Tunnel opening – to frame views of the 'zone of greater heritage significance' from the north. A linear open space in this area would also provide opportunities for interpretation (see also Section 5.11).

5.9.3 Farm Precinct

Policy 17	New works and development in the Farm Precinct should respond to the historic agricultural character and operation of the area.

The farm precinct was the focus of David Mitchell's farm operations. It was established during the 1880s, and remained operational until 1921. Significant buildings and elements in the area are the Dairy and Bacon factories. These complementary 1890s buildings (respectively built of mass concrete and brick) have picturesque roof forms and towers. The timber stores and milking shed are more utilitarian buildings. The concrete silage store is of technical significance. These buildings are arranged around a central open area, which previously accommodated a range of farm structures and outbuildings.

The area between the factory buildings and the extension of the eastern driveway provides opportunities for new works and development, subject to archaeological sensitivities (see also Section 5.12). In preference, development should be no higher than the main ridge lines of the factory buildings. Low scale and sensitively designed and placed links/additions could also be constructed to connect the heritage buildings with new development, to help

facilitate reuse/adaptation of the historic buildings. Historically, built form abutted the north side of the Bacon Factory, and could do so again.

Development can also be contemplated to the east of the driveway extension, consistent with historic precedent – as indicated in the 1907 photograph in Chapter 2, development originally extended to the east property boundary. The existing dams in this location date to the 1960s, and receive water pumped from the base of the quarry. In the event that the quarry pit were filled, the dams would be surplus to requirements.

5.9.4 Arrivals Precinct

Policy 18	Significant elements and attributes within the Arrivals Precinct should be retained and conserved.

As noted above, the entrance gates on Melba Avenue are the public interface with the site. From there, views into the site take in the two branching driveways to the east and west, with the former being the original access to the site. The western driveway, parallel with the rail line, was introduced in c. 1940. Since then, the western driveway has been dedicated to the haulage of lime products, and the eastern driveway has provided access to the former farm area. The driveways are located to either side of the sports oval which was associated with the Cave Hill Social Club formed in 1937. The driveways, oval, memorial gates and entrance, and open land to the east in this area, are described collectively as the 'Arrivals Precinct'.

The main entrance, dual driveways and the road which loops around the farm area, are significant and should be maintained. This applies to their general alignment, and not necessarily the road surfaces; widening of the entrance/drives is also possible. The memorial gates are significant and should be retained as the focus of the entrance to the site. The gateway has previously been widened and further works to the gateway can be contemplated, including, potentially, relocating the gate posts to the eastern driveway or another prominent location at the north end of the Arrivals Precinct.

New development can be placed along/adjacent to the roadways, although desirably the former cricket field would be retained as open space (at least in part), albeit some development could occur in the south of this area.

As noted above, the Social Club Pavilion (1970s) and the Caretaker's residence (c. 1950s) are elements of contributory significance, identified for their historical and social values. The buildings themselves are of limited heritage interest. In preference, a new use would be found for these structures in any future development.

5.9.5 Remainder of site

Outside of the Cave Hill heritage curtilage, the site provides opportunities for significant future development and change, including subdivision, new works and buildings. While these areas – including undeveloped land to the south and west of the quarry pit – are historically associated with the early landowner Nicholson and subsequently David Mitchell, they are not of particular heritage value and generally do not contain elements of heritage significance. There are no constraints on development over the balance of the site, in these areas, arising from heritage considerations.

5.10 New uses

Policy 19	A range of new uses could be contemplated at Cave Hill, subject to other requirements/constraints. In preference, an holistic approach to future site development should be adopted, and no actions should be taken that would preclude consideration of feasible and compatible reuse options in the future.
Policy 20	Proposals for adaptive reuse of buildings should consider the former Cave Hill Quarry site as a whole and ensure that an appropriate balance is achieved between retention and conservation of fabric and delivery of a long term sustainable use.

The re-use and adaptation of industrial sites can be challenging. Common issues to address include: finding new uses that are both economically sustainable and compatible with the site's heritage values; land remediation; public health and safety; and equitable access. From a heritage perspective a key to success is flexibility and to avoid committing to particular outcomes too early in what can be a long and complex process.

Proposed future uses for Cave Hill Quarry should be assessed on the basis of their feasibility and the likely nature and level of impact on the identified heritage values and significant buildings and fabric. It would desirable for an holistic approach to future site management to be identified before making decisions about the adaptation of specific areas and buildings.

Options for the future use of the site are likely to be influenced by the nature of the site's redevelopment. For instance, in the event that the filled quarry pit was to become public open space, consideration may be given to adapting the retained elements within the Limestone Processing Precinct as a primary entry to the green space.

It is noted that there may be constraints posed by site contamination and the condition of the retained buildings, although the nature of any such constraints is unknown at this time.

5.10.1 Temporary uses

Consideration should be given to finding temporary or interim uses for the buildings on site, where feasible, in the period after Sibelco leaves the property and before new development commences. Unused heritage buildings are vulnerable to vandalism. The industrial buildings are also in this category. Security and surveillance will in addition be required, potentially for a long period, to ensure the heritage assets of the site are protected.

5.10.2 Public access

Policy 21	Redevelopment of Cave Hill should ensure future public access to the site, to facilitate appreciation and understanding of the significance of the site.

As noted in Chapter 4, historically the Cave Hill site and operation has been secure and not available for public access. As a result, an intimate knowledge of the place is generally known only to people who have worked there. As part of the redevelopment of the site it is a strong heritage preference that the site should be opened up, at least in part, to a form of public access. In combination with interpretation (see Section 5.11 below), public visitation would bring with it a high level of appreciation for this important place. Its role within Lilydale would also be vastly enhanced, including potentially becoming a tourist attraction in its own right.

5.11 Interpretation

Policy 22	Redevelopment of Cave Hill should include interpretation, as a means of educating visitors about the significance of the site, and facilitating appreciation and understanding of the site's significance.

Cave Hill as a whole presents an outstanding opportunity for future interpretation as an industrial heritage place or industrial landscape, together with a significant remnant farm area.

As noted in Chapter 1, Lookear, in conjunction with Lovell Chen, has prepared an 'Interpretation Concepts' report for the site (Attachment B). Without reproducing the content of the report here, the following is noted:

- The interpretation concept provides a broad framework for the future development of interpretation at Cave Hill.
- The interpretive concepts rely heavily on the values and significance of the site, coupled with the building forms and fabric.
- The report presents a thematic overlay for the site, using two interpretive levels: broad themes and more site-specific themes (a thematic structure is included).
- There is an emphasis, but not exclusively, on the David Mitchell era from 1878 to 1916.
- Themes include the quarry, Tunnel and main works, products, transport, farm, workers, landscape and Aboriginal connections.

The 'vision' anticipates interpretation which is integrated into the site.

5.12 Archaeology

Policy 23	The Farm Precinct is an area with potential historical archaeology remains, which may enhance an understanding on earlier aspects of farm operations. Such remains, where identified, should be treated appropriately as per the requirements of the *Heritage Act 1995*.

The preliminary findings of the historical archaeological investigation (non-Indigenous) are that the area of the Farm Precinct, which previously accommodated buildings/structures, is the area of highest archaeological sensitivity and potential. It includes footprints and on-ground evidence of demolished structures.

Policy 24	The Farm Precinct should be listed as a site in the Victorian Heritage Inventory.

It is recommended that the Farm Precinct be listed as a site in the Victorian Heritage Inventory. Such a listing will require any future development of the location to proceed through a Consent approvals process which will ensure that an appropriate level of field investigation is undertaken prior to the commencement of development activities.

The relevant provisions of the *Heritage Act* 1995 would apply to any building remains and artefacts found elsewhere at the property. This may result in these elements being excavated/recorded by an archaeologist prior to removal.

5.13 Risk management

Policy 25	Potential risks should be identified, and an appropriate response strategy prepared. Special consideration should be given to the securing of the site and buildings after closure of the facility and prior to active redevelopment.

The most obvious risks related to the heritage values and fabric of significant buildings and elements at Cave Hill Quarry are considered to be vandalism and fire (see Table 4). These risks will be exacerbated when the site is vacated by and has yet to be reoccupied or redeveloped. Unauthorised access also has the potential to pose public safety risks.

Table 4 Potential risks

Threat	**Probability**	**Preparation/response**
Vandalism	High	A security plan, including building management protocols, should be prepared for Cave Hill Quarry. Active site security should be provided as soon as the site is vacated and until such time as re-occupation of the place occurs. The plan should include measures to ensure that access to the former limestone processing plant and equipment is controlled.
Public safety	Moderate	Refer to recommendations above for preparing a security plan for buildings at the site. The plan should ensure that access to the quarry pit is strictly controlled. Unauthorised access to the pit, including unstable ground to the sides of the pit, presents a significant risk to public safety.
Fire	Always present	Fully compliant fire services must be provided for retained buildings and elements at Cave Hill Quarry. Vegetation on the site should be controlled.

5.14 Aboriginal values

Policy 26	Aboriginal history and use of Cave Hill, and attachment to it, are significant factors for consideration in the future interpretation and management of the site.

Andrew Long & Associates has prepared a brief 'Aboriginal Heritage Assessment' which is included with this CMP (Attachment A). The report refers to previous Cultural Heritage Management Plans which have been prepared for the site, and focuses on potential future works and activity areas. While the Aboriginal values of the site are not addressed in this CMP, the following is noted (taken from the 'Aboriginal Heritage Assessment').

Cave Hill was originally a high point overlooking Olinda Creek and its valley, and together with being situated close to permanent water in a once diverse environment of flora and fauna, it is assumed that the area was attractive to Aboriginal people. However, there is also an understanding that the landform had mythological associations with a malevolent spirit, and this may have seen the site used less by Aboriginal people than would otherwise be

expected, although this has not been confirmed. Ethnographic evidence available on Aboriginal occupation of the area at European contact is also scant.

5.15 Recording

Policy 27	A recording programme should be undertaken of any significant fabric, spaces or elements, prior to any works involving change or removal of these elements.

Undertaking a recording programme of any significant fabric, spaces or elements, before works commence which involve change or removal of the elements, is an important means of record keeping, but also of documenting significant details for future reference and research. While it is not recommended that significant components of the Cave Hill site be changed or otherwise impacted to the extent of requiring recording, there may be currently unforeseen circumstances which require this to happen. In such an instance, recording the detail of the original elements could assist with future reinstatement or reconstruction of such elements; at the very least it would enable some research or study of the elements.

Heritage Victoria and the Heritage Council have produced a 'Technical Note' on photographic recording of heritage places and objects. It can be downloaded at:
www.dpcd.vic.gov.au/__data/assets/pdf_file/0003/36831/Photographic_Recording_Tech_Note.pdf

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APPENDIX A BURRA CHARTER, 2013

The Australia ICOMOS Burra Charter, 1999

Preamble

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.

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.

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.*

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

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.*

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

1.7 *Restoration* means returning the existing *fabric* of a *place* to a known earlier state by removing accretions or by reassembling 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*.

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*.

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

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

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.

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.

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.

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

Article 6. Burra Carter 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.

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.

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.

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.

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.

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.*

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

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.

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 remains 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*.

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.

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*.

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.

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.

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*.

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 the 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 BURRA CHARTER

The Australia ICOMOS Charter for Places of Cultural Significance 2013

AUSTRALIA ICOMOS
International Council on Monuments and Sites

Australia ICOMOS Incorporated
International Council on Monuments and Sites

ICOMOS

ICOMOS (International Council on Monuments and Sites) is a non-governmental professional organisation formed in 1965, with headquarters in Paris. ICOMOS is primarily concerned with the philosophy, terminology, methodology and techniques of cultural heritage conservation. It is closely linked to UNESCO, particularly in its role under the World Heritage Convention 1972 as UNESCO's principal adviser on cultural matters related to World Heritage. The 11,000 members of ICOMOS include architects, town planners, demographers, archaeologists, geographers, historians, conservators, anthropologists, scientists, engineers and heritage administrators. Members in the 103 countries belonging to ICOMOS are formed into National Committees and participate in a range of conservation projects, research work, intercultural exchanges and cooperative activities. ICOMOS also has 27 International Scientific Committees that focus on particular aspects of the conservation field. ICOMOS members meet triennially in a General Assembly.

Australia ICOMOS

The Australian National Committee of ICOMOS (Australia ICOMOS) was formed in 1976. It elects an Executive Committee of 15 members, which is responsible for carrying out national programs and participating in decisions of ICOMOS as an international organisation. It provides expert advice as required by ICOMOS, especially in its relationship with the World Heritage Committee. Australia ICOMOS acts as a national and international link between public authorities, institutions and individuals involved in the study and conservation of all places of cultural significance. Australia ICOMOS members participate in a range of conservation activities including site visits, training, conferences and meetings.

Revision of the Burra Charter

The Burra Charter was first adopted in 1979 at the historic South Australian mining town of Burra. Minor revisions were made in 1981 and 1988, with more substantial changes in 1999.

Following a review this version was adopted by Australia ICOMOS in October 2013.

The review process included replacement of the 1988 Guidelines to the Burra Charter with Practice Notes which are available at: australia.icomos.org

Australia ICOMOS documents are periodically reviewed and we welcome any comments.

Citing the Burra Charter

The full reference is *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013*. Initial textual references should be in the form of the *Australia ICOMOS Burra Charter, 2013* and later references in the short form (*Burra Charter*).

Cover photograph by Ian Stapleton.

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The Burra Charter

(The Australia ICOMOS Charter for Places of Cultural Significance, 2013)

Preamble

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, 26 November 1999 and 31 October 2013.

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.

The Charter consists of:

- Definitions — Article 1
- Conservation Principles — Articles 2–13
- Conservation Processes — Articles 14–25
- Conservation Practices — Articles 26–34
- The Burra Charter Process flow chart.

The key concepts are included in the Conservation Principles section and these are further developed in the Conservation Processes and Conservation Practice sections. The flow chart explains the Burra Charter Process (Article 6) and is an integral part of the Charter. Explanatory Notes also form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained, in a series of Australia ICOMOS Practice Notes, in *The Illustrated Burra Charter*, and in other guiding documents available from the Australia ICOMOS web site: australia.icomos.org.

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*, *Ask First: a guide to respecting Indigenous heritage places and values* and *Significance 2.0: a guide to assessing the significance of collections*.

National and international charters and other doctrine may be relevant. See australia.icomos.org.

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 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 in accordance with the principle of inter-generational equity.

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

Explanatory Notes

Article 1. Definitions

For the purposes of this Charter:

1.1 *Place* means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Place has a broad scope and includes natural and cultural features. Place can be large or small: for example, a memorial, a tree, an individual building or group of buildings, the location of an historical event, an urban area or town, a cultural landscape, a garden, an industrial plant, a shipwreck, a site with in situ remains, a stone arrangement, a road or travel route, a community meeting place, a site with spiritual or religious connections.

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 cultural heritage significance and cultural heritage value.

Cultural significance may change over time and with use.

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

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

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

Natural elements of a place may also constitute fabric. For example the rocks that signify a Dreaming place.

Fabric may define spaces and views and these may be part 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*.

See also Article 14.

1.5 *Maintenance* means the continuous protective care of a *place*, and its *setting*.

Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Examples of protective care include:

- maintenance — regular inspection and cleaning of a place, e.g. mowing and pruning in a garden;
- repair involving restoration — returning dislodged or relocated fabric to its original location e.g. loose roof gutters on a building or displaced rocks in a stone bora ring;
- repair involving reconstruction — replacing decayed fabric with new fabric

1.6 *Preservation* means maintaining a *place* in its existing state and retarding deterioration.

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

1.7 *Restoration* means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements 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.

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 changing a *place* to suit the existing *use* or a proposed use.

1.10 *Use* means the functions of a *place*, including the activities and traditional and customary practices that may occur at the place or are dependent on the place.

Use includes for example cultural practices commonly associated with Indigenous peoples such as ceremonies, hunting and fishing, and fulfillment of traditional obligations. Exercising a right of access may be a use.

Articles

Explanatory Notes

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 immediate and extended environment of a *place* that is part of or contributes to its *cultural significance* and distinctive character.

Setting may include: structures, spaces, land, water and sky; the visual setting including views to and from the place, and along a cultural route; and other sensory aspects of the setting such as smells and sounds. Setting may also include historical and contemporary relationships, such as use and activities, social and spiritual practices, and relationships with other places, both tangible and intangible.

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.

Objects at a place are encompassed by the definition of place, and may or may not contribute to its cultural significance.

1.15 *Associations* mean the 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 to people.

Meanings generally relate to intangible dimensions 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*.

Articles

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.

Explanatory Notes

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, biodiversity and geodiversity for their existence value or for present or future generations, in terms of their scientific, social, aesthetic and life-support value.

In some cultures, natural and cultural values are indivisible.

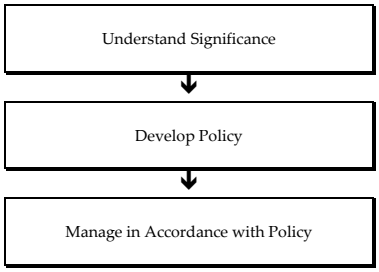
5.2 Relative degrees of *cultural significance* may lead to different *conservation* actions at a place.

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. This is the Burra Charter Process.

The Burra Charter Process, or sequence of investigations, decisions and actions, is illustrated below and in more detail in the accompanying flow chart which forms part of the Charter.



6.2 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.

6.4 In developing an effective policy, different ways to retain *cultural significance* and address other factors may need to be explored.

Options considered may include a range of uses and changes (e.g. adaptation) to a place.

6.5 Changes in circumstances, or new information or perspectives, may require reiteration of part or all of the Burra Charter Process.

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 activities and practices which contribute to the cultural significance of the place.

Article 8. Setting

Conservation requires the retention of an appropriate *setting*. This includes retention of the visual and sensory setting, as well as the retention of spiritual and other cultural 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.

Setting is explained in Article 1.12.

Article 9. Location

9.1 The physical location of a *place* is part of its *cultural significance*. A building, work or other element 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 elements of *places* were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other elements do not have significant links with their present location, removal may be appropriate.

9.3 If any building, work or other element 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.

For example, the repatriation (returning) of an object or element to a place may be important to Indigenous cultures, and may be essential to the retention of its cultural significance.

Article 28 covers the circumstances where significant fabric might be disturbed, for example, during archaeological excavation.

Article 33 deals with significant fabric that has been removed from a place.

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 significant *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 always be recognised, respected and encouraged. This is especially important in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In Article 13, 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. Conservation may also include retention of the contribution that *related places* and *related objects* make to the *cultural significance* of a *place*.

Conservation normally seeks to slow deterioration unless the significance of the place dictates otherwise. 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* and its *use* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.

When change is being considered, including for a temporary use, a range of options should be explored to seek the option which minimises any reduction to its cultural significance.

It may be appropriate to change a place where this reflects a change in cultural meanings or practices at the place, but the significance of the place should always be respected.

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

Maintaining a place may be important to the fulfilment of traditional laws and customs in some Indigenous communities and other cultural groups.

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 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; or
- 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.

Articles

Explanatory Notes

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 some cases, reconstruction may also be appropriate as part of a *use* or practice that retains the *cultural significance* of the place.

Places with social or spiritual value may warrant reconstruction, even though very little may remain (e.g. only building footings or tree stumps following fire, flood or storm). The requirement for sufficient evidence to reproduce an earlier state still applies.

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 additions to the place, the introduction of new services, or a new use, or changes to safeguard the place. Adaptation of a place for a new use is often referred to as 'adaptive re-use' and should be consistent with Article 7.2.

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 or other changes to the *place* may be acceptable where it respects and does not distort or obscure the *cultural significance* of the place, or detract from its *interpretation* and appreciation.

New work should respect the significance of a place through consideration of its siting, bulk, form, scale, character, colour, texture and material. Imitation should generally be avoided.

22.2 New work should be readily identifiable as such, but must respect and have minimal impact on the *cultural significance* of the *place*.

New work should be consistent with Articles 3, 5, 8, 15, 21 and 22.1.

Article 23. Retaining or reintroducing use

Retaining, modifying or reintroducing 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, activity 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 aspects of use, including activities and practices.

Some associations and meanings may not be apparent and will require research.

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 engagement, and be culturally appropriate.

In some circumstances any form of interpretation may be culturally inappropriate.

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 kept 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.

Policy should address all relevant issues, e.g. use, interpretation, management and change.

A management plan is a useful document for recording the Burra Charter Process, i.e. the steps in planning for and managing a place of cultural significance (Article 6.1 and flow chart). Such plans are often called conservation management plans and sometimes have other names.

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

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

26.4 Statements of *cultural significance* and policy for the *place* should be periodically reviewed, and actions and their consequences monitored to ensure continuing appropriateness and effectiveness.

Monitor actions taken in case there are also unintended consequences.

Article 27. Managing change

27.1 The impact of proposed changes, including incremental changes, on the *cultural significance* of a *place* should be assessed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes to better retain cultural significance.

27.2 Existing *fabric, use, associations* and *meanings* should be adequately recorded before and after 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.

Articles

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

The organisations and individuals responsible for management and decisions should be named and specific responsibility taken for each 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. Keeping a log

New evidence may come to light while implementing policy or a plan for a *place*. Other factors may arise and require new 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*.

Words in italics are defined in Article 1.

Explanatory Notes

New decisions should respect and have minimal impact on the cultural significance of the place.

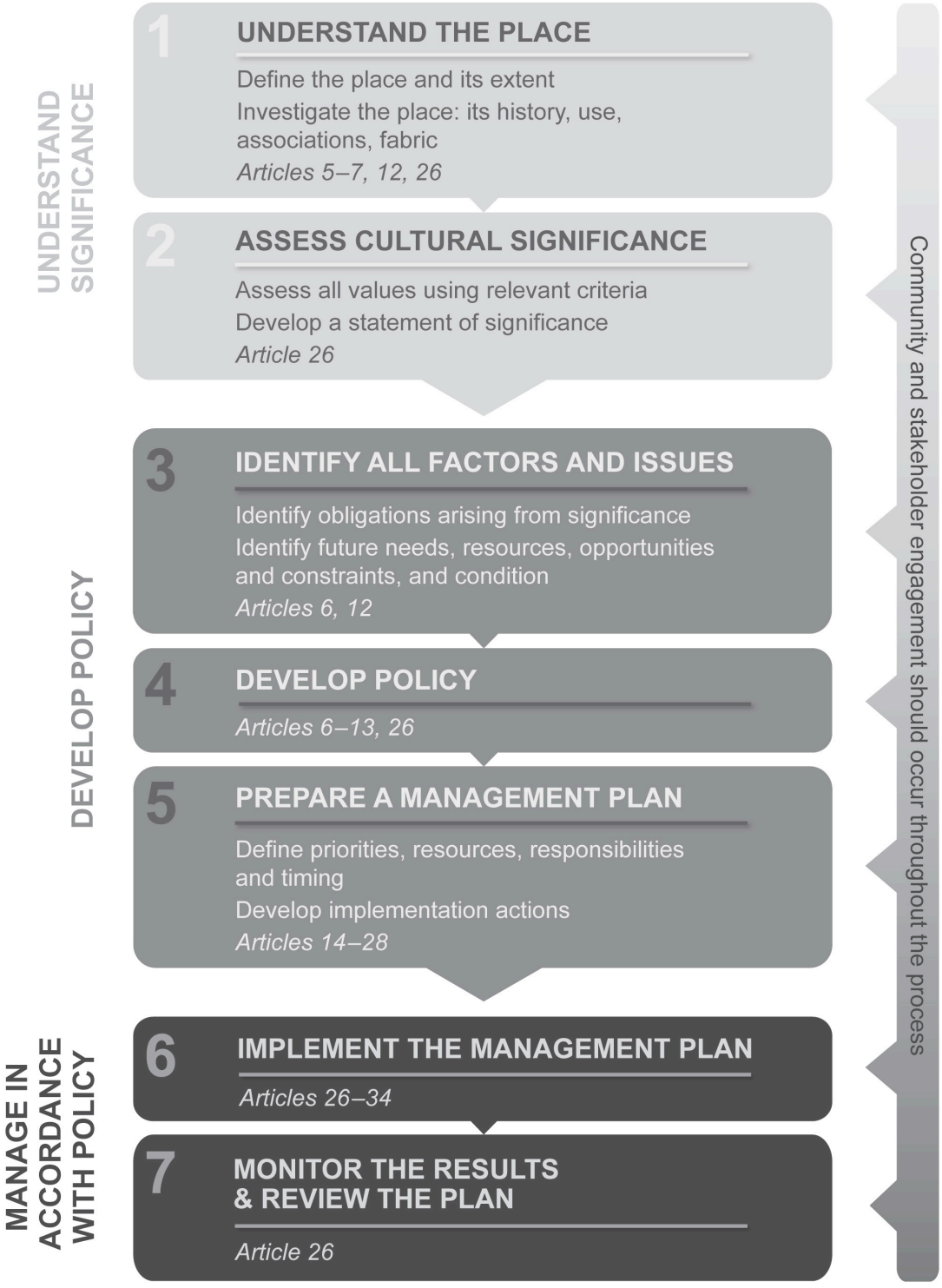
The best conservation often involves the least work and can be inexpensive.

The Burra Charter Process

Steps in planning for and managing a place of cultural significance

The Burra Charter should be read as a whole.

Key articles relevant to each step are shown in the boxes. Article 6 summarises the Burra Charter Process.



APPENDIX B HERITAGE STUDY CITATIONS

HERITAGE CITATION REPORT

Name	Cave Hill- Limestone Works and Quarry, Tramway and Water Race and WWII Memorial Gates	**File No**	120
Address	Part Lot 1 Melba Avenue Lilydale	**Significance Level**	Local
Place Type	Mine - Open Cut		
Citation Date	2000		

World War II Memorial Gates

Recommended Heritage Protection **VHR - HI - PS -**

Integrity

Evidence of stages

History and Historical Context

David Mitchell's Limestone Works and associated quarry, tramway and water race are significant industrial sites and are among the most important heritage places within the Shire of Yarra Ranges. Their long history began in the final decades of the last century when the Cave Hill Quarry site was already a major local landmark.

The early history of the Cave Hill Quarry relates to the perpendicular cave on the site of the quarry, 130 feet deep, which was a district tourist attraction. It is said that locals and tourists were "lowered down the cave by means of a windlass. A geologist took a sample of the rocks studded around the cave, which, on analysis, were found to be limestone. It was not long before D. Mitchell, who required quantities of lime for his building contracts, bought the property for industrial purposes". (Back to Lilydale Re-Union 1931.) In 1856, A.R. Selwyn, Victoria's Geological Surveyor, described this cavity on a hillside in the Parish of Yering. It was on the estate of the Hon. William Nicholson, known as the Cave Hill Estate. The "well-like cavity" described by Selwyn was actually a limestone cave 39 metres deep. (Baddeley 1996:6.)

David Mitchell (1829-1916), building contractor and businessman, purchased the original 1,270 acres of the Cave Hill farm and subsequently added more land to his initial purchase. In 1876, Mitchell owned or rented 13,657 acres of land in the Shire of Lillydale. (Baddeley 1996:6.)

Lime production began at the Cave Hill quarry in 1878. Lime kilns were built in 1879, and the Cave Hill Lime Works were opened in 1880 on the site of the extremely extensive limestone deposits. By the late 1920s, the quarry was being worked at depths of 100 to 200 feet (30-60 metres). After the Second World War, the quarry was 700 feet long and 500 feet wide (215m by 154m). And, by 1996, the site was still being quarried at 60 metres, but the workings were "considerably longer and wider than they were in the 1950s" and were "being extended toward Mooroolbark". (Baddeley 1996:6.)

Shire of Lillydale rate records confirmed that by 1892 David Mitchell, contractor, owned 1,240 acres and Lime Works, and an additional 425 acres of land with a total value of £1,016. (Shire of Lillydale RB 1892, Nos. 1082, 1083.) This was a huge valuation at the time. The valuation fell slightly during the late 1890s, probably due to the economic depression, but by 1901-2 was £750 for 1255 acres, house and buildings in the Cave Hill Estate. (Shire of Lillydale RB 1901-2, No. 1589.) By 1916-17, the year of Mitchell's death, the valuation of the property had risen again to £834. (Shire of Lillydale RB 1916-17, No.2931.)

As well as building his limeworks in the early 1880s, Mitchell drew water for the limeworks from a weir and water race built along the Olinda Creek. According to one account, "The David Mitchell aqueduct was installed to supply water to the Cave Hill complex, the water being pumped from the aqueduct by hydraulic rams". (Alger 1991:6.) In September 1889, David Mitchell, who was already drawing water from Olinda Creek offered to supply Lilydale township with water from Cave Hill. The plan was rejected because of concern about water quality. (Newton et.al:181.) Remains of Mitchell's weir and brick-lined aqueduct can still be seen on Olinda Creek. In 1990, when Ralph Alger was exploring the remains of the Cave Hill Tramway, he observed the remains of Mitchell's "diversion weir" which he described as "260 metres upstream from Bellbird Road". He commented that "this 100 year old structure was built in brick and bluestone and had a pleasing appearance. I was inspired to write to the Lillydale Shire Engineer suggesting that the weir and tramway embankments or cuttings should be preserved where possible". (Alger 1991:10.) Alger photographed the remains of Mitchell's "diversion weir", calling it "a neglected historical feature". (Alger 1991:9) He explained in his 1991 article on the Cave Hill Tramway how "when reticulated water became available, this system went out of use and the two rams at the aqueduct finished up in the Lillydale Museum". (Alger 1991:6.)

The Cave Hill Tramway was built in 1903 to transport timber from Mt. Evelyn for use in the lime kilns at the Cave Hill Quarry. This system operated until 1934, when coke replaced wood for the furnaces. The tramway was eventually 10 miles long and went from the quarry to where Silvan reservoir is now situated. The main line ran along Swansea Road, following approximately the line of the Olinda Creek. It then went up York Road and around the Mt. Evelyn Reserve and on to the reservoir. (Baddeley 1996:7.)

Army maps of the Lilydale district in 1915 and 1922 showed the earliest routes taken by David Mitchell's tramline. The 1922 Army map, titled "Ringwood" indicated the Cave Hill Tramway as a "Private Railway" running from Mitchell's Quarry to just beyond the Cascades on Olinda Creek. The beginning of a curved branch spur line along David Road was also shown. (Army map "Ringwood" 1922.)

Alger was interested in the two first engines sold to David Mitchell for use on the Cave Hill Tramway. They were purchased when steam traction on the Bendigo Street tramways ceased on 31 January 1903. (Alger 1991:12.) After the Cave Hill Tramway closed in 1934, the tram engine was dumped near the Railways fence. (Alger 1991:9.)

Alger returned over the years to explore the Cave Hill Tramway, and its route, as well as Mitchell's aqueduct and water race. He returned in 1946, 1987, 1989 and 1990. His 1991 article contains his conclusions about what remains, illustrated in a series of photographs and maps. He concluded that, despite the changes brought about by "Melbourne's suburban sprawl" and the development of Lillydale Park, the "straight" line and the earlier "curved" line towards David Road, of the tramway tracks are still discernible. (Alger 1991:5, 6, 7, 8, 11, 13.) These features now form part of the Lillydale Lake Trail, a popular heritage walk.

David Mitchell, the creator of the Cave Hill Limeworks complex, which operates still today, was born in 1829 in Forfarshire, Scotland. In 1846, aged 17, he was apprenticed to a master mason. On completing his indenture, Mitchell sailed for Australia, arriving in Melbourne in July 1852. He worked at first as a mason, living in a shanty in Richmond. In 1856, he married, and built a new house, Doonside. By 1874, Mitchell had become a shareholder in the Melbourne Builders' Lime and Cement Company formed to break the monopoly of the Geelong limeburners. In 1876, he bought Cave Hill farm in Lillydale and began working its limestone deposits.

Mitchell was involved in a number of other district businesses. He had cheese, butter, bacon, ham and soap factories at Cave Hill "housing them in a complex of well designed brick buildings". By 1900, Mitchell also owned vineyards and wineries at Yerinberg, Coldstream and St. Huberts. He also acquired several large pastoral stations in various districts, most of which he subdivided and sold.

As a building contractor, Mitchell was associated with a number of major Melbourne buildings. These included Menzies Hotel (1857), now gone; Scots Church, Collins Street (1873-74); and his grandest venture, the Exhibition Buildings which opened in 1880. Mitchell retired from building, and in 1899, and devoted himself to his other business interests. He was a member of the Council of the Builders and Contractors Association and the Royal Agricultural Society. Mitchell was a staunch Presbyterian, and the father of Dame Nellie Melba. (Melbourne University Press, 1966:259.)

After Mitchell's death in 1916, the Cave Hill Estate continued to flourish. Its valuation rose in the 1920s to £1,610 in 1920-21, and to £1,900 in 1926-27. (Shire of Lillydale RB. 1920-21, No. 3863; 1926-27, No. 4717.) The Cave Hill Quarry, a major local landmark, is working still today.References:

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Description

Physical Description

The Cave Hill complex comprises a number of elements, some located within the property owned by David Mitchell Ltd, some within the Lilydale Lake reserve, and others near Olinda Creek (possibly within a public land reserve).

The David Mitchell Ltd property contains the quarry and lime works, the former Cave Hill Butter; Cheese & Bacon Curing Factory (Place No. 571), and a milking shed and cheese room. Timber was supplied to the quarry via a tramway along Olinda Creek, and water was supplied via an aqueduct also from Olinda Creek.

The lime works at Cave Hill represent the second stage in the development of the lime industry in Victoria, the first being the single or paired early kilns built on the Peninsula, Geelong and Portland from the late 1830s, and the second being the larger scale works that started to be established from the 1870s. Like the David Mitchell Ltd works, these 1870s/80s works often used the new railway network as the means of getting their products to market. By the late nineteenth century, many of the kilns were designed to operate continuously, with fuel and limestone being recharged from the top after some of the burnt lime has been drawn down out of the kiln. There were a number of different types of continuous kilns: vertical kilns with mixed or separate feed and ring or chamber kilns, including the Hoffman type and rotary kilns. (Johnston 1986)

The David Mitchell Ltd lime works contains a group of lime kilns either side of an enclosed "tunnel". Brief inspection of these kilns indicates that they are brick structures, with large arched entries to the draw hole area. The shafts appear to have been encased within concrete and reinforcing beams have been added. They appear typical of the nineteenth century vertical shaft kilns design seen through-out Victoria, although no other example of such a large and intact set of kilns is known to the author. The southern entry to the "tunnel" consists of a large vaulted space, also brick lined. The "tunnel" is closest to the quarry and demonstrates part of the past flow of the quarried limestone into the kilns. There is also a large shaft kiln located nearby. The date of construction and method of operation of these kilns requires further research.

Also in the upper area of the site closest to the quarry are a number of timber-framed buildings that appear to date from the mid twentieth century or earlier. These include the Belt Repair shop, Fitters Workshop, Store, and Electrical Workshop. To the north of the Tunnel and shaft kiln is an area planned for redevelopment.

The Memorial Gates mark the entrance to the David Mitchell Ltd property. The gate pillars are stone-clad, each with plaques. The letters DME at set into the wrought iron gates. The plaques contain an honour roll of locals who served in the 1939-1945 war, and it includes around 70 names.
To the east of the works site and the former Cave Hill Butter; Cheese & Bacon Curing Factory (Place No. 571) is a timber milking shed and concrete building that is thought to have been a cheese room. These buildings are worthy of further investigation.

Remains of old trams are thought to survive on the property next to the quarry site, with some buried in a substantial state

of decay. (Brad Martin, 1998)

Sections of the tramway that ran between the Cascades on Olinda Creek and the Cave Hill quarry survive. Within the Lillydale Lake parklands, a raised section of the tramway alignment is clearly visible on the west side of the Lake and have been designated as part of a future walking track system. (Brad Martin, 1998) Other features through the Swinburne University property included further sections of the tramway and a substantial rock faced cutting. These features have apparently been buried by new landscape works at the Swinburne site. (Brad Martin, 1998) Sections of the tramway alignment may also survive along other parts of this route (for example parallel to Tramway Road, Mt Evelyn).

An aqueduct serving the quarry ran parallel to the tramway, and a long section survives within Lillydale Lake parklands. It was hand dug to follow the contours from the weir on Olinda Creek to the quarry. The surviving sections are contained in the buffer planting between Swinburne campus and the Lake, and these have been fenced for protection. (Brad Martin, 1998)

Approximately 300 metres south of Lillydale Lake parklands is a bluestone weir on the Olinda Creek. The bluestone structure has been substantially damaged, but can still be recognised. (Brad Martin, 1998) A section of a brick-lined water-race on the west side of the creek is also said to survive. (Karen Phillips, pers. comm.)

Another feature that survives is a section of the drainage system, built of hand-made bricks, and extending from the Hutchinson Street entry to the Swinburne University and the running west behind the Eastern Energy service years to the David Mitchell property. (Brad Martin, 1998)
Not all of the area that potentially contains features associated within this works has been able to be examined in detail, and recommendations are made about further field and archaeological assessment. In addition, there are some areas of housing adjoining Cave Hill quarry (Cave Hill Road and adjoining streets) which are of potential heritage significance and should be further investigated in a later stage of the study.

Physical Condition

Varies

Recommended Management

In order to conserve the heritage significance of this place, it is recommended that the following objectives be given priority in the future maintenance or development of the property:

1. Conserve the significant elements of the site. These include: the "tunnel", shaft kiln and identified buildings associated with the lime works; the memorial gates; the dairy and cheese room; the tramway, aqueduct, weir and drain.

2. Respect and conserve the built elements and site relationships at the lime works that demonstrate important successive stages in the development of the industry. This will require further research and site analysis.

3. Protect the archaeological potential of the whole of the area containing identified features from uses and activities which will involve ground disturbance. Where ground disturbance will occur, plan an archaeological investigation of surface and sub-surface evidence well in advance of the planned disturbance. The balance of the lime works requires further research to determine the extent of an areas of archaeological potential.

4. Continue to use the site in a manner compatible with its historical uses and the conservation of its significance.

5. Undertake further research to document precisely the location, condition and integrity of all surviving fabric. Also

undertake historical research into the development of the lime works in relation to the fabric and layout of this place. Prepare a Conservation Management Plan to guide future use, development and conservation of the properties containing evidence of this works.

6. Ensure that any new development or works do not overwhelm the key features of the site or adversely affecting the integrity of the site.

7. In the case of the future subdivision of the property, particular attention should be paid to conserving and not further fragmenting site features.

Occupancy

Crown/Private/Shire

Site Context

The limestone quarry was a significant industry in Lilydale. The tramway (remains of which can be seen) brought timber from Mt Evelyn to the limeworks from c.1903-30s. Parts of the line ran along the David Mitchell estate and on the south side of Olinda Creek crossed Chateau Wyuna. The water race dates from the 1880s and was lined with brick, with a bluestone weir at Olinda Creek.

Statement of Significance

The Cave Hill Limestone Works, with its associated quarry, tramway water race and other features, has potential state significance as an outstanding exemplar of the development of the lime industry in Victoria, from the nineteenth through the twentieth century, with the surviving bank of kilns probably being the best extant examples in the State. Further comparative investigation is warranted.

Within its local and Shire context, this place is significant as an important district industrial enterprise, which operated over a long period from 1878 until the present time. The Cave Hill complex has significance as a major district landmark and for its associations with David Mitchell, building contractor and businessman. The remains of the Cave Hill tramway and water race are also of significance as examples of the engineering heritage of the Lilydale area.

Recommendations 2000

External Paint Controls	Yes
Internal Alteration Controls	Yes
Tree Controls	Yes
Fences & Outbuildings	No
Prohibited Uses May Be Permitted	Yes
Incorporated Plan	-
Aboriginal Heritage Place	No

Other Recommendations

At the community workshops held as part of the Yarra Ranges Heritage Study, several people identified Cave Hill as being an important Aboriginal place. These references should be referred to Aboriginal Affairs Victoria for their advice on the requirements for survey and /or protection.

HERITAGE CITATION REPORT

Name	Old Cave Hill Butter; Cheese and Bacon Curing Factory; David Mitchell Estate	**File No**	571
Address	4 Melba Avenue LILYDALE		
Citation Date	2000		

Former Cheese and Bacon Curing Factory

Recommended Heritage Protection **VHR - HI - PS -**

History and Historical Context

References:

The Conservation of Sites and Structures of Historical Significance in the Upper Yarra Valley & Dandenong Ranges., 1978, Tansley, M, Upper Yarra Valley & Dandenong Ranges Authority, Melbourne

Description

Physical Description

The complex comprises a row of three disused factories :- a butter factory, a cheese factory and a bacon and ham-curing factory. The butter factory was built by David Mitchell in 1892; and the cheese factory and the bacon and ham-curing factory were built in 1894.The butter factory (which stands at the southern end of the row) is a two storey building with a small tower, and is built of brick with cement rendering. (Tansley, 1978)

The cheese factory which stands in the centre of the row is a brick building with a cellar below and a small tower.The bacon and ham-curing factory is a wooden building at the northernend of the row. It is in very poor condition. (Tansley, 1978)

The old butter factory and the cheese factory are in the process of being renovated and restored. They are being converted to become the new Head Offices of David Mitchell Estate Limited. Their interiors are being altered and renovated for conversion into offices, but their external appearance will remain much as original. The wooden bacon and ham-curing factory will be demolished because it is in very poor structural condition. (Tansley, 1978)

Recommended Management

Future office expansion may destroy the original facades of the buildings which have just been conserved.Renovations should be rigourous in maintaining the original external appearance of the buildings. Surrounding development should be compatible with the appearance and function of these buildings. The immediate environment of the buildings should be removed from the
Extractive Industrial Zone. (Tansley, 1978)

Occupancy

Private

Statement of Significance

One of very few remaining examples of early industry in the region, and of the early industries of David Mitchell, one of the region's most prominent citizens. (Tansley, 1978)

Recommendations 2000

External Paint Controls	Yes
Internal Alteration Controls	No
Tree Controls	Yes
Fences & Outbuildings	No
Prohibited Uses May Be Permitted	Yes
Incorporated Plan	-
Aboriginal Heritage Place	No

Other Recommendations

Review the status of the bacon factory in a subsequent stage of the study. It is currently listed in the Local Provisions of the Planning Scheme as one of the "destroyed places" places being reviewed in the Heritage Study. This building was not reassessed during Stages 1A or 2A of the study. Further work is therefore required.

This information is provided for guidance only and does not supersede official documents, particularly the planning scheme. Planning controls should be verified by checking the relevant municipal planning scheme.

ATTECHMENT A ABORIGINAL REPORT CAVEHILL QUARRY

Cave Hill Quarry Aboriginal Heritage Assessment

Prepared for:

Lovell Chen Pty Ltd
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Reviewed: Jonathan Howell-Meurs

29/10/2013

Introduction

The following report presents a desktop audit and assessment of known and predicted Aboriginal cultural heritage values in the area of Cave Hill Quarry, Lilydale to inform wider heritage assessment preliminary to proposed residential development of the Cave Hill Quarry. Findings and recommendations are presented in the conclusion of this report.

The Activity Area

The activity area is situated approximately 35 km north east of the Melbourne Central Business District and is approximately 1.7 km^2 in size (Figure 1- all figures in Appendix 1). It currently contains a large limestone quarry and is bisected by the Lilydale rail line (Figure 2).

The geological area for this study has been defined as an arbitrary 5 km radius centred on the activity area (Figure 3). This contains a complex set of geological units which here form elements of the East Victorian Dissected Uplands. The broader Lilydale area is located within the physiographic unit called the Nillumbik plateau, which was moderately uplifted in the late Tertiary (38 to 1.6 million years ago) and has a relatively subdued relief, dissected by the Yarra River and its tributaries. The plateau ranges from less than 100 m elevation near Melbourne to about 300 m elevation near Gembrook. The geology of the plateau is predominantly comprised of Silurian sedimentary rock of laminated and current-bedded sandstone, mudstone and shale[1].

At a finer scale, the activity area is located within the Olinda Creek Upper Catchment Region, which incorporates the ranges at the head of the Olinda Creek, from Lilydale to Mt Evelyn. The chief geomorphological feature of this region is the Olinda Creek valley, with wetland flats along its floodplain, surrounded by prominent dissected ranges. The activity area itself comprises rolling hills draining into the Olinda Creek which passes to the north east and east, with the Melba Avenue Drain intersecting the activity area in the north before feeding into the Olinda Creek.

[1] http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim –accessed 28/10/2013

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The distinguishing geological feature of the activity area, which has resulted in quarrying, is the presence of a lens of oolitic limestone approximately 220 metres thick, which formed the now destroyed Cave Hill. This lens lies beneath sandstones, at times 30 m to 40 m deep, known as the Cave Hill Sandstones. The current and ancestral courses of the Olinda Creek are indicated (Figure 3) by the deposits of Pleistocene to Holocene alluvium which pass to the north east and east of the activity area. The Lilydale Lake, through which the Olinda Creek currently passes near to the activity area, is a man-made structure, built in 1984.

Modelled Pre-1750 Flora

As an area of varied landscape and underlying geology, readily supplied by permanent water, the activity area would have comprised a rich environ of diverse flora capable of sustaining a wide range of fauna species, and likely represented an attractive zone of habitation to Aboriginal peoples of the past. The following briefly details the Ecological Vegetation Classes modelled as predominant in the activity area prior to 1750 by the Department of Sustainability and Environment [2] (Figure 4)

The site of Cave Hill itself was characterised by Plains Grassy Woodlands (EVC 55) – an open eucalypt woodland predominated by River Red Gum (*Eucalyptus camaldulensis*) above a sparse shrub undergrowth, and with richly varied groundcover of grass and herb species.

To the immediate south of Cave Hill, was Valley Grassy Forest (EVC 47), a relatively open forest with a variety of tree species including Yellow Bark (*Eucalyptus melliodora*), Red Stringybark (*Eucalyptus macrorhyncha*) and Narrow-leaf Peppermint (*Eucalyptus radiata*). During wetter seasons a rich array of herbs, lilies, grasses and sedges dominate the ground layer but at the drier end of the seasonal cycle the ground layer may be sparse and slightly less diverse.

Immediately southeast of Cave Hill was Herb-rich Foothill Forest (EVC 23), a forest of nearly twice the density and canopy cover of the above two classes. Characteristic species here were Narrow-leaf Peppermint (*Eucalyptus radiata*), Messmate Stringybark (*Eucalyptus obliqua*), and Mountain Grey-gum (*Eucalyptus cypellocarpa*). These stood among a moderately shrubbed midgrowth, and a highly diverse and dense ground cover of herbs and grasses.

The area currently occupied by Lilydale Lake and surrounds and the surrounds of Olinda Creek were vegetated with Swampy Riparian woodland (EVC 83). This was characterised by considerable density of shrub and understorey trees, and large tussock grasses and sedges in the ground layer. The characteristic tree species here was mountain Swamp-gum (*Eucalyptus camphora ssp. humeana*).

Further south was the low-growing Grassy Forest (EVC 128) form, with thick medium shrub layer and a diversity of herbs. Predominant tree species included Narrow-leaf Peppermint (*Eucalyptus radiata*) and Messmate Stringybark (*Eucalyptus obliqua*).

Ethnohistory of the activity area

The lives of Aboriginal groups in the wider Melbourne area were severely disrupted by the establishment and expansion of a European settlement. As a result little information is

[2] http://www.dse.vic.gov.au/conservation-and-environment/native-vegetation-groups-for-victoria/ecological-vegetation-class-evc-benchmarks-by-bioregion -accessed 25/10/2013.

available regarding the pre-contact lifestyle of Aboriginal people in the area, especially within the study area. The following section summarises major syntheses previously undertaken on Aboriginal associations with the wider Melbourne area in general, in both the pre- and post-contact periods (i.e. Clark 1990; Presland 1985).

The study area is located within the traditional language boundaries of the *Woi wurrung* (Clark 1990, Figure 13), who made up one of the seven Kulin Nation language groups. A language group consisted of independent groups of closely related kin, or 'clans', who were spiritually linked to designated areas of land through their association with topographic features connected to mythic beings or deities. Clan lands were inalienable and clan members had religious responsibilities (e.g. conducting rituals) to ensure 'the perpetuation of species associated with the particular mythic beings associated with that territory' (Berndt 1982, 4).

The closest documented clan to the study area was the Wurundjeri willam clan (meaning 'white gum tree dwellers') who were associated with the Yarra and Plenty Rivers (Clark 1990, 385). Alfred Howitt, an ethnohistorian, documented a further three divisions within the Wurundjeri willam:

1. The Wurundjeri, under the headman, Jacky Jacky, occupied the Yarra flats and the upper part of the Yarra River to its source, including the northern slopes of the Dandenong Mountains, then along Gardiner's Creek to the Yarra River, and along the Yarra River to the Darebin Creek.
2. The Kurnsje-berreing, in two subdivisions: (a) under the headman Billibillary, lived at and had the custody of the aboriginal stone quarry near Lancefield [Mt William]. They occupied the site of Melbourne and the country up the eastern side of the Saltwater River and its western branch to Mount Macedon, also the western half of the country lying between the Saltwater and Plenty Rivers; (b) under the headman Bebejan, the country on the Darebin Creek, and on the Yarra River thence to about Warrandyte, and also the watershed of the Plenty River and Diamond Creek.
3. The Boi-berrit, under their headman Bungerim, lived on the western side of the Saltwater River, with their headquarters about Sunbury, and the western end of Mount Macedon. (Howitt 1904, 71-2).

The study area occupies an zone that appears to fall within lands attributed to Bebejan who was the father of the noted and historically prominent leader William Barak (1824-1903). Barak was to become the sole *Woi wurrung ngurungaeta* [clan headman]. Much of the little ethnographic information available to us on the Wurundjeri willam is attributed to the cooperation of William Barak with the ethno-historian Howitt. Barak is believed to have been born at the Brushy Creek Gorge near the confluence of the Brushy Creek and the Yarra River in c. 1822-3. It has been documented that a European settler in Warrandyte shot *Woi wurrung* people in January 1840, and Barwick suggests that this may be the reason William Barak and his family chose to camp elsewhere (Barwick 1998, 36).

A reserve for the use of Aboriginal people (772 ha.) was established at Pound Bend, Warrandyte (approximately 11 km west of Cave Hill) in 1841 and revoked in 1861. William Thomas, an assistant Aboriginal protector, who had responsibility for the Aboriginal clans from the Melbourne area, secured the reserve.[3] It appears that the reserve was only used sporadically by Aboriginal people. No evidence has been found of rations having been

[3] A system of 'Protectors' similar to the system established by George Augustus Robinson in Tasmania was established in 1838. George Augustus Robinson was brought to the Port Phillip colony to set up the protectorate system and was assisted by four regional sub-protectors: Thomas, Parker, Dredge and Sievewright.

distributed from the depot, although Barwick revealed that Thomas requested neighbouring settlers to 'issue a pair of blankets annually and keep a small supply of flour, sugar and tea for the needy' (Barwick 1998, 36).

One of the few pieces of information available on Aboriginal attitudes and beliefs regarding the area of Cave Hill is the following item, frequently reproduced from Smyth (1878) in secondary works:

> About two miles east of Narneian or Brushy Creek (a tributary of the river Yarra), and adjacent to a small outlier of dense hard black basalt, there occurs in the Upper Silurian rocks a stratum of limestone rich in fossils. It crops out about half way between the Brushy Creek and the Running Creek. Receiving the storm waters which fall on the basaltic ridge, it has undergone decomposition, and the waters, percolating the limestone, have carried away part of the rock and formed a cave or deep chasm about 120 feet or more in depth. The occurrence of limestone in Silurian rocks of Victoria is not common, and still less common are caves or pits such as this near Narneian. The Aborigines have a legend relating to this natural opening. They call it Buk-ker-tillible. They say that it has no bottom. They threw stones into it: the stones give forth a hollow, dull sound as they strike against and rebound from the sides of the chasm, and the blacks fail to catch the last dull thud as the stones fall on the bottom. If you tell them that the bottom can be found at great depth, they say that there is a small hole not easily found which leads to greater depths – depths without end. Pund-jel, they say, made this deep hole. He was once very angry with the Yarra Blacks. They had committed deeds not pleasing to him, and he cursed a star to fall from the heavens and to strike a good many blacks, and to kill them; and the star fell deep into the earth and made the chasm which is to be seen near Narneian.
> Smyth (1878:456).

The 'stratum of limestone' referred to above was Cave Hill, which has since been quarried out of existence. Cave Hill then, would likely have represented an ideologically prominent landmark and is one of the few locations documented in European sources as associated with Aboriginal Dreamtime mythology in the Melbourne area. No historical topographic maps have been located during this study which would allow estimation of the physical prominence of Cave Hill in the local landscape. Two photographs taken in 1920 document the height of Cave Hill prior to its demolition through quarrying (Figure 5) and allow some perspective of it as a relatively prominent local high ground which allowed views of the surrounding river valley (Figure 6). When this geomorphological prominence is added to the mythological meanings attached to it, it is reasonable to propose that Cave Hill and surrounds were likely once a site of substantial importance to Aboriginal people.

Scope of Prior Assessment

The following summarises the results of Cultural Heritage Management Plans (CHMP) undertaken in the geographical region surrounding the activity area at Cave Hill Lilydale, ordered chronologically. A number of additional reports in the form of surface surveys and regional background reports are available for the geographic region. However, the Lilydale area is both of a unique geomorphological nature and as detailed in the historical section of

this report, has undergone a distinctive pattern of historical use. Therefore, it is not considered pertinent to present here a wide-ranging summary of reports which either did not investigate sub-surface conditions, or which primarily concern far broader and frequently distinct geographical areas. A clear trend appears from these studies; that land in the Lilydale area has been subject to considerable disturbance. However, where land condition has been preserved, artefacts are likely to be found at shallow depths on ridges, plateaus and hillside platforms.

Veres (2009) –AAV Report 10950.

Veres (2009) undertook study of an activity area approximately 1.6 hectares in size, located on the west bank of the Bushy Creek, and located approximately 4.5 km west of Cave Hill Lilydale. This was situated on similarly undulating land to that at Cave Hill, Lilydale and had previously been used as a commercial nursery. Visual survey did not detect any Aboriginal places and a program of complex (subsurface) testing was undertaken. This comprised excavation of one 1 m x 1 m test pit and 92 shovel test probes. No Aboriginal places were detected, and this absence was attributed to a constant level of visible, prior soil disturbance. Conclusions were that although the activity area qualified as a zone of cultural heritage sensitivity and would otherwise be expected to contain artefactual deposits, this sensitivity had been considerably mitigated through historical disturbance to land surfaces.

Lawler (2010) –AAV Report 10988

Lawler's (2010) report is the only CHMP undertaken to date within the activity area at Cave Hill, Lilydale, and was constrained to a southern portion (Area A) of the total activity area treated in this report. Despite this constraint, Lawler's (2010) findings are likely highly pertinent to future management recommendations in the activity area, as his report concerned landforms of highly similar form and apparently similar previous use, within the activity area at Cave Hill, Lilydale.

Lawler (2010) produced a simple two-part predictive model for the likely cultural sensitivity of his study area. This predicted that elevated level areas such as ridge tops and plateaus would be of high archaeological sensitivity, while steep slopes and narrow valleys would be of low sensitivity – as would be any area that had been subject to apparent disturbance.

During standard assessment, Lawler (2010) re-identified a registered Aboriginal place (VAHR) – VAHR 7922-1029, which was a series of silcrete outcroppings on a ridge, bearing evidence of quarrying by Aboriginal people. This site had been registered by Vines (2007 – unpublished, not available, referenced in Lawler 2010). During complex assessment this site was further investigated and found to be associated with subsurface low density artefact deposits. Lawler considered the site of high significance (Lawler 2010: 106). A nearby surface low density artefact deposit, also previously registered by Vines (2007) as part of VAHR 7922-1029 was deemed a separate site and re-registered as VAHR 7922-1159 (Lawler 2010: 58). Further complex testing resulted in the recording of an additional three VAHR sites, the locations of which supported the proposition of ridges and plateaus as of increased sensitivity; VAHR 7922-1160 is located on a ridge, and both VAHR 7922-1161 and VAHR 7922-1162 are located on hillside platforms. VAHR 7922-1163 is located on the lower part of a hill-slope, but was not considered by Lawler (2010) as of equivalent significance to other sites recorded.

In general, artefact densities were considered low (Lawler 2010: 58), with a total of 51 artefacts retrieved as a result of the extensive subsurface testing program employed by Lawler

(2010). The majority of artefacts were retrieved from relatively shallow deposits, at between 100 mm and 250 mm below surface. The lithic assemblage included backed microliths, which, as Lawler observed (Lawler 2010: 103), are generally considered characteristic of artefact assemblages dating to no earlier than 4500 BP.

Scibilia et al. (2010). AAV Report 11050.

Scibilia et al. (2010) studied the proposed site of a footbridge across, and largely on the east bank of the Olinda Creek. This was located approximately 1.4 km south east of the activity area at Cave Hill, Lilydale, and measured approximately 1.5 hectares in area. The location was predominantly low-lying, being in the floodplains of the creek. A program of 21 shovel test probes and one 1 m x 1 m test pit was undertaken, with the resulting identification of one subsurface artefact distribution – VAHR 7922-1181 on a small rise. One possible culturally scarred tree was also registered (VAHR 7922-1183). Artefacts were located at between 80 mm and 250 mm below surface, with the majority found between 120 mm and 240 mm depth. Although surrounds of waterbodies are generally considered of potentially high archaeological sensitivity, it is frequent to find, as did Scibilia et al. (2010), that in settled, particularly suburban areas, the immediate surrounds of creeks are considerably disturbed, thus considerably mitigating their archaeological potential (Scibilia et al. 2010: 34).

O'Connor (2010) –AAV Report 11120

O'Connor (2010) reported on a parcel of land measuring approximately 1.9 km^2, located approximately 2.4 km south west of the activity area at Cave Hill, Lilydale, and situated on the west bank of the Bushy Creek. One 1 m x 1 m test pit and four shovel test probes were excavated. All encountered very shallow soil conditions, which had been subject to considerable disturbance. No archaeological places were recorded.

Barker (2010) –AAV Report 12055

Barker (2010) studied a parcel of land measuring approximately 5.4 hectares in area, and located on low-lying land and slopes on the east bank of the Brushy Creek, approximately 2.4 km west of the activity area at Cave Hill, Lilydale. Subsurface investigation entailed two 1 m x 1 m test pits and four shovel test probes. In the western part of Barker's activity area, in the proximity of Brush Creek, land was highly disturbed, with modern fill, including modern detritus. Barker (2010) noted that the remainder of the study area was extensively waterlogged, and would unlikely have formed an attractive area for habitation to Aboriginal people in the past. No archaeological places were recorded during Barker's (2010) study.

Stone and de Rochefort (2012) –AAV Report 12055

This study concerned a small parcel of land measuring approximately 400 m^2, already substantially developed. It is situated 4 km south east of the study area at Cave Hill, Lilydale and is situated on a low lying west bank of Little Stringy Bark Creek. Subsurface investigation of one 1 m x 1 m test pit and three shovel test probes revealed consistent and high levels of soil disturbance across the site. The natural top soils had been mostly removed, and replaced with fill. No archaeological places were recorded.

Burch (2012) – AAV Report 12372

Burch (2012) studied an area of approximately 1.5 ha in size, located on the east bank of the Olinda Creek, approximately 1.3 km south west of the activity area at Cave Hill, Lilydale. On visual inspection, ground surface appeared likely to be disturbed, however given the study was within an area of cultural heritage sensitivity, subsurface investigation was undertaken. A

limited program of one 1 m x 1 m test pit and seven shovel test probes confirmed that the ground surface had been considerably disturbed with most natural topsoils removed, resulting in extremely shallow soil over base clays. No archaeological places were recorded.

Barker and Barker 2013. – AAV Report 12614

This report considered land measuring approximately 6 km^2 located approximately 2.5 km south of the activity area at Cave Hill, Lilydale, and situated on a moderate slope towards Brushy Creek. The authors encountered remnant shallow soils over bare clay, and concluded from their program of one 1 m x 1m test pit and 15 shovel test probes, that the entire property had been subject to extensive soil removal and disturbance. No archaeological places were recorded.

Existing Heritage Listings

The Victorian Aboriginal Heritage Register (VAHR) was checked for existing heritage listings within the geographic region. Their locations are illustrated in Figure 7, and sites are tabulated in Appendix 2 (Table 1).

Aboriginal Stakeholders

It is important to note that 'cultural heritage significance' as defined in the Aboriginal Heritage Act 2006 includes '(a) archaeological, anthropological, contemporary, historical, scientific, social or spiritual significance', and (b) significance in accordance with Aboriginal tradition'. All Aboriginal heritage sites are protected equally under this legislation, irrespective of significance, and consultants and development proponents are required to seek the views of Aboriginal heritage stakeholders (or Registered Aboriginal Parties [RAPs], as defined in the Act) regarding whether Aboriginal heritage sites may be disturbed in accordance with that significance.

At the initiation of this cultural heritage assessment there is no Registered Aboriginal Party (RAP) for the activity area. The Wurundjeri Tribe Land and Compensation Cultural Heritage Council Inc. is the current applicant for RAP status for the activity area having lodged application for this on 24 August 2007.

Conclusions and Findings

The activity area at Cave Hill, Lilydale is situated close to permanent water in a once diverse environment of flora and fauna that would have constituted an attractive area of habitation to Aboriginal people of the past. Cave Hill itself once comprised a local highpoint overlooking the Olinda Creek and its valley, and such highpoints are generally considered to have been preferred locations which provided vistas allowing detection of approaching persons and potential prey. The ethnographic evidence available on Aboriginal occupation of the area at European contact is scant, as is the case for most of the tribes in the vicinity of Melbourne. Nevertheless, the very rare documentation of mythological associations with this landform in the Melbourne area would indicate that Cave Hill, Lilydale, was likely held in special regard by Aboriginal people in the past. This regard may have seen Cave Hill, Lilydale less utilised than otherwise expected – due to beliefs concerning the malevolent spirit with which it is connected in Aboriginal Lore. As a result of this, the activity area may have been subject to different, possibly ritualised use, rather than viewed as a solely economic resource. Alternatively, such perceptions may have had no impact on the utilisation of resources in the activity area. Such hypotheses are plausible, but cannot be tested. Further, it must be

acknowledged that worldviews of Aboriginal people in the past did not simply divide along categories common in western thinking, such as between the economic and the ritual – as contained in the above hypotheses. Rather, both categories were frequently intertwined in a manner that renders highly problematic any attempt to comprehend the likely regard with which Cave Hill may have been held, and the uses to which it may have been put (Bradley 2008).

In assessing the past use and potential archaeological significance of Cave Hill, this report can therefore only rely on the empirical evidence available, while noting the historical documentation of the mythological significance associated with Cave Hill.

The small number of Cultural Heritage Management Plans undertaken to date in the geographical region, and that undertaken in the activity area (Lawler 2010), nevertheless produce results which give clear indication of the two most significant diagnostic factors likely to indicate high archaeological sensitivity in the geographical region. These are:

1. Localised conditions of ground disturbance or preservation due to historical use.
2. The presence of elevated level land such as ridges or platforms.

Lilydale, as a recently and relatively intensively developed residential area, with a past of intensive market gardening, nurseries and orchards, has in large parts undergone considerable ground disturbance. This was readily noted in archaeological reports, generally for small residential or infrastructure developments. All of these smaller reports observed the total or considerable absence of natural topsoils and frequently, the deposition of modern detritus-bearing fill (Barker 2010; Barker and Barker 2013Burch (2012) O'Connor 2010; Scibilia et al. 2010; Stone and de Rochefort 2012; Veres 2009). Only one of these reports (Scibilia et al. 2010) encountered archaeological artefacts, and these were located in a localised elevated area within a creek reserve. The presence of scarred trees in the geographic region, with no immediately or locally associated lithic artefact finds, further indicates that the archaeological record of the area has been considerably disturbed, resulting in the preferential preservation of scarred trees and the likely destruction of surface or sub-surface artefact deposits.

Lawler's (2010) study of a southern section of the activity area at Cave Hill produced results in strong contrast to all the above local reports. Lawler's study area was within lands that had long been reserved, associated with the Cave Hill Limestone Quarry, and as such appear to have been protected from the intensive land-disturbance common through the immediately adjoining areas of Lilydale and noted in the archaeological studies above. Lawler (2010) registered six VAHR, including in-situ surface, sub-surface and outcrop sites. These VAHR were all located on ridges or elevated plateaus. Artefact densities at these sites were not considered high by Lawler. Nevertheless, the number of sites registered is notable. The nature of one site (a silcrete outcrop / quarry) is significant and may justify expectation of larger quantities of artefacts in the broader activity area, as not infrequently lithic reduction activities (knapping) were undertaken by Aboriginal people, at a remove from the point of primary extraction.

Given similar conditions of historical activity in the broader activity area at Cave Hill Limestone Quarry, Lilydale, it is highly likely that archaeological sites will be present, in particular on elevated plateaus or ridges. At least two such ridges are readily apparent in land between Mooroolbark Road to the west and the Lilydale Railway to the east, immediately north of Lawler's (2010) study area. These and other similar landforms not readily detectable from maps and aerial images, satisfy the criteria for high archaeological sensitivity as based on the limited comparative information available to inform this report.

Implications for Development

The following sections outline the triggers and issues which will affect the proposed works in relation to the *Aboriginal Heritage Act* 2006 and *Aboriginal Heritage Regulations* 2007, specifically as these relate to the need to undertake a mandatory Cultural Heritage Management Plan.

When is a cultural heritage management plan required?

A CHMP is required for an activity if (Regulation 6)-

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and

(b) all or part of the activity is a high impact activity.

Is the activity area an area of cultural heritage sensitivity?

The activity area contains areas of cultural heritage sensitivity associated with previously registered Aboriginal cultural heritage places as per r.22.

Regulation 22 Registered cultural heritage places

(1) A registered cultural heritage place is an area of cultural heritage sensitivity.

(2) Subject to subregulation (3), land within 50 metres of a registered cultural heritage place is an area of cultural heritage sensitivity.

(3) If part of the land within 50 metres of a registered cultural heritage place has been subject to significant ground disturbance, that part is not an area of cultural heritage sensitivity.

Previously registered Aboriginal cultural heritage places are restricted to the southern portion of the activity area where an approved CHMP has been prepared previously. The preparation of this CHMP resulted in the identification of a number of sites discussed in greater detail earlier in this report.

There are no other defined areas of cultural heritage sensitivity within the activity area and as a consequence the existence of triggers for a mandatory CHMP within the activity is highly discrete and localised.

Has the activity area been subject to significant ground disturbance?

According to Regulation 4 - Definitions

significant ground disturbance means disturbance of -

(a) the top soil or surface rock layer of the ground; or

(b) a waterway –

by machinery in the course of grading, excavating, digging or dredging

According to the 'Aboriginal Heritage Act 2006 Practice Note: Significant Ground Disturbance',

significant ground disturbance can be established in four principal ways:

Level 1 – Common knowledge

The fact that land has been subject to significant ground disturbance may be common knowledge. Very little or no additional information should be required from the responsible authority.

For example, common knowledge about the redevelopment of a petrol station with extensive underground storage tanks.

Level 2 – Publicly available records

If the existence of significant ground disturbance is not common knowledge, a responsible authority may be able to provide assistance from its own records about prior development and use of land, or advise the applicant about other publicly available records, including aerial photographs.

These documents may allow a reasonable inference to be made that the land has been subject to significant ground disturbance.

In such event, no further inquiries or information would be needed by the responsible authority. The particular records and facts relied upon should be noted by the responsible authority as a matter of record.

For example, a former quarry site subsequently filled, but where the public records show the area of past excavation.

Level 3 – Further information

If 'common knowledge' or 'publicly available records' do not provide sufficient information about the occurrence of significant ground disturbance, the applicant may need to present further evidence either voluntarily or following a formal request from the responsible authority. Further evidence could consist of land use history documents, old maps or photographs of the land or statements by former landowners or occupiers. Statements should be provided by statutory declaration or similar means.

For example, the construction of a former dam on a farm.

Level 4 – Expert advice or opinion

If these levels of inquiry do not provide sufficient evidence of significant ground disturbance (or as an alternative to level 3), the applicant may submit or be asked to submit a professional report with expert advice or opinion from a person with appropriate skills and experience.

Depending on the circumstances, this may involve a site inspection and/or a review of primary documents. If there is sufficient uncertainty some preliminary sub-surface excavation may be warranted.

The disturbance of substantial portions of the activity area can be readily demonstrated at Level 1 – Common knowledge and Level 2 – Publicly available records under the hierarchy established by the *'Aboriginal Heritage Act 2006 Practice Note: Significant Ground Disturbance'*. Areas within the main works area of the quarry, including areas occupied by spoil heaps have all been clearly subject to significant ground disturbance, however, it appears that those areas situated outside of these works zones have not been subject to disturbance as per the definition contained within the *Aboriginal Heritage Regulations* 2007.

Is the activity a high impact activity?

While it is unclear exactly what the final suite of activities proposed for the activity area will consist of it is considered likely that at least some of these activities will comprise high impact activities in accordance with the Aboriginal *Heritage Regulations* 2007.

Will a cultural heritage management plan be required for proposed works in the activity area?

Given the general absence of areas of cultural heritage sensitivity within activity area one of the two triggers required to make a CHMP mandatory are essentially absent from the majority of the activity area. Where areas of cultural heritage sensitivity are present, in association with registered Aboriginal cultural heritage places, these places are subject to the recommendations of a previously prepared CHMP and as a consequence a subsequent CHMP will likely not be required. This will likely hold unless the proposed activity in that part of the activity area containing these sites is radically altered from that which the previous CHMP was prepared for.

On this basis then it is my professional opinion that a mandatory CHMP is not required for the proposed redevelopment and reuse of the Cave Hill Quarry land.

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APPENDIX 1

FIGURES

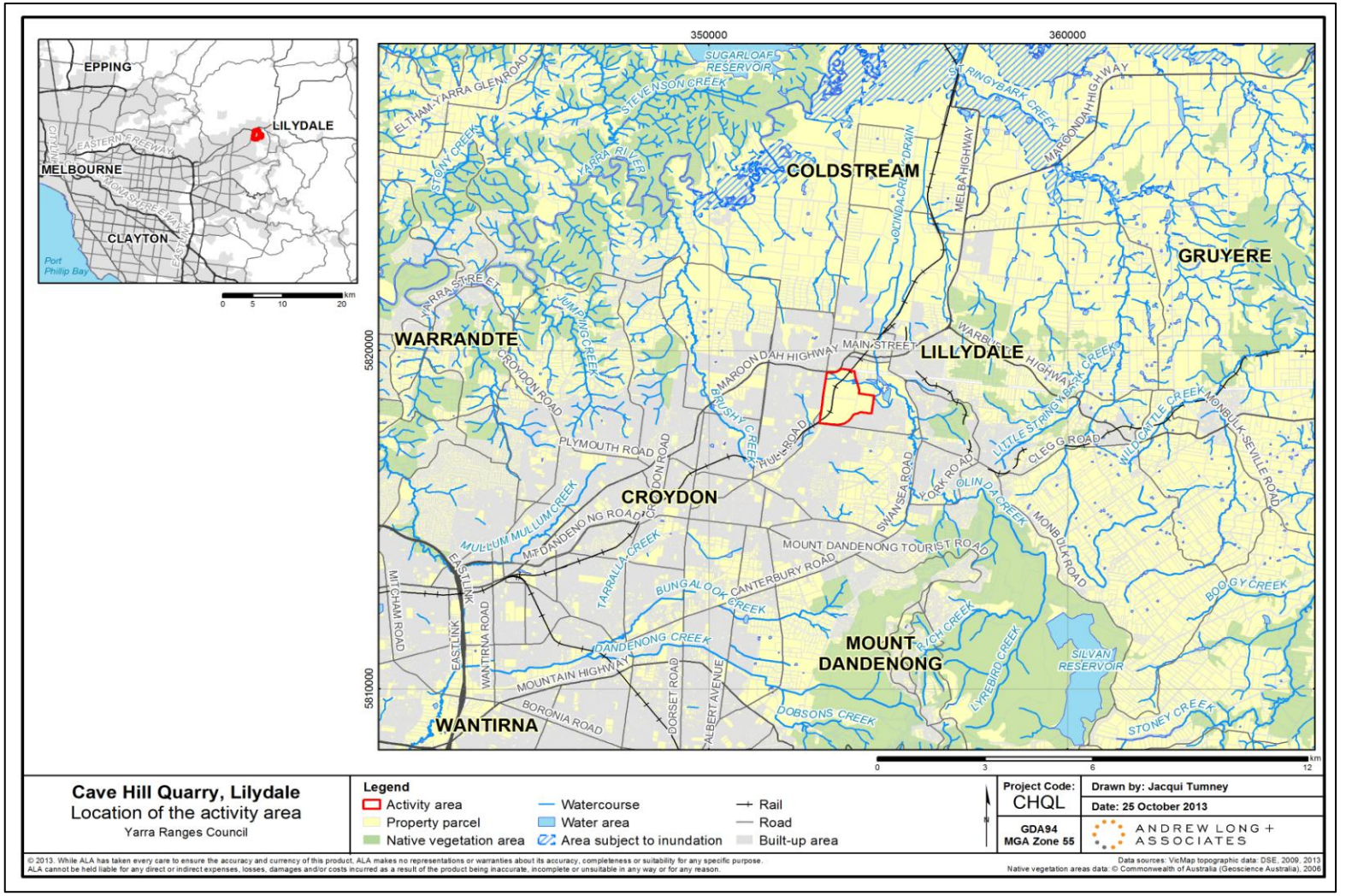

Figure 1 -Location of Activity Area

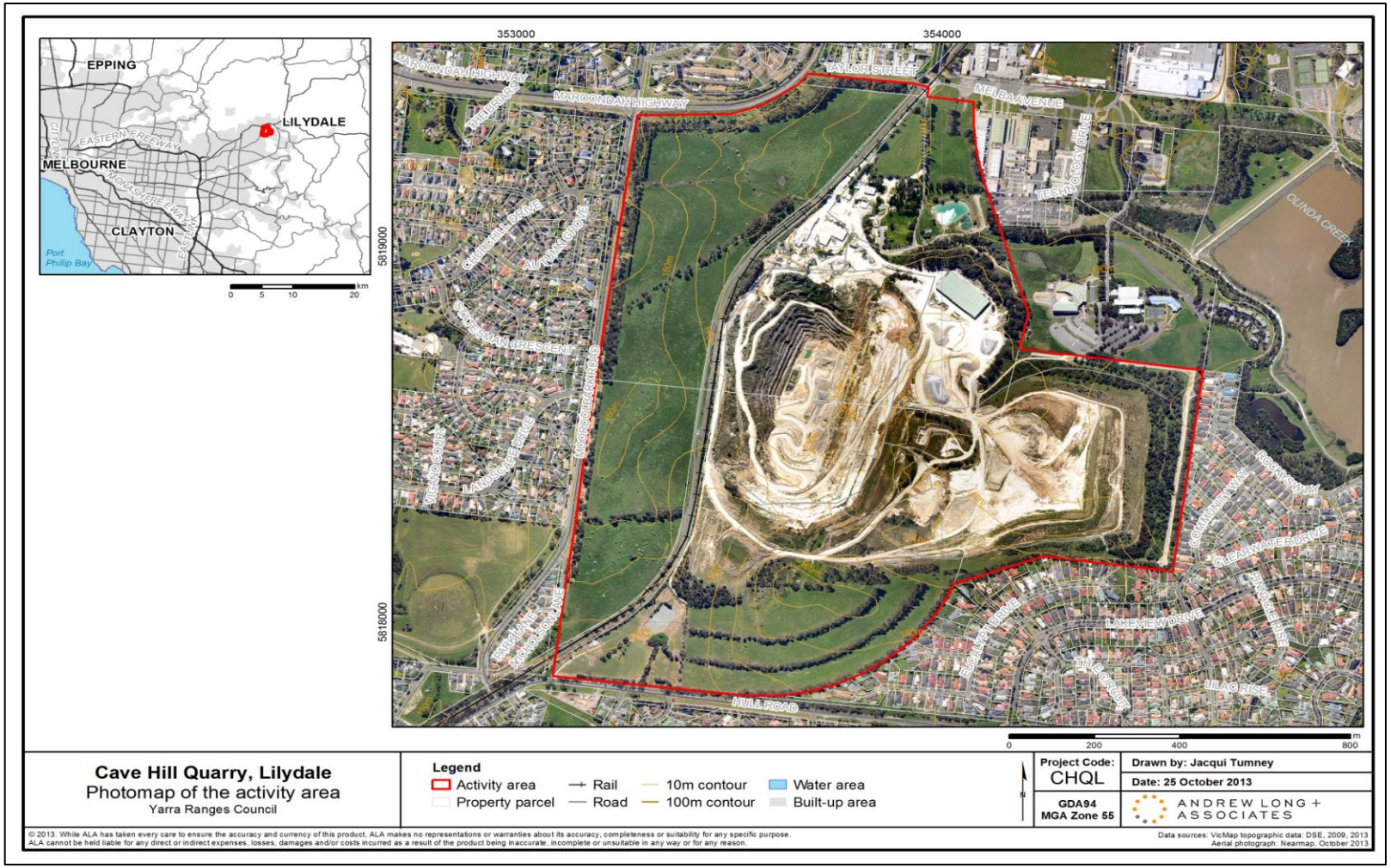

Figure 2 Photomap of Activity Area

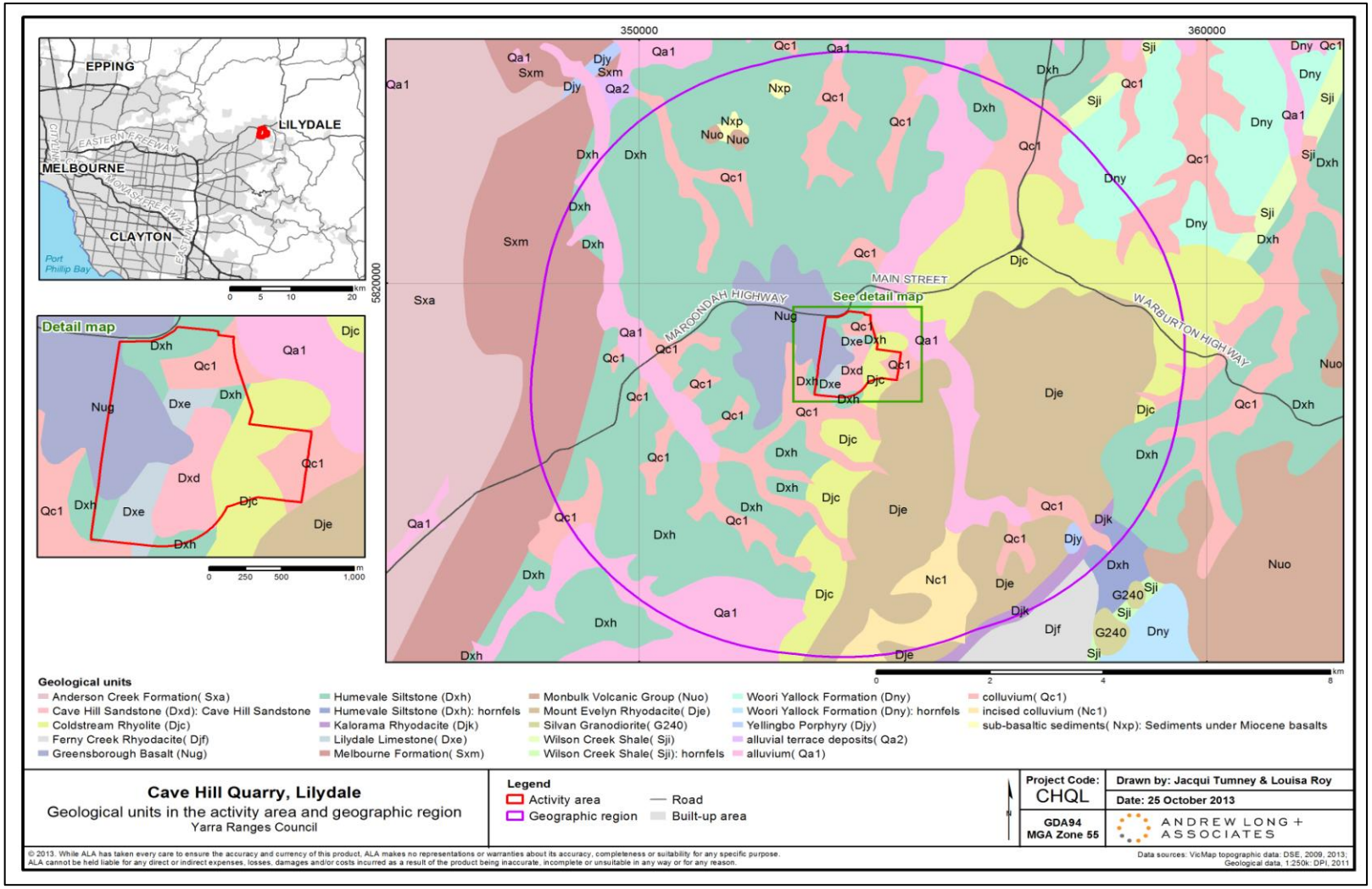

Figure 3 - Geological Region of this report

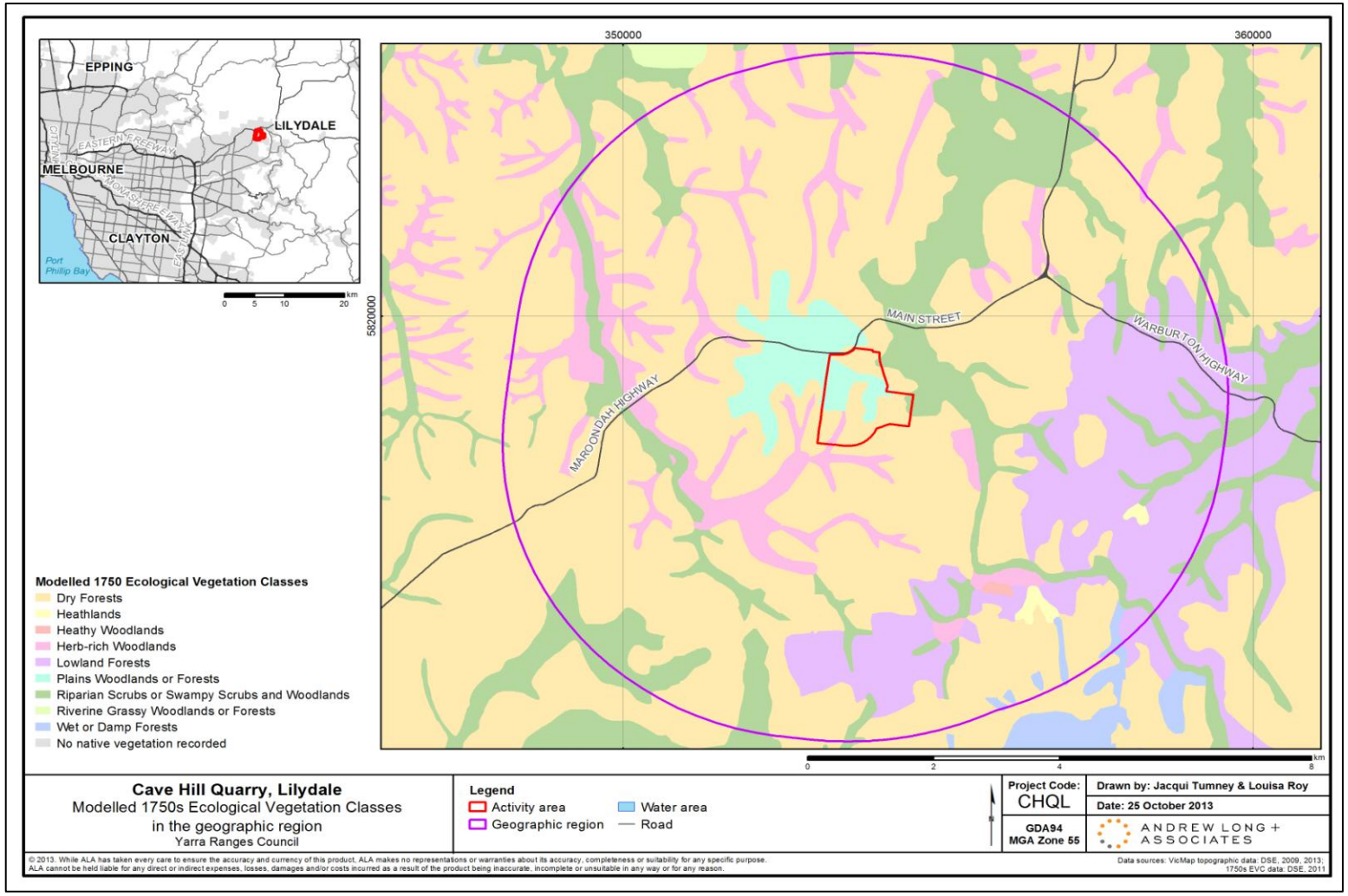

Figure 4 - Ecological Vegetation Classes

Figure 5 -Cave Hill, 1920. View towards Mt Dandenong (NLA online collections).

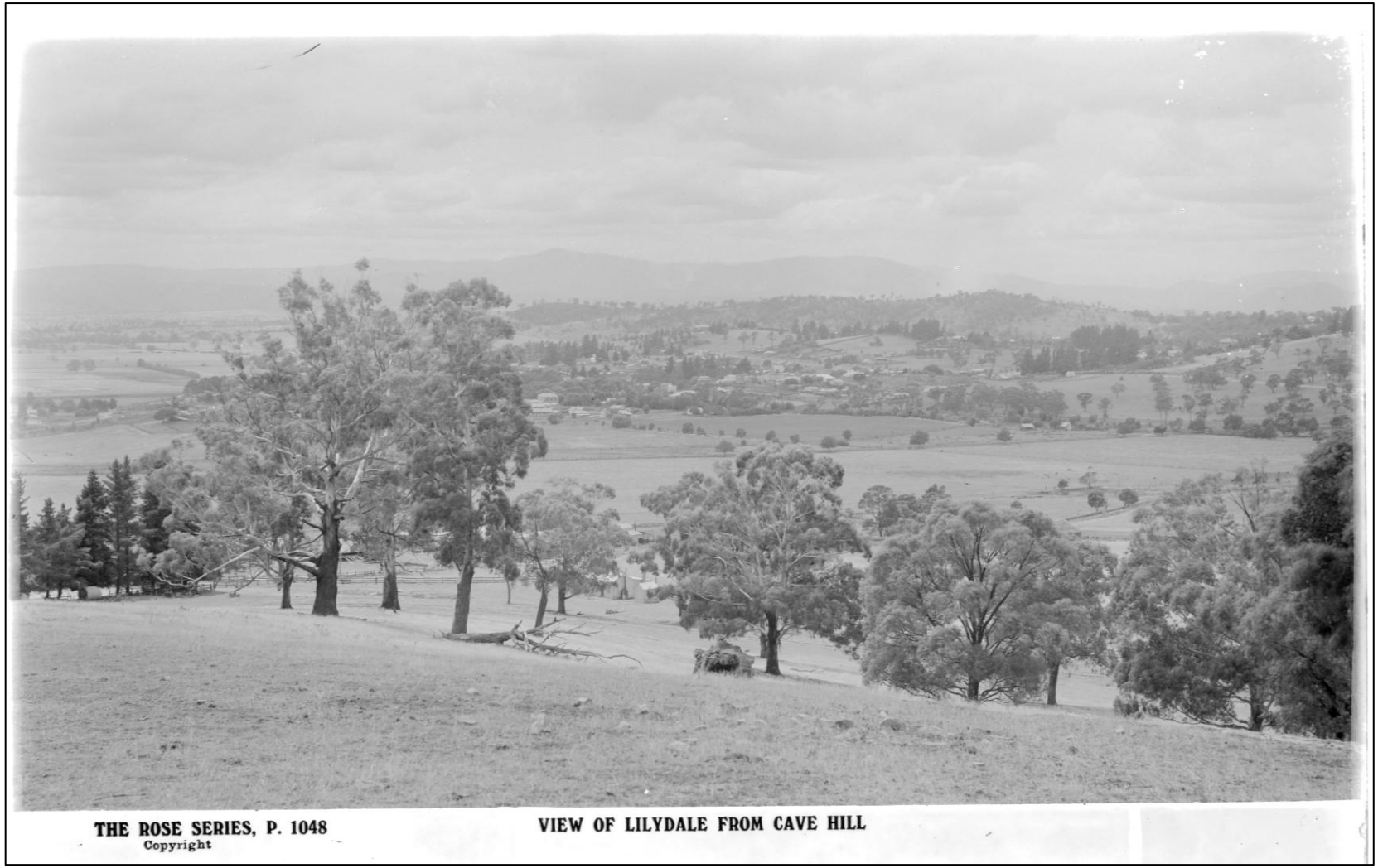

Figure 6- Cave Hill, 1920. View to north/north west.

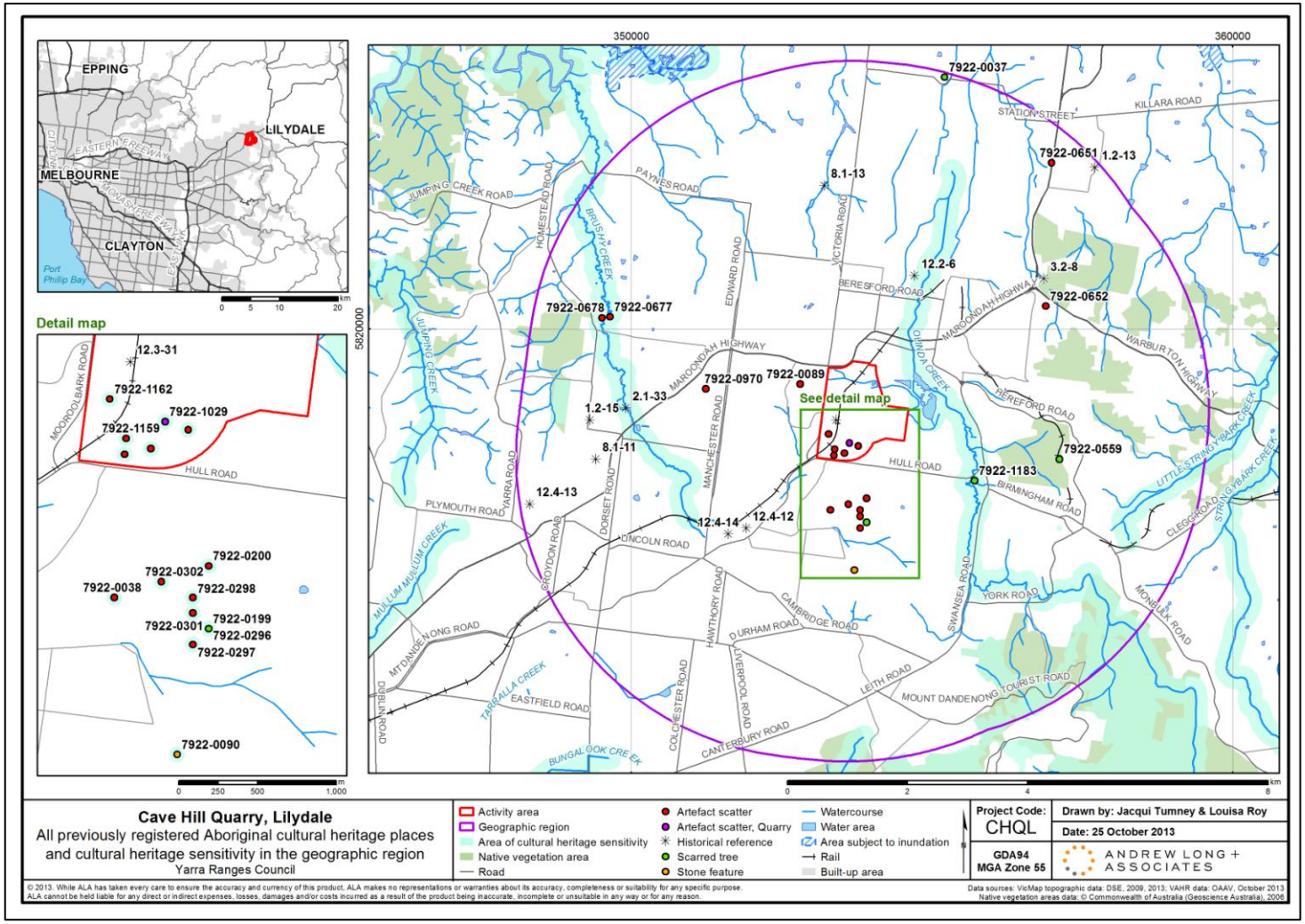

Figure 7 -VAHR in Geographic Region

APPENDIX 2
Registered Aboriginal Places

Table 1 - -Registered Aboriginal places (VAHR) within the Geographic region. Sites within Cave Hill activity area in red.

VAHR	Name	Type	Easting	Northing	Zone	Description	Context
1.2-15	Wonga Park Cattle Station	Historical reference	349313.3	5818484	55	1.2 Properties where people are known to have worked	
1.2-13	Jedburgh Park	Historical reference	357713.3	5822684	55	1.2 Properties where people are known to have worked	
12.2-6	Olinda Creek Campsite	Historical reference	354713.2	5820884	55	12.2 Camp sites/meeting places	
12.4-13	Birt's Hill Corroboree Ground	Historical reference	348313.3	5817084	55	12.3 Spiritual places	
12.3-31	Lilydale Quarry	Historical reference	353413.8	5818484	55	12.3 Spiritual places	
12.4-14	White Gums Estate Corroboree Ground, Mooroolbark	Historical reference	351613	5816584	55	12.4 Ceremonial places	
12.4-12	Brice Avenue Reserve Corroboree Ground, Mooroolbark	Historical reference	351913.6	5816684	55	12.4 Ceremonial places	
2.1-33	Brushy Creek (Croydon North) Camp	Historical reference	349913.3	5818684	55	2.1 Places where people camped/lived around towns	
3.2-8	Rosemont Reserve Camp	Historical reference	356863	5820834	55	3.2 places where people lived in forests	
8.1-11	Brushy Creek Shooting	Historical reference	349412.6	5817834	55	8.1 Places where Aboriginal people were killed/assaulted/threatened by Europeans	
8.1-13	Gardiner's Station Sheep Station Incident	Historical reference	353212.6	5822384	55	8.1 Places where Aboriginal people were killed/assaulted/threatened by Europeans	
7922-0297	DEFELICE 2	Archaeological	353812	5816684	55	Isolated surface artefact	Hillside

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VAHR	Name	Type	Easting	Northing	Zone	Description	Context
7922-0296	DEFELICE 1	Archaeological	353912	5816784	55	Surface artefacts	Hillside
7922-0301	HILL TOP	Archaeological	353812	5816884	55	Subsurface artefacts	Hilltop
7922-0038	MOOROOLBARK	Archaeological	353312	5816984	55	Destroyed site – surface artefacts	Hillside
7922-0298	DEFELICE 3	Archaeological	353812	5816984	55	Isolated surface artefact	Hillside
7922-0302	HILL BASE	Archaeological	353612	5817084	55	Subsurface artefacts	Hilltop
7922-0200	M G 1	Archaeological	353912	5817184	55	Surface artefacts	Undulating
7922-1163	LILYDALE QUARRY 6	Archaeological	353377	5817895	55	Surface artefacts	Hillside
7922-1161	LILYDALE QUARRY 4	Archaeological	353544	5817931	55	Subsurface artefacts	Elevated plateau
7922-1159	LILYDALE QUARRY 2	Archaeological	353387	5817996	55	Isolated surface artefact	Hillside
7922-1160	LILYDALE QUARRY 3	Archaeological	353782	5818051	55	Isolated surface artefact	Hill ridge
7922-1029	LILYDALE QUARRY 1	Archaeological	353634	5818102	55	Silcrete outcrop, surface & subsurface artefacts	Hill ridge
7922-1162	LILYDALE QUARRY 5	Archaeological	353284	5818246	55	Subsurface artefacts	Hill ridge
7922-0970	MOOROOLBARK DUMPED ARTEFACT SCATTER	Archaeological	351244	5819004	55	Out of context artefacts	Out of context
7922-0089	EASTWOOD AVE/THE BRIARS	Scarred Tree	352812	5819084	55	Dead tree – one scar	Creek bank
7922-0678	BRUSHY CREEK 2	Archaeological	349518	5820183	55	Isolated surface artefact	Flood plain
7922-0677	BRUSHY CREEK 1	Archaeological	349645	5820200	55	Out of context artefact	Out of context
7922-0652	MAROONDAH HWY SAS1	Archaeological	356892	5820374	55	Surface artefacts	Hillside
7922-0651	MAROONDAH HWY IA1	Archaeological	356992	5822763	55	Isolated surface artefact	Undulating
7922-0199	BILLANOOK 1	Scarred Tree	353912	5816784	55	Dead tree – one scar	Undulating
7922-1183	OLINDA CREEK RESERVE SCARRED TREE 1	Scarred Tree	355710	5817477	55	Dead tree- one scar	Creek side
7922-0559	Mt Evelyn Railway	Scarred Tree	357123	5817834	55	One scar	Hillslope
7922-0037	MOUNT MARY	Scarred Tree	355212	5824184	55	One scar	Plateau
7922-0090	CARDIGAN RD	Stone Arrangement	353712	5815984	55	Stone arrangement – ritual?	Undulating

Cave Hill Quarry Aboriginal Heritage Assessment

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29/10/2013

Introduction

The following report presents a desktop audit and assessment of known and predicted Aboriginal cultural heritage values in the area of Cave Hill Quarry, Lilydale to inform wider heritage assessment preliminary to proposed residential development of the Cave Hill Quarry. Findings and recommendations are presented in the conclusion of this report.

The Activity Area

The activity area is situated approximately 35 km north east of the Melbourne Central Business District and is approximately 1.7 km^2 in size (Figure 1- all figures in Appendix 1). It currently contains a large limestone quarry and is bisected by the Lilydale rail line (Figure 2).

The geological area for this study has been defined as an arbitrary 5 km radius centred on the activity area (Figure 3). This contains a complex set of geological units which here form elements of the East Victorian Dissected Uplands. The broader Lilydale area is located within the physiographic unit called the Nillumbik plateau, which was moderately uplifted in the late Tertiary (38 to 1.6 million years ago) and has a relatively subdued relief, dissected by the Yarra River and its tributaries. The plateau ranges from less than 100 m elevation near Melbourne to about 300 m elevation near Gembrook. The geology of the plateau is predominantly comprised of Silurian sedimentary rock of laminated and current-bedded sandstone, mudstone and shale[1].

At a finer scale, the activity area is located within the Olinda Creek Upper Catchment Region, which incorporates the ranges at the head of the Olinda Creek, from Lilydale to Mt Evelyn. The chief geomorphological feature of this region is the Olinda Creek valley, with wetland flats along its floodplain, surrounded by prominent dissected ranges. The activity area itself comprises rolling hills draining into the Olinda Creek which passes to the north east and east, with the Melba Avenue Drain intersecting the activity area in the north before feeding into the Olinda Creek.

[1] http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim –accessed 28/10/2013

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The distinguishing geological feature of the activity area, which has resulted in quarrying, is the presence of a lens of oolitic limestone approximately 220 metres thick, which formed the now destroyed Cave Hill. This lens lies beneath sandstones, at times 30 m to 40 m deep, known as the Cave Hill Sandstones. The current and ancestral courses of the Olinda Creek are indicated (Figure 3) by the deposits of Pleistocene to Holocene alluvium which pass to the north east and east of the activity area. The Lilydale Lake, through which the Olinda Creek currently passes near to the activity area, is a man-made structure, built in 1984.

Modelled Pre-1750 Flora

As an area of varied landscape and underlying geology, readily supplied by permanent water, the activity area would have comprised a rich environ of diverse flora capable of sustaining a wide range of fauna species, and likely represented an attractive zone of habitation to Aboriginal peoples of the past. The following briefly details the Ecological Vegetation Classes modelled as predominant in the activity area prior to 1750 by the Department of Sustainability and Environment [2] (Figure 4)

The site of Cave Hill itself was characterised by Plains Grassy Woodlands (EVC 55) – an open eucalypt woodland predominated by River Red Gum (*Eucalyptus camaldulensis*) above a sparse shrub undergrowth, and with richly varied groundcover of grass and herb species.

To the immediate south of Cave Hill, was Valley Grassy Forest (EVC 47), a relatively open forest with a variety of tree species including Yellow Bark (*Eucalyptus melliodora*), Red Stringybark (*Eucalyptus macrorhyncha*) and Narrow-leaf Peppermint (*Eucalyptus radiata*). During wetter seasons a rich array of herbs, lilies, grasses and sedges dominate the ground layer but at the drier end of the seasonal cycle the ground layer may be sparse and slightly less diverse.

Immediately southeast of Cave Hill was Herb-rich Foothill Forest (EVC 23), a forest of nearly twice the density and canopy cover of the above two classes. Characteristic species here were Narrow-leaf Peppermint (*Eucalyptus radiata*), Messmate Stringybark (*Eucalyptus obliqua*), and Mountain Grey-gum (*Eucalyptus cypellocarpa*). These stood among a moderately shrubbed midgrowth, and a highly diverse and dense ground cover of herbs and grasses.

The area currently occupied by Lilydale Lake and surrounds and the surrounds of Olinda Creek were vegetated with Swampy Riparian woodland (EVC 83). This was characterised by considerable density of shrub and understorey trees, and large tussock grasses and sedges in the ground layer. The characteristic tree species here was mountain Swamp-gum (*Eucalyptus camphora ssp. humeana*).

Further south was the low-growing Grassy Forest (EVC 128) form, with thick medium shrub layer and a diversity of herbs. Predominant tree species included Narrow-leaf Peppermint (*Eucalyptus radiata*) and Messmate Stringybark (*Eucalyptus obliqua*).

Ethnohistory of the activity area

The lives of Aboriginal groups in the wider Melbourne area were severely disrupted by the establishment and expansion of a European settlement. As a result little information is

[2] http://www.dse.vic.gov.au/conservation-and-environment/native-vegetation-groups-for-victoria/ecological-vegetation-class-evc-benchmarks-by-bioregion -accessed 25/10/2013.

available regarding the pre-contact lifestyle of Aboriginal people in the area, especially within the study area. The following section summarises major syntheses previously undertaken on Aboriginal associations with the wider Melbourne area in general, in both the pre- and post-contact periods (i.e. Clark 1990; Presland 1985).

The study area is located within the traditional language boundaries of the *Woi wurrung* (Clark 1990, Figure 13), who made up one of the seven Kulin Nation language groups. A language group consisted of independent groups of closely related kin, or 'clans', who were spiritually linked to designated areas of land through their association with topographic features connected to mythic beings or deities. Clan lands were inalienable and clan members had religious responsibilities (e.g. conducting rituals) to ensure 'the perpetuation of species associated with the particular mythic beings associated with that territory' (Berndt 1982, 4).

The closest documented clan to the study area was the Wurundjeri willam clan (meaning 'white gum tree dwellers') who were associated with the Yarra and Plenty Rivers (Clark 1990, 385). Alfred Howitt, an ethnohistorian, documented a further three divisions within the Wurundjeri willam:

1. The Wurundjeri, under the headman, Jacky Jacky, occupied the Yarra flats and the upper part of the Yarra River to its source, including the northern slopes of the Dandenong Mountains, then along Gardiner's Creek to the Yarra River, and along the Yarra River to the Darebin Creek.
2. The Kurnsje-berreing, in two subdivisions: (a) under the headman Billibillary, lived at and had the custody of the aboriginal stone quarry near Lancefield [Mt William]. They occupied the site of Melbourne and the country up the eastern side of the Saltwater River and its western branch to Mount Macedon, also the western half of the country lying between the Saltwater and Plenty Rivers; (b) under the headman Bebejan, the country on the Darebin Creek, and on the Yarra River thence to about Warrandyte, and also the watershed of the Plenty River and Diamond Creek.
3. The Boi-berrit, under their headman Bungerim, lived on the western side of the Saltwater River, with their headquarters about Sunbury, and the western end of Mount Macedon. (Howitt 1904, 71-2).

The study area occupies an zone that appears to fall within lands attributed to Bebejan who was the father of the noted and historically prominent leader William Barak (1824-1903). Barak was to become the sole *Woi wurrung ngurungaeta* [clan headman]. Much of the little ethnographic information available to us on the Wurundjeri willam is attributed to the cooperation of William Barak with the ethno-historian Howitt. Barak is believed to have been born at the Brushy Creek Gorge near the confluence of the Brushy Creek and the Yarra River in c. 1822-3. It has been documented that a European settler in Warrandyte shot *Woi wurrung* people in January 1840, and Barwick suggests that this may be the reason William Barak and his family chose to camp elsewhere (Barwick 1998, 36).

A reserve for the use of Aboriginal people (772 ha.) was established at Pound Bend, Warrandyte (approximately 11 km west of Cave Hill) in 1841 and revoked in 1861. William Thomas, an assistant Aboriginal protector, who had responsibility for the Aboriginal clans from the Melbourne area, secured the reserve.[3] It appears that the reserve was only used sporadically by Aboriginal people. No evidence has been found of rations having been

[3] A system of 'Protectors' similar to the system established by George Augustus Robinson in Tasmania was established in 1838. George Augustus Robinson was brought to the Port Phillip colony to set up the protectorate system and was assisted by four regional sub-protectors: Thomas, Parker, Dredge and Sievewright.

distributed from the depot, although Barwick revealed that Thomas requested neighbouring settlers to 'issue a pair of blankets annually and keep a small supply of flour, sugar and tea for the needy' (Barwick 1998, 36).

One of the few pieces of information available on Aboriginal attitudes and beliefs regarding the area of Cave Hill is the following item, frequently reproduced from Smyth (1878) in secondary works:

> About two miles east of Narneian or Brushy Creek (a tributary of the river Yarra), and adjacent to a small outlier of dense hard black basalt, there occurs in the Upper Silurian rocks a stratum of limestone rich in fossils. It crops out about half way between the Brushy Creek and the Running Creek. Receiving the storm waters which fall on the basaltic ridge, it has undergone decomposition, and the waters, percolating the limestone, have carried away part of the rock and formed a cave or deep chasm about 120 feet or more in depth. The occurrence of limestone in Silurian rocks of Victoria is not common, and still less common are caves or pits such as this near Narneian. The Aborigines have a legend relating to this natural opening. They call it Buk-ker-tillible. They say that it has no bottom. They threw stones into it: the stones give forth a hollow, dull sound as they strike against and rebound from the sides of the chasm, and the blacks fail to catch the last dull thud as the stones fall on the bottom. If you tell them that the bottom can be found at great depth, they say that there is a small hole not easily found which leads to greater depths – depths without end. Pund-jel, they say, made this deep hole. He was once very angry with the Yarra Blacks. They had committed deeds not pleasing to him, and he cursed a star to fall from the heavens and to strike a good many blacks, and to kill them; and the star fell deep into the earth and made the chasm which is to be seen near Narneian.
> Smyth (1878:456).

The 'stratum of limestone' referred to above was Cave Hill, which has since been quarried out of existence. Cave Hill then, would likely have represented an ideologically prominent landmark and is one of the few locations documented in European sources as associated with Aboriginal Dreamtime mythology in the Melbourne area. No historical topographic maps have been located during this study which would allow estimation of the physical prominence of Cave Hill in the local landscape. Two photographs taken in 1920 document the height of Cave Hill prior to its demolition through quarrying (Figure 5) and allow some perspective of it as a relatively prominent local high ground which allowed views of the surrounding river valley (Figure 6). When this geomorphological prominence is added to the mythological meanings attached to it, it is reasonable to propose that Cave Hill and surrounds were likely once a site of substantial importance to Aboriginal people.

Scope of Prior Assessment

The following summarises the results of Cultural Heritage Management Plans (CHMP) undertaken in the geographical region surrounding the activity area at Cave Hill Lilydale, ordered chronologically. A number of additional reports in the form of surface surveys and regional background reports are available for the geographic region. However, the Lilydale area is both of a unique geomorphological nature and as detailed in the historical section of

this report, has undergone a distinctive pattern of historical use. Therefore, it is not considered pertinent to present here a wide-ranging summary of reports which either did not investigate sub-surface conditions, or which primarily concern far broader and frequently distinct geographical areas. A clear trend appears from these studies; that land in the Lilydale area has been subject to considerable disturbance. However, where land condition has been preserved, artefacts are likely to be found at shallow depths on ridges, plateaus and hillside platforms.

Veres (2009) –AAV Report 10950.

Veres (2009) undertook study of an activity area approximately 1.6 hectares in size, located on the west bank of the Bushy Creek, and located approximately 4.5 km west of Cave Hill Lilydale. This was situated on similarly undulating land to that at Cave Hill, Lilydale and had previously been used as a commercial nursery. Visual survey did not detect any Aboriginal places and a program of complex (subsurface) testing was undertaken. This comprised excavation of one 1 m x 1 m test pit and 92 shovel test probes. No Aboriginal places were detected, and this absence was attributed to a constant level of visible, prior soil disturbance. Conclusions were that although the activity area qualified as a zone of cultural heritage sensitivity and would otherwise be expected to contain artefactual deposits, this sensitivity had been considerably mitigated through historical disturbance to land surfaces.

Lawler (2010) –AAV Report 10988

Lawler's (2010) report is the only CHMP undertaken to date within the activity area at Cave Hill, Lilydale, and was constrained to a southern portion (Area A) of the total activity area treated in this report. Despite this constraint, Lawler's (2010) findings are likely highly pertinent to future management recommendations in the activity area, as his report concerned landforms of highly similar form and apparently similar previous use, within the activity area at Cave Hill, Lilydale.

Lawler (2010) produced a simple two-part predictive model for the likely cultural sensitivity of his study area. This predicted that elevated level areas such as ridge tops and plateaus would be of high archaeological sensitivity, while steep slopes and narrow valleys would be of low sensitivity – as would be any area that had been subject to apparent disturbance.

During standard assessment, Lawler (2010) re-identified a registered Aboriginal place (VAHR) – VAHR 7922-1029, which was a series of silcrete outcroppings on a ridge, bearing evidence of quarrying by Aboriginal people. This site had been registered by Vines (2007 – unpublished, not available, referenced in Lawler 2010). During complex assessment this site was further investigated and found to be associated with subsurface low density artefact deposits. Lawler considered the site of high significance (Lawler 2010: 106). A nearby surface low density artefact deposit, also previously registered by Vines (2007) as part of VAHR 7922-1029 was deemed a separate site and re-registered as VAHR 7922-1159 (Lawler 2010: 58). Further complex testing resulted in the recording of an additional three VAHR sites, the locations of which supported the proposition of ridges and plateaus as of increased sensitivity; VAHR 7922-1160 is located on a ridge, and both VAHR 7922-1161 and VAHR 7922-1162 are located on hillside platforms. VAHR 7922-1163 is located on the lower part of a hill-slope, but was not considered by Lawler (2010) as of equivalent significance to other sites recorded.

In general, artefact densities were considered low (Lawler 2010: 58), with a total of 51 artefacts retrieved as a result of the extensive subsurface testing program employed by Lawler

(2010). The majority of artefacts were retrieved from relatively shallow deposits, at between 100 mm and 250 mm below surface. The lithic assemblage included backed microliths, which, as Lawler observed (Lawler 2010: 103), are generally considered characteristic of artefact assemblages dating to no earlier than 4500 BP.

Scibilia et al. (2010). AAV Report 11050.

Scibilia et al. (2010) studied the proposed site of a footbridge across, and largely on the east bank of the Olinda Creek. This was located approximately 1.4 km south east of the activity area at Cave Hill, Lilydale, and measured approximately 1.5 hectares in area. The location was predominantly low-lying, being in the floodplains of the creek. A program of 21 shovel test probes and one 1 m x 1 m test pit was undertaken, with the resulting identification of one subsurface artefact distribution – VAHR 7922-1181 on a small rise. One possible culturally scarred tree was also registered (VAHR 7922-1183). Artefacts were located at between 80 mm and 250 mm below surface, with the majority found between 120 mm and 240 mm depth. Although surrounds of waterbodies are generally considered of potentially high archaeological sensitivity, it is frequent to find, as did Scibilia et al. (2010), that in settled, particularly suburban areas, the immediate surrounds of creeks are considerably disturbed, thus considerably mitigating their archaeological potential (Scibilia et al. 2010: 34).

O'Connor (2010) –AAV Report 11120

O'Connor (2010) reported on a parcel of land measuring approximately 1.9 km^2, located approximately 2.4 km south west of the activity area at Cave Hill, Lilydale, and situated on the west bank of the Bushy Creek. One 1 m x 1 m test pit and four shovel test probes were excavated. All encountered very shallow soil conditions, which had been subject to considerable disturbance. No archaeological places were recorded.

Barker (2010) –AAV Report 12055

Barker (2010) studied a parcel of land measuring approximately 5.4 hectares in area, and located on low-lying land and slopes on the east bank of the Brushy Creek, approximately 2.4 km west of the activity area at Cave Hill, Lilydale. Subsurface investigation entailed two 1 m x 1 m test pits and four shovel test probes. In the western part of Barker's activity area, in the proximity of Brush Creek, land was highly disturbed, with modern fill, including modern detritus. Barker (2010) noted that the remainder of the study area was extensively waterlogged, and would unlikely have formed an attractive area for habitation to Aboriginal people in the past. No archaeological places were recorded during Barker's (2010) study.

Stone and de Rochefort (2012) –AAV Report 12055

This study concerned a small parcel of land measuring approximately 400 m^2, already substantially developed. It is situated 4 km south east of the study area at Cave Hill, Lilydale and is situated on a low lying west bank of Little Stringy Bark Creek. Subsurface investigation of one 1 m x 1 m test pit and three shovel test probes revealed consistent and high levels of soil disturbance across the site. The natural top soils had been mostly removed, and replaced with fill. No archaeological places were recorded.

Burch (2012) – AAV Report 12372

Burch (2012) studied an area of approximately 1.5 ha in size, located on the east bank of the Olinda Creek, approximately 1.3 km south west of the activity area at Cave Hill, Lilydale. On visual inspection, ground surface appeared likely to be disturbed, however given the study was within an area of cultural heritage sensitivity, subsurface investigation was undertaken. A

limited program of one 1 m x 1 m test pit and seven shovel test probes confirmed that the ground surface had been considerably disturbed with most natural topsoils removed, resulting in extremely shallow soil over base clays. No archaeological places were recorded.

Barker and Barker 2013. – AAV Report 12614

This report considered land measuring approximately 6 km^2 located approximately 2.5 km south of the activity area at Cave Hill, Lilydale, and situated on a moderate slope towards Brushy Creek. The authors encountered remnant shallow soils over bare clay, and concluded from their program of one 1 m x 1m test pit and 15 shovel test probes, that the entire property had been subject to extensive soil removal and disturbance. No archaeological places were recorded.

Existing Heritage Listings

The Victorian Aboriginal Heritage Register (VAHR) was checked for existing heritage listings within the geographic region. Their locations are illustrated in Figure 7, and sites are tabulated in Appendix 2 (Table 1).

Aboriginal Stakeholders

It is important to note that 'cultural heritage significance' as defined in the Aboriginal Heritage Act 2006 includes '(a) archaeological, anthropological, contemporary, historical, scientific, social or spiritual significance', and (b) significance in accordance with Aboriginal tradition'. All Aboriginal heritage sites are protected equally under this legislation, irrespective of significance, and consultants and development proponents are required to seek the views of Aboriginal heritage stakeholders (or Registered Aboriginal Parties [RAPs], as defined in the Act) regarding whether Aboriginal heritage sites may be disturbed in accordance with that significance.

At the initiation of this cultural heritage assessment there is no Registered Aboriginal Party (RAP) for the activity area. The Wurundjeri Tribe Land and Compensation Cultural Heritage Council Inc. is the current applicant for RAP status for the activity area having lodged application for this on 24 August 2007.

Conclusions and Findings

The activity area at Cave Hill, Lilydale is situated close to permanent water in a once diverse environment of flora and fauna that would have constituted an attractive area of habitation to Aboriginal people of the past. Cave Hill itself once comprised a local highpoint overlooking the Olinda Creek and its valley, and such highpoints are generally considered to have been preferred locations which provided vistas allowing detection of approaching persons and potential prey. The ethnographic evidence available on Aboriginal occupation of the area at European contact is scant, as is the case for most of the tribes in the vicinity of Melbourne. Nevertheless, the very rare documentation of mythological associations with this landform in the Melbourne area would indicate that Cave Hill, Lilydale, was likely held in special regard by Aboriginal people in the past. This regard may have seen Cave Hill, Lilydale less utilised than otherwise expected – due to beliefs concerning the malevolent spirit with which it is connected in Aboriginal Lore. As a result of this, the activity area may have been subject to different, possibly ritualised use, rather than viewed as a solely economic resource. Alternatively, such perceptions may have had no impact on the utilisation of resources in the activity area. Such hypotheses are plausible, but cannot be tested. Further, it must be

acknowledged that worldviews of Aboriginal people in the past did not simply divide along categories common in western thinking, such as between the economic and the ritual – as contained in the above hypotheses. Rather, both categories were frequently intertwined in a manner that renders highly problematic any attempt to comprehend the likely regard with which Cave Hill may have been held, and the uses to which it may have been put (Bradley 2008).

In assessing the past use and potential archaeological significance of Cave Hill, this report can therefore only rely on the empirical evidence available, while noting the historical documentation of the mythological significance associated with Cave Hill.

The small number of Cultural Heritage Management Plans undertaken to date in the geographical region, and that undertaken in the activity area (Lawler 2010), nevertheless produce results which give clear indication of the two most significant diagnostic factors likely to indicate high archaeological sensitivity in the geographical region. These are:

1. Localised conditions of ground disturbance or preservation due to historical use.
2. The presence of elevated level land such as ridges or platforms.

Lilydale, as a recently and relatively intensively developed residential area, with a past of intensive market gardening, nurseries and orchards, has in large parts undergone considerable ground disturbance. This was readily noted in archaeological reports, generally for small residential or infrastructure developments. All of these smaller reports observed the total or considerable absence of natural topsoils and frequently, the deposition of modern detritus-bearing fill (Barker 2010; Barker and Barker 2013Burch (2012) O'Connor 2010; Scibilia et al. 2010; Stone and de Rochefort 2012; Veres 2009). Only one of these reports (Scibilia et al. 2010) encountered archaeological artefacts, and these were located in a localised elevated area within a creek reserve. The presence of scarred trees in the geographic region, with no immediately or locally associated lithic artefact finds, further indicates that the archaeological record of the area has been considerably disturbed, resulting in the preferential preservation of scarred trees and the likely destruction of surface or sub-surface artefact deposits.

Lawler's (2010) study of a southern section of the activity area at Cave Hill produced results in strong contrast to all the above local reports. Lawler's study area was within lands that had long been reserved, associated with the Cave Hill Limestone Quarry, and as such appear to have been protected from the intensive land-disturbance common through the immediately adjoining areas of Lilydale and noted in the archaeological studies above. Lawler (2010) registered six VAHR, including in-situ surface, sub-surface and outcrop sites. These VAHR were all located on ridges or elevated plateaus. Artefact densities at these sites were not considered high by Lawler. Nevertheless, the number of sites registered is notable. The nature of one site (a silcrete outcrop / quarry) is significant and may justify expectation of larger quantities of artefacts in the broader activity area, as not infrequently lithic reduction activities (knapping) were undertaken by Aboriginal people, at a remove from the point of primary extraction.

Given similar conditions of historical activity in the broader activity area at Cave Hill Limestone Quarry, Lilydale, it is highly likely that archaeological sites will be present, in particular on elevated plateaus or ridges. At least two such ridges are readily apparent in land between Mooroolbark Road to the west and the Lilydale Railway to the east, immediately north of Lawler's (2010) study area. These and other similar landforms not readily detectable from maps and aerial images, satisfy the criteria for high archaeological sensitivity as based on the limited comparative information available to inform this report.

Implications for Development

The following sections outline the triggers and issues which will affect the proposed works in relation to the *Aboriginal Heritage Act* 2006 and *Aboriginal Heritage Regulations* 2007, specifically as these relate to the need to undertake a mandatory Cultural Heritage Management Plan.

When is a cultural heritage management plan required?

A CHMP is required for an activity if (Regulation 6)-

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and

(b) all or part of the activity is a high impact activity.

Is the activity area an area of cultural heritage sensitivity?

The activity area contains areas of cultural heritage sensitivity associated with previously registered Aboriginal cultural heritage places as per r.22.

Regulation 22 Registered cultural heritage places

(1) A registered cultural heritage place is an area of cultural heritage sensitivity.

(2) Subject to subregulation (3), land within 50 metres of a registered cultural heritage place is an area of cultural heritage sensitivity.

(3) If part of the land within 50 metres of a registered cultural heritage place has been subject to significant ground disturbance, that part is not an area of cultural heritage sensitivity.

Previously registered Aboriginal cultural heritage places are restricted to the southern portion of the activity area where an approved CHMP has been prepared previously. The preparation of this CHMP resulted in the identification of a number of sites discussed in greater detail earlier in this report.

There are no other defined areas of cultural heritage sensitivity within the activity area and as a consequence the existence of triggers for a mandatory CHMP within the activity is highly discrete and localised.

Has the activity area been subject to significant ground disturbance?

According to Regulation 4 - Definitions

significant ground disturbance means disturbance of -

(a) the top soil or surface rock layer of the ground; or

(b) a waterway –

by machinery in the course of grading, excavating, digging or dredging

According to the 'Aboriginal Heritage Act 2006 Practice Note: Significant Ground Disturbance',

significant ground disturbance can be established in four principal ways:

Level 1 – Common knowledge

The fact that land has been subject to significant ground disturbance may be common knowledge. Very little or no additional information should be required from the responsible authority.

For example, common knowledge about the redevelopment of a petrol station with extensive underground storage tanks.

Level 2 – Publicly available records

If the existence of significant ground disturbance is not common knowledge, a responsible authority may be able to provide assistance from its own records about prior development and use of land, or advise the applicant about other publicly available records, including aerial photographs.

These documents may allow a reasonable inference to be made that the land has been subject to significant ground disturbance.

In such event, no further inquiries or information would be needed by the responsible authority. The particular records and facts relied upon should be noted by the responsible authority as a matter of record.

For example, a former quarry site subsequently filled, but where the public records show the area of past excavation.

Level 3 – Further information

If 'common knowledge' or 'publicly available records' do not provide sufficient information about the occurrence of significant ground disturbance, the applicant may need to present further evidence either voluntarily or following a formal request from the responsible authority. Further evidence could consist of land use history documents, old maps or photographs of the land or statements by former landowners or occupiers. Statements should be provided by statutory declaration or similar means.

For example, the construction of a former dam on a farm.

Level 4 – Expert advice or opinion

If these levels of inquiry do not provide sufficient evidence of significant ground disturbance (or as an alternative to level 3), the applicant may submit or be asked to submit a professional report with expert advice or opinion from a person with appropriate skills and experience.

Depending on the circumstances, this may involve a site inspection and/or a review of primary documents. If there is sufficient uncertainty some preliminary sub-surface excavation may be warranted.

The disturbance of substantial portions of the activity area can be readily demonstrated at Level 1 – Common knowledge and Level 2 – Publicly available records under the hierarchy established by the *'Aboriginal Heritage Act 2006 Practice Note: Significant Ground Disturbance'*. Areas within the main works area of the quarry, including areas occupied by spoil heaps have all been clearly subject to significant ground disturbance, however, it appears that those areas situated outside of these works zones have not been subject to disturbance as per the definition contained within the *Aboriginal Heritage Regulations* 2007.

Is the activity a high impact activity?

While it is unclear exactly what the final suite of activities proposed for the activity area will consist of it is considered likely that at least some of these activities will comprise high impact activities in accordance with the Aboriginal *Heritage Regulations* 2007.

Will a cultural heritage management plan be required for proposed works in the activity area?

Given the general absence of areas of cultural heritage sensitivity within activity area one of the two triggers required to make a CHMP mandatory are essentially absent from the majority of the activity area. Where areas of cultural heritage sensitivity are present, in association with registered Aboriginal cultural heritage places, these places are subject to the recommendations of a previously prepared CHMP and as a consequence a subsequent CHMP will likely not be required. This will likely hold unless the proposed activity in that part of the activity area containing these sites is radically altered from that which the previous CHMP was prepared for.

On this basis then it is my professional opinion that a mandatory CHMP is not required for the proposed redevelopment and reuse of the Cave Hill Quarry land.

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APPENDIX 1

FIGURES

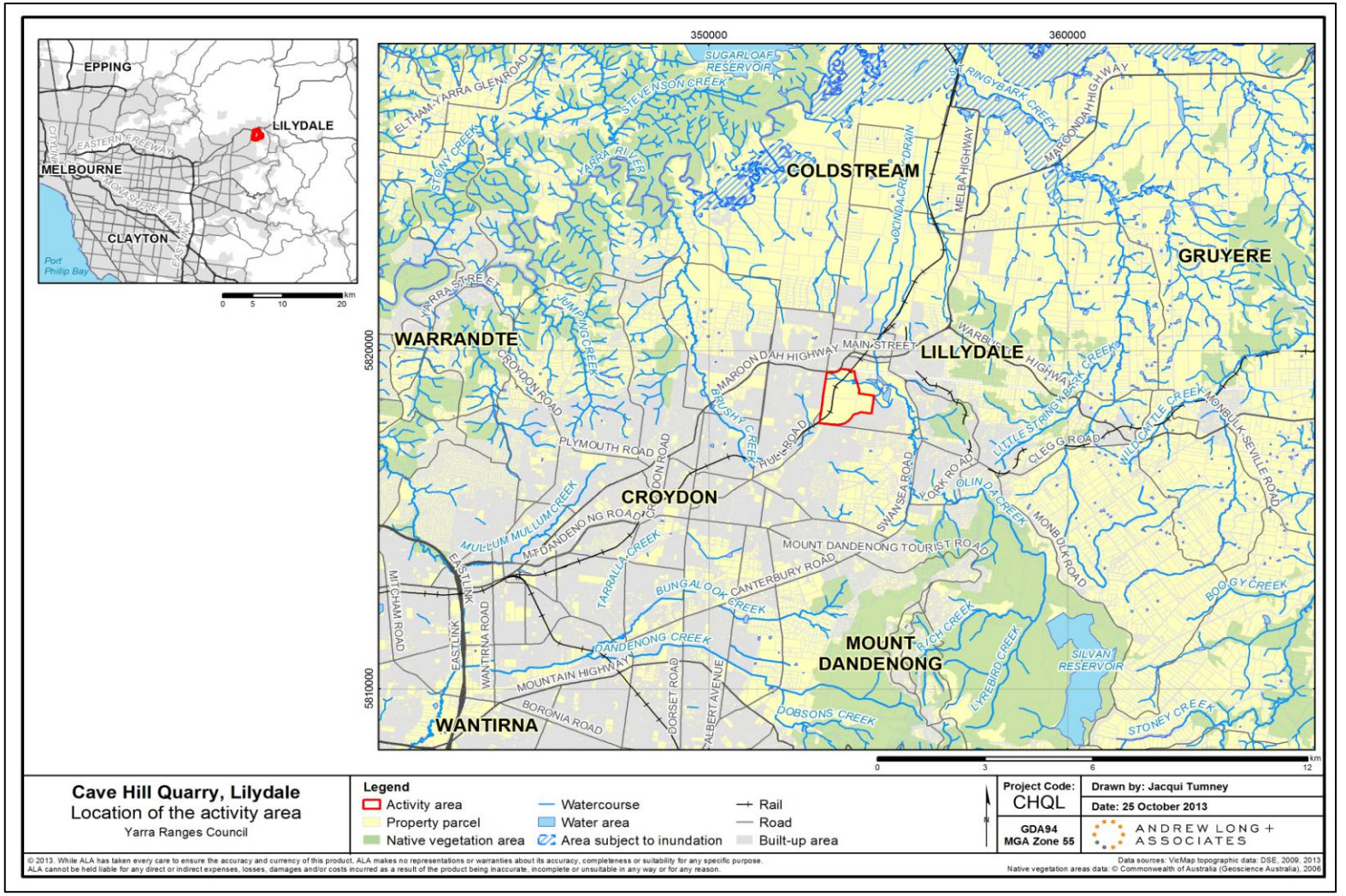

Figure 1 -Location of Activity Area

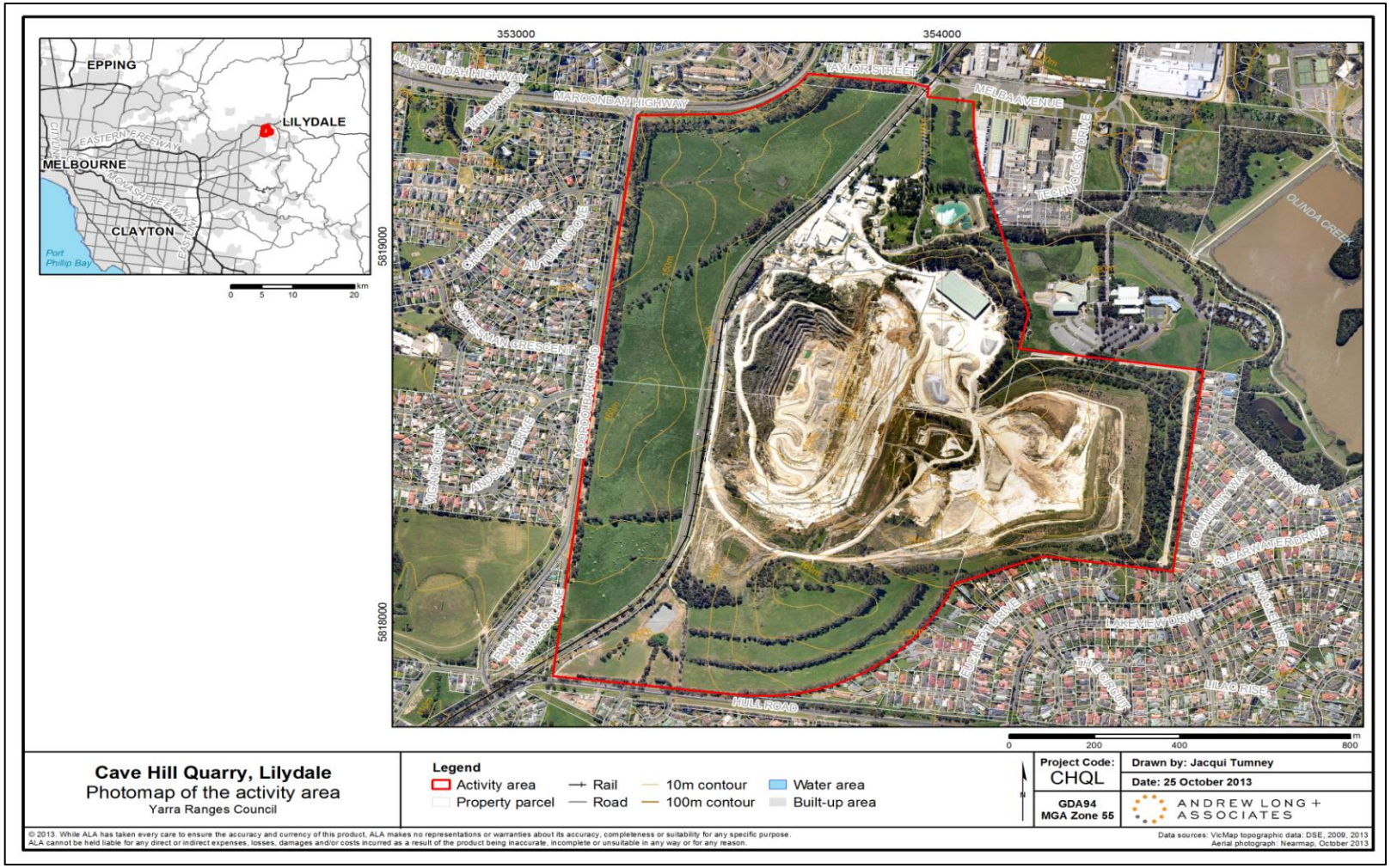

Figure 2 Photomap of Activity Area

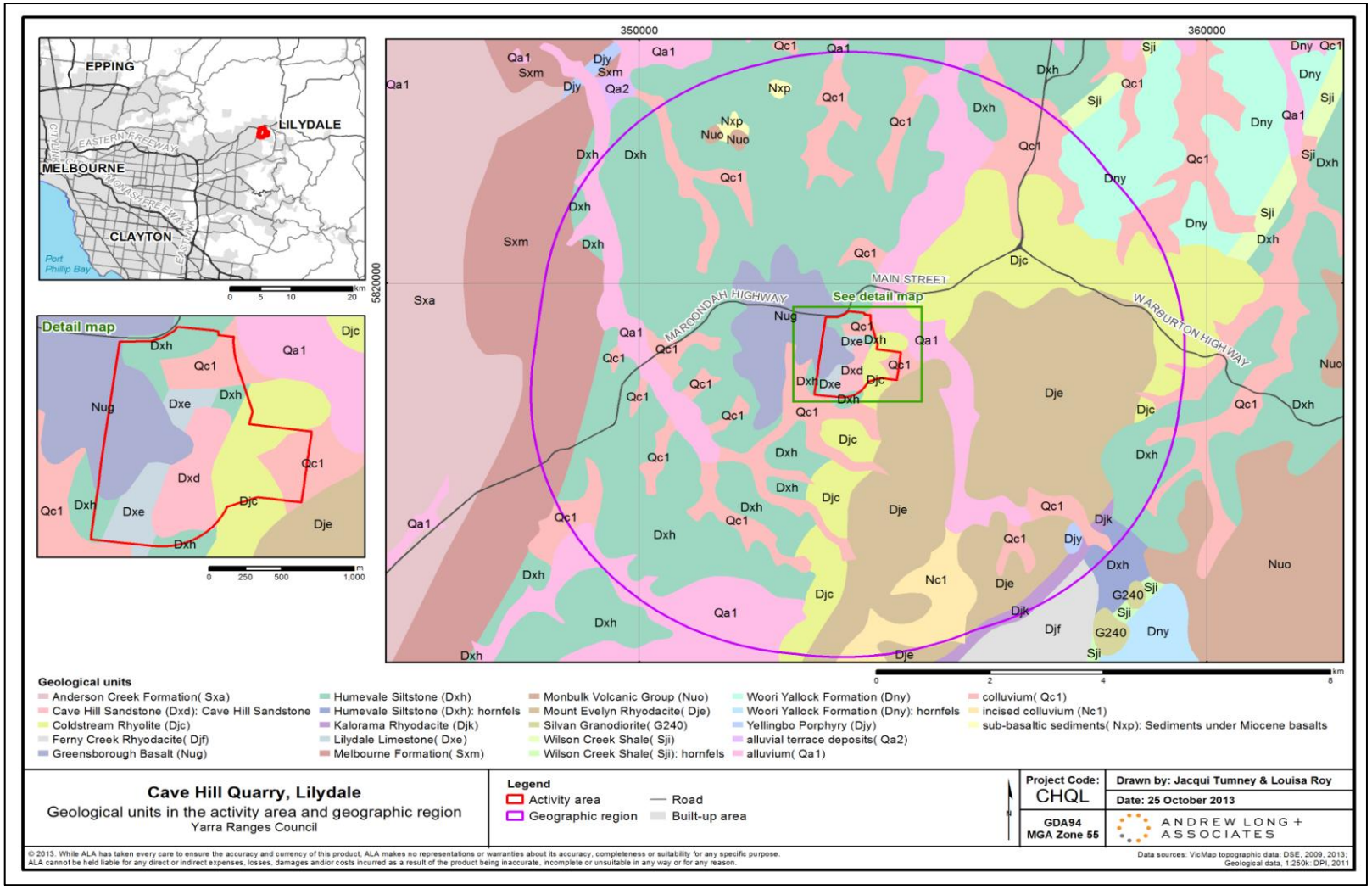

Figure 3 - Geological Region of this report

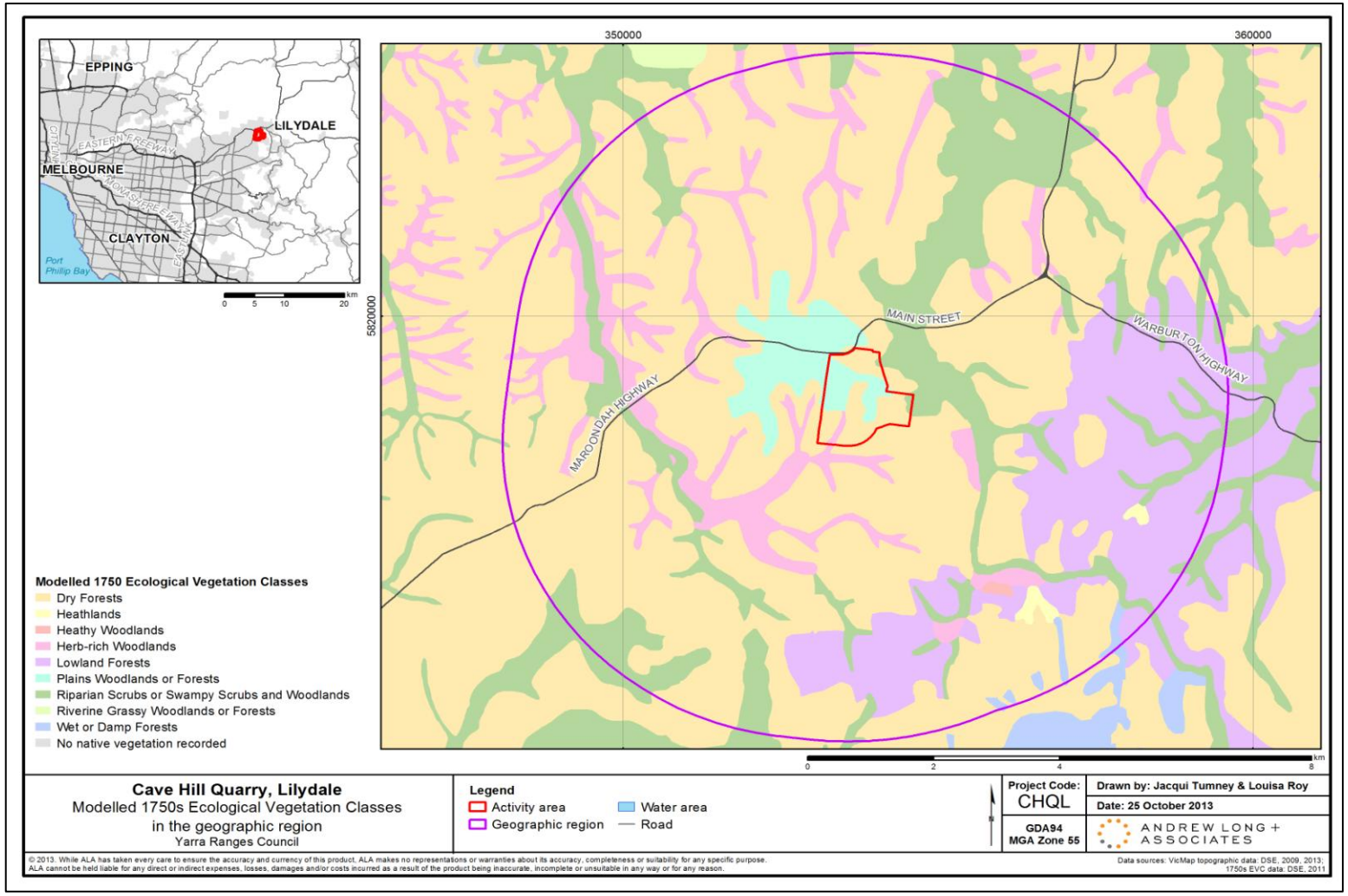

Figure 4 - Ecological Vegetation Classes

Figure 5 -Cave Hill, 1920. View towards Mt Dandenong (NLA online collections).

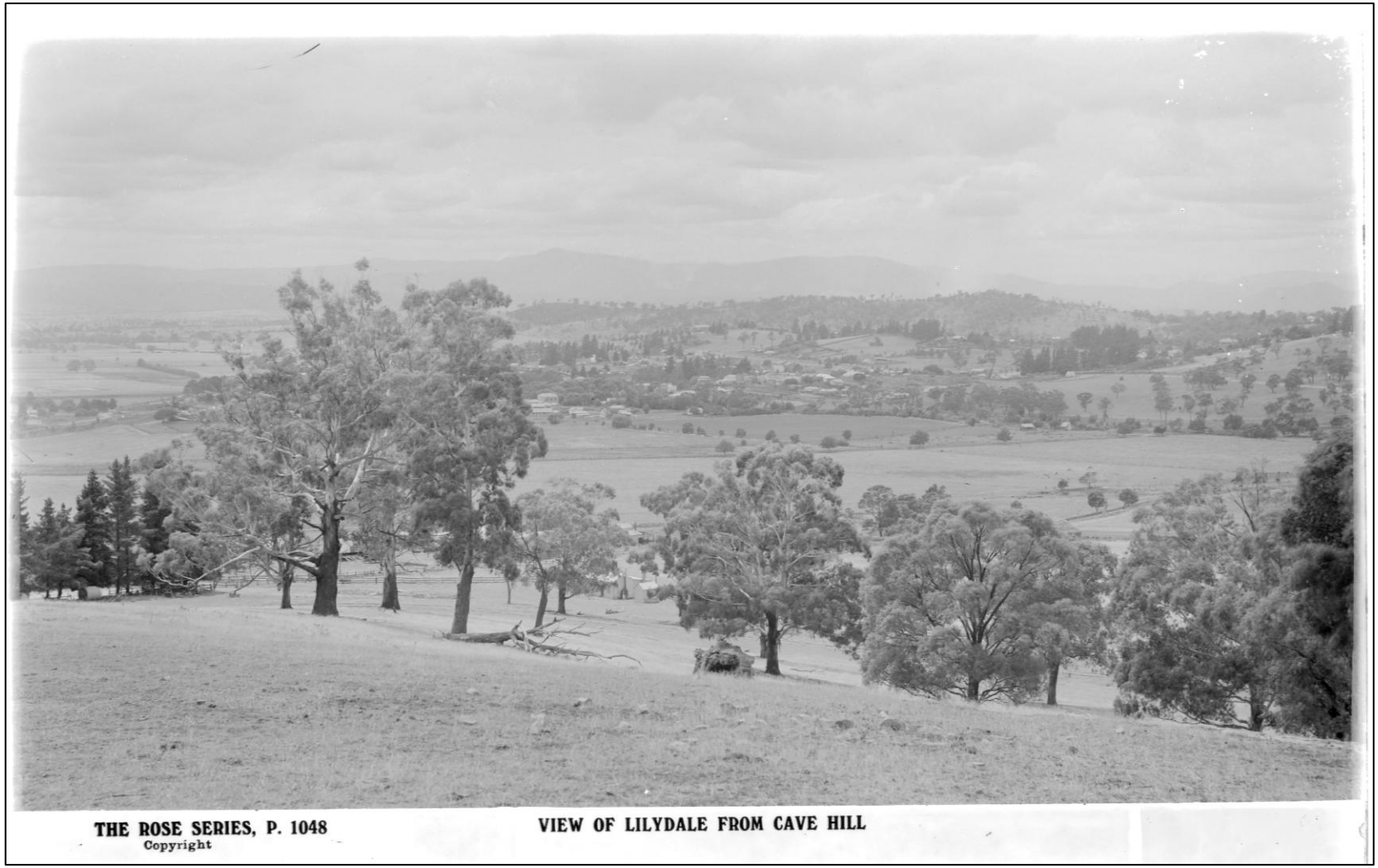

Figure 6- Cave Hill, 1920. View to north/north west.

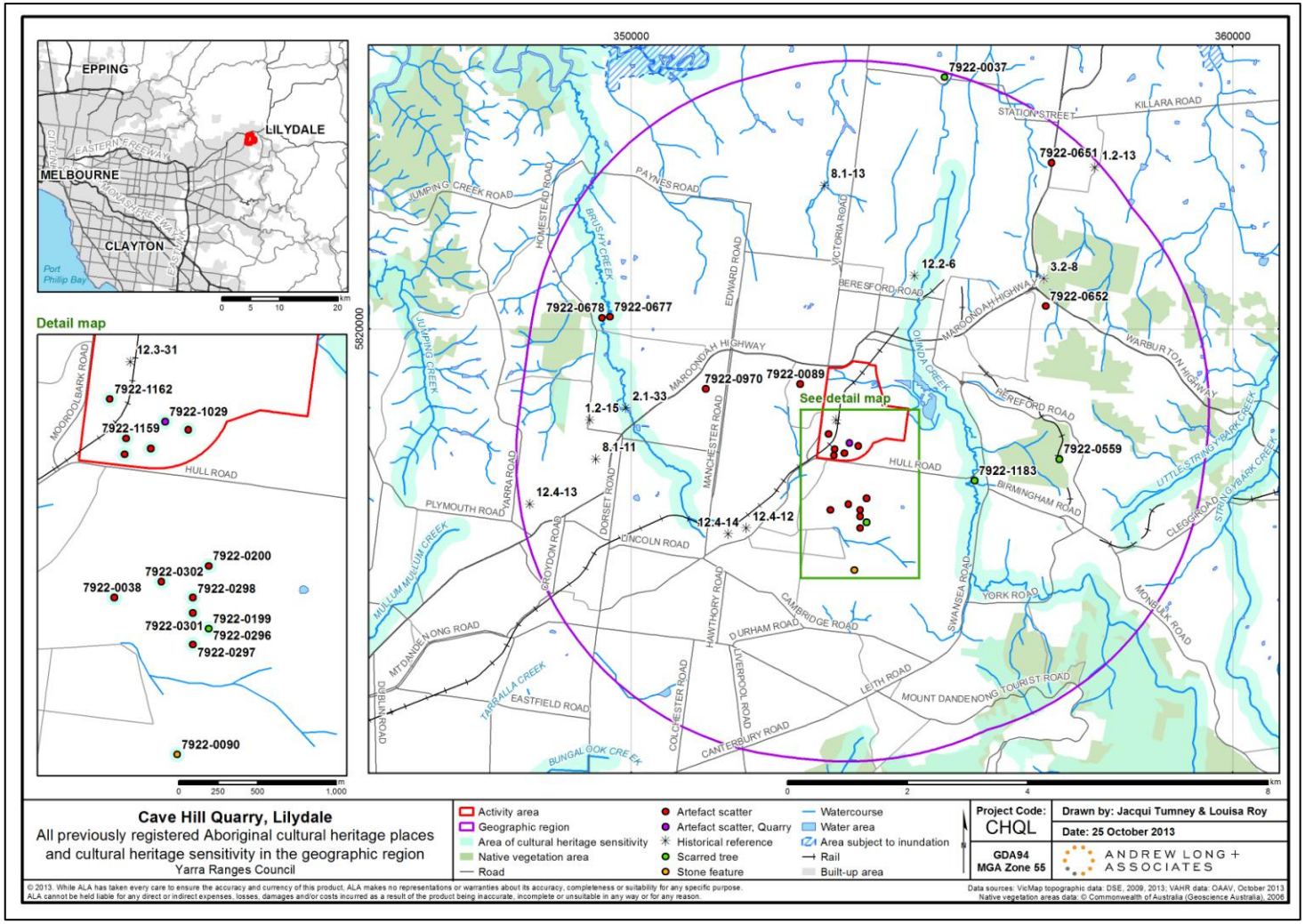

Figure 7 -VAHR in Geographic Region

APPENDIX 2
Registered Aboriginal Places

Table 1 - -Registered Aboriginal places (VAHR) within the Geographic region. Sites within Cave Hill activity area in red.

VAHR	Name	Type	Easting	Northing	Zone	Description	Context
1.2-15	Wonga Park Cattle Station	Historical reference	349313.3	5818484	55	1.2 Properties where people are known to have worked	
1.2-13	Jedburgh Park	Historical reference	357713.3	5822684	55	1.2 Properties where people are known to have worked	
12.2-6	Olinda Creek Campsite	Historical reference	354713.2	5820884	55	12.2 Camp sites/meeting places	
12.4-13	Birt's Hill Corroboree Ground	Historical reference	348313.3	5817084	55	12.3 Spiritual places	
12.3-31	Lilydale Quarry	Historical reference	353413.8	5818484	55	12.3 Spiritual places	
12.4-14	White Gums Estate Corroboree Ground, Mooroolbark	Historical reference	351613	5816584	55	12.4 Ceremonial places	
12.4-12	Brice Avenue Reserve Corroboree Ground, Mooroolbark	Historical reference	351913.6	5816684	55	12.4 Ceremonial places	
2.1-33	Brushy Creek (Croydon North) Camp	Historical reference	349913.3	5818684	55	2.1 Places where people camped/lived around towns	
3.2-8	Rosemont Reserve Camp	Historical reference	356863	5820834	55	3.2 places where people lived in forests	
8.1-11	Brushy Creek Shooting	Historical reference	349412.6	5817834	55	8.1 Places where Aboriginal people were killed/assaulted/threatened by Europeans	
8.1-13	Gardiner's Station Sheep Station Incident	Historical reference	353212.6	5822384	55	8.1 Places where Aboriginal people were killed/assaulted/threatened by Europeans	
7922-0297	DEFELICE 2	Archaeological	353812	5816684	55	Isolated surface artefact	Hillside

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VAHR	Name	Type	Easting	Northing	Zone	Description	Context
7922-0296	DEFELICE 1	Archaeological	353912	5816784	55	Surface artefacts	Hillside
7922-0301	HILL TOP	Archaeological	353812	5816884	55	Subsurface artefacts	Hilltop
7922-0038	MOOROOLBARK	Archaeological	353312	5816984	55	Destroyed site – surface artefacts	Hillside
7922-0298	DEFELICE 3	Archaeological	353812	5816984	55	Isolated surface artefact	Hillside
7922-0302	HILL BASE	Archaeological	353612	5817084	55	Subsurface artefacts	Hilltop
7922-0200	M G 1	Archaeological	353912	5817184	55	Surface artefacts	Undulating
7922-1163	LILYDALE QUARRY 6	Archaeological	353377	5817895	55	Surface artefacts	Hillside
7922-1161	LILYDALE QUARRY 4	Archaeological	353544	5817931	55	Subsurface artefacts	Elevated plateau
7922-1159	LILYDALE QUARRY 2	Archaeological	353387	5817996	55	Isolated surface artefact	Hillside
7922-1160	LILYDALE QUARRY 3	Archaeological	353782	5818051	55	Isolated surface artefact	Hill ridge
7922-1029	LILYDALE QUARRY 1	Archaeological	353634	5818102	55	Silcrete outcrop, surface & subsurface artefacts	Hill ridge
7922-1162	LILYDALE QUARRY 5	Archaeological	353284	5818246	55	Subsurface artefacts	Hill ridge
7922-0970	MOOROOLBARK DUMPED ARTEFACT SCATTER	Archaeological	351244	5819004	55	Out of context artefacts	Out of context
7922-0089	EASTWOOD AVE/THE BRIARS	Scarred Tree	352812	5819084	55	Dead tree – one scar	Creek bank
7922-0678	BRUSHY CREEK 2	Archaeological	349518	5820183	55	Isolated surface artefact	Flood plain
7922-0677	BRUSHY CREEK 1	Archaeological	349645	5820200	55	Out of context artefact	Out of context
7922-0652	MAROONDAH HWY SAS1	Archaeological	356892	5820374	55	Surface artefacts	Hillside
7922-0651	MAROONDAH HWY IA1	Archaeological	356992	5822763	55	Isolated surface artefact	Undulating
7922-0199	BILLANOOK 1	Scarred Tree	353912	5816784	55	Dead tree – one scar	Undulating
7922-1183	OLINDA CREEK RESERVE SCARRED TREE 1	Scarred Tree	355710	5817477	55	Dead tree- one scar	Creek side
7922-0559	Mt Evelyn Railway	Scarred Tree	357123	5817834	55	One scar	Hillslope
7922-0037	MOUNT MARY	Scarred Tree	355212	5824184	55	One scar	Plateau
7922-0090	CARDIGAN RD	Stone Arrangement	353712	5815984	55	Stone arrangement – ritual?	Undulating

ATTACHMENT B INTERPRETATION CAVEHILL QUARRY

lookear

CAVE HILL QUARRY INTERPRETATION CONCEPTS

DRAFT REPORT

November 2013

CAVE HILL QUARRY INTERPRETATION CONCEPTS

DRAFT REPORT

Prepared for Places Victoria, on behalf of Sibelco

Project No	Issue No.	Notes/ description	Issue date
13-125	2	Draft Report	Nov 2013

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1. Introduction

This interpretation concept report for Cave Hill Quarry is designed to provide a broad framework for the future development of interpretation at Cave Hill over the forthcoming period of re-development.

The process of developing interpretive concepts relies heavily on the inherent values and significance of the site, some of which are documented, and some of which are not. Interpretation relies heavily on both tangible heritage values such as remaining building fabric, and intangible heritage such as memories of those who worked at the site. This intangible heritage is often more difficult to access and preserve, but it is this material that in an interpretive sense allows the site to come to life with the memories of real people and real events.

This report is designed to support the Cave Hill Masterplan developed by Lovell Chen. Heritage values and significant components that are likely to be retained are critical in the development of this report. Likewise, recognised guidelines are critical in the development of any interpretive outcomes. These include:

- ICOMOS Charter for the Interpretation and Preservation of Cultural Heritage Sites (Ename Charter)
- The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance
- Australia ICOMOS Practice Note: Interpretation (refer to Appendix 1)

The report presents a thematic overlay for the site using two interpretive levels. This structural device allows for the development of broad themes that do not necessarily relate to any specific location, whilst accommodating for the interpretation of relatively site-specific interpretive themes.

Unlike some sites, a specified time period for the interpretation at Cave Hill is not considered appropriate. There is of course an emphasis on the David Mitchell era from 1878 to 1916, but many pertinent interpretive stories extend outside this era. However to avoid confusion, time eras must be clearly presented in any interpretive material.

It is not within the scope of this report to develop actual recommendations for the forms of interpretive delivery, nor is this possible at this very early stage of the redevelopment process. However the report provided a range of interpretive forms and styles that could be considered in the subsequent stages of the project.

The report also provides a brief insight into the art of interpretation. Two critical principles that are important to recognise and should be the basis of any future interpretive developments are:

- Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.
- Information, as such, is not interpretation. Interpretation is discovery based on information. But they are not entirely different things. However all interpretation includes information.[1]

[1] Freeman Tilden, 1977

2. Interpretation – What is it?

There are many different ways to describe interpretation.

- Interpretation is an educational activity, which aims to reveal meanings and relationships.
- Interpretation is an art, which combines many arts whether the materials presented are scientific, historical or architectural. (Freeman Tilden).
- Interpretation is about inspiring people to think, share and learn (John Pastorelli).
- It is about communicating significance and sharing special associations to connect people with places and culture. This might include the past or present. It is the act of identifying and transmitting meaning (Bill Nethery).
- Interpretation is a means of communicating ideas and feelings, which helps people enrich their understanding and appreciation of their world, and their role in it (Interpretation Australia Association).

Interpretation also relates to the idea of enriching the visitor's experience and enhancing the appreciation of the site through knowledge and understanding of its natural and cultural values.

Interpretation should facilitate personal connections and seek to be relevant and engaging to the audience and delivering a great experience. It can bring a subject to life, reveal meanings, provide different perspectives, and engages the senses. Interpretation is respectful of the special associations people have and the values and sustainability of culture and heritage. It can foster appreciation, it may inspire or challenge.

In the 1990s, Professor Sam Ham from the University of Idaho, developed a series of four basic principles known as the EROT rule – that good interpretation must be Entertaining, Relevant, Organised and Themed.

Professor Ham also developed an important addition to these principles in the concept that good interpretation is 'meaning making'. In other words, good interpretation is more than an entertaining series of facts. It must create a sense of meaning and connection with a place and its significance.

> "Interpretation must be viewed not as an information-giving function, per se, but as a mechanism for producing meanings that bond people to the places they visit – and that create in us a sense of place and an empathy for the people who lived in times past. In empathy, not in the facts alone, lie the great lessons that history purports to teach us" (Ham S., 2002)

There is also one final and overarching principle that should be considered and which connects all the previous ones.

> "The primary choice of which way you organise something is made by deciding how you want it to be found"
>
> *Richard Saul Wurman*[2]

Royal Botanic Gardens Cranbourne

Brambuk Aboriginal Cultural Centre

[2] Wurman R.S, (1999). Information Architects, In *Emery Vincent Design*.

3. Interpreting Cave Hill

The Challenge

The challenge for the interpretation at Cave Hill is to understand the diversity of available stories that are linked to the site, and to distil these stories in a way that is understandable and engaging for the visitors.

Furthermore, it is important to understand who are the visitors – the people who will come to this site as part of its redeveloped future? And what will remain of the existing structures and site layout? These questions remain largely unanswered, and so the only solution is to work with the knowns – the items that have heritage significance and are likely to be retained in some form.

The Vision

Imagine this:

We enter the old Cave Hill Quarry from the site of the old railway siding. The place has the remnants of an industrial site, although clearly no longer functional. Old workers safety and loading procedures signs indicate how, when and where the lime was loaded onto the train and shipped to Melbourne. And within the paving leading into the site, is a large and visually striking series of paving inserts showing the incredible array of lime based products and their uses – outcomes from this the old limestone quarry.

Simple paving markers that indicate how the materials moved through the site lead us around. Carts laden with firewood from the surrounding forested areas meet us at The Tunnel and the old pot kilns. Large images of the workers look out at us from the large glass panels that partly clad the walls, many of which can be activated by a simple touch for them to tell their stories of living and working at David Mitchell's limestone quarry.

We also discover the ways technology of the newer kilns improved but still maintained this age-old process of cooking limestone to produce lime.

And then to the quarry itself. Apparently it was much larger than we can see now, but in the distance, we can see tall markers of how large the quarry hole once was. But a section of the old quarry face still exists, with some of the machinery used to dig, crush and transport the stone still preserved. Large boulders of limestone have been strategically positioned and engraved with text and simple images to explain the process of quarrying this stone that was deposited millions of years old in a shallow sea.

Leaving the quarry, we then are led to the old farm buildings, yet another of David Mitchell's business endeavours. Inside we see the sights, sounds and smells of the cheese and bacon factory, and discover that this was later the hub of the social club that was a strong feature of working here. And of course a small retail outlet supplied us with a selection of gourmet cheeses and meats, as tasty reminders of what once was.

This is a brief exploration of the proposed style of the interpretation. The vision for the interpretation is that it is closely and carefully integrated into the landscape and remaining heritage items, using a variety of interesting forms of media, rather than considered and developed as a tacked on after-thought.

Interpretive Structure

The interpretive structure or overlay for the site is best expressed through the construction of two main interpretive levels:

1. **Overview**
    a. David Mitchell – the entrepreneur
    b. The broad movement of materials through the site
2. **Functioning**
    a. Site details and industrial processes
    b. The people who worked at the site – lives, stories and events

The forms of expression for these two interpretive levels should be quite different.

The **Overview** themes should be spread through the site in a variety of ways, that are not necessarily restricted to single sites or areas. For instance the David Mitchell stories should be presented throughout the site and interwoven into other interpretive elements wherever possible, rather than being restricted to a single monument or interpretive element. Likewise the broad movement of materials through the site can be quite ubiquitous with frequent reminders.

On the other hand the **Functioning** themes tend to be related to specific locations, which can be interpretive in ways that highlight these features, their function, their significance and importantly relationship that people had with them – e.g. workers' tales.

Cave Hill quarry workers 1913

4. Thematic Structure

The various interpretive topics and stories that can be presented, along with their relevant locations have quite clear relationships. These relationships are relatively straightforward and are presented as a simple chart in Figure 1.

Using these relationships as a starting point, a useful interpretive technique is to establish an overarching or primary theme that encapsulates the general intent of the interpretive messages and stories for the whole site. From this primary theme, a series of supporting themes can be developed to illustrate specific elements that assist in the storytelling.

PRIMARY THEME

Visionary Entrepreneur: Cave Hill was the brainchild and legacy of David Mitchell.

As a successful builder he was looking for building supplies, and the Cave Hill limestone was an ideal resource. Quarried, crushed and cooked, the limestone became a major building resource for burgeoning Melbourne. And with the principle of utilising all available resources, he established a farm to produce butter, milk and bacon; and local tramways and aqueducts to supply timber and water for the kilns. He became a major employer in the Lilydale area with a loyal workforce, many of whom worked at the quarry or farm for most of their working lives.

Cave Hill is a reminder of a visionary entrepreneur and an industry that had a major impact of the growth and development of Melbourne, and Lilydale in particular. But Aboriginal people had an association with this place long before Europeans came to harvest its wealth.

SUPPORTING THEMES

The following supporting themes are expressed as a simple header, with a brief supporting explanatory phrase that provides an insight into the relevant theme or story angle. A summary of relevant content is also listed.

OVERVIEW

A Talented Man: rising from humble beginnings to visionary entrepreneur

Relevant content:

- David Mitchell was born 16 February 1829 in Forfarshire, Scotland
- Came to Melbourne in 1852 after completing a stone mason apprenticeship
- 1856 won the tender for masonry work on St Patrick's Cathedral
- Married Isabella Dow and lived in Richmond
- Had ten children including daughter Helen (Dame Nellie Melba), born 19 May 1861
- From 1860s became one of Victoria's leading building contractors including Menzies Hotel, Scots Church and Exhibition Buildings
- Bought Cave Hill property in 1878 to establish the limestone quarry, to supply lime for building projects
- Other interests including:
    - Factory for steam-made and pressed bricks
    - Gold mining – constructed the tunnel at Pound Bend, Warrandyte to divert a section of the Yarra River to allow a section to be mined
    - Business partnership with Sir John Monash in the Monier Pipe Co Pty Ltd
    - Cave Hill farm – producing butter, cheese, bacon, ham and soap
    - Vineyards and wineries at Yeringberg, Coldstream & St Hubert's
    - Large stations on the upper Murray and Western District[3]
- Died 25 March 1916

From to Quarry to Railway Cart: the process of making lime from stone

Relevant content:

- Quarry face blasted
- Stone collected
- Trucked to primary crusher
- Elevated conveyors
- *Picking station and shaker screen – sorting (obsolete)*
- Ball mill - secondary crusher
- Kiln
- Pulveriser
- Hydrator – for hydrated lime (Limil)
- Packing
- Transport – road and rail

FUNCTIONING

The Functioning themes are linked to specific locations throughout the site, as shown in Figure 2 – Thematic Overlay.

Limestone Quarry

An Ancient Formula: shallow seas + marine creatures + millions of years = limestone

Relevant content:

- The limestone was formed from deposits of shells and other marine creatures laid down in a shallow sea around 380 million years ago (Early Devonian period)
- Earth forces then buckled the sediments by a process of folding and faulting
- Volcanic activity then covered the area with thick basaltic lava around 2 – 5 million years ago (Pliocene and Pleistocene)
- Cracks and fissures allowed water to enter the rock layers which formed caves, and eventual access into the limestone hidden beneath the surface

From Cave to Quarry: David Mitchell's rapid development of the limestone venture

Relevant content:

- Geological survey of 1856 identified the limestone caves of Cave Hill as a potential major resource – one cave was approx. 130 feet deep
- David Mitchell bought 'Cave Hill Farm' in 1878
- *"He walked to the top of the hill with his daughter Nellie, and pointing to a hole – a cave-like fissure – in the ground, said: 'That hole my girl, is going to make my fortune, one day, and yours' – or words to that effect"*[4]
- David Mitchell opened Cave Hill Limestone and Marble in 1878 and by 1882 was producing 1000 bags of lime per week
- Upgraded operations from horse and dray to water wheel, pulleys and steam cranes to lift the stone from the quarry to the kilns
- By 1887, 70 men worked at the quarry

[3] http://adb.anu.edu.au/biography/mitchell-david-4209

[4] A Romance of Industry: Cave Hill Quarry's Jubilee. In Herald 4/4/1928

The Tunnel and Main Works

Making Lime: an age-old process of cooking stone

Relevant content:

- Cutting was made into the northern side of the hill, directly into the quarry
- Location for a battery of bottle or pot kilns – part of a major expansion of the operations in 1890s and early 1900s
- Estimated to have been approx. 15 kilns when first established
- Simple process of layering timber fuel and limestone into the kilns and setting it on fire
- As the limestone and coke descends through the kiln, it reaches sufficient temperature (952°C) to convert the limestone into lime
- Heat removes the CO_2 from the calcium carbonate ($CaCO_3$) leaving calcium oxide (CaO) or quicklime
- Quicklime retrieved from the bottom of the kilns – a continuous process with more fuel and limestone added to the top as lime removed from the bottom
- The kilns operated night and day

Technological Advances: better equipment but the same principle

Relevant content:

- Automatic vertical shaft kiln
  - Built in 1934 – part of a general upgrade of the site in the 1930s
  - Early example of a continuous coke-powered kiln
  - Company committed to up-to-date advanced technologies
  - Replaced in 1960s
- West's automatic vertical shaft kilns (x3)
  - Commissioned in 1964 as part of a general upgrade of the site
  - Continuous oil-fired kiln
  - More efficient burn and have increased output to approx. 50 tonnes of lime each per day
  - Company committed to up-to-date advanced technologies

Products

Lime & Limestone: the surprisingly useful product

Relevant content:

- David Mitchell Estate Ltd had its head office in Richmond with a policy of '*We are big enough to serve you and small enough to want you*'[5]
- Lime's original use was primarily for cement and building purposes
  - Emu brand cement – started sales by 1891
- Hydrated lime – made by mixing water with lime and recooking – Limil brand
- Quicklime and hydrated lime have extensive uses
  - Structural e.g. plaster, mortar and concrete
  - Metallurgy e.g. steel manufacture
  - Chemical manufacture e.g. ammonia, pesticides and anti-freeze
  - Pulp and paper manufacture
  - Sanitisation e.g. neutralisation of acidic wastes
  - Ceramics manufacture
  - Food manufacture e.g. sugar refining, butter production
  - Food bi-products e.g. leather tanning, glue and gelatine
  - Petroleum refining
  - Paints and pigments
  - Soil stabilisation
  - Road bases and paving
  - Soil nutrition
  - Fertiliser manufacture
- Crushed limestone uses include
  - Lilydale toppings – crushed limestone for paving
  - Road metal

Transport

Networks of Tramways and Aqueducts: suppliers of fuel and water

Relevant content:

- David Mitchell recognised the surrounding resources he needed for his ventures
- For timber to fuel the kilns, he built tramways that extended out for up to 16km into the surrounding areas
  - The main line ran from the quarry to Olinda Creek and the site of Silvan Reservoir
  - Two steam locomotives purchased from the Bendigo tramways hauled trucks into the bush.
  - A driver and assistant and two timber getters operated the tramway while timber cutters and sawers would cut and stack the wood along the tramway.
  - Trucks were left on the outward journey then collected on return.
  - The sidings were constructed to allow trucks to pass each other.
  - In 1934 the line ceased to operate when coke was introduced as an alternative fuel and road transport took over[6]
- To supply water for the kilns, manager's residence and farm, he built an aqueduct that ran from Olinda Creek to Cave Hill

Efficient Transport: the challenge to get the lime to market was solved by a new railway line

Relevant content:

- Prior to the construction of the railway line, lime was transported to Melbourne by a team of 60 horses – this proved to be prohibitively costly
- Rail line planned to connect Lilydale with Hawthorn and the rest of Melbourne
- David Mitchell lobbied for the route of the Lilydale railway line to pass around the west of quarry, to allow a siding to be built
- Railway line was opened in December 1882, and became the main transport facility for the quarry
- Cave Hill siding used up until the 1980s, as trucks took over the main transport role

[5] Industries for Lilydale. In The Lilydale Express 9/12/1960

[6] Limestone Quarry brochure. Shire of Lilydale

Cave Hill Farm

Industrial Farming: where everything was used and nothing went to waste

Relevant content:

- Cave Hill Farm established in 1861 – small scale with horses, cows, pigs, hay & potatoes
- David Mitchell bought the land in 1878 – and promptly opened the quarry
- The farm upgraded in the mid-1880s for dairying – but David Mitchell sold his entire herd of cattle in 1888 to focus on a more industrial approach
- Butter and cheese factory opened in 1891
    - Local dairy farmers supplied the factory with milk – greatly welcomed as protection from the effects of the 1890s economic depression
- Bacon factory opened in 1893
    - Included a smoking room, cooling room and drying room
- Soap and candle factory opened around 1900
- *"The milk obtained was made into cheeses and butter. The whey from the butter was fed to the pigs and when fattened these were slaughtered and cured as ham and bacon. The leftovers from the butchering were in turn boiled down and the fat used as soap"*[7]

Workers

A Hive of Industry: skilled workers applying themselves to an age-old industry

Relevant content:

- By 1887, there were 70 men working at the quarry, and peaked in the early 20th century with about 200 people
- Men's quarters provided in the early 1900s
- Kilns operated night and day during the week
- Included skilled limeburners who ensured the correct 'cooking' of the limestone
- Other workers included quarrymen, blacksmiths, mechanics, machinery operators, labourers
- Many people worked at the quarry for over 30 years – most of their working lives
- David Mitchell had a good relationship with this workers – reportedly familial
- Cave Hill Quarry was a major employer for the Lilydale district, and important for the growth of Lilydale
- Around 70 men went to fight in WW2 who are commemorated at the quarry's main entrance gates

Picnics and Social Events: ensuring a happy workforce

Relevant content:

- Annual employee picnics held in the 1890s and early 1900s. The 1890s picnic was held at Brighton with 400 attending
- Many social events were held in the garden around the homestead including the annual Christmas party
- Cave Hill Social Club established in the 1930s – located in the old cheese factory (TBC)
- Included a cricket oval, clubroom, billiards room, tennis courts etc.
- Provided for the workers and families to ensure they were 'happy and contented'

[7] John Mitchell, 1978

Landscape

Captured in Time: artists and photographers records of landscapes long gone

Relevant content:

- Historic views of the landscape from key vantage points
- Examples include Arthur Streeton painting (1935), Rose Series panoramas (c1920-1954)

'The Lime Kiln Lilydale, 1935'. Arthur Streeton

Aboriginal Connections[8]

A Chasm With No End: the Aboriginal dreamtime myth that made this a special place

Relevant content:

- The original limestone cave was known as 'Buk-ker-tillible' – a chasm with no bottom. Stones dropped into the hole never made the sound of hitting the bottom – too deep.
- Formed by 'Pund-jel' who, angry with the local people, caused a star to fall from the sky, killing several people and making the endlessly deep chasm
- Would have been a significant spiritual site for the Wurundjeri willam clan of the Woi wurrung tribe
- One of the few documented locations in the Melbourne area that is linked with Aboriginal Dreamtime [9]

Height advantage: views of the surrounding area

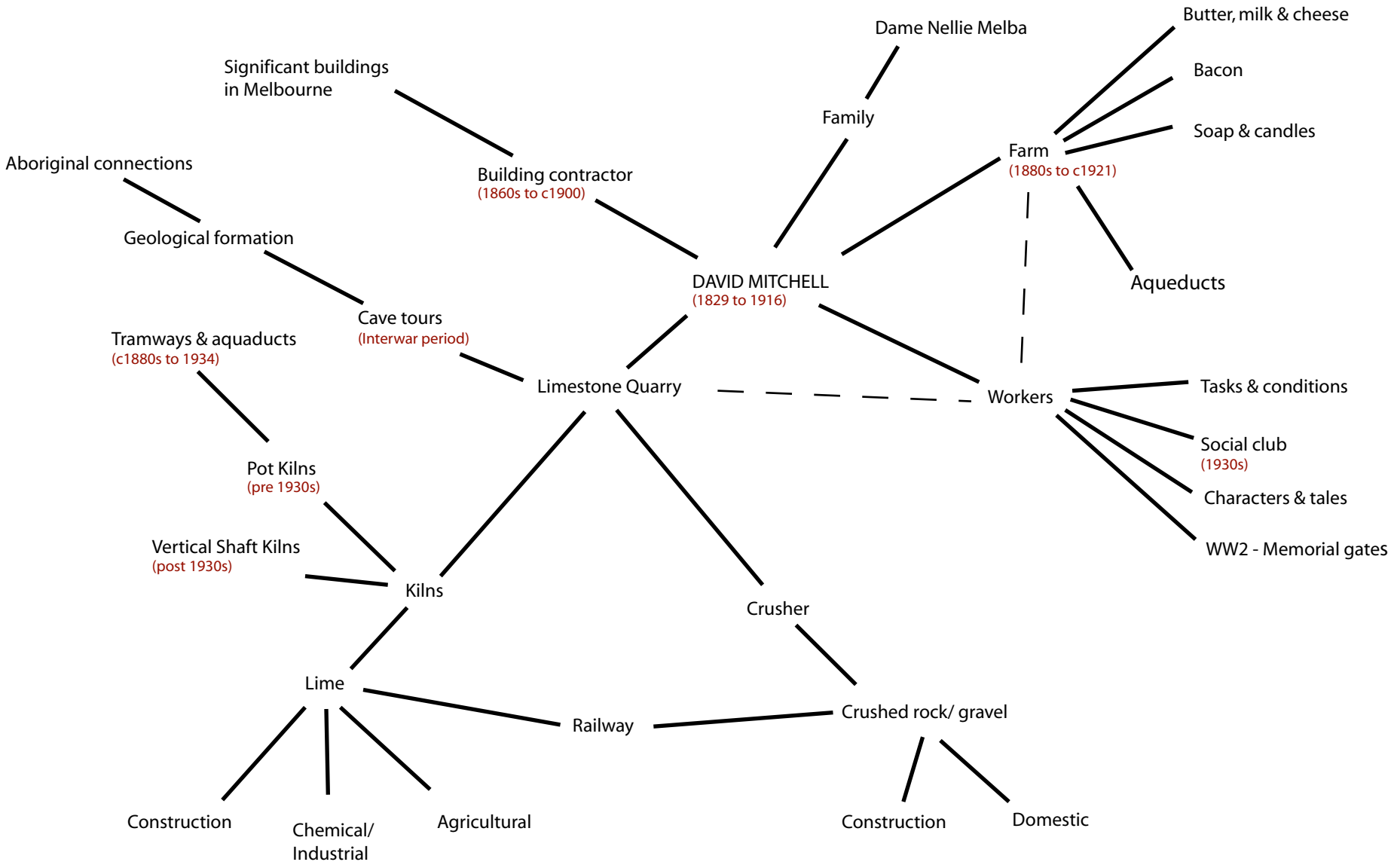
Relevant content:

- Local tops of hills and ridges were favourite areas to visit by traditional Aboriginal people, primarily to survey the local area for people and prey
- The original high point of Cave Hill would have been an ideal viewpoint, especially as it was close to fresh water and other resources
- The area remains important for the local Aboriginal people

[8] All Aboriginal interpretation must be developed in association with the local Aboriginal community to ensure accuracy and appropriateness. The Registered Aboriginal Party (RAP) is the Wurundjeri Tribe Land and Compensation Cultural Heritage Council
[9] Michael Lever, 2013

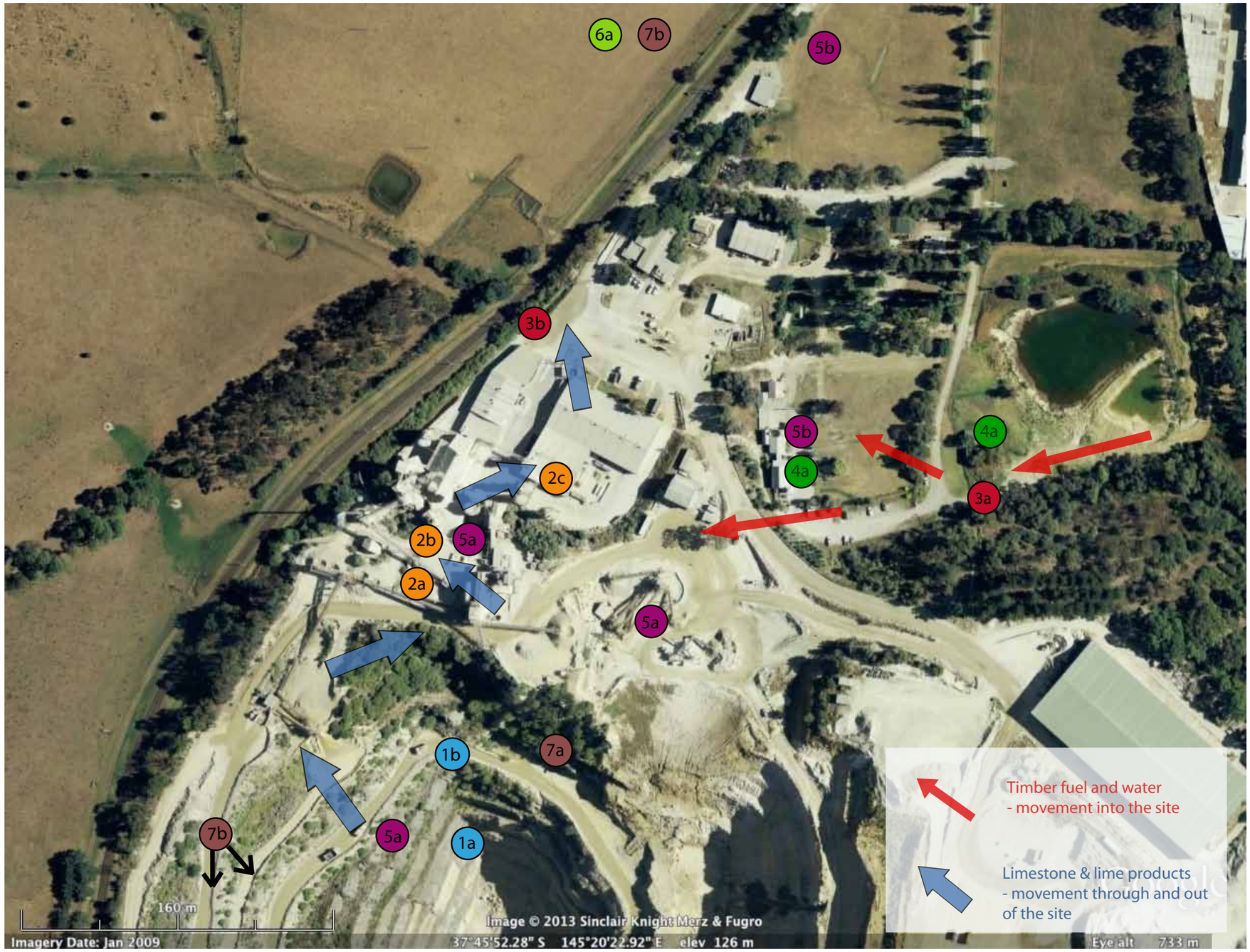
CAVE HILL QUARRY

FIGURE 1. INTERPRETIVE TOPICS & STORYLINES



CAVE HILL QUARRY

FIGURE 2. INTERPRETATION CONCEPTS - THEMATIC OVERLAY



TOPICS & THEMES

Limestone Quarry
- 1a. An ancient formula
- 1b. From cave to quarry

The Tunnel & Main Works
- 2a. Making lime
- 2b. Technological advances
- 2c. Lime & limestone

Transport
- 3a. Network of tramways & aqueducts
- 3b. Efficient transport

Cave Hill Farm
- 4a. Industrial farming

Workers
- 5a. A hive of industry
- 5b. Picnics & social events

Landscape
- 6a. Captured in time

Aboriginal Associations
- 7a. Chasm with no end
- 7b. Height advantage

(To be located at selected ridges and elevated places in the outer sections of the property)

Locations are approximate

GENERAL NOTES

1. This drawing shall only be used for the purpose for which it was commissioned.

2 Do not scale from drawings. Figured dimensions are to be checked and verified prior to the commencement of any work, making of drawings or fabrication of components and take precedence over scaled dimensions. Any discrepancy shall be reported prior to commence - ment of any work.

3. All dimensions to be verified.

4. The Contractor must verify and accept responsibility for all dimensions and conditions and must notify LookEar of any variations before proceeding.

CONCEPT DESIGN ONLY
NOT FOR CONSTRUCTION

KEY PLAN:

CONSULTANT:

lookear

INTERPRETATION DESIGN

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Lovell Chen

PROJECT:
Cave Hill Quarry
Interpretation Concepts

DRAWING TITLE:
Cave Hill interpretive overlay

Drawn by:	Checked:	Approved:
DH		
Project No.: 13_125		
Date: 18/11/2013	File name: Cave Hill2.ai	
Drawing no.: 002.ai		
Scale: Not to scale		

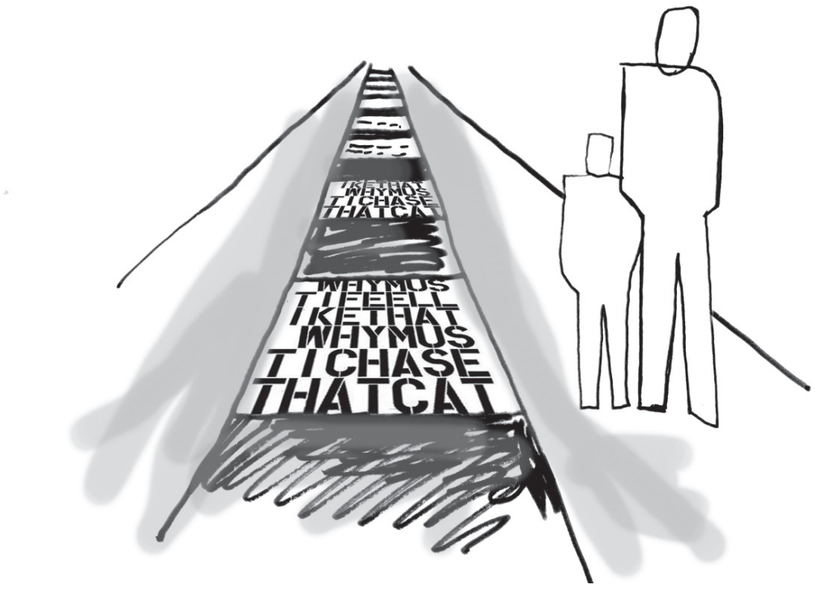
5. Potential Interpretive Forms

Interpretative stories and messages can be presented using a wide variety of techniques and forms. This ranges from simple on-site signage that despite being relatively cost effective has limitations for effective visitor engagement, through to sophisticated interactive multimedia that although engaging, is relatively expensive and suitable for quite specific applications.

This section of the report presents the possible range of interpretive media that may be suitable for Cave Hill Quarry during its process of re-development

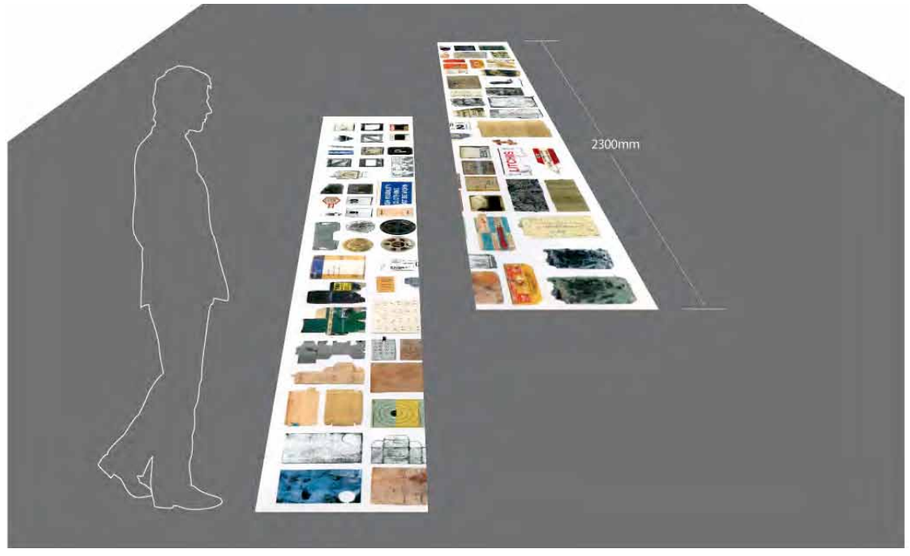
Paving Elements

Interpretive elements that are integrated into the landscape design of the area that adds meaning and recognises significance.



Stencilled text onto paving stone

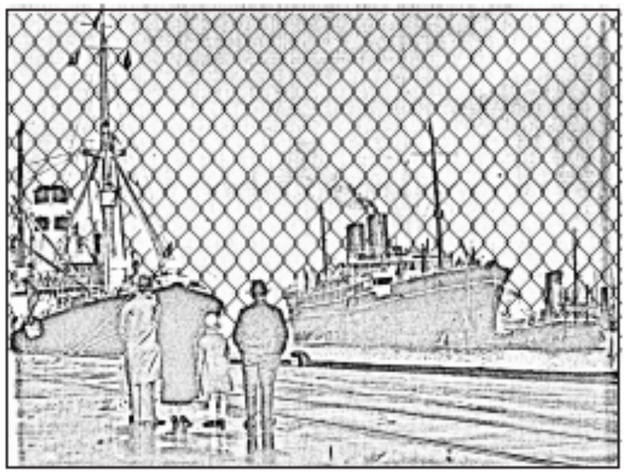
Laser etched text into paving stone



Ephemera in sealed glass boxes inserted into asphalt

Fence Treatment

Interpretive elements that become part of the landscape and utilitarian functioning of the site

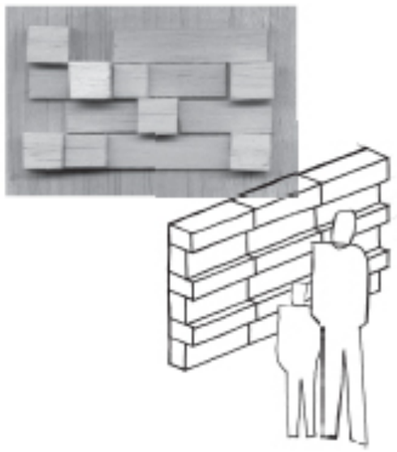


Wire fencing mesh woven into an historic image

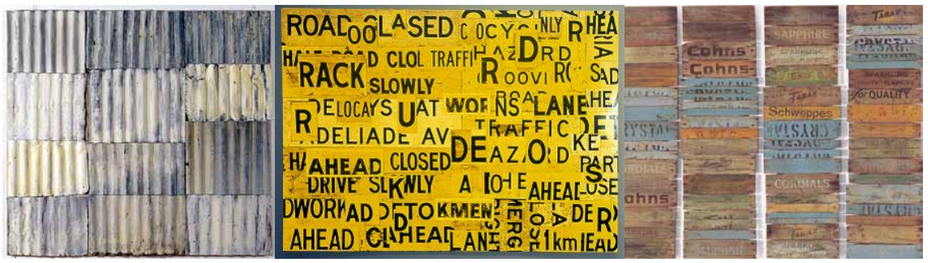
Example of usage of existing art in the Netherlands

Wall Relief Panels

Wall panels that use found or created objects to interpret historic sites



Grids designed for the construction of relief sculptures



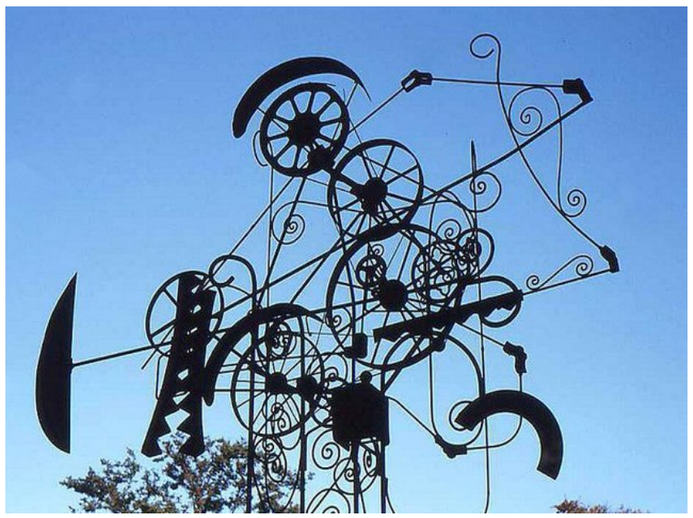
Example by artist Rosalie Gascoigne

Sculptural

Striking sculptural elements that are playful, personal, accessible, engaging and meaningful. Care is needed however to ensure that sculptures do not trivialise the site or place objects out of context.

http://artodyssey1.blogspot.com.au/2013_05_12_archive.html

http://www.best-story.net/story/372/The-Strangest-Public-Sculptures/

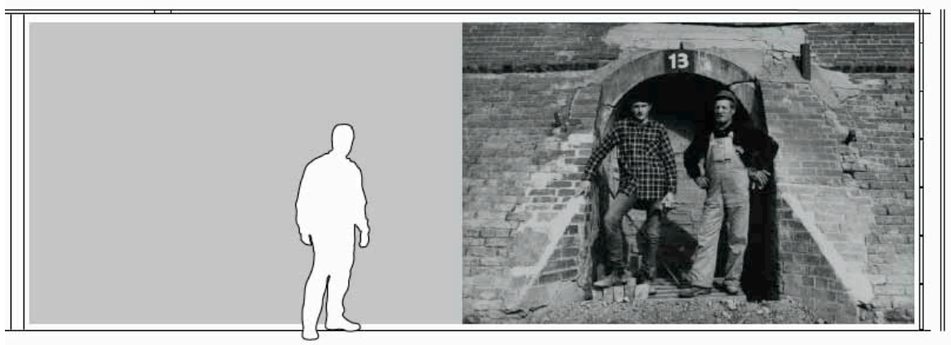


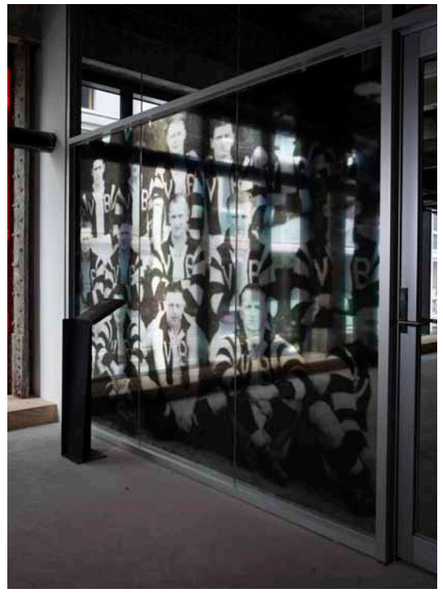
http://www.geograph.ie/photo/1458671

http://www.whereistheart.com.au/september-shorts/

Glass Walls

Large glass wall panels that feature strong historic images





Hoffmans Brickworks and Old Victoria Brewery

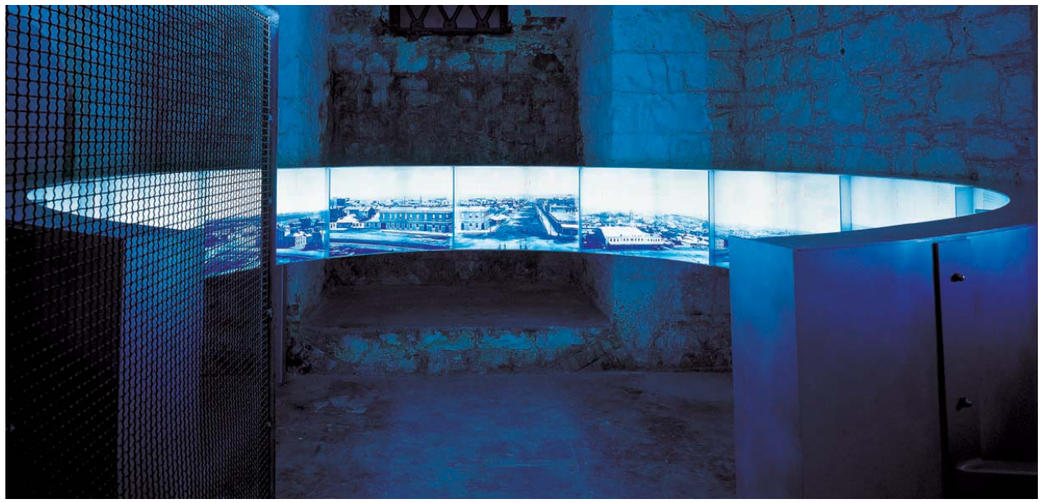
Integrated Soundscapes

Soundscapes installations as part of a dedicated display element

Audio wall at Bonegilla Immigration Museum with visitor activated audio segments

Historic photographic scenes

Imaginative use of historic images to create an authentic impression of the past.



Built on Gold exhibition, Old Treasury Museum

Signage

Interpretive signage that is succinct and captures the essence of the story at hand

Old Victoria Brewery signage, East Melbourne

Internal Display Panels

Display panels that provide contextual and more detailed interpretive information

Old Victoria Brewery Museum, East Melbourne

Digital Multimedia Interactives

Sophisticated multimedia that can present a large amount of material in an interactive form using text, video and audio

Eureka Skydeck exhibition

6. Selected References

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lookear

CAVE HILL QUARRY INTERPRETATION CONCEPTS

DRAFT REPORT

November 2013

CAVE HILL QUARRY INTERPRETATION CONCEPTS

DRAFT REPORT

Prepared for Places Victoria, on behalf of Sibelco

Project No	Issue No.	Notes/ description	Issue date
13-125	2	Draft Report	Nov 2013

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1. Introduction

This interpretation concept report for Cave Hill Quarry is designed to provide a broad framework for the future development of interpretation at Cave Hill over the forthcoming period of re-development.

The process of developing interpretive concepts relies heavily on the inherent values and significance of the site, some of which are documented, and some of which are not. Interpretation relies heavily on both tangible heritage values such as remaining building fabric, and intangible heritage such as memories of those who worked at the site. This intangible heritage is often more difficult to access and preserve, but it is this material that in an interpretive sense allows the site to come to life with the memories of real people and real events.

This report is designed to support the Cave Hill Masterplan developed by Lovell Chen. Heritage values and significant components that are likely to be retained are critical in the development of this report. Likewise, recognised guidelines are critical in the development of any interpretive outcomes. These include:

- ICOMOS Charter for the Interpretation and Preservation of Cultural Heritage Sites (Ename Charter)
- The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance
- Australia ICOMOS Practice Note: Interpretation (refer to Appendix 1)

The report presents a thematic overlay for the site using two interpretive levels. This structural device allows for the development of broad themes that do not necessarily relate to any specific location, whilst accommodating for the interpretation of relatively site-specific interpretive themes.

Unlike some sites, a specified time period for the interpretation at Cave Hill is not considered appropriate. There is of course an emphasis on the David Mitchell era from 1878 to 1916, but many pertinent interpretive stories extend outside this era. However to avoid confusion, time eras must be clearly presented in any interpretive material.

It is not within the scope of this report to develop actual recommendations for the forms of interpretive delivery, nor is this possible at this very early stage of the redevelopment process. However the report provided a range of interpretive forms and styles that could be considered in the subsequent stages of the project.

The report also provides a brief insight into the art of interpretation. Two critical principles that are important to recognise and should be the basis of any future interpretive developments are:

- Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.
- Information, as such, is not interpretation. Interpretation is discovery based on information. But they are not entirely different things. However all interpretation includes information.[1]

[1] Freeman Tilden, 1977

2. Interpretation – What is it?

There are many different ways to describe interpretation.

- Interpretation is an educational activity, which aims to reveal meanings and relationships.
- Interpretation is an art, which combines many arts whether the materials presented are scientific, historical or architectural. (Freeman Tilden).
- Interpretation is about inspiring people to think, share and learn (John Pastorelli).
- It is about communicating significance and sharing special associations to connect people with places and culture. This might include the past or present. It is the act of identifying and transmitting meaning (Bill Nethery).
- Interpretation is a means of communicating ideas and feelings, which helps people enrich their understanding and appreciation of their world, and their role in it (Interpretation Australia Association).

Interpretation also relates to the idea of enriching the visitor's experience and enhancing the appreciation of the site through knowledge and understanding of its natural and cultural values.

Interpretation should facilitate personal connections and seek to be relevant and engaging to the audience and delivering a great experience. It can bring a subject to life, reveal meanings, provide different perspectives, and engages the senses. Interpretation is respectful of the special associations people have and the values and sustainability of culture and heritage. It can foster appreciation, it may inspire or challenge.

In the 1990s, Professor Sam Ham from the University of Idaho, developed a series of four basic principles known as the EROT rule – that good interpretation must be Entertaining, Relevant, Organised and Themed.

Professor Ham also developed an important addition to these principles in the concept that good interpretation is 'meaning making'. In other words, good interpretation is more than an entertaining series of facts. It must create a sense of meaning and connection with a place and its significance.

> "Interpretation must be viewed not as an information-giving function, per se, but as a mechanism for producing meanings that bond people to the places they visit – and that create in us a sense of place and an empathy for the people who lived in times past. In empathy, not in the facts alone, lie the great lessons that history purports to teach us" (Ham S., 2002)

There is also one final and overarching principle that should be considered and which connects all the previous ones.

> "The primary choice of which way you organise something is made by deciding how you want it to be found"
>
> *Richard Saul Wurman*[2]

Royal Botanic Gardens Cranbourne

Brambuk Aboriginal Cultural Centre

[2] Wurman R.S, (1999). Information Architects, In *Emery Vincent Design*.

3. Interpreting Cave Hill

The Challenge

The challenge for the interpretation at Cave Hill is to understand the diversity of available stories that are linked to the site, and to distil these stories in a way that is understandable and engaging for the visitors.

Furthermore, it is important to understand who are the visitors – the people who will come to this site as part of its redeveloped future? And what will remain of the existing structures and site layout? These questions remain largely unanswered, and so the only solution is to work with the knowns – the items that have heritage significance and are likely to be retained in some form.

The Vision

Imagine this:

We enter the old Cave Hill Quarry from the site of the old railway siding. The place has the remnants of an industrial site, although clearly no longer functional. Old workers safety and loading procedures signs indicate how, when and where the lime was loaded onto the train and shipped to Melbourne. And within the paving leading into the site, is a large and visually striking series of paving inserts showing the incredible array of lime based products and their uses – outcomes from this the old limestone quarry.

Simple paving markers that indicate how the materials moved through the site lead us around. Carts laden with firewood from the surrounding forested areas meet us at The Tunnel and the old pot kilns. Large images of the workers look out at us from the large glass panels that partly clad the walls, many of which can be activated by a simple touch for them to tell their stories of living and working at David Mitchell's limestone quarry.

We also discover the ways technology of the newer kilns improved but still maintained this age-old process of cooking limestone to produce lime.

And then to the quarry itself. Apparently it was much larger than we can see now, but in the distance, we can see tall markers of how large the quarry hole once was. But a section of the old quarry face still exists, with some of the machinery used to dig, crush and transport the stone still preserved. Large boulders of limestone have been strategically positioned and engraved with text and simple images to explain the process of quarrying this stone that was deposited millions of years old in a shallow sea.

Leaving the quarry, we then are led to the old farm buildings, yet another of David Mitchell's business endeavours. Inside we see the sights, sounds and smells of the cheese and bacon factory, and discover that this was later the hub of the social club that was a strong feature of working here. And of course a small retail outlet supplied us with a selection of gourmet cheeses and meats, as tasty reminders of what once was.

This is a brief exploration of the proposed style of the interpretation. The vision for the interpretation is that it is closely and carefully integrated into the landscape and remaining heritage items, using a variety of interesting forms of media, rather than considered and developed as a tacked on after-thought.

Interpretive Structure

The interpretive structure or overlay for the site is best expressed through the construction of two main interpretive levels:

1. **Overview**
    a. David Mitchell – the entrepreneur
    b. The broad movement of materials through the site
2. **Functioning**
    a. Site details and industrial processes
    b. The people who worked at the site – lives, stories and events

The forms of expression for these two interpretive levels should be quite different.

The **Overview** themes should be spread through the site in a variety of ways, that are not necessarily restricted to single sites or areas. For instance the David Mitchell stories should be presented throughout the site and interwoven into other interpretive elements wherever possible, rather than being restricted to a single monument or interpretive element. Likewise the broad movement of materials through the site can be quite ubiquitous with frequent reminders.

On the other hand the **Functioning** themes tend to be related to specific locations, which can be interpretive in ways that highlight these features, their function, their significance and importantly relationship that people had with them – e.g. workers' tales.

Cave Hill quarry workers 1913

4. Thematic Structure

The various interpretive topics and stories that can be presented, along with their relevant locations have quite clear relationships. These relationships are relatively straightforward and are presented as a simple chart in Figure 1.

Using these relationships as a starting point, a useful interpretive technique is to establish an overarching or primary theme that encapsulates the general intent of the interpretive messages and stories for the whole site. From this primary theme, a series of supporting themes can be developed to illustrate specific elements that assist in the storytelling.

PRIMARY THEME

Visionary Entrepreneur: Cave Hill was the brainchild and legacy of David Mitchell.

As a successful builder he was looking for building supplies, and the Cave Hill limestone was an ideal resource. Quarried, crushed and cooked, the limestone became a major building resource for burgeoning Melbourne. And with the principle of utilising all available resources, he established a farm to produce butter, milk and bacon; and local tramways and aqueducts to supply timber and water for the kilns. He became a major employer in the Lilydale area with a loyal workforce, many of whom worked at the quarry or farm for most of their working lives.

Cave Hill is a reminder of a visionary entrepreneur and an industry that had a major impact of the growth and development of Melbourne, and Lilydale in particular. But Aboriginal people had an association with this place long before Europeans came to harvest its wealth.

SUPPORTING THEMES

The following supporting themes are expressed as a simple header, with a brief supporting explanatory phrase that provides an insight into the relevant theme or story angle. A summary of relevant content is also listed.

OVERVIEW

A Talented Man: rising from humble beginnings to visionary entrepreneur

Relevant content:

- David Mitchell was born 16 February 1829 in Forfarshire, Scotland
- Came to Melbourne in 1852 after completing a stone mason apprenticeship
- 1856 won the tender for masonry work on St Patrick's Cathedral
- Married Isabella Dow and lived in Richmond
- Had ten children including daughter Helen (Dame Nellie Melba), born 19 May 1861
- From 1860s became one of Victoria's leading building contractors including Menzies Hotel, Scots Church and Exhibition Buildings
- Bought Cave Hill property in 1878 to establish the limestone quarry, to supply lime for building projects
- Other interests including:
    - Factory for steam-made and pressed bricks
    - Gold mining – constructed the tunnel at Pound Bend, Warrandyte to divert a section of the Yarra River to allow a section to be mined
    - Business partnership with Sir John Monash in the Monier Pipe Co Pty Ltd
    - Cave Hill farm – producing butter, cheese, bacon, ham and soap
    - Vineyards and wineries at Yeringberg, Coldstream & St Hubert's
    - Large stations on the upper Murray and Western District[3]
- Died 25 March 1916

From to Quarry to Railway Cart: the process of making lime from stone

Relevant content:

- Quarry face blasted
- Stone collected
- Trucked to primary crusher
- Elevated conveyors
- *Picking station and shaker screen – sorting (obsolete)*
- Ball mill - secondary crusher
- Kiln
- Pulveriser
- Hydrator – for hydrated lime (Limil)
- Packing
- Transport – road and rail

FUNCTIONING

The Functioning themes are linked to specific locations throughout the site, as shown in Figure 2 – Thematic Overlay.

Limestone Quarry

An Ancient Formula: shallow seas + marine creatures + millions of years = limestone

Relevant content:

- The limestone was formed from deposits of shells and other marine creatures laid down in a shallow sea around 380 million years ago (Early Devonian period)
- Earth forces then buckled the sediments by a process of folding and faulting
- Volcanic activity then covered the area with thick basaltic lava around 2 – 5 million years ago (Pliocene and Pleistocene)
- Cracks and fissures allowed water to enter the rock layers which formed caves, and eventual access into the limestone hidden beneath the surface

From Cave to Quarry: David Mitchell's rapid development of the limestone venture

Relevant content:

- Geological survey of 1856 identified the limestone caves of Cave Hill as a potential major resource – one cave was approx. 130 feet deep
- David Mitchell bought 'Cave Hill Farm' in 1878
- *"He walked to the top of the hill with his daughter Nellie, and pointing to a hole – a cave-like fissure – in the ground, said: 'That hole my girl, is going to make my fortune, one day, and yours' – or words to that effect"*[4]
- David Mitchell opened Cave Hill Limestone and Marble in 1878 and by 1882 was producing 1000 bags of lime per week
- Upgraded operations from horse and dray to water wheel, pulleys and steam cranes to lift the stone from the quarry to the kilns
- By 1887, 70 men worked at the quarry

[3] http://adb.anu.edu.au/biography/mitchell-david-4209

[4] A Romance of Industry: Cave Hill Quarry's Jubilee. In Herald 4/4/1928

The Tunnel and Main Works

Making Lime: an age-old process of cooking stone

Relevant content:

- Cutting was made into the northern side of the hill, directly into the quarry
- Location for a battery of bottle or pot kilns – part of a major expansion of the operations in 1890s and early 1900s
- Estimated to have been approx. 15 kilns when first established
- Simple process of layering timber fuel and limestone into the kilns and setting it on fire
- As the limestone and coke descends through the kiln, it reaches sufficient temperature (952°C) to convert the limestone into lime
- Heat removes the CO_2 from the calcium carbonate ($CaCO_3$) leaving calcium oxide (CaO) or quicklime
- Quicklime retrieved from the bottom of the kilns – a continuous process with more fuel and limestone added to the top as lime removed from the bottom
- The kilns operated night and day

Technological Advances: better equipment but the same principle

Relevant content:

- Automatic vertical shaft kiln
  - Built in 1934 – part of a general upgrade of the site in the 1930s
  - Early example of a continuous coke-powered kiln
  - Company committed to up-to-date advanced technologies
  - Replaced in 1960s
- West's automatic vertical shaft kilns (x3)
  - Commissioned in 1964 as part of a general upgrade of the site
  - Continuous oil-fired kiln
  - More efficient burn and have increased output to approx. 50 tonnes of lime each per day
  - Company committed to up-to-date advanced technologies

Products

Lime & Limestone: the surprisingly useful product

Relevant content:

- David Mitchell Estate Ltd had its head office in Richmond with a policy of '*We are big enough to serve you and small enough to want you*'[5]
- Lime's original use was primarily for cement and building purposes
  - Emu brand cement – started sales by 1891
- Hydrated lime – made by mixing water with lime and recooking – Limil brand
- Quicklime and hydrated lime have extensive uses
  - Structural e.g. plaster, mortar and concrete
  - Metallurgy e.g. steel manufacture
  - Chemical manufacture e.g. ammonia, pesticides and anti-freeze
  - Pulp and paper manufacture
  - Sanitisation e.g. neutralisation of acidic wastes
  - Ceramics manufacture
  - Food manufacture e.g. sugar refining, butter production
  - Food bi-products e.g. leather tanning, glue and gelatine
  - Petroleum refining
  - Paints and pigments
  - Soil stabilisation
  - Road bases and paving
  - Soil nutrition
  - Fertiliser manufacture
- Crushed limestone uses include
  - Lilydale toppings – crushed limestone for paving
  - Road metal

Transport

Networks of Tramways and Aqueducts: suppliers of fuel and water

Relevant content:

- David Mitchell recognised the surrounding resources he needed for his ventures
- For timber to fuel the kilns, he built tramways that extended out for up to 16km into the surrounding areas
  - The main line ran from the quarry to Olinda Creek and the site of Silvan Reservoir
  - Two steam locomotives purchased from the Bendigo tramways hauled trucks into the bush.
  - A driver and assistant and two timber getters operated the tramway while timber cutters and sawers would cut and stack the wood along the tramway.
  - Trucks were left on the outward journey then collected on return.
  - The sidings were constructed to allow trucks to pass each other.
  - In 1934 the line ceased to operate when coke was introduced as an alternative fuel and road transport took over[6]
- To supply water for the kilns, manager's residence and farm, he built an aqueduct that ran from Olinda Creek to Cave Hill

Efficient Transport: the challenge to get the lime to market was solved by a new railway line

Relevant content:

- Prior to the construction of the railway line, lime was transported to Melbourne by a team of 60 horses – this proved to be prohibitively costly
- Rail line planned to connect Lilydale with Hawthorn and the rest of Melbourne
- David Mitchell lobbied for the route of the Lilydale railway line to pass around the west of quarry, to allow a siding to be built
- Railway line was opened in December 1882, and became the main transport facility for the quarry
- Cave Hill siding used up until the 1980s, as trucks took over the main transport role

[5] Industries for Lilydale. In The Lilydale Express 9/12/1960

[6] Limestone Quarry brochure. Shire of Lilydale

Cave Hill Farm

Industrial Farming: where everything was used and nothing went to waste

Relevant content:

- Cave Hill Farm established in 1861 – small scale with horses, cows, pigs, hay & potatoes
- David Mitchell bought the land in 1878 – and promptly opened the quarry
- The farm upgraded in the mid-1880s for dairying – but David Mitchell sold his entire herd of cattle in 1888 to focus on a more industrial approach
- Butter and cheese factory opened in 1891
    - Local dairy farmers supplied the factory with milk – greatly welcomed as protection from the effects of the 1890s economic depression
- Bacon factory opened in 1893
    - Included a smoking room, cooling room and drying room
- Soap and candle factory opened around 1900
- *"The milk obtained was made into cheeses and butter. The whey from the butter was fed to the pigs and when fattened these were slaughtered and cured as ham and bacon. The leftovers from the butchering were in turn boiled down and the fat used as soap"*[7]

Workers

A Hive of Industry: skilled workers applying themselves to an age-old industry

Relevant content:

- By 1887, there were 70 men working at the quarry, and peaked in the early 20th century with about 200 people
- Men's quarters provided in the early 1900s
- Kilns operated night and day during the week
- Included skilled limeburners who ensured the correct 'cooking' of the limestone
- Other workers included quarrymen, blacksmiths, mechanics, machinery operators, labourers
- Many people worked at the quarry for over 30 years – most of their working lives
- David Mitchell had a good relationship with this workers – reportedly familial
- Cave Hill Quarry was a major employer for the Lilydale district, and important for the growth of Lilydale
- Around 70 men went to fight in WW2 who are commemorated at the quarry's main entrance gates

Picnics and Social Events: ensuring a happy workforce

Relevant content:

- Annual employee picnics held in the 1890s and early 1900s. The 1890s picnic was held at Brighton with 400 attending
- Many social events were held in the garden around the homestead including the annual Christmas party
- Cave Hill Social Club established in the 1930s – located in the old cheese factory (TBC)
- Included a cricket oval, clubroom, billiards room, tennis courts etc.
- Provided for the workers and families to ensure they were 'happy and contented'

[7] John Mitchell, 1978

Landscape

Captured in Time: artists and photographers records of landscapes long gone

Relevant content:

- Historic views of the landscape from key vantage points
- Examples include Arthur Streeton painting (1935), Rose Series panoramas (c1920-1954)

'The Lime Kiln Lilydale, 1935'. Arthur Streeton

Aboriginal Connections[8]

A Chasm With No End: the Aboriginal dreamtime myth that made this a special place

Relevant content:

- The original limestone cave was known as 'Buk-ker-tillible' – a chasm with no bottom. Stones dropped into the hole never made the sound of hitting the bottom – too deep.
- Formed by 'Pund-jel' who, angry with the local people, caused a star to fall from the sky, killing several people and making the endlessly deep chasm
- Would have been a significant spiritual site for the Wurundjeri willam clan of the Woi wurrung tribe
- One of the few documented locations in the Melbourne area that is linked with Aboriginal Dreamtime [9]

Height advantage: views of the surrounding area

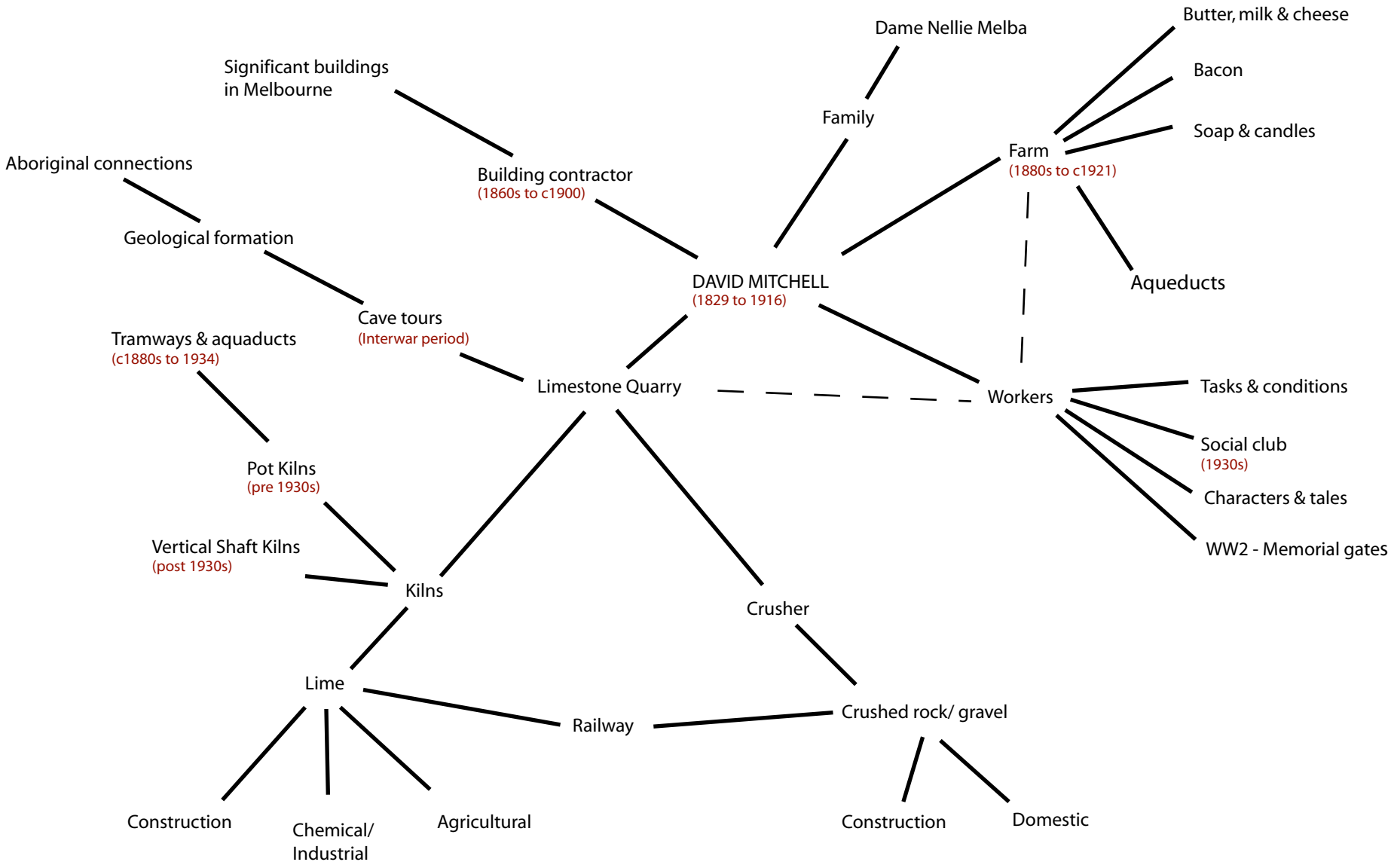
Relevant content:

- Local tops of hills and ridges were favourite areas to visit by traditional Aboriginal people, primarily to survey the local area for people and prey
- The original high point of Cave Hill would have been an ideal viewpoint, especially as it was close to fresh water and other resources
- The area remains important for the local Aboriginal people

[8] All Aboriginal interpretation must be developed in association with the local Aboriginal community to ensure accuracy and appropriateness. The Registered Aboriginal Party (RAP) is the Wurundjeri Tribe Land and Compensation Cultural Heritage Council
[9] Michael Lever, 2013

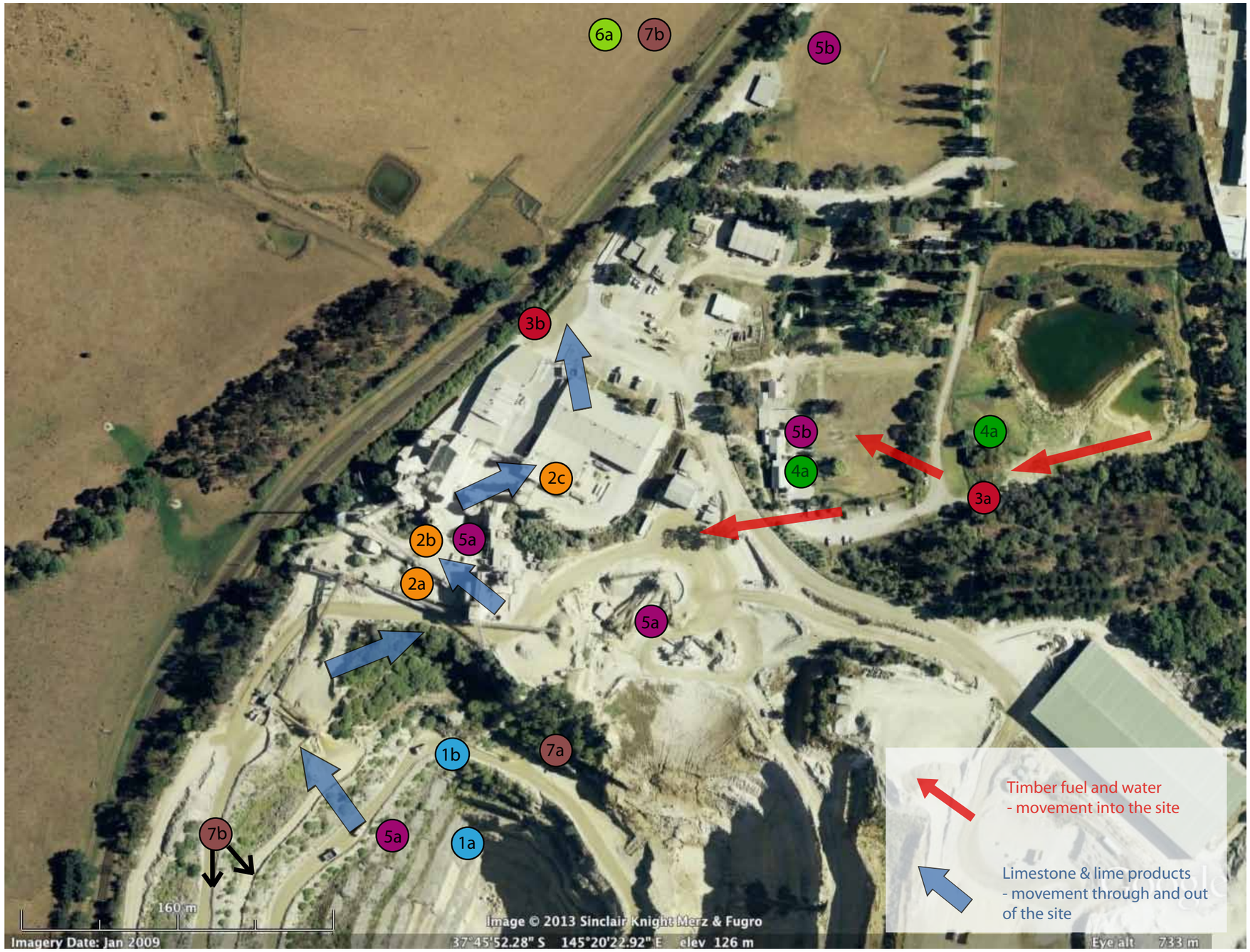
CAVE HILL QUARRY

FIGURE 1. INTERPRETIVE TOPICS & STORYLINES



CAVE HILL QUARRY

FIGURE 2. INTERPRETATION CONCEPTS - THEMATIC OVERLAY



TOPICS & THEMES

Limestone Quarry
- 1a. An ancient formula
- 1b. From cave to quarry

The Tunnel & Main Works
- 2a. Making lime
- 2b. Technological advances
- 2c. Lime & limestone

Transport
- 3a. Network of tramways & aqueducts
- 3b. Efficient transport

Cave Hill Farm
- 4a. Industrial farming

Workers
- 5a. A hive of industry
- 5b. Picnics & social events

Landscape
- 6a. Captured in time

Aboriginal Associations
- 7a. Chasm with no end
- 7b. Height advantage

(To be located at selected ridges and elevated places in the outer sections of the property)

Locations are approximate

GENERAL NOTES

1. This drawing shall only be used for the purpose for which it was commissioned.

2 Do not scale from drawings. Figured dimensions are to be checked and verified prior to the commencement of any work, making of drawings or fabrication of components and take precedence over scaled dimensions. Any discrepancy shall be reported prior to commence - ment of any work.

3. All dimensions to be verified.

4. The Contractor must verify and accept responsibility for all dimensions and conditions and must notify LookEar of any variations before proceeding.

CONCEPT DESIGN ONLY
NOT FOR CONSTRUCTION

KEY PLAN:

CONSULTANT:

lookear

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Lovell Chen

PROJECT:
Cave Hill Quarry
Interpretation Concepts

DRAWING TITLE:
Cave Hill interpretive overlay

Drawn by:	Checked:	Approved:
DH		
Project No.: 13_125		
Date: 18/11/2013	File name: Cave Hill2.ai	
Drawing no.: 002.ai		
Scale: Not to scale		

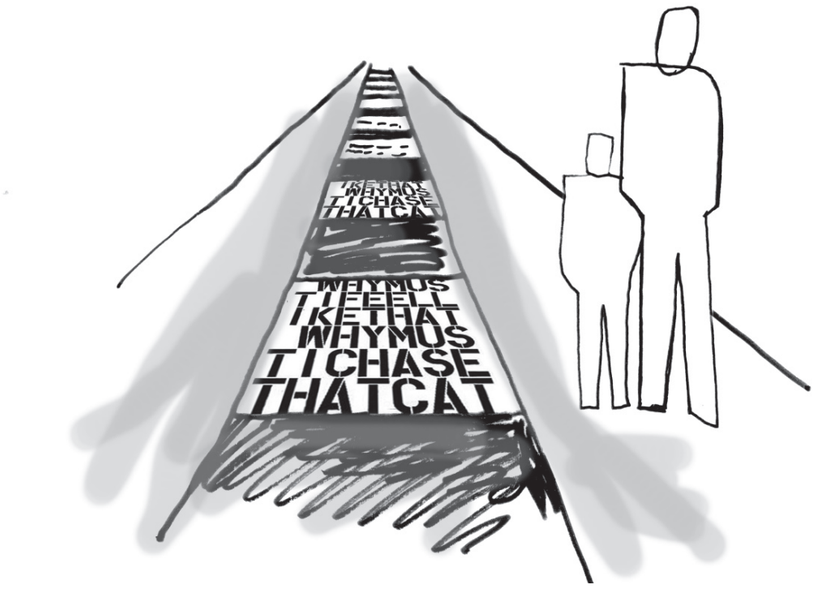
5. Potential Interpretive Forms

Interpretative stories and messages can be presented using a wide variety of techniques and forms. This ranges from simple on-site signage that despite being relatively cost effective has limitations for effective visitor engagement, through to sophisticated interactive multimedia that although engaging, is relatively expensive and suitable for quite specific applications.

This section of the report presents the possible range of interpretive media that may be suitable for Cave Hill Quarry during its process of re-development

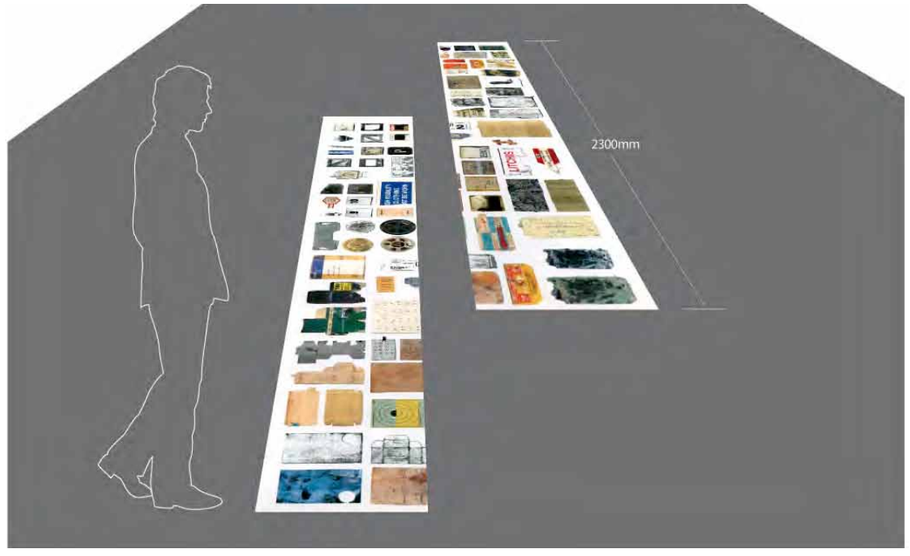
Paving Elements

Interpretive elements that are integrated into the landscape design of the area that adds meaning and recognises significance.



Stencilled text onto paving stone

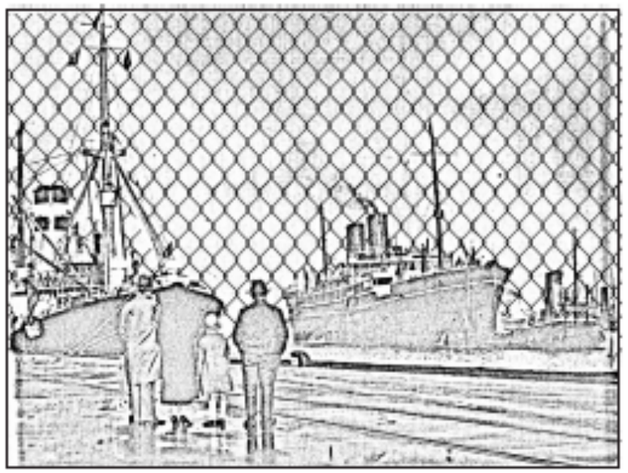
Laser etched text into paving stone



Ephemera in sealed glass boxes inserted into asphalt

Fence Treatment

Interpretive elements that become part of the landscape and utilitarian functioning of the site

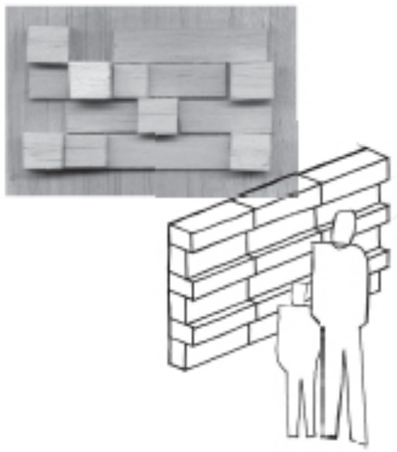


Wire fencing mesh woven into an historic image

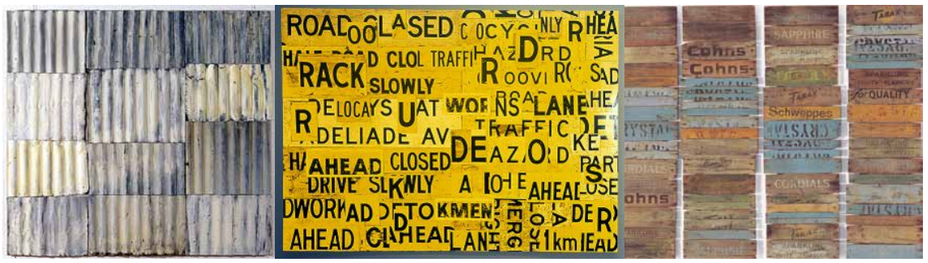
Example of usage of existing art in the Netherlands

Wall Relief Panels

Wall panels that use found or created objects to interpret historic sites



Grids designed for the construction of relief sculptures



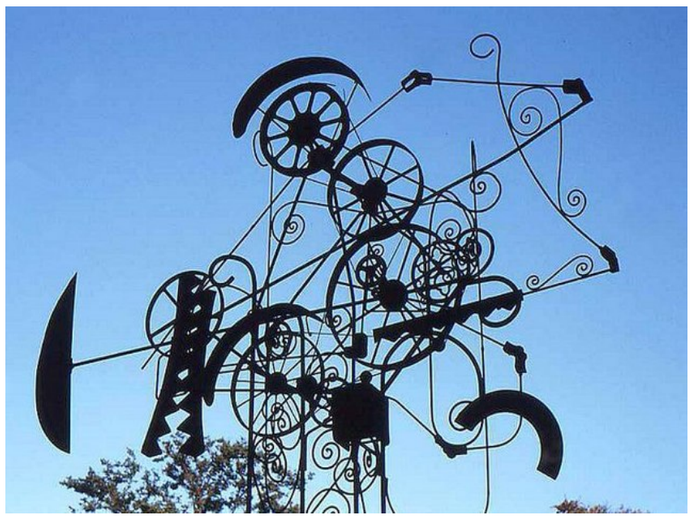
Example by artist Rosalie Gascoigne

Sculptural

Striking sculptural elements that are playful, personal, accessible, engaging and meaningful. Care is needed however to ensure that sculptures do not trivialise the site or place objects out of context.

http://artodyssey1.blogspot.com.au/2013_05_12_archive.html

http://www.best-story.net/story/372/The-Strangest-Public-Sculptures/

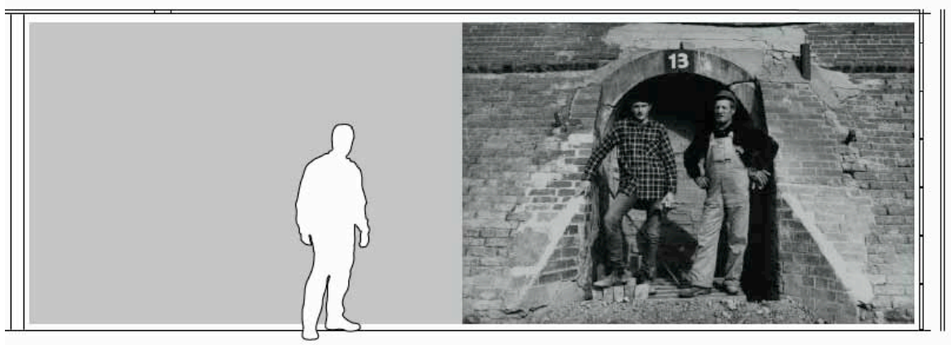


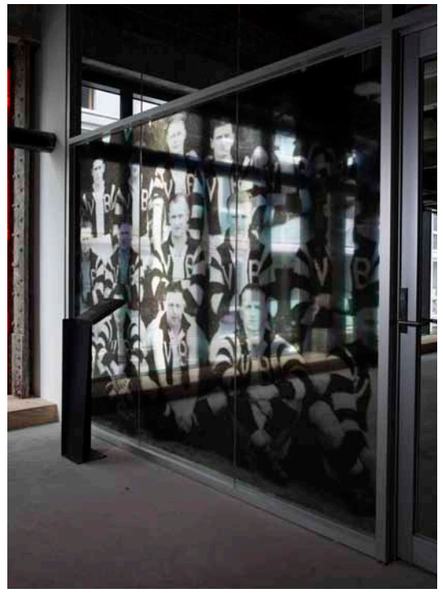
http://www.geograph.ie/photo/1458671

http://www.whereistheart.com.au/september-shorts/

Glass Walls

Large glass wall panels that feature strong historic images





Hoffmans Brickworks and Old Victoria Brewery

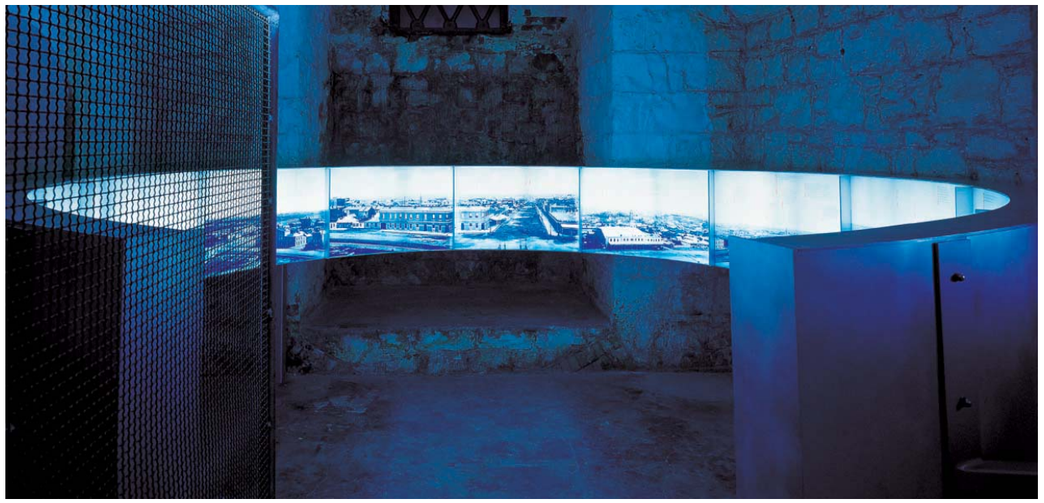
Integrated Soundscapes

Soundscapes installations as part of a dedicated display element

Audio wall at Bonegilla Immigration Museum with visitor activated audio segments

Historic photographic scenes

Imaginative use of historic images to create an authentic impression of the past.



Built on Gold exhibition, Old Treasury Museum

Signage

Interpretive signage that is succinct and captures the essence of the story at hand

Old Victoria Brewery signage, East Melbourne

Internal Display Panels

Display panels that provide contextual and more detailed interpretive information

Old Victoria Brewery Museum, East Melbourne

Digital Multimedia Interactives

Sophisticated multimedia that can present a large amount of material in an interactive form using text, video and audio

Eureka Skydeck exhibition

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