6 April 2021

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Dear Long,

## RE: Locomotive Workshops | SSD 8517 Modification 9 – Blacksmith Flue, Bays 1 & 2 South

Curio Projects has been commissioned by Mirvac Projects Pty Ltd to prepare a Heritage Impact Statement (HIS) in the form of a letter report to support a Section 4.55 Modification Application to the NSW Department of Planning and Environment (DPE) for the approved State Significant Development Application (SSD 8517) for Bays 1-4a of the Locomotive Workshops, South Eveleigh. The proposal seeks approval for amendments to the approved base building blacksmith flues in Bays 1 & 2. The proposal is located within the curtilage of the Eveleigh Railway Workshops (State Heritage Register listing No. 01140).

The report has been prepared with reference to the following key documents:

- Mirvac, *Locomotive Workshops, SSD 8517 Mod 9 Additional Flue's for Functioning Blacksmith Tenancy Presentation*, 19 February 2021
- Curio Projects 2017, *Heritage Impact Statement for Locomotive Workshop (Bays 1-4a)*

### Project Background

Historically, South Eveleigh (formerly known as ATP) was part of the Eveleigh Railway Workshops (ERW), used for locomotive construction, railway maintenance, storage and other associated industries. Use of the site as marshalling yards and workshops formed part of a large railway-based precinct on both sides of the main railway line, dating from 1882 and growing until its closure in 1989. Since this time, the precinct has been progressively redeveloped and repurposed.

In December 2015, a State Significant Development Application (SSDA) (SSD 7317) was submitted to the NSW Department of Planning and Environment (DPE) for a multi-building redevelopment (i.e. Buildings 1, 2 and 3 identified in Figure 2) of the ATP to provide new commercial office, retail and community uses and a significant upgrade to the ATP public domain. Following public exhibition and the submission of additional information, the development was approved by the Planning Assessment Commission on 20 December 2016. The construction of this development is currently underway.

Two SSDAs relating to the redevelopment and adaptive reuse of Locomotive Workshops were submitted to the NSW DPE in November 2017, one for the eastern portion of Locomotive Workshops (Bays 1-4a) (SSD 8517), and one for the western portion (Bays 5-15) (SSD 8449). This modification application relates to SSD 8517 for Bays 1-4a of the Locomotive Workshop.

## Site Identification

The South Eveleigh precinct is situated within the City of Sydney Local Government Area (LGA) and is strategically located 5km south of the Sydney CBD, 8km north of Sydney airport and within 200m of Redfern Railway Station (Figure 1). The precinct has an area of over 13.2 hectares and is bounded by one of Sydney's primary railway arteries to the north, Cornwallis Street and Garden Street to the east, Henderson Road to the south, railway workshops and yards to the north-west and government-owned community housing to the west.

The study area of this modification is Bays 1 & 2 South of the Locomotive Workshop within the South Eveleigh Precinct (Figure 2 and Figure 3).

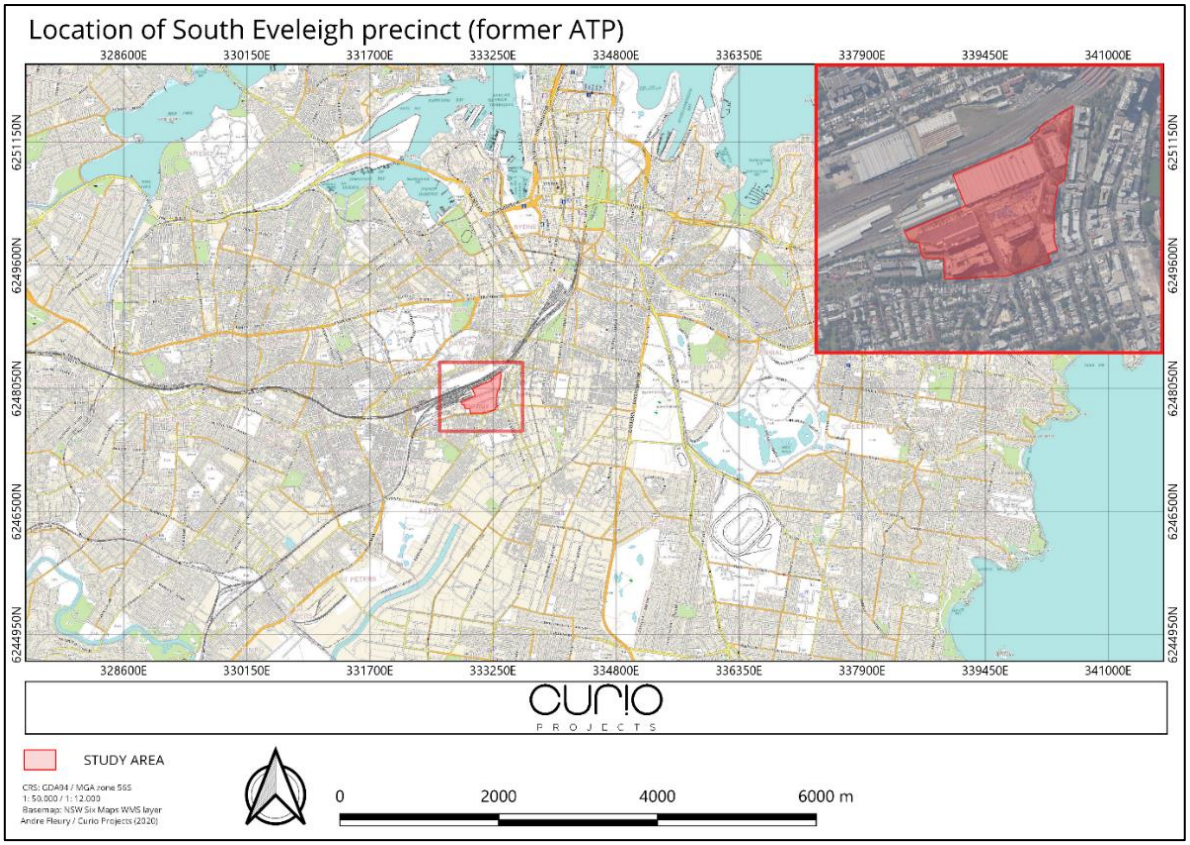


Figure 1: Location of South Eveleigh
Source: Curio Projects, 2020

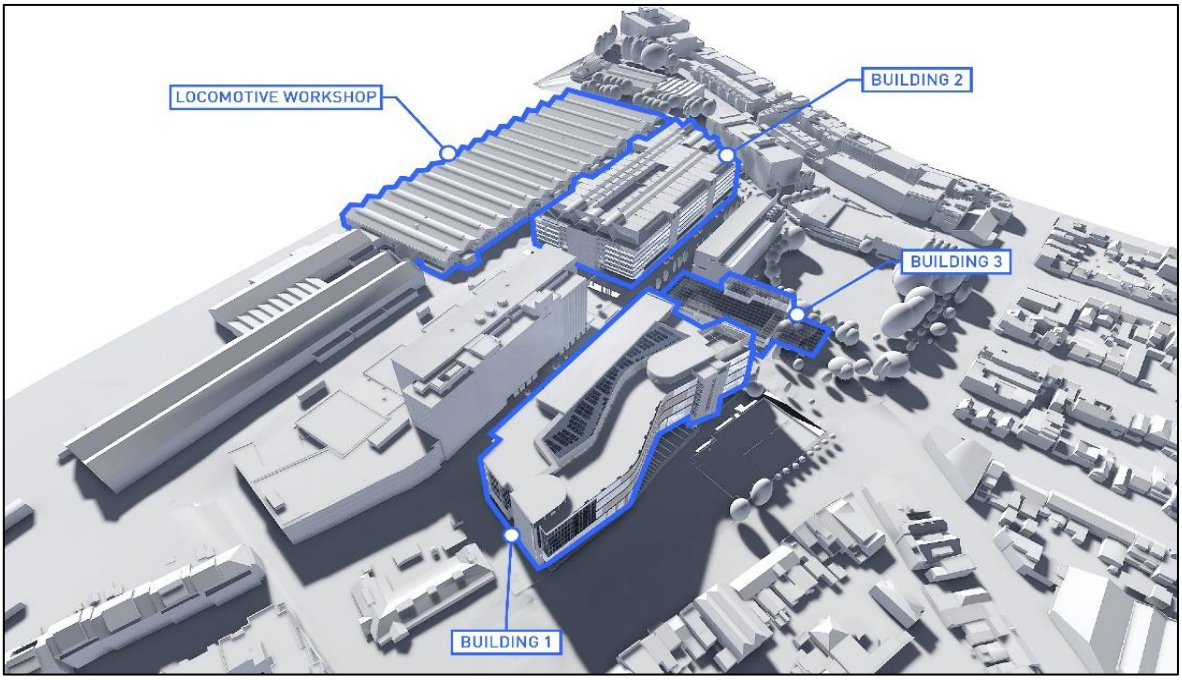


Figure 2: Building Locations under SSD 7317, Locomotive Workshop indicated at top of image
Source: Ethos Urban


Figure 3: South Eveleigh Precinct (red) and Bays 1&2 South (blue)
Source: Google Earth Pro 2020 with Curio additions

## Statutory Context

Heritage places and items of particular importance to the people of New South Wales are listed on the NSW State Heritage Register (SHR). The Register was created in April 1999 by amendments to the *Heritage Act 1977* (the Heritage Act). The proposed development is located within the of ERW SHR curtilage, and therefore is subject to the provisions of the Heritage Act.

The ERW is also listed on the RailCorp Section 170 Heritage and Conservation Register.

## Historical Summary

This section provides a brief timeline summary of the historical phases of use and development activity at the South Eveleigh Precinct (former Eveleigh Locomotive Workshops) in order to provide historical context for the assessment of heritage impact in this report. For a full historical overview, reference should be made to the original HIS for the Locomotive Workshops SSDA (Curio Projects 2017).

In general, the history of the South Eveleigh site can be summarised into four main phases of occupation and use:

**Phase 1:** Pre-European Environment/Aboriginal Occupation (c20,000BP-1794)

**Phase 2:** Early Land Grants, Chisolm Estate (1835-1880)

**Phase 3:** Establishment and development of Eveleigh Railway Workshops (1880-1989)

**Phase 4:** Recent History/History of the ATP (1989-Present)

While the Locomotive Workshops are understood as one part of the wider ERW site, the following timeline provides a key historical summary of the South Eveleigh Precinct only, specific to the development of the Locomotive Workshops.

Table 1: General Historical Timeline for Locomotive Workshops

| YEAR | DESCRIPTION |
|---|---|
| 1871 | Planning for ERW commenced |
| 1878 | Resumption of 64.5 acres of land from John Chisholm for construction of ERW |
| 1882 | Development and building of ERW commenced |
| 1885 | Engine Running Shed completed and commenced operation |
| 1887 | Locomotive Workshops Completed. Bays 1–4 officially opened. Bays 5–15 completed and opened later in the year |
| 1887 | Work Managers and Timekeepers Office completed |
| 1899 | Large Erecting Shed completed |
| 1907 | New Locomotive Shop erected |
| 1908 | Manufacture of new locomotives commenced at Eveleigh |
| 1913 | Terrace houses/shops resumed for Alexandria Goods Yard |
| 1917 | Alexandria Goods Yard completed |
| 1917 | New Foundry and pattern shop constructed |
| 1925 | Davy Press installed |
| 1925 | Manufacture of new locomotives ceased |
| 1937 | Chullora workshops opened. Some repair work transferred from ERW |
| 1940 | Production of shells in Bays 5-6 of Locomotive Workshops |
| 1945 | Reintroduction of locomotive construction until 1952 |
| 1965 | Steam locomotion abandoned |
| 1970s | ERW modernized to meet demands of servicing & repairing modern diesel and rolling stock |
| 1986 | Closure of the Locomotive Workshops |
| 1989 | Closure of all ERW |

| | |
|---|---|
| 1989+ | Demolition of numerous ERW buildings including Foundry and Alexandria Goods Yard |
| 1989 | Paddy's Markets relocated to Bays 5–15 of Loco Workshops. Machinery relocated to Bays 1–4a |
| 1991 | ATP works commence. Wrought Artworks recommission blacksmiths forges in Bay 1 and 2 |
| 1996 | ATP Opens |
| 2014 | ATP CMP formally endorsed |
| 2016 | Ownership of ATP transferred to Mirvac |
| 2018 | Concept Plan SSDA for ATP Redevelopment Approved |
| 2019 | **Locomotive Workshops SSDA approved** |

**Locomotive Workshops**

Construction of the Locomotive Workshops commenced with Bays 1-4 in 1887, which were immediately put into operation while the remaining bays (Bays 5-15) were still under construction. This led to these two zones (Bays 1-4 and Bays 5-15) being built as separate structures, with the space in between functioning as a laneway. The laneway was later filled in, connecting the two structures to function as a single building (the Locomotive Workshops), connected by a new bay known as Bay 4a.

The Locomotive Workshops functioned on the southern side of the railway line, as one of four key functional buildings involved in the manufacture and maintenance of locomotives (also including the Large Erecting Shed, the Engine Running Sheds, and New Locomotive Shop), supported by other ancillary operations in subsidiary buildings within the site. The orientation of the 15 bays within the Locomotive Workshops is presented in Figure 4. As the function and requirements of the ERW site changed over time, so too did the function of each bay within the Locomotive Workshops. The change in use of Bays 1-4a of the Locomotive Workshops over time is summarised in Table 2.

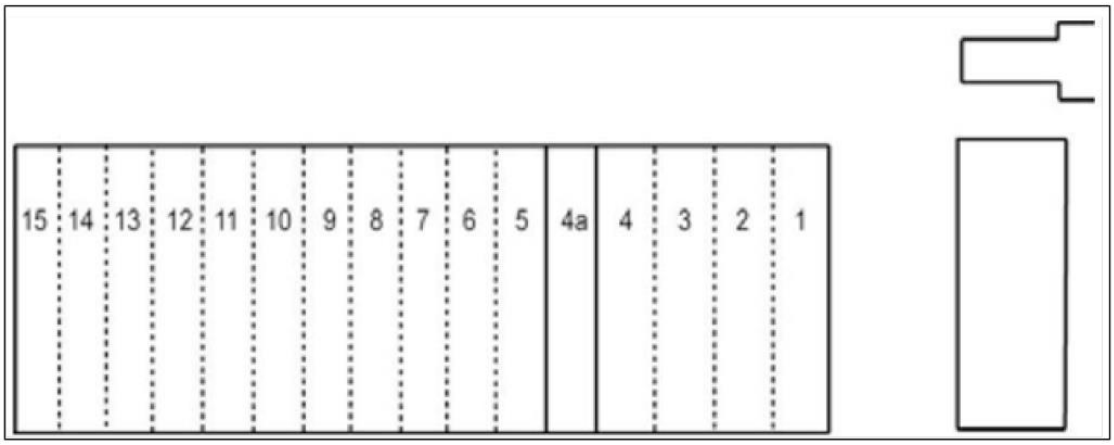


Figure 4: Schematic representation of the Locomotive Workshops bays, orientated north
Source: GML 2013:16

Table 2: Change in use over time of Bays 1-4a

| BAY | 1887 | 1905 | 1924 | 1984 | 2009 |
|---|---|---|---|---|---|
| 1 | Steam hammer and spring shop | Blacksmiths Shop | Blacksmiths Shop | Blacksmiths Shop | Blacksmiths Workshop |
| 2 | Blacksmiths Shop | Blacksmiths Shop | Blacksmiths Shop | Blacksmiths Shop | Blacksmiths Workshop |
| 3 | Boiler Shop | Boiler Shop | Boiler Shop | New Spring Shop/ Heat Treatment | Main Entry |
| 4 | Foundry | Boiler Shop | Boiler Shop | Fabrication Shop | Offices |
| 4a | Annex containing tinsmiths and coppersmiths, sand-store and core stoves for the foundry | Boiler Shop | Boiler Shop | Fabrication Shop | Offices |

**Bays 1 and 2 Blacksmiths Shop**

The Blacksmiths shop in Bays 1 and 2 was the largest and most technologically advanced workshop in the southern hemisphere for its time. The majority of the Blacksmiths shop's original equipment and machinery still remains across the Locomotive Workshops, making it one of the largest collections of Victorian blacksmith equipment, having most of its original machinery intact.

These two Bays remain the only intact operating bays in the complex since its opening in 1887, providing a historical experience and insight into the original Locomotive Workshop. Currently, the Blacksmiths shop functions as a teaching facility for both traditional and contemporary blacksmith techniques for the public.

As part of approved SSD8517, the Blacksmith Workshop was retained in Bays 1 and 2 South, and forms a significant part of the site-wide activation for Mirvac's redevelopment of the South Eveleigh Precinct. The current blacksmith tenant, Eveleigh Works, continue to operate from Bays 1 and 2 South, utilising the original blacksmithing tools and machinery from ETW, and preserving the tradition of a 130-year long blacksmithing trade in this location.

Under SSD8517, Bays 1 and 2 North will be used as a hybrid retail and heritage exhibition space.

Figure 5: Blacksmith Tenancy in 2017, Bay 2 South
Source: Curio 2017

Figure 6: Furnaces in Blacksmith Tenancy in 2017, Bay 2 South
Source: Curio 2017

## Heritage Significance—Summary of Statement of Significance

The SHR listing for the 'Eveleigh Railway Workshops' provides the following Statement of Significance, providing an overarching statement of significance for the whole site. It states:

> *The Eveleigh Railway Workshops complex is of exceptional heritage significance to the state of NSW for its major contribution to the establishment, operation and growth of the NSW railways, which was essential to the growth and development of NSW from the late 19th century onwards. The Workshops complex is significance as a rare remaining example of character as well as continued links to railway operations for over 100 years to this day.*
>
> *Historically, the site is important for its links to an early phase of railway development in NSW, with onsite evidence remaining intact from as early as 1887. The remaining tangible evidence and intangible site values reflect the technological, social and cultural development of the NSW railways, as well as broader important historical events. Though many structures and items have been removed, the remaining site evidence reads as a living interpretation of the technological, administrative, social and cultural developments in over 100 years of railway operations in NSW, including the major transition from steam to diesel and electric powered train operation. The layout of the extra site elements is also indicative of the functional and administrative arrangements during the period of the site's operation.*
>
> *The site is of considerable aesthetic and technical significance for the high quality design and construction of the original buildings. Which are substantially intact and display finely detailed polychrome brickwork and well articulated facades that embody the pride of the late Victorian era. The simple, strong functional forms of the buildings have landmark quality, not only as important townscape elements in the Redfern/Eveleigh area, but as part of the visual train journey of thousands of passing commuters. The combination of the southern locomotive sheds at the Australian Technology Park and the former Carriage and Wagon Workshops provide a distinctive landmark in the Sydney landscape and define views to and from the site.*
>
> *The Workshops are of social value to generations of railway employees past and present as a workplace producing high quality craftmanship utilising state-of-the-art technology, as well as being a heritage icon for current local communities. The Workshops were associated with cultural and social developments in working conditions now crucial to the Australian cultural identity, for example, the weekend. They had an important association with the labour movement. The place was seen initially as a positive instrument of state socialism and in later periods as the site of important labour actions and of restrictive work practices.*
>
> *The Workshops represent significant research potential for their ability to inform through remaining physical, documentary and oral evidence the functions and operations of a large-scale 19th/20th century railway workshops. Eveleigh Railway Workshops is significant for its rarity in NSW as a large and relatively intact historic railway workshop. It is representative of Victorian era railway workshops and is significant as one of the best surviving examples of railway workshop complexes from this era.*

*While many items have been removed in the process of modern site development, the site still holds an exceptional and rare collection of historically and technically significant heavy machinery, the majority of which is housed in the ATP buildings on the south side of the main railway line.*

In addition, a summary statement of significance has been prepared for the South Eveleigh site itself, as presented in Section 7.5.1 of the ATP Conservation Management Plan (CMP; GML 2013), which states that:

*ATP provides important evidence of the founding and gradual expansion of the largest railway workshops in NSW over a period of 100 years. The Eveleigh Railway Workshops was a highly significant and ambitious public endeavour of a type that rarely occurs today. Eveleigh was a government-established and government-run industrial workshop designed to provide self-sufficiency for the Sydney and NSW railways, without reliance on private operators who did not possess the funds or workforce to cope with demand during the nineteenth century. It employed and developed the best technology available at the time and continued to innovate in response to changes in the NSW railways system and management policy throughout its years of operation.*

*The ATP site contains an amalgam of land gradually resumed for railway use during the nineteenth and twentieth centuries. The land was resumed for a number of expansions of the Locomotive Workshops, establishment of the Alexandria Goods Yard and construction of the Eastern Suburbs Railway connection to the Illawarra line, and involved demolition of an area of housing north of Henderson Road. At its peak, the area was the most important rail precinct in NSW. Three of four remaining buildings and a significant machinery collection from the State-significant Eveleigh Locomotive Workshops are contained within the ATP site. The Locomotive Workshops building, New Locomotive Shop and Works Manager's Office from a historically and aesthetically significant group that demonstrates the scale and importance of the Eveleigh Locomotive Workshops and are a landmark along the western railway. The distinctive, highly detailed industrial buildings provide powerful evidence of the importance of the workshops as a major industrial undertaking in NSW during the late nineteenth century.*

*Individual items of the Locomotive Workshops Machinery Collection remain significant items of technical achievement. These range from the Davy Press, a unique machine in Australia and rare in a world context, to the Departmental Lathe, a precision machine built locally. While the Machinery Collection is not entirely intact, it retains a high level of significance and the collection within the blacksmiths workshop is relatively complete.*

*The ATP site holds great significance for members of the local community and current and former workers within the NSW railways and is central to many local community members' connection with the Redfern/Darlington area. As the site of the former Eveleigh Locomotive Workshops, ATP is emblematic of a type of work no longer common is NSW and the remaining buildings are seen as a testament to the many thousands of workers and their families that made their living within its walls. The pride in the history of the Eveleigh Locomotive Workshops is evident through the dedication of the many volunteers that continue to work in the Large Erecting Shed, the blacksmith business in Bays 1 and 2 South and the open days and tours led by former workers, as well as the many views expressed during the community consultation process. The ATP site has strong historical*

*connections with the surrounding area, including North Eveleigh and Redfern Station, as well as a historical connection with the expansion, pattern and type of development that occurred in adjacent suburbs. While the former Eveleigh Locomotive Workshops are significant in their own right, this significance is increased by their relationship to the Eveleigh Railway Workshops as a whole, including the former Carriage and Wagon Workshops at North Eveleigh and the former Macdonald town Gas Works.*

In summary, the heritage significance of the South Eveleigh Precinct and the former Eveleigh Railway Workshops SHR relates to the presence of the extant significant built heritage items, as well as exceptional historical, associative, and social significances of the site both as the ongoing site of industrial revolution and rail activity from 1882 as the Locomotive Workshops, its ongoing use as a hub of technological innovation as former ATP and now South Eveleigh, and as a community and social hub for the Eveleigh and Redfern areas.

The Blacksmith workshop in Bays 1 and 2, including intact machinery collection, was graded in the 2013 CMP as being of Exceptional significance, as one of the 'major spaces, elements, and fabric of the early/original buildings remaining from the Eveleigh Locomotive Workshops'.

The continuous function of the Blacksmith workshop in Bays 1 and 2 south is a highly significant interpretive tool—preserving long held historical associations and use of part of the original blacksmith collection in this location.

## Description of the Proposal

The current Section 4.55 Modification Application (as supported by this letter report) seeks approval for the installation of exhaust flues for three heritage coke furnaces (Furnaces 6, 9 and 10) located in the Blacksmith tenancy in Bays 1 and 2 South (Figure 7). The proposed works include:

- Exhaust flues of galvanized steel to be installed above each furnace by a combination of guy wire and structural supports (Figure 10 to Figure 12);
- Each flue will be installed to exhaust through the roof above the furnace (Figure 8);
- Each flue is expected to extend 3m above the highest point of the roof (Figure 9).

Currently, the ignition method utilised by the Blacksmith to fire these three coke furnaces is by heating recycled oil to temperature. While this ignition method is the most preferable and economically viable, it unfortunately causes a plume of smoke to extend up from the furnace and into the vault above, resulting in an undesirable visual impact, as well as reducing air quality within the Locomotive Workshop. Therefore, ventilation of fumes from the three coke furnaces is proposed via adoption of a similar strategy as for other existing heritage furnaces in the workshops—via installation of new exhaust flues through the roof. The justification for the proposed modification works is to:

- Ensure that the furnaces in operation have exhaust flues that are functional and appropriately supported;
- Address health and safety concerns of the workers operating these furnaces at start up as well as its occupants; and
- Mitigate adverse impacts between the Blacksmith neighbouring tenants and precinct overall.

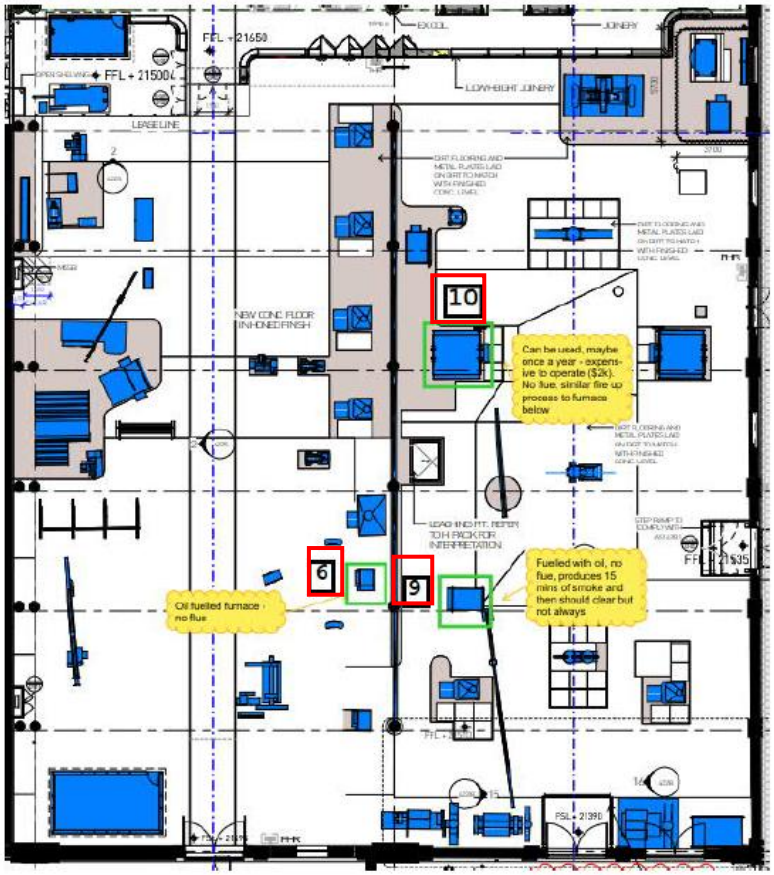


Figure 7: Ground Floor plan indicating placements of the three flues (indicated in green) and their numbers (indicated in red)
Source: Mirvac 2021

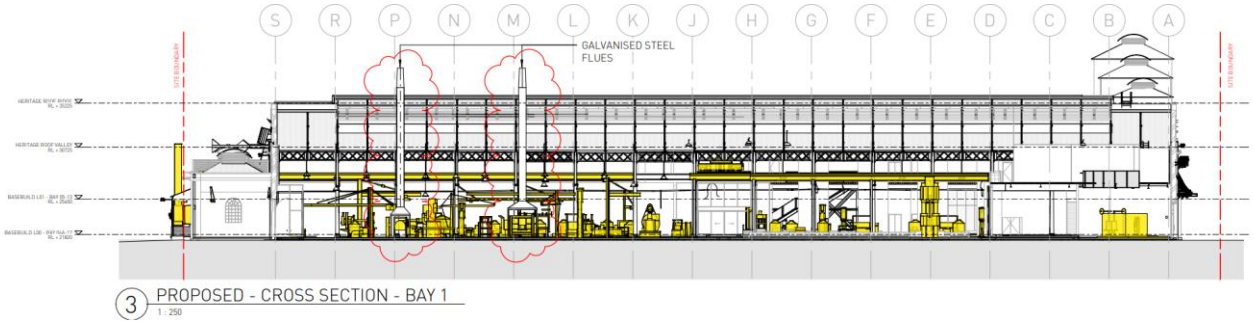


Figure 8: Proposed cross section of Bay 1 with furnaces 9&10 in view
Source: Sissons 2021

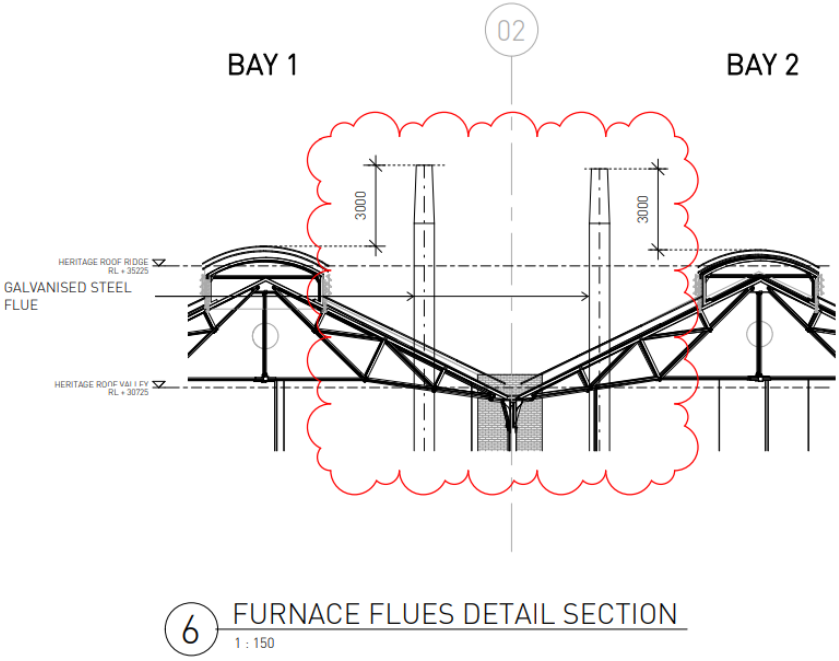


Figure 9: Proposed height detailing of the flues above the roof
Source: Sissons 2021

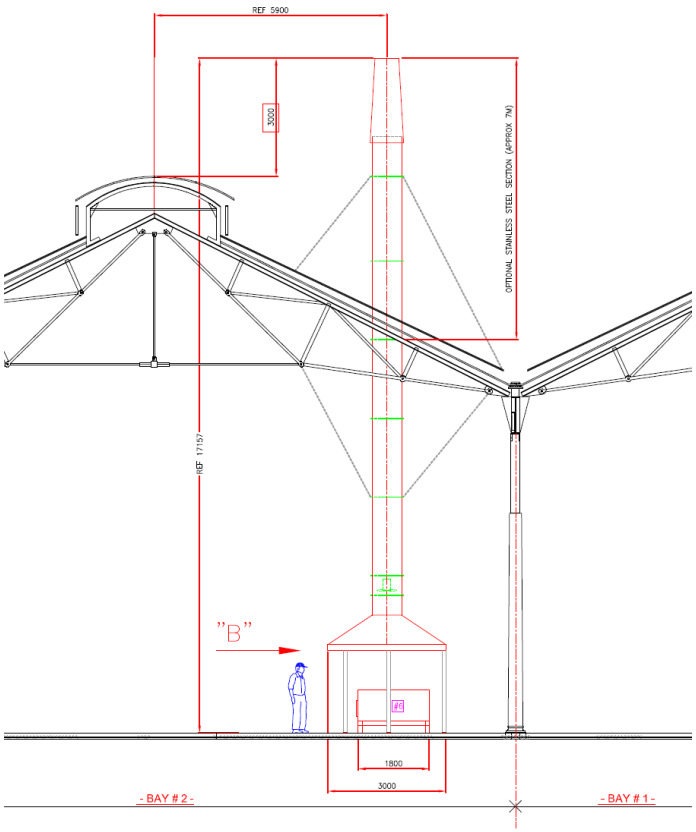


Figure 10: Proposed Flue 6 Section
Source: GMP 2021

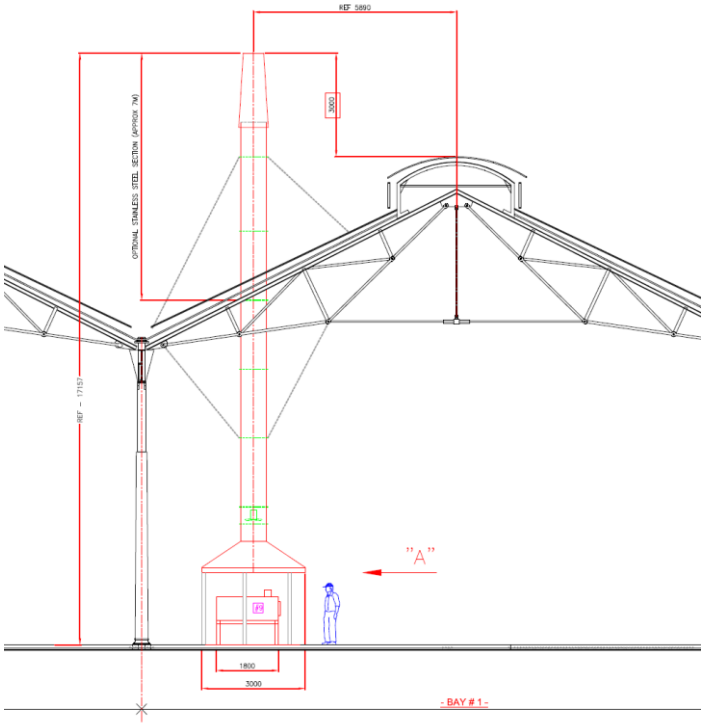


Figure 11: Proposed Flue 9 Section
Source: GMP 2021

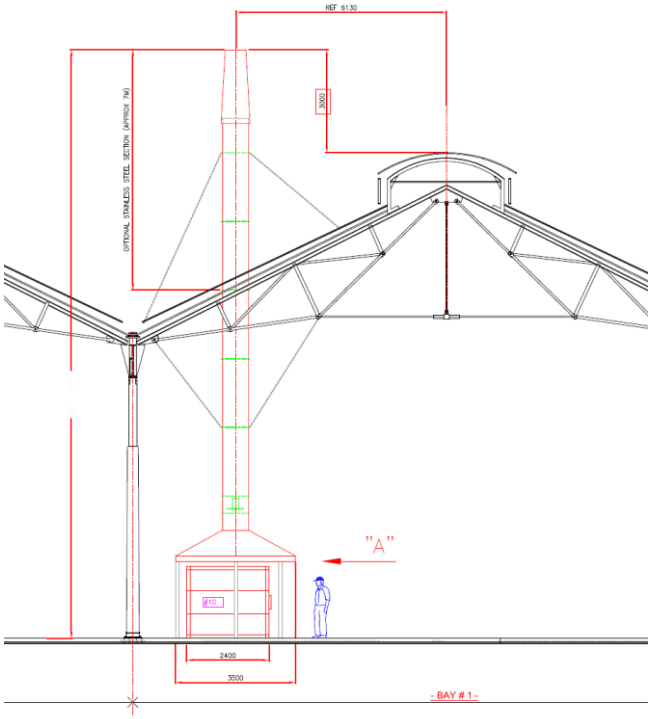


Figure 12: Proposed Flue 10 Section
Source: GMP 2021

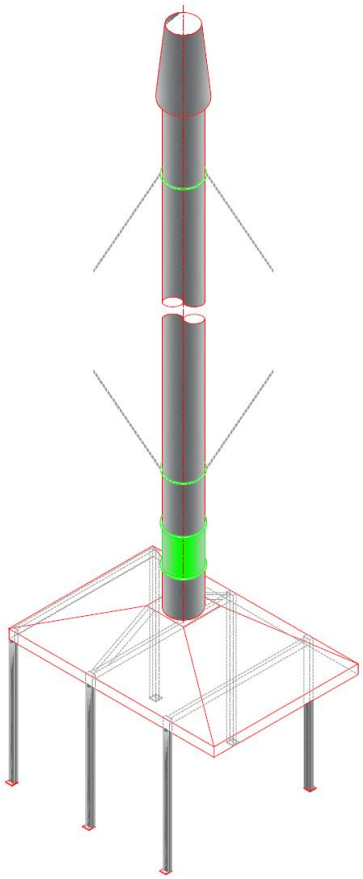

Figure 13: Pictorial rendering of flue system that will sit over the top of each furnace
Source: GMP 2021

## Assessment of Heritage Impact

**Physical Impacts**

The current structure of the roof of the Locomotive Workshop consists of two materials: the exterior, which is a modern layer added in the 1990s during the creation of the ATP; and the interior, which consists of original roof trusses and other associated historic fabric. There is no insulation within the roofing, which is a major limiting factor in controlling the thermal environment of the building.

The proposed flue modification involves installation of three flue ventilation systems to be situated over furnaces 6, 9 and 10 in the Blacksmith's workshop. These flues will be installed and rise through the roofing above Bays 1 and 2 of the Locomotive Workshops, requiring three new penetrations to be made through the roof of c.800mm diameter each, corresponding to the location of each furnace. The flues will be fitted only through the modern sheeting fabric of the roof, avoiding any physical impact to the historic trusses. Therefore, as the physical impacts will relate only to modern fabric, the ventilation flues are considered to have a neutral physical impact.

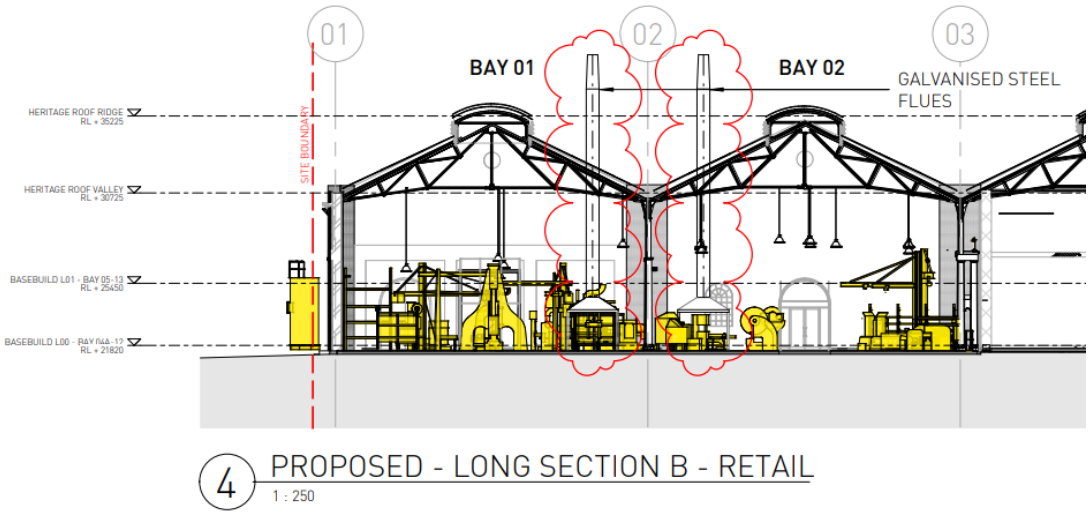


Figure 14: Proposed long section across Bays 1&2 with furnaces 6&10 shown
Source: Sissons 2021

**Visual Impacts**

The potential visual heritage impact of the proposed flues can be considered from three different perspectives: the external height of the flues above the building roof; the mitigation of internal smoke accumulation within Bays 1 and 2; and the nature of the materiality used for the flues.

Firstly, the height of the flues will be 3 metres above the highest point of the roof. Whilst this height may seem significant, the location of the coke furnaces within Bays 1 and 2 south (i.e. positioned along the centre line between Bays 1 and 2 south, and in the northern two thirds of the Bays) means that the flues will be set back a significant distance from the edge of the Locomotive Workshops roof, and therefore will not be readily visible at a pedestrian level from the surrounding public domain (Figure 16). Therefore, in relation to the viewlines to the Locomotive Workshop building from the public domain, the new flues will have a neutral visual impact. Further, the scale and proportion of the flues in comparison with the existing roof lines is considered sympathetic to the architecture of the Locomotive Workshops building and roof form, as well as emulating other vertical elements within the area of the site (Figures 17).

Secondly, the installation of the flues will mitigate the visual impacts to the interior of Bays 1 and 2 of the Locomotive Workshop that are currently caused by the production of smoke during the Blacksmiths working hours within the tenancy. The ventilation of the excess smoke via the flues will also reduce potential operational and visual impacts for neighbouring tenants. The introduction of the flues will also help to address health and safety compliance for both workers and members of the public within the Locomotive Workshop by improving air quality and visibility.

Finally, the proposed flues have been designed to be sympathetic to the heritage aesthetic and industrial character of the Locomotive Workshop, adopting the use of industrial materials such as stainless steel commensurate with the form and visual presentation of other existing flues and furnaces within the Workshop tenancy.

Overall, the proposed new Blacksmith's flues will have a neutral visual impact to the heritage significance and values of the overall Locomotive Workshop, particularly with respect to Bays 1 and 2 and the Blacksmith's tenancy. The new flues present a practical solution to minimise the internal smoke accumulation within Bays 1 and 2 of the Locomotive Workshop, designed so they will not be visually imposing or out of place, via location on the roof and sensitive and sympathetic use of materiality and design form.

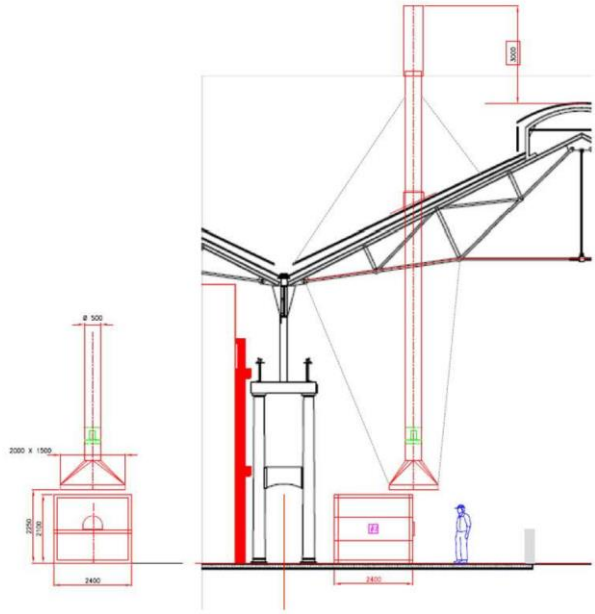

Figure 15: Proposed height of the flue extending through the roof
Source: Mirvac 2021

Figure 16: North facing visualisation of flues extending above Workshop roof from the southern end of Bays 1&2
Source: Mirvac 2021

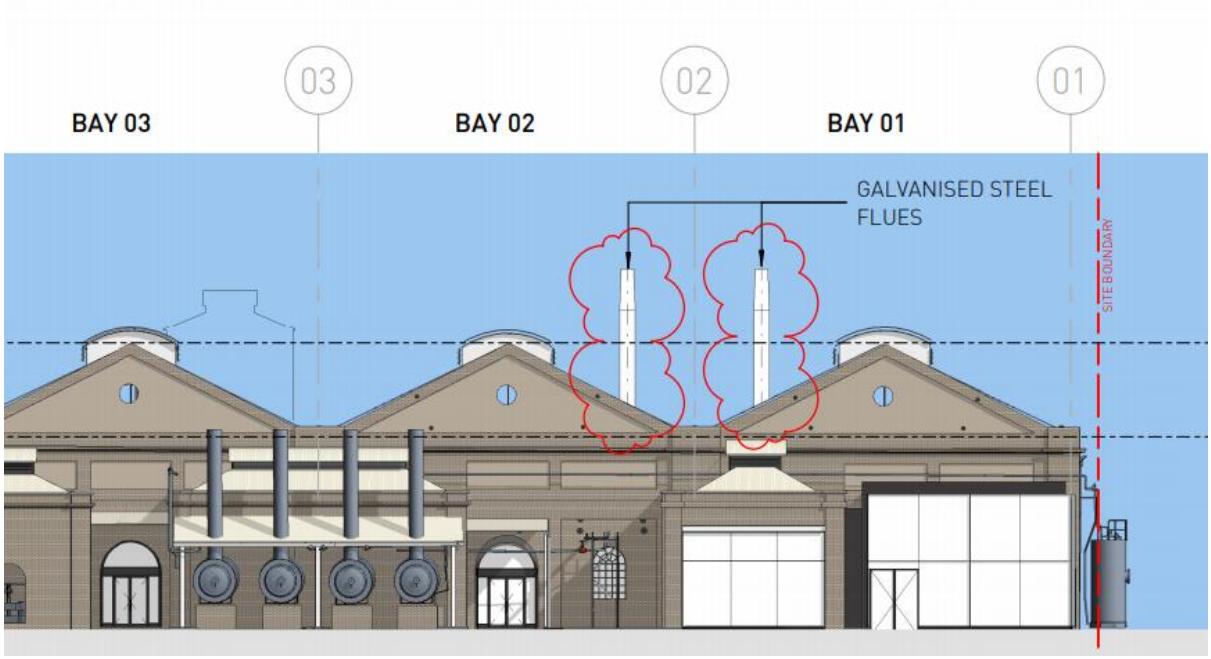


Figure 17: Proposed South Elevation
Source: Sissons 2021

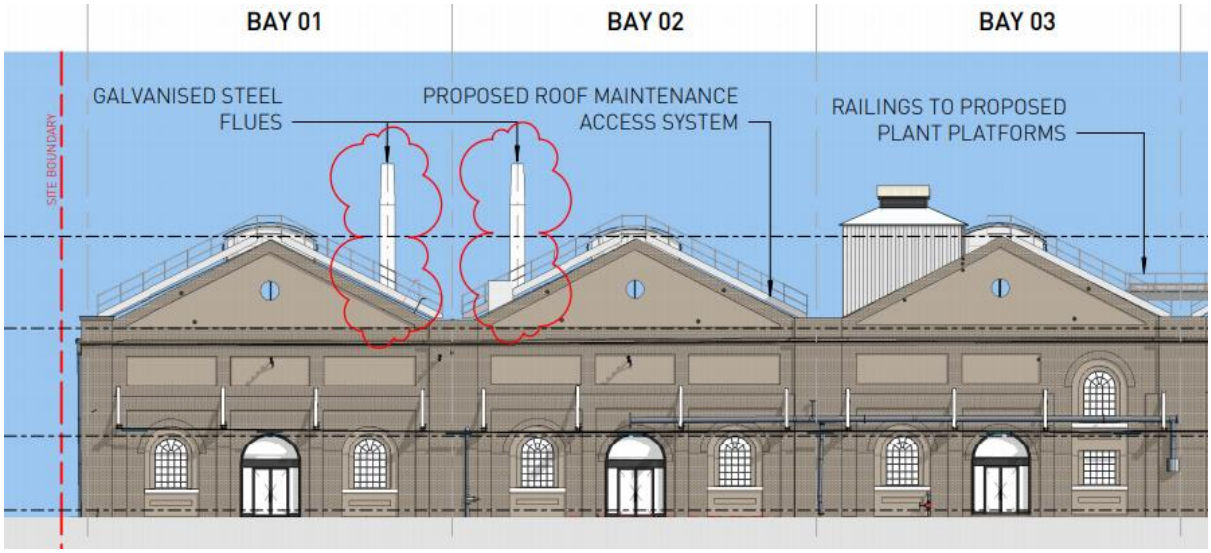


Figure 18: Proposed North Elevation
Source: Sissons 2021

## Conclusions

The proposal for this s4.55 Modification to SSD8517 involves the installation of dedicated exhaust flues to three specific heritage furnaces in the Blacksmiths shop, Bays 1 and 2 South, of the Locomotive Workshop.

The flues will be installed through the roof of the building and only affect modern fabric, having no physical impact on the heritage fabric of the building. The proposal will introduce new features to the external roof line of Bays 1 and 2 South of the Locomotive Workshop, in the form of the three steel flues. However, the small diameter of the flues (i.e. c.800mm diameter), combined with their positions set back from the roof edges of the Locomotive Workshop and design form and materiality commensurate with the industrial aesthetic of the Locomotive Workshop form and architecture, means the flues have been designed to blend into the industrial aesthetic of the Locomotive Workshop as a whole, and will not be readily visually apparent from the public domain.

Overall, installation of the three flues in Bays 1 and 2 south will have a neutral heritage impact to the heritage significance, values, and character of the Locomotive Workshops and wider South Eveleigh Precinct. Further, introduction of the flues will be sustainable and beneficial to both the public, the blacksmith workers and surrounding tenancies, and is therefore considered a positive outcome for the South Eveleigh site and redevelopment as a whole, in terms of minimising the adverse impact and production of smoke within the building's indoor space by providing a channel for it to be expelled more safely.

In conclusion, the installation of the flues is considered to be acceptable on heritage grounds.

Yours Sincerely,

Natalie Vinton
Director
Curio Projects Pty Ltd.