Banyule City Council

Notice of an application for a planning permit

Land affected by the application
9 Gona Street HEIDELBERG WEST

Application reference
P980/2024

Applicant
M3 Group

Responsible Authority
Banyule City Council

Application is for a permit to

- Construction of Four (4) Dwellings
- Building Heights of Two (2) Storeys

Planning Scheme Clause
Clause 32.08-1 (General Residential Zone – Schedule 1)

Matter for which a permit is required
Construction of two or more dwellings on a lot

Review the application for free

Scan or visit **banyule.vic.gov.au/PlanningNotices**

alternatively

Visit during business hours:
Banyule Council offices Level 3, 1 Flintoff Street, Greensborough VIC 3088

To discuss this application, call our Planning Department on 9490 4222

The Responsible Authority will not decide on the application before: 14 February 2025
Submissions lodged after this date will only be considered if received by Council before a decision is made.

✔ Application lodged	✔ Council initial assessment	→ **Public notice**	☐ Consider submissions	☐ Final assessment	☐ Decision

What are my options?
You may object or make other submissions in writing if you are affected by the granting of a permit for this application.
If you object, we will tell you our decision and options available.

An objection must be:

- made in writing
- include the reasons for the objection
- state how the objector would be affected.

We must make a copy of every objection available at our office for any person to inspect during office hours. You can view the objections for free until the opportunity to seek a review of the decision for this application passes.

Planning permit application

Submitted on	9 October 2024, 3:06PM
Receipt number	PLAN2065
Related form version	20

Privacy

The Planning and Environment Act 1987 (Act) requires a range of information to be made available in accordance with the 'public availability requirements' outlined in Section 197(a-h) of the Act.
By using this form, we are collecting your personal information to enable your application to be lodged and assessed as per the planning process and the Planning and Environment Act 1987. If you do not provide your name, address and contact details, your application cannot be assessed. The handling of your personal information will be conducted in accordance with our Privacy Policy and requirements of the Act.
A copy of your application and relevant information must be made available for any person to inspect at our offices, and/or on our website in accordance with Section 51 of the Act. A copy of the application may be provided to other parties for the purpose of consideration as part of the planning process.
Your application, including your name and address, is a public record and will be made available consistent with the inspection requirements outlined in Section 197(a-h) of the Act.

Personal details available on your application

Personal details including names, addresses, phone numbers and emails.

Do you consent to making your personal details available on your application through our website? The address of the land for this application will be available through our website.	Yes - I give consent

Call our Privacy Officer on 9490 4222 or email enquiries@banyule.vic.gov.au if you need access to your personal information or need to amend it.

Background

Have you had a formal meeting with one of our planning officers about this application?	No

Property address

Unit number Apartment/Flat/Townhouse/Unit/Villa	
Street number	9
Street name	gona
Street type	street

Suburb	heidelberg west

Land description

What is the identifier of the land on title? This distinction can be found on your certificate of title.	Lot number
Lot number	495
LP, TP or PS number LP (lodged plan) TP (title plan) PS (plan of subdivision)	ps033339

Title information

You can buy a current copy of title from **LANDATA**.

If your land is affected by a Section 173 agreement, call us ono 03 9490 4222 for guidance on how to proceed with your application.

Upload title documentation Provide a current title, not older than 90 days from today's date for each parcel of land associated with this application.	007425969600120240917003100001.pdf 007425969601120240917243100001.pdf
Does the proposal breach, in any way, a restriction or encumbrance on the title? Examples include: a restrictive covenant, Section 173 agreement, an easement or building envelope.	No

Application type

This application is seeking a permit: Selections influence the application fee payable	to develop the land for multi-dwelling developments (class various)

Proposal

For what use, development or other matter is the permit required?	Development of 4 x Double Storey Townhouses
Upload plans and documentation Provide all relevant plans and documentation.	Town Planning Submission - Gona FINAL.pdf 241937_TP_9 Gona Street, Heidelberg West_20241008_rs.pdf SDA - 9 Gona Street_EN2407_04Oct2024_TP Final v1.pdf

Cost of proposal

Estimate the cost of the project. You may be required to verify this estimate and the difference may influence the application fee payable.

Cost of proposed works What is the estimated cost of the development for which the permit is required?	1200000
Difference in cost:	$1200000.00

Fees

Fee unit value As set by the Victorian Government Department of Treasury and Finance.	16.33
Subtotal for change of use	$0.00
Subtotal for a dwelling and assoc. buildings and works	$0.00
Subtotal for other developments	$3764.10
Subtotal for SubDiv Class 17	$0.00
Subtotal for SubDiv Class 18	$0.00
Subtotal for SubDiv Class 19	$0.00
Subtotal for SubDiv Class 20	$0.00
Subtotal for SubDiv Class 21	$0.00
Subtotal for types of permits not in regs	$0.00
Combined fee test subdivision 0 = single subdivision fee class applies 1 = multiple subdivision fee classes apply	1
Combined fee test overall 0 = single application fee only 1 = combined fees apply	0

Multiple fee classes apply to this application. The primary fee is applied in full. In addition, only 50% of all other applicable fees apply. The total is referred to as the Application fee.

Application fee Total fee payable in full when you submit this application.	$3764.10

Existing conditions

Existing conditions of the land Describe how the land is used now, for instance, vacant, 3 dwellings, medical center with 2 practitioners, licensed restaurant with 80 seats.	Single Storey Dwelling

Applicant details

Name Full name or organisation name of applicant	Gianni Mancuso
Email address	gm@m3group.au
Phone number	0432646955
Postal address	Unit 2/1 Bik Lane

Full postal address including suburb and postcode

Contact person

Is the contact the same as the applicant?
Gianni Mancuso

Yes

Owner details

Is the owner the same as the applicant?
Gianni Mancuso

No

Is the owner a registered organisation?

Owner full name

ZHIGUANG XIAO LIN CHEN both of 16 WARREN ROAD VIEWBANK VIC 3084

Declaration

I understand and accept:

information provided in this form, including plans and personal information will be publicly available, including online, as part of the planning process in accordance with the Planning and Environment Act 1987

copies may be made for interested parties as part of the planning process in accordance with the Planning and Environment Act 1987

I declare that:

all information provided in this application is true and correct

the owner has been notified of this application.

Payment

Confirm who will pay the $3764.10 application fee?

Applicant or consultant

Total amount due

Amount: $3,764.10

Transaction ID: 47618624217

Payment gateway: BPoint General Ledgers - BPoint

GST exempt

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 08541 FOLIO 002

Security no : 124118310016K
Produced 17/09/2024 10:31 AM

LAND DESCRIPTION

Lot 495 on Plan of Subdivision 033339.
PARENT TITLE Volume 08086 Folio 161
Created by instrument 4435769R 26/03/1965

REGISTERED PROPRIETOR

Estate Fee Simple
Joint Proprietors
ZHIGUANG XIAO
LIN CHEN both of 16 WARREN ROAD VIEWBANK VIC 3084
AB859299W 06/02/2003

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE LP033339 FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 9 GONA STREET HEIDELBERG WEST VIC 3081

DOCUMENT END

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Secure Electronic Registries Victoria.

Document Type	**Plan**
Document Identification	**LP033339**
Number of Pages (excluding this cover sheet)	**4**
Document Assembled	**17/09/2024 10:31**

PLAN OF SUBDIVISION OF PART OF

HEIDELBERG WEST ESTATE

HOUSING COMMISSION OF VICTORIA

PART OF CROWN PORTION THREE

PARISH OF KEELBUNDORA

COUNTY OF BOURKE

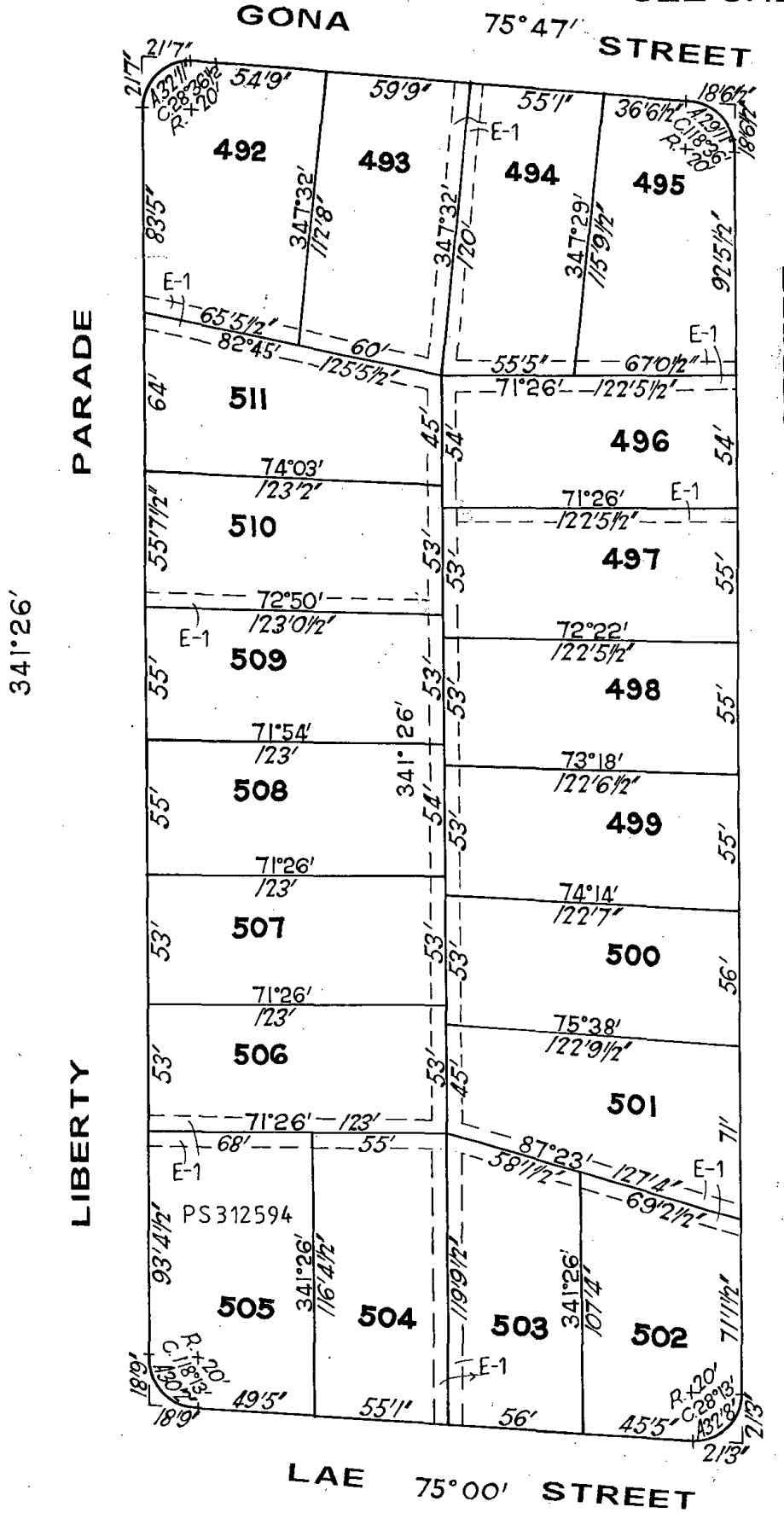
V 8086 F 161

LP 33339
EDITION 2
PLAN MAY BE LODGED
17-5-1956

3 SHEETS
SHEET 1

Measurements are in Feet & Inches
Conversion Factor
FEET x 0.3048 = METRES

SEE SHEET 2



APPROPRIATIONS
THE LAND MARKED E-1 IS APPROPRIATED OR SET APART FOR EASEMENTS OF DRAINAGE, SEWERAGE AND GAS AND IS SIX FEET WIDE

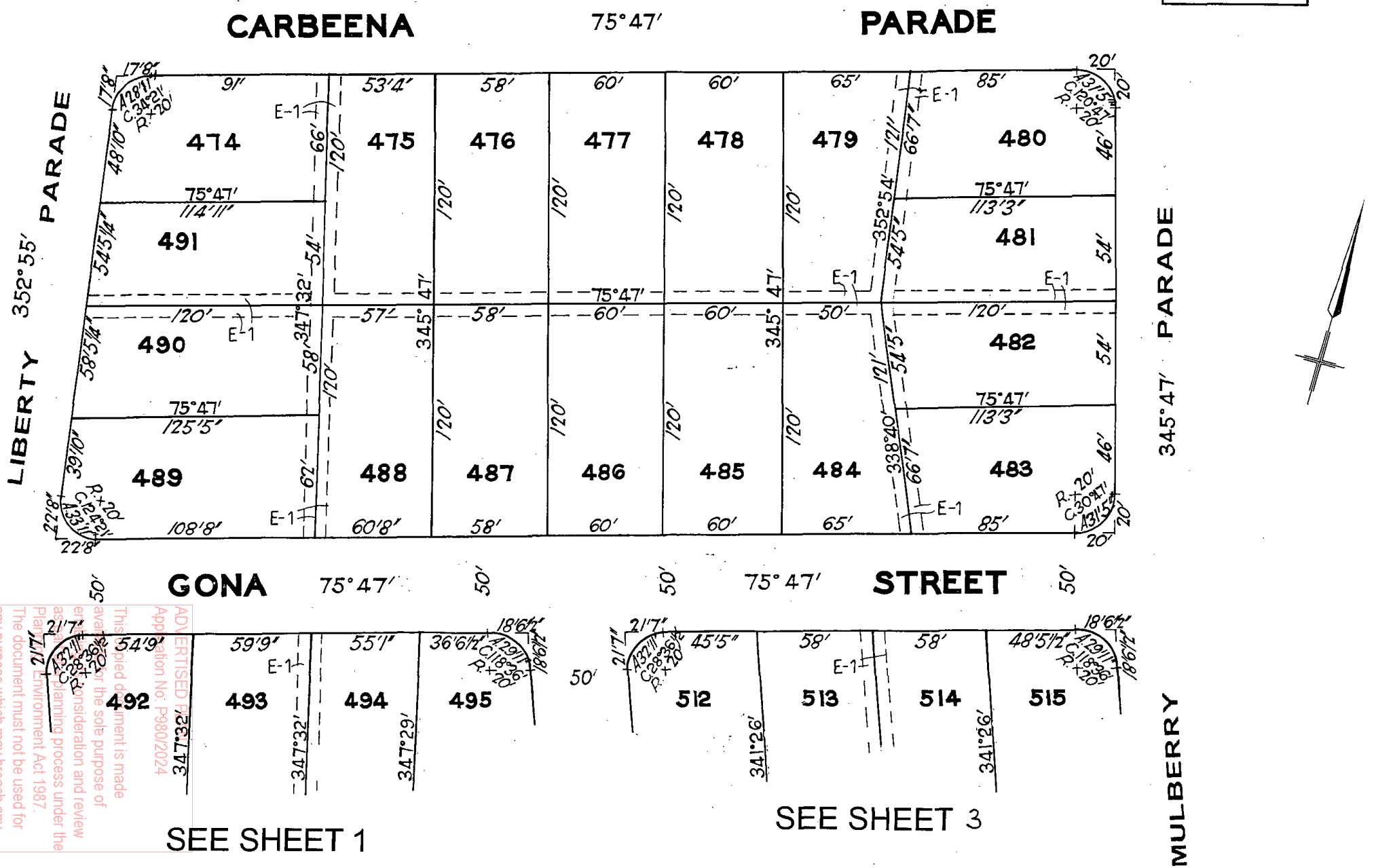
ENCUMBRANCES
AS TO THE LAND MARKED E-2:
THE PARTY WALL EASEMENT IN FAVOUR OF LOT 528 RESERVED IN D407126

AS TO THE LAND MARKED E-3:
THE PARTY WALL EASEMENT IN FAVOUR OF LOT 529 CREATED BY D407126

SEE SHEET 3

LP 33339

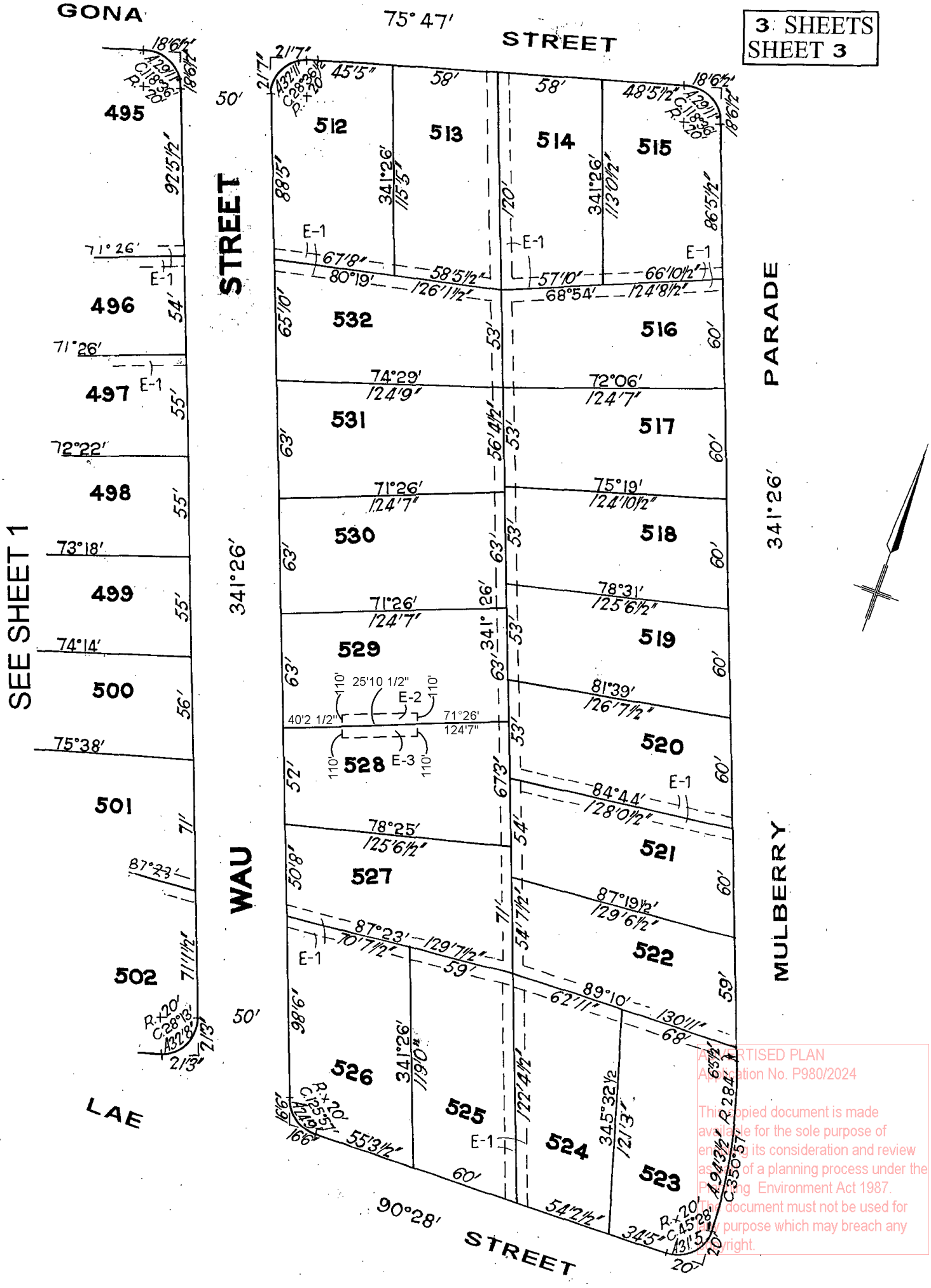
3 SHEETS
SHEET 2



SEE SHEET 2

LP 33339

3 SHEETS
SHEET 3



MODIFICATION TABLE

RECORD OF ALL ADDITIONS OR CHANGES TO THE PLAN

PLAN NUMBER

LP 33339

WARNING: THE IMAGE OF THIS DOCUMENT OF THE REGISTER HAS BEEN DIGITALLY AMENDED. NO FURTHER AMENDMENTS ARE TO BE MADE TO THE ORIGINAL DOCUMENT OF THE REGISTER.

AFFECTED LAND/PARCEL	LAND/PARCEL IDENTIFIER CREATED	MODIFICATION	DEALING NUMBER	DATE	EDITION NUMBER	ASSISTANT REGISTRAR OF TITLES
LOT 529	E-2	RESERVATION OF EASEMENT	D407126		2	AD
LOT 528	E-3	CREATION OF EASEMENT	D407126		2	AD

GrayKinnane

Town Planning Submission

9 Gona Street, Heidelberg West

Banyule Planning Scheme

October 2024

01

Introduction

Planning approval is sought for the construction of four (4) dwellings on land at 9 Gona Street, Heidelberg West.

The site is located within a General Residential Zone (Schedule 1 – GRZ1) pursuant to provisions of the Banyule Planning Scheme and is covered by the following overlays:

- Development Contributions Plan Overlay (Schedule 1 – DCPO1); and
- Vegetation Protection Overlay (Schedule 5 – VPO5).

The application seeks approval to:

- Construct two or more dwellings on a lot pursuant to Clause 32.08-6 of the General Residential Zone.

This report provides an assessment of the proposal against relevant provisions of the Banyule Planning Scheme and should be read in association with:

- Architectural Plans prepared by M3 Group.
- A Sustainable Design Assessment prepared by Enrate (Aust) Pty Ltd.

02

Site Analysis

02.1 Subject Site

The subject site is located on the southwestern corner of the intersection of Gona Street and Wau Street, within an established residential area of Heidelberg West.

Cadastral map of the subject site (Source: MapshareVic)

The land is formally described as Lot 495 on Plan of Subdivision 033339. No covenants are registered on title however the land is encumbered by a 1.83 metre wide drainage and sewerage easement that extends parallel to the southern boundary.

The lot forms an irregular shaped parcel of land with a north-south orientation. The site has a frontage to Gona Street of 11.14 metres, a curved splay of 6.1 metres and an abuttal to Wau Street of 28.18 metres. The overall site area is 635.64 square metres.

The land has been improved with a single storey dwelling of brick construction that is orientated to Gona Street and features a minimum front setback of 6.61 metres.

A crossover is featured to the rear of the lot addressing the abuttal to Wau Street, providing access to off street parking to the rear of the site. A secluded private open space area is featured to the rear of the dwelling which includes an outbuilding. A fence delineates the frontage.

The land is relatively flat and does not contain vegetation of any significance.

02.2 Surrounds

The subject site is located within an established residential area of Heidelberg West, approximately 550 metres to the north of the Bell Street Neighbourhood Activity Centre.

Location Map (source: Melways)

Aerial Photograph (source: Nearmaps: dated 4 August 2024)

Gona Street, to the site's frontage, is a residential street that runs from east to west,

connecting residents to Mulberry Parade and Liberty Parade respectively. Wau Street, to the site's abuttal, runs from Gona Street to Lae Street to the south. Nature strips, street trees and footpaths are featured to both sides of the road reserve together with unrestricted parking.

The site is well serviced by retail, recreational and community facilities. The subject site is located less than 550 metres to the north of the Bell Street Neighbourhood Activity Centre and 1.3 kilometres to the south-east of the Northland Major Activity Centre. The area presents several educational opportunities including Charles La Trobe P-12 College and Thornbury High School as well as having several childcare centres and kindergartens nearby. There are recreational reserves close to the site with Darebin Creek Forest Park and the creek environs of the Darebin Creek Trail readily accessible. The subject site sits within the PPTN area for Banyule by way of its proximity to a number of bus services.

The subject site is located within an established residential area of Heidelberg West with the immediate area comprises predominantly single storey detached dwellings with some more recent examples of double storey townhouse residential development.

The subject site is located within the Garden Suburban 6 Character Area, pursuant to Clause 15.01-5L-01 (Preferred Neighbourhood Character) and the *Banyule Neighbourhood Character Strategy 2012* (which is a reference document within the scheme). Garden Suburban 6 areas are described as displaying the following "era/style of development" as:

> *Predominantly 1950s and 1960s housing, occasional interwar, post war styles and newer modern dwellings including dual occupancy developments.*

Materials include:

> *Predominantly brick, and a mix of brick and weatherboard. New dwellings incorporate a mix of render. Predominantly concrete tiles, red-black and grey.*

The immediate area is undergoing a process of renewal and change with much of the older housing stock being demolished and replaced with larger dwellings on the lot, or medium density development. The evolving style of development is contemporary with a mixture of materials.

In relation to the site's immediate context, the land to the west at 11 Gona Street has been improved with a single storey dwelling of rendered brick construction that

features a pitched roof form. The dwelling is setback 10.72 metres from the frontage. A crossover is featured adjacent to the common boundary with the subject site providing access to off street parking alongside the. To the rear of the dwelling is an area of secluded private open space with an outbuild9ng adjacent to the subject site. A low scale brick fence is featured along the frontage.

The land to the south, at 13 Wau Street, has been developed with two detached single storey brick dwellings, each featuring a hipped tiled roof. The dwellings are arranged in tandem arrangement, with access via a common accessway to the southern side of the frontage. Both dwellings are set off all site boundaries and feature an area of private open space to the northside of the dwelling.

Further afield, more recent multi-dwelling developments include double storey side by side development to the west at 13 Gona Street and two double storey dwellings on the land at 14 Gona Street, opposite the site.

03

Proposal

Planning approval is sought for the construction of four (4) dwellings on land at 9 Gona Street, Heidelberg West.

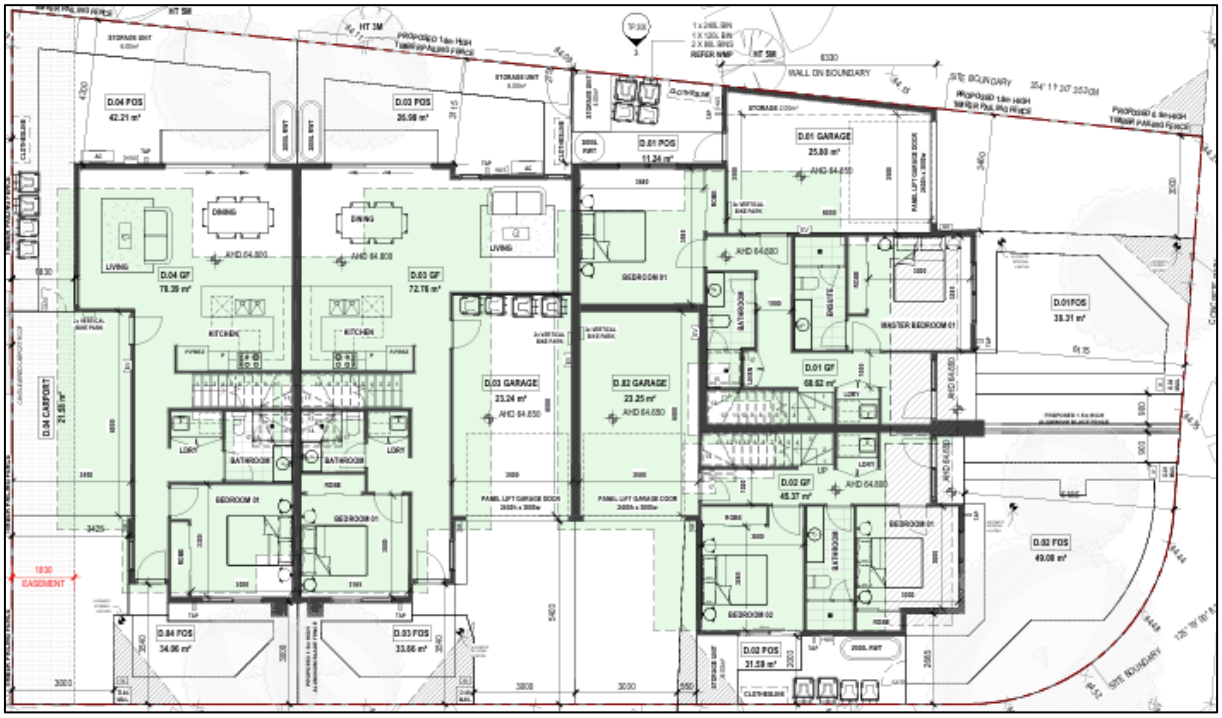
The existing dwelling will be demolished to accommodate the proposal, for which planning approval is not required. The proposed dwellings are provided with a mix of traditional and reverse living arrangements.

The proposed dwellings will be configured in a side-by-side arrangement, with Dwelling 1 and Dwelling 2 orientated to the street featuring a minimum setback of 6.1 metres to Gona Street. Dwelling 3 and Dwelling 4 will be attached and orientated to the abuttal with Wau Street.

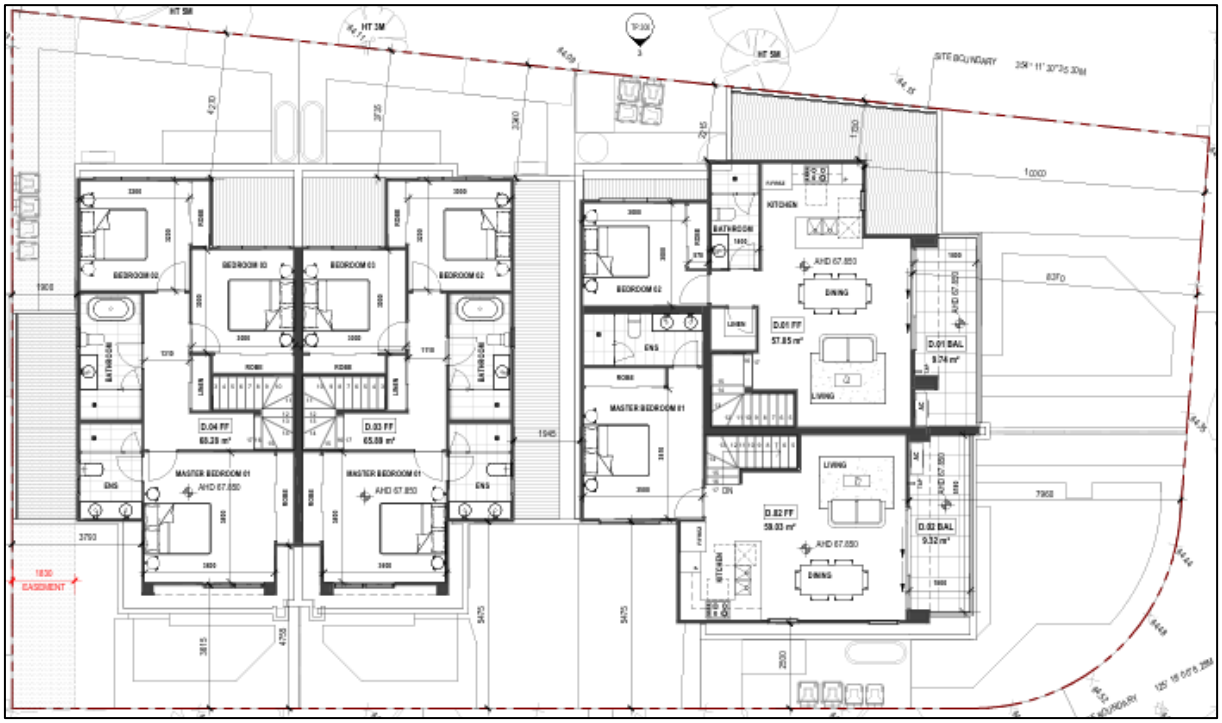
Dwelling 1 and Dwelling 2 will feature at ground floor: a porch/entry, single garage or carport (with tandem space), service yard, euro laundry, bathroom and two bedrooms. At first floor, both dwellings feature a bedroom (with ensuite bathroom) together with a kitchen and living room featuring direct access to a north facing balcony area featuring a minimum area of 9.32 square metres.

Dwelling 3 and Dwelling 4 feature a similar floor plan mirrored off a central wall. At ground floor the dwellings are provided with a porch entry, single garage (with tandem space), bedroom, bathroom, euro laundry together with a kitchen and living room provided with direct access to a west facing secluded private open space area in excess of 26.98 square metres. At first floor, each dwelling features three bedrooms (main with ensuite bathroom) and a common bathroom.

The dwellings will be provided with access via a single crossover or double crossover provided to the frontage and abuttal. No front fencing is proposed.



Excerpt from Ground Floor Plan



Excerpt from First Floor Plan

The dwellings will feature mixed façade treatments including face brickwork at ground floor together with render and vertical cladding finishes at first floor. A mixture of flat and contemporary skillion forms are proposed. Screening or raised sill heights will be provided to habitable room windows where necessary to address potential overlooking. No walls on boundaries are proposed.

Excerpt from Proposed Street Elevation

The built form will feature a have a maximum height of 8.48 metres from NGL (Dwelling 4). The proposal has a site coverage of 56 percent while site permeability is proposed to be at 29 percent. A garden area of 32.42 percent is proposed.

Landscaping

A Landscape Plan (sheet TP700) is provided as part of the application that demonstrates that the proposed development can comfortably accommodate two canopy trees each within the front and rear setback areas together with low level planting including grasses, shrubs and groundcovers are proposed in the side and rear setbacks and along the driveway. An excerpt is shown below:

Excerpt from Proposed Landscape Plan

04

Relevant Planning Provisions

Clauses of the Banyule Planning Scheme of relevance to the application are identified below:

04.1 Planning Policy Framework

- **Clause 11 Settlement**
  - 11.01-1R1 Settlement - Metropolitan Melbourne
- **Clause 15 Built Environment and Heritage**
  - 15.01-1S Urban design
  - 15.01-1R Urban design - Metropolitan Melbourne
  - 15.01-4S Healthy neighbourhoods
  - 15.01-4R Healthy neighbourhoods - Metropolitan Melbourne
  - 15.01-5S Neighbourhood character
- **Clause 16 Housing**
  - 16.01-1S Housing Supply
  - 16.01-1R Housing Supply – Metropolitan Melbourne
  - 16.01-2S Housing affordability
- **Clause 18 Transport**
  - 18.01-3R Sustainable and safe transport - Metropolitan Melbourne

04.2 Municipal Planning Strategy & Planning Policy Framework

- 02.03 Strategic Directions
- 02.04 Strategic Framework Plan

- 15.01-2L-02 Environmental Sustainable Development
- 15.01-5L-01 Preferred Neighbourhood Character

04.3 Zoning

- 32.08 General Residential Zone (Schedule 1 – GRZ1)

04.4 Overlays

- 42.02 Vegetation Protection Overlay (Schedule 5 – VPO5)
- 45.06 Development Contributions Plan Overlay (Schedule 1 – DCPO1)

04.5 Particular and General Provisions

- 52.06 Car parking
- 55 Two or more dwellings on a lot and residential buildings
- 65 Decision guidelines

05

Planning Assessment

05.1 Preamble

An assessment of the proposed development requires consideration of the following matters:

- The level of strategic support at both the State and Municipal Planning Policy Framework levels;
- The appropriateness of the proposed development having regard for neighbourhood character objectives of the Planning Scheme;
- Amenity considerations for the future occupiers and surrounding properties;
- The suitability of access and car parking arrangements.

A consideration of these matters is provided below.

05.2 Strategic Considerations

The relevant policy directions outlined in the scheme encourage the development of well-designed buildings which make effective use of existing infrastructure and provide additional housing opportunities. The additional housing stock that results is required to improve housing choice and to ensure supply is sufficient to meet demands of the growing population.

The policies identify the need for a diversity of housing types to locate in areas where good access to services is available in accordance with the following objectives and strategies (inter alia):

16.01-1S Housing Supply

To facilitate well-located, integrated and diverse housing that meets community needs.

16.01-1R Housing supply – Metropolitan Melbourne

Facilitate increased housing in established areas to create a city of 20 minute neighbourhoods close to existing services, jobs and public transport.

Allow for a range of minimal, incremental and high change residential areas that balance the need to protect valued areas with the need to ensure choice and growth in housing.

16.01-2S Housing affordability

To deliver more affordable housing closer to jobs, transport and services.

Council's Municipal Planning Strategy (Policy Framework) identifies that need to provide additional housing opportunities and increased diversity in housing types for a growing and ageing population. Clause 02.03-5 (Strategic Directions – Housing Supply) states (inter alia and emphasis added by author) –

Banyule has a limited variety of housing types. While most dwellings are separate houses on a lot, the proportion of medium and higher density dwellings is increasing (Census of Population and Housing 2016).

In recent years, most growth has occurred in the number of medium density dwellings (Census of Population and Housing 2016). This indicates a demand for smaller sized homes and a decrease in demand for separate houses. Higher density housing has been constructed in a number of locations across the municipality, with no particular concentrations occurring.

Dwelling densities in Banyule are low, with the lowest densities in the north-east of the municipality. There is also a concentration of large-lot, low density development in the Lower Plenty area in the south-east of the municipality.

Good quality design outcomes are needed to show the benefit of shop-top, townhouse and apartment living lifestyles and mixed use living environments, along with more adaptable housing to meet the needs of all residents, including those with impaired mobility and specific housing needs. Increasing housing diversity and adapting design to meet the needs of the broader community can

also help to redress long term social and economic costs.

Council's strategic directions for housing supply are to:

- *Direct housing growth to locations in or close to activity centres and the Principal Public Transport Network, and to strategic redevelopment sites, to satisfy housing demand.*
- *Promote more affordable housing, including in the private rental market, crisis accommodation, student accommodation and public housing, that addresses the needs of those seeking to reside in Banyule.*
- *Increase the diversity of housing types and the provision of more adaptable housing that meets the special needs of the broader community, including older persons with impaired mobility and those from culturally diverse backgrounds.*
- *Support the use and development of surplus non-residential land for residential purposes where it can contribute to the preferred neighbourhood character of the area and to housing diversity.*

The Residential Areas Framework at Clause 02.03-5, together with Schedule 1 to the General Residential Zone, locates the subject site within a "Accessible" area at Table 1 and in particular states with respect to "Postcode 3081 Urban Design Framework Hinterland Areas" states:

> *The Postcode 3081 Hinterland Area will provide well designed redevelopment opportunities for medium density dwellings within a treed landscape setting. Public housing sites will provide well designed redevelopment opportunities. A preferred neighbourhood character will support development opportunities at Bell Street Mall Neighbourhood Activity Centre, public housing sites and larger properties.*

Furthermore, the Vision for the Accessible Residential Areas within the framework states:

> *Accessible Areas will provide townhouse and other medium density living and some dispersed single dwellings. Some opportunities for higher density housing will also exist. These areas include strategic redevelopment sites that provide for medium density and a higher density housing component.*

It is submitted that the proposed development responds to the above objectives by way of providing four (4) additional dwellings (two of which are accessible dwellings), within an established residential area, located proximate to public transport networks and with good access to services and facilities. This is considered to be in line with the 'incremental' level of change proposed for this precinct.

The proposed development will contribute to diversity in the area, by way of providing an alternative housing product, with low-maintenance private open space areas located close to public transport and facilities and services available in the activity centre.

The proposed development addresses the land's General Residential Zoning, which amongst other objectives, seeks:

- *to encourage a diversity of housing types and housing growth particularly in locations offering good access to services and transport; and*
- *to encourage development that respects the neighbourhood character of the area.*

In addition, the design of the proposed development appropriately responds to the built form and landscape in the surrounding area in accordance with Clause 15 (Built Environment and Heritage). The development will positively contribute to the existing and preferred neighbourhood character evident in the local area that includes an increasing number of contemporary infill developments.

Net Community Benefit

The proposed development provides for an acceptable planning outcome and provides for a net community benefit as:

- It provides for additional housing in a strategically appropriate location to assist in meeting housing objectives and providing for the efficient use of urban land;
- It provides for a development that is consistent with the urban design objectives sought for land in the GRZ1;
- It provides for a development that minimise off site amenity impacts and provides for an appropriate level of onsite amenity of future occupiers;
- It provides for acceptable access and appropriate vehicle access and

parking having regard for Clause 52.06.

Having regard to the relevant provisions outlined above, it is submitted that the proposed development is consistent with policy objectives of the Banyule Planning Scheme and the Planning Policy Frameworks as detailed further below.

05.3 Neighbourhood Character

The most relevant provisions in determining the appropriateness of the proposed development in terms of respecting neighbourhood character and the maintenance of residential amenity are:

- The Decision Guidelines of the GRZ, ResCode Standard B1 (Neighbourhood Character) and of the Planning Scheme which is discussed further below.
- The Neighbourhood Character objectives at Clause 02.03-4 (Built Environment and Heritage) and Clause 15.01-5L-01 (Preferred Neighbourhood Character) and in particular the appropriateness of the development when assessed against the *Banyule Neighbourhood Character Strategy 2012,* which is a reference document within the Scheme.

At a global level, Council seeks to balance the need for intensification within the urban settlement boundaries with protecting the valued neighbourhood and heritage character. This will primarily be achieved by providing development that is of high quality that does not impact on valued characteristics within the municipality.

With respect to the broad built form strategic approach Council references that different neighbourhood character outcomes are expected across the municipality, via the strategic directions (inter alia, emphasis added):

02.03-4 Built environment and heritage (Neighbourhood Character)

Various parts of Banyule will need to accommodate change due to population growth and the community's evolving housing needs. This requires the development of a preferred neighbourhood character that supports significant change in some parts of the municipality and limited change in other parts.

Poorly designed development, including subdivision, can erode the preferred neighbourhood character and a community's sense of place.

Significant Trees, Substantial Trees and other vegetation make a contribution

to the desired future character of residential neighbourhoods, the identity of activity centres and to streetscapes.

Council's strategic directions for neighbourhood character are to:

- *Encourage development that contributes to the preferred character of residential neighbourhoods in a manner that supports varying degrees of housing change.*

- *Retain and plant Significant Trees, Substantial Trees and other vegetation to protect and improve neighbourhood character and streetscapes.*

These strategic directions are to be achieved with more detailed consideration provided within the local policy at Clause 15.01-5L-01 (Preferred Neighbourhood Character) and in particular the appropriateness of the development when assessed against the *Banyule Neighbourhood Character Strategy 2012,* which is a reference documents within the Scheme.

The land falls within the *"Garden Suburban Precinct 6"* area within the "Preferred Neighbourhood Character" policy at Clause 15.01-5L-01. The policy has the following "All Areas" objectives:

- *To encourage the retention and planting of canopy trees and understorey vegetation to soften the appearance of dwellings, enhance landscape settings, and improve existing wildlife and habitat links.*

- *To ensure buildings and extensions do not dominate the streetscape, the building, or the outlook and amenity of neighbouring dwellings.*

- *To protect and enhance the dominant continuous tree canopy and natural vegetated appearance of ridgelines.*

- *To ensure that household services, vehicle access and storage facilities are not visually prominent features of streetscapes.*

Furthermore, the Garden Suburban Area wide objectives are provided as:

- *To maintain and strengthen the landscape setting of each precinct with spacious leafy gardens, tree-dominated streetscapes and spines of trees in rear setbacks.*

- *To ensure development on sites zoned NRZ3 and GRZ2 prioritises tree*

protection and planting around and between dwellings to create an attractive, treed landscape setting.

- *To ensure development on sites zoned GRZ1, GRZ3 or GRZ4 contributes to an enhanced treed environment whilst providing for increased housing densities.*

Garden Suburban Area wide policy guidelines (Consider, as relevant):

- *Building site coverage not exceeding 40 per cent to enable the planting, growth and retention of vegetation. This may be varied in zones GRZ1, GRZ3 or GRZ4 if existing vegetation is retained and sufficient area is provided for the planting of additional trees and other vegetation.*

- *Providing one medium to large tree for every 400 square metres of site area, with a preference for large trees and including existing trees that are worthy of retention.*

- *Providing at least one large tree in the front setback area.*

The subject site is located within the Garden Suburban 6 Character Area, pursuant to Clause 15.01-5L-01 (Preferred Neighbourhood Character) and the *Banyule Neighbourhood Character Strategy 2012*. Specific to the Garden Suburban 6 precincts (GS6) the following strategies are provided:

- *Provide landscaping that comprises native or indigenous trees and understorey vegetation.*

- *Design infill dwellings in an architectural style sympathetic with existing dwellings on sites zoned GRZ2 in the GS6 precinct, incorporating the main themes in correct proportions and scale from the 1950s era.*

- *Design development on sites zoned GRZ1 in a contemporary style to revitalise the character and enhance the urban environment.*

- *On sites zoned GRZ1 that front onto or are to the west of Waterdale Road, design contemporary buildings that incorporate well-articulated built forms to reduce building bulk and provide visual interest.*

- *On sites zoned GRZ1, recess upper levels above the second storey and position them towards the street frontage.*

- *Use low and open style fences complementary to the era of the dwelling.*

The *Banyule Neighbourhood Character Strategy 2012* features additional objectives listed as:

- *To ensure new infill buildings are sympathetic to the current building form and style in Heidelberg Heights, and revitalise the character and urban environment in Heidelberg West.*
- *To maintain consistency of current front setbacks whilst enabling tree planting in front gardens.*
- *To ensure buildings and extensions do not dominate the streetscape or the building, and do not adversely affect the outlook and amenity of neighbouring dwellings*
- *To ensure that household services are not a visually prominent feature.*
- *To minimise loss of front garden space, and the dominance of vehicle access, storage facilities and built form as viewed from the street.*
- *To maintain the openness of front boundary treatments, the view of established front gardens and tree lined street, and the presentation of dwellings to the street*
- *To strengthen the garden and tree dominated streetscape character and landscaped setting of the precinct.*

Built Form Response

In considering these matters it is submitted that the subject site is located within the established urban area, within the "Accessible" Change Area where a level of intensification is expected up to three storeys. The proposed built form will enhance the suburban character of the immediate vicinity and will be contemporary in presentation and will support the emerging character, contributing to the urban renewal objectives of the Banyule Planning Scheme.

The scale is double storey with a maximum height of 8.48 metres which will ensure the dwellings sit comfortably with the surrounding established built form. Each dwelling includes a front entrance porch orientated to the frontage or abuttal, in an attached side by side arrangement. The upper levels are provided with a break in the built form and the form is setback from side boundaries, thus creating an

articulated built form that will follow the pattern of development within the surrounding context.

The primary building materials of face brickwork at ground floor together with render elements and vertical cladding are appropriate and used elsewhere within the site's residential context and will create a level of visual interest when viewed from the street network. The ground and first floor arrangements, with varied setbacks and material selection will ensure that the development is well articulated.

The materiality of the development, roofing profiles and garden treatments will moderate the development and provide an individual sense of address to the street.

The design response proposes a sensitively designed development that will sit comfortably within the context of the site and reflects the prevailing single and double storey built form in the immediate area. Crossovers are minimised and an extensive landscaping theme is proposed across the frontage which will soften the built form ensuring it sits comfortably within the suburban context.

Sufficient area is provided within the front setback and within secluded private open space areas to provide for landscaping so to reflect the landscaping aspirations and support the garden suburban character objectives sought for the area.

No front fencing is proposed ensuring views into the front garden area are well supported. The arrangement of the single crossover and accessway will ensure that there is adequate area for meaningful front garden landscaping to occur. As demonstrated within the landscape plan (TP700), the proposed development can accommodate 1 medium-large canopy trees within the front setback of the site for each dwelling, and a minimum of 1 canopy tree within the secluded private open space are to the rear of each dwelling.

Services such as bins and storage are located in nominated areas that are not within the view of the street.

It is submitted that the proposal presents a well-designed response to the neighbourhood character provisions of Clause 15.01-5L-01 (Preferred Neighbourhood Character), and the *Banyule Neighbourhood Character Strategy 2012.*

05.4 ResCode

The proposal to develop the site with two or more dwellings requires an assessment

against requirements at Clause 55 of the Banyule Planning Scheme. A detailed assessment is provided at Attachment 1 of this submission.

The assessment identifies that the proposed development responds appropriately to all objectives and standards of at Clause 55 the planning scheme so to provide for appropriate amenity and character outcomes, with the exception of:

B6 Street Setback

The subject site is on a corner and the dwelling the adjoining lot to the west facing the same street is setback 10.63 metres, providing the standard of 9.0 metres. The application proposes a setback for Dwelling 1 and Dwelling 2 of 6.1 metres., a variation to the standard.

The objective associated with Standard B6 to be considered in assessing the resulting variation is:

> *To ensure that the setbacks of buildings from a street respect the existing or preferred neighbourhood character and make efficient use of the site*

Facilitating an "efficient use of the site" as required by the standard is achieved through the design response which provides for side-by-side development on a parcel of land where efficient use is achieved whilst balancing the required incremental change outcomes sought in the GRZ.

The proposal provides a considered response to the surrounding context along Gona Street, where setbacks vary considerably including opposite the site at 14 Gona Street (setback 4.28 metres) and at 7 Wau street (which is setback 4.45 metres from Wau Street and 5.5 metres from Gona Street). It is clear that the evolving character is influenced by the redevelopment of older housing stock to townhouse style development.

The proposed setback and accessway arrangement addressing the 11.14 metre wide frontage provides for a single crossover and accessway to service the development, with the remaining crossovers provided to the abuttal. As a result of this arrangement, the front setback accommodates low levels of paving and hard services allowing an extensive landscaping theme including the provision of canopy trees, which will soften the impact of the built form. Furthermore, the design response incorporates upper levels for Dwelling 1 and Dwelling 2 that are recessed from the ground floor footprint and include well-articulated elevations. As such the setback of the dwellings will not contribute to a sense of "bulk" when viewing the

development from the public realm.

On this basis, it is submitted that the variation is acceptable and meets the objective.

Rescode Summary

In relation to the character considerations related to building height, site coverage, and permeability are all satisfied by the development.

The secluded private open space areas for each dwelling are provided in the form of a balcony on the on the northside of the dwelling (Dwelling 1 and Dwelling 2) or a backyard to the west elevation (Dwelling 3 and Dwelling 4) that meet the required dimensions and areas. The open space areas are accessible directly from common living areas while all habitable rooms within the development benefit from daylight access, ensuring there is no reliance upon borrowed light.

Each dwelling will have a clearly identifiable front entrance with an articulated porch area to provide shelter and a sense of address. The layout of the garages will facilitate efficient entry and egress from the site and will result in a substantial level of landscaping across the frontage and the abuttal.

With regards to onsite amenity of future residents, the proposed dwellings will have comfortable (and accessible) floor plans with internal areas having good access to parking, storage and utilities.

The development minimises offsite amenity impacts with boundary setbacks that generally address requirements of the relevant standards and the design response has sought to reduce overshadowing where possible given the constraints of the north-south orientation.

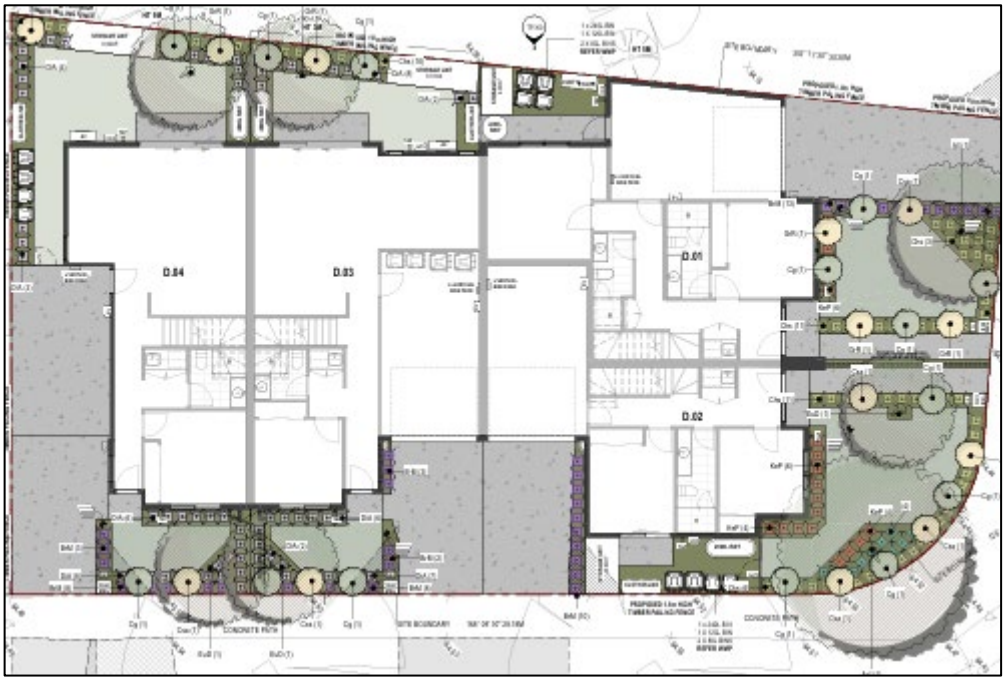
It is submitted that the proposed development's high level of compliance with ResCode illustrates that the design response has appropriately responded to the site constraints and surrounding neighbourhood character. It also demonstrates that the development will not result in any unreasonable adverse off-site amenity impacts which may affect the enjoyment of abutting properties.

05.5 Vegetation Protection Overlay (Schedule 5 – VPO5)

The site is covered by a Vegetation Protection Overlay (Schedule 5 – VPO5) and under the VPO5 trees and shrubs require planning permission for removal if they feature a height greater than 12 metres and/or feature trunks with a diameter greater

than 400mm, measured at 1400mm above base of tree. There is no vegetation on the land that requires planning permission for removal.

A Landscape Plan (sheet TP700) is provided as part of the application that demonstrates that the proposed development can comfortably accommodate two canopy trees each within the front and rear setback areas together with low level planting including grasses, shrubs and groundcovers are proposed in the side and rear setbacks and along the driveway. An excerpt is shown below:



Excerpt from Proposed Landscape Plan

05.6 Environmentally Sustainable Development

The proposal to develop the site requires an assessment against requirements and performance measures specified at Clause 15.01-2L-02 (Environmentally Sustainable Development) of the Banyule Planning Scheme which:

> *(…) to residential and non-residential development, excluding subdivision, in accordance with the thresholds detailed in this policy*.

The policy seeks to:

Objective: *To achieve best practice in environmentally sustainable development from the design stage to construction and operation.*

The policy seeks to encourage and facilitate development that can achieve best practice development via the following strategies:

- *Facilitate development that minimises environmental impacts.*
- *Encourage environmentally sustainable development that:*
    - *Is consistent with the type and scale of the development.*
    - *Responds to site opportunities and constraints.*
    - *Adopts best practice through a combination of methods, processes and locally available technology that demonstrably minimise environmental impacts*

The policy provides performance measures with respect to energy performance, integrated water management, indoor environment quality, transport, waste management and urban ecology. In particular, the policy guidelines require a Sustainable Design Assessment (including an assessment using BESS, STORM or other methods) for 2-9 dwellings.

In response to the ESD requirements and performance noted in the Banyule Planning Scheme, the design response includes a comprehensive sustainable design initiatives which satisfy the requirements and are supported by a Sustainable Design Assessment prepared by Enrate (Aust) Pty Ltd.

05.7 Access and Car Parking

In accordance with the requirements of Clause 52.06 (Car Parking), the proposed development generates the following statutory car parking requirements:

Land Use	Applied Rate	Parking Measure	Required Parking	Provided Parking
Dwellings	*1 space to each one or two bedroom dwelling*	0 dwellings	1 space per dwelling	0 spaces
	2 spaces to each three or more-bedroom dwelling	4 dwellings	2 spaces per dwelling	8 spaces
Total			**8 spaces**	**8 spaces**

As the table above demonstrates, the proposed development is provided with car parking in accordance with the provisions of Clause 52.06 of the Banyule Planning Scheme within a single garage or carport and tandem space arrangement for each dwelling. No visitor parking is required for a development of fewer than five dwellings.

The proposed development is considered to adequately address the design standards at Clause 52.06-9 related to car parking as a result of the following:

- Providing accessways that have minimum widths of 3.0 metres;
- Allowing all vehicles to safely enter and exit the site in an efficient manner;
- Providing minimum headroom of 2.4 metres for car parking spaces;
- Providing a carport with car parking dimensions in accordance with the table at Clause 52.06-9;
- Achieving a flat gradient for parking spaces and an appropriate gradient to the accessways.

05.8 General Provisions

Clause 65 of the Banyule Planning Scheme requires that before deciding on an application or approval of a plan, the Responsible Authority must consider a number of matters. An assessment against these provisions is provided as follows:

- The proposal is consistent with the matters set out in Section 60 of the *Planning and Environment Act 1987*.

- The proposal is consistent with the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement.
- The proposal is consistent with the purpose of the General Residential Zone and overlay controls affecting the land.
- The proposed development respects the orderly planning of the area.
- The proposed development would not have an adverse impact on the amenity of the area.
- The subject site does not interface with any public open space areas.
- The proposed development would not cause or contribute to land degradation, salinity or reduce water quality.
- The proposed development will be connected to underground drainage and as such will not have any adverse impact on the quality of stormwater within and exiting the site.
- The subject site does not contain any indigenous native vegetation in the meaning of the Planning Scheme.
- The proposed development would not contribute to any flood, erosion or fire hazard.

06

Conclusion

The proposal for the construction of four (4) dwellings on land at 9 Gona Street, Heidelberg West is consistent with the State Policy Frameworks, Municipal Planning Strategy and relevant provisions set out in the Banyule Planning Scheme.

The proposed development provides a satisfactory response to the existing neighbourhood character and objectives of Clause 55. The result is that the development will provide a high standard of onsite amenity without unreasonably affecting the amenity of the adjoining dwellings.

We submit that the proposal is worthy of Council support.

01

Attachment

Clause 55 Assessment

CLAUSE	STANDARD	ASSESSMENT
55.02-1 Neighbourhood Character	**B1**	**COMPLIES** The design response is appropriate to the area and respects the existing and emerging character of the area as outlined in the detailed discussions that form part of the attached report.
55.02-2 Residential Policy	**B2**	**COMPLIES** The proposal satisfies the residential policy objectives as discussed in the attached report.
55.02-3 Dwelling Diversity	**B3**	**COMPLIES** The proposed development will contribute to dwelling diversity in the area, by way of providing four dwellings (including two accessible dwellings) within an area dominated by larger dwellings on larger lots.
55.02-4 Infrastructure	**B4**	**COMPLIES** The site is located in an established urban area of Heidelberg West where the existing infrastructure can accommodate any additional demands likely to result from the proposed development.
55.02-5 Integration with the Street	**B5**	**COMPLIES** Dwellings will be oriented to the street and will each be provided with legible and easily identifiable entrances.

CLAUSE	STANDARD	ASSESSMENT
55.03-1 Street Setback	**B6**	**VARIATION SOUGHT** The subject site is on a corner and the dwelling the adjoining lot to the west facing the same street is setback 10.63 metres, providing the standard of 9.0 metres. The application proposes a setback of 6.1 metres., a variation to the standard. Additional discussions relating to this variation are provided in the planning consideration section of this report.
55.03-2 Building Height	**B7**	**COMPLIES** The development features a maximum overall height of 8.48 metres.
55.03-3 Site Coverage	**B8**	**COMPLIES** Site coverage of 56.0 percent is proposed.
55.03-4 Permeability	**B9**	**COMPLIES** Site permeability of 29.0 percent is proposed. Each dwelling is provided with 2000 litre rainwater tank within the side setback area.
55.03-5 Energy Efficiency	**B10**	**COMPLIES** The proposal provides for north-facing habitable room windows and private open space areas with northern aspect where possible. This will ensure a good level of solar access for all dwellings. Shadow diagrams submitted with the application demonstrate that overshadowing of abutting properties will be acceptable and will not detrimentally impact on the energy efficiency of adjoining dwellings.
55.03-6 Open Space	**B11**	**N/A** The land does not adjoin any public open space areas.
55.03-7 Safety	**B12**	**COMPLIES** Habitable room windows are provided for each dwelling orientated to the street, ensuring a good level of passive surveillance to the area.
55.03-8 Landscaping	**B13**	**COMPLIES** Schedule 1 to the GRZ varies the requirement as follows: *Landscape Plans will provide at least 1 large tree in the front setback.* Open space areas within the development have been designed to accommodate meaningful landscaping, including the provision of canopy trees (see TP700).

CLAUSE	STANDARD	ASSESSMENT
55.03-9 Access	**B14**	**COMPLIES** Vehicular access to the development is to be via a proposed single crossover to western side of the frontage and a single and double crossover to the abuttal. The width of the crossover is 3.0 metres which is 27% of the site frontage of 11.14 metres, under 40% as allowable under the Standard.
55.03-10 Parking Location	**B15**	**COMPLIES** Easily accessible parking is provided for each dwelling in a single garage and tandem parking space arrangement. The garage will be secure and well ventilated**.**
55.04-1 Side and Rear Setbacks	**B17**	**COMPLIES** The proposed development is setback from side and rear boundaries to comply with the requirements of Standard B17..
55.04-2 Walls on Boundaries	**B18**	**COMPLIES** Two walls on boundaries are proposed relating to single storey garage walls for Dwelling 1. The length and height is provided in accordance with the standard.
55.04-3 Daylight to Existing Windows	**B19**	**COMPLIES** The development provides appropriate setbacks and light courts to neighbouring habitable room windows.
55.04-4 North Facing Windows	**B20**	**COMPLIES** There are no north facing windows in proximity to the subject site.
55.04-5 Overshadowing Open Space	**B21**	**COMPLIES** Shadow diagrams submitted with the application demonstrate that overshadowing of abutting properties is within acceptable parameters under the standard.
55.04-6 Overlooking	**B22**	**COMPLIES** Overlooking will not occur from the proposed dwellings with the first-floor windows featuring obscured glazing or raised sill heights in accordance with the standard.
55.04-7 Internal Views	**B23**	**COMPLIES** There will be no internal overlooking opportunities within the development.
55.04-8 Noise Impact	**B24**	**COMPLIES** There are no noise sources located in close proximity to the site and the residential development will not generate unreasonable offsite noise impacts.

CLAUSE	STANDARD	ASSESSMENT
55.05-1 Accessibility	**B25**	**COMPLIES** At grade entrances are provided to each dwelling.
55.05-2 Dwelling Entry	**B26**	**COMPLIES** The entry to each dwelling is easily identifiable from Gona Street or Wau Street. Each dwelling entry is sheltered appropriately to create a sense of personal address.
55.05-3 Daylight to New Windows	**B27**	**COMPLIES** The necessary light courts are provided to new windows within the development.
55.05-4 Private Open Space	**B28**	**COMPLIES** Each dwelling is provided with a minimum balcony area of 9.3 square metres (Dwelling 1 and Dwelling 2) and over 26.98 square metres of secluded private open space at ground floor (Dwelling 3 and Dwelling 4). Each SPOS area is provided with direct access from the open plan kitchen and living rooms.
55.05-5 Solar Access to Open Space	**B29**	**COMPLIES** The secluded private open space of the dwellings is located on the northside of the Dwelling 1 and Dwelling 2 and to the west elevation for Dwelling 3 and Dwelling 4, in accordance with the Standard.
55.05-6 Storage	**B30**	**COMPLIES** Storage can be accommodated within the service yard or enlarged garage of each dwelling.
55.06-1 Design Detail	**B31**	**COMPLIES** The proposed development, including design detailing, responds appropriately to the urban design and neighbourhood character policies as discussed in the attached report.
55.06-2 Front Fences	**B32**	**COMPLIES** No front fencing is proposed.
55.06-3 Common Property	**B33**	**COMPLIES** No common areas will result from the proposed arrangement.
55.06-4 Site Services	**B34**	**COMPLIES** Sufficient space is provided for services to be installed and maintained. Mailboxes will be located alongside the frontage and sufficient bin storage is provided for each dwelling.

climbing high
TREE SERVICES

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Arboricultural Tree Assessment Report

Development Impact

At

9 Gona Street, Heidelberg West, Vic, 3081

Prepared by:

Climbing High Tree Service
Consulting Arborist
Chris Walshe
Graduate Certificate of Arboriculture (University Melbourne)
Diploma of Horticulture (Arboriculture)
AQF Level 5 & 8

Report Commissioned by:

SCB Property Holdings Pty Ltd

Wednesday 27th November 2024

1. Introduction.

Climbing High Tree Service has been engaged to provide an Arboricultural Assessment and a Development Impact Assessment Report for all trees greater than 3 metres in height located on the subject site, adjoining properties, and any street trees that may be impacted upon by the proposed development.

2. Objectives.

- Provide the tree/s location, species, dimensions, age, health, structural condition and their suitability for retention.
- Calculate the size of the area around the tree/s suitable for retention that require tree protection (TPZ).
- Provide comments on the planning schemes, and to assess the impact that the proposal may have upon the existing vegetation.
- Explain the preferred design methods if required, to minimise the impact on retained trees where there is encroachment into the calculated Tree Protection Zones area.
- The report is in accordance to Australian Standards AS4970-2009 'Protection of Trees on Development Sites' (Appendix 2).

3. Method.

A site and tree inspection was conducted on Monday 8th November 2024 by Chris Walshe.

Visual Tree Assessment (VTA) methods were undertaken from ground level as described by Mattheck & Breloer (1994) with regard to current arboricultural principles and practices. International Society of Arboriculture Tree Risk Assessment procedures were followed for evaluating the tree for risk. The following tree data was collected on site:

- Botanical Name
- Common Name
- Origin
- Age Class
- Dimensions
- Diameter at Breast Height (DBH)
- Health
- Structure
- Form
- Useful Life Expectancy (ULE)
- Retention Value.

For descriptors of the data collected on site refer to Appendix 4.

A (yamayo) diameter tape measure was used for determining the DBH, a digital camera for images, the height was estimated, and the canopy spread was stepped out.

No invasive tests were conducted, nor tree or soil samples taken.

The trees have been numbered and plotted on the Aerial Site Map and Development Tree Impact Plan. The tree numbers correspond with those numbers provided in the Tree Data Table (Appendix 1).

4. Limitations.

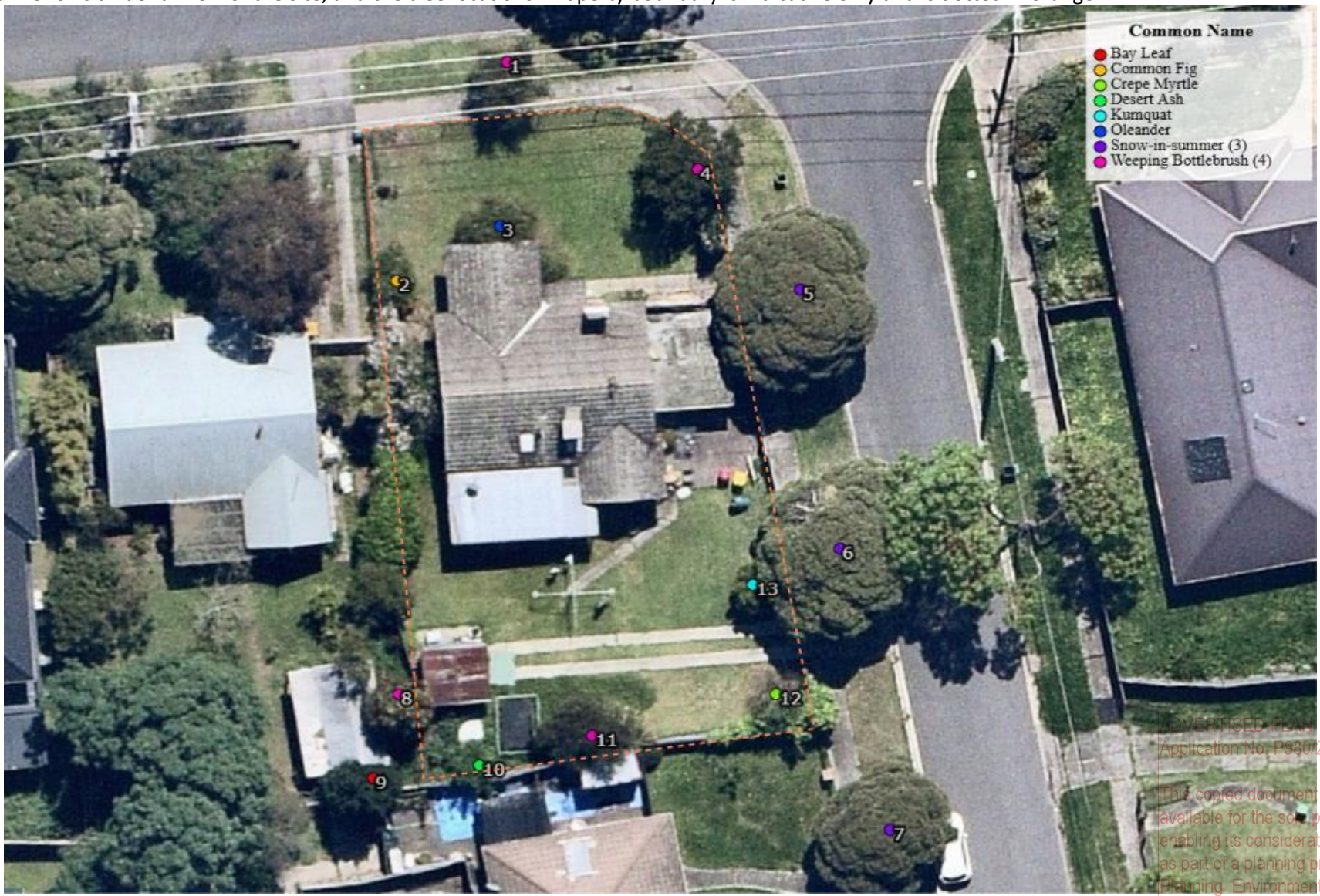
Access was restricted to the neighbouring trees 8 and 9, therefore stem measurements were estimated.

5. Documents Viewed.

- M3 Group, Ground Floor Plan, First Floor and Elevations, dated October 2024.

6. Aerial Site Map

Figure 1: Shows an aerial view of the site, and the tree locations. Property boundary is indicative only and is dotted in orange.



7. Planning Overlay Controls.

The site is zoned Residential Growth Zone Schedule 1 (RGZ1) and is located in Heidelberg West, a suburb in the Banyule Council. The following vegetation controls apply to the subject site:

Under Vegetation Protection Overlay Schedule 5 (VPO5) planning permission is required to remove, destroy or lop trees which meet either of the following:

- greater than 12 metres in height, or
- have a trunk or stems that are collectively more than 400mm in diameter, measured at 1400mm above the base of the tree.

There are exemptions in the overlay for: dead trees, unsafe trees (as determined by a qualified Arborist), environmental weed trees as listed in the *Environmental Weeds Strategy List 2006,* for the pruning and shaping done in accordance with *AS4373-2007,* and the maintenance of ornamental trees.

8. Proposed Development.

The proposal is to demolish the existing dwelling, and to construct four (4) double storey townhouses with associated works. All site trees are proposed to be lost. Two (2) new crossovers in Wau Street and one (1) new crossover in Gona Street are proposed to be constructed. The impact upon the health of the retained trees will need to be assessed to current industry standards.

9. Observations.

The site is located on the corner of Gona Street and Wau Street, and is approximately 634.04 sq metres in size.

The topography of the site is flat, and it currently holds an existing single storey dwelling that is used for residential purposes.

Thirteen (13) trees were assessed in this report. Seven (7) trees are located on the subject site and six (6) trees are located in third party properties.

Subject Site:

The assessed subject site **trees 2, 3, 4, 10, 11, 12** and **13** are all less than 5 metres in height. They are either ornamental or weed species trees that are self-sown. They all have a low retention value and a low landscape value. They are not worthy of retention regardless of the development context.

Third Party Trees:

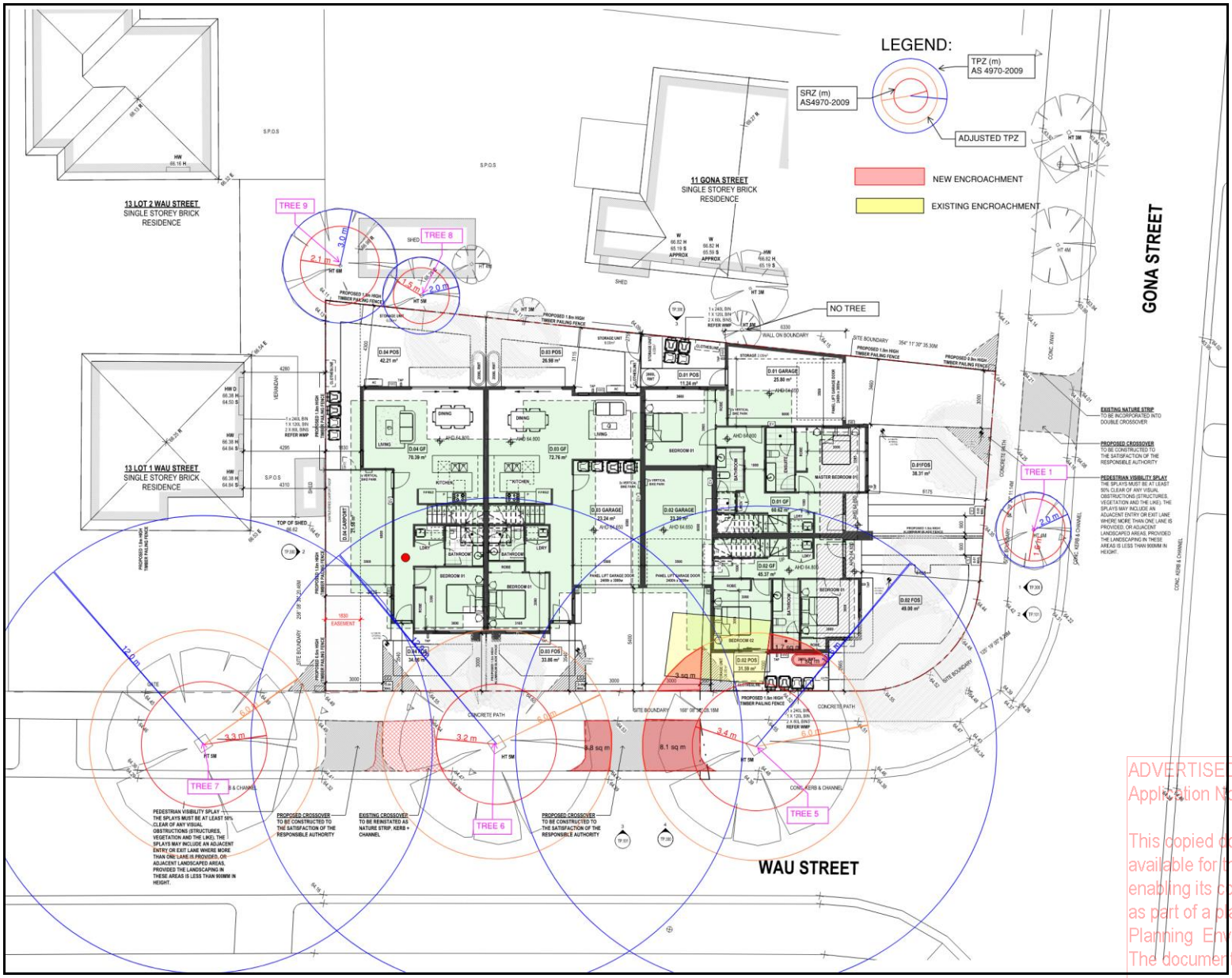
Tree 1 (Weeping Bottlebrush) is located in the nature strip in Gona Street. It is 4 metres in height, and is in good health. It has evidence of small branch failures in the past, and is in overall fair condition.

Trees 5, 6 and **7** are mature (Snow in Summer). They are located in the nature strip in Wau Street. They are in good health and condition, and have tightly bound stems, a typical trait for this species.

Tree 8 (Willow Bottlebrush) and **tree 9** (Bay leaf) are located in the adjoining property to the west. The are in good health and are displaying fair overall condition. **Tree 9** is suckering profusely at the base, which is a typical trait for this species.

The detail of each individual tree assessment is provided in the Tree Data Table in Appendix 1. These tree numbers correspond with the trees numbered on the Aerial Site Map and the Proposed Development Tree Impact Plan.

10. Proposed Development Tree Impact Plan.



11. Tree Retention Summary.

When assessing a site the arborist must exercise their experience and expertise with respect to the types of trees that are deemed suitable for retention. Trees that are to be preserved should continue to enhance the character of the area while being an asset to the site in the long term.

- Low retention value trees are generally unsuitable for retention.
- Medium retention value trees can be retained if the site constraints can accommodate their retention.
- High retention value trees are recommended for retention.
- Third party trees must be retained.

The following trees were assessed for their health, structure, condition and ULE. They have been given the following retention values:

- **Trees 2, 3, 4, 10, 11, 12** and **13** are of Low Retention Value. They are considered a liability to the site, as they offer little in terms of contributing to the future landscape for the reasons of poor health, structural condition, and/or species suitability.

- **Trees 1, 5, 6, 7, 8** and **9** are located in the adjoining properties. They *must be* retained and protected (not damaged) as they are third party property, unless the owners of the property give written approval to remove the trees, subject to council approval.

The trees that are to be retained throughout the development will require tree protection during construction. The best practice is to protect the trees by applying the apportioned Tree Protection Zones (TPZ) stated in Appendix 3 (Tree Protection Measures).

12. Proposed Development Tree Impact assessment.

12.1 Tree Removal subject site

Remove **trees 3, 4, 5, 6** and **8**. They all have a low retention value and a low landscape value. No subject site trees are worthy of retention, regardless of the development context.

12.2 No Development Encroachment

The development encroachment is outside of the TPZ area of the retained **trees 1, 8** and **9**, therefore zero impact will occur to their health. **Tree 8** is a small size tree located in a confined area. It would have a confined root system and not what is stated in AS4970-2009.

12.3 Major Encroachment (>10%).

Trees 5, 6 and **7** (Snow in Summer) are located within the council owned nature strip. The trees are small in size (8m high) and have stout trunks, a typical trait for this species.

The application of the Tree Protection Zone (TPZ) using the standard method under AS4970-2009 in this case is extensive and significantly overstated. For this small size tree (8m high) with its small canopy volume, it would not require the stated TPZ area (TPZ of 12m radius or 452.4m2).

In AS4970-2009, it provides the opportunity to encroach into or make variations to the standard Tree Protection Zone (Section 3.3 of AS4970-2009) by considering a range of factors. Amongst other factors, the arborist can consider the tree species and tolerance to root disturbance, age, vigour and size of the tree.

Prior to the introduction of AS4970 in 2009, Tree Protection Zones were mostly calculated by using a distance equal to half the tree height or the canopy width, whichever was greatest. This is a much more realistic approach for **trees 5, 6** and **7** as they are a stout tree species with a large trunk girth.

The Tree Protection Zone for **tree 5, 6** and **7** has been adjusted to 6m or 131.1m2, to reflect the characteristics of this species (6m radius = half the width of the canopy) (figure 3). On this basis of the adjustments to the Tree Protection Zone, the following encroachments will incur.

Tree 6 (Snow in Summer) will incur will incur a total TPZ encroachment of 3.3% from the crossover for unit 3. This is deemed minor and acceptable under AS4970-2009. Provided all excavations works are directly supervised by the project arborist and all exposed rots cut clean (Appendix 3).

Tree 7 (Snow in Summer) will incur zero impact to tree health, and will not be adversely affected.

Tree 5 (Snow in Summer) will incur a total encroachment of 12%. It will incur a 1.5% encroachment into the TPZ from dwelling 2, 0.8% encroachment into the TPZ from the water tank, 2.6% TPZ encroachment from unit 2's driveway, and the new crossover will incur a 7.1% encroachment into the SRZ area (figure 2). This is deemed major encroachment and requires a Non-Destructive Root Investigation (NDRI).

A Non-Destructive Root Investigation (NDRI) either by hand or by hydro excavation must be undertaken leaving all roots (>30mm diameter) intact. It must be undertaken along the alignment of the crossover to a depth of 400mm (figure 3) to quantify the extent of potential root loss. It must be inspected by a suitably qualified arborist (minimum AQF level 5). The arborist must photograph and document the NDRI location, with the depth and size of roots located to determine an outcome.

12.4. Non-Destructive Root Investigation.

A Non-Destructive Root Investigation (NDRI) for **Tree 5** *Melaleuca linariifolia* (Snow in Summer) was performed by hydro excavation on Monday 25th November 2024 by The Root Controllers. The NDRI was performed under the supervision of Chris Walshe, as per the marked up plan (figures 2 & 3).

A hydro trench was hand dug to 400mm deep and any exposed roots (>30mm in diameter) were left intact. They were marked in pink paint and recorded.

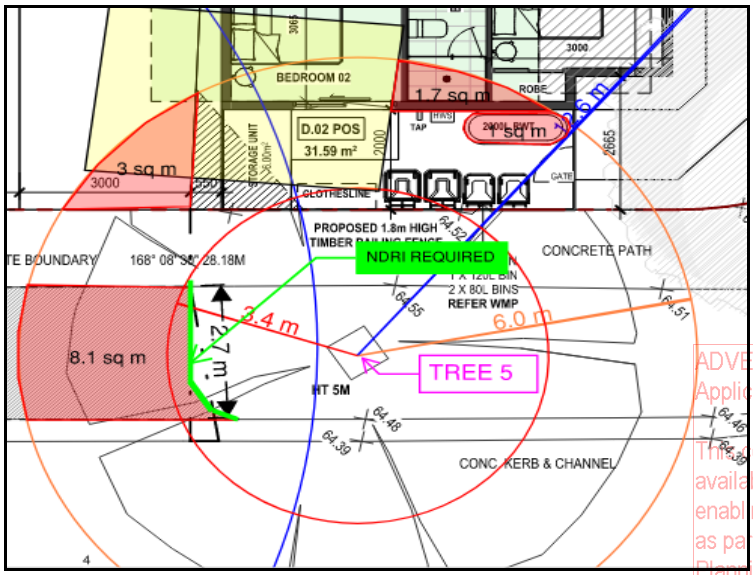


Figure 2: NDRI required at crossover location.

Figure 3: Tree 5 - Marked up location of the proposed crossover.

Figure 4: Photo taken from Wau street kerb.

Figure 5: Photo taken from the footpath.

12.5 FINDINGS.

Zero roots were located during the NDRI, only fibrous Kikuyu roots were located in top 50mm layer of grass (figure 4 & 5).

As zero roots were located during the NDRI, and given the exceptional tolerance of this hardy Australian native, tree health and anchorage will not be adversely affected. All excavations works must be directly supervised by the project arborist (Appendix 3).

13. Permit Requirements.

Under (VPO5), a planning permit is required to lop, remove or destroy zero assessed trees.
Trees 1, 5, 6 and **7** are protected under the Banyule Council Street Tree Policy.

14. Conclusions & Recommendations.

Thirteen (13) trees were assessed in this report. Seven (7) trees are located on the subject site and six (6) trees are located in third party properties. The proposal is to demolish the existing dwelling, and to construct four (4) double storey townhouses with associated works. All site trees are proposed to be lost. Excavation is required for the construction of two (2) new crossovers in Wau Street and one (1) new crossover in Gona Street.

- It is proposed to remove all the subject site vegetation, including assessed **trees 2, 3, 4, 10, 11, 12** and **13.**

- It is proposed to retain **trees 1, 5, 6, 7, 8** and **9.**

- **Tree 1, 5, 6** and **7** are council owned trees. Any pruning works must be performed by council or council approved contractors only, and contracted through the Banyule Council Park Department.

Under the proposed design, the following is required to occur as per *AS 4970-2009 'Protection of Trees on Development Sites'*.

- The development encroachment is outside of the TPZ area of retained **trees 1, 7, 8** and **9**, therefore zero impact will occur to their health.

- **Tree 6** will incur minor encroachment, less than 10% of the TPZ area, and according to AS4970-2009 this is deemed acceptable. The health and vigor of the tree will suffer little or no impact, and the tree will remain viable.

- **Tree 5** will have an encroachment greater than 10% of the TPZ area, and according to AS4970-2009 this is considered major encroachment. This amount of encroachment indicates that the trees health and anchorage maybe compromised. As demonstrated in the NDRI (12.4, page 7), zero roots were located in the proposed crossover location for unit 3, and the remaining encroachment will be 4.9% which is deemed minor and acceptable under AS4970-2009. All works within the TPZ/SRZ area are to be directly supervised by the project arborist (Appendix 3).

- Retained trees may be damaged by direct and indirect impacts. Implement tree protection fencing and measures, in accordance with *AS4970-2009 'Protection of Trees on Development Sites'* as per Appendix 3 in this report.

- Tree Protection Fencing and measures must be erected prior to commencement of any site works on retained trees, and once installed it must be maintained until the conclusion of works on retained trees. Tree Protection fencing prevents access and defines the TPZ given

for retained trees. If tree protection fencing is modified to facilitate construction it should be noted on plans and done in accordance with AS 4970-2009, and agreed to by the responsible authority. This will prevent storage of building materials, fill storage, within this area. TPZs are stated in Appendix 1 Tree Data Table.

- Any underground services like water, telephone, sewerage, electricity open trenches and entry pits must be located outside of the TPZ area of retained trees. If underground services or entry pits are to be routed within a TPZ area they must be installed by directional boring with the top of the bore to be a minimum depth of 600mm below the existing grade, or manually excavated by hand or by non-destructive digging (hydro-excavation) under direct arborist supervision with photographs and documented.

Chris Walshe
Managing Director & Consulting Arborist
(AQF Level 5 & 8)

I have thirty (30) years' experience in the field of Arboriculture, both as a practicing and consulting arborist.
Qualifications:
Graduate Certificate of Arboriculture (Melbourne University)
Diploma of Horticulture (Arboriculture).
Certified Arborist International Society of Arboriculture Member (ISA) Member # 210036 & Arboriculture Australia.
Tree Risk Assessment Qualification (TRAQ) International Society of Arboriculture (ISA) (2019-2024)
Victorian Tree Industry Organization (VTIO) Member

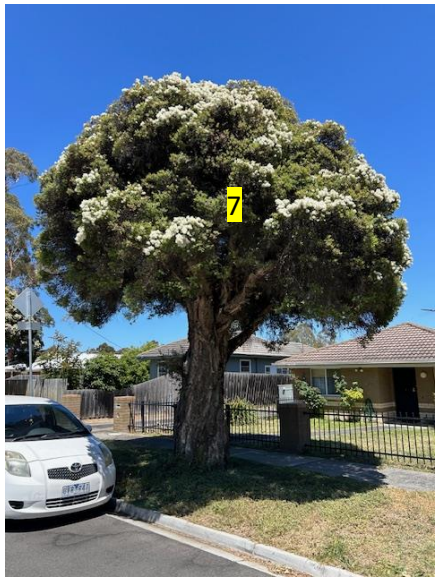
15. REFERENCES.

AS4970-2009 'Protection of Trees on Development Sites'. Australian Standards. Sydney, Australia.

AS4373-2007 'Pruning of Amenity Trees'. Australian Standards. Sydney, Australia.

Matheny, N & Clark, J, (1998). Trees and Development: A Practical Guide to Preservation of Trees during Land Development. ISA, Champaign, III, USA.

16. Photo of Selected Trees.



APPENDIX 1 … TREE DATA TABLE.

ID#	Botanical Name	Common Name	Origin	Age Class	Height X Width (m)	Health	Structure	Form	ULE	DBH (cm)	SRZ (m)	TPZ (m)	Retention Value	Comments
1	*Callistemon viminalis*	Weeping Bottlebrush	Australian	Mature	4x4	Good	Fair	Fair	Medium	12,11 =16	1.6	2	Third Party	Street Tree
2	*Ficus carica*	Common Fig	Exotic	Mature	4x4	Good	Fair	Fair	Short	*20	2	2.4	Low	
3	*Nerium Oleander*	Oleander	Exotic	Mature	4x4	Good	Fair	Fair	Medium	*25	2.1	3	Low	Weed Tree
4	*Callistemon viminalis*	Weeping Bottlebrush	Australian	Mature	5x4	Good	Fair	Fair	Medium	25	2	3	Low	Poor Location
5	*Melalueca linariifolia*	Snow In Summer	Australian	Mature	8x12	Good	Fair	Fair	Long	105	3.4	12.6	Third Party	Street Tree
6	*Melalueca linariifolia*	Snow In Summer	Australian	Mature	8x12	Good	Fair	Fair	Long	108	3.2	12.9	Third Party	Street Tree
7	*Melalueca linariifolia*	Snow In Summer	Australian	Mature	8x12	Good	Fair	Fair	Long	100	3.3	12	Third Party	Street Tree
8	*Callistemon salignus*	Willow Bottlebrush	Australian	Young	6x3	Good	Fair	Fair	Long	12	1.5	2	Third Party	Neighbours
9	*Laurus nobilis*	Bay Leaf	Exotic	Semi	7x5	Good	Fair	Fair	Long	*25	2.1	3	Third Party	Neighbours
10	*Fraxinus angustifolia*	Desert Ash	Exotic	Young	4x4	Good	Fair	Fair	Long	*10	1.5	2	Low	Weed Tree
11	*Callistemon viminalis*	Weeping Bottlebrush	Australian	Semi	5x3	Good	Fair	Fair	Medium	*15	1.5	2	Low	
12	*Lagerstroemia indica*	Crepe Myrtle	Exotic	Dead	4x3	Dead	Fair	Fair	Dead	14	1.5	2	Low	Dead
13	*Citrus japonica*	Kumquat	Exotic	Mature	4x2	Good	Fair	Fair	Medium	*12	1.5	2	Low	

*= tree with multi stem measurements. SRZ= Structural Root Zone, radius. TPZ= Tree Protection Zone, radius.
Weed Tree= Listed on *Banyule Council Weed Strategy List, 2006.*

APPENDIX…2 PROTECTION OF TREES AS PER AUSTRALIAN STANDARDS 4970-2009.

The Australian Standard AS 4970-2009 '*Protection of Trees on Development Sites'* is the preferred method of tree protection. This method places Tree Protection Zones (TPZ) that set the required area above and below ground for a tree to remain viable, and without damage to their delicate crown or root systems.

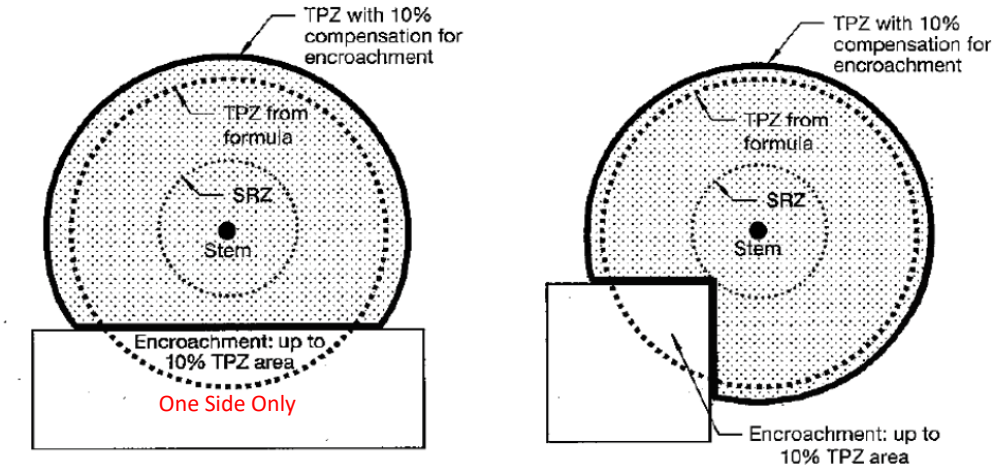
The TPZ is expressed as a radius in meters measured from the centre of the stem at ground level. When several protected trees are located close to one another, TPZ fencing may encompass several trees as a group rather than individually where possible.

Tree Protection Zones are areas set aside surrounding the tree, which are kept free from all construction disturbances. Some of the primary causes of tree decline or damage on construction sites are impact to the trunk and crown of the tree, and root damage or destruction from digging, trenching, compaction, changes to soil levels and dumping of waste.

Encroachment of less than 10% of the TPZ and outside the SRZ is deemed to be minor encroachment and acceptable according to AS 4970-2009. Variations must be made by the project arborist considering relevant factors including tree health, vigour, stability, species tolerance to construction and soil characteristics.

Encroachment of more than 10% of the TPZ, or into the SRZ is major encroachment. The project arborist must demonstrate that the trees would remain viable. Root investigation by non-destructive methods and consideration of relevant factors including tree health, vigour, stability, species, lean, existing conditions, tolerance to construction and soil characteristics.

SRZ encroachment must be avoided at all costs as this area is needed for the trees stability and is not related to tree health.



Example of TPZ encroachment and compensatory offset (image from AS 4970-2009)

Direct damage includes mechanical injury to the trunk, severing the roots through trenching and site cuts which remove or sever absorption roots allowing the onset of decay. Indirect damage to trees could be through soil compaction and by adding fill around trees which limits the amount of oxygen and moisture that will reach the roots. Without this moisture roots cannot function and this will lead to drought stress and eventually the tree will enter a mortality spiral eventually leading to its death.

Indirect effects of construction are usually related to soil hydrology. This includes alterations to soil moisture content, changes in the level of the water table and drainage patterns (Coder, 1995)

This may take several years to become evident in the tree canopy.

APPENDIX…3 TREE PROTECTION FENCING AND MEASURES.

Tree Protection Fencing:

- The Tree Protective fencing must be erected to form a visual and physical barrier, be a minimum height of 1.5metres and of chain mesh or similar fence with 1.8 metre support posts (eg. Concrete feet) every 3-4 metres including a top line of high visibility hazard tape erected around the perimeter of the fence.
- Fencing must comply with Australian Standards As4687-2007 *Temporary fencing and hoardings.*
- The fence must not be removed or relocated without the prior consent of Responsible Authority.

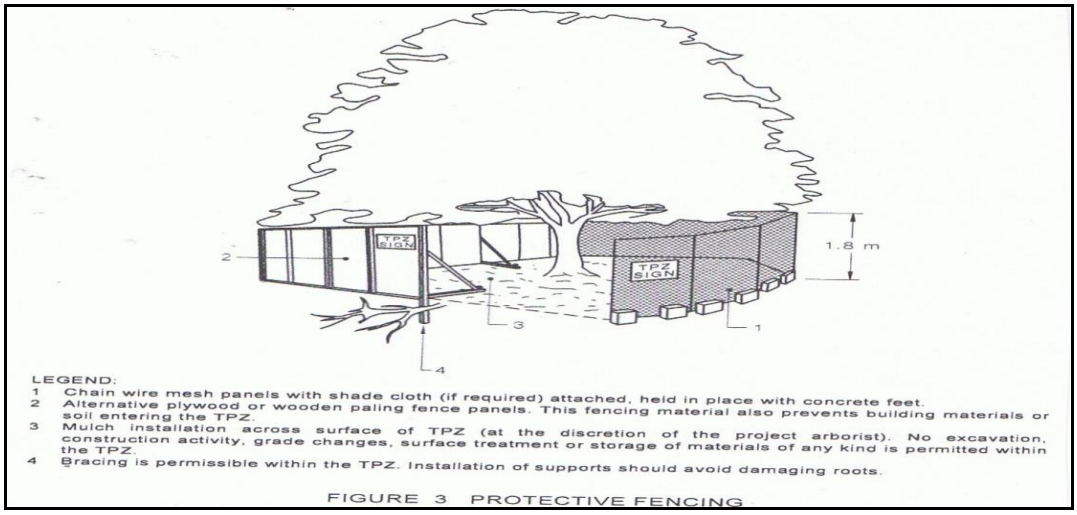


Image taken from AS4970-2009 Tree Protection Zone Fencing

Signage:

- Fixed signs are to be provided on all visible sides of the Tree Protection Zone Fencing clearly stating "Tree Protection Zone"- NO ENTRY, or similar wording, to the satisfaction of the responsible authority

  The sign should be similar to the following and should be no smaller than 600mm x 400mm.

Weed Control and Mulched within TPZ:

- Any weeds located within the Tree Protection Zone are to be removed and the area mulched with 75-100mm in depth of coarse grade arborist woodchip or like (Preferably arborist mulch), this will retain moisture and reduce the impact of compaction.

Irrigation:

- The TPZ area must be irrigated during the drier months (Oct- April) with 1 litre of clean water for every 1cm of trunk girth measured at the trunk/soil interface on a weekly basis.

Access to Tree Protection Zone:

- Should temporary access be necessary within the TPZ during the construction period, the responsible authority must be informed prior to relocating the fence (as appropriate ground protection measures must be implemented).

Tree Protection Zone Restrictions:

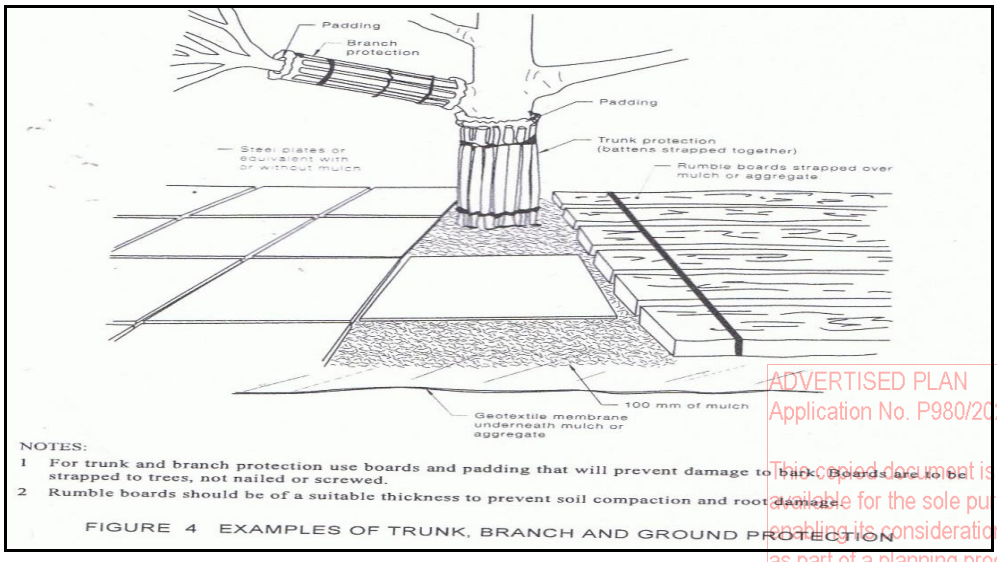
- No building materials or equipment stored within the TPZ area.
- No Servicing and refueling of equipment and vehicles
- No storage of fuel, oil dumps or chemicals
- No attached of any device like nails, screws or temporary services fixed to the tree trunk.
- No open cut trenches or excavation works (whether or not laying services)
- No changes to the existing soil grade.
- No temporary buildings and works and any unauthorized entry by any person, vehicle or machinery.

Provision of Services:

- Unless with prior written consent of the responsible authority, all services (Including water, electricity, gas and telephone) must be installed underground, and located outside of any Tree Protection Zone to the satisfaction of the responsible authority.
  or
- All services including water, electricity, gas and telephone) should be installed underground and located outside of any Tree Protection Zone, wherever practically possible. If underground services are to be routed within an established Tree Protection Zone, they must be installed by directional boring with the top of the bore to be a minimum depth of 600mm below the existing grade, to the satisfaction of the responsible authority.

Ground Protection:

- If the area within the TPZ is to be accessed during construction phase then the area will need ground protection. Boarding made out of Hardwood at least 5cm thick should be strapped together. Measures may include a permeable membrane, such as a geotextile, to cover the TPZ area and ideally placed over a layer of mulch or coarse gravel at 100mm thick to prevent soil compaction.



NOTES:
1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

Example of Trunk, Branch & Ground Protection Measures (Extract Images from AS4970-2009.)

Management of Works:

- A suitably qualified Arborist (AQF Level 5 or higher) must supervise or undertake all approved activity within the calculated Tree Protection Zone of a retained tree.
- Any root severance within the Tree Protection Zone must be undertaken by the Project Arborist only using a clean, sharp sterile pruning saw or secateurs.
- There must be no root pruning in the Structural Root Zone (SRZ) unless consent is received in writing from the responsible authority and there must be no root pruning with the Tree Protection Zone for works other than those endorsed by the responsible authority.
- All and any excavations within the Tree Protection Zone of retained trees must be undertaken by hand or dug by approved non destructive techniques (like Hydro Excavation) suitable within the vicinity of trees in accordance with AS4373-2007 '*Pruning of Amenity Trees'* and must only be undertaken by or under direct Arborist supervision by a suitably qualified arborist for endorsed works or for works subsequently approved by the responsible authority.

Tree Pruning:

- Any and all pruning works must be carried out by a qualified Arborist (minimum AQF Level 3 or greater) in accordance with AS4373-2007 '*Pruning of Amenity Trees'.*
- It must be undertaken in accordance with necessary permissions and must be restricted to the removal of no greater than 15% of the total live canopy (Unless permits indicate otherwise). Photos may be required to mark up pruning target points in the report for approval from the responsible authority.

Landscaping:

- All landscaping within the Tree Protection Zone radii must be on the existing soil grade and with minimal impervious surfaces.
- No vehicles, machinery are to enter the Tree Protection Zone Area unless adequate ground protection measures are implemented.
- All post holes for planting must be dug by hand and any roots greater than 40mm encountered the hole should be offset to avoid root damage or severance.

APPENDIX 4… TREE DESCRIPTORS.

Status	Description:
Exotic	Tree species originates in a country other than Australia.
Australian Native	Tree species originates within Australia.
Victorian Native	Tree species originates within Victoria, but not within local environment. Could be planted and not indigenous a (component of EVC benchmark)
Indigenous	Tree species originates within the local environment, could be remnant. (component of EVC benchmark)
Palm	A woody Monocotyledon not a woody structure.

Age	Description:
Young	Juvenile or recently planted approximately 1-7 years.
Semi Mature	Tree actively growing.
Maturing	Tree has reached expected size in situation.
Senescent	Tree is over mature and has started to decline.
Dead	Tree is dead

Health	Description:
Good	Foliage of tree is entire, with good colour, very little sign of pathogens and of good density. Growth indicators are good i.e. extension growth of twigs and wound wood development. Minimal or no canopy die back (deadwood).
Fair	Tree is showing one or more of the following symptoms; < 25% dead wood, minor canopy die back, foliage generally with good colour though some imperfections may be present. Minor pathogen damage present, with growth indicators such as leaf size, canopy density and twig extension growth typical for the species in this location.
Poor	Tree is showing one or more of the following symptoms of tree decline; > 25% deadwood, canopy die back is observable, discoloured or distorted leaves. Pathogens present, stress symptoms are observable as reduced leaf size, extension growth and canopy density. Woundwood development is not apparent.
Dead/Dying	Tree is in severe decline; > 55% deadwood, very little foliage, mostly epicormic shoots, minimal to no extension growth.

Structure	Description:
Good	Trunk and scaffold branches show good taper and attachments with no defects evident in trunk or branches. Primary limbs are well defined with balanced crown. Tree is a good example of the species with a well-developed form. Unlikely to suffer trunk or branch failure under normal conditions.
Fair	Tree shows some minor structural flaws in the structure of the crown. The crown may be slightly Asymmetrical with some branch unions exhibiting minor structural flaws. If one stem may be on a slight lean from tree aspect or exhibiting minor structural flaws. Typical for its specie.
Poor	Is a poorly structured crown, with major structural defects, damage to trunk, large cavities and decay. Co-dominant stems could be present, with included bark or poor structure with likely points of failure. Branch unions may be poorly attached or with major faults at attachment. Possible root damage may occur.
Hazardous	Tree is an immediate hazard with poor crown, active cracks in unions, root plate heaving/lifting or damaged with potential to fail, this should be rectified '*as soon as possible*' or fenced off immediately.

Form	Description:
Good	Canopy full and symmetrical canopy spread and trunk form. Pruning has be done in accordance to AS4373-2007. Typical for its specie
Fair	Minor asymmetry or slightly overextended and/or weighted limbs with evidence of pruning undertaken to accordance of AS4373-2007. Considered typical for species in situation.
Poor	Major asymmetry and/or misshapen not typical for species, Could be storm damaged or had significant structural failures that has compromised structural integrity. Could also be stump re-growth from cut tree.

Useful Life Expectancy (ULE)	Description:
Long (25+ years)	Generally a young to semi mature tree or a moderate to long lived specie. Trees that are in fair-good condition and is structurally sound with a low hazard potential and well suited to its growing environment and future growth requirements. Trees could be of special significance for historical, culturally, or rarity reasons that would warrant extra efforts to secure its long term retention
Medium (11-25 y)	Tree is displaying normal growth characteristics and/ or growing in a modified environment that will likely provide useful Amenity for 11-25 years. It may be in fair condition with a moderate lifespan combined with appropriate management can remain an asset in the landscape for the next 11-25 years.
Short (6-10 years)	Trees is exhibiting fair to poor health with low levels of canopy density typical for specie. It's not expected to maintain current density levels or improve health levels. It provides limited amenity for no more than 10 years due to environmental stresses, pest or diseases, poor site conditions or indirect damage. Could be a short lived species or storm damaged or defective trees that can be made suitable for retention by practicable pruning practices or to remain as a habitat tree.
Remove(1-5 years)	Trees that appear to be an increased risk level that would need to be removed within the next for 5 years. Chronic decline in canopy with >50% typical canopy density, could be mostly epicormics growth related to environmental stresses, pest or diseases, poor site conditions or indirect damage. Structural defects of branch unions that may have poor attachments or faulty and may predispose to failure.
Dead (<1 year)	Tree is dead or mostly dead and should be generally removed as it cannot be managed in short term. Tree has no amenity value and is considered a hazard in its location. Remove and Replace.

Retention Value	Description:
High	Trees with the potential to positively contribute to the site due to their botanical, horticultural, historical or local significance in combination with good characteristics of structure, health and future development. Every effort should be made to retain tree.
Medium	Trees with some beneficial attributes that may benefit the site in relation to botanical, horticultural, historical or local significance but may be limited to some degree by their future growth potential at the site by maintenance requirements now or in the future. These trees should be considered for retention if possible within the development design or removed depending on design preference.
Low	Trees that offer little in terms of contributing to the future landscape for the reasons of poor health or structural condition, species suitability in relation to unacceptable growth habit, noxious, poisonous or weed species or Short-Remove ULE or a combination of these characteristics. Recommend for removal.
Third Party	Third Party Trees must be retained and protected as they are **not** located on the subject site. Ownership maybe classified as residential or council owned. Despite where ownership lies, these trees must be retained and protected including the roots beneath the surface even if they extend into the subject site.

Diameter at Breast Height (DBH)	The trunk diameter of the tree measured with a (yamano) diameter tape at 1.4 metres above grade.
Structural Root Zone (SRZ)	The SRZ is calculated from the diameter of above the root flare or tree base at grade. It is the volume of soil and tree roots required for the tree stability. Excavation or damage to this area may cause severe decline, death or lead to catastrophic tree failure from wind throw. It is not related to tree health. The measurement is given in meteres in a radius from the centre of tree.
Tree Protection Zone (TPZ)	The TPZ is an area that is required for the tree to remain viable (healthy). It is referenced in AS 4970-2009 and is an area fenced off from construction or works around the tree in order for it to survive and thrive in its ground environment. It is calculated as 12 times the trunk diameter, taken at 1.4 metres above grade (DBH). The measurement is given in meteres in a radius from the centre of tree.

Assumptions and Limiting Conditions

Any legal description provided to CHTS is assumed to be correct. CHTS assumes any title and ownership to any property are correct. No responsibility is taken for matters outside the control of CHTS.

Climbing High Tree Services assume that any property or project is not in violation of any applicable codes, standards or Responsible Authority regulations.

Climbing High Tree Services has taken care in obtaining all information from reliable sources. All data has been verified in so far as possible, however CHTS can neither guarantee nor be responsible for the accuracy of the information provided by others not directly under the control of Climbing High Tree Services.

No Climbing High Tree Service employee shall be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of additional fee for such services.

Alteration of any part of this report not undertaken by CHTS invalidates the entire report.

The report is to be read as a complete document. Loss of any part of this report invalidates the entire report.

The report or contents of this report shall not be used, or published, by any party except the person/s to whom it is addressed, without written approval from Climbing High Tree Services.

This report and any values expressed herein represent the opinion of CHTS consultant and any fee charged by CHTS is in no way conditional on the reporting of a specified value, a stipulated result, the occurrence of a subsequent event or upon any finding report.

Sketches, Diagrams, Graphs and photographs in this report, being intended as visual aids, are not necessary to scale and should not be construed as engineering or architectural drawings, reports or surveys.

CHTS denotes= Climbing High Tree Service.

ENRATE
(Aust) Pty Ltd
ACN 142 154 381
Energy Efficiency Solutions

Proposed Class 1 Development

Site Address: **9 Gona Street, Heidelberg West Vic 3081**.

Customer: **M3 Group**

Application No: TBA

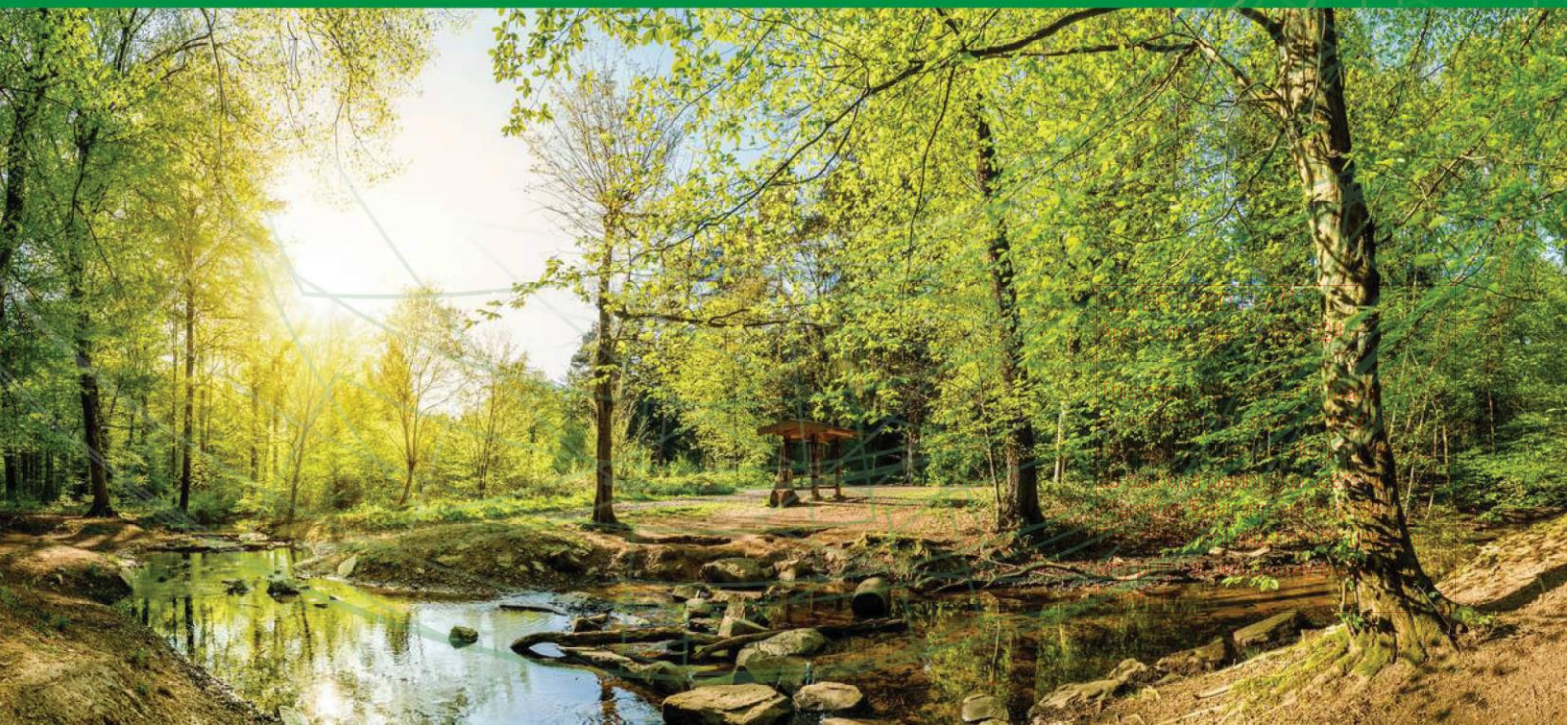
Date: **04 October 2024**

Report No: **EN2407**

Version No: TP Final v1

Prepared By: Nadim Yaacoub (B.Sc.)
Enrate (Aust) Pty Ltd

SUSTAINABLE DESIGN ASSESSMENT

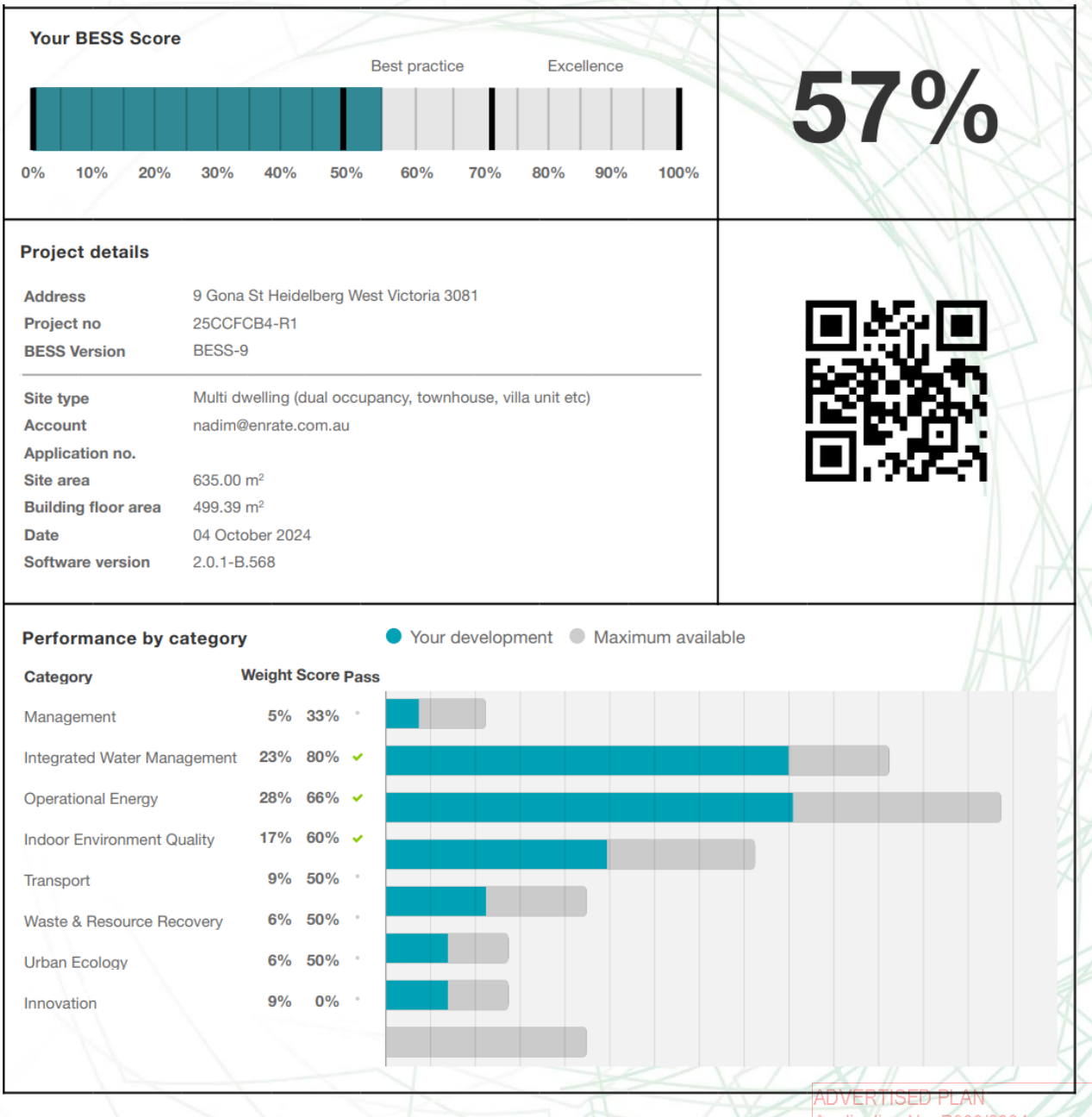


PREFACE

This Sustainable Design Assessment (SDA) has been provided for the Town Planning application of the proposed Class 1 development at 9 Gona Street, Heidelberg West Vic 3081. The assessment is based on Town Planning – drawings Dated: September 2024.

This SDA is consistent with Banyule Council – Sustainable Design Assessment in the Planning Process (SDAPP) guidelines for a development of this type and size.

This assessment demonstrates that this development achieves compliance to Sustainability Best Practice standards through a number of environmentally sustainable design initiatives and as a result will have a positive overall environmental impact.
This development achieves an overall BESS Score of **57%** (Best Practice) with the following category scores.



Please Note: It is the responsibility of the applicant / permit holder to advise Enrate (Aust) of any changes to these specifications made prior to or during construction. In such instances the assessment will need to be revised and new reports issued where required.

Enrate (Aust) Pty Ltd
16 Norway Avenue
Blackburn North VIC 3130
M 0448 75 33 55
E admin@enrate.com.au
W www.enrate.com.au

If you have any questions regarding these outcomes, please do not hesitate to contact our office on 0448 753 355.

Yours sincerely

Nadim Yaacoub (B.Sc.)

M: 0448 75 33 55
E: nadim@enrate.com.au

DISCLAIMER

Contents

Enrate (Aust) Pty Ltd
16 Norway Avenue
Blackburn North VIC 3130

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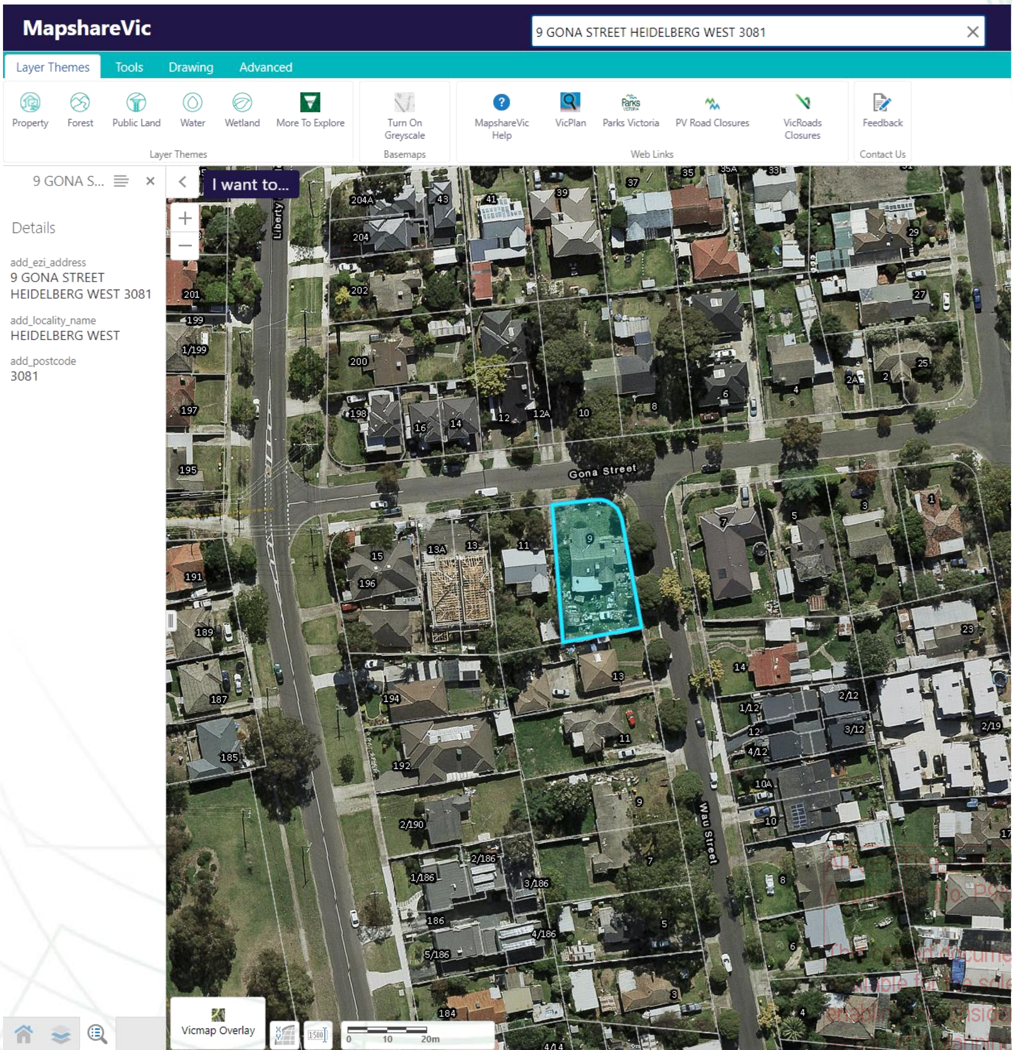
Site Description

Total Site Area: 635.64 m^2

The proposed site currently contains a single storey brick dwelling with a pitched tiled roof. Existing building to be demolished in full and site cleared to accommodate the proposed development.

Site orientation as per the Department of Land, Water, Environment & Planning Mapshare website is as follows and is consistent with the North orientation on the plans.



1. Management

This section encourages early engagement of the ESD professional including the pre-application meeting with Council, ensuring initiatives are relevant and built into the design. In addition, preliminary Energy Efficiency assessments are encouraged at planning stage to assist with the building design. This process ensures sustainability initiatives are relevant to the site and built into the design from the start, minimising any delays due to any changes required down the track.

BESS Score: 33%

Objective	Strategies
ESD Professional • Improved sustainability of buildings and reduced construction costs.	• ESD consultants – Enrate (Aust) Pty Ltd have been engaged to provide sustainability advice but have not been involved in pre-application meetings with council.
Thermal Performance Modelling • Assists in passive design and mitigating issues at Building Permit stage.	• NATHERS Energy Efficiency assessments were carried out on all dwellings by Enrate (Aust) Pty Ltd. Dwellings achieved a minimum 7 Star rating and an overall BESS development average of 7.2 Star. • All external windows and glazed doors to be Aluminium Double Glazed Low e Clear.

2. Integrated Water Management

Water is a precious resource that requires careful management to ensure adequate 'fit for purpose' supply into the future as well as reduce usage costs. This can be achieved through strategies that focus both on minimising use as well as adequate rainwater harvesting & re-use.

This development achieves minimum stormwater management and water efficiency via the initiatives listed below, resulting in a reduction in pollutant load and flow rate into the main stormwater system. Water Sensitive Urban Design initiatives are provided below which address Darebin Council Planning Scheme Clause **53.18 – Stormwater Management in Urban Development**; subsection ***53.18-5 – Stormwater Management (Standard W2)*** and ***53.18-6 – Site Management (Standard W3)***.

The overall purpose of these regulations is to ensure urban stormwater, including retention and re-use is effectively managed to minimise the impact of stormwater on the environment, property and public safety, and be used to create local habitat, amenity, and contribute to urban cooling.

BESS Score: 80%

Objective	Strategies
Water Efficient Appliances & Fittings • Reduce amenity water costs. • Conserve a valuable resource.	**Shower Heads:** 4 Star WELS rated >6.0 L/min but <=7.5 L/min. **Toilets:** 4 Star WELS rated **Bathroom / Kitchen Taps:** 5 Star WELS rated **Bath (D3, D4 Only):** Medium - Contemporary **Dishwashers:** Default or Unrated **Washing Machines:** Occupant to Install
Water Efficient landscaping	• Water efficient plants to be incorporated into the landscape design and where possible be nominated as native species to the Banyule area. Refer to Council for guidance on plants. • Water efficient irrigation system to be installed & have a rain shut-off device.

53.18-5 – Stormwater Management (Standard W2)

Objective	Strategies
Onsite Stormwater Management & Re-use • Reduce water usage and the 'load' on main SW system.	**Retention & Re-Use** • **Rainwater Tanks:** Total of 8,000L Rainwater tank capacity to be installed to serve as catchment for a total of 342.2m^2 of roof area and be connected to all sanitary flushing systems. Refer to breakdown below.

	RWT Capacity (L)	Roof Area Connected to RWT (m^2)
Dwelling 1	2000	81.1
Dwelling 2	2000	67.4
Dwelling 3	2000	99.0
Dwelling 4	2000	94.7
Total	**8000**	**342.2**

• Estimated water usage per week for toilet flushing is between 525L & 656L per dwelling. Therefore, the proposed rainwater tank capacity to each dwelling provides between 3.05 & 3.81 weeks supply for toilet flushing.

	Total Occupants#	Average flushes per person per week *	Av. Litres / Flush (4 Star WELS^)	Litres / Week	Weeks Supply
Dwelling 1	4	35	3.75	525	3.81
Dwelling 2	4	35	3.75	525	3.81
Dwelling 3	5	35	3.75	656	3.05
Dwelling 4	5	35	3.75	656	3.05
Total	**18**	**35**	**3.75**	**2363**	**3.39**

Residential Occupancy assumed as 2 persons for 1st Bedroom and 1 person per bedroom thereafter.
* City of Melbourne – Household Water Use Calculator
^ 4 Star WELS Toilet - 4.5L/3L flushes. Average = 3.75L/Flush.

	Trafficable Areas: • Driveways, Paths/Paving and Dwelling 1 & 2 Balconies to be discharged directly to mains stormwater system and remain untreated. Refer to ***Appendix 2*** for STORM report full detail, plan mark-up and maintenance schedule.
Local Habitat & Cooling	• Any proposed irrigation system must be water efficient, and have a rain shut-off device. • Landscaping to be provided, must use drought tolerant local indigenous plants where possible.
Pollutants	**Bin Washing:** • Bins must be washed on grassed areas onsite to avoid contaminated water discharge into the main stormwater system.

53.18-6 – Site Management (Standard W3)

Objective	Strategies
Protection of Drainage Infrastructure, Site & Surrounding Areas	**During Construction:** • Stormwater pollution reduction strategy for the building during construction works to be prepared by the developer. Document to outline initiatives to eliminate contaminated stormwater run-off during construction and to nominate persons responsible for ensuring implementation. • **Bins** to be provided on-site for construction waste. Construction waste must not be buried or disposed of on-site. All construction waste must be disposed of or removed by qualified contractors. • **Paint & Solvent waste** to be discarded appropriately as per manufacturer recommendations, by using paint waste hardeners or via the 'Paintback' recycling scheme. Paint or solvent waste must not be disposed of down drains or on-site.    • **Construction Materials** should be stored appropriately under cover or in containers to ensure minimal run-off into main stormwater system or the ground on site. • **Temporary down pipes** are to be installed and to be connected to main stormwater system once roof cladding is installed.

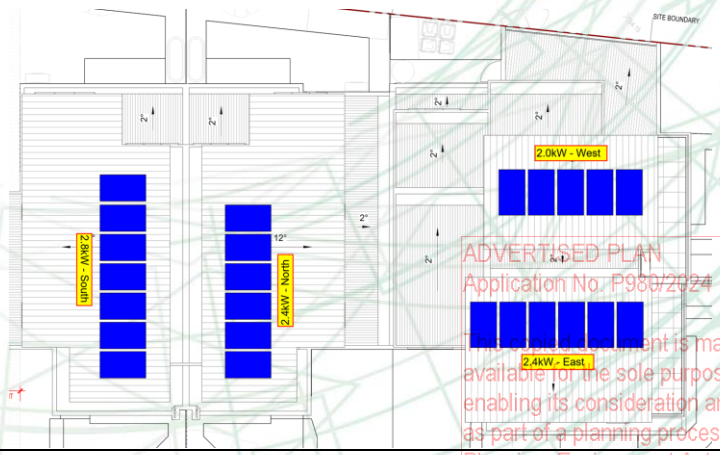
	 • Cross-overs, footpaths and roads to be swept up daily to ensure any soil, loose material and mud is removed from the road and footpaths, so that it does not end up in the mains stormwater system. • Temporary sediment traps/diversion systems to be installed around drains located near the site in street gutters and onsite during construction to stop any pollutants, sediment and soil run-off from the site going into main stormwater system. Examples of system types shown below.   **<u>During Operation:</u>** • Hazardous waste must be disposed of appropriately and must not be discarded down drains.
Maintenance Requirements	• Inspect internal fittings and external pipes for leaks and other damage that may be affecting their efficient operation. This is to be done after 12 months and then as needed after that. • Gutters, downpipes and any drains to be inspected and cleaned of any debris annually. • **Rainwater tank** to be inspected and maintained regularly as per manufacturer requirements. A General Maintenance Schedule and Log is provided in ***Appendix 2***.

3. Energy

Greenhouse gas (GHG) emissions from the Residential Sector accounted for 13% of Australia's greenhouse gas emissions in 2020-21 ***(Source: National Greenhouse Accounts 2021: https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-accounts-2021/national-inventory-by-economic-sector-2021)***. Further reductions in GHG emissions from this sector is required to achieve a Nationally Determined Contribution of 43% reduction by 2030 and Net Zero by 2050 targets. In addition, Energy Efficient and Sustainable buildings improve occupant health & well-being, increase productivity and reduce operating costs.

The proposed works will result in dwellings that meet minimum Energy Efficiency regulations resulting in reduced Energy usage based. This is based on the initiatives listed below and outlined in the Energy Efficiency report provided in ***Appendix 3***.

BESS Score: 66%

<table>
<tr><th>Objective</th><th>Strategies</th></tr>
<tr><td>Electrification</td><td>• All Electric Development proposed. No gas connection.</td></tr>
<tr><td>Maximise Thermal Performance
• Reduced energy consumption.
• Occupant comfort.
• Reduced operating costs.</td><td>• First Rate 5 software was used to determine Energy Efficiency compliance requirements. Assessments were carried out on all dwellings based on town planning drawings and NCC 2022 & Whole of Home (WoH) compliance.
• Star Rating Outcomes to an average of 7.2 Star across the development. Refer to table below.
<table>
<tr><th>Dwelling</th><th>Star Rating</th><th>Total Energy</th><th>Heating Load</th><th>Cooling Load</th></tr>
<tr><td>1</td><td>7.0</td><td>84.7</td><td>65.3</td><td>19.4</td></tr>
<tr><td>2</td><td>7.2</td><td>80.9</td><td>61.2</td><td>19.7</td></tr>
<tr><td>3</td><td>7.4</td><td>73.9</td><td>57.6</td><td>16.3</td></tr>
<tr><td>4</td><td>7.1</td><td>82.3</td><td>65.5</td><td>16.8</td></tr>
<tr><td>Average</td><td>7.2</td><td>80.5</td><td>62.4</td><td>18.1</td></tr>
</table>
• Double Glazed Clear Low e windows and sliding doors to all Dwellings. Refer to Energy Rating report in ***Appendix 3*** for performance details.</td></tr>
<tr><td>Energy Efficient Appliances
• Reduced energy consumption & Cost.</td><td>• Hot Water to be supplied by an electric instantaneous system to each dwelling.</td></tr>
<tr><td>Solar PV System</td><td>• Minimum total of 9.6kW Solar PV systems to site, D1 – 2.0kW (5 x 400W), D2 & D3 – 2.4kW (6x400W) and D04 – 2.8kW (7 x 400W) to be installed to generate electricity to offset part of electricity requirements. BESS confirms that a total of 9.6kW system capacity will provide approx. 68% of the estimated sites electricity needs.
• PV system to each dwelling to be installed as per orientation of pitched roof for each dwelling.

</td></tr>
</table>

<table>
<tr><td></td><td>

PV system must be manufactured to Australian Standards.
System must be installed in compliance with the following installation standards (Source: Clean Energy Council – PV Fact Sheet):

AS4777 – Grid-connections of energy systems via inverters
AS/NZS3000 – Electrical wiring rules
AS1768 – Lightning protection
AS/NZS1170.2 – Wind loads
AS/NZS5033 – Installation of photovoltaic (PV) arrays.

</td></tr>
<tr><td>Heating & Cooling</td><td>

Space Reverse Cycle to Living Rooms & Bedrooms - Variable Capacity.

Min. Heating Efficiency - HSPF Value = 2.5 (1.0 Star)
Min. Cooling Efficiency - TCSPF Value = 3.50 (2.0 Star)

</td></tr>
<tr><td>Clothes Drying Facilities</td><td>

Private outdoor clothes drying facilities are proposed to each dwelling in POS.

</td></tr>
<tr><td>Energy Efficient Lighting
• Reduced energy consumption & operating costs.</td><td>

Energy Efficient – LED & Fluorescent lighting to be installed throughout each dwelling. The average Illumination Power Density for each dwelling to achieve a 20% reduction on NCC 2022 Volume 2 – Part 13.7.6(1) maximum allowances. Refer table below.

<table>
<tr><th>Space</th><th>NCC Requirement</th><th>BESS Allowance - 20% Reduction</th></tr>
<tr><td>Class 1 Dwelling</td><td>5 W/m^2</td><td>4 W/m^2</td></tr>
<tr><td>Outdoor Living</td><td>4 W/m^2</td><td>4 W/m^2</td></tr>
<tr><td>Class 10a Garage / Carports</td><td>3 W/m^2</td><td>3 W/m^2</td></tr>
</table>

External perimeter lighting to be controlled by motion sensors.

</td></tr>
<tr><td>Building Sealing
• Reduced energy consumption.
• Occupant comfort.
• Reduced operating costs.</td><td>
The dwellings must be constructed to an acceptable level of air tightness as per NCC requirements. The following areas need to be addressed during construction:

All external doors to be fitted with draught inhibiters.
Windows and glazed doors to be fitted with weather seals.
Internal linings to be installed so that it they are close fitting at ceiling, wall and floor junctions, or sealed by caulking, skirting, architraves, cornices or the like.
Construction gaps & cracks around doors, windows and service penetrations to be sealed.
Exhaust fans to be self-closing (fitted with a ‘draftstoppa’ or similar).

</td></tr>
</table>

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4. Indoor Environment Quality

This section was assessed based on the proposed design and materials as outlined in the Planning Drawings. Strategies are being implemented as part of the proposed works to provide a comfortable and healthy indoor environment and help reduce the burden on building services such as artificial lighting, heating and cooling.

BESS Score: 60%

Objective	Strategies / Design Initiatives
Thermal Comfort • Reduce reliance on mechanical Heating & Cooling.	• Double Clear Low e glazing to be used as per requirements of energy efficiency assessments for all dwellings. • 100% of dwellings have an external window to bedrooms & Living areas.
Natural Ventilation • Maintain indoor air quality and reduce reliance on mechanical ventilation.	• Aggregate ventilation openings to all Class 1 habitable rooms are to be >5% of the floor area served as required by the NCC Volume 2 – Part 10.6. • Effective Cross-flow ventilation is provided to Dwellings 1 & 2 with breeze pathways <15m and pass through one doorway only. Dwellings 3 & 4 do not pass due to Bed 2 & 3 in Dwelling 3 and Bedroom 2 in Dwelling 4. Refer to ***Appendix 4*** for plan mark-up. • Where the breeze path travels through an internal door, that door must be provided with door catches.
Non-Toxic materials • Reduce use of products with high carcinogens in the manufacturing process. • Occupant health and wellbeing.	• Low VOC paints to be used for both internal and external finishes. • Floor coverings such as underlays, carpet and timber to be sourced as low VOC products where practical. • Sealants and adhesives used during construction to be Low VOC products where available and appropriate for the application.
Sustainable Materials	• Where timber is proposed in the construction, commitment to use only sustainable timber products with third party certification through schemes such as Forest Stewardship Council (FSC) or Australian Forest Certification Scheme (AFSC), sourced as plantation timber. Refer to ecospecifier or GECA websites for compliant products and suppliers. • Development to use only E1 or E0 grade engineered wood products (eg. MDF, Plywood, Engineered Wood Flooring). • Where possible and applicable, recycled steel should be used in the construction.

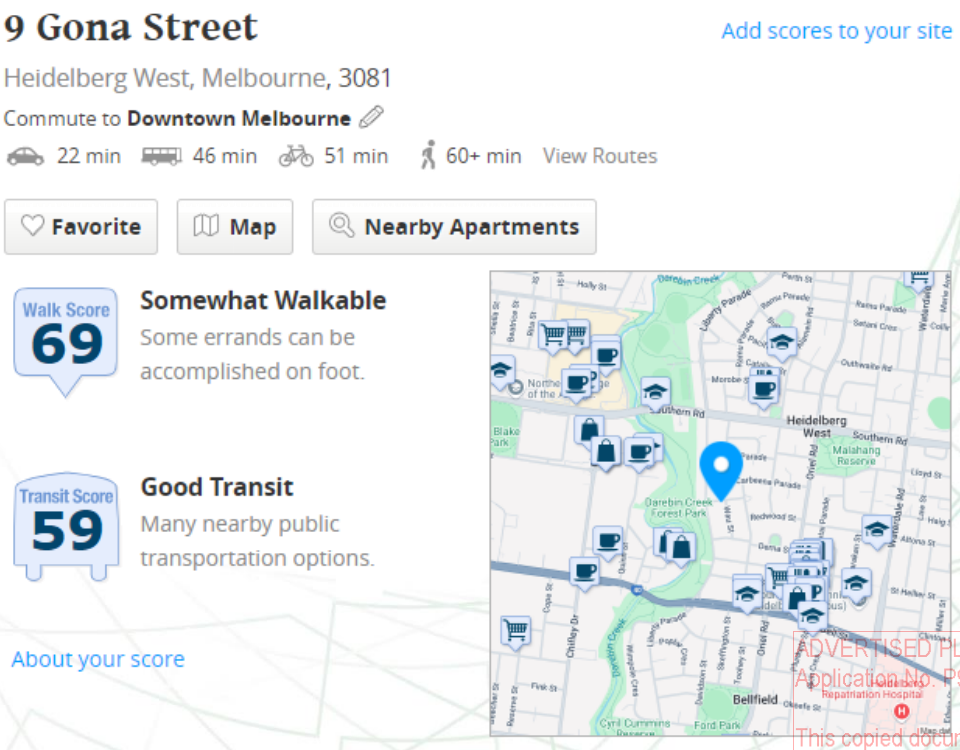
5. Transport

Reducing greenhouse gas emissions is critical. This can be supported through electric vehicles, access to public transport or encouraging bicycle use.

BESS Score: 50%

Objective	Strategies
Electric Vehicle Infrastructure	• EV ready infrastructure to be provided to each dwelling Garage. Wiring & Switchboard to support a Level 2 / Mode 3 (32Amp) type charging point. **Level 2 / Mode 3** A dedicated AC EV charger at up to 22kW (32 Amp, 3-phase). Typically installed in homes, apartment complexes, workplaces, shopping centres, hotels, etc – anywhere the vehicle will be parked for a while. This method will add 40 to 100km of range per hour of charging depending on the vehicle. It will top up average daily vehicle use in an hour, or deliver a full recharge overnight.
Bicycle Parking	• None proposed.

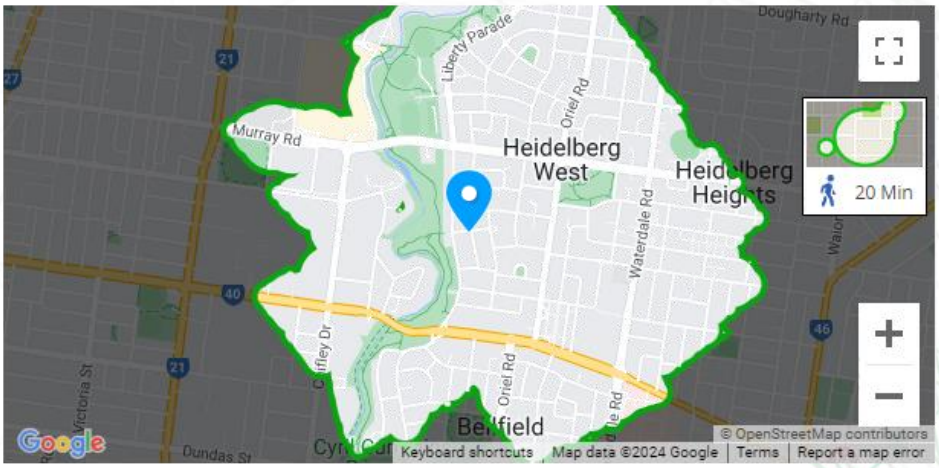
This site has a 69% Walk Score – classified as a 'Somewhat Walkable' area where most day to day errands can be accomplished on foot and 59% Transit Score – Classified as 'Good Transit'.



Travel Time Map

Add to your site

Explore how far you can travel by car, bus, bike and foot from 9 Gona Street.

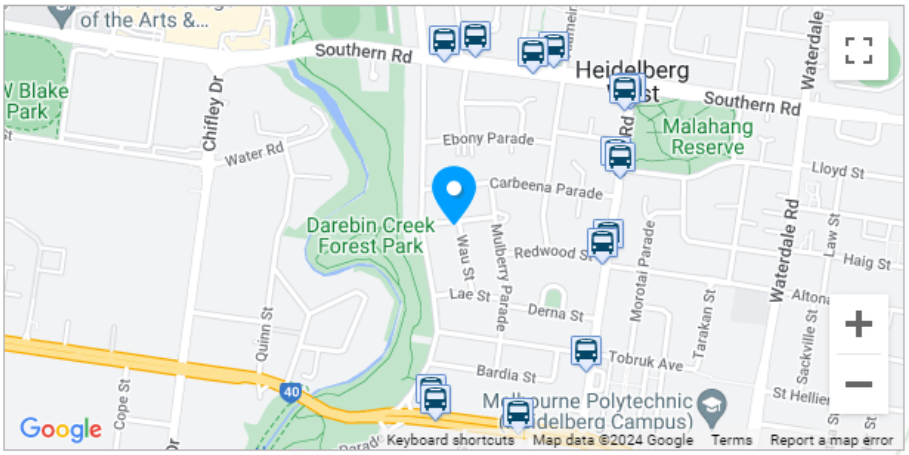


Good Transit

Transit Score 59

Add to your site

9 Gona Street has good transit which means many nearby public transportation options.



Rail lines:

86 Bundoora RMIT - Waterfr...	2.4 km

Bus lines:

350 La Trobe University - Cit...	0.4 km	549 Ivanhoe - Northland SC	0.4 km
250 City (Queen St) - La Tro...	0.4 km	903 Altona - Mordialloc	0.4 km
517 Northland SC - St Helena	0.4 km	513 Glenroy - Eltham	0.5 km
955 City - Mernda	0.5 km	550 La Trobe University - N...	0.6 km

Less ▲

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6. Waste & Resource Recovery

A high percentage of recyclable construction waste currently ends up in landfill. It is also important to consider the ongoing operational waste of the building. Having a waste management plan during construction and building operation is critical in reducing landfill requirements and ongoing operational waste generation.

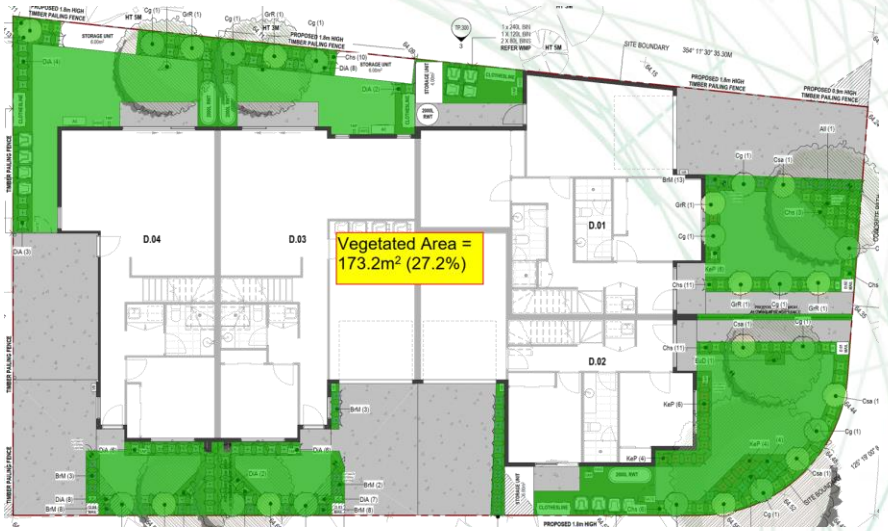
BESS Score: 50%

Objective	Strategies
Construction Waste Management • Reduced waste to Landfill. • Construction waste accounts for approximately one third of the landfill requirements.	• Bins to be provided on-site for separation of construction waste material such as but not restricted to paper, plastics, bricks, plasterboard, concrete products, timber etc. and removal by qualified recycling contractors. At least 80% of construction waste to be re-used or recycled. • Paint waste to be discarded appropriately as per manufacturer recommendations or by using paint waste hardeners. Paint waste must not be disposed of down drains or on-site.
Operational Waste Management • Facilitates recycling and re-use reducing operating costs and impact on landfill.	• **General Waste, Recycling & Food Organics / Green Organics (FOGO)** bins to be provided each dwelling and located together as per floor plans.

7. Urban Ecology

It is important to ensure that wherever possible developments are sensitive to the local area and do not result in a net loss of habitats for local fauna such as bird life. Therefore, good landscape design should try to use local indigenous species in the design, reduce the impervious surface area on site and incorporate vegetation to facilitate the reduction in impact buildings can have through heat island effect and glare reduction. Vegetation use improves occupant health and well-being and moderates the temperature around the building which in-turn reduces heating and cooling costs.

BESS Score: 50%

Objective	Strategies
Vegetation and Biodiversity • Healthier local environment.	• Approximately 27.2% (173.2m^2) of the site is covered with vegetation via garden beds and grassed areas as per floor plan detail. Refer landscape plan markup below.  • Landscaping plants to be generally drought tolerant Native or Local indigenous plants. • Where possible all proposed Plants to be sourced locally.
POS Ecology	• Tap & Floor Waste to be provided to ground floor POS of each dwelling & Balconies to Dwellings 1 & 2. Refer to Floor plans for locations.

8. Innovation

This development is not claiming any initiatives under this category.

Appendix 1 – BESS Report

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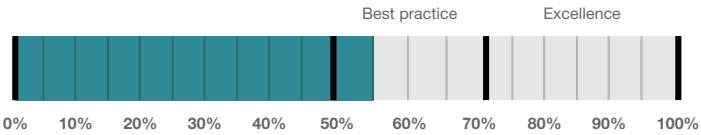
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 9 Gona St Heidelberg West Victoria 3081. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Banyule City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score

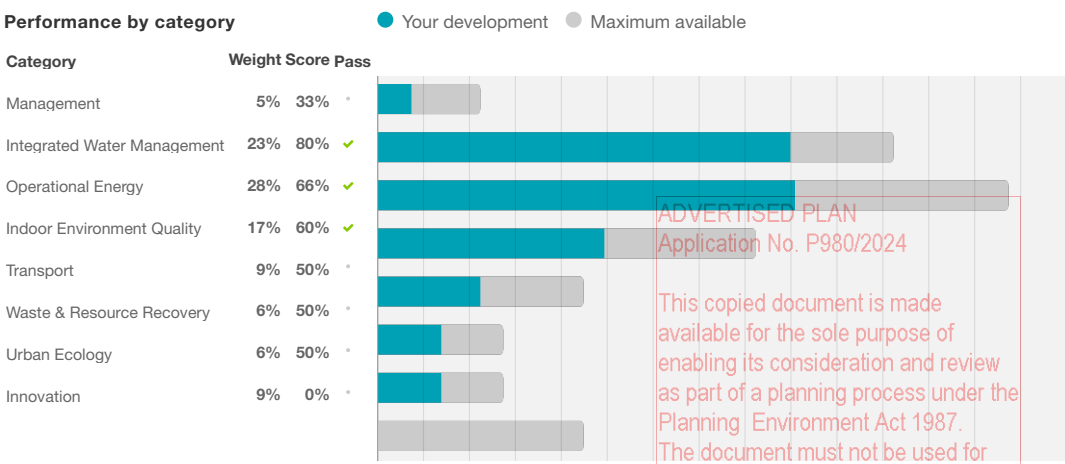


57%

Project details

Address	9 Gona St Heidelberg West Victoria 3081
Project no	25CCFCB4-R1
BESS Version	BESS-9
Site type	Multi dwelling (dual occupancy, townhouse, villa unit etc)
Account	nadim@enrate.com.au
Application no.	
Site area	635.00 m²
Building floor area	499.39 m²
Date	04 October 2024
Software version	2.0.1-B.568

Performance by category



Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	% of total area
Townhouse			
Dwelling 4	1	139 m²	27%
Dwelling 3	1	139 m²	27%
Dwelling 1	1	118 m²	23%
Dwelling 2	1	104 m²	20%
Total	**4**	**499 m²**	**100%**

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)	To be printed Refer to Ground Floor Plan	✔
Integrated Water Management 3.1	Annotation: Water efficient garden details	To be printed Refer to Sustainability Initiatives Summary Table in Plans	✔
Operational Energy 3.3	Annotation: External lighting controlled by motion sensors	To be printed Refer to Ground Floor Plan Notes for automatic lighting	✔
Operational Energy 3.4	Location of clothes line (if proposed)	To be printed Refer to Ground Floor Plan POS's	✔
Operational Energy 4.5	Location and size of solar photovoltaic system	To be printed Refer to Roof Plan	✔
Indoor Environment Quality 3.1	Annotation: Glazing specification (U-value, SHGC)	To be printed Refer to Window Performance Tables in Plans	✔
Indoor Environment Quality 3.3	North-facing living areas	To be printed Refer to Ground & First Floor Plans	✔
Transport 2.1	Location of electric vehicle charging infrastructure	To be printed Refer to Ground Floor Plan - Garages.	✔
Waste & Resource Recovery 2.1	Location of food and garden waste facilities	To be printed Refer to Ground Floor Plan	✔
Urban Ecology 2.1	Location and size of vegetated areas	To be printed Refer to TP.700 Landscape Plan	✔
Urban Ecology 2.4	Location of taps and floor waste on balconies / courtyards	To be printed Refer to Ground & First Floor Plans	✔

Supporting evidence

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments	To be printed SDA by Enrate Aust - Appendix 3 Refer to SDA - Appendix 3 for report and preview certificates	✔
Integrated Water Management 2.1	STORM report or MUSIC model	To be printed SDA by Enrate Aust - Appendix 2 Refer to SDA - Appendix 2	✔

Credit	Requirement	Response	Status
Operational Energy 3.5	Average lighting power density and lighting type(s) to be used	To be printed SDA by Enrate Aust Refer to Notes tables in plans	✔
Operational Energy 4.5	Specifications of the solar photovoltaic system(s)	To be printed Roof Plans Refer to Roof Plans & SDSA by Enrate Aust	✔
Indoor Environment Quality 3.1	Reference to floor plans or energy modelling showing the glazing specification (U-value and Solar Heat Gain Coefficient, SHGC)	To be printed SDA by Enrate Aust Refer to Window Performanvce tables in plans and SDA - Appendix 3	✔
Indoor Environment Quality 3.3	Reference to the floor plans showing living areas orientated to the north	To be printed Plans Refer to Ground & First Floor Plans	✔

Credit summary

Management Overall contribution 4.5%

33%

1.1 Pre-Application Meeting	0%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	100%
4.1 Building Users Guide	0%

IWM Overall contribution 22.5%

80% ✔ **Pass**

1.1 Potable Water Use	42%	✔ Achieved
2.1 Stormwater Treatment	100%	✔ Achieved
3.1 Water Efficient Landscaping	100%	

Operational Energy Overall contribution 27.5%

Minimum required 50% **66%** ✔ **Pass**

1.2 Thermal Performance Rating - Residential	9%	✔ Achieved
2.1 Greenhouse Gas Emissions	0%	
2.6 Electrification	100%	
2.7 Energy consumption	100%	
3.3 External Lighting	100%	
3.4 Clothes Drying	100%	
3.5 Internal Lighting - Houses and Townhouses	100%	
4.4 Renewable Energy Systems - Other	N/A	⊘ Scoped Out
	No other (non-solar PV) renewable energy is in use.	
4.5 Solar PV - Houses and Townhouses	100%	

IEQ Overall contribution 16.5%

	Minimum required 50%	60%	Pass
2.2 Cross Flow Ventilation		0%	
3.1 Thermal comfort - Double Glazing		100%	
3.2 Thermal Comfort - External Shading		0%	
3.3 Thermal Comfort - Orientation		100%	

Transport Overall contribution 9.0%

	50%		
1.1 Bicycle Parking - Residential		0%	
1.2 Bicycle Parking - Residential Visitor		N/A	Scoped Out
			Not enough dwellings.
2.1 Electric Vehicle Infrastructure		100%	

Waste & Resource Recovery Overall contribution 5.5%

	50%		
1.1 Construction Waste - Building Re-Use		0%	
2.1 Operational Waste - Food & Garden Waste		100%	

Urban Ecology Overall contribution 5.5%

	50%		
2.1 Vegetation		75%	
2.2 Green Roofs		0%	
2.3 Green Walls and Facades		0%	
2.4 Balconies, Courtyards & Roof terraces		100%	
3.1 Food Production - Residential		0%	

Innovation Overall contribution 9.0%

	0%	
1.1 Innovation		0%

Credit breakdown

Management Overall contribution 1%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 50% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		100%
Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?	
Question	Criteria Achieved ?	
Townhouse	Yes	
4.1 Building Users Guide		0%
Score Contribution	This credit contributes 16.7% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	No	

Integrated Water Management

Overall contribution 18% Minimum required 0%

Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No

Stormwater profile	
Which stormwater modelling software are you using?:	Melbourne Water STORM tool
STORM score achieved:	120
Flow:	-
Total Suspended Solids:	-
Total Phosphorus:	-
Total Nitrogen:	-

Rainwater tank profile	
What is the total roof area connected to the rainwater tank?:	
Rainwater Tank 1	81.1 m²
Rainwater Tank 2	67.4 m²
Rainwater Tank 3	99.0 m²
Rainwater Tank 4	94.7 m²
Tank Size:	
Rainwater Tank 1	2,000 Litres
Rainwater Tank 2	2,000 Litres
Rainwater Tank 3	2,000 Litres
Rainwater Tank 4	2,000 Litres
Irrigation area connected to tank:	
Rainwater Tank 1	-
Rainwater Tank 2	-
Rainwater Tank 3	-
Rainwater Tank 4	-
Is connected irrigation area a water efficient garden?:	
Rainwater Tank 1	No
Rainwater Tank 2	No
Rainwater Tank 3	No
Rainwater Tank 4	No
Other external water demand connected to tank?:	
Rainwater Tank 1	-
Rainwater Tank 2	-
Rainwater Tank 3	-
Rainwater Tank 4	-

Fixtures, fittings & connections profile	
Showerhead: All	4 Star WELS (>= 6.0 but <= 7.5)

Bath:	
Dwelling 1 Dwelling 2	Scope out
Dwelling 3 Dwelling 4	Medium Sized Contemporary Bath
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	Default or unrated
WC: All	>= 4 Star WELS rating
Urinals: All	Scope out
Washing Machine Water Efficiency: All	Occupant to Install
Which non-potable water source is the dwelling/space connected to?:	
Dwelling 1	Rainwater Tank 1
Dwelling 2	Rainwater Tank 2
Dwelling 3	Rainwater Tank 3
Dwelling 4	Rainwater Tank 4
Non-potable water source connected to Toilets: All	Yes
Non-potable water source connected to Laundry (washing machine): All	No
Non-potable water source connected to Hot Water System: All	No

1.1 Potable Water Use 42% ✔ Achieved

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.
Output	Reference
Project	698 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	577 kL
Output	Proposed (including rainwater and recycled water use)
Project	512 kL
Output	% Reduction in Potable Water Consumption
Project	26 %
Output	% of connected demand met by rainwater
Project	100 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	261 kL

2.1 Stormwater Treatment		100%	✔ Achieved
Score Contribution	This credit contributes 60% towards the category score.		
Criteria	Has best practice stormwater management been demonstrated?		
Output	Min STORM Score		
Project	100		
Output	STORM Score		
Project	120		

3.1 Water Efficient Landscaping		100%
Score Contribution	This credit contributes 6.7% towards the category score.	
Criteria	Will water efficient landscaping be installed?	
Question	Criteria Achieved ?	
Project	Yes	

Operational Energy

Overall contribution 18% Minimum required 50%

Are you installing any renewable energy system(s) (other than solar photovoltaic)?:	No
Energy Supply:	All-electric
Solar Photovoltaic system profile	
System Size (lesser of inverter and panel capacity):	
PV1	2.0 kW peak
PV2	2.4 kW peak
PV3	2.4 kW peak
PV4	2.8 kW peak
Orientation (which way is the system facing)?:	
PV1	West
PV2	East
PV3	North
PV4	South
Inclination (angle from horizontal):	
PV1	12.0 Angle (degrees)
PV2	12.0 Angle (degrees)
PV3	12.0 Angle (degrees)
PV4	12.0 Angle (degrees)
Dwellings profile	
Below the floor is: All	Ground or Carpark
Above the ceiling is: All	Outside
Exposed sides: All	3
NatHERS Annual Energy Loads - Heat:	
Dwelling 1	65.3 MJ/sqm
Dwelling 2	61.2 MJ/sqm
Dwelling 3	57.6 MJ/sqm
Dwelling 4	65.5 MJ/sqm
NatHERS Annual Energy Loads - Cool:	
Dwelling 1	19.4 MJ/sqm
Dwelling 2	19.7 MJ/sqm
Dwelling 3	16.3 MJ/sqm
Dwelling 4	16.8 MJ/sqm
NatHERS star rating:	
Dwelling 1	7.0
Dwelling 2	7.2
Dwelling 3	7.4
Dwelling 4	7.1
Type of Heating System: All	Reverse cycle space
Heating System Efficiency: All	Current Default / MEPS
Type of Cooling System: All	Refrigerative space
Cooling System Efficiency: All	Current Default / MEPS

Type of Hot Water System: All	Electric Instantaneous	
% Contribution from solar hot water system: All	0 %	
Clothes Line: All	Private outdoor clothesline	
Clothes Dryer: All	Occupant to install	

1.2 Thermal Performance Rating - Residential		9% ✔ Achieved
Score Contribution	This credit contributes 17.6% towards the category score.	
Criteria	What is the average NatHERS rating?	
Output	Average NATHERS Rating (Weighted)	
Townhouse	7.1 Stars	

2.1 Greenhouse Gas Emissions		0%
Score Contribution	This credit contributes 17.6% towards the category score.	
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Townhouse	10,172 kg CO2	
Output	Proposed Building with Proposed Services (Actual Building)	
Townhouse	12,269 kg CO2	
Output	% Reduction in GHG Emissions	
Townhouse	-21 %	

2.6 Electrification		100%
Score Contribution	This credit contributes 17.6% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	Yes	

2.7 Energy consumption		100%
Score Contribution	This credit contributes 23.5% towards the category score.	
Criteria	What is the % reduction in annual energy consumption against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Townhouse	93,119 MJ	
Output	Proposed Building with Proposed Services (Actual Building)	
Townhouse	55,908 MJ	
Output	% Reduction in total energy	
Townhouse	39 %	

3.3 External Lighting		100%
Score Contribution	This credit contributes 2.9% towards the category score.	
Criteria	Is the external lighting controlled by a motion detector?	
Question	Criteria Achieved ?	
Townhouse	Yes	

3.4 Clothes Drying		100%
Score Contribution	This credit contributes 5.9% towards the category score.	
Criteria	What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark?	
Output	Reference	
Townhouse	2,094 kWh	
Output	Proposed	
Townhouse	419 kWh	
Output	Improvement	
Townhouse	80 %	

3.5 Internal Lighting - Houses and Townhouses		100%
Score Contribution	This credit contributes 2.9% towards the category score.	
Criteria	Does the development achieve a maximum illumination power density of 4W/sqm or less?	
Question	Criteria Achieved?	
Townhouse	Yes	

4.4 Renewable Energy Systems - Other		N/A	Scoped Out
This credit was scoped out	No other (non-solar PV) renewable energy is in use.		

4.5 Solar PV - Houses and Townhouses		100%
Score Contribution	This credit contributes 11.8% towards the category score.	
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?	
Output	Solar Power - Energy Generation per year	
Townhouse	10,712 kWh	
Output	% of Building's Energy	
Townhouse	68 %	

Indoor Environment Quality

Overall contribution 10% Minimum required 50%

2.2 Cross Flow Ventilation		0%
Score Contribution	This credit contributes 20% towards the category score.	
Criteria	Are all habitable rooms designed to achieve natural cross flow ventilation?	
Question	Criteria Achieved ?	
Townhouse	No	

3.1 Thermal comfort - Double Glazing		100%
Score Contribution	This credit contributes 40% towards the category score.	
Criteria	Is double glazing (or better) used to all habitable areas?	
Question	Criteria Achieved ?	
Townhouse	Yes	

3.2 Thermal Comfort - External Shading		0%
Score Contribution	This credit contributes 20% towards the category score.	
Criteria	Is appropriate external shading provided to east, west and north facing glazing?	
Question	Criteria Achieved ?	
Townhouse	No	

3.3 Thermal Comfort - Orientation		100%
Score Contribution	This credit contributes 20% towards the category score.	
Criteria	Are at least 50% of main living areas orientated to the north?	
Question	Criteria Achieved ?	
Townhouse	Yes	

Transport

Overall contribution 4%

1.1 Bicycle Parking - Residential		0%
Score Contribution	This credit contributes 50% towards the category score.	
Criteria	How many secure and undercover bicycle spaces are there for residents?	
Question	Bicycle Spaces Provided ?	
Townhouse	0	

1.2 Bicycle Parking - Residential Visitor		N/A	Scoped Out
This credit was scoped out	Not enough dwellings.		

2.1 Electric Vehicle Infrastructure		100%
Score Contribution	This credit contributes 50% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	Yes	

Waste & Resource Recovery

Overall contribution 3%

1.1 Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 Operational Waste - Food & Garden Waste	100%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 3%

2.1 Vegetation		75%
Score Contribution	This credit contributes 50% towards the category score.	
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?	
Question	Percentage Achieved ?	
Project	27 %	
2.2 Green Roofs		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	No	
2.3 Green Walls and Facades		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	
2.4 Balconies, Courtyards & Roof terraces		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)?	
Question	Criteria Achieved ?	
Townhouse	Yes	
3.1 Food Production - Residential		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per resident is dedicated to food production?	
Question	Food Production Area	
Townhouse	0.0 m^2	
Output	Min Food Production Area	
Townhouse	3 m^2	

Innovation Overall contribution 0%

1.1 Innovation		0%
Score Contribution	This credit contributes 100% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

Disclaimer

The Built Environment Sustainability Scorecard (BESS) has been provided for the purpose of information and communication. While we make every effort to ensure that material is accurate and up to date (except where denoted as 'archival'), this material does in no way constitute the provision of professional or specific advice. You should seek appropriate, independent, professional advice before acting on any of the areas covered by BESS.

Appendix 2 – STORM Assessment, Site Mark-up & Maintenance Plan

Enrate (Aust) Pty Ltd
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STORM Rating Report

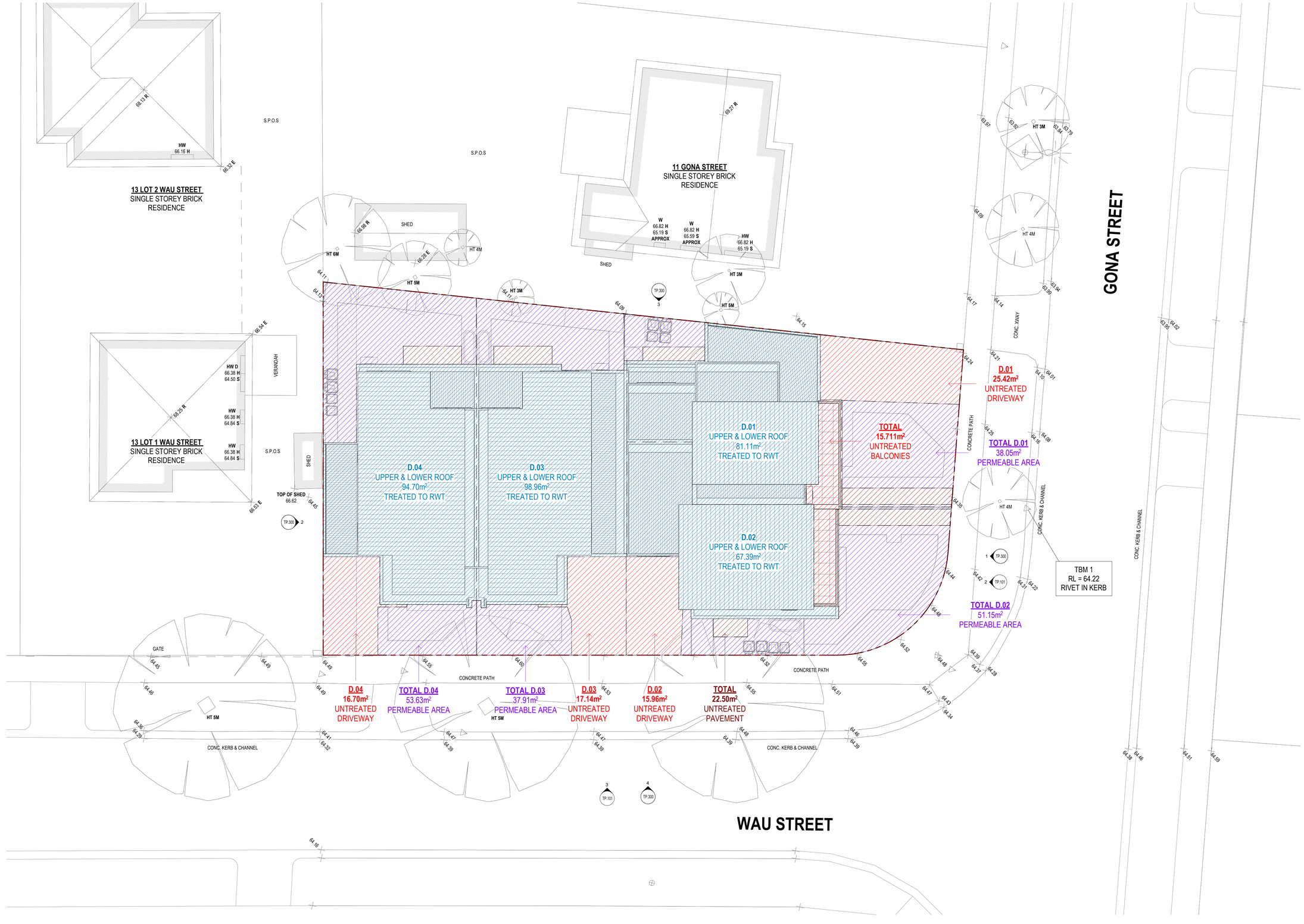
TransactionID: 0
Municipality: BANYULE
Rainfall Station: BANYULE
Address: 9 Gona Street

Heidelberg West
VIC 3081
Assessor: Nadim Yaacoub
Development Type: Residential - Subdivision
Allotment Site (m2): 635.64
STORM Rating %: 120

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
U1 - Roof	81.11	Rainwater Tank	2,000.00	3	149.60	86.60
U2 - Roof	67.39	Rainwater Tank	2,000.00	3	172.00	82.00
U3 - Roof	98.96	Rainwater Tank	2,000.00	4	155.40	80.10
U4 - Roof	94.70	Rainwater Tank	2,000.00	4	164.00	79.80
Driveways	75.22	None	0.00	0	0.00	0.00
Paths/Balconies	37.76	None	0.00	0	0.00	0.00

Date Generated: 03-Oct-2024

Program Version: 1.0.0



info@m3group.au
Unit 2, 1 Bik Lane, Fitzroy North 3068

M3 GROUP

Project Address	9 GONA STREET, HEIDELBERG WEST
Drawing Title	CATCHMENT PLAN
Drawing Issue	TOWN PLANNING
Client	PBH
North Point	

Project Number	241937
Drawing Number	TP.400
Issue Date	SEP 2024
Revision Issue	A
Drawn by	DE
Checked by	GM
Scale	A3 / 1 : 100 A1 /

Rev	Description	Date
A	Issue for Lodgement	16/09/2024

WSUD Maintenance Plan

Item	Element	Maintenance Requirement	Inspection Frequency*	Responsible Party
Rainwater Tank	Roof Gutters & Downpipes	Inspect Gutters and Downpipes for leaf litter and debris. Remove and dispose responsibly.	Every 12 months	Building Manager / Owners Corporation
	First Flush Diverter	Inspect for any debris blocking the diverter.	Every 12 months	Building Manager / Owners Corporation
	Potable Mains Back-up device	Inspect to ensure the mains backup switch is operating correctly. Repair or replace device as required.	Every 12 months	Building Manager / Owners Corporation
	Mesh Cover	Inspect to ensure integrity of mesh device is maintained. Replace mesh cover if deteriorated or has holes in it.	Every 12 months	Building Manager / Owners Corporation
	Pump	Inspect to ensure pump is operating correctly. Repair or replace device if malfunctioning.	Every 12months	Building Manager / Owners Corporation
	Pipes and Taps	Inspect to ensure there are no leaks in the system. Repair as needed.	Every 12 months	Building Manager / Owners Corporation

* Inspection frequency is recommended as a minimum. More frequent inspection and maintenance will improve water quality and the life of your system.

MAINTENANCE LOG

Maintenance Date	Maintenance Activities Undertaken	Carried Out by (Person & Initial)

Appendix 3 – Preliminary 7 Star Energy Efficiency Report & NATHERS Preview Certificates

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Gianni Mancuso
M3 Group
Unit 2, Bik Lane
Fitzroy North Vic 3068

Reference No.: EN2407

04 October 2024

Town Planning – Preliminary 7 Star Energy Efficiency Assessments

Site Address: 9 Gona Street, Heidelberg West Vic 3081.

The proposed 4 x Class 1 dwelling development was assessed for Energy Efficiency as per the National Construction Code (NCC) 2022 – Volume 2. This assessment was carried out on all dwellings to confirm a minimum 7.0 Star average for the development with no one dwelling being below 7.0 Star and compliance with Planning Cooling Load limit and NATHERS Heating & Cooling loads for Climate Zone 62. The proposed dwellings each achieved the minimum 7.0 Star rating and compliance with NATHERS Heating & Cooling load limits and Whole of Home (WoH). The assessment was carried out using the current First Rate 5 software V5.5.5a and based on Town Planning Drawings dated – September 2024.

The following energy efficiency performances are achieved based on the recommended specifications outlined in this report.

Unit No.	Star Rating		Total Energy (MJ/m²)	Total Heating (MJ/m²)	Total Cooling (MJ/m²)
1	★★★★★★★	7.0	84.7	65.3	19.4
2	★★★★★★★☆	7.2	80.9	61.2	19.7
3	★★★★★★★☆	7.4	73.9	57.6	16.3
4	★★★★★★★☆	7.1	82.3	65.5	16.8
Average	★★★★★★★☆	**7.2**	**80.5**	**62.4**	**18.1**
NATHERS Maximum Limits – Climate Zone 62			**85.0**	**80.0**	**22.0**
Planning Scheme Limits – Climate Zone 62			-	-	**21.0**

Please Note: It is the responsibility of the applicant / permit holder to advise Enrate (Aust) of any changes to these specifications made prior to or during construction. In such instances, the Energy rating will need to be revised and new specifications and reports issued where required. Additional costs may be passed on subject to the nature of the revisions to be undertaken.

If you have any questions regarding these outcomes, please do not hesitate to contact our office on 0448 753 355.

Yours sincerely

Nadim Yaacoub
M: 0448 75 33 55
E: nadim@enrate.com.au
NATHERS Accredited Assessor
Accreditation No: DMN/10/0114

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Software Assessment – Compliance Requirements:

DWELLINGS 1, 2, 3 & 4

The following requirements are applicable to all dwellings unless otherwise stated.

INSTALLATION OF INSULATION

Where required Insulation must comply with AS/NZS 4859.1 and be installed so that it—

(i) abuts or overlaps adjoining insulation other than at supporting members such as columns, studs, noggings, joists, furring channels and the like where the insulation must butt against the member; and
(ii) forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and
(iii) does not affect the safe or effective operation of a domestic service or fitting.

Where required, reflective insulation must be installed with—

(i) the necessary airspace, to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and
(ii) the reflective insulation closely fitted against any penetration, door or window opening; and
(iii) the reflective insulation adequately supported by framing members; and
(iv) each adjoining sheet of roll membrane being—
    a. overlapped greater than or equal to 150 mm; or
    b. taped together.

Where required, bulk insulation must be installed so that—

(i) it maintains its position and thickness, other than where it crosses roof battens, water pipes, electrical cabling or the like; and
(ii) in a ceiling, where there is no bulk insulation or reflective insulation in the external wall beneath, it overlaps the external wall by greater than or equal to 50 mm.

EXTERNAL COLOURS:

Finish B & C - Render Paint Colorbond Bluegum (LRV = 0.56, SA = 0.44) Dulux Website
Finish D - Render Paint Colorbond Monument (SA = 0.93) Dulux Website
Roof - Colorbond Bluegum (SA = 0.57) Colorbond Website
Window Frames - Colorbond Monument (SA = 0.73) Colorbond Website
Finish A - Face Bricks White or Similar (Default SA = 0.5)

GARAGE DOOR:

Dwelling 2 - Only
Type: Aluminium – Insulated
Requirement: Dwelling 2 Garage door is required to be supplied as sealed and insulated type with an added insulation value of minimum R1.4 (eg. B&D or Steel line insulated doors or similar).

CEILINGS & ROOF:

All Dwellings – Metal Deck Roof
Insulation Requirement: Install R5.0 bulk insulation value between ceiling joists plus a reflective vapour barrier to the external side of the framing.

All Dwellings – Metal Deck Roof
Insulation Requirement: Install R6.0 bulk insulation value between ceiling joists plus a reflective vapour barrier to the external side of the framing.

All Dwellings – Box Gutter Sections
Insulation Requirement: Install R2.5 bulk insulation value between ceiling joists plus a reflective vapour barrier to the underside of the box gutter tray.

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FLOORS:

All Dwellings – Waffle Pod Slab (300mm Pods/85mm Concrete)

Insulation Requirement: Waffle pods add R0.62 insulation value to the concrete slab.

All Dwellings – First Floor Suspended Timber

Insulation Requirement: Install R2.5 bulk insulation value between floor joists to the entire first floor suspended timber subfloor areas.

EXTERNAL WALLS:

All Dwellings – Brick Veneer, Rendered 50mm AAC Cladding, Rendered 50mm EPS Cladding & FC Cladding

Insulation Requirement: Install R2.5 bulk insulation value between studs plus a Class 4 vapour permeable barrier to the external side of studs.

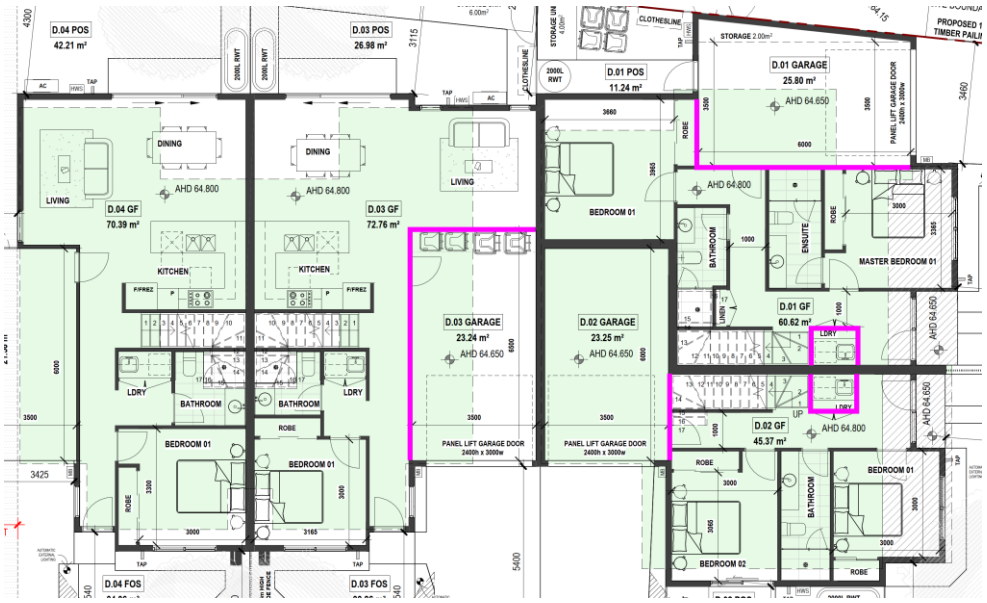
INTERNAL WALLS:

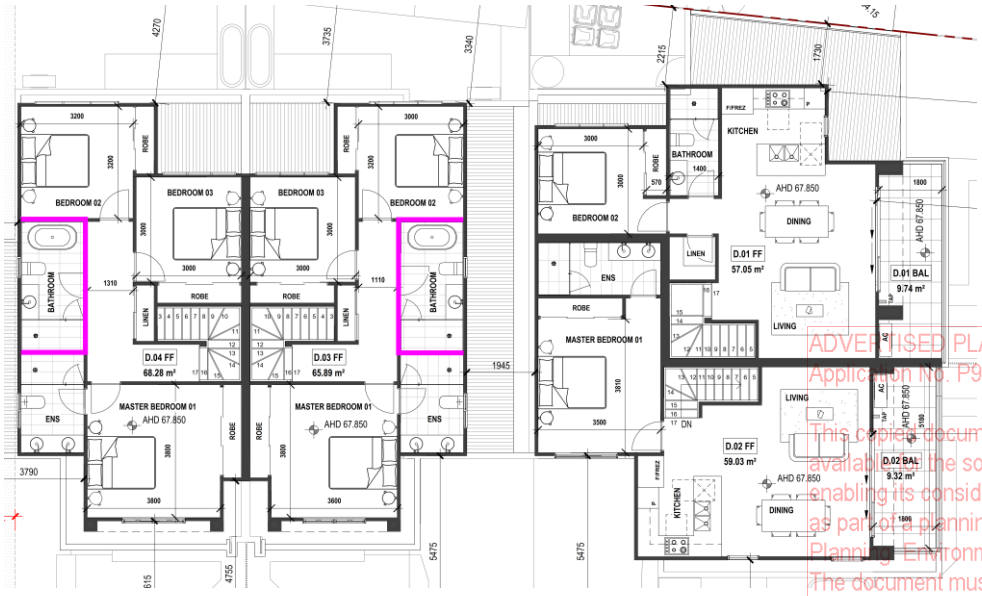
All Dwellings Party Wall – Double Stud with 25mm Gyprok Shaftliner

Insulation Requirement: Install R2.5 bulk insulation between studs to both sides.

Dwelling 1 & 2 – Garage & Laundry, Dwellings 3 – Garage & FF Bath, Dwellings 4 – FF Bath

Insulation Requirement: Install R2.5 bulk insulation between studs to all internal perimeter walls to these spaces. Refer **pink** highlighted walls below.





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WINDOWS & GLAZED DOORS:

Required Performances:

Dwelling 1, 4 - Windows & Glazed Doors	WERS Code	Frame Type	Glazing	Total System	
				U-Value	SHGC Value
All Awning Windows	AWS-008-12	Aluminium	Double Glazed - CP Clear	3.69	0.45
All Glazed Sliding Doors	AWS-013-10	Aluminium	Double Glazed - CP Clear	3.31	0.50
NOTE: Any supplied glazing is considered in compliance only where the supplied 'Total System' performances (Glass & Frame) meet each of the following criteria: • Less than or Equal to the U-Value specified, and • Within +/-5% of the SHGC value specified.					

Dwellings 2, 3 - Windows & Glazed Doors	WERS Code	Frame Type	Glazing	Total System	
				U-Value	SHGC Value
All Awning Windows	AWS-008-12	Aluminium	Double Glazed - CP Clear	3.69	0.45
D02 Bed 2 - Glazed Sliding Door	AWS-013-10	Aluminium	Double Glazed - CP Clear	3.31	0.50
All Living Glazed Sliding Doors	AWS-013-61	Aluminium	Double Glazed - AGG Max Clear	2.96	0.23
NOTE: Any supplied glazing is considered in compliance only where the supplied 'Total System' performances (Glass & Frame) meet each of the following criteria: • Less than or Equal to the U-Value specified, and • Within +/-5% of the SHGC value specified.					

ARTIFICIAL LIGHTING:

Illumination Power Density: Lighting compliance has not been assessed as no lighting plans provided. The average illumination power design densities must not exceed the following allowances.

Space	NCC Requirement	BESS 20% Reduction – Compliance Requirement
Class 1 Dwelling	5 W/m^2	4.0 W/m^2
Outdoor Living / Balcony	4 W/m^2	4.0 W/m^2
Carport	3 W/m^2	3.0 W/m^2

Downlights: Where downlights are proposed they must be specified as **'IC' rated** (Insulation Contact) to allow for insulation to be placed over the top and be **sealed** units to prevent air-leakage.
Fluorescent lamp switches to be separate from Halogen switches.
Perimeter Lighting: To be controlled by a daylight sensor or have a light source efficacy not less than 40 Lumens/W.

Note: Sealed 'IC' Rated LED downlights have been assumed as the principal downlight type and must be used where downlights nominated. *Using such downlights does not incur insulation loss or impact air-leakage.* The use of non 'IC' rated downlights will have a negative impact on the rating, and if proposed to be used, then this assessment will need to be revised and lighting plans provided.

RAINWATER:

Install a minimum 2,000L rainwater tank capacity to each dwelling, serving as catchment for the entire roof area and be connected to all sanitary flushing systems.

BUILDING SEALING:

The new dwellings must be constructed to an acceptable level of air tightness. The following areas need to be addressed during construction for compliance to this part:

- All external doors to be fitted with weather strips.
- Windows, Skylights & glass doors to be fitted with weather seals.
- Internal lining to be installed so that it is close fitting at ceiling, wall and floor junctions, or sealed by caulking, skirting, architraves, cornices or the like.
- Construction gaps & cracks around doors, windows and service penetrations to be sealed.
- Exhaust fans to be self-closing (fitted with a 'draftstoppa' or similarly sealed).
- Internal doors to utility areas such as laundries and powder rooms that are not conditioned to have rubber seals installed to all edges to protect against air leakage.
- All downlights must be sealed units to prevent air leakage.

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SERVICES:

INSULATION OF SERVICES

Thermal insulation for central heating water piping and heating and cooling ductwork must—

(a) be protected against the effects of weather and sunlight; and
(b) be able to withstand the temperatures within the piping or ductwork; and
(c) use thermal insulation material in accordance with AS/NZS 4859.1.

HEATING & COOLING DUCTWORK & FITTINGS

1) Heating and cooling ductwork and fittings must—
   (a) achieve the material R-Value in (4); and
   (b) be sealed against air loss—
      i) by closing all openings in the surface, joints and seams of ductwork with adhesives, mastics, sealants or gaskets in accordance with AS 4254.1 and AS 4254.2 for a Class C seal; or
      ii) for flexible ductwork, with a draw band in conjunction with a sealant or adhesive tape.
2) Duct insulation must—
   (a) abut adjoining duct insulation to form a continuous barrier; and
   (b) be installed so that it maintains its position and thickness, other than at flanges and supports; and
   (c) where located outside the building, under a suspended floor, in an attached Class 10a building or in a roof space—
      (i) be protected by an outer sleeve of protective sheeting to prevent the insulation becoming damp; and
      (ii) have the outer protective sleeve sealed with adhesive tape not less than 48 mm wide creating an airtight and waterproof seal.
3) The requirements of (1) do not apply to heating and cooling ductwork and fittings located within the insulated building envelope including a service riser within the conditioned space, internal floors between storeys and the like.
4) The material R-Value required by (1)(a) must be determined in accordance with the following:
   (a) In a heating-only system or cooling-only system including an evaporative cooling system—
      (i) ductwork must have a minimum material R-Value of—
         (A) in climate zones 1 to 7 — 1.0; and
         (B) in climate zone 8 — 1.5; and
      (ii) fittings must have a minimum material R-Value of 0.4.
   (b) In a combined heating and refrigerated cooling system—
      (i) ductwork must have a minimum material R-Value of—
         (A) in climate zones 1, 3, 4, 6 and 7 — 1.5; and
         (B) in climate zones 2 and 5 — 1.0; and
         (C) in climate zone 8 — 1.5; and
      (ii) fittings must have a minimum material R-Value of 0.4.
   (c) For the purposes of (b)(i), the minimum material R-Value required for ductwork may be reduced by 0.5 for combined heating and refrigerated cooling systems in climate zones 1, 3, 4, 6 and 7 if the ducts are—
      (i) under a suspended floor with an enclosed perimeter; or
      (ii) in a roof space that has an insulation of greater than or equal to R0.5 directly beneath the roofing.

WATER HEATER IN A HEATED WATER SUPPLY

A water heater in a heated water supply system must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.

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APPLIANCES:

Refer to Appendix 1 for preliminary 'Preview FR5 Certificate' including WoH information confirming compliance with proposed appliances. Appliance detail and efficiency as follows:

APPLIANCE - All Dwellings	TYPE
Water Heater	Electric Instantaneous
Cooktop	Electric
Oven	Electric
Onsite Renewable	**Photovoltaic System:** **Dwelling 1:** 2.0kW - 5 x 400W Panels West. **Dwelling 2:** 2.4kW - 6 x 400W Panels East. **Dwelling 3:** 2.4kW - 6 x 400W Panels North. **Dwelling 4:** 2.8kW - 7 x 400W Panels South.
Heating & Cooling System	Space Reverse Cycle to Living Rooms & Bedrooms - Variable Capacity
Min. Heating Efficiency	HSPF Value = 2.5 (1.0 Star)
Min. Cooling Efficiency	TCSPF Value = 3.50 (2.0 Star)

Photovoltaic System

- PV system must be manufactured to Australian Standards.
- System must be installed in compliance with the following installation standards (Source: Clean Energy Council – PV Fact Sheet):
  - AS4777 – Grid-connections of energy systems via inverters
  - AS/NZS3000 – Electrical wiring rules
  - AS1768 – Lightning protection
  - AS/NZS1170.2 – Wind loads
  - AS/NZS5033 – Installation of photovoltaic (PV) arrays.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. RP0V8ENS39

Generated on 4 Oct 2024 using FirstRate5: 5.5.5a (3.22)

Property

Address	1, 9 GONA STREET, HEIDELBERG WEST, VIC, 3081
Lot/DP	-
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	-
Prepared by	M3 DESIGN

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	99.9	suburban
Unconditioned*	24.3	**NatHERS climate zone**
Total	124.2	62 Moorabbin Airport
Garage	23.1	

Accredited assessor

Name	Nadim Yaacoub
Business name	Enrate (Aust) Pty Ltd
Email	nadim@enrate.com.au
Phone	0448753355
Accreditation No.	DMN/10/0114
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating

Thermal performance [MJ/m²]

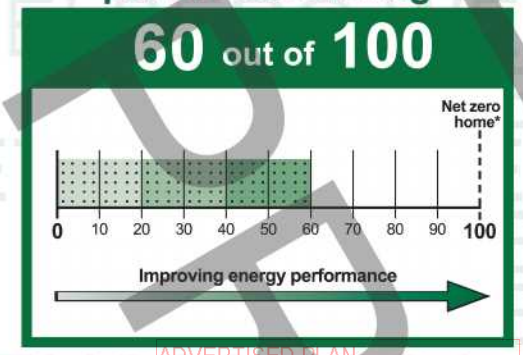
Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	65.3	19.4
Load limits	80	22

Features determining load limits

Floor type (lowest conditioned area)	CSOG
NCC climate zone 1 or 2	N
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating



Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

Your Whole of Home energy use* rating excluding onsite renewable energy generation is **24 out of 100**

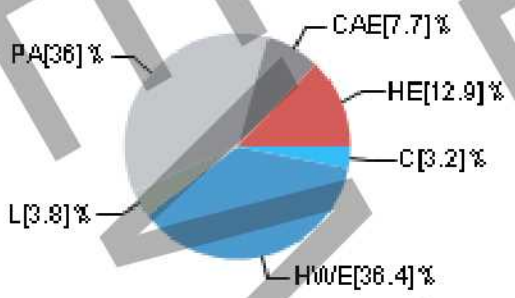
This home's annual greenhouse gas emissions: 3979kg CO2e (with solar) 7038kg CO2e (without solar)

Predicted annual electricity generated: 2732kWh
Exported to the grid: 28%
Used by the home: 72%

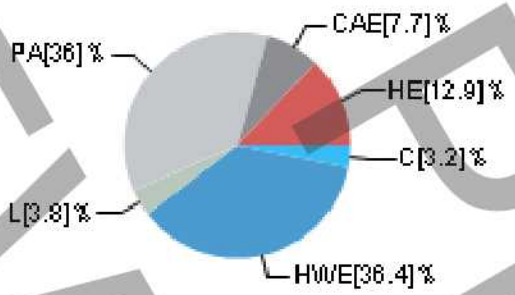
Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

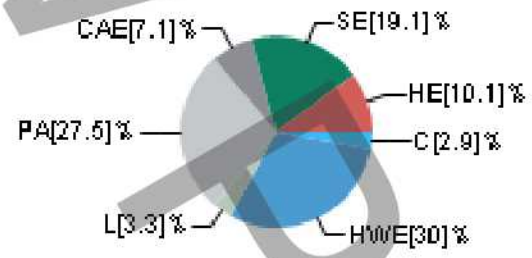
Energy use:



Greenhouse gas emissions:



Cost:



Graph key:

Colour:	Code:	Name:	Fuel type:
	HE	Heating	electric
	HG	Heating	gas
	HW	Heating	wood
	C	Cooling	electric
	HWE	Hot water	electric
	HWG	Hot water	gas
	HWW	Hot water	wood
	L	Lights	electric
	P	Pool/Spa equipment	electric
	PA	Plug-in appliances	electric
	CAE	Cooking appliances	electric
	CAG	Cooking appliances	gas
	SG	Supply charge	gas
	SE	Supply charge	electric

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.	☐	☐		☐	☐
Exposure*					
Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐	☐	☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐			

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

*Refer to glossary.

Room *schedule*

Room	Zone Type	Area [m²]
GARAGE	garage	23.1
BED 01	bedroom	15.6
MASTER 1	bedroom	12.1
ENS	nightTime	5
ENTRY/HALL	dayTime	3
LDRY	unconditioned	1.2
STAIRS	dayTime	3.7
BATH	dayTime	4.3
HALL	dayTime	8.9
BED 2	bedroom	11
BATH	dayTime	4.3
KIT/LIV/DIN	kitchen	29.9
STAIRS	dayTime	4
LINEN	dayTime	1.6
HALL	dayTime	1.3

Window and glazed door *type and performance*

Default* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
AWS-008-12 A	516 Al Awining Window DG 638CPClr/8Ar/4	3.69	0.45	0.43	0.47
AWS-013-10 A	541/542 Al Sliding Door DG 6.38CPClr/8Ar/4	3.31	0.5	0.48	0.53

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
BED 01	AWS-008-12 A	Opening 86	2100	1800	awning	60.0	W	No
MASTER 1	AWS-008-12 A	Opening 73	2100	1800	awning	60.0	N	No
ENTRY/HALL	AWS-008-12 A	Opening 72	2100	900	awning	60.0	N	No

*Refer to glossary.

BED 2	AWS-008-12 A	Opening 77	700	2100	awning	30.0	W	No
KIT/LIV/DIN	AWS-013-10 A	Opening 75	2400	3000	sliding	60.0	N	No
KIT/LIV/DIN	AWS-008-12 A	Opening 74	2100	600	awning	10.0	N	No

Roof window* *type and performance value*

Default* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
GARAGE	2340	820	100.0	S
GARAGE	2400	3000	100.0	N
ENTRY/HALL	2340	820	100.0	N

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
1	M3 - 50AAC VENEER	0.93	Dark	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No

*Refer to glossary.

2	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
3	FR5 - Brick Veneer	0.5	Medium		No
4	M3 - DBL STD PARTY WALL	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
5	M3 - 50NRG BOARD	0.44	Medium	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes
6	M3 - 50NRG BOARD	0.93	Dark	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes
7	M3 - 1Omm FC CLAD	0.44	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
GARAGE	1	2900	2280	S	0	Yes
GARAGE	2	2900	3528	N	0	Yes
GARAGE	1	2900	6034	W	0	Yes
BED 01	3	2750	325	S	0	Yes
BED 01	4	2750	3640	S	0	No
BED 01	4	2750	3660	E	6200	Yes
BED 01	1	2750	4260	W	0	Yes
MASTER 1	2	2750	1170	W	0	Yes
MASTER 1	2	2750	1172	E	1945	Yes
MASTER 1	2	2750	3366	N	0	No
ENTRY/HALL	4	2750	1450	E	0	No
ENTRY/HALL	1	2750	2090	N	1200	Yes
LDRY	4	2750	1220	E	0	No
STAIRS	4	2750	1000	S	3600	Yes
STAIRS	4	2750	3750	E	0	No
BATH	4	2750	2464	S	3600	Yes
BED 2	5	2750	3001	S	0	Yes
BED 2	4	2750	3661	E	0	No

*Refer to glossary.

BED 2	5	2750	3661	W	0	Yes
BATH	6	2750	1400	W	0	No
BATH	6	2750	1165	S	0	Yes
KIT/LIV/DIN	6	2750	2951	W	0	No
KIT/LIV/DIN	4	2750	3181	E	0	No
KIT/LIV/DIN	4	2750	160	E	0	No
KIT/LIV/DIN	6	2750	1295	N	0	Yes
KIT/LIV/DIN	5	2750	4252	N	600	Yes
KIT/LIV/DIN	7	2750	1440	W	0	Yes
KIT/LIV/DIN	6	2750	2175	N	0	Yes
STAIRS	4	2750	2151	S	0	No
STAIRS	4	2750	2451	E	0	No
LINEN	4	2750	1225	S	0	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	30	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)
2	FR5 - Internal Plasterboard Stud Wall	107.5	

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
GARAGE	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	23.1	Enclosed	R0.0	none
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	14.7	Enclosed	R0.0	Carpet
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	0.9	Enclosed	R0.0	Carpet
MASTER 1	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	12.1	Enclosed	R0.0	Carpet
ENS	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	5	Enclosed	R0.0	Tiles
ENTRY/HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Timber
LDRY	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.2	Enclosed	R0.0	Tiles
STAIRS	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Carpet
BATH	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.3	Enclosed	R0.0	Tiles
HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	8.9	Enclosed	R0.0	Timber
BED 2	FR5 - Timber Lined	9.1	Enclosed	R2.5	Carpet

*Refer to glossary.

BED 2	FR5 - Timber Lined	0.3	Enclosed	R2.5	Carpet
BED 2	FR5 - Timber Lined	1.6	Enclosed	R2.5	Carpet
BATH	FR5 - Timber Lined	2.3	Enclosed	R2.5	Tiles
BATH	FR5 - Timber Lined	0.6	Enclosed	R2.5	Tiles
BATH	FR5 - Timber Lined	1.4	Enclosed	R2.5	Tiles
KIT/LIV/DIN	FR5 - Timber Lined	4.9	Enclosed	R2.5	Timber
KIT/LIV/DIN	FR5 - Timber Lined	2.6	Enclosed	R2.5	Timber
KIT/LIV/DIN	FR5 - Timber Lined	20.1	Enclosed	R2.5	Timber
KIT/LIV/DIN	FR5 - Timber Lined	1.1	Enclosed	R2.5	Timber
KIT/LIV/DIN	FR5 - Timber Lined	1.3	Enclosed	R2.5	Timber
STAIRS	FR5 - Timber Lined	0.8	Enclosed	R2.5	Carpet
STAIRS	FR5 - Timber Lined	1.4	Enclosed	R2.5	Carpet
STAIRS	FR5 - Timber Lined	1.8	Enclosed	R2.5	Carpet
LINEN	FR5 - Timber Lined	1.6	Enclosed	R2.5	Carpet
HALL	FR5 - Timber Lined	1.3	Enclosed	R2.5	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
GARAGE	FR5 - Timber Lined	R2.5	No
GARAGE	Plasterboard	R5.0	No
BED 01	FR5 - Timber Lined	R2.5	No
BED 01	Plasterboard	R2.5	No
MASTER 1	FR5 - Timber Lined	R2.5	No
MASTER 1	Plasterboard	R5.0	No
ENS	FR5 - Timber Lined	R2.5	No
ENTRY/HALL	FR5 - Timber Lined	R2.5	No
LDRY	FR5 - Timber Lined	R2.5	No
STAIRS	FR5 - Timber Lined	R2.5	No
BATH	FR5 - Timber Lined	R2.5	No
HALL	FR5 - Timber Lined	R2.5	No
BED 2	Plasterboard	R5.0	No
BED 2	Plasterboard	R2.5	No
BATH	Plasterboard	R5.0	No
BATH	Plasterboard	R2.5	No
BATH	Plasterboard	R6.0	Yes
KIT/LIV/DIN	Plasterboard	R5.0	No
KIT/LIV/DIN	Plasterboard	R5.0	No
KIT/LIV/DIN	Plasterboard	R6.0	Yes
KIT/LIV/DIN	Plasterboard	R2.5	No

*Refer to glossary.

KIT/LIV/DIN	Plasterboard	R2.5	No
STAIRS	Plasterboard	R2.5	No
STAIRS	Plasterboard	R6.0	Yes
STAIRS	Plasterboard	R5.0	No
LINEN	Plasterboard	R6.0	Yes
HALL	Plasterboard	R6.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
ENS	1	Exhaust Fans	250	250	Sealed
LDRY	1	Exhaust Fans	250	250	Sealed
BATH	1	Exhaust Fans	250	250	Sealed
BATH	1	Exhaust Fans	250	250	Sealed
KIT/LIV/DIN	1	Exhaust Fans	250	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Framed:Flat - Flat Framed (Metal Deck)	0.0	0.57	Medium
Cont:Attic-Continuous	0.0	0.57	Medium

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room refrigerative - variable capacity	Kit/Liv/Din, Bed 01, Master 1, Bed 2	Electricity	2 Star (ZERL)	9.6kW
Unknown or none (Default - Room refrigerative - variable capacity)	Bath, Hall, Ens, Bath, Entry/Hall, Stairs, Stairs, Linen, Hall	Electricity	2 Star (ZERL)	6kW

*Refer to glossary.

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room RAC - variable capacity	Kit/Liv/Din, Bed 01, Master 1, Bed 2	Electricity	1 Star (ZERL)	3.7kW
Unknown or none (Default - Room RAC - variable capacity)	Bath, Hall, Ens, Bath, Entry/Hall, Stairs, Stairs, Linen, Hall	Electricity	1 Star (ZERL)	2.7kW

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
Electric instantaneous	Electricity	N/A	N/A	N/A	102L

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
Solar PV	255°	2kW

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Data Available	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor using the NatHERS accredited software tool are presented in this report and further details or data files may be obtained from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. R49TAJEPQG

Generated on 4 Oct 2024 using FirstRate5: 5.5.5a (3.22)

Property

Address	2, 9 GONA STREET, HEIDELBERG WEST, VIC, 3081
Lot/DP	-
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	-
Prepared by	M3 DESIGN

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	87.3	suburban
Unconditioned*	22.2	**NatHERS climate zone**
Total	109.5	62 Moorabbin Airport
Garage	21	

Accredited assessor

Name	Nadim Yaacoub
Business name	Enrate (Aust) Pty Ltd
Email	nadim@enrate.com.au
Phone	0448753355
Accreditation No.	DMN/10/0114
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating

Thermal performance [MJ/m²]

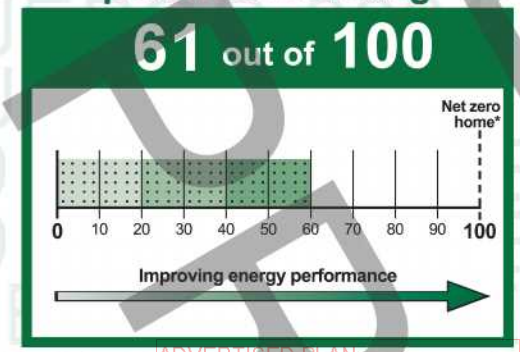
Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	61.2	19.7
Load limits	80	22

Features determining load limits

Floor type (lowest conditioned area)	CSOG
NCC climate zone 1 or 2	N
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating



Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

Your Whole of Home energy use* rating excluding onsite renewable energy generation is **25 out of 100**

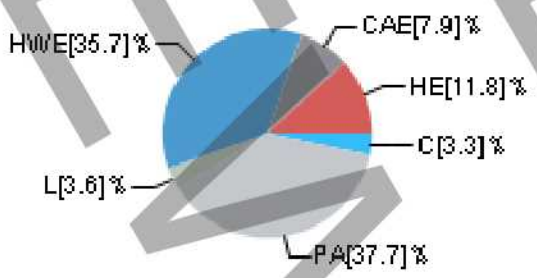
This home's annual greenhouse gas emissions: 3375kg CO2e (with solar) 6648kg CO2e (without solar)

Predicted annual electricity generated: 2923kWh
Exported to the grid: 39%
Used by the home: 61%

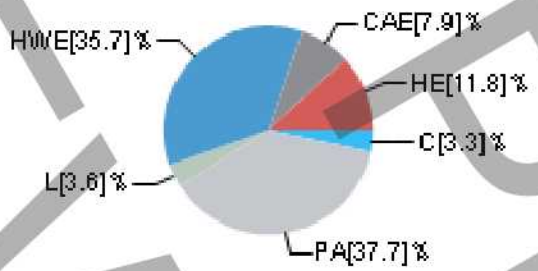
Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

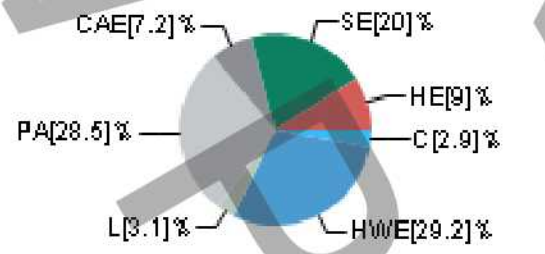
Energy use:



Greenhouse gas emissions:



Cost:



Graph key:

Colour:	Code:	Name:	Fuel type:
	HE	Heating	electric
	HG	Heating	gas
	HW	Heating	wood
	C	Cooling	electric
	HWE	Hot water	electric
	HWG	Hot water	gas
	HWW	Hot water	wood
	L	Lights	electric
	P	Pool/Spa equipment	electric
	PA	Plug-in appliances	electric
	CAE	Cooking appliances	electric
	CAG	Cooking appliances	gas
	SG	Supply charge	gas
	SE	Supply charge	electric

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.	☐	☐		☐	☐
Exposure*					
Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐	☐	☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐			

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

*Refer to glossary.

Room *schedule*

Room	Zone Type	Area [m²]
GARAGE	garage	21
STAIRS	dayTime	3.9
HALL	dayTime	5.2
LDRY	unconditioned	1.2
ENTRY/HALL	dayTime	3.1
BED 01	bedroom	9.9
BATH	dayTime	5.1
BED 2	bedroom	11
ENS	nightTime	5.3
MASTER 1	bedroom	15.4
KIT/LIV/DIN	kitchen	30.6
STAIRS	dayTime	3.1

Window and glazed door *type and performance*

Default* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
AWS-008-12 A	516 Al Awining Window DG 638CPClr/8Ar/4	3.69	0.45	0.43	0.47
AWS-013-10 A	541/542 Al Sliding Door DG 6.38CPClr/8Ar/4	3.31	0.5	0.48	0.53
AWS-013-61 A	541/542 Al Sliding Door DG 015_AGG MAX Clr 6_10_4	2.96	0.23	0.22	0.24

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
ENTRY/HALL	AWS-008-12 A	Opening 71	2100	900	awning	60.0	N	No
BED 01	AWS-008-12 A	Opening 70	2100	1800	awning	60.0	N	No
BED 2	AWS-013-10 A	Opening 69	2400	1800	sliding	45.0	E	No
MASTER 1	AWS-008-12 A	Opening 63	1800	1800	awning	22.5	E	No
KIT/LIV/DIN	AWS-008-12 A	Opening 64	2100	900	awning	10.0	E	No

*Refer to glossary.

KIT/LIV/DIN	AWS-008-12 A	Opening 65	2100	900	awning	10.0	E	No
KIT/LIV/DIN	AWS-013-61 A	Opening 76	2400	3000	sliding	60.0	N	No

Roof window* *type and performance value*

Default* roof windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
GARAGE	2400	3000	100.0	E
ENTRY/HALL	2340	820	100.0	N

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
1	M3 - DBL STD PARTY WALL	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No

*Refer to glossary.

2	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
3	M3 - 50AAC VENEER	0.93	Dark	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
4	FR5 - Brick Veneer	0.5	Medium		No
5	M3 - 50NRG BOARD	0.44	Medium	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes
6	M3 - 1Omm FC CLAD	0.44	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
GARAGE	1	2900	6000	S	3600	Yes
GARAGE	2	2900	3500	E	0	Yes
GARAGE	1	2400	250	N	0	No
GARAGE	1	2750	3304	N	0	No
GARAGE	1	2750	3500	W	0	No
STAIRS	1	2750	3740	W	0	No
STAIRS	1	2400	160	W	0	No
LDRY	1	2750	1200	W	0	No
ENTRY/HALL	3	2750	2090	N	1000	Yes
ENTRY/HALL	1	2750	1480	W	0	No
BED 01	2	2750	820	W	1927	Yes
BED 01	3	2750	1300	E	0	No
BED 01	4	2750	665	N	1880	Yes
BED 01	2	2750	1700	E	626	Yes
BED 01	2	2750	2995	N	180	No
BATH	3	2750	1400	E	0	No
BED 2	3	2750	3400	S	649	Yes
BED 2	3	2750	3000	E	0	No
ENS	1	2750	3501	W	0	No
ENS	5	2750	1500	S	0	Yes
ENS	1	2400	1500	N	0	No
MASTER 1	5	2750	4411	S	0	Yes
MASTER 1	5	2750	2841	E	0	Yes

*Refer to glossary.

MASTER 1	1	2400	1965	N	0	No
KIT/LIV/DIN	1	2750	3091	W	0	No
KIT/LIV/DIN	6	2750	2886	S	0	Yes
KIT/LIV/DIN	6	2750	6632	E	0	No
KIT/LIV/DIN	5	2750	5422	N	500	Yes
STAIRS	1	2750	2541	W	0	No
STAIRS	1	2400	160	W	0	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	15.1	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)
2	FR5 - Internal Plasterboard Stud Wall	81.5	

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
GARAGE	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	21	Enclosed	R0.0	none
STAIRS	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Carpet
HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	5.2	Enclosed	R0.0	Timber
LDRY	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.2	Enclosed	R0.0	Tiles
ENTRY/HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.1	Enclosed	R0.0	Timber
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	0.4	Enclosed	R0.0	Carpet
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	9.5	Enclosed	R0.0	Carpet
BATH	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	0.4	Enclosed	R0.0	Tiles
BATH	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.7	Enclosed	R0.0	Tiles
BED 2	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	0.9	Enclosed	R0.0	Carpet
BED 2	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.1	Enclosed	R0.0	Carpet
ENS	FR5 - Timber Lined	3.7	Enclosed	R2.5	Tiles
ENS	FR5 - Timber Lined	1.6	Enclosed	R2.5	Tiles
MASTER 1	FR5 - Timber Lined	2	Enclosed	R2.5	Carpet
MASTER 1	FR5 - Timber Lined	13.5	Enclosed	R2.5	Carpet
KIT/LIV/DIN	EN-FLR - Timber - FC Lined	2.1	Elevated	R2.5	Timber

*Refer to glossary.

KIT/LIV/DIN	FR5 - Timber Lined	28.5	Enclosed	R2.5	Timber
STAIRS	FR5 - Timber Lined	3.1	Enclosed	R2.5	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
GARAGE	FR5 - Timber Lined	R2.5	No
STAIRS	FR5 - Timber Lined	R2.5	No
HALL	FR5 - Timber Lined	R2.5	No
LDRY	FR5 - Timber Lined	R2.5	No
ENTRY/HALL	FR5 - Timber Lined	R2.5	No
ENTRY/HALL	Plasterboard	R5.0	No
BED 01	FR5 - Timber Lined	R2.5	No
BED 01	Plasterboard	R5.0	No
BATH	FR5 - Timber Lined	R2.5	No
BED 2	Plasterboard	R2.5	No
BED 2	FR5 - Timber Lined	R2.5	No
ENS	Plasterboard	R5.0	No
ENS	Plasterboard	R2.5	No
MASTER 1	Plasterboard	R6.0	Yes
MASTER 1	Plasterboard	R5.0	No
KIT/LIV/DIN	Plasterboard	R6.0	Yes
KIT/LIV/DIN	Plasterboard	R6.0	Yes
STAIRS	Plasterboard	R6.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
LDRY	1	Exhaust Fans	250	250	Sealed
BATH	1	Exhaust Fans	250	250	Sealed
ENS	1	Exhaust Fans	250	250	Sealed
KIT/LIV/DIN	1	Exhaust Fans	250	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Framed:Flat - Flat Framed (Metal Deck)	0.0	0.57	Medium

*Refer to glossary.

Cont:Attic-Continuous	0.0	0.57	Medium

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room refrigerative - variable capacity	Master 1, Bed 2, Kit/Liv/Din, Bed 01	Electricity	2 Star (ZERL)	9.6kW
Unknown or none (Default - Room refrigerative - variable capacity)	Ens, Hall, Stairs, Stairs, Bath, Entry/Hall	Electricity	2 Star (ZERL)	4.2kW

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room RAC - variable capacity	Master 1, Bed 2, Kit/Liv/Din, Bed 01	Electricity	1 Star (ZERL)	4.6kW
Unknown or none (Default - Room RAC - variable capacity)	Ens, Hall, Stairs, Stairs, Bath, Entry/Hall	Electricity	1 Star (ZERL)	2.3kW

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
Electric instantaneous	Electricity	N/A	N/A	N/A	94L

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
Solar PV	75°	2.4kW

*Refer to glossary.

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Data Available	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor using the NatHERS accredited software tool are presented in this report and further details or data files may be obtained from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. 7VDLP7BVPU

Generated on 4 Oct 2024 using FirstRate5: 5.5.5a (3.22)

Property

Address	3, 9 GONA STREET, HEIDELBERG WEST, VIC, 3081
Lot/DP	-
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	-
Prepared by	M3 DESIGN

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	113.8	suburban
Unconditioned*	29.4	**NatHERS climate zone**
Total	143.2	62 Moorabbin Airport
Garage	22.7	

Accredited assessor

Name	Nadim Yaacoub
Business name	Enrate (Aust) Pty Ltd
Email	nadim@enrate.com.au
Phone	0448753355
Accreditation No.	DMN/10/0114
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating

Thermal performance [MJ/m²]

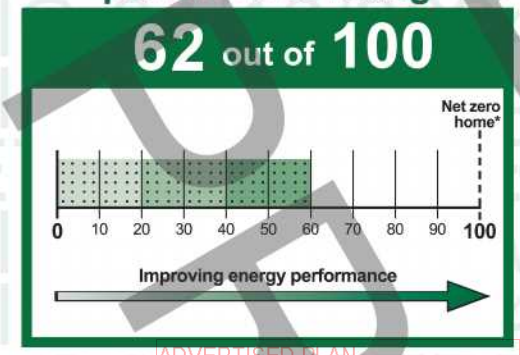
Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	57.6	16.3
Load limits	80	22

Features determining load limits

Floor type (lowest conditioned area)	CSOG
NCC climate zone 1 or 2	N
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating



Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

Your Whole of Home energy use* rating excluding onsite renewable energy generation is **27 out of 100**

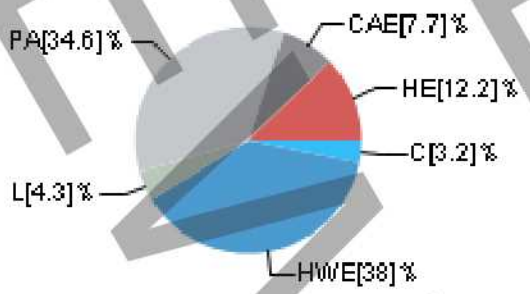
This home's annual greenhouse gas emissions: 3650kg CO2e (with solar) 7421kg CO2e (without solar)

Predicted annual electricity generated: 3368kWh
Exported to the grid: 36%
Used by the home: 64%

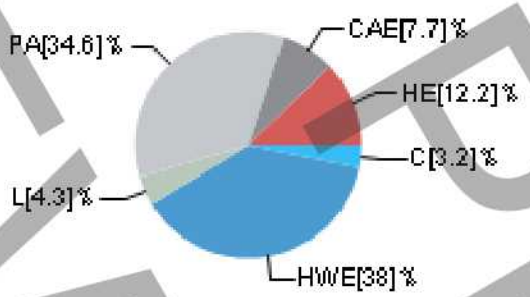
Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

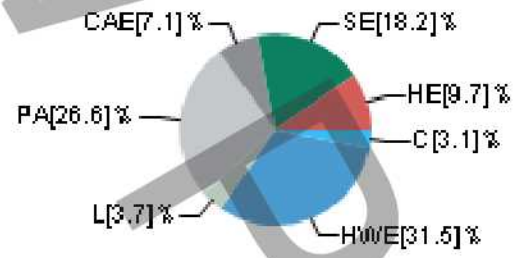
Energy use:



Greenhouse gas emissions:



Cost:



Graph key:

Colour:	Code:	Name:	Fuel type:
	HE	Heating	electric
	HG	Heating	gas
	HW	Heating	wood
	C	Cooling	electric
	HWE	Hot water	electric
	HWG	Hot water	gas
	HWW	Hot water	wood
	L	Lights	electric
	P	Pool/Spa equipment	electric
	PA	Plug-in appliances	electric
	CAE	Cooking appliances	electric
	CAG	Cooking appliances	gas
	SG	Supply charge	gas
	SE	Supply charge	electric

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.	☐	☐		☐	☐
Exposure*					
Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐	☐	☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐			

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

*Refer to glossary.

Room *schedule*

Room	Zone Type	Area [m²]
GARAGE	garage	22.7
LDRY	dayTime	0.8
HALL	dayTime	1.9
BED 01	bedroom	10.6
BATH	dayTime	3.4
STAIRS	dayTime	3.2
KIT/DIN/LIV	kitchen	37.8
ENTRY/HALL	dayTime	6.8
BED 3	bedroom	10.4
BED 2	bedroom	10.8
BATH	unconditioned	6.7
ENS	nightTime	5
MASTER 1	bedroom	15.3
HALL	dayTime	8.1
STAIRS	dayTime	3.7

Window and glazed door *type and performance*

Default* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
AWS-008-12 A	516 Al Awining Window DG 638CPClr/8Ar/4	3.69	0.45	0.43	0.47
AWS-013-61 A	541/542 Al Sliding Door DG 015_AGG MAX Clr 6_10_4	2.96	0.23	0.22	0.24

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
BED 01	AWS-008-12 A	Opening 67	2100	1800	awning	30.0	E	No
KIT/DIN/LIV	AWS-008-12 A	Opening 84	2100	600	awning	60.0	W	No
KIT/DIN/LIV	AWS-008-12 A	Opening 85	2100	600	awning	60.0	W	No

*Refer to glossary.

KIT/DIN/LIV	AWS-013-61 A	Opening 83	2400	3000	sliding	60.0	W	No
ENTRY/HALL	AWS-008-12 A	Opening 68	2100	900	awning	60.0	N	No
BED 3	AWS-008-12 A	Opening 79	700	2100	awning	30.0	W	No
BED 2	AWS-008-12 A	Opening 78	700	2100	awning	30.0	W	No
BATH	AWS-008-12 A	Opening 90	700	600	awning	90.0	N	No
ENS	AWS-008-12 A	Opening 91	700	1000	awning	45.0	N	No
MASTER 1	AWS-008-12 A	Opening 62	2100	1800	awning	10.0	E	No

Roof window* *type and performance value*

Default* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
GARAGE	2400	3000	100.0	E
ENTRY/HALL	2340	820	100.0	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*

*Refer to glossary.

1	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
2	M3 - DBL STD PARTY WALL	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
3	M3 - 50AAC VENEER	0.93	Dark	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
4	M3 - 50NRG BOARD	0.44	Medium	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes
5	M3 - 1Omm FC CLAD	0.44	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
6	M3 - 50NRG BOARD	0.93	Dark	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
GARAGE	1	2900	3500	E	0	Yes
GARAGE	2	2900	6229	N	3600	Yes
GARAGE	2	2750	271	N	0	No
BED 01	1	2750	3164	E	230	Yes
BED 01	1	2750	541	N	1490	Yes
BED 01	2	2750	3600	S	0	No
BATH	2	2750	1800	S	0	No
STAIRS	2	2750	1000	S	0	No
KIT/DIN/LIV	2	2750	3300	N	0	No
KIT/DIN/LIV	3	2750	3590	W	0	Yes
KIT/DIN/LIV	3	2750	325	N	0	Yes
KIT/DIN/LIV	3	2750	4374	W	0	Yes
KIT/DIN/LIV	2	2750	5945	S	0	No
ENTRY/HALL	3	2750	1860	N	320	Yes
ENTRY/HALL	3	2750	1120	E	811	Yes
BED 3	4	2750	2491	W	0	Yes
BED 3	2	2750	3601	S	0	No

*Refer to glossary.

BED 2	4	2750	3201	N	0	Yes
BED 2	5	2750	3601	W	0	Yes
BED 2	5	2750	1931	S	0	Yes
BATH	4	2750	3711	N	0	Yes
ENS	5	2750	1801	E	0	Yes
ENS	4	2750	2801	N	0	Yes
MASTER 1	2	2750	2661	S	0	No
MASTER 1	6	2750	600	E	0	Yes
MASTER 1	4	2750	1142	S	0	Yes
MASTER 1	4	2750	3601	E	200	Yes
MASTER 1	4	2750	1860	N	0	Yes
STAIRS	2	2750	2151	S	0	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	107.2	
2	FR5 - Internal Plasterboard Stud Wall	48	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
GARAGE	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	19.9	Enclosed	R0.0	none
GARAGE	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	2.8	Enclosed	R0.0	none
LDRY	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	0.8	Enclosed	R0.0	Tiles
HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.9	Enclosed	R0.0	Timber
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	9.4	Enclosed	R0.0	Carpet
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.2	Enclosed	R0.0	Carpet
BATH	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.4	Enclosed	R0.0	Tiles
STAIRS	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.2	Enclosed	R0.0	Carpet
KIT/DIN/LIV	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.4	Enclosed	R0.0	Timber
KIT/DIN/LIV	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1	Enclosed	R0.0	Timber
KIT/DIN/LIV	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	35.4	Enclosed	R0.0	Timber

*Refer to glossary.

ENTRY/HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	6.8	Enclosed	R0.0	Timber
BED 3	FR5 - Timber Lined	1.9	Enclosed	R2.5	Carpet
BED 3	FR5 - Timber Lined	8.5	Enclosed	R2.5	Carpet
BED 2	FR5 - Timber Lined	10.8	Enclosed	R2.5	Carpet
BATH	FR5 - Timber Lined	6.7	Enclosed	R2.5	Tiles
ENS	FR5 - Timber Lined	5	Enclosed	R2.5	Tiles
MASTER 1	FR5 - Timber Lined	1.4	Enclosed	R2.5	Carpet
MASTER 1	FR5 - Timber Lined	13.9	Enclosed	R2.5	Carpet
HALL	FR5 - Timber Lined	8.1	Enclosed	R2.5	Carpet
STAIRS	FR5 - Timber Lined	2.6	Enclosed	R2.5	Carpet
STAIRS	FR5 - Timber Lined	1.1	Enclosed	R2.5	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
GARAGE	FR5 - Timber Lined	R2.5	No
GARAGE	Plasterboard	R5.0	No
GARAGE	Plasterboard	R2.5	No
LDRY	FR5 - Timber Lined	R2.5	No
HALL	FR5 - Timber Lined	R2.5	No
BED 01	FR5 - Timber Lined	R2.5	No
BED 01	Plasterboard	R2.5	No
BATH	FR5 - Timber Lined	R2.5	No
STAIRS	FR5 - Timber Lined	R2.5	No
KIT/DIN/LIV	Plasterboard	R2.5	No
KIT/DIN/LIV	Plasterboard	R2.5	No
KIT/DIN/LIV	FR5 - Timber Lined	R2.5	No
KIT/DIN/LIV	Plasterboard	R5.0	No
ENTRY/HALL	FR5 - Timber Lined	R2.5	No
BED 3	Plasterboard	R2.5	No
BED 3	Plasterboard	R6.0	Yes
BED 2	Plasterboard	R6.0	Yes
BATH	Plasterboard	R6.0	Yes
ENS	Plasterboard	R6.0	Yes
MASTER 1	Plasterboard	R2.5	No
MASTER 1	Plasterboard	R6.0	Yes
HALL	Plasterboard	R6.0	Yes
STAIRS	Plasterboard	R6.0	Yes
STAIRS	Plasterboard	R2.5	No

*Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
LDRY	1	Exhaust Fans	250	250	Sealed
BATH	1	Exhaust Fans	250	250	Sealed
KIT/DIN/LIV	1	Exhaust Fans	250	250	Sealed
BATH	1	Exhaust Fans	250	250	Sealed
ENS	1	Exhaust Fans	250	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Framed:Flat - Flat Framed (Metal Deck)	0.0	0.57	Medium
Cont:Attic-Continuous	0.0	0.57	Medium

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room refrigerative - variable capacity	Kit/Din/Liv, Master 1, Bed 01, Bed 3, Bed 2	Electricity	2 Star (ZERL)	10.3kW
Unknown or none (Default - Room refrigerative - variable capacity)	Ens, Entry/Hall, Ldry, Hall, Stairs, Bath, Hall, Stairs	Electricity	2 Star (ZERL)	4.7kW

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room RAC - variable capacity	Kit/Din/Liv, Master 1, Bed 01, Bed 3, Bed 2	Electricity	1 Star (ZERL)	4.4kW

*Refer to glossary.

Unknown or none (Default - Room RAC - variable capacity)	Ens, Entry/Hall, Ldry, Hall, Stairs, Bath, Hall, Stairs	Electricity	1 Star (ZERL)	2.8kW

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
Electric instantaneous	Electricity	N/A	N/A	N/A	112L

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
Solar PV	345°	2.4kW

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Data Available	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor using the NatHERS accredited software tool are presented in this report and further details or data files may be obtained from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. IAG8Q4QF1A

Generated on 4 Oct 2024 using FirstRate5: 5.5.5a (3.22)

Property

Address	4, 9 GONA STREET, HEIDELBERG WEST, VIC, 3081
Lot/DP	-
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	-
Prepared by	M3 DESIGN

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	114.6	suburban
Unconditioned*	6.7	**NatHERS climate zone**
Total	121.3	62 Moorabbin Airport
Garage	-	

Accredited assessor

Name	Nadim Yaacoub
Business name	Enrate (Aust) Pty Ltd
Email	nadim@enrate.com.au
Phone	0448753355
Accreditation No.	DMN/10/0114
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating

Thermal performance [MJ/m²]

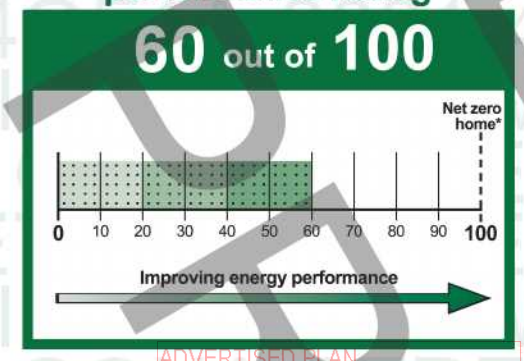
Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	65.5	16.8
Load limits	80	22

Features determining load limits

Floor type (lowest conditioned area)	CSOG
NCC climate zone 1 or 2	N
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating



Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

Your Whole of Home energy use* rating excluding onsite renewable energy generation is **25 out of 100**

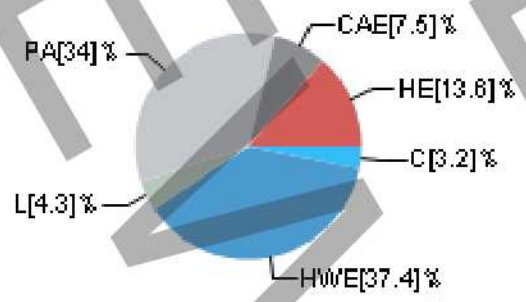
This home's annual greenhouse gas emissions: 3906kg CO2e (with solar) 7564kg CO2e (without solar)

Predicted annual electricity generated: 3267kWh
Exported to the grid: 36%
Used by the home: 64%

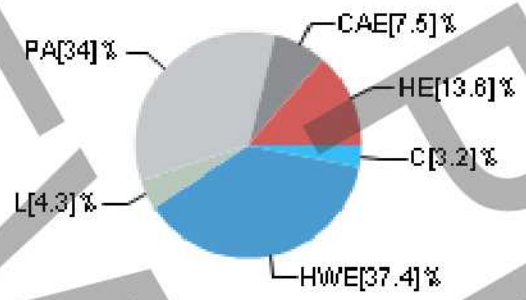
Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

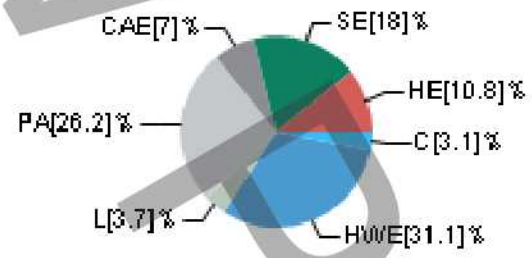
Energy use:



Greenhouse gas emissions:



Cost:



Graph key:

Colour:	Code:	Name:	Fuel type:
	HE	Heating	electric
	HG	Heating	gas
	HW	Heating	wood
	C	Cooling	electric
	HWE	Hot water	electric
	HWG	Hot water	gas
	HWW	Hot water	wood
	L	Lights	electric
	P	Pool/Spa equipment	electric
	PA	Plug-in appliances	electric
	CAE	Cooking appliances	electric
	CAG	Cooking appliances	gas
	SG	Supply charge	gas
	SE	Supply charge	electric

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.	☐	☐		☐	☐
Exposure*					
Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐	☐	☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐			

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

*Refer to glossary.

Room *schedule*

Room	Zone Type	Area [m²]
BED 01	bedroom	11.9
BATH	dayTime	4.2
LDRY	dayTime	1.1
HALL	dayTime	1.9
ENTRY/HALL	dayTime	4.9
STAIRS	dayTime	4.7
KIT/DIN/LIV	kitchen	34.5
BED 2	bedroom	11.4
BATH	unconditioned	6.7
ENS	nightTime	5
MASTER 1	bedroom	16
HALL	dayTime	9
BED 3	bedroom	10.4
STAIRS	dayTime	3.7

Window and glazed door *type and performance*

Default* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
AWS-008-12 A	516 Al Awining Window DG 638CPClr/8Ar/4	3.69	0.45	0.43	0.47
AWS-013-10 A	541/542 Al Sliding Door DG 6.38CPClr/8Ar/4	3.31	0.5	0.48	0.53

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
BED 01	AWS-008-12 A	Opening 66	2100	1800	awning	30.0	E	No
ENTRY/HALL	AWS-008-12 A	Opening 57	2100	900	awning	60.0	S	No
KIT/DIN/LIV	AWS-013-10 A	Opening 82	2400	3000	sliding	60.0	W	No
KIT/DIN/LIV	AWS-008-12 A	Opening 58	2100	900	awning	60.0	S	No

*Refer to glossary.

BED 2	AWS-008-12 A	Opening 81	700	2400	awning	30.0	W	No
BATH	AWS-008-12 A	Opening 60	700	600	awning	90.0	S	No
ENS	AWS-008-12 A	Opening 59	700	1000	awning	45.0	S	No
MASTER 1	AWS-008-12 A	Opening 61	2100	1800	awning	10.0	E	No
BED 3	AWS-008-12 A	Opening 80	700	2100	awning	30.0	W	No

Roof window* *type and performance value*

Default* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
ENTRY/HALL	2340	820	100.0	E
KIT/DIN/LIV	2340	820	100.0	S

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*

*Refer to glossary.

1	M3 - DBL STD PARTY WALL	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
2	M3 - 1Omm FC CLAD	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
3	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
4	M3 - 50AAC VENEER	0.93	Dark	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
5	EN - BRK VEN REND	0.93	Dark	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
6	M3 - 1Omm FC CLAD	0.44	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
7	M3 - 50NRG BOARD	0.44	Medium	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes
8	M3 - 50NRG BOARD	0.93	Dark	Polystyrene expanded (k = 0.039) (R1.3);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	Yes

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
BED 01	1	2750	3300	N	0	No
BED 01	2	2750	540	S	1523	Yes
BED 01	3	2750	3600	E	230	Yes
BATH	1	2750	2094	N	0	No
ENTRY/HALL	4	2750	3166	S	3421	Yes
ENTRY/HALL	5	2750	1783	S	320	Yes
ENTRY/HALL	4	2750	993	E	811	Yes
STAIRS	1	2750	1000	N	0	No
STAIRS	4	2750	999	S	3421	Yes
KIT/DIN/LIV	1	2750	5945	N	0	No
KIT/DIN/LIV	4	2750	6291	W	0	Yes
KIT/DIN/LIV	4	2750	4125	S	0	Yes

*Refer to glossary.

KIT/DIN/LIV	4	2750	1601	E	6000	Yes
KIT/DIN/LIV	4	2750	1820	S	3427	Yes
BED 2	6	2750	3201	S	0	No
BED 2	6	2750	1931	N	0	Yes
BED 2	6	2750	3802	W	0	Yes
BATH	6	2750	3711	S	0	No
ENS	6	2750	2801	S	0	No
ENS	6	2750	1801	E	0	Yes
MASTER 1	6	2750	1860	S	0	Yes
MASTER 1	7	2750	3802	E	200	Yes
MASTER 1	7	2750	1141	N	0	Yes
MASTER 1	8	2750	600	E	0	Yes
MASTER 1	1	2750	2661	N	0	No
BED 3	7	2750	2491	W	0	Yes
BED 3	1	2750	3601	N	0	No
STAIRS	1	2750	2151	N	0	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	111.2	
2	FR5 - Internal Plasterboard Stud Wall	20.2	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	Carpet
BED 01	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.2	Enclosed	R0.0	Carpet
BATH	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.2	Enclosed	R0.0	Tiles
LDRY	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.1	Enclosed	R0.0	Tiles
HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.9	Enclosed	R0.0	Timber
ENTRY/HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	0.3	Enclosed	R0.0	Timber
ENTRY/HALL	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
STAIRS	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.7	Enclosed	R0.0	Timber

*Refer to glossary.

KIT/DIN/LIV	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.5	Enclosed	R0.0	Timber
KIT/DIN/LIV	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	33	Enclosed	R0.0	Timber
BED 2	FR5 - Timber Lined	11.4	Enclosed	R2.5	Carpet
BATH	EN-FLR - Timber - FC Lined	5.1	Elevated	R2.5	Tiles
BATH	FR5 - Timber Lined	1.6	Enclosed	R2.5	Tiles
ENS	EN-FLR - Timber - FC Lined	4.4	Elevated	R2.5	Tiles
ENS	FR5 - Timber Lined	0.6	Enclosed	R2.5	Tiles
MASTER 1	FR5 - Timber Lined	1.3	Enclosed	R2.5	Carpet
MASTER 1	FR5 - Timber Lined	14.7	Enclosed	R2.5	Carpet
HALL	FR5 - Timber Lined	9	Enclosed	R2.5	Carpet
BED 3	FR5 - Timber Lined	8.6	Enclosed	R2.5	Carpet
BED 3	FR5 - Timber Lined	1.8	Enclosed	R2.5	Carpet
STAIRS	FR5 - Timber Lined	2.6	Enclosed	R2.5	Carpet
STAIRS	FR5 - Timber Lined	1.1	Enclosed	R2.5	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
BED 01	FR5 - Timber Lined	R2.5	No
BED 01	Plasterboard	R2.5	No
BATH	FR5 - Timber Lined	R2.5	No
LDRY	FR5 - Timber Lined	R2.5	No
HALL	FR5 - Timber Lined	R2.5	No
ENTRY/HALL	FR5 - Timber Lined	R2.5	No
STAIRS	FR5 - Timber Lined	R2.5	No
KIT/DIN/LIV	Plasterboard	R2.5	No
KIT/DIN/LIV	FR5 - Timber Lined	R2.5	No
KIT/DIN/LIV	Plasterboard	R5.0	No
BED 2	Plasterboard	R6.0	Yes
BATH	Plasterboard	R6.0	Yes
BATH	Plasterboard	R6.0	Yes
ENS	Plasterboard	R6.0	Yes
ENS	Plasterboard	R6.0	Yes
MASTER 1	Plasterboard	R2.5	No
MASTER 1	Plasterboard	R6.0	Yes
HALL	Plasterboard	R6.0	Yes
BED 3	Plasterboard	R6.0	Yes
BED 3	Plasterboard	R2.5	No

*Refer to glossary.

STAIRS	Plasterboard	R6.0	Yes
STAIRS	Plasterboard	R2.5	No

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
BATH	1	Exhaust Fans	250	250	Sealed
LDRY	1	Exhaust Fans	250	250	Sealed
KIT/DIN/LIV	1	Exhaust Fans	250	250	Sealed
BATH	1	Exhaust Fans	250	250	Sealed
ENS	1	Exhaust Fans	250	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Framed:Flat - Flat Framed (Metal Deck)	0.0	0.57	Medium
Cont:Attic-Continuous	0.0	0.57	Medium

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
Room refrigerative - variable capacity	Bed 01, Master 1, Kit/Din/Liv, Bed 2, Bed 3	Electricity	2 Star (ZERL)	10.9kW
Unknown or none (Default - Room refrigerative - variable capacity)	Bath, Hall, Entry/Hall, Hall, Stairs, Stairs, Ldry, Ens	Electricity	2 Star (ZERL)	4.6kW

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity

*Refer to glossary.

Room RAC - variable capacity	Bed 01, Master 1, Kit/Din/Liv, Bed 2, Bed 3	Electricity	1 Star (ZERL)	4.6kW
Unknown or none (Default - Room RAC - variable capacity)	Bath, Hall, Entry/Hall, Hall, Stairs, Stairs, Ldry, Ens	Electricity	1 Star (ZERL)	3.1kW

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
Electric instantaneous	Electricity	N/A	N/A	N/A	112L

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
Solar PV	165°	2.8kW

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Data Available	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor using the NatHERS accredited software tool are presented in this report and further details or data files may be obtained from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Appendix 4 – Natural Ventilation (Breeze Pathways)

Enrate (Aust) Pty Ltd
16 Norway Avenue
Blackburn North VIC 3130

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E admin@enrate.com.au
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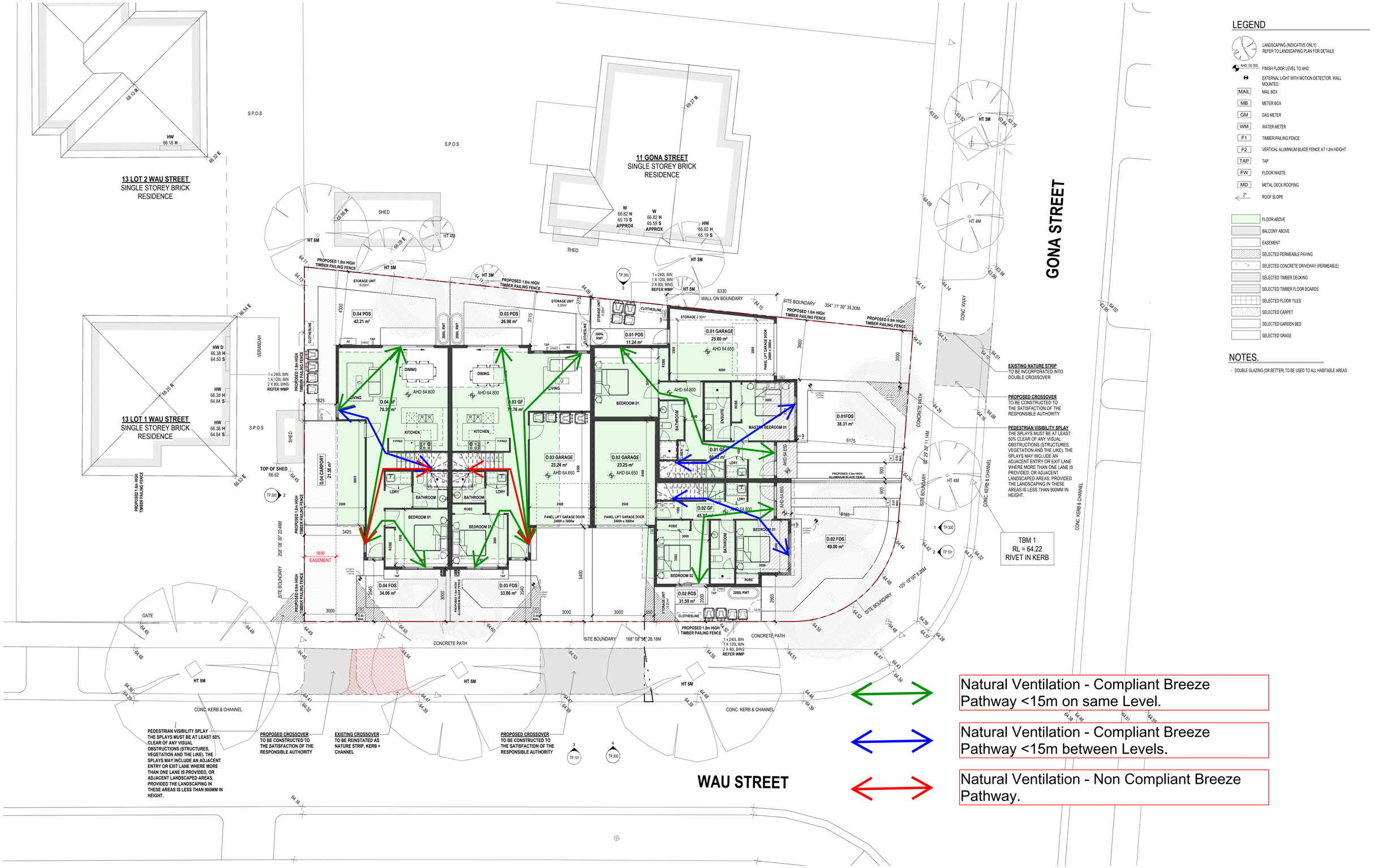


EXISTING NATURE STRIP
TO BE INCORPORATED INTO DOUBLE CROSSOVER

PROPOSED CROSSOVER
TO BE CONSTRUCTED TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY

PEDESTRIAN VISIBILITY SPLAY
THE SPLAYS MUST BE AT LEAST 50% CLEAR OF ANY VISUAL OBSTRUCTIONS (STRUCTURES, VEGETATION AND THE LIKE). THE SPLAYS MAY INCLUDE AN ADJACENT ENTRY OR EXIT LANE WHERE MORE THAN ONE LANE IS PROVIDED, OR ADJACENT LANDSCAPED AREAS, PROVIDED THE LANDSCAPING IN THESE AREAS IS LESS THAN 900MM IN HEIGHT.

TBM 1
RL = 64.22
RIVET IN KERB

PEDESTRIAN VISIBILITY SPLAY
THE SPLAYS MUST BE AT LEAST 50% CLEAR OF ANY VISUAL OBSTRUCTIONS (STRUCTURES, VEGETATION AND THE LIKE). THE SPLAYS MAY INCLUDE AN ADJACENT ENTRY OR EXIT LANE WHERE MORE THAN ONE LANE IS PROVIDED, OR ADJACENT LANDSCAPED AREAS, PROVIDED THE LANDSCAPING IN THESE AREAS IS LESS THAN 900MM IN HEIGHT.

PROPOSED CROSSOVER
TO BE CONSTRUCTED TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY

EXISTING CROSSOVER
TO BE REINSTATED AS NATURE STRIP, KERB + CHANNEL

PROPOSED CROSSOVER
TO BE CONSTRUCTED TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY

🟩 ↔	Natural Ventilation - Compliant Breeze Pathway <15m on same Level.
🟦 ↔	Natural Ventilation - Compliant Breeze Pathway <15m between Levels.
🟥 ↔	Natural Ventilation - Non Compliant Breeze Pathway.

LEGEND

❀	LANDSCAPING (INDICATIVE ONLY) REFER TO LANDSCAPING PLAN FOR DETAILS
⊕ AHD. 00.000	FINISH FLOOR LEVEL TO AHD.
⊗	EXTERNAL LIGHT WITH MOTION DETECTOR. WALL MOUNTED.
MAIL	MAIL BOX
MB	METER BOX
GM	GAS METER
WM	WATER METER
F1	TIMBER PAILING FENCE
F2	VERTICAL ALUMINIUM BLADE FENCE AT 1.2m HEIGHT
TAP	TAP
FW	FLOOR WASTE
MD	METAL DECK ROOFING
← 2°	ROOF SLOPE
🟩	FLOOR ABOVE
▒	BALCONY ABOVE
░	EASEMENT
▨	SELECTED PERMEABLE PAVING
░	SELECTED CONCRETE DRIVEWAY (PERMEABLE)
☰	SELECTED TIMBER DECKING
☰	SELECTED TIMBER FLOOR BOARDS
▦	SELECTED FLOOR TILES
░	SELECTED CARPET
░	SELECTED GARDEN BED
☐	SELECTED GRASS

NOTES.

- DOUBLE GLAZING (OR BETTER) TO BE USED TO ALL HABITABLE AREAS

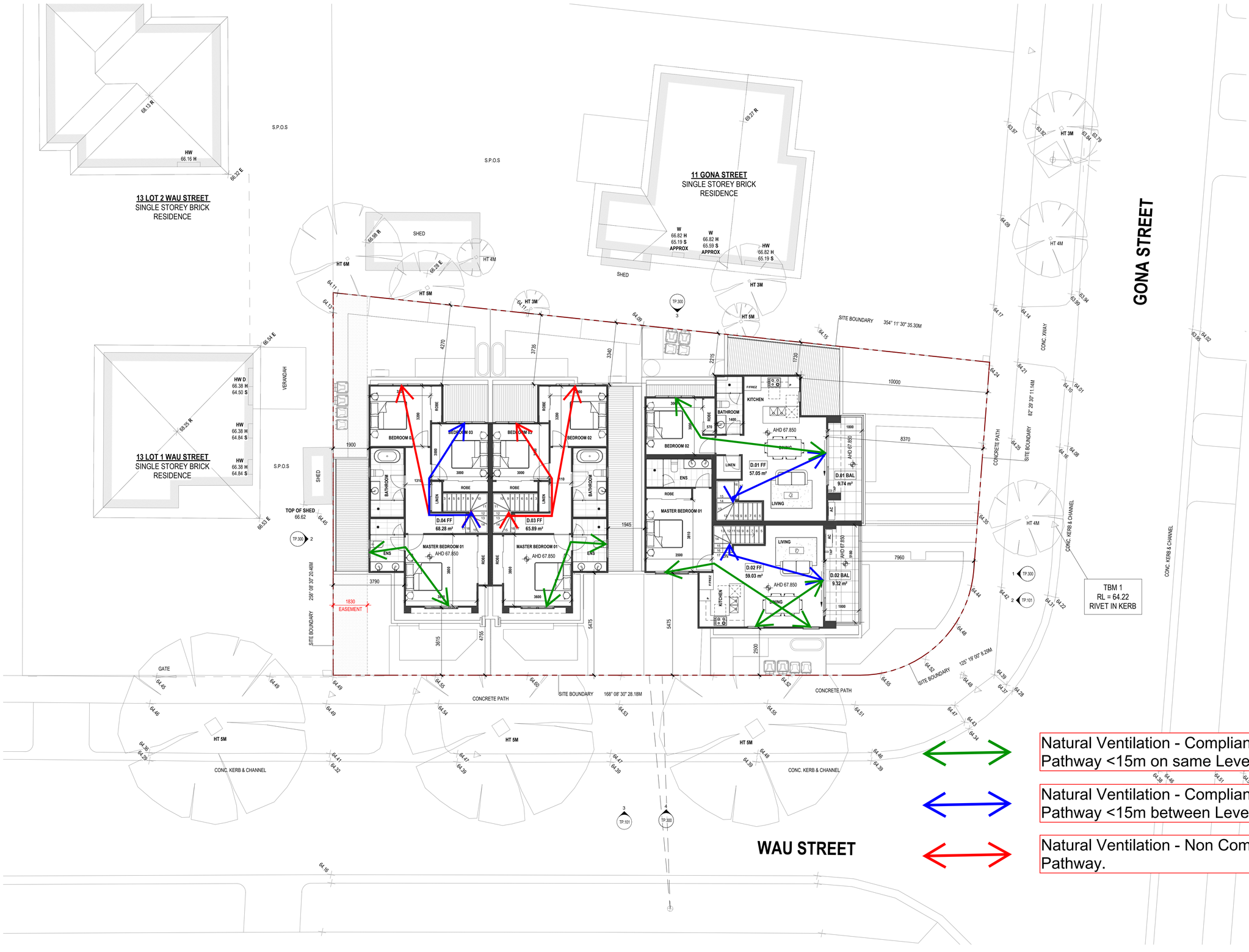
info@m3group.au
Unit 2, 1 Bik Lane, Fitzroy North 3068

M3 GROUP

Project Address	9 GONA STREET, HEIDELBERG WEST	Project Number	241937
Drawing Title	GROUND FLOOR PLAN	Drawing Number	TP.200
Drawing Issue	TOWN PLANNING	Issue Date	SEP 2024
Client	PBH	Revision Issue	A
		Drawn by	DE
		Checked by	GM
North Point		Scale	A3 / A1 / 1 : 100

Rev	Description	Date
-	Concept Plans	04/09/2024
A	Issue for Lodgement	16/09/2024

All dimensions must be verified on site prior to commencement of work or establishment of any shop drawings. Figured dimensions must take precedence over scaled dimensions. All scaled dimensions must be verified on site. These drawings are to be read in conjunction with all specifications, schedules, all other consultants documentation Town Planning endorsed plans and Planning Permit.



LEGEND

- LANDSCAPING (INDICATIVE ONLY) REFER TO LANDSCAPING PLAN FOR DETAILS
- AHD. 00.000 — FINISH FLOOR LEVEL TO AHD.
- EXTERNAL LIGHT WITH MOTION DETECTOR. WALL MOUNTED.
- MAIL — MAIL BOX
- MB — METER BOX
- GM — GAS METER
- WM — WATER METER
- F1 — TIMBER PAILING FENCE
- F2 — VERTICAL ALUMINIUM BLADE FENCE AT 1.2m HEIGHT
- TAP — TAP
- FW — FLOOR WASTE
- MD — METAL DECK ROOFING
- 2° — ROOF SLOPE

- FLOOR ABOVE
- BALCONY ABOVE
- EASEMENT
- SELECTED PERMEABLE PAVING
- SELECTED CONCRETE DRIVEWAY (PERMEABLE)
- SELECTED TIMBER DECKING
- SELECTED TIMBER FLOOR BOARDS
- SELECTED FLOOR TILES
- SELECTED CARPET
- SELECTED GARDEN BED
- SELECTED GRASS

NOTES.

- DOUBLE GLAZING (OR BETTER) TO BE USED TO ALL HABITABLE AREAS

info@m3group.au
Unit 2, 1 Bik Lane, Fitzroy North 3068

M3 GROUP

Project Address	9 GONA STREET, HEIDELBERG WEST
Drawing Title	FIRST FLOOR PLAN
Drawing Issue	TOWN PLANNING
Client	PBH
North Point	
Project Number	241937
Drawing Number	TP.201
Issue Date	SEP 2024
Revision Issue	A
Drawn by	DE
Checked by	GM
Scale	A3 / A1 / 1 : 100

Rev	Description	Date
-	Concept Plans	04/09/2024
A	Issue for Lodgement	16/09/2024

Appendix 5 – SDA Implementation Plan

Enrate (Aust) Pty Ltd
16 Norway Avenue
Blackburn North VIC 3130

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SUSTAINABILITY INITIATIVES – IMPLEMENTATION PLAN

ESD Category	Initiative / Commitment	Delivery Stage(s)	Responsible Party	Comments
General	ESD Drawings & WSUD Plan	Design & Permit Application	Architect	Architect to work with ESD Consultant to prepare an ESD & WSUD plan with all key initiatives from SDA visually shown.
General	ESD Compliance Report	Post Construction	Builder/Project Manager	Report to be produced and submitted to Council with evidence collated confirming the SDA report has been adhered to.
Building Management	Prelim. NATHERS Report to Council	Planning Application	ESD Consultant	Demonstrate compliance to Energy Efficiency Standards based on proposed design.
Building Management	Building Metering	Construction	Builder/Project Manager Plumber	Ensure separate utility meters are installed to each dwelling and major common areas.
Integrated Water Management	High Efficiency WELS Ratings for water fixtures	Construction	Builder/Project Manager Plumber	Retain and collate copies of the WELS ratings and receipts from the fixture supplier. Provide as part of ESD Compliance Report. Refer to Water Section on Page 7 of the SDA by Enrate (Aust) Pty Ltd for required WELS Ratings.
Integrated Water Management	Water Efficient Landscaping	Design & Landscaping	Landscape Architect Landscaper	Landscape Architect to ensure design incorporates water efficient landscaping and water efficient irrigation system with rain shut-off device. Landscaper to apply Landscape plan in full without variations.
Integrated Water Management	Rainwater Harvesting & Re-use	Construction	Builder/Project Manager Plumber	8,000L rainwater tank capacity (4 x 2000L) be installed and connected to all sanitary flushing systems.
Integrated Water Management	Pollutant Management during Construction	Construction	Builder/Project Manager	Temporary downpipes to be installed and connected to main stormwater system once roof cladding is installed. Cross-overs and footpaths to be swept with any soil, mud, loose material removed. Temporary sediment traps/diversion systems to be installed to street drains close to site.
Integrated Water Management	Maintenance	Construction Post Construction	Owners Corporation / Occupants	Rainwater tank, gutters, downpipes and drains to be inspected annually and cleaned of any debris. Refer to Maintenance Plan in SDA by Enrate (Aust) – Appendix 2.
Operational Energy	NATHERS Compliance	Design & Permit Application	ESD Consultant Builder/Project Manager	Preliminary ratings and report to be submitted with Planning application. Building Permit stage assessments to be completed confirming compliance to Star ratings. Retain and collate copies of insulation, window performances and receipts from suppliers confirming adherence to Building Permit Energy Efficiency report.
Operational Energy	All Electric Site	Design & Permit Application	Architect Engineer	Architect & Engineering plans to confirm site is all electric with no gas supply.
Operational Energy	9.6kW Solar PV system	Design Construction	Architect Solar Electricians	Provide Solar report to Council confirming the number of kW's installed to site.
Operational Energy	Hot Water Supply	Design Building Material Acquisition Construction	Architect Builder/Project Manager Plumber	Electric Instantaneous Hot Water system to be installed. Evidence to be collated and included in the ESD Compliance report submitted to council post construction.
Operational Energy	Energy Efficient Heating and Cooling system	Design Building Material Acquisition Construction	Architect Builder/Project Manager HVAC installer/Supplier	Reverse Cycle split system installed to Living rooms and Bedrooms with not less than HSPF Value 2.5 for Heating & TCSPF Value 3.5 for cooling efficiency.
Operational Energy	Clothes Drying Facilities – Fixed	Design Construction	Architect Builder/Project Manager	Fixed clothes lines to be installed to All Dwellings in POS. Evidence to be collated and included in the ESD Compliance report submitted to council post construction.

<table>
<tr><td>Operational Energy</td><td>Internal Maximum Illumination – Energy Efficient Lighting</td><td>Design (Electrical Plan)
Building Material Acquisition
Construction</td><td>Electrician/Electrical Engineer
Architect
Builder/Project Manager</td><td>Illumination Power density must not exceed the following maximum allowances for the relevant spaces. Table to be included in electrical plans. Evidence of compliance to be provided to Council.<table><tr><th>Space</th><th>BESS Allowance - 20% Reduction</th></tr><tr><td>Class 1 Dwelling</td><td>4 W/m^2</td></tr><tr><td>Outdoor Living</td><td>4 W/m^2</td></tr><tr><td>Class 10a Garage / Carports</td><td>3 W/m^2</td></tr></table></td></tr>
<tr><td>Indoor Environment Quality</td><td>Cross-flow Ventilation</td><td>Design</td><td>Architect
ESD Consultant</td><td>Adequate cross-flow ventilation to be demonstrated on ESD Drawing to the satisfaction of the responsible authority.</td></tr>
<tr><td>Indoor Environment Quality</td><td>Double Glazing – Performance Requirements</td><td>Design
Energy Ratings
Construction</td><td>Architect
ESD Consultant
Builder/Project Manager</td><td>Performance Requirements to be included in ESD Drawings.
Evidence of compliance to performances to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
<tr><td>Indoor Environment Quality</td><td>Low VOC Materials</td><td>Design
Building Material Acquisition
Construction</td><td>Architect
Builder/Project Manager</td><td>Low VOC – Paints, Floor Coverings and Sealants/Adhesives to be used during construction.
Evidence to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
<tr><td>Indoor Environment Quality</td><td>Sustainable Timber</td><td>Design
Building Material Acquisition
Construction</td><td>Architect
Builder/Project Manager</td><td>Commitment to use only sustainable timber products with third party certification through schemes such as Forest Stewardship Council (FSC) or Australian Forest Certification Scheme (AFSC), sourced as plantation timber.
Evidence to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
<tr><td>Transport</td><td>EV Charging Facility</td><td>Design
Construction</td><td>Architect
Builder/Project Manager
Electrician</td><td>Ev Charging infrastructure to be provided to each dwelling to support Level 2/Mode 3 (32Amp) EV charging point.
Evidence to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
<tr><td>Waste Management</td><td>Construction Waste – Re-use or Recycle at least 80% of construction waste</td><td>Project Planning
Construction</td><td>Builder/Project Manager
Waste Consultant</td><td>Construction Waste bins to be provided onsite and removed by qualified contractors.
Measures to try to reduce and re-use construction waste. Evidence to be provided to Council.</td></tr>
<tr><td>Waste Management</td><td>Food & Garden Waste (FOGO Bin, Internal Bin Compartment)</td><td>Design (Cabinetry)
Construction</td><td>Waste Consultant
Architect
Builder/Project Manager</td><td>Must provide adequate infrastructure for the temporary storage and composing of organic material including in Kitchen cabinetry.
General Waste, Recycling, Glass and Organic Waste (FOGO) bins to be installed onsite.
Evidence to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
<tr><td>Urban Ecology</td><td>Tap & Floor Waste to POS & Balconies</td><td>Design
Construction</td><td>Architect
Builder/Project Manager</td><td>Evidence (photographic) to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
<tr><td>Urban Ecology</td><td>Vegetated Site Coverage (27.2%)</td><td>Design
Landscaping</td><td>Landscape Architect
Architect</td><td>Plan Drawings to match Landscape plans for percentage of vegetation on site.</td></tr>
<tr><td>Urban Ecology</td><td>Water Efficient Planting</td><td>Design
Landscaping</td><td>Landscape Architect
Architect</td><td>Landscape Plan Drawings to show Water Efficient plants.
Evidence to be collated and included in the ESD Compliance report submitted to council post construction.</td></tr>
</table>