RICHMOND RIFLES VOLUNTEER ORDERLY ROOM
(former Richmond Drill Hall)
HERITAGE IMPACT STATEMENT (HIA)
December 2023

24-28 GIPPS STREET RICHMOND, Municipality YARRA CITY
Registered Victorian Heritage Register (VHR) Number H1362
Heritage Overlay Number HO258 VHR

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1.0 BACKGROUND

This short Heritage Impact Assessment (HIA) has been prepared for the owners of the Richmond Drill Hall (RDH – VHR1362, HO258), 24 to 28 Gipps St Richmond (a group of 3 connected residences). The owners are proposing to install Solar Panels on the North Facing roof of the former Richmond Drill Hall as a environmentally responsible and cost efficient way of addressing financial burden of heating and cooling their heritage listed property.

The owners are as follows:

- John Armytage, Gabby Brodbeck, 24 Gipps Street
- Danny and Katrina Wilson, 26 Gipps Street
- Andrew and Linda Lawson, 28 Gipps Street

This is in response to Heritage Victoria's request for the preparation of an HIA report when conservation and adaptation works (which includes the installation of solar panels) are undertaken. In particular, this report responds to the requirement from Heritage Victoria outlined in previous correspondence as follows (5/12/2023 pre application meeting P39035)

"If you wish to pursue the proposal in its current form, a permit application will be required. The following must be included in any application for the proposed works:

- *Existing and proposed plans.*
- *A Heritage Impact Statement which includes an assessment of the proposal's potential impacts on the cultural heritage significance of the place.*
- *Reasonable or economic use rationale, under s101(2)(b) of the Heritage Act 2017, and in particular discussion as to how refusal of the application may limit the use of the place as a residence into the future.*
- *Discussion as to which other options were investigated and why the chosen solution is the least impactful"*

The author of this report, Elizabeth Vines OAM, conservation architect is familiar with the building and site, having prepared a conservation plan for the building and acted as the heritage architect advising on the conversion of the Drill Hall into residences in 1997-98. She is an experience and credentialed heritage expert as outlined in in Attachment 1.

*Note - The author refers the reader to the detailed submission/ briefing prepared by the owners dated October 2023. This is referred to in this report as "**the owners' report".** This detailed report outlines the rationale for this proposal. It is not proposed to repeat all this material, but to keep to a succinct HIA report. The reader is referred to relevant sections where more details are required.*

2.0 HERITAGE STATUS AND PRE – APPLICATION HISTORY

2.1 HERITAGE STATUS

The former Richmond Drill Hall is

- Registered on the Victorian Heritage Register (VHR) Number H1362
- Registration October 23, 1997 Heritage Listing Victorian Heritage Register
- Included in Heritage Overlay Numbers HO258 VHR

2.2 PRE - APPLICATION HISTORY - Heritage Victoria Application June 2022

In March 2022 the owners engaged in the HV pre application process (No. 36282) to undertake two proposals – to install solar panels to the building as a whole (ie 24- 28 Gipps Street) and install a lift to No 26 Gipps Street. It was determined that an application to HV was required for the proposed works. In June 2022 the owners prepared a combined application for the solar panels installation and lift to residence at 26 Gipps St (No. RA 86662). The application was prepared and lodged by Atcliffe Walder Atelier on behalf of the owners.

On 9th August 2022 Heritage Victoria provided an initial response to the application raising concerns about the placement of the solar panels and requiring further information from the applicants.

The response from the City of Yarra supported the application but with the following recommendation;

> *'Remove the lowest two rows of solar panels on the northern plane of the roof and all solar panels on the north-eastern corner and western planes of the roof.'*

The owners then amended the design of the panel locations as requested by The City of Yarra and provided this redesign to Heritage Victoria for consideration. The owners then met Heritage Victoria staff on-site on 24th August 2022 but again HV staff advised the owners that they would not approve a permit to install panels on the front visible north facing roof of the building. The reason provided for this statement was the aesthetic impact of the panels on the building.

On 7th October 22 the joint combined application was further amended to expedite the lift installation by removing the installation of solar panels with the owners deciding to pursue the installation of solar panels separately. The application for installation of the lift at 26 Gipps St Richmond was approved and this is being installed.

In relation to the Heritage Act Provisions the following is relevant to the current application

HERITAGE ACT 2017 - Section 101
Determination of permit applications - *Proposed Solar Panels on northern roof of Richmond Drill Hall.*
Relevant Clauses:
In determining whether to approve an application for a permit, the Executive Director must consider the following—

> *(a) the extent to which the application, if approved, would affect the cultural heritage significance of the registered place or registered object;*
> *(b) the extent to which the application, if refused, would affect the reasonable or economic use of the registered place or registered object;*
> ***Cultural heritage significance** is defined in respect to: aesthetic, archaeological, architectural, cultural, historical, scientific or social significance;*

In relation to the pre application history Heritage Victoria's position "***remains largely unchanged from previous pre-application advice provided*** *in February 2022, and on-site discussions had in September 2022, in the context of Permit Application P36282. While we acknowledge the proposed number of solar panels has been reduced from previous applications, there are still concerns regarding the potential visual impacts of the proposal, and the fact that it does not align with Heritage Victoria's Solar Panel Guidelines." (HV Correspondence 15/12/2023)*

3.0 HERITAGE SIGNIFICANCE AND DESCRIPTION OF THE DRILL HALL

3.1 STATEMENT OF HERITAGE SIGNIFICANCE –

extract from Victorian Heritage Register https://vhd.heritagecouncil.vic.gov.au/places/4483

The Richmond Rifles Volunteer Orderly Room was constructed in timber in 1867 with donations from members of the Richmond company of the Volunteer Rifle Corps. With the disbandment of the volunteer system in 1884 the Richmond building was one of the few orderly rooms substantial enough to be taken over by the new Victorian Department of Defence. The building was altered and extended in 1891 mainly by the addition of offices along the Gipps Street frontage and an attached Sergeant Major's residence on the Dickmann Street frontage to the design of Public Works Department Architect Samuel Bindley thereby giving the orderly room a superficial resemblance to other timber orderly rooms of the 1880s. The building was transferred to Commonwealth ownership after Federation in 1901 and was used for various Militia, Citizens Military Forces or Army Reserve units until the late 1980s.

The Richmond Rifles Volunteer Orderly Room is historically important to the State of Victoria.

The Richmond Rifles Volunteer Orderly Room is historically important as one of only two surviving timber orderly rooms from the volunteer era of Victorian colonial defences, the other being the Collingwood Rifles orderly room in Powlett Street East Melbourne. Its continual use for defence training purposes over 120 years adds to its significance. The place is also historically significant for its associations with the volunteer movement in Victoria, particularly the Richmond Rifles. The 1891 additions are an important manifestation of the defence reforms of the 1880s.

3.2 PREVIOUS CHANGES TO THE DRILL HALL AND CURRENT CONDITION

The Drill Hall/original orderly room has undergone changes and ongoing adaption to continue its use as a viable building. The building's function and fabric has changed since beginning in 1864 as an orderly room as follows:

- In 1891 the building was extended to the boundaries in Docker, Gipps and Dickmann Streets with a residence included on the east end.
- The building was transferred to Commonwealth ownership after Federation in 1901 where it was used as a recruiting centre for WW1 and WW2.
- In the 1950's and 60's it operated as a cooking training facility for the Army reserve. Its current roof being added in the 1960's, with sections replaced regularly to ensure that the building is waterproof.
- From the late 1970's the building was left vacant and fell into disrepair. With no heating and maintenance, the building sat empty until the 1990's when it was sold as surplus to needs army needs.
- **In 1996 the site was purchased for conversion into residential housing and was converted to 3 residential apartments in 1997/98.** After purchase by the current owners, McDougall & Vines developed a conservation plan for the property to guide proposed adaptation works. These works included the full replacement of the corrugated roof in the centre of the Hall. (The current corrugated iron is a mixture of 1960's and 1990's corrugated iron). The roof trusses remain intact in the eastern and western ends and were modified in the centre of the building. Skylights ,vents and roof terraces were added to the northern and southern roof planes to enable the transition from Army Hall to residential use.
- Throughout the hall, both internally and externally the timber material and features were restored and preserved.

The adaptation to residential dwellings has seen the building divided into 3 areas and a basement garage added under the building. The building is in excellent condition. In order to adapt the building electric heating was included on the ground floor and interiors added that respected the buildings structure and volume. In addition to the timber structure the timber lined walls were maintained and preserved at each end of the hall.

The adaptation has produced an excellent residential conversion and the building has been well maintained for the last 20 years as three separate residential homes.

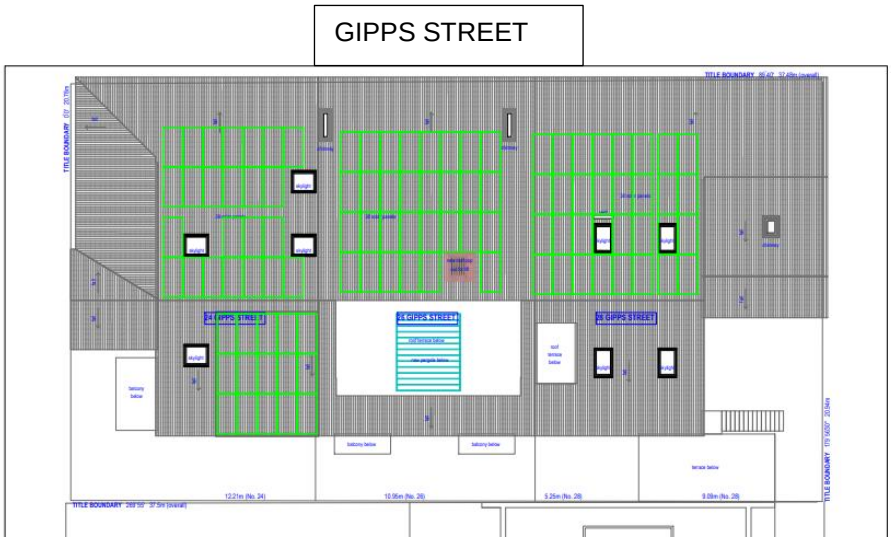


Internal fabric maintained, steel fixings, timber lining, columns, purlins etc preserved in situ.

4.0 PROPOSED WORKS AND ASSESSMENT OF POTENTIAL IMPACTS ON THE CULTURAL SIGNIFICANCE OF THE PLACE

4.1 PROPOSED WORKS - *refer to separate drawings submitted with the application*

The proposed addition of solar is the next adaptive change in history of adaptation of the building and is consistent with the ongoing need for current viability for building building use. The panels are to be installed on the roofs where there is available and reliable access to sunlight - ie the north facing roof, and south western corner roof. Installation on the east and west face is not possible due to gable end configuration of these roofs – and high visibility should there be panels installed on the small section of available roof. The proposed panels are removable and will not impact the building's structure.



Proposed layout of solar panels, Richmond Riffle Volunteer Rooms, 24, 26 and 28 Gipps Street **N**

View from north east - eastern elevation (LHS) and west elevation (RHS) - showing lack of roof spaces due to gable end configuration of the rectangular roof aligned east west and facing north.

LHS south elevation - note cut out sections of roof for outdoor courtyards and therefore limited roof slope on this elevation, in addition, a south facing roof is the least satisfactory location for solar panels.
RHS north elevation - panels would be installed behind the rears of the chimney - but not on the full expanse of the roof - note also evergreen trees do slightly assist in blocking the view of the roof from the street (and therefore view of panels)


More views of the south elevation roof - note cut out sections for skylights and therefore limited roof slope on this elevation, also south is the least satisfactory location for solar panels due to limited sun access in Melbourne.

4.2 ENVIRONMENTAL AND COMMUNITY CONTEXT OF APPLICATION

The previous advice provided by Heritage Victoria (See 3 above) that no panels will be supported on the north facing roof of the building due to the aesthetic impact of the panels is disappointing to the owners. The owners are committed to pursue a possible way forward to enable support for the installation of solar power and associated panels to the property and request consideration of the following context which goes beyond just heritage consideration of visual impact :

4.2.1 Given the **emergency context now of climate change** and the need to take responsible actions to reduce emissions, particularly by way of renewable energy sources, there needs to be a **balanced approach to the decision**. The detailed report of the applicant shows that there are no alternatives for the location of the panels, and I agree with this assessment. The roof configuration provides no alternative to the north facing roof for panel installation, given that east and west roofs are gable ends, and the southern roof is a poor orientation (and also cut into by outdoor courtyard space). I consider there needs to be flexibility in this case, particularly given the owners willingness to support the recommended Yarra Council changes (and they have altered their design to accommodate these changes) and the strong community support provided.

4.2.2 **Solar Guidelines -** The Heritage Victoria previous response to this application has been to reject the installation of the panels on the north facing roofs visible roof of the Drill Hall building. They have also issued guidelines https://www.solar.vic.gov.au/solar-heritage-listed-properties# which appear to support this position. It is considered that this guide - which appears to place the greatest emphasis on visual placement of panels without any compromise - is now out of step with community values and at odds with evolving best practice.

The City of Sydney (NSW) in 2020 have implemented a guideline[1] *Development Application Exception for Solar Panels in Heritage Conservation Areas – Guideline* which is an excellent document and provides clear guidance for the addition of solar systems to Heritage buildings. (This document is referenced in the owners' report – Appendix 7).

This guideline document outlines panel layouts for a range of street orientations and provides guidance for the same northern orientation that 24-28 Gipps Street Richmond as follows.

- *Notes that in protecting the character of heritage conservation areas, roofscapes of most heritage conservation areas are very important to their character.*
- *The guidelines are designed to ensure that solar panels will not substantially disrupt the form and character of roofs that are visible from the street.*
- ***As a general principle, installations on rear roofs are preferred, however installations on front roofs are permitted where there is no alternative for solar panels on the rear of a building.***

[1] https://www.cityofsydney.nsw.gov.au/development-guidelines-policies/development-application-exception-solar-panels-heritage-conservation-areas-guideline

- It notes that south facing pitched roofs (>15%) are not suitable for solar panels due to shading. *(Note that the Richmond Drill Hall roof faces north and is pitched at 40% to the north and to the south from the ridgeline)*

The **proposed installation of the solar panels on the Richmond Drill Hall complies with the NSW guideline principles.** These guidelines are less prescriptive than the HV guidelines and allow for greater support for flexibility to achieve the important objective of increased use of renewable energy for heating and cooling heritage listed buildings. The author agrees with this guideline document - and does not agree with HV that the installation will have serious visual impacts on the building appearance given increasing community acceptance for solar panel installation on buildings within Australian towns and cities. The proposed solar panels are also consistent with the solar panel layout used on the **Fitzroy Football Pavilion (VHR: H0751)** where panels have been added to provide electricity to the public building and were approved by Heritage Victoria.

View from Fitzroy Football Pavilion from Edinburgh Gardens and St Georges Rd

Consistency of application would appear to be a reasonable context for the consideration of this application.

It must be noted that the broader Australian community has provided a clear mandate to both State and Federal Governments supporting the transition to clean and renewable energy and to prohibit the installation of solar power to this property goes against this mandate.

4.2.3 Community Consultation - The owners have consulted extensively with the local community regarding the suitability of this proposal and have received no objections. (See page 13 of the owners' report). This report outlines that this consultation supported the application given

- *"The panels will only be fully visible to an individual standing in the middle of the Gipps St, Dickman St intersection. Given the traffic flow down Gipps St this is an uncommon occurrence.*
- *…. the steep pitch of the roof, the panels are not visible at all to any pedestrian walking past the premises on the Gipps St south side footpath.*
- *…., the evergreen tree coverage on the north side of the property, the panels are only partially visible to pedestrians walking past the premises on the Gipps St north side footpath.*
- *The owners have spoken to all neighbours whose properties have any partial visibility of the panels and have received their written support for the installation of the panels to proceed. Copies of the letters of support are included in Appendix 8* (of the owners' report)
- *The owners have spoken to the Richmond & Burnley Historical Society Inc. This society represents a group of local residents strongly committed to the cultural significance of local historical buildings and their preservation. Their letter both provides strong support for the installation of the panels and affirms that they do not diminish the cultural significance of the building"*

In engaging with the local community, it is shown that the City of Yarra and the local community do not object to the installation of the panels and consider it will not impact the cultural significance of the site.

Further discussion in the owners' report under Section 5.3 (page14) outlines in detail that this approach of Heritage Victoria to refuse installation of solar power conflicts with Federal State and Local Government Policy. The Victorian Government Policy is discussed in detail on page 14 and provides a clear commitment to expand rooftop solar across all Victorian homes.

The owners have spoken to The Hon Ms Gabrielle De Vietri (Member for Richmond) regarding the installation of panels on the Richmond Drill Hall and have received a strong letter of support[2] for the installation to progress – included in their report.

Of relevance is the position of the City of Yarra which is a 'Green' council, committed to a transition to clean and renewable energy. Yarra Council encourages residents to join with others in the community to create a city powered by 100% renewables providing four ways for residents to act:

1. Switch to 100% renewable electricity,
2. Install rooftop solar,
3. Create an all-electric home, and
4. Use less energy

Yarra Council provide residents with guidelines for fitting rooftop solar to Heritage buildings and these are very similar to the guidance provided by the City of Sydney. The Council provides strong support to this application.

4.3 IMPACTS ON THE CULTURAL SIGNIFICANCE OF THE PLACE

It is agreed that there will be some visual impacts resulting from the installation of solar panels. However these impacts are now common in the urban context - more and more buildings are installing solar panels. It is also important that the installation of solar panels **is reversible,** thereby lessening the negative impact of these works.

It should also be noted that the installation of these panels is not considered to conflict with the principles of the *Burra Charter*[3]. Of relevance is the Burra Charter Practice Note *Heritage and Sustainability 1: Built Heritage* August 2019 https://australia.icomos.org/wp-content/uploads/Practice-Note_Heritage-and-Sustainability-1-Built-Heritage.pdf

The purpose of this Practice Note adopted by Australia ICOMOS in 2019 is to

> *"promote the benefits and importance of the conservation of heritage places as part of the ongoing protection and sustainability of the world's increasingly scarce resources, and to promote recognition of the sustainability inherent in heritage practice.*

The document outlines ..

> *Sustainable development aims to reduce carbon emissions and utilise increasingly scarce resources in a responsible way. Conservation of existing cultural and natural heritage reduces environmental impacts by: …..*
>
> *Minimising construction waste by reducing the demolition cycle,* ***ensuring buildings are adapted and retained*** *until the end of their useful life; …..*

Section 6 recommends - *"Changes to heritage places undertaken with the aim of reducing carbon emissions and improving building performance should be carefully thought through to avoid adversely impacting on heritage values including consideration of: …. The careful introduction of new sustainable or renewable energy sources (e.g. solar, geothermal, wind);*

Whilst it may be desirable for solar panels to have minimal or no visibility, the reality is that this is sometimes not possible as in the Richmond Drill Hall situation. The installation of panels is a reversible action, and therefore reinforces

> Article 15 of the Burra Charter - Change: *15.2 Changes which reduce cultural significance should be reversible, and be reversed when circumstances permit.*

[2] The letter of support from the Hon Ms Gabrielle De Vietri is included as Appendix 10 in the owners report

[3] *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance, 2013* and the associated series of Practice Notes provide a best practice standard for managing cultural heritage places in Australia.

It is considered that there needs to be **a balance in the assessment of solar panel installation and the current climate emergency** which requires the reduction of carbon emissions should in this instance take pre-eminence. In addition, this also supports the owners' position of needing to assess the **"reasonable economic use of the registered place".** (see Section 5 below).

5.0 REASONABLE OR ECONOMIC USE RATIONALE, UNDER S101(2)(B) OF THE HERITAGE ACT 2017

5.1 REASONABLE ECONOMIC USE OF THE REGISTERED PLACE

The owners report outlines that denying the installation of solar power for these three houses will adversely affect the "reasonable economic use of the registered place". I agree with this assessment. The building is a timber framed building without high standards of insulation. The external weatherboards are original. The internal timber lining boards are original. Installation of upgraded insulation is problematic, although desirable. However, removal / and subsequent reinstatement of either the external or internal boards will damage the original fabric of the building and will be expensive. My experience is that damage to original timber, (which has become brittle and seasoned over time), when removed, cannot be avoided. This removal would result in a negative impact on cultural heritage significance of the place.

In support of this claim that the building does not perform well the owners have commissioned a **Residential Efficiency Scorecard undertaken on the 8th September 2023.** This confirms that the building is well below average, in fact has only one star. See below. This results in considerable energy being required to heat and cool the building, with resultant high costs.

Residential Efficiency Scorecard

Residential Efficiency Scorecard STAR RATING

Address	House Area	Heated Area	Cooled Area
26 GIPPS ST, RICHMOND, VIC, 3121	335m²	225m²	184m²

Assessment Date	Assessment Number	Assessor ID	Assessor Name
08/09/2023	ARN877316	RES2320517	Danielle King

Your Home's Scorecard Rating — A higher rating home has lower energy bills

Well below average

★★★★★★★★★★

↑ Average home

Hot weather comfort rating

This rating indicates how easy it is to keep your home cool in hot weather - without using cooling. A higher rating means your home will stay cool.

Improvement Options

Consider:
+ Upgrading the insulation in your ceilings and walls.
+ Upgrading window treatments to lined curtains with pelmets where not already in place.
+ Blocking unused chimneys.

Cold weather comfort rating

This rating indicates how easy it is to keep your home warm in cold weather - without using heating. A higher rating means your home will stay warm.

Improvement Options

Consider:
+ Upgrading the insulation in your ceilings and walls.
+ Upgrading window treatments to lined curtains with pelmets where not already in place.
+ Blocking unused chimneys.

Energy production in your home

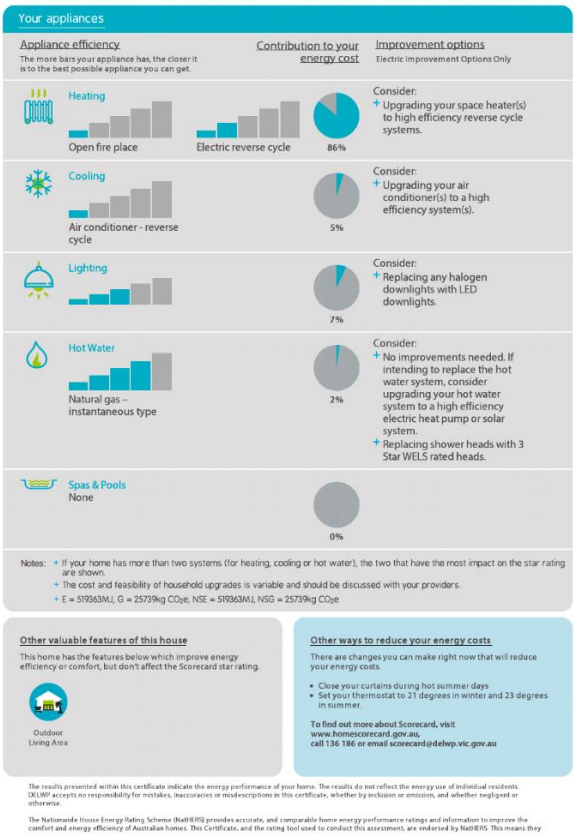
Solar PV generation: 0%

0% of your home's fixed appliance energy cost is met from renewable energy.

Your home's star rating (1)

Your home's star rating with 2.5kW solar PV (1.0)

For more information about home energy efficiency, contact the Department of Environment, Land, Water and Planning. Phone: 136 186, email: scorecard@delwp.vic.gov.au or visit www.homescorecard.gov.au



Your appliances

Appliance efficiency (The more bars your appliance has, the closer it is to the best possible appliance you can get.)	Contribution to your energy cost	Improvement options (Electric Improvement Options Only)
Heating — Open fire place; Electric reverse cycle	86%	Consider: + Upgrading your space heater(s) to high efficiency reverse cycle systems.
Cooling — Air conditioner - reverse cycle	5%	Consider: + Upgrading your air conditioner(s) to a high efficiency system(s).
Lighting	7%	Consider: + Replacing any halogen downlights with LED downlights.
Hot Water — Natural gas – instantaneous type	2%	Consider: + No improvements needed. If intending to replace the hot water system, consider upgrading your hot water system to a high efficiency electric heat pump or solar system. + Replacing shower heads with 3 Star WELS rated heads.
Spas & Pools — None	0%	

Notes: + If your home has more than two systems (for heating, cooling or hot water), the two that have the most impact on the star rating are shown.
+ The cost and feasibility of household upgrades is variable and should be discussed with your providers.
+ E = 519363MJ, G = 25739kg CO_2e, NSE = 519363MJ, NSG = 25739kg CO_2e

Other valuable features of this house

This home has the features below which improve energy efficiency or comfort, but don't affect the Scorecard star rating.

Outdoor Living Area

Other ways to reduce your energy costs

There are changes you can make right now that will reduce your energy costs.

- Close your curtains during hot summer days
- Set your thermostat to 21 degrees in winter and 23 degrees in summer.

To find out more about Scorecard, visit www.homescorecard.gov.au, call 136 186 or email scorecard@delwp.vic.gov.au

The results presented within this certificate indicate the energy performance of your home. The results do not reflect the energy use of individual residents. DELWP accepts no responsibility for mistakes, inaccuracies or misdescriptions in this certificate, whether by inclusion or omission, and whether negligent or otherwise.

The Nationwide House Energy Rating Scheme (NatHERS) provides accurate, and comparable home energy performance ratings and information to improve the comfort and energy efficiency of Australian homes. This Certificate, and the rating tool used to conduct this assessment, are endorsed by NatHERS. This means they

The owners have also commissioned Jeffrey Robinson MIEEAust, CPEng, a former member of Heritage Victoria's own Climate Advisory Panel: (refer Appendix 2 for full letter of advice) who concludes :

> *As senior Sustainability Consultant with extensive experience working with Heritage Buildings, I recommend that the proposed solar panel installation on the Richmond Drill Residences should be favourably considered by Heritage Victoria and approved for the following reasons:*

- *The building owners have sought to improve the energy efficiency of their residence within the constraints of the heritage fabric of the building - this still results in a one star building as measured by the Residential Efficiency Scorecard.*
- *The poor fabric performance and airtightness is resulting in high ongoing electricity bills which will be substantially reduced if the proposed solar installation is permitted.*
- *Given the climate emergency we are facing in Australia there is community acceptance of Solar Panels on the visible roofs of heritage building. The proposed panels have 100% local support from neighbours, the local Heritage Society, City of Yarra Council and the local state member.*
- *The location of the solar panels on the north facing roof of the Richmond Drill Hall has been carefully considered, will be neat in appearance, will not damage the heritage fabric and will be reversable.*

5.2 ENERGY EFFICIENCY MEASURES UNDERTAKEN TO DATE AND ONGOING RESPONSIBILITIES OF THE OWNERS.

The owners of the Richmond Drill Hall care deeply about their heritage building and have sought to preserve its useful life by **improving the energy efficiency and liveability** of the building in various ways including:

- Insulating the roof with 2 layers of thermal insulation and a layer of acoustic insulation.
- Replacing the glass in the windows and doors with 6mm comphy glass which has improved thermal performance and is compatible with the original street windows.
- The owners sought to increase the insulation in the walls of the house however the walls are lined with the original pine lining and removal of the pine lining to add wall insulation would damage them as they are very brittle.
- Lighting and electrical systems are run on a Cbus system with energy efficient lighting.
- The velux roof windows are electrified and are opened in summer evenings to vent excess heat.
- The gas hot water system is 25 years old and the owners plan to replace it with an all-electric heat pump hot water heating system.
- One of the building owners has replaced their gas cook top with an all-electric induction cooktop and the other owners plan to follow suit shortly
- The buildings are heated with electric coils embedded in the slab and because of the poor wall insulation, airtightness and large volume to heat, the energy usage of the Drill Hall residences are substantially more than contemporary homes.

All passive opportunities have been activated for the building. With the cost of electricity rising by 30% this year and forecast to rise there is a compelling economic reason to add solar panels for energy production.

There is now an urgent need to reduce carbon emissions in Australia to reduce the impacts of global heating on extreme weather events in Australia. **The owners of this heritage building consider it is their obligation to reduce carbon emissions by solar panel installation – they consider it is irresponsible to continue in their current situation of high energy consumption.**

The built environment accounts for over half Australia's electricity usage and almost a quarter of emissions a quarter of Australia's greenhouse gas emissions and modelling undertaken by ClimateWorks shows cost-effective energy efficiency actions across the sector could deliver a 23 per cent reduction in emissions by 2030, and 55 per cent by 2050. Heritage Victoria and The Heritage Council of Victoria have recognised that *"we are at a critical point for action"* and *that "Heritage places can play a key role in climate adaptation and mitigation"*

With the climate emergency we are now facing there is a need **for all sectors of the built environment** in Australia to contribute to reducing operational and embodied carbon emissions. This includes Heritage buildings (which sometimes have high operational carbon emissions because of poor insulation installation and poor airtightness).

6.0 OTHER OPTIONS INVESTIGATED AND WHY THE CHOSEN SOLUTION IS THE LEAST IMPACTFUL

The need for Photovoltaic panels and reasons for installing them on the northern roof has been carefully investigate by the owners and myself as author of this HIA.

Again, advice was also obtained from Jeffrey Robinson MIEEAust, CPEng, a former member of Heritage Victoria's own Climate Advisory Panel: (refer Appendix 2 for full letter of advice) who states :

> *The building owners want to reduce their energy bills and their operational carbon emissions by following the advice of Sustainability Victoria and investing in the installation of Photovoltaic panels on the North facing roofs of their building. The owners engaged solar PV specialists, Going Solar, and architects Atcliffe Walder Atelier to review the site and advise on the most appropriate panel layout for the property given its available roof space, structural roofing considerations, property orientation and energy usage profile.*
>
> *I have reviewed the revised solar panel design by Going Solar who have proposed 39 solar panels on 24 Gibbs Street, 30 Panels on 26 Gipps Street and 30 panels on 28 Gipps Street. The panels are mainly located on the northern roof which faces Gipps St. This roof will give the best orientation for renewable power generation. I reviewed the option of locating solar panels on the south facing roof, this is not recommended because the angle on the roof shades the southern roof nearly entirely in winter, and for more than 70% of the day in summer. In the case of 26 Gipps St, the south facing roof has been removed and replaced with a rooftop deck area and there is therefore no south facing roof for panels to be fitted to. The panels will not be seen from the footpath outside the Drill Hall and the trees at the front of the building will break up the view of the buildings from the path on the opposite side of Gipps St, where the proposed design is neatly arranged and parallel to the ridge line of the roof .The installation of solar panels will be carried out in a manner which prevents damage to the fabric of the building (roof, trusses and purloins). ……Community sentiment with respect to installing solar panels on heritage buildings is changing and given the climate emergency we are facing many householders are keen to reduce their carbon emissions and their energy bills by installing solar panels on their heritage homes. This change in community values with respect to the installation of solar panels on heritage buildings is reflected in the City of Sydney's Development Application Exception for Solar Panels in Heritage Conservation Areas – Guideline which provides clear guidance for the addition of solar systems to Heritage buildings. These guidelines say that as a general principle, installations on rear roofs are preferred, however installations on front roofs are permitted where there is no alternative for solar panels on the rear of a building. The proposed installation of the solar panels on the Richmond Drill Hall complies with the NSW guideline principles.*

It is therefore proposed that no other options are suitable to result in effective installation of solar panels for the purpose of reducing energy consumption for this heritage building.

7.0 INVESTIGATIONS BY AUTHOR

As part of this report preparation, the author has undertaken the following

- A detailed site visit – to supplement the authors existing detailed knowledge of the site, given her earlier role as advisory heritage architect in the 1998 residential conversion
- Detailed discussions with the owners and Jeffrey Robinson engineer
- Viewed the proposed documentation showing location of solar panels prepared by the owners architect.
- Undertaken an investigation of alternative options to the proposed installation

8.0 SUMMARY OF HIA RECOMMENDATIONS

It is considered that the proposed installation of solar panels at the Richmond Drill Hall, now 3 residences, is appropriate and while being visible, will have minimal negative impact on the cultural significance of the place. The author considers the proposal will allow for the ongoing viable use of the building. The rejection of the proposal to incorporate sustainable energy supply solutions via the use of renewable energy (solar panels) is considered out of step with broader environment objectives supported by local, state and federal government agencies.

I do not have any suggestions or recommendations for alternative approaches to this work apart from the need to balance a range of objectives, not just heritage objectives of lack of visibility of panels. I consider that the owners have fully explored all alternative options for renewable energy supply. The fact that this installation is reversible is also in its favour.

Therefore I would recommend that the proposed development is an acceptable proposal for this building and should be approved.

ELIZABETH VINES, OAM, Conservation Architect, December 2023

APPENDIX 1 – QUALIFICATIONS OF THE AUTHOR

Elizabeth Vines OAM BArch (hons) Melb, FRAIA M. ICOMOS

Ms Elizabeth Vines is an award-winning conservation architect, urban designer, author and experienced public speaker. She is a member of the Australian Heritage Council, advising the Federal Minister Hon Tanya Plibersek on National Heritage issues. She is a past President of Australian ICOMOS (2012 – 2015), visiting Professor at Hong Kong University, an Adjunct Professor at the Cultural Heritage Centre for Asia & the Pacific, Deakin University, Melbourne and currently teaching with the Getty Conservation Institute in the Asia Pacific Region. She studied architecture at Melbourne University and Carleton University, Ottawa, Canada. She is a partner in the firm McDougall & Vines, a heritage practice which has built up extensive experience and a record of achievement in conservation architecture and heritage town rejuvenation throughout Australia and Asia. Elizabeth consults to a wide range of Government authorities and local councils throughout Australia, and is also an international consultant to UNESCO, the European Union, the Getty Institute and the World Bank. She works on urban revitalisation programs for historic precincts and restoration projects on significant historic buildings throughout Australia and Asia. Elizabeth is committed to the practical reuse, improvement and rejuvenation of town centres and historic buildings and is a passionate advocate for heritage conservation issues.

Qualifications:

- B. Arch (First Class Honours), Melbourne University, 1977 (winner of Stephenson Turner Medal for Architecture)
- Medal of the Order of Australia for Services to Heritage Architecture (awarded June 2009)
- Winner Presidents Medal, Australian Institute of Architects, (2020), South Australian Chapter

Positions held:

- Partner, McDougall & Vines, Conservation and Heritage Consultants
- Member, Australian Heritage Council July 2021- ongoing (minimum 3 year posting)
- Member Australian Institute of Architects National Heritage Committee – current and ongoing
- Adjunct Professor at the Cultural Heritage Centre for Asia & the Pacific, Faculty of Arts, Deakin University, Melbourne, Australia, and Visiting Professor, ACP-HKU SPACE Cultural Heritage Management Programme, University of Hong Kong – teacher in the Conservation Program
- Past President Australia ICOMOS (2012 – 2015)

Australian projects:

- More than forty years of experience in all aspects of architecture, including heritage conservation, heritage precinct planning, urban design, domestic and commercial projects, and expert witness and court work on complex heritage matters. Projects which focus on heritage and townscapes contexts, commenced in Australia in Victoria in Maldon in 1977 (Australia's first declared "Notable" town) and have been located in cities and towns throughout Australia and Asia since that time. Based in Adelaide but consults throughout Australia focussing on appropriate protection and management of built heritage.
- Project architect for numerous award-winning conservation, adaptation, and restoration projects on significant historic buildings. Also acts as conservation specialist in teams of consultants, negotiating solutions on complex heritage sites.
- Heritage architect for many projects throughout Australia. Adelaide projects include St Peters Cathedral, Adelaide, conservation management strategy and conservation works, many South Australian Heritage surveys, consultants for heritage buildings on this Adelaide University Campus.
- Heritage Architect Broken Hill Regional Art Gallery, formerly Sully's Building, Argent St, Broken Hill, NSW – CMP and subsequent adaptation of this heritage building into a regional art gallery –recipient of many awards since its opening.

International projects:

- **Invited teacher by the Getty Conservation Institute for a Conservation Planning course** for selected Asian Pacific Participants, September – December 2021 (and similar courses previously held in Penang October 2018, in April 2015, May 2014, and October 2013). Previously invited advisor by the Malaysian Government for the townscape management of Penang and Melaka, November 2008 - on World Heritage inscription management issues.
- **Getty Scholar, at the Getty Institute, Los Angeles, USA** April – June 2016, researching appropriate design in historic contexts – and now completed publication on the topic 'Streetwise Design' (published March 2018)
- **In house consultant to the Yangon Heritage Trust and Yangon City Government,** Feb and March 2015 - advising on appropriate heritage protection provisions for conservation in Yangon. (EU funded project)

- **Consultant to UNESCO for preparation of Conservation Guidelines for World Heritage City of Pingyao, China (2012 – 2013)**
- **Consultant to UNESCO (1999-2005)** - for the Cultural Heritage Management and Tourism Models for Cooperation among Stakeholders, working on ten World Heritage Sites in Asia and the Subcontinent.
- **21 – 22 March 2007 –** Duong Lam village, Vietnam - invited expert by Vietnamese Government, (with Richard Engelhardt) at two-day architectural conservation workshop at Duong Lam village, 50km west of Hanoi. Provide recommendations for way forward for the conservation and appropriate protective mechanisms for this village.
- **Consultant to UNESCO (2006) –** two monitoring missions for the Kaiping Conservation and Management Office of Diaolou and Villages (KCMO), in southern China. Two reports prepared providing recommendations for the Management Plan for this potential World Heritage Site.
- Conservation Architect for Hong Kong Synagogue conservation (1997) and advising government and project architects in **Hong Kong on the Star Ferry Terminals upgrade** - advocating sense of place urban design and architecture for the development of the waterfront facilities.

Some Example Awards:

- Awarded the Sir James Irwin Presidents Medal, Australian Institute of Architects, (2020), South Australian Chapter - for services to heritage architecture and advocacy in South Australia.
- John Reid Memorial Award for heritage conservation - awarded by the City of Broken Hill, April 2019
- Cathy Donnelly Heritage Awards 2011 and 2005, presented by the National Trust (NSW) for work by a female heritage architect in New South Wales, Australia
- Broken Hill Regional Art Gallery, overall winner, National Trust (NSW) 2005 awards, for individual heritage project over $500,000 in NSW, Broken Hill Heritage, and Cultural Tourism Program - Year of Built Environment National Award for Building Regional Communities (2004); National Trust of NSW State - Wide Conservation Award (2004); UNESCO Asia Pacific Awards (2003)
- Heritage Ministers Award for the Port Adelaide Heritage Management Program (2003)
- RAIA (SA Chapter) - Leigh Street Heritage Upgrade - Merit Award 2001
- UNESCO Asia Pacific Awards (2000)– Conservation of Ohel Leah Synagogue, Hong Kong (2000), and also the Hong Kong Institute of Architects Award 1998 - (with SACON International and Hassell Architects)
- Early awards in Victoria:
- Merit Award for Outstanding Urban and Community Design, Ballarat Conservation Programme - RAIA (Vic Chapter) Award (Jacobs Lewis Vines - 1981)
- Robin Boyd Environmental Award for "Maldon Conservation Project" - RAIA Historic (Vic. Chapter) Award (Jacobs Lewis Vines - 1979)
- Stephenson and Turner Medal for Architecture, (1976), Colonial Sugar Refining Co Ltd Prize (1972) and Nell Norris Scholarship (1971) – all at Melbourne University.

Publications:

- *Streetwise Design - A Practical Guide for New Development and Adaptive Reuse in Asian Liveable Heritage Cities* published by Think City Sdn Bhd, Malaysia, 2018
- *Streetwise Asia - A Practical Guide for the Conservation and Revitalisation of Heritage Cities and Towns in Asia*, (2005), published by UNESCO, the World Bank and Deakin University, Australia. Translated into Chinese in 2008.
- *Streetwise - A Practical Guide for the Revitalisation of Commercial Heritage Precincts in Australian Cities and Towns*, 1996, for the National Trust (NSW)
- *Broken Hill – A Guide to the Silver City,* 2010, publication by the Broken Hill City Council.
- Author of many other publications including numerous professional journal articles and conservation reports on individual buildings and heritage precincts.

Training programs and expert witness

- Expert witness for planning appeals for a variety of private and government clients throughout Australia.
- Facilitator and coordinator of numerous heritage training programs throughout Australia and Asia
- **Lecturing and conference presentations -** Elizabeth regularly participates as a speaker (often as keynote speaker) at many international and Australian heritage and conservation conferences.
- Contact details + 61 419 816 525 email liz@mcdougallvines.com.au

2023-11-01

Mr Andrew Lawson
28 Gipps Street Richmond
Vic 3121

Dear Andrew

Letter of support for the Installation of Solar Panels on the North Facing roof of the Richmond Drill Hall (RDH – VHR1362, HO258), 24 to 28 Gipps St Richmond

Having reviewed your report on the proposed addition of Solar Panels to the North Facing roof of the Richmond Drill Hall (RDH – VHR1362, HO258), 24 to 28 Gipps St Richmond dated October 2024 and the letter of support from Elizabeth Vines dated October 2023 and having visited the site on 5th November 2023, I support this proposal as an effective way of substantially reducing the operational carbon emissions for these 3 residences, whilst maintain their heritage significance.

The urgent need to reduce Carbon Emissions

There is an urgent need to reduce carbon emissions in Australia to reduce the impacts of global heating on extreme weather events in Australia. The built environment accounts for over half Australia's electricity usage and almost a quarter of emissions a quarter of Australia's greenhouse gas emissions and modelling undertaken by ClimateWorks shows cost-effective energy efficiency actions across the sector could deliver a 23 per cent reduction in emissions by 2030, and 55 per cent by 2050.[1]

Heritage Victoria and The Heritage Council of Victoria have recognised that "we are at a critical point for action" and that "Heritage places can play a key role in climate adaptation and mitigation" [2]

With the climate emergency we are now facing there is a need for all sectors of the built environment in Australia to contribute to reducing operational and embodied carbon emissions, this includes Heritage buildings (which sometimes have high operational carbon emissions because of poor insulation installation and poor airtightness).

Energy efficiency measures undertaken to date.

The owners of the Richmond Drill Hall care deeply about their heritage building and have sought to preserve its useful life by improving the energy efficiency and liveability of the building in various ways including:

- Insulating the roof with 2 layers of thermal insulation and a layer of acoustic insulation.
- Replacing the glass in the windows and doors with 6mm comphy glass which has improved thermal performance and is compatible with the original street windows.
- The owners sought to increase the insulation in the walls of the house however the walls are lined with the original pine lining and removal of the pine lining to add wall insulation would damage them as they are very brittle.
- Lighting and electrical systems are run on a Cbus system with energy efficient lighting.
- The velux roof windows are electrified and are opened in summer evenings to vent excess heat.

- The gas hot water system is 25 years old and the owners plan to replace it with an all-electric heat pump hot water heating system.

- One of the building owners has replaced their gas cook top with an all-electric induction cooktop and the other owners plan to follow suit shortly
- The buildings are heated with electric coils embedded in the slab and because of the poor wall insulation, airtightness and large volume to heat, the energy usage of the Drill Hall residences are substantially more than contemporary homes. (This has been confirmed in the assessment undertaken on the 8th September 2023 which confirmed that the building is well below average, in fact has only one star. The cost of heating, cooling and lighting their heritage homes has increased substantially recent with 30% price increases in electricity in Victoria.

The need for Photovoltaic panels and reasons for installing them on the northern roof

The building owners want to reduce their energy bills and their operational carbon emissions by following the advice of Sustainability Victoria and investing in the installation of Photovoltaic panels on the North facing roofs of their building. The owners engaged solar PV specialists, Going Solar, and architects Atcliffe Walder Atelier to review the site and advise on the most appropriate panel layout for the property given its available roof space, structural roofing considerations, property orientation and energy usage profile.

I have reviewed the revised solar panel design by Going Solar who have proposed 39 solar panels on 24 Gibbs Street, 30 Panels on 26 Gipps Street and 30 panels on 28 Gipps Street. The panels are mainly located on the northern roof which faces Gipps St. This roof will give the best orientation for renewable power generation. I reviewed the option of locating solar panels on the south facing roof, this is not recommended because the angle on the roof shades the southern roof nearly entirely in winter, and for more than 70% of the day in summer. In the case of 26 Gipps St, the south facing roof has been removed and replaced with a rooftop deck area and there is therefore no south facing roof for panels to be fitted to.

The panels will not be seen from the footpath outside the Drill Hall and the trees at the front of the building will break up the view of the buildings from the path on the opposite side of Gipps St, where the proposed design is neatly arranged and parallel to the ridge line of the roof .The installation of solar panels will be carried out in a manner which prevents damage to the fabric of the building (roof, trusses and purloins). The installation will be reversible and therefore reinforces Article 15 of the Burra Charter – Change

It is understood that Heritage Victoria's draft solar panel guidelines do not support the installation of solar panels on north facing roofs that are adjacent to a roadway due to the aesthetic impact of the panels. Community sentiment with respect to installing solar panels on heritage buildings is changing, and given the climate emergency we are facing many householders are keen to reduce their carbon emissions and their energy bills by installing solar panels on their heritage homes. This change in community values with respect to the installation of solar panels on heritage buildings is reflected in the City of Sydney's *Development Application Exception for Solar Panels in Heritage Conservation Areas – Guideline* which provides clear guidance for the addition of solar systems to Heritage buildings. These guidelines say that as a general principle, installations on rear roofs are preferred, however installations on front roofs are permitted where there is no alternative for solar panels on the rear of a building. The proposed installation of the solar panels on the Richmond Drill Hall complies with the NSW guideline principles.

Recommendation

As senior Sustainability Consultant with extensive experience working with Heritage Buildings, I recommend that the proposed solar panel installation on the Richmond Drill Residences should be favourably considered by Heritage Victoria and approved for the following reasons:

- The building owners have sought to improve the energy efficiency of their residence within the constraints of the heritage fabric of the building this still results in a one star building as measured by the Residential Efficiency Scorecard. The poor fabric performance and airtightness is resulting in high ongoing electricity bills which will be substantially reduced if the proposed solar installation is permitted.

- Given the climate emergency we are facing in Australia there is community acceptance of Solar Panels on the visible roofs of heritage building. The proposed panels have 100% local support from neighbours, the local Heritage Society, City of Yarra Council and the local state member.
- The location of the solar panels on the north facing roof of the Richmond Drill Hall has been carefully considered, will be neat in appearance, will not damage the heritage fabric and will be reversable.

Yours sincerely

Jeffrey Robinson MIEAust CPEng
Sustainable Buildings Consultant

Enc:

Copies:

1 ClimateWorks for ASBEC, Low Carbon, High Performance, 2016

2 Heritage and Climate Change , Heritage council of Victoria website