253-263 Brunswick Road, Brunswick

H2332 – Former Cable Tram Engine House & Tram Substation

Heritage Impact Statement (Historical Archaeology)

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Former Cable Tram Engine House & Tram Substation

(H2332)

253-263 Brunswick Road, Brunswick.

Heritage Impact Statement

A report prepared in support of the application for a Heritage Permit ahead of proposed redevelopment of the Former Cable Tram Engine House.

Document prepared for Bensons Property Group.

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1. Background

1.1 Introduction

Ochre Imprints was engaged by Bensons Property Group [BPG] to prepare an Historical Archaeological Impact Assessment for a proposed redevelopment of the property at 253-259 Brunswick Road, Brunswick. This Impact Assessment has been undertaken to support a *Heritage Act* 2017 (H Act) permit application for a proposal to partially redevelop the Former Cable Tram Engine House and Tram Substation (H2332), a place listed on the Victorian Heritage Register (VHR) – within which the project area is located. BPG is seeking a permit under S. 93 of the H Act for the construction of an eight-storey apartment building (without a basement level). This permit is a requirement ahead of the proposed development taking place, as all works or activities related to a registered place or object require formal approval from the Executive Director, Heritage Victoria (HV).

Specifically, this Historical Archaeological Impact Assessment responds to the Request for Information (RFI) issued by HV on 24 September 2024. The RFI required that the management of the historical archaeology of the site be addressed in more detail, to support the permit application for the proposed development at 253-259 Brunswick Road, Brunswick. The RFI required both an Impact Assessment and Archaeological Management Strategy to be completed, in order to address the management of the historical archaeology in the project area. In consultation with Heritage Victoria, these two components have been separated, and this document outlines the Impact Assessment only. An Archaeological Management Plan is intended to form a pre-commencement condition of the permit, and is to be completed after its approval.

The project area previously also overlapped with Victorian Heritage Inventory (VHI) site 7822-2232, the Former Brunswick Road Cable Tram Engine House. The curtilage for this listing was located entirely within the VHR registration H2332, however, and it has since been removed from the VHI. The historical archaeology of the Former Cable Tram Engine House is currently protected under VHR 2332 exclusively.

The location and extent of H2332, the Former Cable Tram Engine House and Tram Substation, 253-263 Brunswick Road, Brunswick, is shown in relation to the project area, on Figure 11.

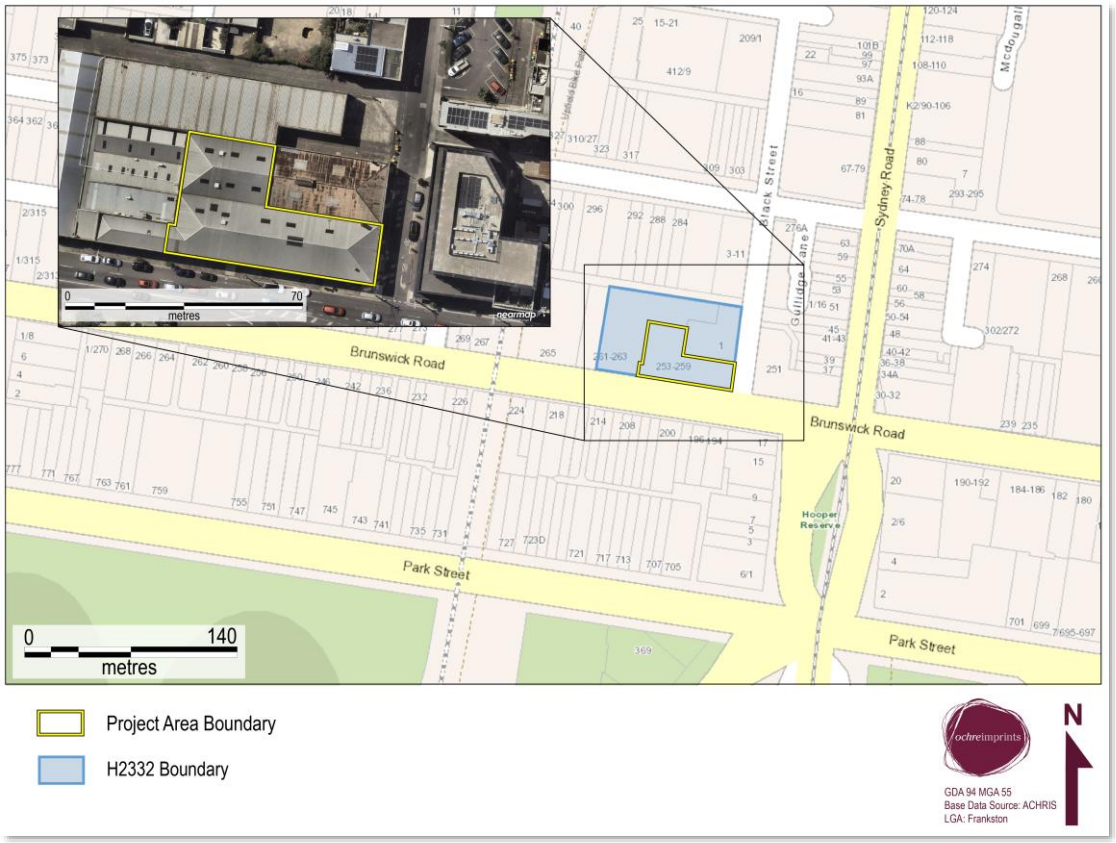

Figure 1 - Study Area Map, showing registered extent of H2332.

1.2 Summary site description

This section contains a summary of the archaeological potential of the project area as described on the Victorian Heritage Database (VHD) registration for H2332 (Victorian Heritage Database Online: Accessed October 2024). This summary also includes details mentioned on the former VHI registration H7822-2242, relevant to the archaeology of the project area.

- **H2332** – The Former Cable Tram Engine House and Tram Substation holds historical significance for its association with the development of Melbourne's transport system during the nineteenth and early twentieth centuries. In addition to its built form, the site is significant under Criterion C for its potential to contain archaeological remains and artefacts related to the cable tram system, particularly beneath recent structures in the north and west of the site. Potential remains include deep brick-lined pits, cable races (tunnels), an underground tank, a bath, and the footings of a chimney stack and weighbridge. Early underground DC power cables, which serviced the substation and entered from Brunswick Road / Sydney Road, may also be present.
- **Former Listing H7822-2242** – The Melbourne cable tram system, constructed by the Melbourne Tramways Trust between c.1885 and c.1891, was historically significant as the world's largest cable tramway network under single ownership. Although many engine houses were closed and their machinery removed by c.1940, this record highlights the potential for brick-lined pits, cable races, a well, and foundations of a

chimney stack and weighbridge, which are likely to provide insights into the operation of Melbourne's cable tram system.

1.3 Proposed works summary

The proposed works involve the construction of an eight storey apartment building within the project area. The apartment building will be constructed within the framework of the existing heritage structure of the Former Cable Tram Engine House and Tram Substation. Efforts have been made to design the development in such a way as to limit impact on the site's archaeology – as far as is possible. Across the majority of the site, the existing concrete slab will not be taken up, but rather, works will be undertaken atop the slab, minimizing subsurface impact. The proposed development will involve a range of activities that will cause some degree of subsurface disturbance within the extant structure, whoever – which will impact the historical archaeological values of the place.

Foundations for the new structure will take the form of concrete columns located at various points around the former engine house building, that will require bored piling for their installation. Other works that will involve some degree of subsurface disturbance include the installation of two lift wells, which require excavation to some depth; a fire booster cabinet (to approximately 1 m depth), a mains water meter assembly room (to approximately 1 m depth), a below ground laundry cooling pit (1.5 m depth); a below-ground grease interceptor trap (to 1.5 m depth); a below-ground sewer boundary trap & reflux valve; and the construction of an indoor substation and main switchroom as well as a fire pump room and fire panel tanks (to approximately 1.2m).

The location of the foundation columns and other works within the proposed development area are shown on Figure 2.

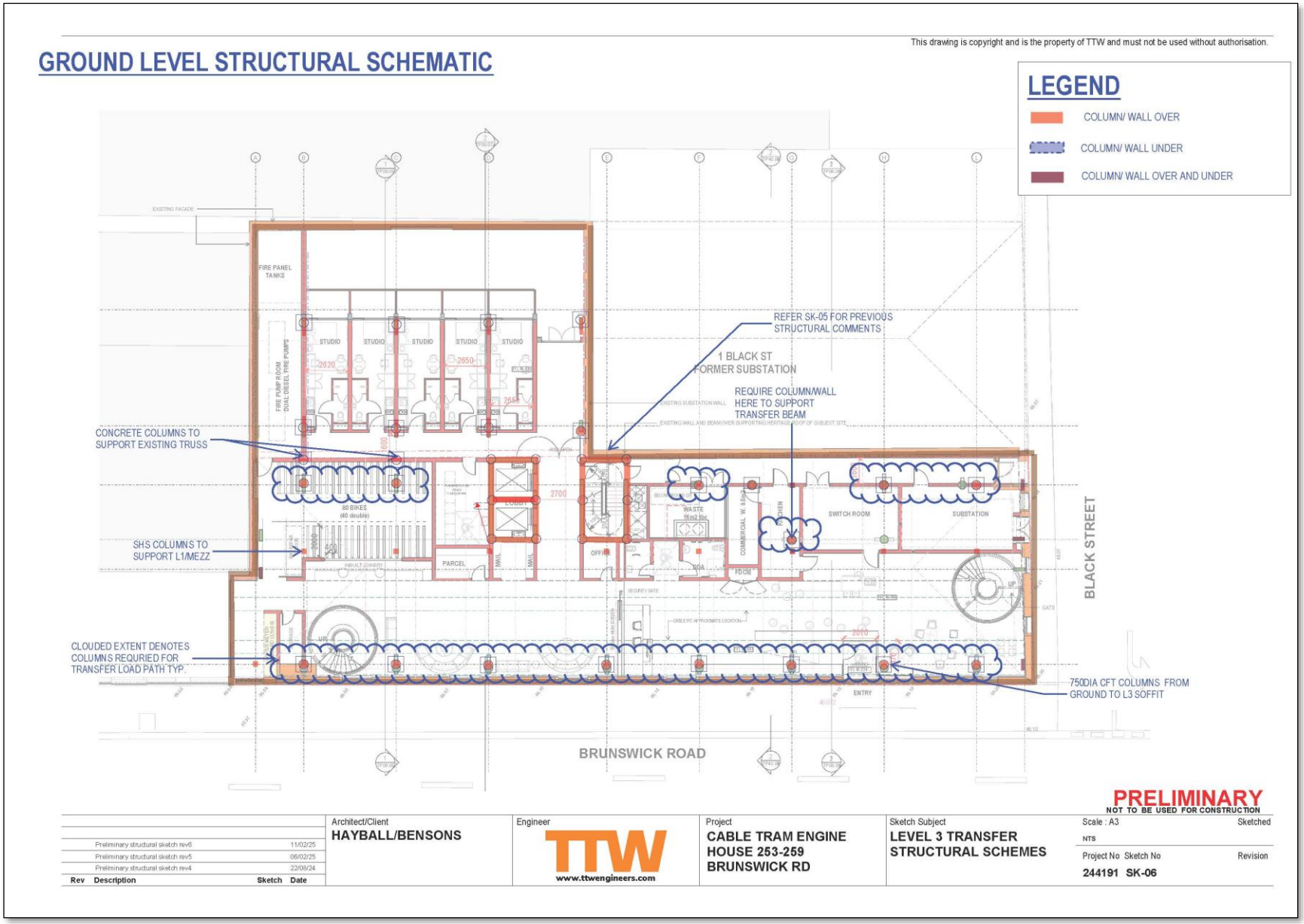

Figure 2 – Plan showing the location of foundation columns and other proposed infrastructure. Image provided by BPG.

1.4 Methodology

The assessment will involve a review of relevant literature, recent historical archaeological reports, historical resources, background archives and mapping, and will incorporate:

- An analysis of primary resources, historical plans, land titles, planning documents, and other relevant records to identify heritage values, historical phases, and establish their significance; and
- A review of existing site conditions, existing services and infrastructure that may preclude archaeological sensitivity or otherwise.

Using a combination of additional historical research and information provided in the desktop assessment recently undertaken by Extent Heritage (Simons & Clark 2023), the Impact Assessment will then assess the project works' potential impact on the predicted archaeology of the site. The maximum vertical and horizontal impacts of the proposed works will be defined and discussed, as will the archaeological remains (features, deposits, and/or artefacts) likely to be encountered.

2. Land Use History

This section discusses the post-contact history of the project area and its immediate surrounds, through a brief review of secondary sources such as previous archaeological assessment of the project area, heritage studies and local histories, as well as a review of a variety of primary historical documents, illustrations, plans, and aerial and still photography. This review is undertaken in order to identify the likelihood of historical archaeological features and deposits being present within different parts of the project area, and to aid in the assessment of the impact of the proposed works on its archaeology.

The historical plans provided in the land use history are to be understood as a guide to aid the identification of potential archaeological features present in the project area, and the project area has been overlain on historical plans in order to assess historical features that were potentially present within it. It should be noted that this method of assessment is not foolproof, and that by their nature historical plans contain inaccuracies of both scale and content. The study area overlain on an historical plan will not always entirely 'match up' to the map below, and while the presence or absence of features on historical plans can act as a useful guide to assessing a location's archaeological potential, the historical record is by nature incomplete and the results of an assessment of historical records cannot be definitive.

This land use history is presented in three sections. The first section provides a brief summary of the results of a previous archaeological assessment of the project area. The second section contains a summary of relevant details about the project area contained in heritage studies, while the third section contains the land use history proper. The land use history proper includes a review of available documentation about the project area's land use from contact to today. This section includes a review of available maps, plans and illustrations, as well as aerial and still photography and other relevant documents such as rates records, commercial directories, and newspaper articles. These documents are examined for indications of the historical uses of, and location of structural features within, the study area.

Where documentation and/or illustrations of the project area are unavailable, relevant comparative documents are reviewed in their place. Also included in the land use history is a summary of more recent (non-historical) land use with reference to its potential impact on the project area's archaeology, as well as a discussion of existing conditions at the site. Together these sections provide an indication of the type and extent of historical land use of the study area within the broader context of the history of Brunswick more broadly and of the former Cable Tram Engine House in particular, and can be used to inform predictions about its archaeological potential.

2.1 Desktop Historical Archaeological Assessment (Extent Heritage 2023)

Extent Heritage (Simons & Clark 2023) prepared a desktop historical archaeology assessment for the project area, ahead of proposed development. As part of this assessment, a brief field inspection was undertaken. At the time the assessment was carried out, the project area was

located within the curtilage of Victorian Heritage Register (VHR) site H2332 'The Former Cable Tram Engine House & Tram Substation', as well as within the boundaries of former Victorian Heritage Inventory (VHI) site H7822-2242 – a listing which related specifically to the historical archaeology of the former engine house. The VHI listing is no longer extant, and archaeological values are instead protected by the Victorian *Heritage Act 2017* under the VHR listing H2332. When this assessment was undertaken, it was understood that the proposed development 'would result in the complete removal of archaeological resources within the study area and the alteration of the study area's built structures' (Simons & Clark 2023: 1). The aim of the assessment was therefore to assess the potential archaeology of the study area and 'to determine whether future management…will be required under current legislation' (Simons & Clark 2023: 1).

2.1.1 Land use and occupation Pre-1886

The authors described the early post-contact history of the project area in the context of the establishment of the city of Melbourne, which began in the 1830s and 'expanded quickly with early settlers squatting on large tracts of land, grazing sheep, and prospecting' (Simons & Clark 2023: 12). The discovery of gold in the 1850s saw dramatic increases in population growth, and (Simons & Clark 2023: 12)

> [i]n the 1850s, convict labour from Pentridge Prison built Sydney Road, establishing a rough thoroughfare from Melbourne to the prison, passing Royal Park, and bisecting the fertile area of Brunswick. The lack of formalised use is summarised in a newspaper extract from the time "Until the coming of the West Brunswick tramway the district was dotted with Chinese market gardens, with one or two worked by Spaniards" (*The Age* 22 July 1939: 26).

Described as 'officially un-occupied during much of this early phase' (Simons & Clark 2023: 12), the authors suggest that the project area may have been subject to 'ephemeral use' use prior to the coming of the tramways – for example, by market-gardeners. From 1880, evidence from Sands & McDougall directories suggests 'possible occupants within or in proximity to' the project area, as follows (Simons & Clark 2023: 23-4):

Table 1 - Occupants of land in and/or around project area, late 1800s, per Sands & McDougall Directories.

Year	Occupants
1880	Kelly, Miss [seminary]; Ricketts, George; Bridges, George
1885	Sweet, George [plasterer]; Benson, Christopher; Beckett, William
1890	Tramway engine house (Gill, Hugh L. [manager]); Knight, Miss A. [ladies schl.]; Younger, Alex [gatekeeper]

2.1.2 Brunswick Road Engine House c. 1880s-1936

By the late 19th century, urban growth in Melbourne prompted the development of a public transport system, to serve the needs of the increasingly disparate populace and to combat issues of congestion caused by members of that populace being required to travel some

distance to work (Simons & Clark 2023: 15). With the passing of the *Melbourne Tramway & Omnibus Co. Act* of 1883, the Melbourne Tramways Trust was established. The Trust had the responsibility of funding and constructing cable tram lines and associated infrastructure such as engine houses to serve the growing city, and '[i]n 1884, using the new cable system developed in San Francisco and Dunedin, the Melbourne Tramways Trust Act authorised the construction of tramways in Melbourne, Fitzroy, Jika Jika (Northcote), Collingwood, Richmond, Kew, Hawthorn, Brunswick, Hotham (North Melbourne), South Melbourne, Prahan and St Kilda' (Simons & Clark 2023: 15).

Simons & Clark's description of the construction of the Brunswick Road Engine House, within the project area, is provided in full below (Simons & Clark 2023: 15-16).

> By April 1886, the tract of land to the rear of the Sarah Sands Hotel, with 'considerable frontage to Brunswick-road west' was secured for the engine house servicing Brunswick (North Melbourne Advertiser, Sat 24 Apr 1886, 3). By December of the same year, construction of the engine house was well underway:
>
> > *"The engine-house at the rear of the Sarah Sands Hotel, a large and most extensive brick building, is being built at a rapid rate, the chimney stack of which will be a conspicuous object for many miles around." (The Argus¸Mon 6 Dec 1886,4).*
> >
> > *"Mr. J. Sutherland, the contractor for the engine-house, is also well forward with the work. The whole of the brick work, with the exception of the chimney stack, is finished, and the roof is now being put on. A considerable amount of iron is being used, the pillars and girders being of great size, and of corresponding weight and strength. The chimney stack, which will rise to a height of 160ft, is finished for a distance of 40 ft. The cable which is about eight miles long, was brought to the sheds last week, and has been threaded upon two immense reels in the yard in readiness for the completion of the works. In addition to the thread cable there is also a spare length of about four miles, making in all 12 miles of wire cable. Messrs. Wright and Edwards, the successful tenderers for the machinery, are making preparations for an early start, and it is expected that in the course of a month or so a considerable portion of the machinery will be fixed in position." (The Argus Wed 19 Jan 1887, 6).*
>
> By April of 1887, the chimney stack was complete, reaching 154 ft (47 m), topped with Waurn Ponds stone, and an iron railing (The Age, Thurs 21 Apr 1887, 6) (Figure 10). Because the engine house lay approximately 100 m from Sydney Road where the main tramway line ran, an underground culvert was constructed for the cable to run through: "The culvert is about 9 feet deep, to allow of workmen attending without inconvenience in the machinery, and is bricked on its four sides." (The Age, Thurs 21 July 1887, 7). The tramline and engine house officially opened in December 1887.

The conversion to electrification of the tram network began in the 1920s, during which time the Brunswick Road substation was constructed immediately north of the project area. During this time, structural features to the north of the project area were demolished, and 'a 500kW rotary converter was installed within the main engine shed in 1924 as a temporary measure' (Simons & Clark 2023: 21). The new substation was operational by 1925, and worked 'alongside the original cable tram engine house' (Simons & Clark 2023: 21), servicing the West Coburg tramway. Between 1925 and 1936, the Brunswick Cable Tram Engine House continued to

operate, servicing the Brunswick line, until the completion of the substation meant that full electrification of both lines was possible.

There being no further need for the engine house, it (Simons & Clark 2023: 21)

> was decommissioned and sold in 1936. During decommission process, the cable lines and wheels were removed, and the brick-lined pits filled.
>
> The entire floor area is now covered by concrete slabs and has housed several iterations of mechanical workshops.

2.1.3 Site Inspection

As part of the assessment, a site inspection was undertaken by Extent Heritage in order to aid in the evaluation of the site's archaeological potential. This inspection found that the entire footprint of the former engine house is 'sealed by concrete slabs, likely installed during the decommissioning of the engine house in 1936 and maintained by subsequent owners' (Simons & Clark 2023: 25). The authors acknowledge that while the details of the demolition method for interior engine house features and subsequent slab construction are not known 'it's likely that it was laid atop the previous ground surface, sealing archaeology resources beneath' (Simons & Clark 2023: 25). This interpretation was supported by presence of bricks underneath the concrete slab – observed in a small pit located in the northern part of the project area (Simons & Clark 2023: 25, 27).

A course of bluestone blocks exposed 'under the brick superstructure…suggests that the foundations of the extant structure may not be deep, indicating that if any archaeological material does remain in-situ, it would likely be present immediately below the concrete slab' (Simons & Clark 2023: 25). Two rooms in the eastern part of the project area, which are separated from the main workshop, were observed to contain '19th century detailing' and a bluestone threshold, 'suggesting the floor surface of these rooms may seal a separate surface (Simons & Clark 2023: 25). As a result of the site inspection, the authors concluded that the project area (Simons & Clark 2023: 25)

> has undergone little change since its use as the Former Cable Tram Engine House. This suggests that the study area possesses high potential for archaeological remains associated with significant Cable Tram infrastructure, particularly given the apparent integrity of the extant concrete surfacing. It is likely that the cable lines, pits, and associated materials remain in-situ, sealed and protected by the extant concrete floor. However, it remains unclear as to how these pits were filled, if any disturbance was occurred during the instatement of the concrete floor, and whether any obscured modifications occurred during decommissioning process in 1936.

2.1.4 Statement of historical archaeological potential

The assessment by Extent Heritage found that the project area has high potential for historical archaeological material to be present, associated with its occupation and use as a Cable Tramway Engine House between the years of 1887 and 1936 (Simons & Clark 2023: 30). In

particular, 'the mapped locations of the brick-lined cable pits, bath, and wheel pits…lie within the study area, and there is a high potential they exist in-situ, sealed by the extant concrete slab floor. Should these features remain in-situ, they would be of high archaeological significance' (Simons & Clark 2023: 31).

The potential for archaeological evidence to survive that was related to the pre-1880s use of the project area was considered to be comparatively low 'as it is likely the construction of the Engine House itself would have resulted in significant disturbance and modification of the pre-existing landscape. Should archaeological remains of these earlier phases of use be present, they would likely reflect ephemeral use of the site associated with informal use such as market gardens, and likely be in the form of drainage lines, post-holes, landscape modifications, and loose, isolated artefacts' (Simons & Clark 2023: 30).

The project area was defined by Extent (Simon & Clark 2023: 33) as having areas of high and moderate archaeological potential, as shown in a map which is reproduced in Figure 3, below.

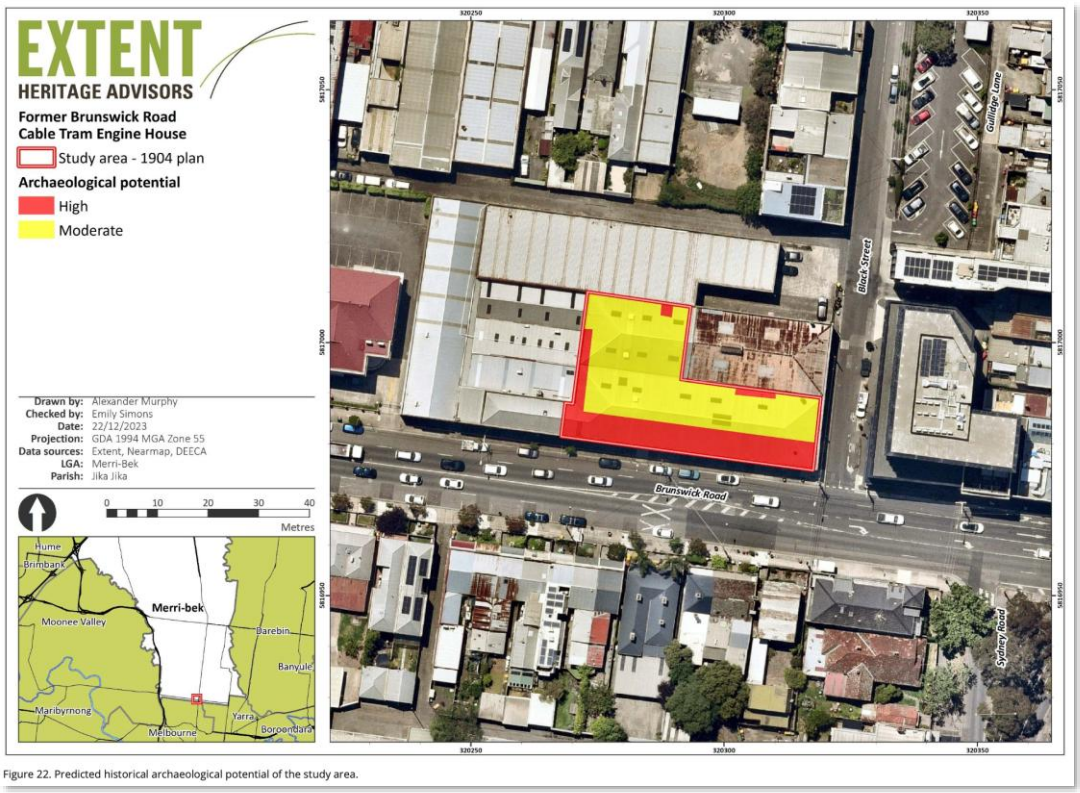

Figure 3 - Areas of archaeological potential in the project area as defined by Extent (Simons & Clark 2023: Figure 22).

2.2 Information from Heritage Studies

A heritage study was undertaken by Context Pty Ltd (Johnston 1990), which reported on a review of the Brunswick Conservation Study. This review identified the Former Cable Tram Engine House as a level 2 historical place (Johnston 1990 vol1: 68). The heritage citation for the engine house describes the Brunswick engine house 'often known as the Sarah Sands engine house, being close to that famous hotel' (Johnston 1990 vol2: 121) as 'a simple structure without the embellishments of some of the engine houses…Its chimney stack has been

demolished and the Brunswick Road building is now used for car repairs and an office' (Johnston 1990 vol2: 121). The historical archaeological potential of the site is not mentioned in this citation.

According to a building citation in the City of Moreland Heritage Review (Allom Lovell & Associates 1999 vol2 part1: 155-8), by c. 1999 the building was in use as a tyre fitting centre and for the manufacture of clothing. The building was described as currently 'unrecognisable as an Engine House' (Allom Lovell & Associates 1999 vol2 part1: 156), but of 'metropolitan historical significance' (Allom Lovell & Associates 1999 vol2 part1: 158). It is reiterated in this citation that the Brunswick engine house was architecturally of simpler design than some of its contemporaries. No mention is made in the citation of historical archaeological potential.

The Metropolitan Melbourne Tramway Heritage Study (Vines 2011: 178) describes the Brunswick engine house as having 'unlike some of the later buildings…a fairly plain façade', reflective of it being one of the earlier engine house buildings, examples of which are 'now mostly lost with the demolition of the Richmond engine house' (Vines 2011: 179). Although the study was not archaeological in nature (Vines 2011: 16), the report highlights the archaeological potential of the former cable tram engine houses of Melbourne – recommending that archaeological assessment should be undertaken 'of any works likely to effect sites of demolished engine houses and cable runs' (Vines 2011: 218).

2.3 Land use history from historical documentation

2.3.1 Pre-1886 occupation and land use

The earliest plan to locate the project area within an historical subdivision is a c. 1837 plan of surveyed lands north of Melbourne (Figure 4). At this time, the study area was located in the north western corner of a 640 Acre allotment identified as Section 5 in the Parish of Jika Jika. While early structures are shown on this mapping (see 'Sheep Station, Batman's Hut' to the south west and 'Maclean's House' to the east, adjacent Merri Creek), no historical features are mapped in or near the project area at this time. This surveyed subdivision does not appear to have been in place for long, and there is an annotation in the vicinity of the project area that states that 'the whole arrangement of this parcel was cancelled by subsequent survey'. The land around the project area is described on this early map as 'open forest and plain'.

A map produced a few years later, c. 1844, indicates that the land in which the project area was located had been further subdivided by this stage (Figure 5). This plan shows the activity area located in the south eastern corner of Section 91 in the Parish of Jika Jika, a 102 hectare allotment with Moonee Ponds Creek frontage in the west, which was purchased on 10 June 1840 by Charles Falconer (VPRS 16171/P0001/5). No annotations or indications of historical buildings are present on this plan.

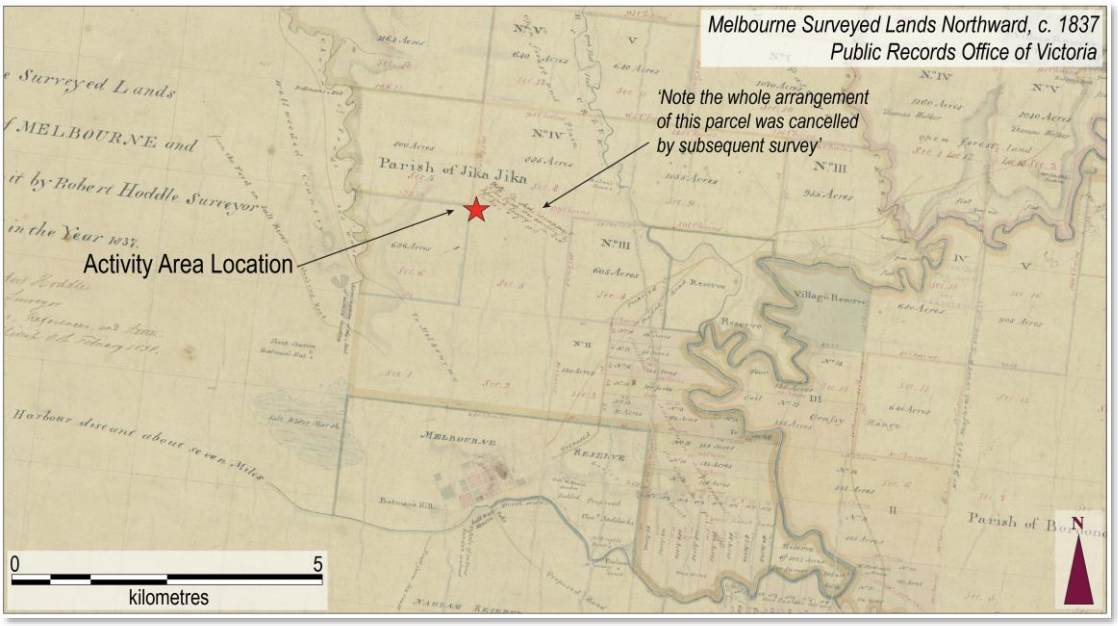

Figure 4 – Survey plan c. 1837, with indicative location of study area overlain. Image source: PROV.

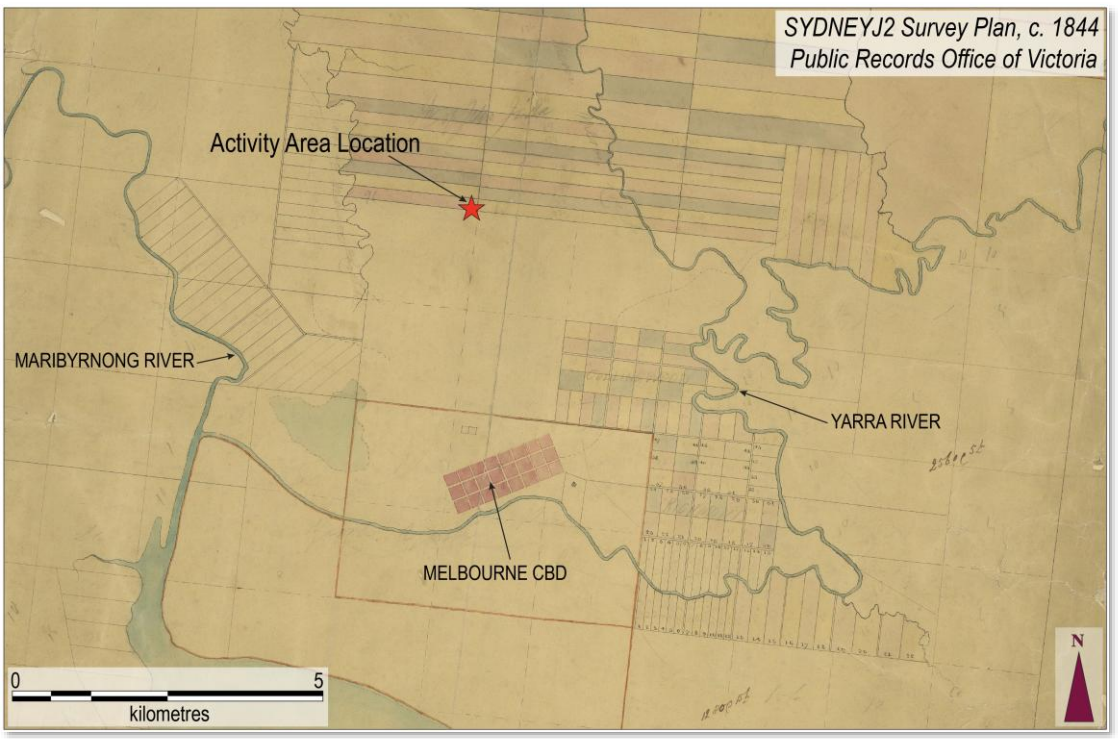

Figure 5 – Parish Plan, Jika Jika, c. 1844, with indicative location of study area overlain. Image source: PROV.

By the mid 1850s, evidence of the development and use of the land to the south and east of the project area was apparent. A c. 1856 parish plan (Figure 6) shows the future alignment of Sydney Road immediately to the east of the project area, as well as more closely subdivided allotments and a 'new cemetery' to the south. A geological survey plan from the same year (Figure 7) provides a more detailed picture of historical infrastructure present in the local area by this stage. Sydney Road, Brunswick Road and several other nearby roads have been surveyed in by this stage, and some are named on the map. The Sarah Sands Hotel, located

to the east of the project area, on the corner of Brunswick and Sydney Roads, is extant by this stage – as are three other hotels nearby (Brunswick Hotel, Cornish Arms and Philipstown Hotels).

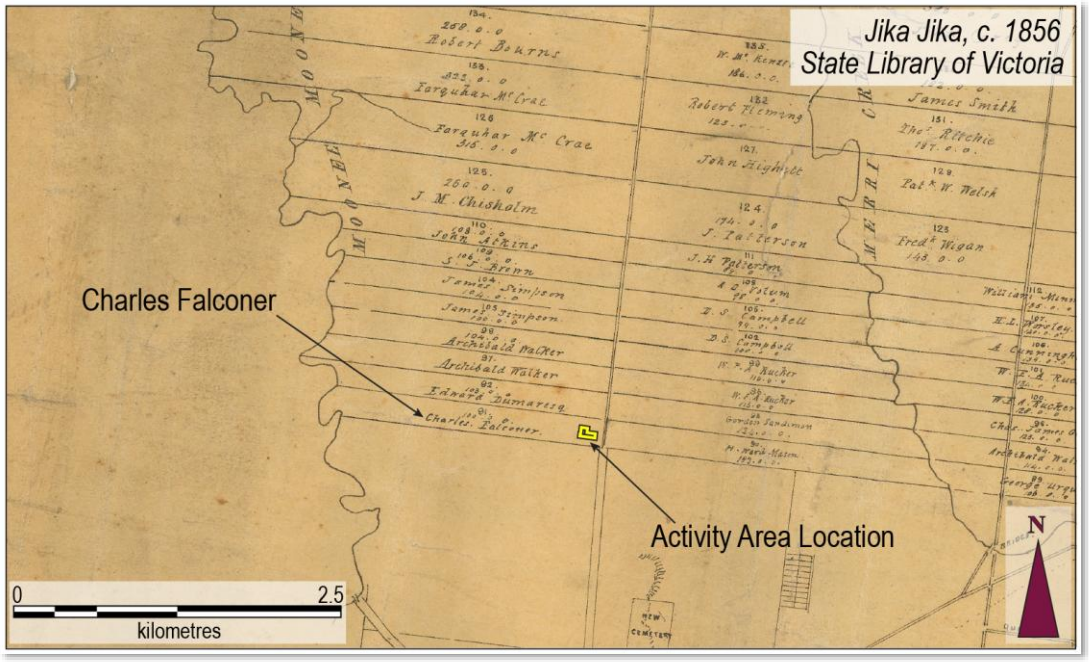

Figure 6 – Parish Plan, Jika Jika, c. 1856, with indicative location of study area overlain. Image source: SLV.

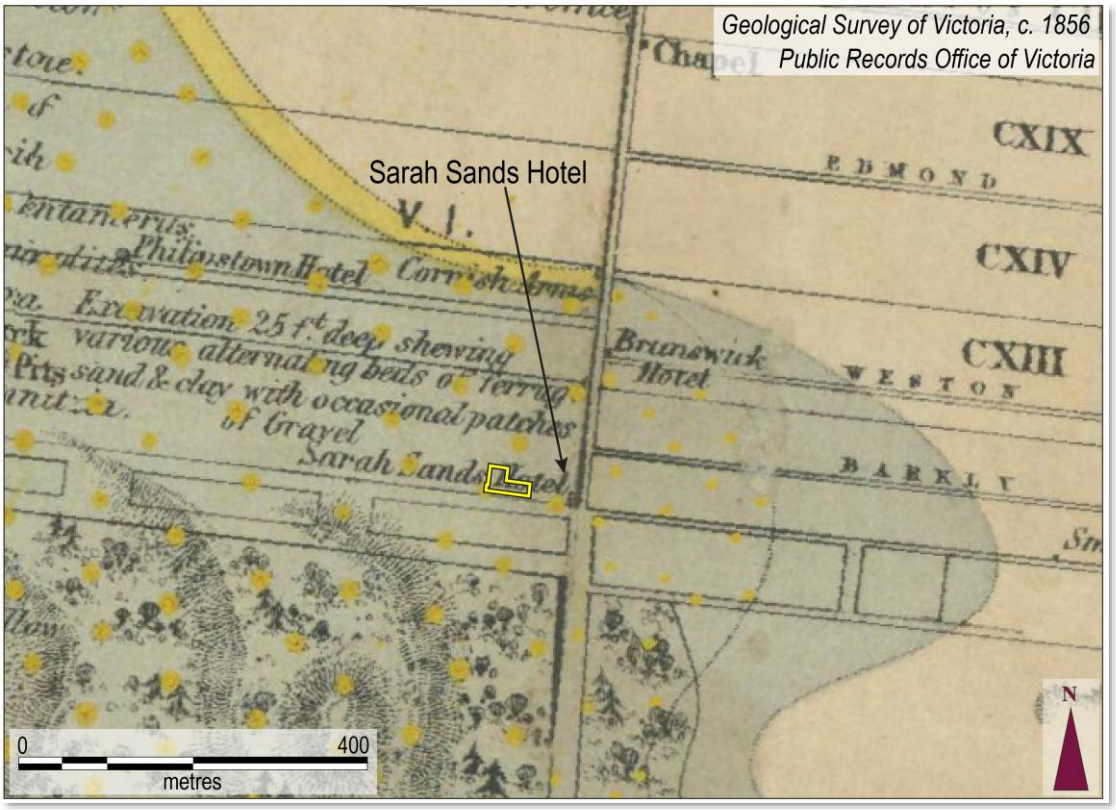

Figure 7 – Parish Plan, Jika Jika, c. 1856, with indicative location of study area overlain. Image source: SLV.

A hand-drawn plan of the north side of Royal Park c. 1859 (Figure 12) shows Brunswick Road, Park Street and Sydney Road surveyed in by this stage, and land between Park Street and Brunswick Road closely subdivided. A number of structures are depicted fronting Brunswick Road on this map, indicating that if built structures were extant in the project area, they would be shown. There are no built features depicted within the project area on this plan. The Sarah Sands hotel is mapped to the east of the project area (although it is placed slightly north of where the hotel is to be found today). A plan produced almost a decade later, c. 1868, similarly places the Sarah Sands to the north of its current location (Figure 13).

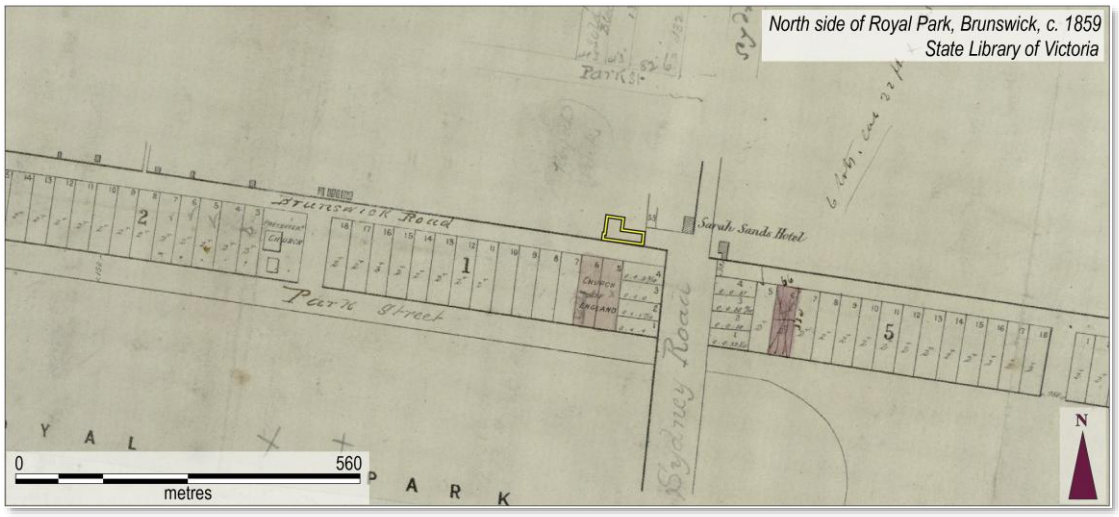

Figure 8 – Plan of the north side of Royal Park c. 1859, with indicative location of study area overlain. Image source: SLV.

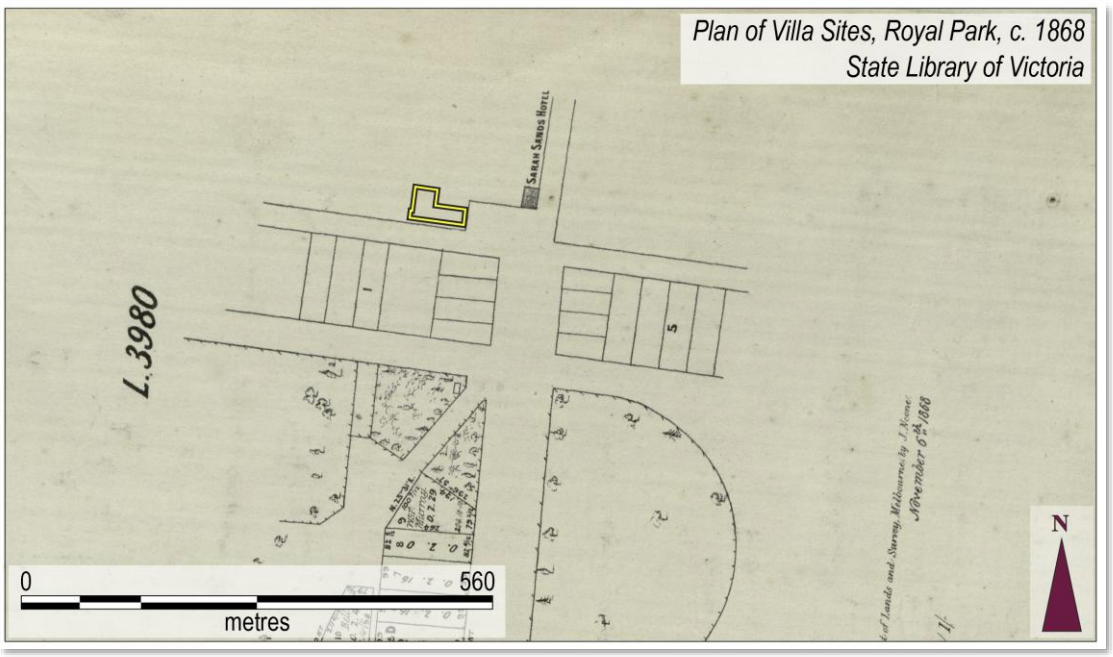

Figure 9 – Plan of villa sites, Royal Park c. 1868, with indicative location of study area overlain. Image source: SLV.

The earliest available still photograph showing the project area dates to c. 1866 (Figure 10). This photograph shows a view northeast from Royal Park, with Park House Ladies Seminary (a two-storey bluestone building now the location of the Kingdom Hall of Jehovah's Witnesses

at 265 Brunswick Road) in the foreground. The Sarah Sands Hotel is visible to the east in this photograph, as is the location of the former Austin's Hotel (later Phoenix Hotel) and Uniting Church building on Sydney Road. The project area is located between the seminary building and the Sarah Sands, and appears to consist of largely vacant land or treed land – although it is possible that some of the houses to the east may be located within the project area at this time. The perspective from which the photo was taken makes the project area difficult to distinguish with certainty.

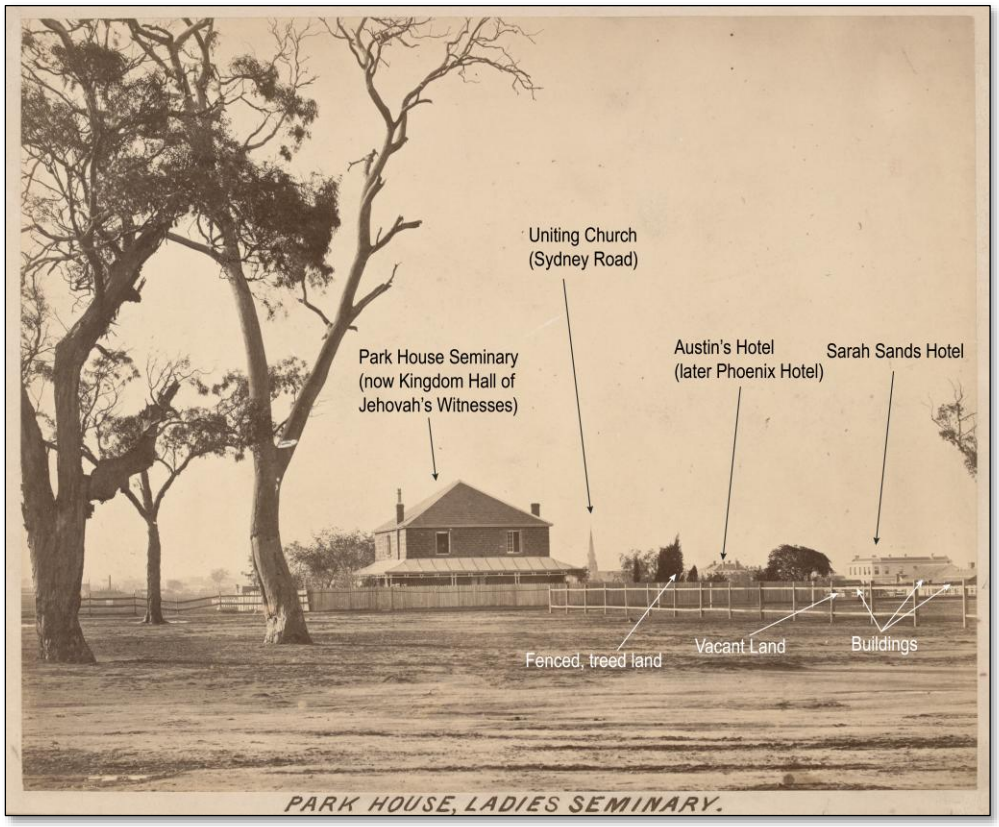

Figure 10 – Photograph of Park House Ladies Seminary c. 1866. Image source: SLV.

Park House was a school for young ladies, run by Mrs and Miss Kelly (SLV Catalogue Record 9917198423607636), and records indicate that this building and its surrounding land were located outside of the project area, to the west. The earliest available rates books[1] for the land in and around the project area date to c. 1872, and a Miss Mary Kelly appears in this rates book, as the owner and occupier of what is described as a 'stone house 9 rooms, kitchen shed &c' (VPRS 11320/P0001 January 1872). An entry in c. 1874 describes Mary Kelly as a 'Schoolmistress' (VPRS 11320/P0001 October 1874), and by 1875 Kelly is described as owning a 'stone house, 11 rooms' as well as a separate rated portion of 'building land' (VPRS 11320/P0001, March 1875).

By 1878, the rated occupant is recorded as Amy Knight (a teacher), with the owner Mary Kelly, of 'Stone house and Land', and a separately rated portion of 'building land' is recorded as being

[1] A table detailing rates records in the vicinity of the project area, reviewed at staggered intervals between c. 1872 and c. 1892, is provided in Appendix 2.

owned by T. P. Kelly (VPRS 11320/P0001 1878). Kelly and Knight continue to appear in rates records until after the construction of the Cable Tram Engine House (see VPRS 11320/P0001 1892, for example). The rates book entry for this property and the Engine House record the length of the street frontage – with the Engine House frontage recorded as 235'2 feet (approximately 71 m), and the Kelly property as 135'10 feet (approximately 41 m). These measurements place the engine house property as originally being the length of the original engine house building, and the Kelly property including what is currently 265 Brunswick Road (SPI 1\TP223039), as well as part of 261-263 Brunswick Road (SPI 1\TP366599).

The earliest land title record available for the project area and surrounds indicate that most of the block between Sydney Road in the east, Wilson Street in the north, Brunswick Road in the south and for some distance beyond MacKay Street in the west, was owned by Peter John Wilson, Solicitor, from 15 July 1875. The exception to this is the land on which the seminary is believed to have been located, which appears to have been purchased by Mary Kelly some time earlier. The title document indicates that land to the west of Park House was sold by Wilson to Thomas Pierce Kelly on 1 August 1876, and the land surrounding the seminary itself, immediately adjacent to the project area, to the west, was sold to Mary Kelly on 4 January 1877 (LANDATA Cancelled Title 751/045).

An undated roll plan (Figure 11) thought to have been produced in the 1870s, shows the Sarah Sands in its current location, and a small number of other structures present in the vicinity of the Sydney Road / Brunswick Road intersection. One of these structures appears to be labeled 'Toll Bar', and it is speculated that there may have been a toll gate around this location in the mid-late 19th century, which may account for the position of the Sarah Sands slightly to the north in earlier mapping, and is also pointed to by a record of a 'gatekeeper' in the vicinity in directory records reviewed by Simons & Clark (see Table 1).

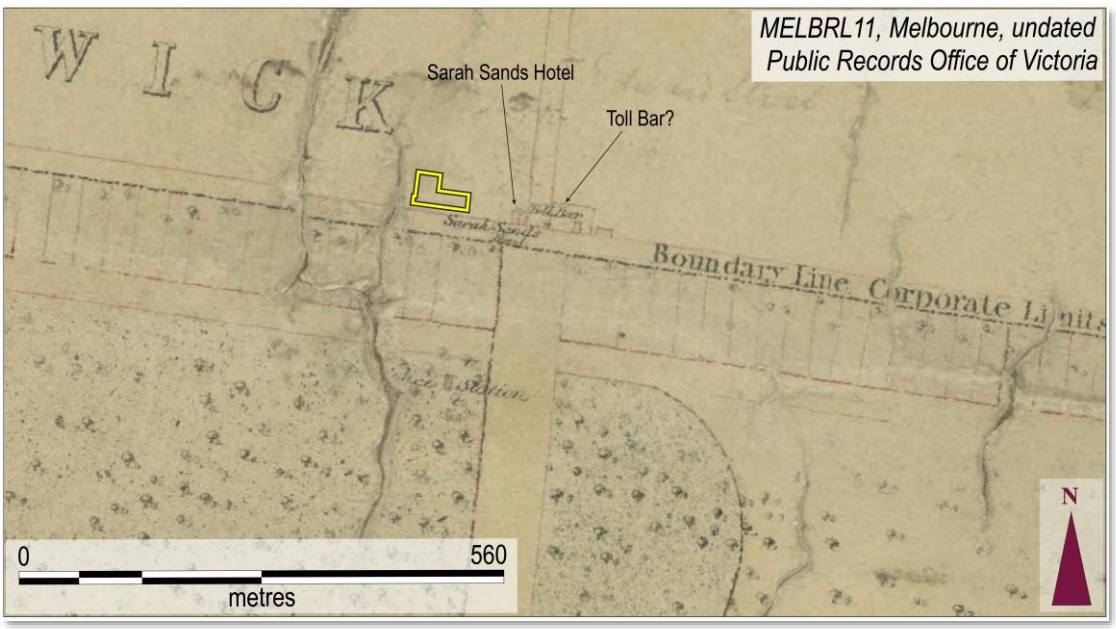

Figure 11 – Undated Roll Plan (MELBRL11), with indicative location of study area overlain. Image source: PROV.

A Rail Plan produced c. 1880 (Figure 12) seems to confirm the presence of the established Kelly property to the west of the project area, with no similar indication of the presence of an established property in the project area itself at this time.

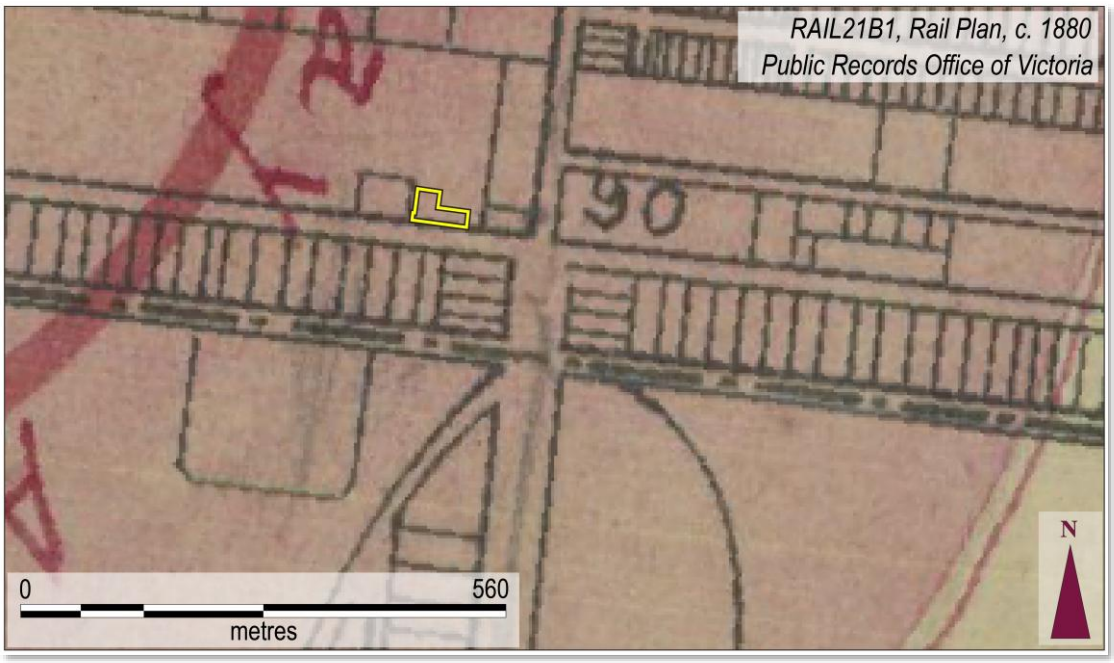

Figure 12 – Rail Plan c. 1880 with the project area overlain. Image source: PROV.

In order to investigate possible use and occupation of the project area prior to its 1886 purchase (as three allotments) by the Melbourne Tramways Trust (LANDATA Cancelled Titles 1135/892, 1475/826 & 1816/177), a title history search was undertaken, as well as a staggered sample review of rates books records for Brunswick Road West and Black Street, Brunswick, between the years of 1872 and 1895. The earliest rate book records reviewed, from c. 1872 (VPRS 11320/P0001 1872) indicate the presence of two timber houses of two brick houses, as well as a large (12 acre) area identified as 'building land' located on Brunswick Road between Sydney Road and the Kelly property to the west of the project area. The exact locations of these houses are not known, and it is not known if any of these were located within the project area itself. The 12-acre lot referred to as 'building land' was owned by John Black, with the rated person identified as Joseph Jackson.

By 1874 (VPRS 11320/P0001 1874), rates books record Joseph Jackson, a 'Carter', as the occupant of John Black's 'Building land', with this the only entry listed east of the Kelly property. Rates book entries for 1875 record owners named Roddick, Prowse and Rufus owning rated 'building land' on Brunswick Road east of the Kelly property – records which accord with title documents showing the project area divided into three total properties prior to its purchase by the Melbourne Tramways Trust (LANDATA Cancelled Titles 1816/177 & 8206/128). The description of these three properties as 'building land' or 'land' over several years of rates books entries, suggests that there were no extant structures on these properties, at least between the years of 1875 and 1886.

A review of rates books entries for Black Street between the years of 1876 and 1895 found that a number of structures were present around this location prior to 1886. These structures included a number of timber and brick houses, which were owned and occupied by a range of different people over the years (see Appendix 2 for full details). The number of houses and their general description remain fairly constant, however, and the 1892 rates book provides street numbers for these houses. The street numbers in question (No. 2, 4, 6, 8, 14, and 22) match up with numbers that are shown on a c. 1904 MMBW plan of the area (Figure 13) – indicating that the houses in question were all located on the eastern side of Black Street, to the north east of the project area. Street numbers in the 1892 rate book for properties on Brunswick Road further confirm that the Kelly property (No. 38) was entirely located to the west of the project area.

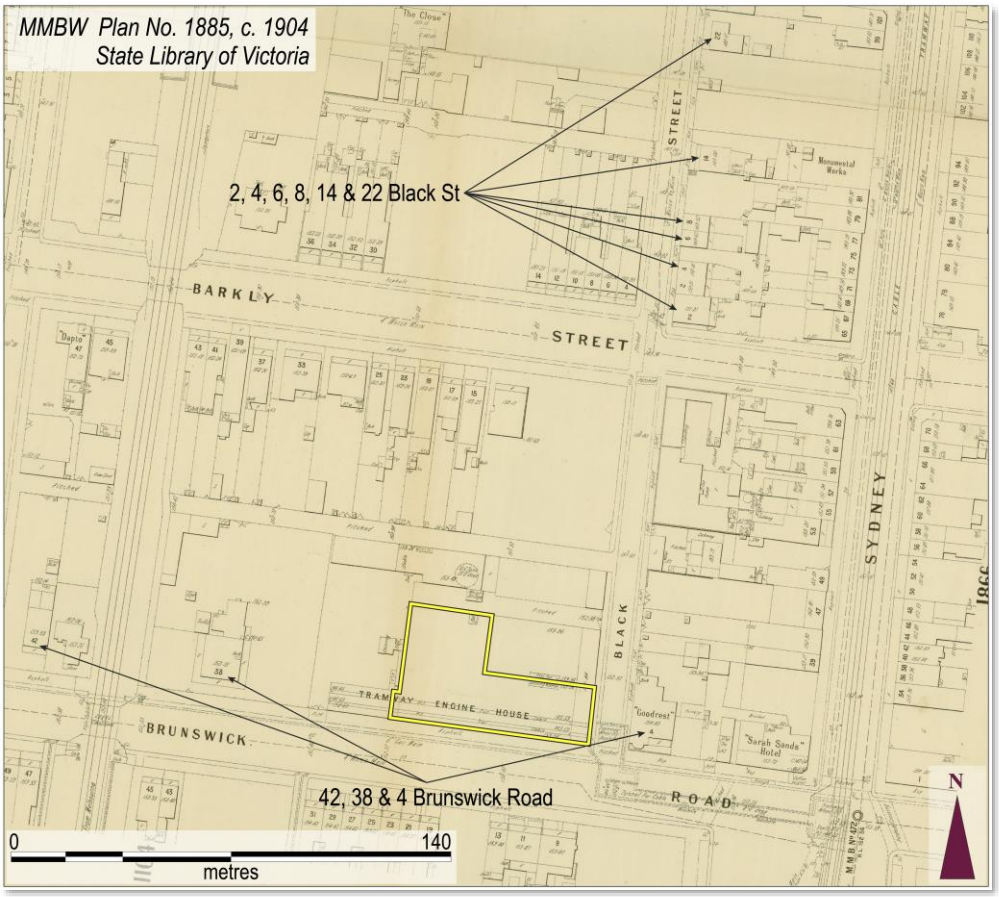

Figure 13 – MMBW plan 1885, c. 1904, showing structures in the vicinity of the project area. Image source: SLV.

The documentary record therefore accords with the findings of the preliminary desktop assessment undertaken by Extent – indicating that land use prior to the purchase of the property by Melbourne Tramways Trust and construction of the engine house was minimal, and no permanent or significant structural features appear to have been erected in the project area prior to c. 1886. It should be noted, however, that this cannot be stated for certain, and it may be the case that there were structures located within the project area prior to c. 1872, for example, about which records have not yet been identified.

2.3.2 Cable Tram Engine House c. 1886 – c. 1936

The three parcels of land that made up the project area in the late 19th century were purchased by the Melbourne Tramways Trust in 1886 (LANDATA Cancelled Titles 1816/177 & 762/391), ahead of the construction of the engine house. A report in the *Herald* (26 September 1887: 3) described the Brunswick Cable Tram Engine House as the tramline neared completion:

> [t]he engine-house is situated in Brunswick road, and is a massive brick structure 90 feet square, with extensive pits for cable purposes. The chimney stack reaches to an altitude of 160 feet, and there is a capacious yard adjoining for the storing of materials. Mr J. Sutherland, the contractor, has carried out his work in a very satisfactory manner. The connection with the engine house to the sheave wheels on Sydney road is by means of two brick tunnels 9 feet high along the Brunswick road, and this has caused a considerable amount of work and additional machinery. Messrs. Wright and Edwards have erected all the driving gear, angle sheaves, etc., some of which are very massive, the driving wheels being 25 feet in diameter. There are two powerful high pressure engines fitted with Hartnell's governors and cut-off valves, cylinder, 20 inches, stroke, 40 inches. Messrs. Hughes, Pye, and Rigby, of South Melbourne, were the makers of the large driving wheels and engines.
>
> There are four multitubular boilers fitted with Fox's corrugated flumes, two having been made at Johnson and Co's foundry, and two at the Langlands foundry.

An MMBW plan dating to c. 1904 (Figure 14) shows the layout of the engine house, with a small number of interior features identified. These features include a bath in the north central section of the project area, cables pits in the south, offices (unlabeled but a wall defined) in the east, and pits for driving wheels in the north east. Reduced levels (in feet) on the plan indicate that the cable pits were approximately 2.3 m below the floor surface, and pits for driving wheels approximately 4.26 m deep.

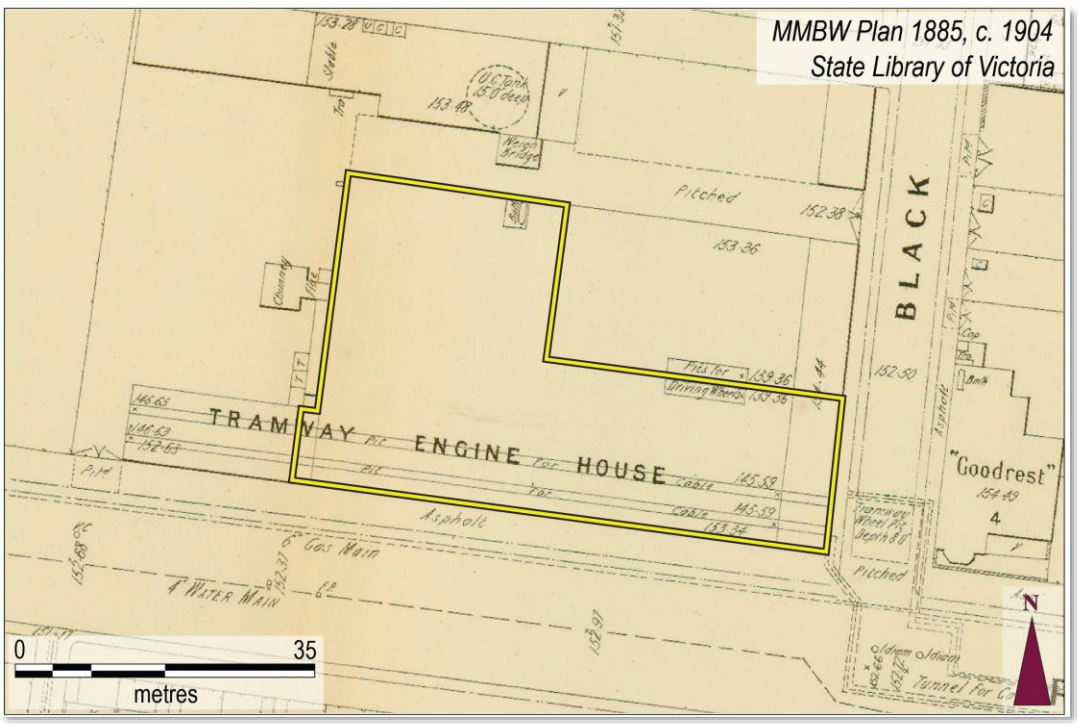

Figure 14 – MMBW Plan 1885, c. 1904, with project area overlain. Image source: SLV.

Another MMBW plan (Figure 15), dated to 1906, shows the project area unchanged.

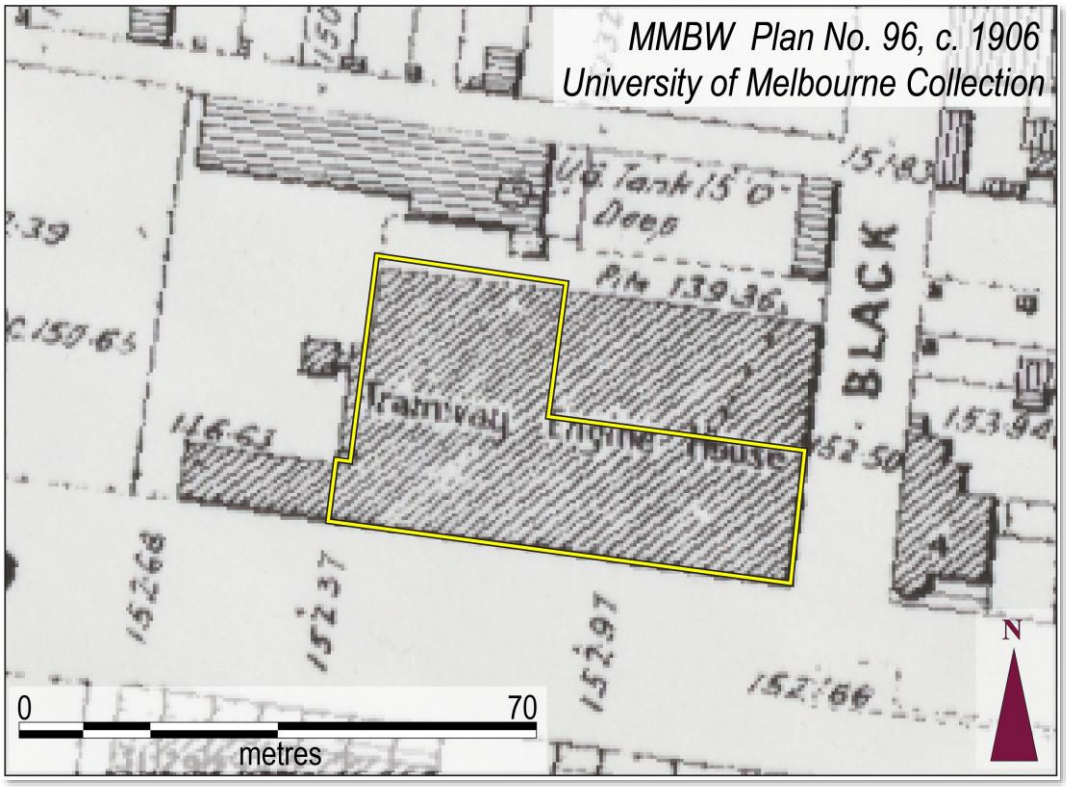

Figure 15 – MMBW Plan 96, c. 1906, with project area overlain. Image source: UoM Collection.

As described in Section 2.1.2, the engine house continued operation through the transition to electrification of the network, for a time housing machinery associated with, and then working alongside the adjacent substation, with one route being run as a cable tram, and one as electric. The engine house finally closed down in 1936, after full electrification was established. At the time its closure, Brunswick Cable Tram Engine House had been operating two cables of 32,000 and 16,000 feet, running at 12 & 13 miles per hour (MacMeikan 195?: 14). The building was not demolished following its decommissioning, but re-used for commercial purposes.

A document prepared by Heritage Victoria, recommending an amendment to the VHR listing for H2332 to include the place as a Registered Archaeological Place (Heritage Victoria 2020) included two plans, one dated to 1952, and one to 1937, that show part of the layout of the Former Cable Tram Engine House & Tram Substation. These plans both post-date the construction of the Engine House, and may reflect works that were undertaken around c. 1937, at the time of its decommissioning. It is not known when the works identified to the 'stores' at the eastern end of the structure took place – but it is likely that the room layout shown on these plans reflects the layout at the time of the Engine House operation (see Figure 17).

An aerial photograph c. 1946 (Figure 17) shows the tramway engine house building extant, and surrounded on its western and part of its northern side with newer structural features.

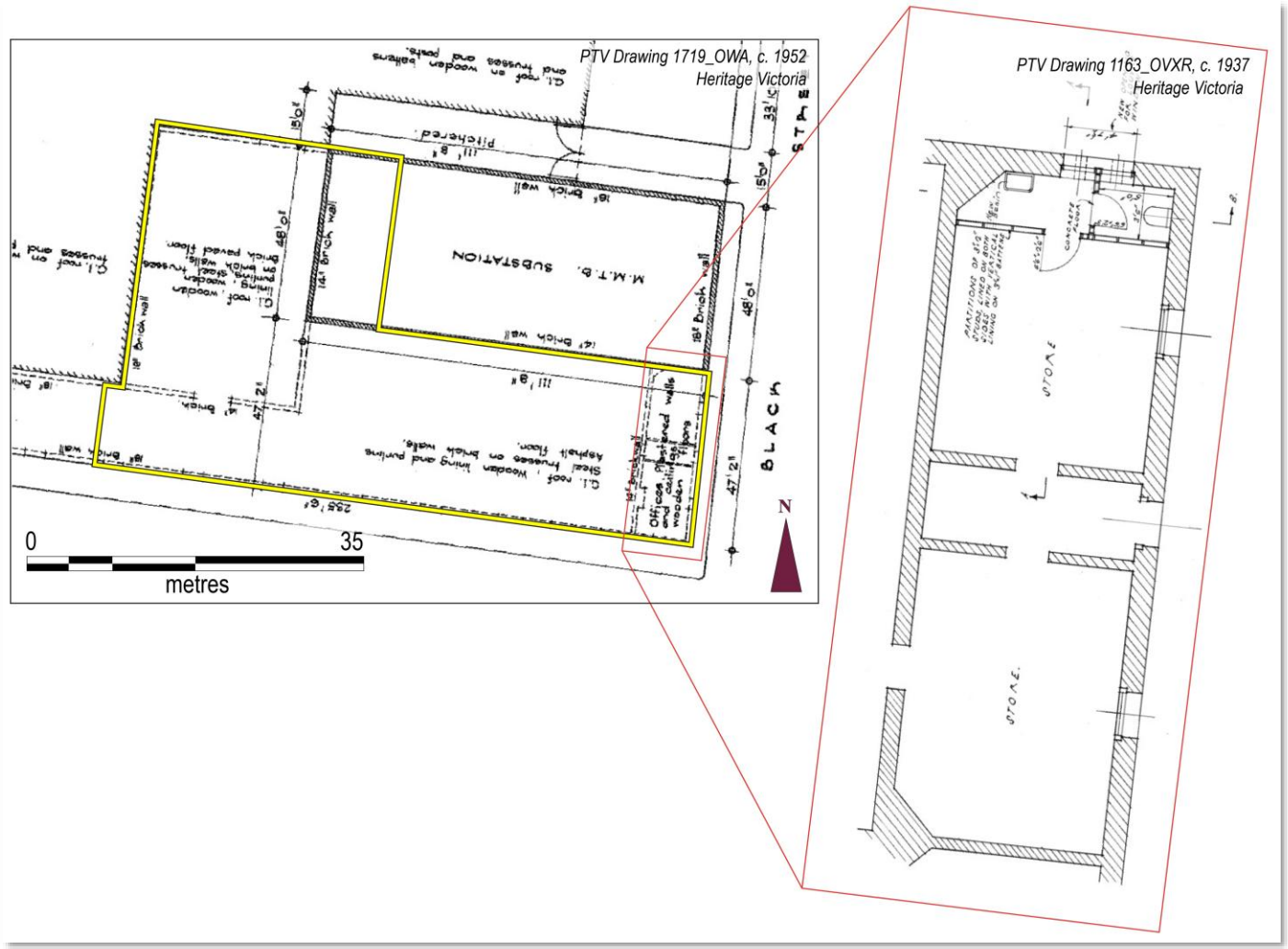

Figure 16 – Plans of Brunswick Engine House c. 1952 and c. 1937. Image source: Heritage Victoria 2020.

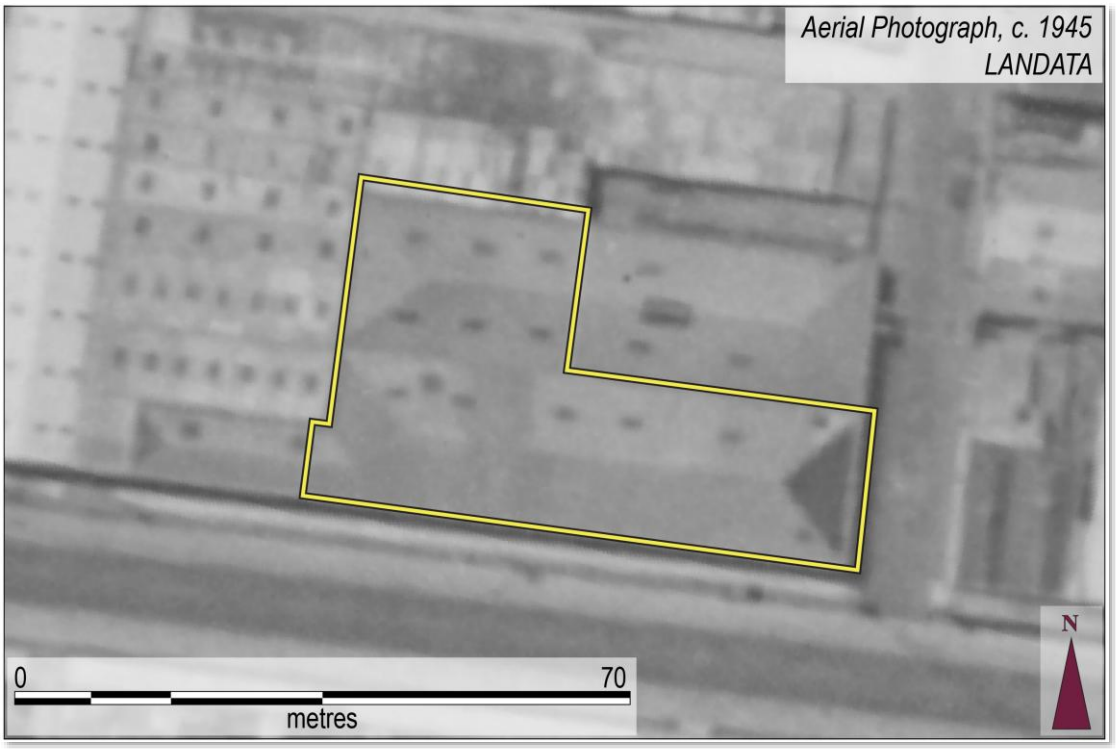

Figure 17 – Aerial photograph c. 1945 with project area overlain. Image source: LANDATA.

2.3.3 Cable Tram Engine Houses of Melbourne

Although no detailed plans or descriptions of the Brunswick Cable Tram Engine House have been identified as part of this land use history, a number of documents and images are available that describe the form and function of typical cable tramway engine houses. Some of these documents describe or illustrate facets of specific engine houses that formed part of the Melbourne Cable Tramways network – and may be particularly useful in informing predictions about the historical archaeological potential of the project area. A summary of the information provided these documents is provided in this section. Descriptions of the engine houses and their workings focus on the layout and operation of the engine house proper – this being the part of the Brunswick Road facility that was located within the project area, and such descriptions are thus most relevant to its archaeological potential. There were also ancillary structures and features situated around the main engine house building that formed part of the Cable Tram Engine House workings more broadly, which are not described in this section.

Establishing the Melbourne cable tram network

Following the 1883 passing of the *Melbourne Tramway & Onmibus Co. Act*, the Metropolitan Tramways Trust were tasked with 'building and equipping the engine houses to power the traction cables, and for constructing the cable tunnels between the tram tracks' (Pierce 2017: 3) to service the new cable trams. The Tramways Trust 'was required by the Act to complete the tramways by the 12th of October 1899, and to grant a thirty year lease of the tramways to

the company, dated from the 1st of July 1884…in all the Trust was to operate eleven Engine Houses' (Harding 1966: 3).

Engine houses form and function

The engine houses for the Melbourne Cable Tramway network (also called winding houses) were typically located near the mid-point of a given tram route, with separate cables 'running out and back to the respective 'up' and 'down' terminals' (Pierce 2017: 9). Described by Harding (1966: 5) as 'quite massive in size (varying according to the number of cables and length of each)…In most instances they were situated on corners (so ropes would have access to two different streets). An illustration of the typical way in which an engine house connected to the external tramway is shown in Figure 18.

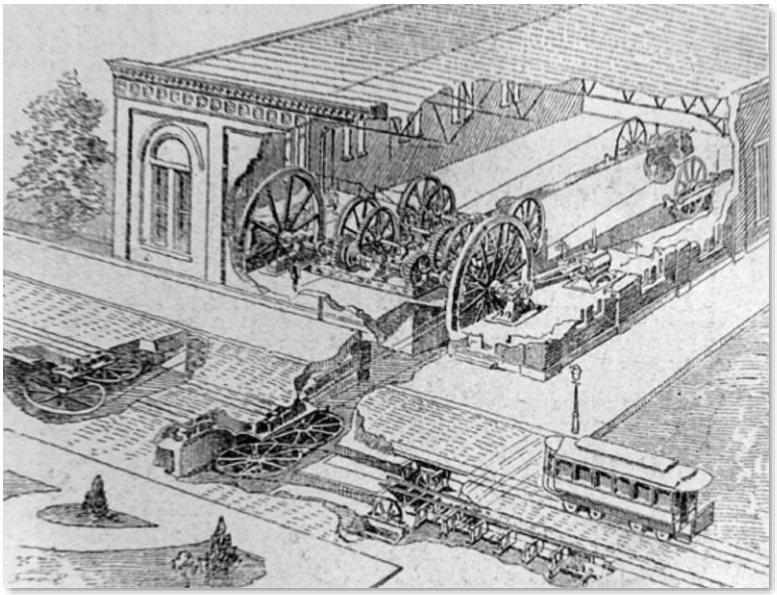

Figure 18 – Undated illustration of a cable tram engine house showing connections to tramline. Image source: Yarra Libraries.

Pierce (2017: 9-11) describes the infrastructure of the average engine house as follows:

> The main running cables are directed into and out of the engine house by large horizontal or inclined sheaves in an extensive pit beneath the roadway beneath the roadway and a connecting tunnel into the building. Inside each engine house the cables ran around the timber lined grooved periphery of large diameter driving sheaves and then around a similar diameter sheave set on a rail mounted carriage that was dead-weight loaded so as to maintain a constant tension on the cable.
>
> The cable driving sheaves were in turn driven by horizontal, non-condensing steam engines via a speed reduction provision. At the first engine house this was achieved by helical gears but later the multiple-pass rope drive using grooved driving pulleys was preferred for its lower noise level and reduced maintenance requirements, and was ultimately used in all engine houses serving the MT&OC operated lines. This comprised a multi-grooved drive pulley on the common engine shaft linked to a larger diameter grooved pulley on the cable drive shaft via 16 – 18 manila rope passes…
>
> …The cable tram steam engines exhausted to atmosphere via duplicated direct contact feed water heaters.

> The boilers to supply steam to the engines, also duplicated, were locally made multi-tubular marine type with a working gauge pressure of 100 psi (670 kPa) excepting for the Richmond and Fitzroy engine houses that had Babcock & Wilcox pattern water tube boilers. The boilers were manually fired with coal or gasworks coke and all of the original boilers reportedly lasted until closure of the respective engine houses…
>
> …Based on comparative contemporary illustrations the dead weight cable tensioning arrangement used in the Melbourne engine houses was similar in principle to the arrangement first used on the 1883 San Francisco Market St line…The large diameter tensioning sheave was mounted on a wheeled carriage that ran on rails fixed on a larger carriage or trolley that itself ran along rails secured on each side of the long cable raceway trench. Chains affixed to the back of the tension wheel carriage ran over pulleys at the inner end of the lower carriage to a weight bucket of several tons suspended in the raceway. Movement to and fro of the tension wheel carriage enabled the maintenance of a constant tension as the cable length changed in response to load and temperature changes. The lower carriage was prevented from moving forward by pawls engaging in racks on each side of the raceway rails.
>
> When a new cable was installed, the lower carriage would be positioned close to the driving wheel end of the cable raceway. As the cable stretched with use, this could be compensated by first lashing the upper and lower tension wheel carriages together and then using a block and tackle to pull the lower carriage further out along the raceway tracks. This was facilitated by running the end of the tackle rope around a capstan drum on end of the tension wheel shaft after first slowing the cable drive. (Pollock, c1950).
>
> A prominent brick chimney stack to which the boiler flues connected marked the location of each of the engine houses that were themselves large single-story brick buildings. The facades of some engine houses in prominent locations, like the Nicholson St building, were given ornamental treatment. The operating staff immaculately maintained the engine houses and their machinery. In all there were eleven separate engine houses serving the MT&OC operated cable tram system. Each one powered from one to three main cables.

Examples of the interior and winding machinery at Cable Tramway Engine Houses are provided in Figure 19 and Figure 20. Figure 21 provides an illustration of the interior of the Fitzroy engine house. Figure 22 shows the boiler room at one of the Melbourne engine houses.

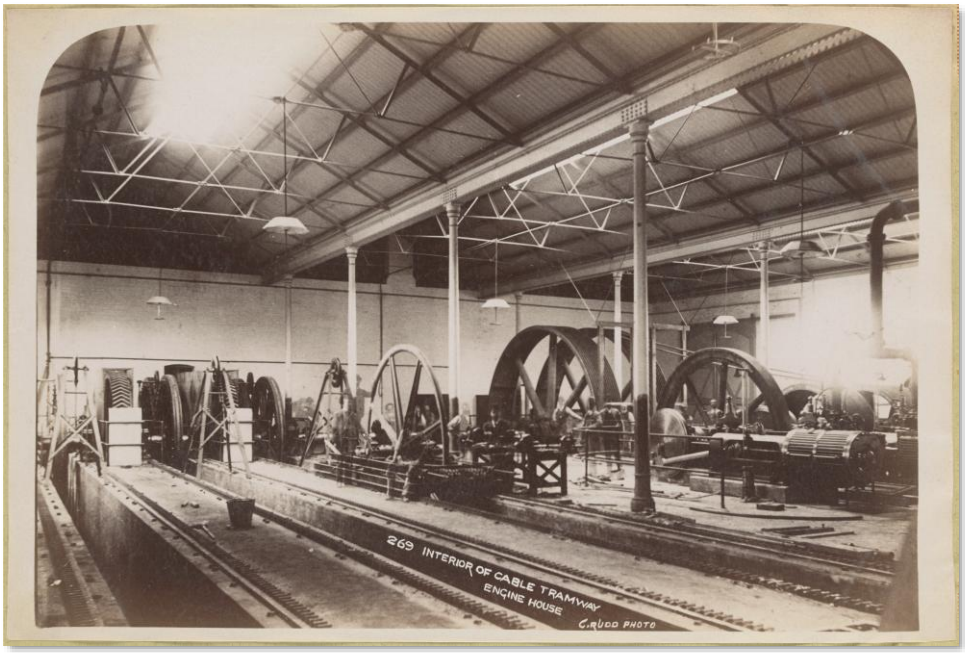

Figure 19 – Interior of an engine house, showing cables and winding machinery (Rudd 1892).

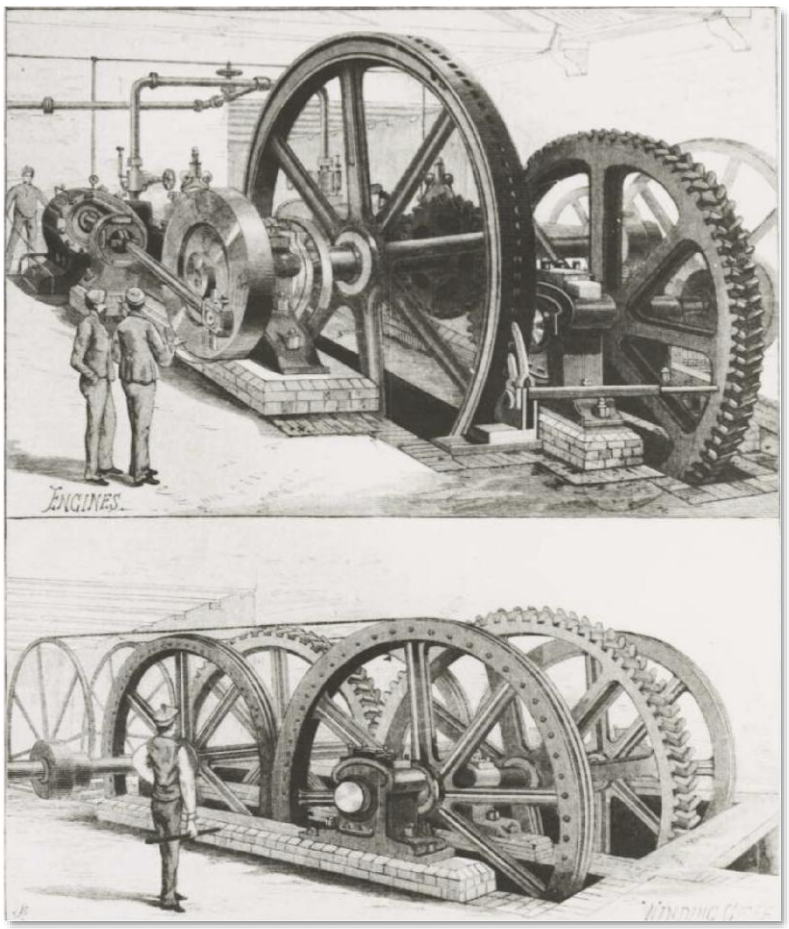

Figure 20 – Illustration showing brick-lined pits and winding machinery (Howard 1885).

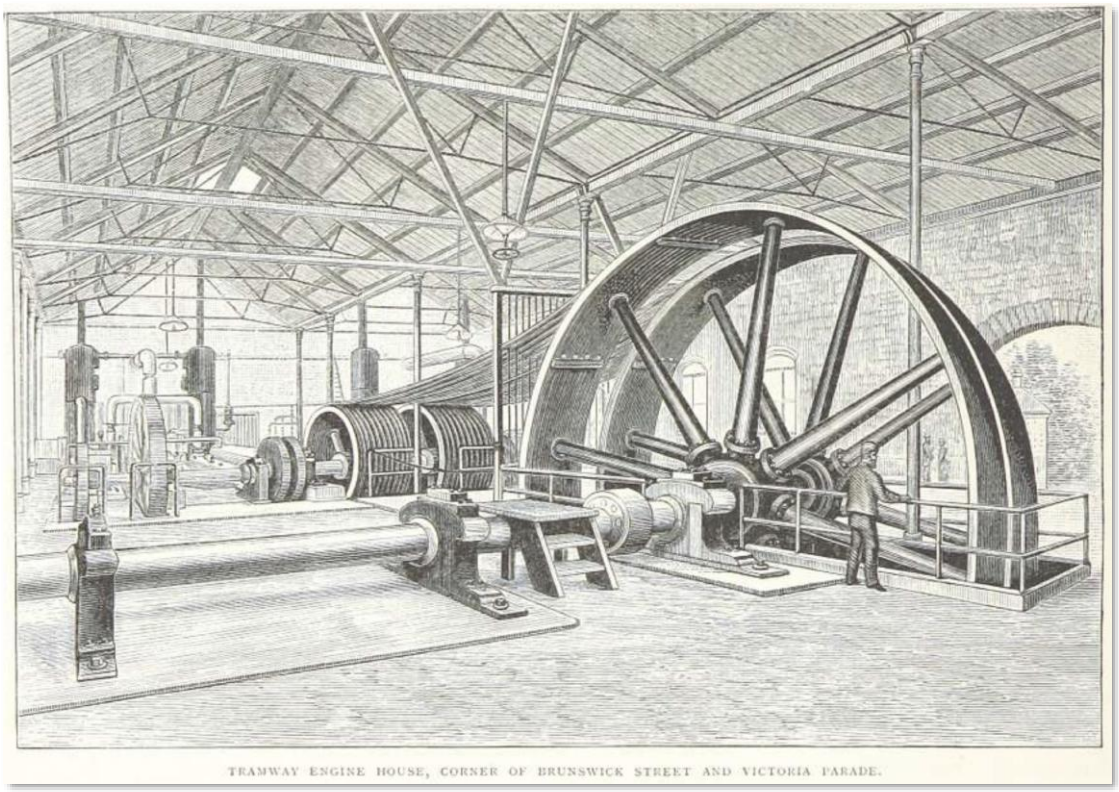

Figure 21 – Illustration showing the interior of the Fitzroy Engine House. Image source: Ellery *et al* 1888: 20.

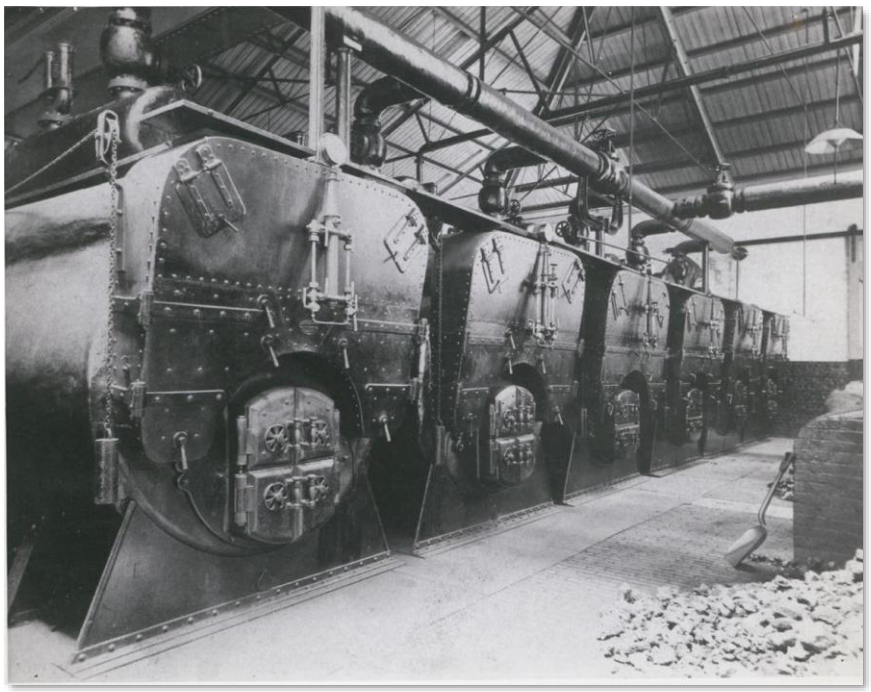

Figure 22 – Photograph showing the boiler room at Toorak engine house, c. 1916. Image source: Pierce 2017: 11.

Engine house layout

Harding (1966: 5) notes that the engine houses 'were all arranged in very much the same manner, with the offices along the front facing the street and having passages giving exit to the

footpath. The area behind here is the location of the power source, where the air was "Filled with the strident din of machinery…and was heavy with the stench of oil". The tramway cable 'entered the Engine House from the tunnels in the street…through a pit or chamber situated below and in front of the Engine House…it contained a bewildering maze of huge pulleys' (Harding 1966: 7).

The typical layout of an engine house is provided by MacMeikan (195?: 11) in his report on the construction and operation of the Melbourne Cable Tramways (Figure 23). This general layout plan shows the location of offices and passages, as well as the standard machinery and built infrastructure within a typical engine house. If the image is rotated to align with the project area, informed predictions can be made about the location and/or likely presence of certain standard engine house features, and thus the nature of the project area's archaeological potential.

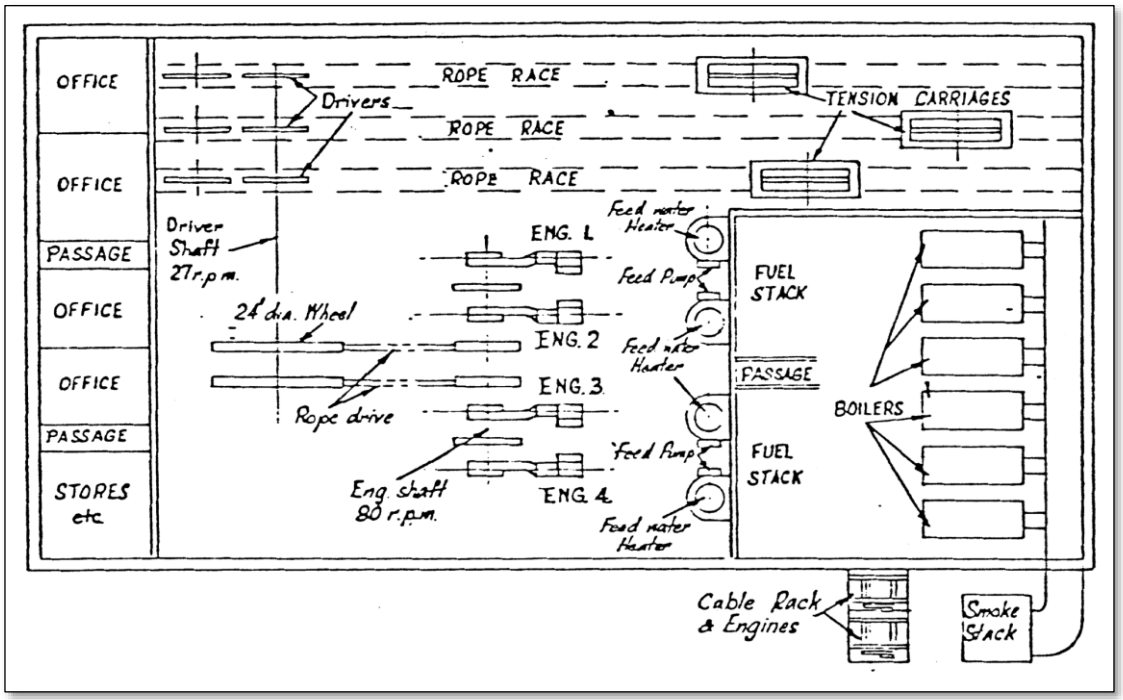

Figure 23 – Typical engine house layout. Image source: MacMeikan 1950?: 11.

Harding asserts that the cable pits within an engine house 'sometimes described as the "catacomb of the Engine House", can be up to fifteen feet or more in depth. Consequently, the walls can be up to sixteen inches thick, although in most cases, they were only twelve inches thick…As with the tunnels, the pits also were cast in solid concrete and because of their position, they were structurally of vital importance' (Harding 1966: 7). A hand drawn section through a series of these pits indicates their depth of over 14 feet, or approximately 4.26 metres (Figure 24).

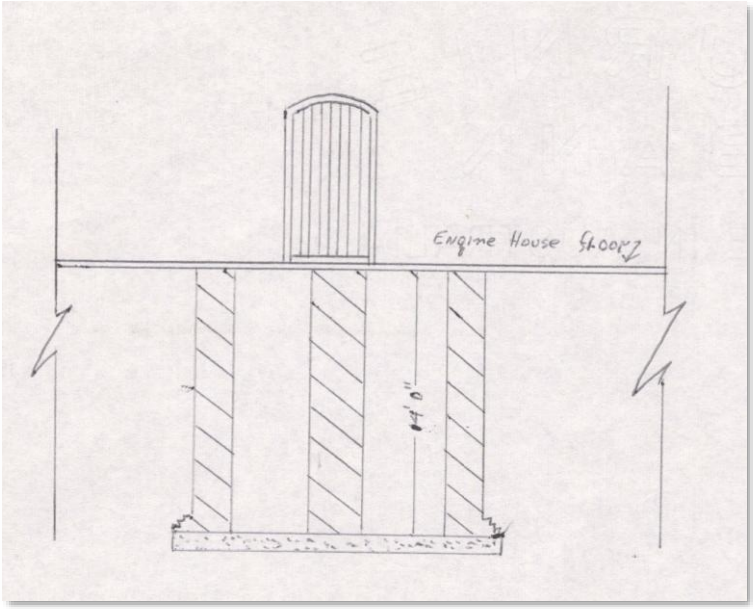

Figure 24 – Hand-drawn section demonstrating engine-house pit depth. Image source: Harding 1966: 6.

Harding (1966: 7-9) provides a useful and detailed description of the layout and operation of the engine house, as follows:

> from the pits the cable was fed up into the engine room itself…This room, filled with wheels spinning in circles, was dominated by one big wheel called the main driver…This striking feature was up to 25 feet in diameter, and weighed up to 50 tons.
>
> It drove the main shaft, which in turn rotated the driving wheels carrying the cables. It also, in drawing up the steel rope from the pit below, fed it onto a cast iron wheel. Then the cable ran away to a tightening wheel, supported on a carriage, and "urged" by a heavy weight, away from the other wheels. This is known as the tension carriage, which travelled along a race or railway 150 feet or more in length, thus taking up the variation in length of the cable due to stretching or expansion by heat or other causes. From here (the tension pits) the endless cable returned and passed under the mechanism it first encountered on entering the engine room, to the pit and then the tunnel in front of the Engine House, to make another of its endless journeys.
>
> Now the area of these tension pits was quite considerable. Often it was on the left hand side of the engine room, and extended from the offices (at the front) to the rear wall of the building. They were separated from the boiler house by a brick wall running from the engine room to the rear of the course, depended upon the number of cables (or lines), the Engine House was pulling.
>
> The power for the various wheels came from a pair of engines situated in the engine room along with all the wheel mechanism. Space had to be provided for these engines to be duplicated, so that one set were on standby when the other broke down…
>
> …Now the source of power for these engines, came from steam generated in a series of boilers above large furnaces, situated at the rear of the boiler house…"the doors of these furnaces are occasionally opened for coaling, and given then a shock to the beholder in the amount of steam thrown out, and of coals shovelled in". These boilers were also duplicated,

> so giving a complete change over of all Engine House machinery. Then, the fumes from the furnaces were taken away by a flue to the tall chimney stack situated outside of the building.
>
> …the office along the front (for the chief engineers and overseer), the tension carriage along the side, the engine room beside this as well as behind the offices, and the boiler house at the rear. The chimney stack, of course, is away from the building…
>
> …The whole of the structure was, of course, made of brick – even the interior walls, which were painted white. The foundations for the building were bluestone, while the foundations for the engines were concrete. Wooden flooring existed in the offices while in the engine rooms, floors were of asphalt, and in the boiler rooms they were brick. The ancillary sheds were made of galvanized iron, and the surrounding paving was either of stone or asphalt.

The following plans of the Nicholson Street (Figure 25) and Johnston St (Figure 26) engine houses provide useful information about the type and layout of features in contemporary Melbourne Cable Tramways engine houses, and in some instances provide details about the materials used to construct different features, as well as their use.

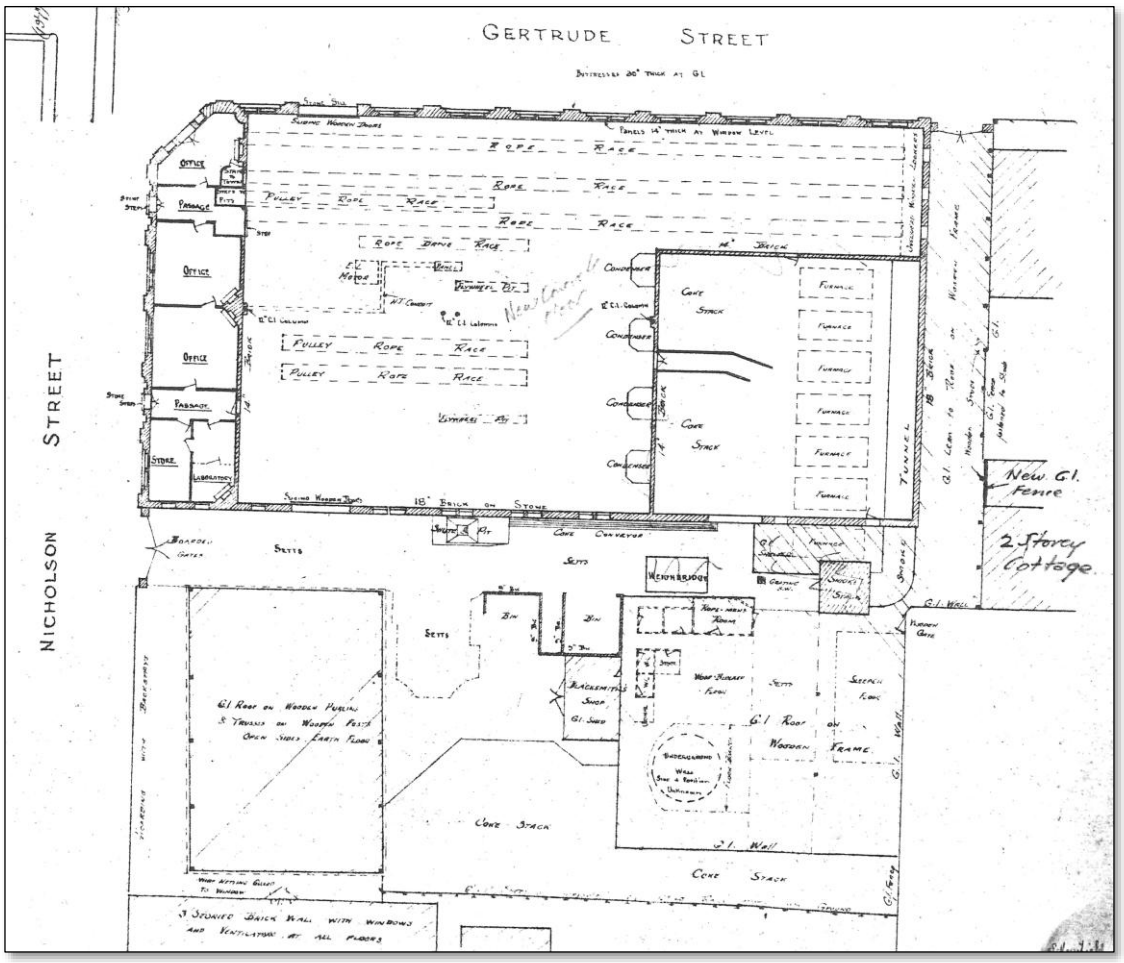

Figure 25 – Plan of the Nicholson Street Cable Tram Engine House, c. 1938. Image source: Victorian Collections.

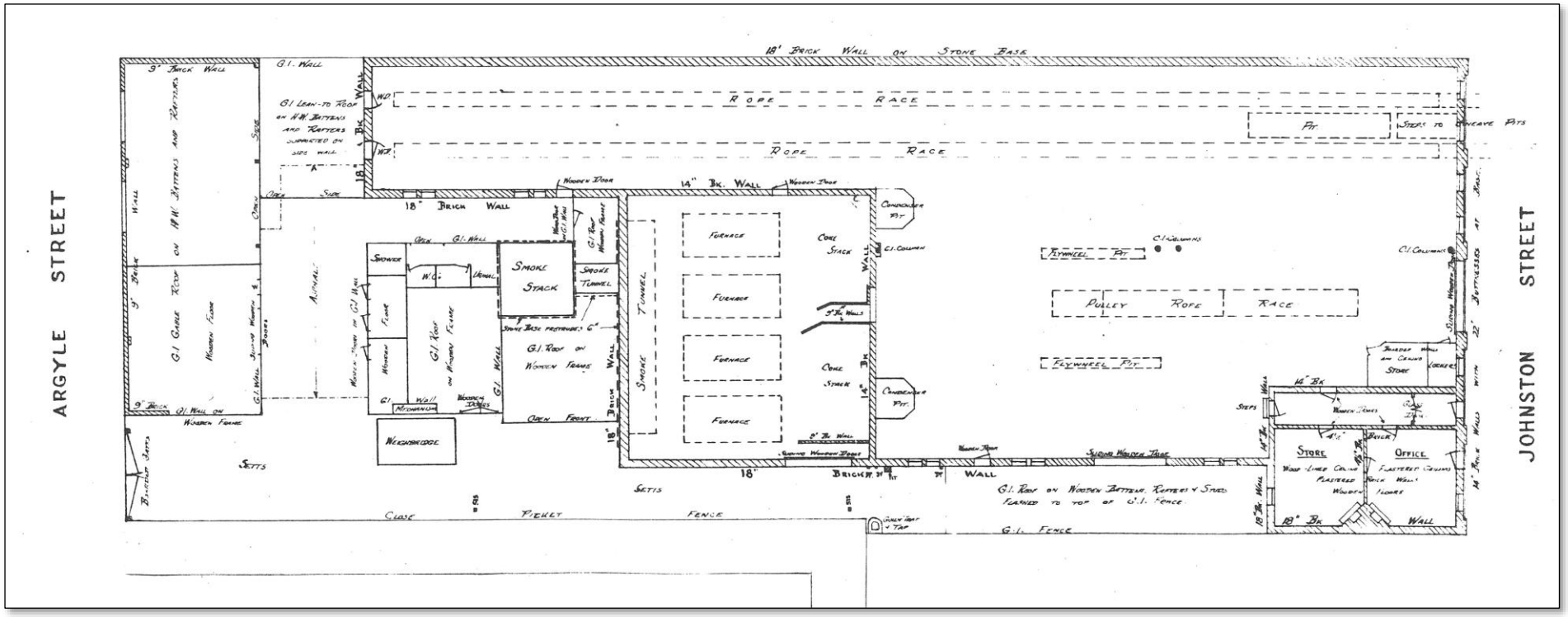

Figure 26 – Plan of the Johnston Street Cable Tram Engine House, c. 1938. Image source: Victorian Collections.

Differences between Engine Houses and signs of the times

As mentioned in the various heritage studies discussed previously, the Brunswick engine house was noted to be, architecturally speaking, one of the more 'plain' engine houses erected as part of the Melbourne Cable Tram Network. Despite the generally similar layout of each engine house, it seems that decorative features (architectural and interior) varied between the different sites. A photograph of the interior of the Toorak engine house (Figure 27) perhaps demonstrates some of the personalized features that may have been present in one engine house but were not necessarily widespread – and at the same time places the engine house firmly within the fashions of the time. Decorative architectural features that don't appear to be present in other photographs of engine houses of the time are visible in this photograph – in the form of two decorative columns present located in the centre of the room, beneath a supporting beam.

Also present in this photograph are three tree-ferns, placed among the machinery. It is not known whether the ferns in this photograph were placed for a particular occasion, or whether they were planted in the engine house as features (possibly benefitting from the steam created by the boilers). It is interesting to note, however, that the mid-late 19th century saw a fashionable obsession with ferns in many places across the world, and in particular in countries and colonies associated with the British empire. This craze, known as 'fern fever' or 'pteridomania', 'reached the colony of Victoria shortly after the gold rush' (Williams 2015: 2) of the 1850s and can be seen in the 'widespread construction of impressively grand ferneries…associated with the exceptional affluence of the 1870s and 1880s in Victoria' (Williams 2015: 2). Ferneries, and the cultivation and maintenance of fern specimens 'were an expression of civic pride, municipal importance, and aggressive competitiveness' (Williams 2015: 2). It is not known whether such adornments were present in the Brunswick engine house – but it is noted that the MMBW plan of 1904 (see Figure 13) maps a fernery at the rear of the "Goodrest' building, opposite the tramway engine house, on the corner of Black Street and Brunswick Road.

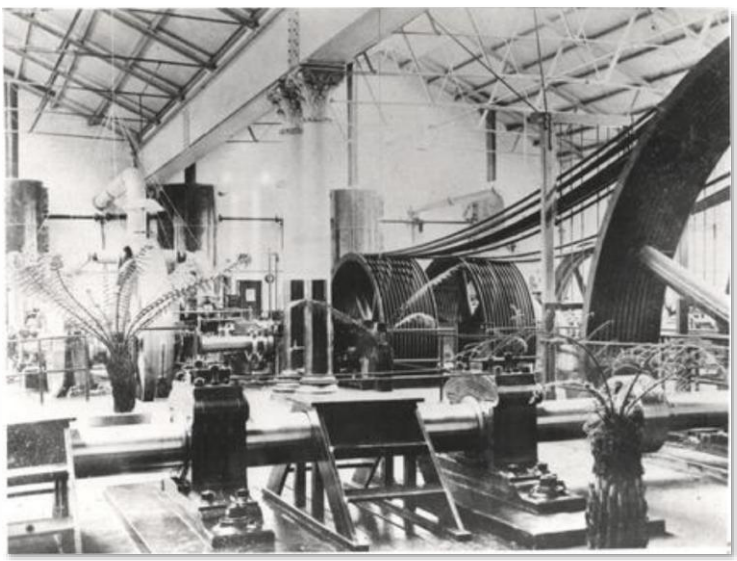

Figure 27 – Photograph of the interior of the Toorak engine house, c. 1900. Image source: Victorian Collections.

2.3.4 Project area land use and disturbance – mid-20th century onwards

Since the closure of the engine house in the 1930s, the project area has been subject to use by a range of commercial enterprises, including as a tyre and vehicle repair centre, and as a clothing manufacturer. A photograph of the building c. 1976 (Figure 28) shows it in use as 'Exhaust City', a vehicle repair shop. Following the decommissioning of the engine house, its machinery was removed, the above-ground internal workings subject to demolition, and pits filled. A concrete slab was installed to create a new floor for the warehouse – to make it suitable for use as a commercial facility. It is not known what degree of excavation was undertaken as part of this process, or the methods of construction used to lay the concrete slab. According to the assessment informed by a field inspection by Extent Heritage (Simon & Clark 2023), it is likely that the concrete slab that forms the current warehouse floor has sealed in place archaeological remains associated with the cable tram engine house – which are potentially present in very shallow contexts, directly beneath the slab.

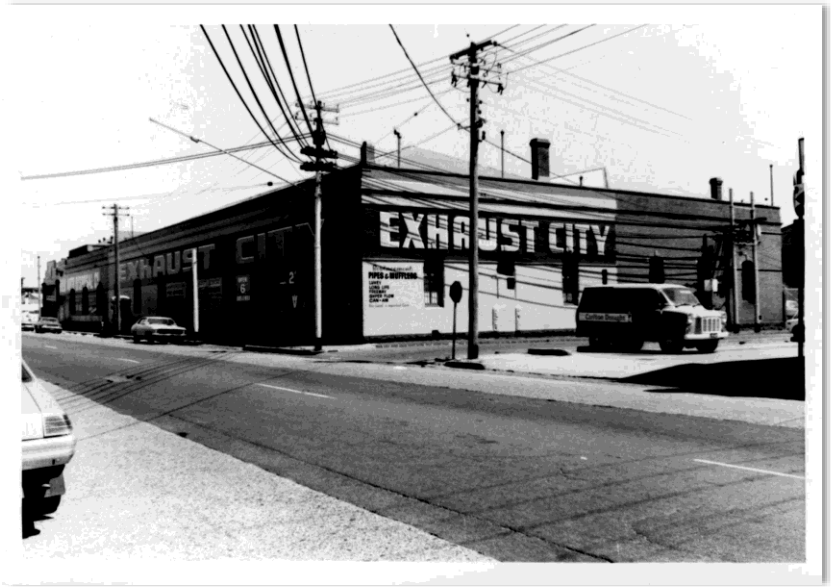

Figure 28 - Photograph of the project area, c. 1976 (Collins 1976). Image source: SLV.

A Before You Dig Australia [BYDA] enquiry (Job No. 36213279) for the project area was undertaken in March 2024. Information provided as a result of this enquiry can be used to identify areas of potential ground disturbance related to the installation and maintenance of utilities within the project area. The mapping provided as part of such an enquiry is not of sufficient accuracy or detail to pinpoint these areas, however. Rather, the information can be used to identify broad areas within the project area that may have been subject to more recent disturbance related to the installation, maintenance and use of utilities.

The BYDA enquiry identified the presence of active and abandoned water mains along the southern boundary of the project area, and it is likely that one or more connections to these mains extend within the project area – however the location/s of these connections is unknown. Similarly, an Optus communications cable also extends along the length of the project area's southern boundary, and it is not known if connections relating to this cable extend into the

project area. A Telstra cable is recorded as extending into the project area from Black Street, and a low voltage electrical cable is marked extending up to the northern boundary of the project area from the substation to the north. None of the information received as a result of the BYDA enquiry indicates extensive disturbance of the historical archaeology by utilities.

3. Discussion and Synthesis

3.1 Limitations of the data

While the historical record can provide a wealth of information about the past, it is by its nature incomplete, and the type, quality, availability and number of sources about particular places and moments in time varies. Errors or inaccuracies in historical mapping and plans and differences in photographic quality and scale, for example, can lead to misinterpretations or gaps in knowledge about a particular site where, for example, few documentary records are relied upon to provide information in a way or to a level of detail they were not designed to deliver. In the case of this site, examples from comparative sites is relied on heavily for interpretation and predictions about archaeological potential, in the absence direct detailed plans showing the layout of the project area in the past.

3.2 Archaeological potential

Notwithstanding the above, the evidence from the land use history has enabled some predictions to be made about its archaeological potential. The available evidence suggests that there has unlikely been extensive damage done to the archaeology in the years since the decommissioning of the Engine House, and in fact the concrete slab serving as the current floor surface has likely acted as a protective seal for the historical archaeology of the site.

Evidence from the land use history suggests that it is unlikely that the project area was developed or occupied in any intensive way prior to the purchase of the property by the Melbourne Tramways Trust and construction of the Cable Tram Engine House. Although it cannot be ruled out that built structures such as houses were present in the project area prior to 1886, the evidence suggests this is unlikely. Uses of the project area prior to 1886 are likely to have been largely 'ephemeral', as suggested by Extent's study (Simons & Clark 2023), and any traces they may have left have likely been camouflaged or destroyed by the construction and use of the Cable Tram Engine House.

The project area is predicted to contain areas of low archaeological potential for archaeological remains associated with the use of the land prior to its purchase by the Melbourne Tramways Trust and development as an Engine House. Archaeological material that may be identified relating to this period may include isolated artefacts or artefact deposits, post holes relating to early timber structures or fencing in the project area, and evidence of cultivation. The archaeological potential of the project area pre-1886 is shown on Figure 29.

The use of the project area between c. 1886 and c. 1936, on the other hand, resulted in heavy modification to the natural state of the project area, and is likely to have left extensive archaeological remains. Limited detailed plans of the project area during this time mean that the locations of most features within the engine house cannot be mapped with accuracy without archaeological investigation. Information provided in written descriptions of this and other Engine Houses, however, as well as comparisons to plans of 'typical' and contemporary

examples of Melbourne Tramways Engine Houses, have allowed a relatively detailed predictive model to be developed.

Areas of high, high-moderate and moderate archaeological potential have been identified in the project area relating to its use c. 1886 – 1936. These areas are shown on Figure 30, and each area has been assigned a number which identifies the type of remains predicted to occur in each location. Areas of archaeological potential in this phase of the site's occupation are as follows:

Known engine house feature locations

1. High archaeological potential for depths of up to 4.2 meters below the current ground surface (driving wheels and rope races)
2. High archaeological potential for depths of up to 2.35 meters below the current ground surface (rope races and tension pits)
3. High archaeological potential for features at unknown depths below the current ground surface (bath and interior dividing wall foundations)
4. A combination of archaeological potential areas No. 3 and 5, and may include alterations undertaken c. 1937.

Likely engine house features – precise locations unknown

5. Moderate-high archaeological potential to unknown depth for archaeological features relating to offices, timber flooring & subfloor deposits, internal wall footings, stores, passages & stairwells (to pits). May include alterations undertaken c. 1937.
6. Moderate-high archaeological potential to unknown depth for archaeological features including engine beds, asphalt flooring, pulley rope races, supporting columns, interior wall footings at western end, and vertical condenser bases adjacent the interior wall footings.
7. Moderate-high archaeological potential to unknown depth for archaeological features including interior wall footings, brick flooring, passages, boiler bases (4 x boilers / furnaces along west wall), coke stack areas, smoke tunnel.
8. Moderate-high archaeological potential to unknown depth for archaeological features including interior wall footings, brick flooring, passages, boiler bases, coke stack areas, smoked tunnel as well as moderate potential for timber flooring, storage rooms, offices & ablution facilities.

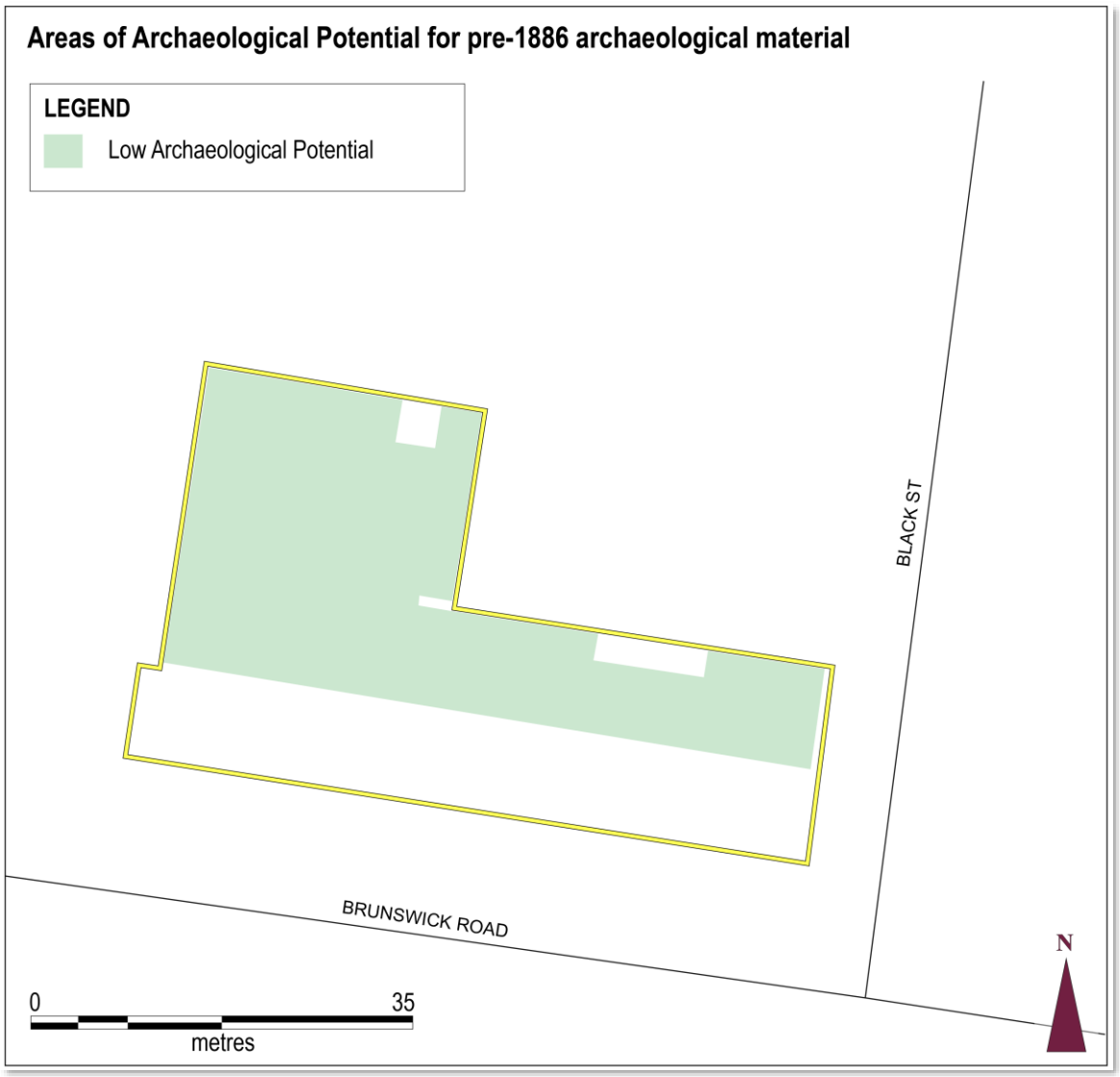

Figure 29 – Archaeological Potential of the project area for pre-1886 archaeological material.

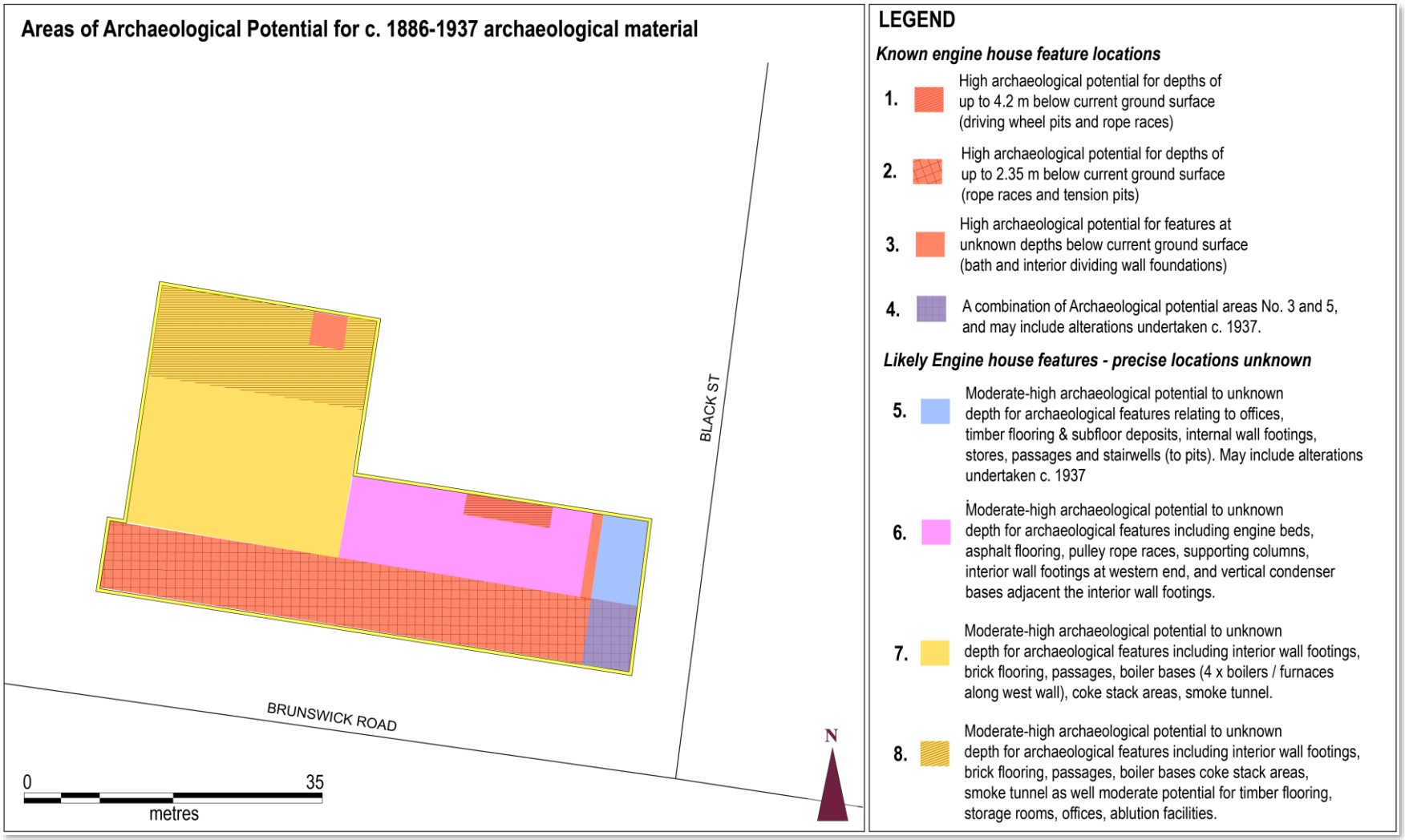

Figure 30 – Archaeological Potential of the project area for c. 1886 - 1937 archaeological material.

4. Impact Assessment

Plans showing the impact points (those activities involving subsurface disturbance) related to the proposed works are overlain on the mapping of areas of archaeological potential c. 1886 – 1937, in Figure 31 and Figure 32. These figures show the extent of proposed disturbance in relation to the different areas of archaeological potential, and may be used to guide archaeological investigations and a management plan (refer to Section 4.1). As the project area contains archaeological potential over its entirety, all proposed works that have a subsurface component have the potential to impact on predicted archaeological values. The horizontal extent of the proposed areas of impact is shown on the plans, and the proposed depth of impact, where known, is listed in the accompanying legend.

4.1 Archaeological Management Plan

An Archaeological Management Plan (AMP) will be prepared to build upon the findings of the Historical Archaeological Impact Assessment and will include a methodology to manage the archaeological potential likely to be affected by the Project. Archaeological investigations will be designed and scaled based on the subsurface conditions and archaeological potential identified in Figure 30, with dimensions as approved under any *Heritage Act* 2017 Permit.

The AMP will be prepared as a pre-commencement condition of the Permit and submitted to Heritage Victoria for endorsement. It will be developed in consultation with Heritage Victoria to the satisfaction of the Executive Director.

Informed by the Historical Archaeological Impact Assessment, the AMP will outline an investigation methodology proportionate to the anticipated impacts and archaeological potential in areas directly affected by the Project, including proposed columns / piles, services, lift shafts, the electrical substation, and any other subsurface interventions to a depth likely to impact significant archaeological remains.

The initial archaeological investigation strategy will involve test excavations to assess subsurface conditions and identify any prior disturbances in areas where archaeological potential is likely to intersect with Project works. If test excavation results indicate the need, further excavations will be conducted to assess the extent, integrity, and significance of archaeological remains, in consultation with Heritage Victoria. Based on initial findings, additional excavations (e.g., open-area excavation or further test trenches) may be warranted to evaluate the extent, integrity, and significance of archaeological remains in areas likely affected by the Project.

While full archaeological excavation across the entire Project Area is not currently proposed, sufficient investigation will be undertaken to provide a clear understanding of the subsurface context and to manage the potential for archaeological remains. In areas where excavation does not occur, it is recommended that ground-disturbing activities be archaeologically monitored, as outlined in the AMP.

The AMP will also include:

- An Unexpected Finds Protocol,
- Artefact management and conservation measures, and
- A framework for post-excavation deliverables.

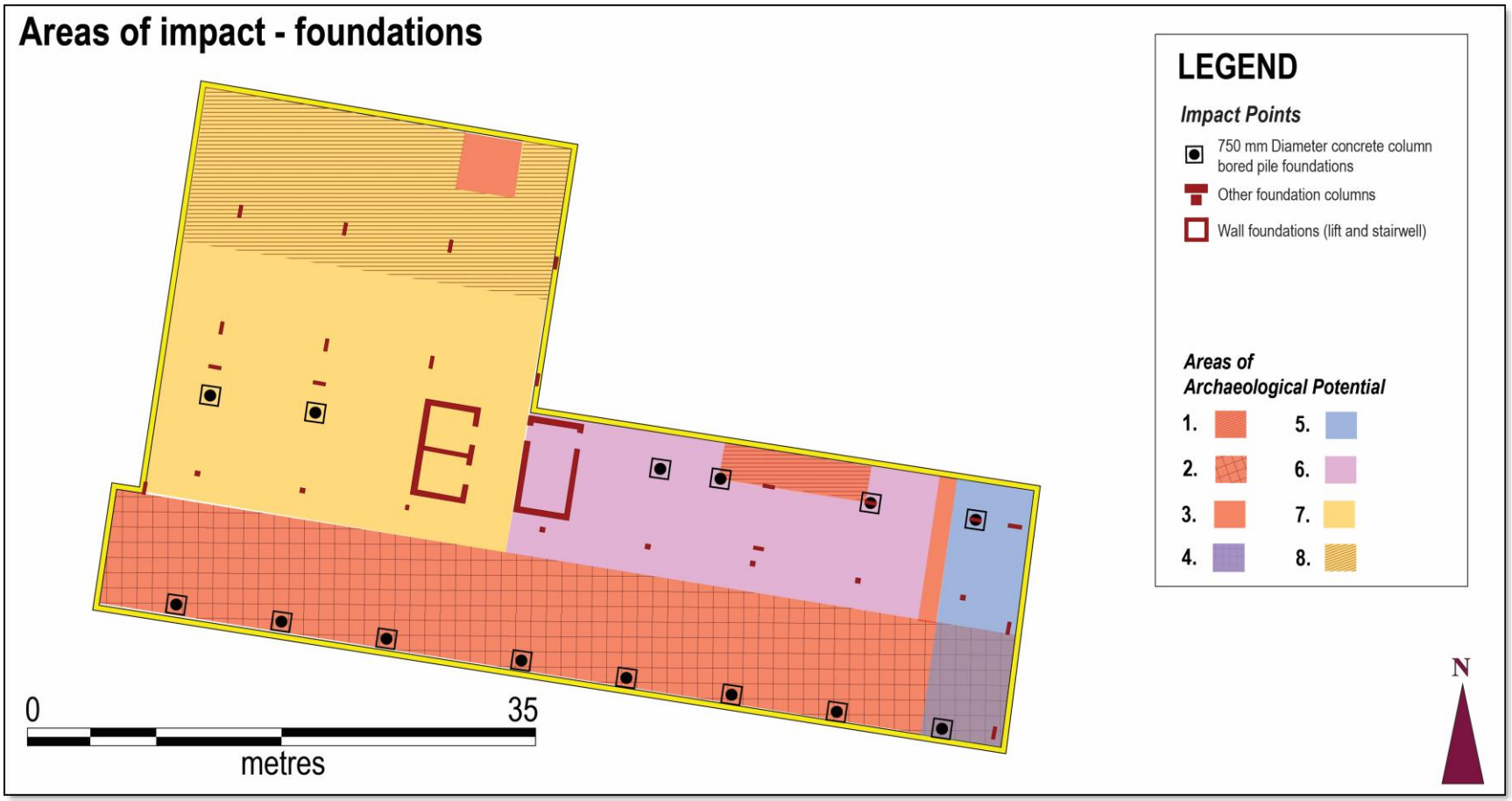

Figure 31 – Impact points for foundation columns and wall foundations, overlain on map showing areas of Archaeological Potential Nos 1-8.

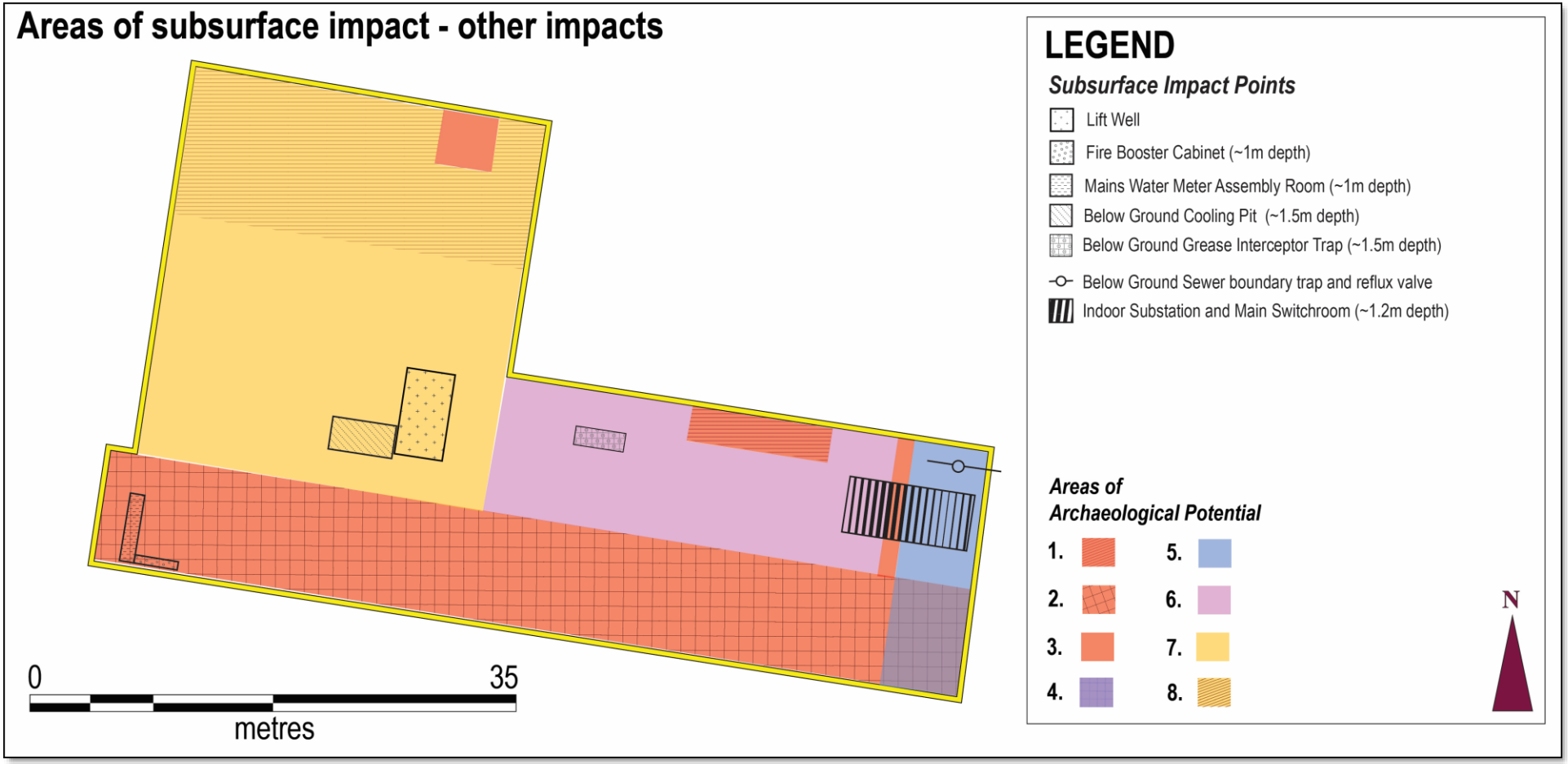

Figure 32 – Impact points for other works, overlain on map showing areas of Archaeological Potential Nos 1-8.

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6. Appendix 1 – Cultural Heritage Legislation

Historical (non-Aboriginal) sites and places of cultural heritage are protected by State and Commonwealth legislation. The legislation is summarised below.

Commonwealth Government

Australian Heritage Council Act 2003

The Australian Heritage Council is a Commonwealth Statutory body, established by the Australian Heritage Council Act 2003. One of the functions of the Council is to maintain lists of heritage places. These are:

The National Heritage List of places of national heritage significance. Listed places are protected by the E*nvironment Protection and Biodiversity Conservation Act 1999* (EPBC Act). There are currently 28 historic places listed in Victoria. Examples of these types of places are the Eureka Stockade, Castlemaine Diggings National Heritage Park and Sidney Myer Music Bowl.

The Commonwealth Heritage List of heritage places owned or managed by the Commonwealth. Listed places are protected as Australian Government agencies will be obliged to properly manage heritage listed places under their control. There are currently 43 historic places listed in Victoria, including places such as Victoria Barracks, Customs House and a number of Post Offices across Victoria.

The Environment Protection and Biodiversity Conservation Act 1999.

Any action that is likely to have a significant impact on sites listed in the National Heritage List and the Commonwealth Heritage List must be referred to the Australian Government Minister for the Environment and Water Resources (the Minister) for consideration.

State Government.

Heritage Act 2017

Historical archaeological sites in Victoria are primarily protected under the auspice of the *Heritage Act* 2017. Its purpose is to provide for the protection and conservation of places and objects of cultural heritage significance to the State of Victoria.

Specifically, the *Heritage Act* 2017 serves to protect all places and objects of historic cultural heritage relating to the non-Aboriginal settlement of Victoria. Under the Act, 'place' includes an archaeological site, a building, a garden, a tree, a precinct, a shipwreck and land associated with any of the above. The Act defines an archaeological site as place (other than a shipwreck) which:

Heritage Register and Inventory at a glance.

The Victorian Heritage Register (VHR) and Inventory (HI) are lists of heritage sites maintained by Heritage Victoria. The VHR lists sites of state significance. They are recorded with a H prefix, eg H201. The HI lists archaeological sites, places and relics over 75 years old that meet archaeological thresholding requirements. They are recorded with a H and 100,000 map series number prefix eg. H7221-. The new *Heritage Act 2017* permits listing of archaeological sites less than 75 years old if they reach thresholding requirements for archaeological significance.

a) contains an artefact, deposit or feature which is 75 or more years old; and

b) provides information of past activity in the State; and

c) requires archaeological methods to reveal information about the settlement, development or use of the place; and

d) is not associated only with Aboriginal occupation of the place.

There are two categories of listing provided for under the *Heritage Act* 2017; the Victorian Heritage Register and the Heritage Inventory.

The Victorian Heritage Register

The heritage register is a register of all heritage places, relics, buildings, objects or shipwrecks deemed to be of outstanding cultural significance to the State of Victoria. Section 87 of the *Heritage Act* 2017 states that it is an offence to knowingly or recklessly remove, relocate or demolish, damage or despoil, develop or alter, or excavate, all or any part of a registered place or a registered object in the absence of a permit. In addition, Section 88 states that it is an offence to negligently remove, relocate or demolish, damage or despoil, develop or alter, or excavate, all or any part of a registered place or object without a permit.

Under Section 93 of the Act, a person may apply to the Executive Director for a permit to carry out works or activities in relation to a registered place or registered object. An application for a permit must be in the prescribed form and be accompanied by the prescribed fee. The Executive Director must determine a permit application within 60 days (s97). The Heritage

Council may extend the period of days by a further period of 60 days on application of the Executive Director.

The Heritage Inventory

The Heritage Inventory records all archaeological heritage sites, other than archaeological sites which are determined by the Executive Director as having low archaeological value (s118).

Under section 130 of the Act, the Executive Director may recommend to the Heritage Council that a place be approved as a site of archaeological value if, in the Executive Director's opinion, the place:

- contains an artefact, deposit or feature which is less than 75 years old; and
- provides information of past activity in the State; and
- requires archaeological methods to reveal information about the settlement, development or use of the place; and
- is not associated only with Aboriginal occupation of the place; and
- has archaeological value.

In this instance, the Heritage Council must determine criteria for assessing whether a place has archaeological value.

Under section 123 of the Act it is an offence to knowingly or negligently deface, damage or otherwise interfere with, or carry out an act, likely to endanger:

- a site recorded in the Heritage Inventory; or
- an archaeological site which is not recorded in the Heritage Inventory.

Offences are punishable by a fine and/or imprisonment

Under section 124 of the Act a consent is required form the Executive Director, Heritage Victoria to excavate, uncover, damage or disturb a site recorded on the Heritage Inventory. An application for a consent must be in the prescribed form and be accompanied by the prescribed fee.

Local Government.

Victorian Planning and Environment Act 1987 and the Planning Schemes Act 1996

The Victorian Planning and Environment Act 1987 and the Planning Schemes Act 1996 provides local governments with the power to implement heritage controls over significant buildings or places.

One of the objectives of the Planning and Environment Act (1987) is to "…conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest or otherwise special cultural value' (Section 4 (d)). Applications for planning permits submitted to local governments may be forwarded to Heritage Victoria as referral authorities but only if the body determining the planning application believes there is cause to do so. A requirement for a Heritage Assessment can be included as a condition for the issue of a Planning Permit by the determining Authority (Section 62).

Part 2 of the Planning Schemes Act 1996 sets out guidelines for use by local government for determining a planning application, which includes reference to cultural heritage including archaeological sites. Site and places may be protected within a planning scheme by the use of a Heritage Overlay and Significant Landscape Overlays and the attached schedules.

Most Victorian local governments have Heritage Overlays in place, however there are some areas where Heritage Overlays are still being developed. All Heritage registered sites are automatically included in Heritage Overlays, however many Heritage Inventory listed sites are often overlooked. In practice this means there is potential for some heritage sites to be missed when undertaking desktop survey alone.

7. Appendix 2 – Rates Book Records

Summary of Rates book records reviewed as part of the land use history (VPRS 11320/P0001 c. 1872 – 1895).

Person Rated	Occupation	Owner	Description
1872 'Brunswick Road West, North Side'			
Bulger, Francis	Labourer	Beckett, Daniel	Wood house 2 rooms
Jones, John	Engineer	Beckett, Daniel	Wood house 2 rooms
Leeson, Thomas	Carter	Beckett, Daniel	Brick house 2 rooms
Heale, Robert	Labourer	Beckett, Daniel	Brick house 2 rooms
Jackson, Joseph	Carter	Black, John	Building Land 12 acres
Kelly, Miss Mary		Kelly, Miss Mary	Stone house 9 rooms, kitchen shed & c
1874 'Brunswick Road West, North Side'			
Jackson, Joseph	Carter	Black, John	Building Land
Kelly, Mary	Schoolmistress	Kelly, Mary	Stone house / rooms &c
1875 Brunswick Road West North Side			
		Roddick	Building Land
		Prowse	Building Land
		Rufus	Building Land
		Kelly Mary	Building Land
Kelly, Mary	Schoolmistress	Kelly Mary	Stone house 11 rooms
		Kelly Mary	Building Land
1876 Black Street			
Barnes, William		Barnes, William	Land
Simms George	Brickmaker	Lloyd	Land, wood house 4 rooms
Davidson, Christopher	Labourer	Lloyd	Land, Brick Cottage
Entwistle, Joseph	Gardener	Lloyd	Land, Brick Cottage
Jackson, Joseph		Wilson, P J	Land, Paddock
1876 Brunswick Rd West North Side			
Riddock, DNS		Riddock, DNS	Land
Prowse. William		Prowse, William	Land
Rufus, C E		Rufus C E	Land
Kelly, Mary	Teacher	Kelly, M	Land, Stone house 10 rooms
1878 Black St			
		Barnes, William	Building Land
Simms, George	Brickmaker	Lloyd, George	Wood house
Donnelly, ~Thomas	Labourer	Lloyd, George	Brick house
Simms	William	Brickmaker	Brick house
1878 Brunswick Rd West, North Side			
		Riddock, DPS	Building Land
		Prowse, William	Building Land
		Johnson	Building Land
Knight, Amy	Teacher	Kelly, Mary	Stone house & Land
		Kelly, J P	Building Land
1881 Black St			
Clement, James	Bootmaker	Lloyd, George	Wood house
Pizer, Mrs		Lloyd, George	Brick house
Taite, Joseph	Carpenter	Lloyd, George	Brick house
1881 Brunswick Rd West, North Side			
Riddock, DNS		Riddock, DNS	Building Land
Prowse, William	Gentleman	Prowse, William	Building Land
Johnson		Johnson	Building Land
Knight, Amy	Teacher	Kelly, Mary	Stone house & land
Kelly, JP		Kelly, JP	Building land

1884 Black st			
Murphy, Mortimer	Labourer	Lloyd, G	Brick house
Pizer, Mrs		Lloyd, G	Brick house
Clements, James	Bootmaker	Lloyd, G	Brick house
1884 Brunswick Rd West, North side			
Hubbard, William	Blacksmith	Hubbard, William	Building land
Prowse, William	Gentleman	Prowse, William	Building Land
Johnson		Johnson	Building Land
Knight, Amy	Teacher	Kelly, Mary	Stone house & land
*****note Ricketts further west**			
1886 Black St			
Gavan, Samuel	Labourer	Lloyd, George	Brick house, 2 rooms
Pizer, Mrs		Lloyd, George	Brick house, 2 rooms
Clements, James	Bootmaker	Lloyd, George	Wood house, 3 rooms
Cook, William	Carpenter	Cook, William	Wood house, 3 rooms
Minder, John	Brickmaker	Minder, John	Brick house, 3 rooms
1886 Brunswick Road West, North side			
		Hubbard, William	Building land
		Prowse, William	Building Land
		Rufus	Building Land
Knight, Amy	Teacher	Kelly, Mary	Stone house & land, 7 rooms
1887 Black St			
Clavin, Simon	Labourer	Lloyd, George	Brick house, 2 rooms
Pizer, Mrs		Lloyd, George	Brick house, 2 rooms
Clements, James	Boot Finisher	Lloyd, George	Wood house, 4 rooms
Coote, William	Builder	Coote, William	Wood house, 4 rooms
Winder, John	Brickmaker	Winder, John	Brick house, 3 rooms
1887 Brunswick Road West, North Side			
McCulloch, William	Gentleman		
Down, R.	Gentleman	Melbourne Tram & Omnibus Co	Building Land
Spicer, G E	Gentleman	Melbourne Tram & Omnibus Co	Building Land
Knight, Amy	Teacher	Kelly, Mary	Stone house 8 room & land
1889 Black St			
Clavin, Simon	Labourer	Lloyd, George	Brick house, 2 rooms
Pizer, Mrs		Lloyd, George	Brick house, 2 rooms
Jacobs, David	Labourer	Lloyd, George	Wood house, 4 rooms
Coote, William	Builder	Coote, William	Wood house, 5 rooms
Winder, John	Brickmaker	Winder, John	Brick house, 4 rooms
1889 'Brunswick Road West, North Side'			
Hall, Miss Adeliza		Hall, A	Brick House, 6 rooms
Down, Richard	Inspector	Melbourne Tram & Omnibus Co	Tram Enginehouse, Machinery and Land
Spicer, George E.	Inspector	Melbourne Tram & Omnibus Co.	Tram Enginehouse, Machinery and Land
Bell, Frederick	Clerk	Melbourne Tram & Omnibus Co.	Tram Enginehouse, Machinery and Land
1892 Black St			
Whitehead, Waid E	Grocer	Lloyd, George	Brick house (No. 2)
Wilson, Janet		Lloyd, George	Brick house (No. 4)
Sunshine, J		Lloyd, George	Wood house (No. 6)
Coote, William	Builder	Coote, William	Wood House (No. 8)
Winder, John	Gent	Winder, John	Brick House (No. 14)
		Sweet, George	Wood Workshops (No. 22)
1892 Brunswick Rd West, North Side			

Hall, Adeliza		Hall, Adeliza	Brick House (No. 4)
Downes, Robert	Inspector	Melbourne Tram Company	Engine sheds
Jones, John C	Clerk	Melbourne Tram Company	Engine sheds
Bell, Frederick	Accountant	Melbourne Tram Company	Engine sheds
Knight, Amy	Teacher	Kelly, Mary	Stone house
		Howard, William	Brick house (No. 42)