HUME CITY COUNCIL

Office Use Only

Application No.: Date Lodged: / /

Application for Planning Permit

Planning Enquiries
Phone: 03 9205 2200
Web: http://www.hume.vic.gov.au

If you need help to complete this form, read How to complete the Application for Planning Permit form.

⚠ Any material submitted with this application, including plans and personal information, will be made available for public viewing, including electronically, and copies may be made for interested parties for the purpose of enabling consideration and review as part of a planning process under the *Planning and Environment Act 1987*. If you have any concerns, please contact Council's planning department.

⚠ **Questions marked with an asterisk (*) are mandatory and must be completed.**

⚠ **If the space provided on the form is insufficient, attach a separate sheet.**

Clear Form

The Land

(1) Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address *

Formal Land Description *
Complete either A or B.

⚠ This information can be found on the certificate of title.

If this application relates to more than one address, please click this button and enter relevant details. Add Address

The Proposal

⚠ You must give full details of your proposal and attach the information required to assess the application. Insufficient or unclear information will delay your application.

(2) **For what use, development or other matter do you require a permit? ***

If you need help about the proposal, read: How to Complete the Application for Planning Permit Form

(3) **Estimated cost of development for which the permit is required ***

If the application is for land within **metropolitan Melbourne** (as defined in section 3 of the *Planning and Environment Act 1987*) and the estimated cost of the development exceeds $1 million (adjusted annually by CPI) the Metropolitan Planning Levy must be paid to the State Revenue Office and a current levy certificate must be submitted with the application.
Visit www.sro.vic.gov.au for information.

Existing Conditions

(4) **Describe how the land is used and developed now ***

eg. vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

Title Information

(5) **Encumbrances on title** *

If you need help about the title, read: How to complete the Application for Planning Permit form

Does the proposal breach, in any way, an encumbrance on title such as a restrictrive covenant, section 173 agreement or other obligation such as an easement or building envelope?

- ◯ Yes. (If 'yes' contact Council for advice on how to proceed before continuing with this application.)
- ◉ No
- ◯ Not applicable (no such encumbrance applies).

☑ Provide a full, current copy of the title for each individual parcel of land forming the subject site. (The title includes: the covering 'register search statement', the title diagram and the associated title documents, known as 'instruments', eg. restrictive covenants.)

Applicant and Owner Details

(6) Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit.

Name:

[redacted]

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

Contact person's details * Same as applicant (if so, go to 'contact information') ☐

Name:

[redacted]

*Please provide at least one contact phone number **

Contact information

[redacted]

Owner *

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.

Same as applicant ☑

Name:

[redacted]

Declaration

(7) **This form must be signed by the applicant** *

⚠ Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit.

I declare that I am the applicant; and that all the information in this application is true and correct; and the owner (if not myself) has been notified of the permit application.

[redacted]

Need help with the Application?

If you need help to complete this form, read How to complete the Application for Planning Permit form
General information about the planning process is available at www.delwp.vic.gov.au/planning

Contact Council's planning department to discuss the specific requirements for this application and obtain a planning permit checklist. Insufficient or unclear information may delay your application.

(8) Has there been a pre-application meeting with a Council planning officer?

(•) No ( ) Yes

Checklist

(9) Have you:

[✓] Filled in the form completely?

[✓] Paid or included the application fee?

Most applications require a fee to be paid. Contact Council to determine the appropriate fee.

[✓] Provided all necessary supporting information and documents?

- [✓] A full, current copy of title information for each individual parcel of land forming the subject site
- [✓] A plan of existing conditions.
- [✓] Plans showing the layout and details of the proposal
- [✓] Any information required by the planning scheme, requested by council or outlined in a council planning permit checklist.
- [ ] If required, a description of the likely effect of the proposal (eg traffic, noise, environmental impacts).
- [ ] If applicable, a current Metropolitan Planning Levy certificate (a levy certificate expires 90 days after the day on which it is issued by the State Revenue Office and then cannot be used). Failure to comply means the application is void.

[✓] Completed the relevant Council planning permit checklist?

[✓] Signed the declaration (section 7)?

Lodgement

Lodge the completed and signed form, the fee payment and all documents with:

Hume City Council
PO Box 119 Dallas VIC 3047
Pascoe Vale Road Broadmeadows VIC 3047

Contact information:

Telephone: 61 03 9205 2200
Email: email@hume.vic.gov.au
DX: 94718
Translation: 03 9205 2200 for connection to Hume Link's multilingual telephone information service

Deliver application in person, by fax, or by post:

Print Form

Make sure you deliver any required supporting information and necessary payment when you deliver this form to the above mentioned address. This is usually your local council but can sometimes be the Minister for Planning or another body.

Save Form:

Save Form To Your Computer

You can save this application form to your computer to complete or review later or email it to others to complete relevant sections.

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

VOLUME 08418 FOLIO 113

Security no : 124111538256T
Produced 26/12/2023 06:36 PM

LAND DESCRIPTION

Lot 3 on Plan of Subdivision 058095.
PARENT TITLES :
Volume 03904 Folio 699 to Volume 03904 Folio 700
Volume 08255 Folio 340 to Volume 08255 Folio 341
Created by instrument H571902 10/06/1963

REGISTERED PROPRIETOR

[redacted]

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 LP058095 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: 20 TURNER STREET WESTMEADOWS VIC 3049

ADMINISTRATIVE NOTICES

NIL

eCT Control 22856L PIONEER PROPERTY CONVEYANCING PTY LTD
Effective from 21/04/2021

DOCUMENT END

Department of Environment, Land, Water & Planning

Electronic Instrument Statement

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

Produced 26/12/2023 06:36:34 PM

Status	Registered	Dealing Number	AU259144J
Date and Time Lodged	21/04/2021 02:34:03 PM		

Lodger Details

Lodger Code	22856L
Name	PIONEER PROPERTY CONVEYANCING PTY LTD
Address	
Lodger Box	
Phone	
Email	
Reference	

TRANSFER

Jurisdiction VICTORIA

Privacy Collection Statement
The information in this form is collected under statutory authority and used for the purpose of maintaining publicly searchable registers and indexes.

Land Title Reference
8418/113

Transferor(s)
[redacted]

Estate and/or Interest being transferred
Fee Simple

Consideration
$AUD 767500.00

Transferee(s)
[redacted]

Reference :
Secure Electronic Registries Victoria (SERV), Level 13, 697 Collins Street Docklands 3008
Locked bag 20005, Melbourne 3001, DX 210189
ABN 86 627 986 396

Department of Environment, Land, Water & Planning

Electronic Instrument Statement

Street Type	CLOSE
Locality	GREENVALE
State	VIC
Postcode	3059

Duty Transaction ID
50814279

The transferor transfers to the transferee their estate and/or interest in the land specified for the consideration, subject to any restrictive covenant set out or referred to in this transfer.

Execution

1. The Certifier has taken reasonable steps to verify the identity of the transferee or his, her or its administrator or attorney.
2. The Certifier holds a properly completed Client Authorisation for the Conveyancing Transaction including this Registry Instrument or Document.
3. The Certifier has retained the evidence supporting this Registry Instrument or Document.
4. The Certifier has taken reasonable steps to ensure that this Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.

Executed on behalf of	RICHARD JOHN LOJKO
Signer Name	REBECCA VILLELLA
Signer Organisation	PIONEER PROPERTY CONVEYANCING PTY LTD
Signer Role	LICENSED CONVEYANCER
Execution Date	21 APRIL 2021

Execution

1. The Certifier has taken reasonable steps to verify the identity of the transferor or his, her or its administrator or attorney.
2. The Certifier holds a properly completed Client Authorisation for the Conveyancing Transaction including this Registry Instrument or Document.
3. The Certifier has retained the evidence supporting this Registry Instrument or Document.
4. The Certifier has taken reasonable steps to ensure that this Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.

Executed on behalf of	ROSEMARY PAMELA MERKEL
Signer Name	CARMELINA NUCARA
Signer Organisation	LOCK CONVEYANCING GROUP
Signer Role	CONVEYANCING PRACTICE
Execution Date	20 APRIL 2021

File Notes:
NIL

This is a representation of the digitally signed Electronic Instrument or Document certified by Land Use Victoria.

Statement End.

Reference :
Secure Electronic Registries Victoria (SERV), Level 13, 697 Collins Street Docklands 3008
Locked bag 20005, Melbourne 3001, DX 210189
ABN 86 627 986 396

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	**LP058095**
Number of Pages (excluding this cover sheet)	**2**
Document Assembled	**26/12/2023 18:36**

LP58095
EDITION 2
APPROVED 23/4/63

PLAN OF SUBDIVISION

CROWN ALLOTMENTS 1,2,3,4,5 & 6 SECTION 26
TOWNSHIP OF BROADMEADOWS
PARISH OF WILL WILL ROOK
COUNTY OF BOURKE

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

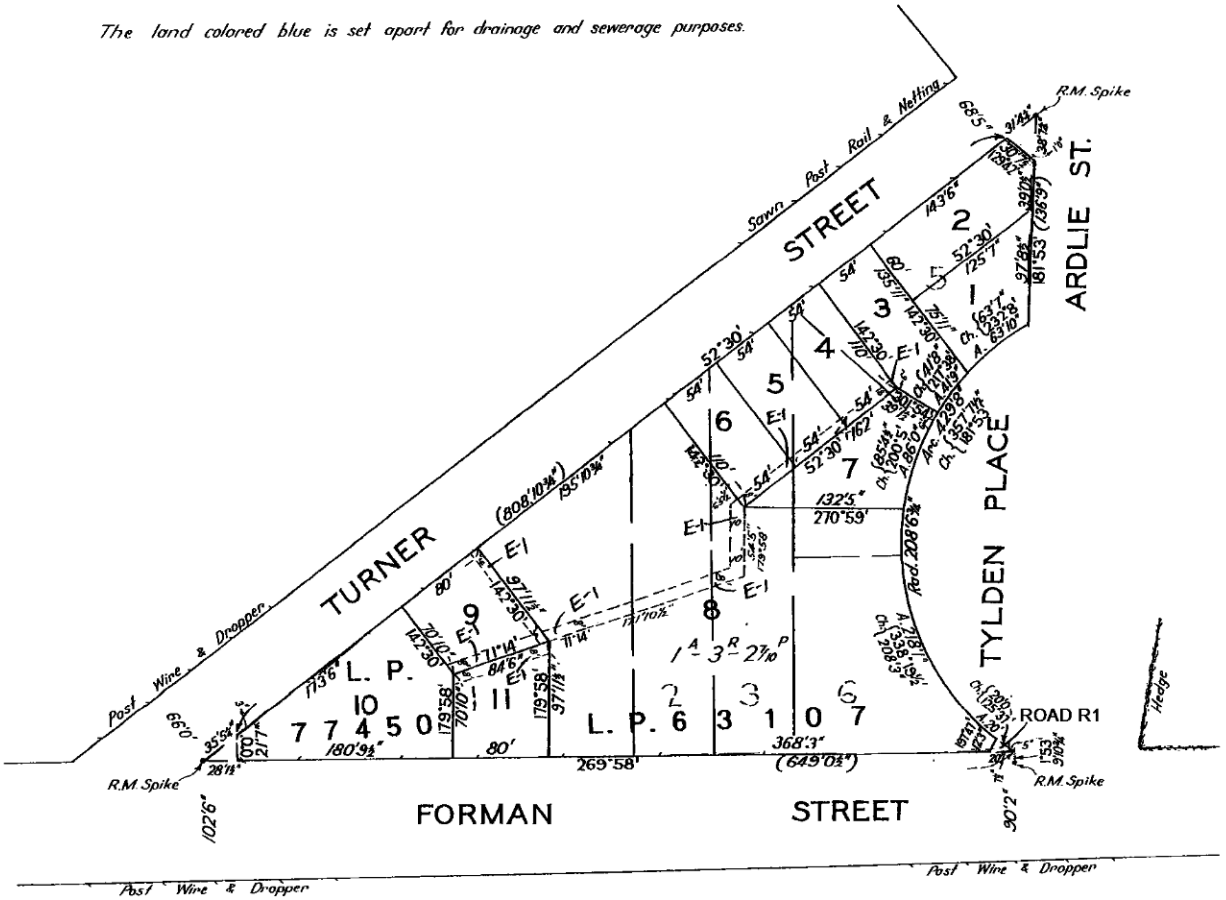
DEPTH LIMITATION: 50 FEET (CA's 2 & 6)

COLOUR CONVERSION
E-1 = BLUE
R1 = BROWN

LIST OF MODIFICATIONS APPROVAL DATE 23/4/63

LAND	MODIFICATION	DEALING No.	DATE	A.R.T.	EDN. No.
LOT 8	REMOVAL OF EASEMENT	VIDE Ap. 17131	2/8/96.		2
		SEC. 103.			
LOT 8.	EASEMENT INSERTED	VIDE Ap. 17131			2
		SEC. 103.			

The land colored blue is set apart for drainage and sewerage purposes.



FOR APPROPRIATIONS, ETC,
SEE BACK HEREOF

Plan amended Vide Ap. 17131 Sec. 103.

CERTIFICATE OF TITLE V. 3904 F. 699
8255 700
340/41.

LODGED BY C.T. ERLAND.

DEALING No. B. 571912. DATE 20-12-1962.

DECLARED BY B.F. ROSS. 22-6-62.

CONSENT OF COUNCIL CITY OF BROADMEADOWS

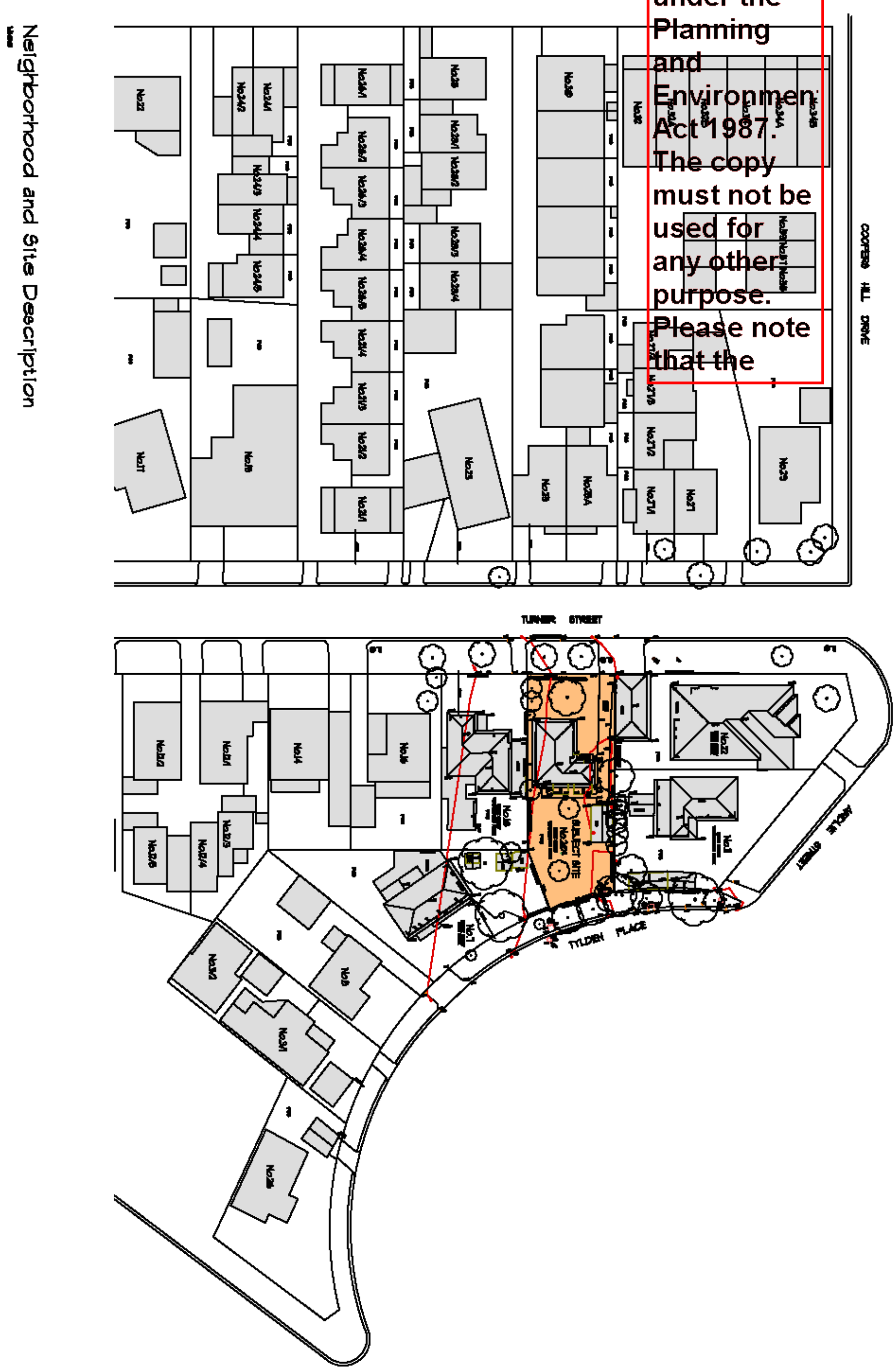
5-12-62

PLAN MAY BE LODGED 23 APR 1963 L.F.L.

LP 58095
BACK OF SHEET .../.....

THE LAND COLOURED BLUE
IS APPROPRIATED
OR SET APART FOR
EASEMENTS OF DRAINAGE AND SEWERAGE

THE LAND COLOURED BROWN
IS APPROPRIATED
OR SET APART FOR
EASEMENTS OF WAY AND DRAINAGE

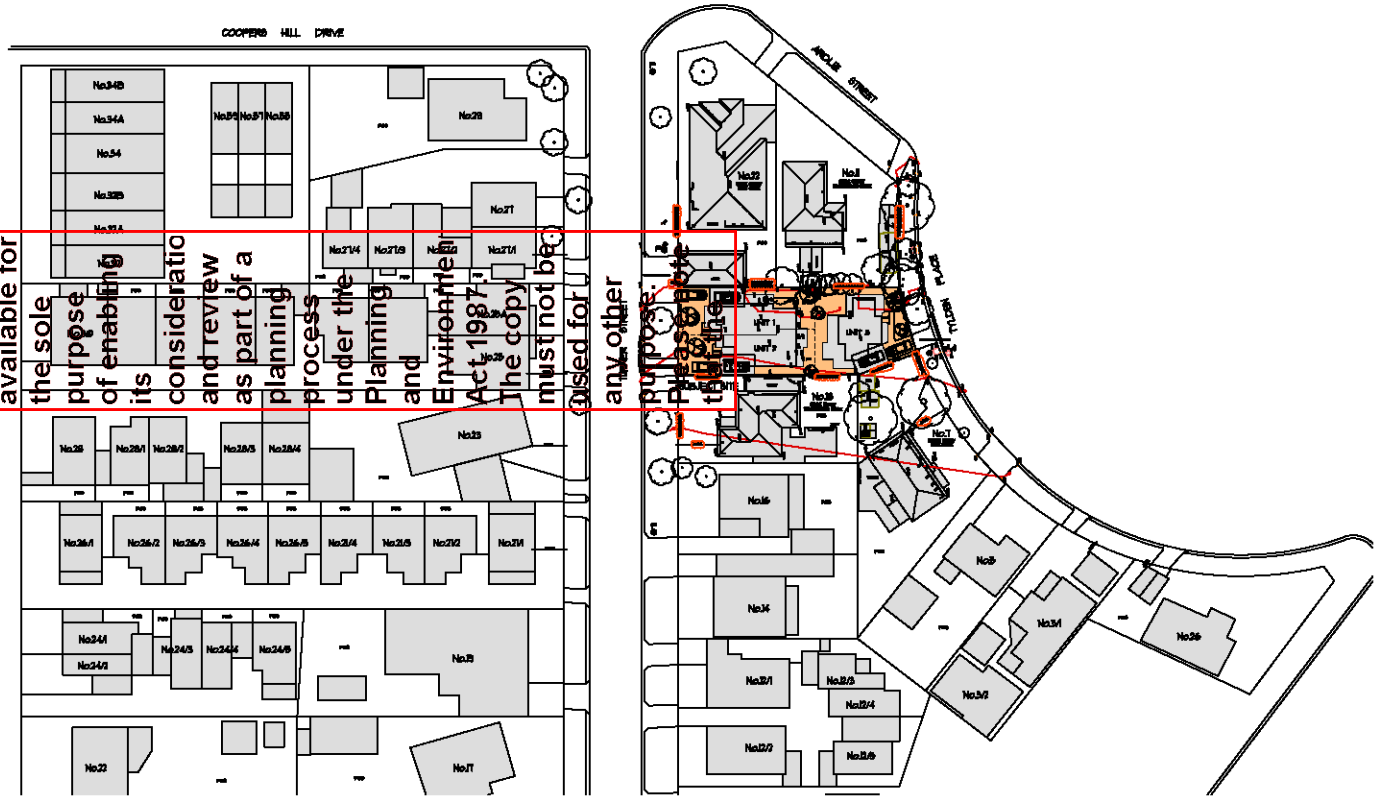


Existing Site Context Plan

[redacted]

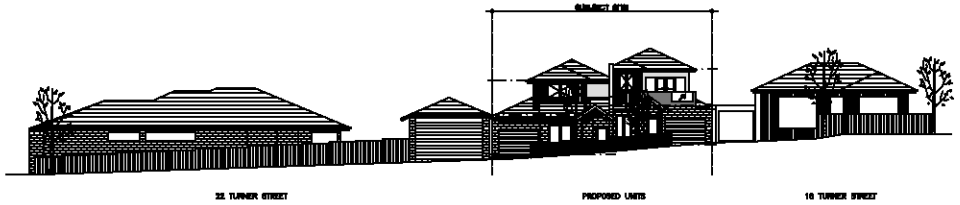
Neighborhood and Site Description

Existing Site Context Plan



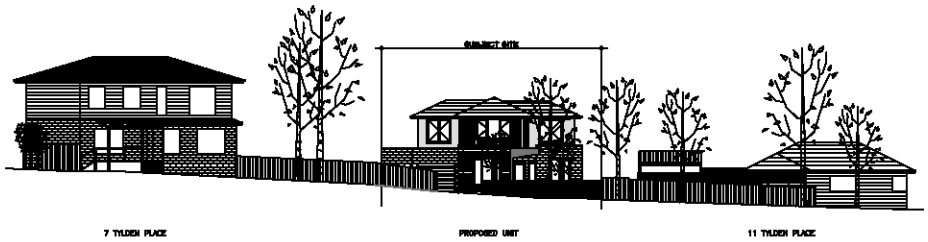
Design Response Plan

SCALE 1:500



Proposed Turner Street Streetscape - North West Elevation

SCALE 1:200



Proposed Tylden Place Streetscape - South East Elevation

SCALE 1:200

Proposed Site Context

LEGEND

POS associated private open space

HB habitable room window

existing power pole

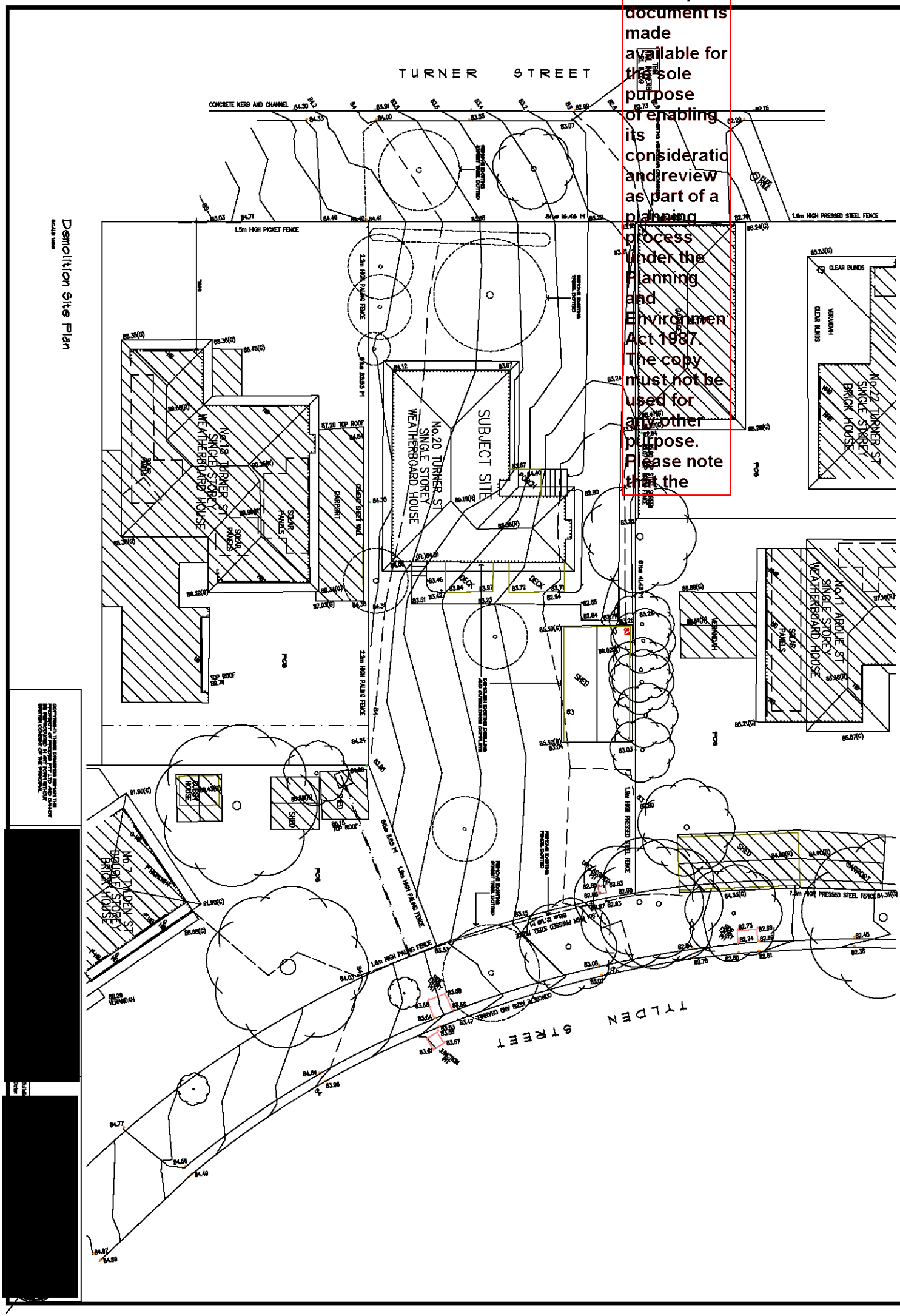
existing tree

[redacted]

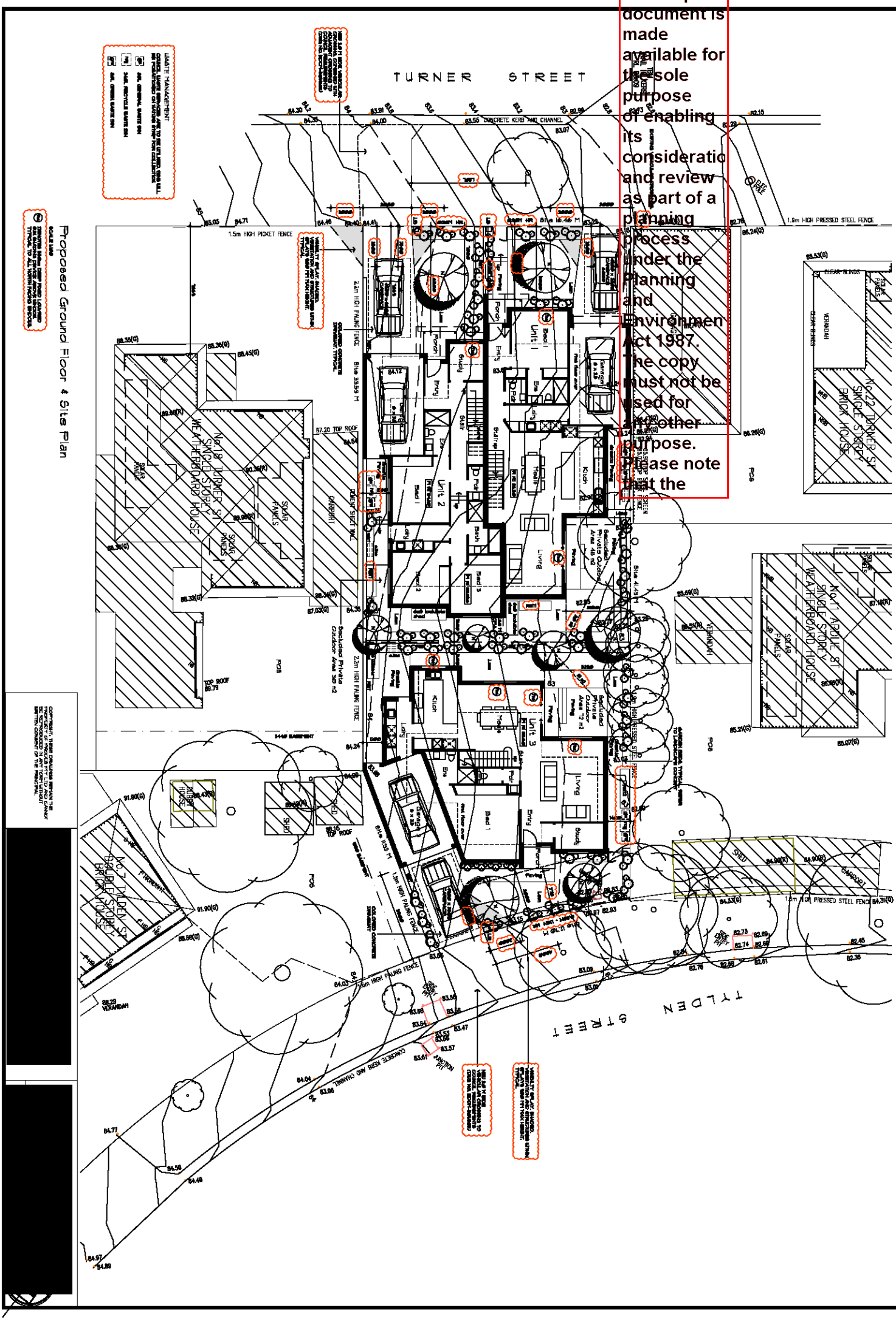
[redacted]

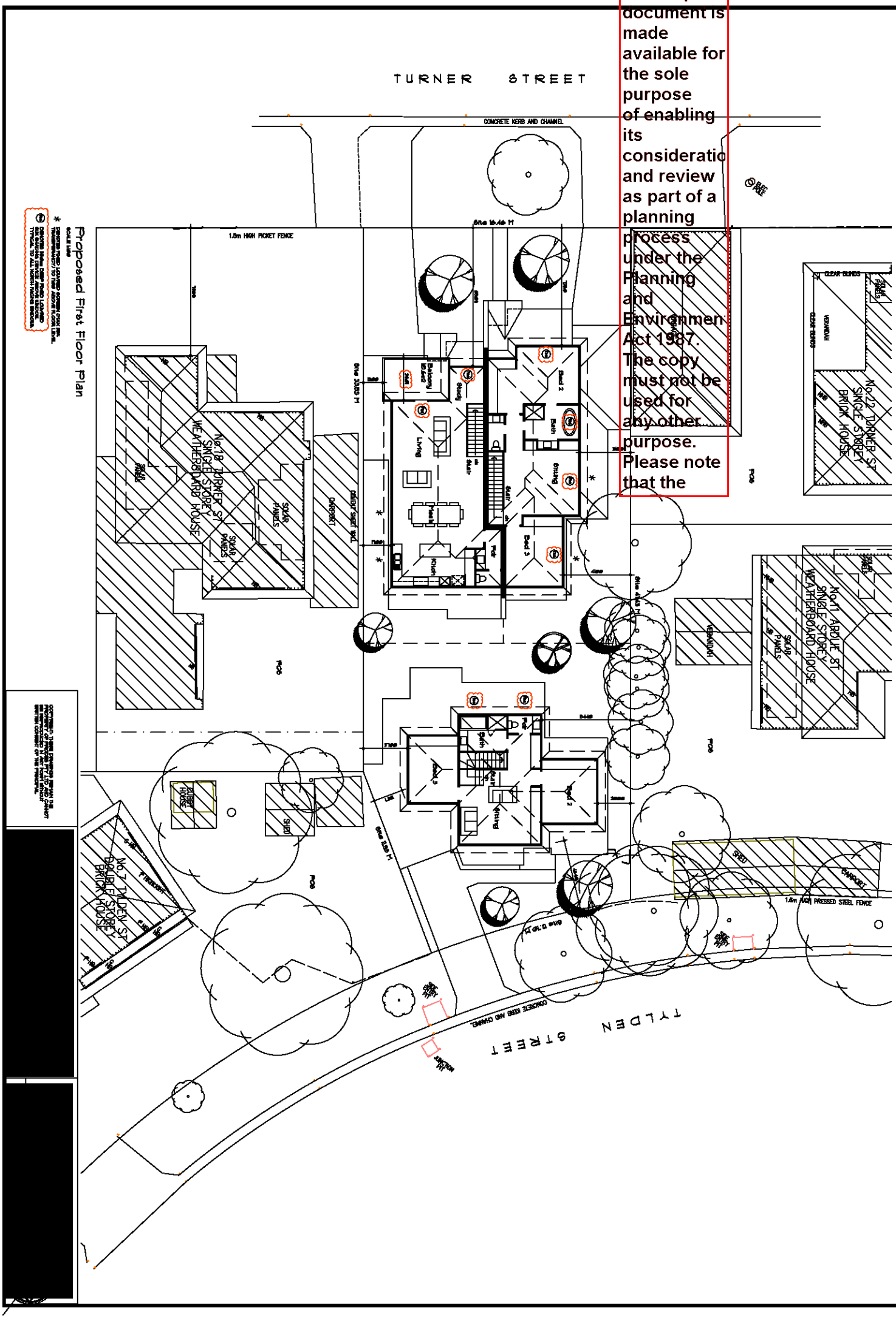
Design Response Plan

Proposed Site Context Plan

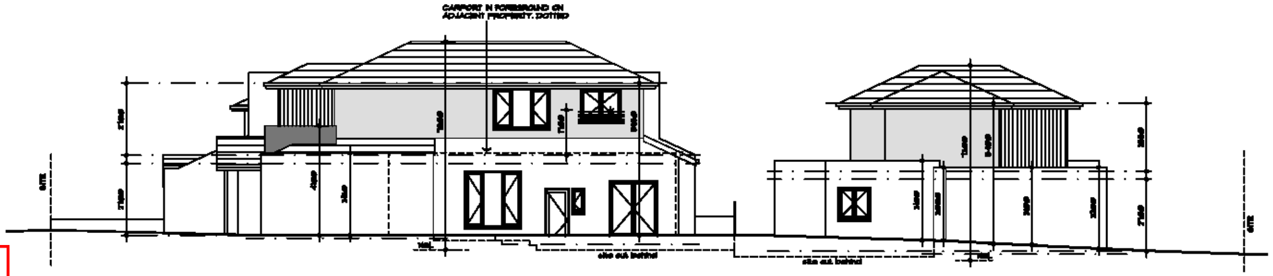


Demolition Site Plan



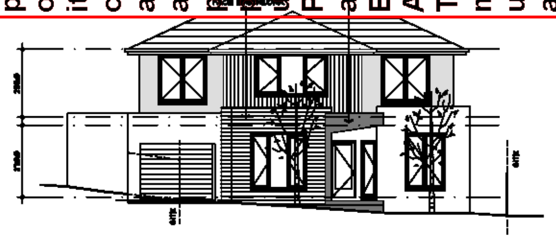


North West Elevation

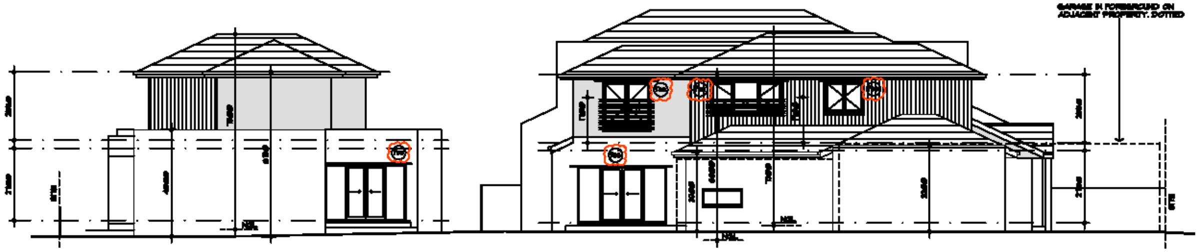


South West Elevation

* DENOTES FIXED LOUVRED SCREEN (MAX 25% TRANSPARENCY) TO 1700 ABOVE FLOOR LEVEL



South East Elevation



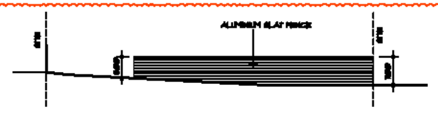
North East Elevation

* DENOTES FIXED LOUVRED SCREEN (MAX 25% TRANSPARENCY) TO 1700 ABOVE FLOOR LEVEL

DENOTES 600mm DEEP FIXED LOUVRED SUN SHADING DEVICE ABOVE WINDOW. TYPICAL TO ALL NORTH FACING WINDOWS.

Front Fence Elevation - Turner Street

SCALE 1:100



Front Fence Elevation - Tylden Place

SCALE 1:100

Area Analysis

SITE AREA: [illegible] m2

UNIT 1: [illegible] m2 (Ground Floor) / [illegible] m2 (First Floor) — Total [illegible] m2 [illegible] sq's

UNIT 2: [illegible] m2 (Ground Floor) / [illegible] m2 (First Floor) — Total [illegible] m2 [illegible] sq's

UNIT 3: [illegible] m2 (Ground Floor) / [illegible] m2 (First Floor) — Total [illegible] m2 [illegible] sq's

(includes porch's)

GARAGES

UNIT 1: [illegible] m2

UNIT 2: [illegible] m2

UNIT 3: 24 m2

TOTAL SITE COVERAGE: [illegible] m2 [illegible] %

TOTAL SECLUDED PRIVATE OUTDOOR AREA

UNIT 1: [illegible] m2 ([illegible] m2 WITH 3 METRES MIN WIDTH)

UNIT 2: [illegible] m2 PLUS [illegible] m2 BALCONY OF 1.6 METRES MIN WIDTH

UNIT 3: [illegible] m2 ([illegible] m2 WITH 3 METRES MIN WIDTH)

PERVIOUS SURFACE AREA: [illegible] m2. [illegible] % OF SITE

CARSPACES: 2 CARSPACES TO EACH UNIT

GARDEN AREA: REFER TO DRAWING

NOTES:

REFER TO SITE ANALYSIS FOR DETAILS OF ADJOINING BUILDINGS. ALL ADJACENT WINDOWS SHOWN 'HR' ARE TO HABITABLE ROOMS

LB DENOTES LETTER BOXES TO AUSTRALIA POST REQUIREMENTS

ALL LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM.

PA DENOTES PALING FENCE TO HEIGHT SHOWN. ALL FENCE HEIGHTS MEASURED FROM NATURAL GROUND LEVEL (NG)

HR DENOTES FENCE WITH HORIZONTAL RAILS TO HEIGHT SHOWN.

CFA DENOTES COLOURBOND FENCE TO HEIGHT SHOWN.

ALL ROLLER DOORS ARE TO BE MOTOR OPERATED AND REMOTELY CONTROLLED TO SATISFACTION OF RESPONSIBLE AUTHORITY

ALL SERVICES, PLANT AND EQUIPMENT TO BE SITED, SCREENED AND/OR BATTLED SO AS NOT TO AFFECT ADJOINING DWELLINGS BOTH ON THE SITE AND AJOINING PROPERTIES

THE DEVELOPMENT ACHIEVES A 7 STAR ENERGY RATING IN ACCORDANCE WITH THE SUSTAINABLE ENERGY AUTHORITY OF VICTORIA 'FIRSTRATE' SYSTEM

ADOPT RECOMMENDATIONS FROM SDA REPORT

LANDSCAPE CONCEPT

THE NEW GARDEN BEDS WILL BE MADE WITH 75mm AGED PINE BARK MULCH AND OSMOCOTE FERTILISER.

EDGING TO BE 150 X 25 HARDWOOD PLANKS PLACED VERTICALLY.

REFER TO SITE ANALYSIS FOR RECENTLY REMOVED TREES.

LARGE DECIDUOUS TREE PLACED IN FRONT GARDENS TO MAINTAIN CONSISTENCY WITH STREETSCAPE.

N DENOTES NEW TREES

RET DENOTES SLEEPER RETAINING WALL

TANK 1	2000 LITRE RAINWATER TANK CONNECTED FOR FLUSHING OF TOILETS, LAUNDRIES AND GARDEN IRRIGATION.
TANK 2	4000 LITRE RAINWATER TANK CONNECTED FOR FLUSHING OF TOILETS, LAUNDRIES AND GARDEN IRRIGATION.

COLOUR & FINISHES SCHEDULE

REFER TO SEPARATE COLOURS AND FINISHES SCHEDULE FOR SAMPLES

WALLS -	FACE BRICKWORK, PGH 'WASHED STONE' OR SIMILAR
WALLS -	FEATURE BRICKWORK, LITTLE HAMPTON 'NEW ASH BRICK' OR SIMILAR
R1 -	LIGHT RENDER TO FIRST FLOOR WALLS - DULUX 'VANILLA QUAKE' OR SIMILAR
R2 -	DARK RENDER TO UNIT 3 PORTICO AND UNIT 2 BALCONY - DULUX 'WAYWARD GREY' OR SIMILAR
HARDIES VERTICAL WALL CLADDING -	DULUX 'GHOSTED - HALF STRENGTH' OR SIMILAR
ROLLER DOORS -	TIMBER LOOK COLORBOND OR SIMILAR
WINDOWS -	ALUMINIUM POWDERCOAT 'SILVER' OR SIMILAR
ROOF TILES -	BORAL 'CHARCOAL' OR SIMILAR
GUTTERS & FASCIAS -	ALUMINIUM COLORBOND 'MONUMENT' OR SIMILAR
DRIVEWAY -	COLOURED CONCRETE 'GREY' OR SIMILAR

SDA SUMMARY AND COMMITMENTS

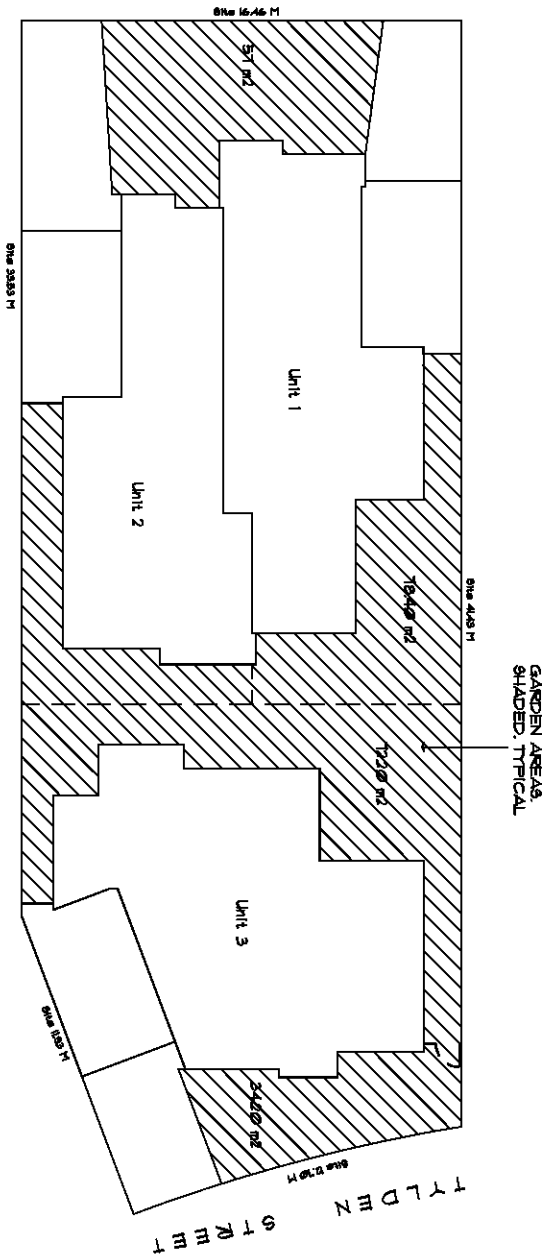
REFER TO SDA REPORT FOR FULL DETAILS

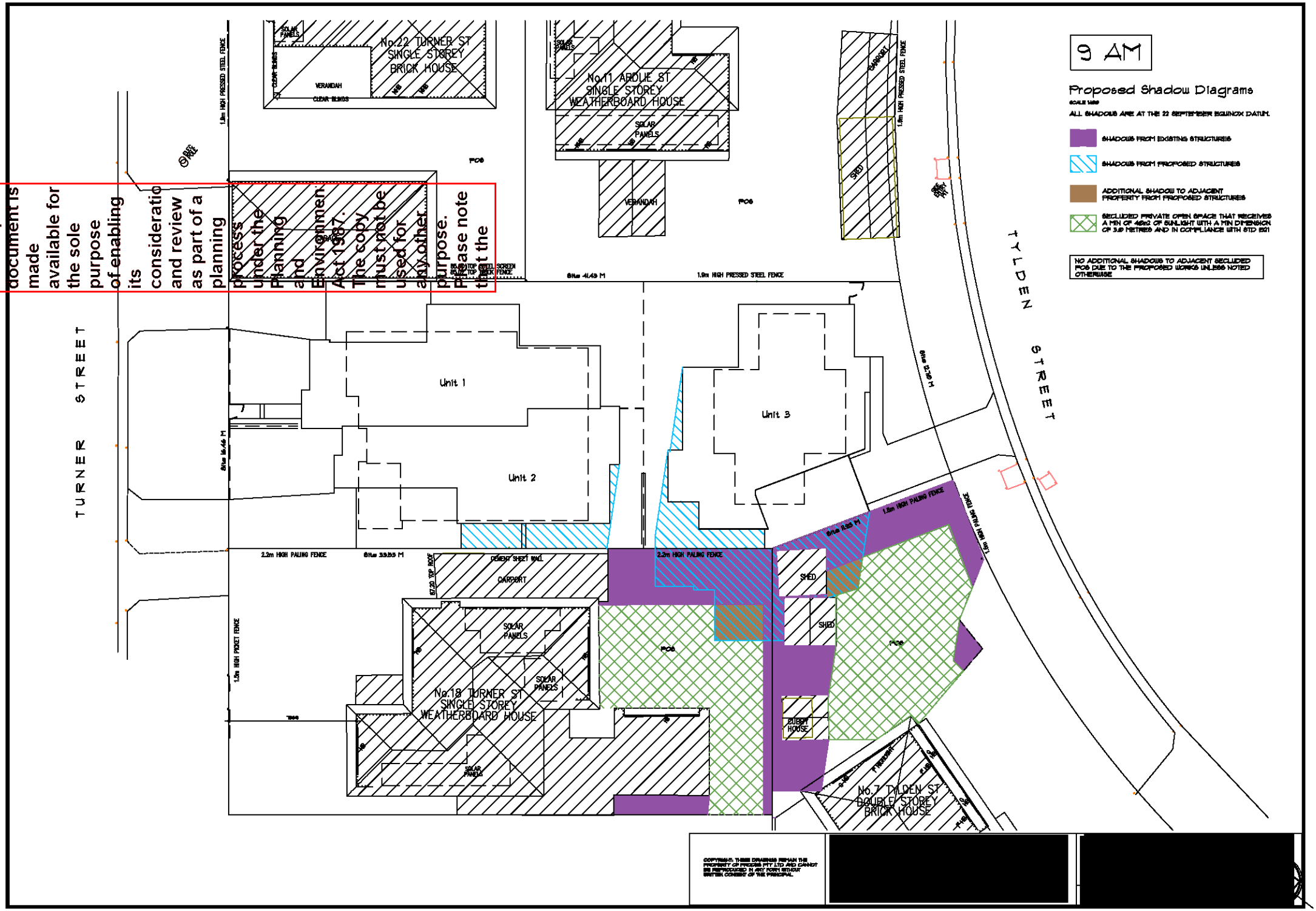
- WATER EFFICIENT FIXTURES AND FITTINGS.
- THE DESIGN EXCEEDS THE NCC CODE FOR THE ENERGY EFFICIENCY REQUIREMENTS (7.0 STAR SITE AVERAGE).
- ELECTRIC HEAT PUMP HOT WATER SYSTEM.
- LED TO BE USED (4W/M²).
- DAYLIGHT AND MOTION SENSORS WILL BE USED FOR ALL EXTERNAL LIGHTING.
- RAINWATER HARVESTING TANKS ARE THE MEASURES USED TO TREAT THE STORMWATER.
- ALL SANITARY FLUSHING, LAUNDRIES AND GARDEN IRRIGATION TO OPERATE USING RAINWATER TANKS.
- DOUBLE GLAZING TO ALL WINDOWS AND DOORS.
- LOW-VOC PAINTS, SEALANTS AND ADHESIVES MINIMUM E1 OR E0-GRADE
- ELECTRICAL DESIGN TO ALLOW FOR FUTURE CAR CHARGING POINT PER GARAGE LEVEL 2 (MODE 3) 7 KW 32 AMP EV CAR CHARGING PER PORT.
- PROVIDE JUNCTION BOX INCLUDING HEAVY DUTY 32MM SOLAR CONDUIT FROM JUNCTION BOX TO FIXED WALL PLATE IN THE GARAGES FOR FUTURE PHOTOVOLTAIC CELLS.
- PREPARE A BUILDING USER GUIDE.

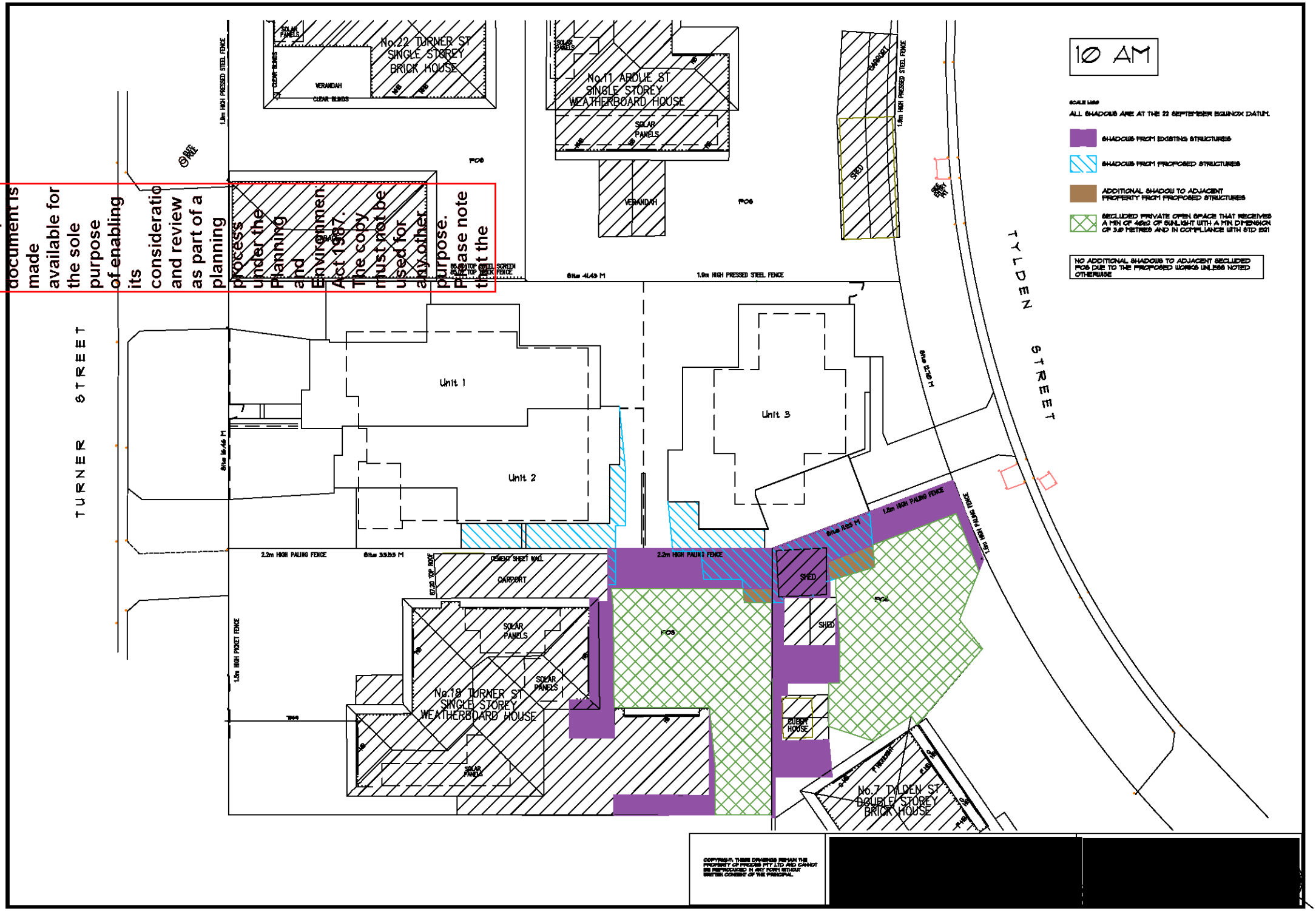
[redacted]

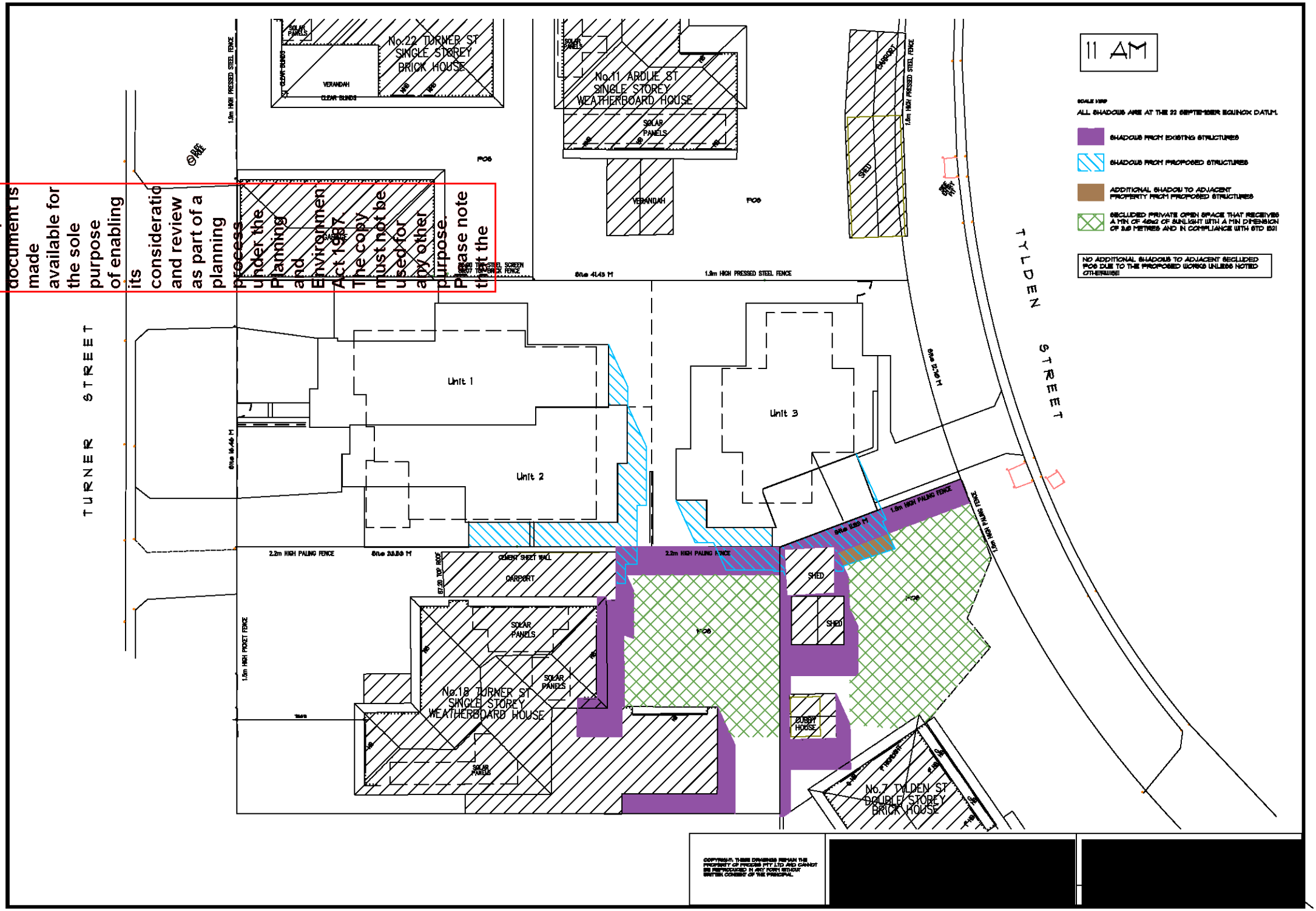
TURNER STREET

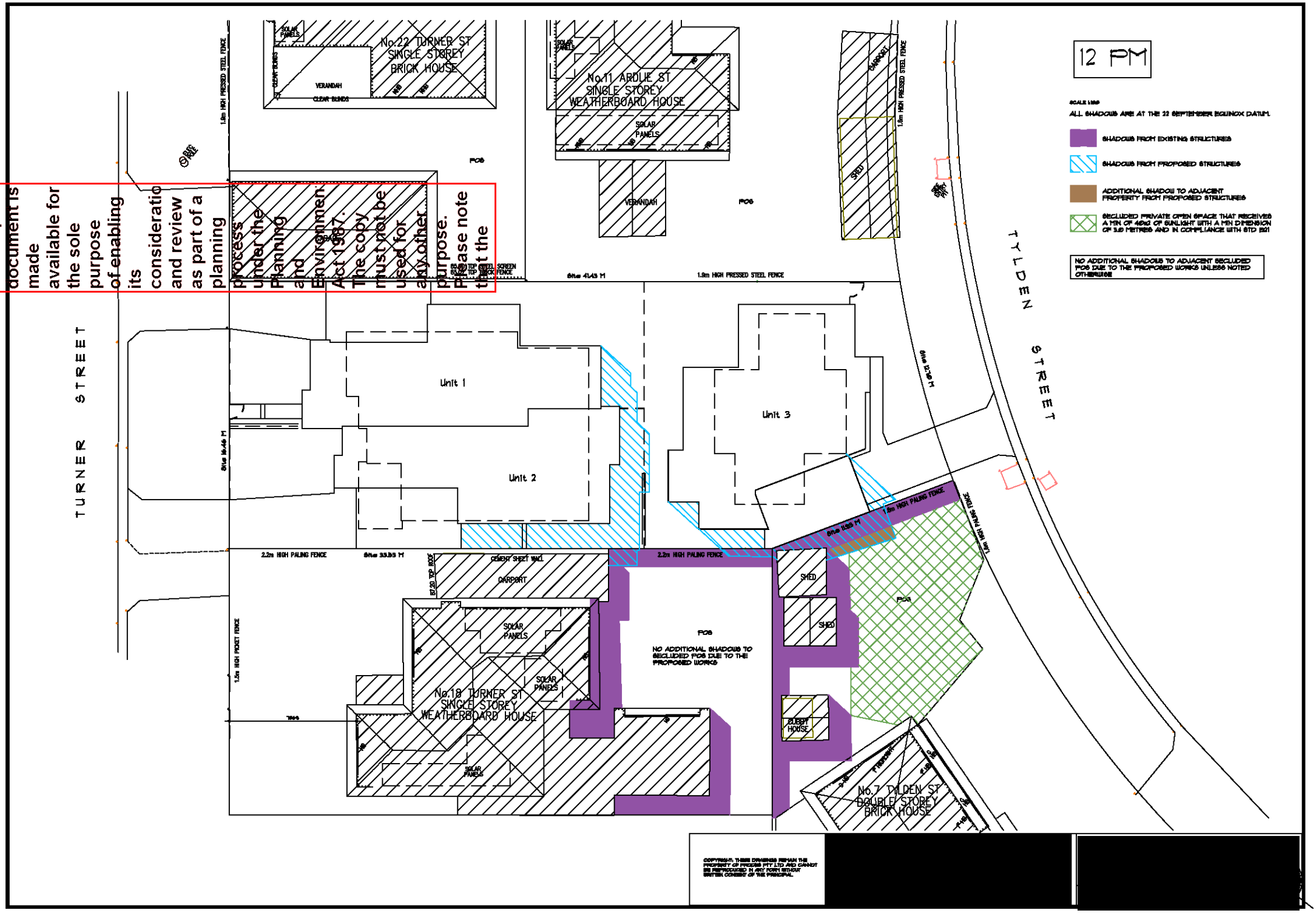
Garden Area Analysis Plan

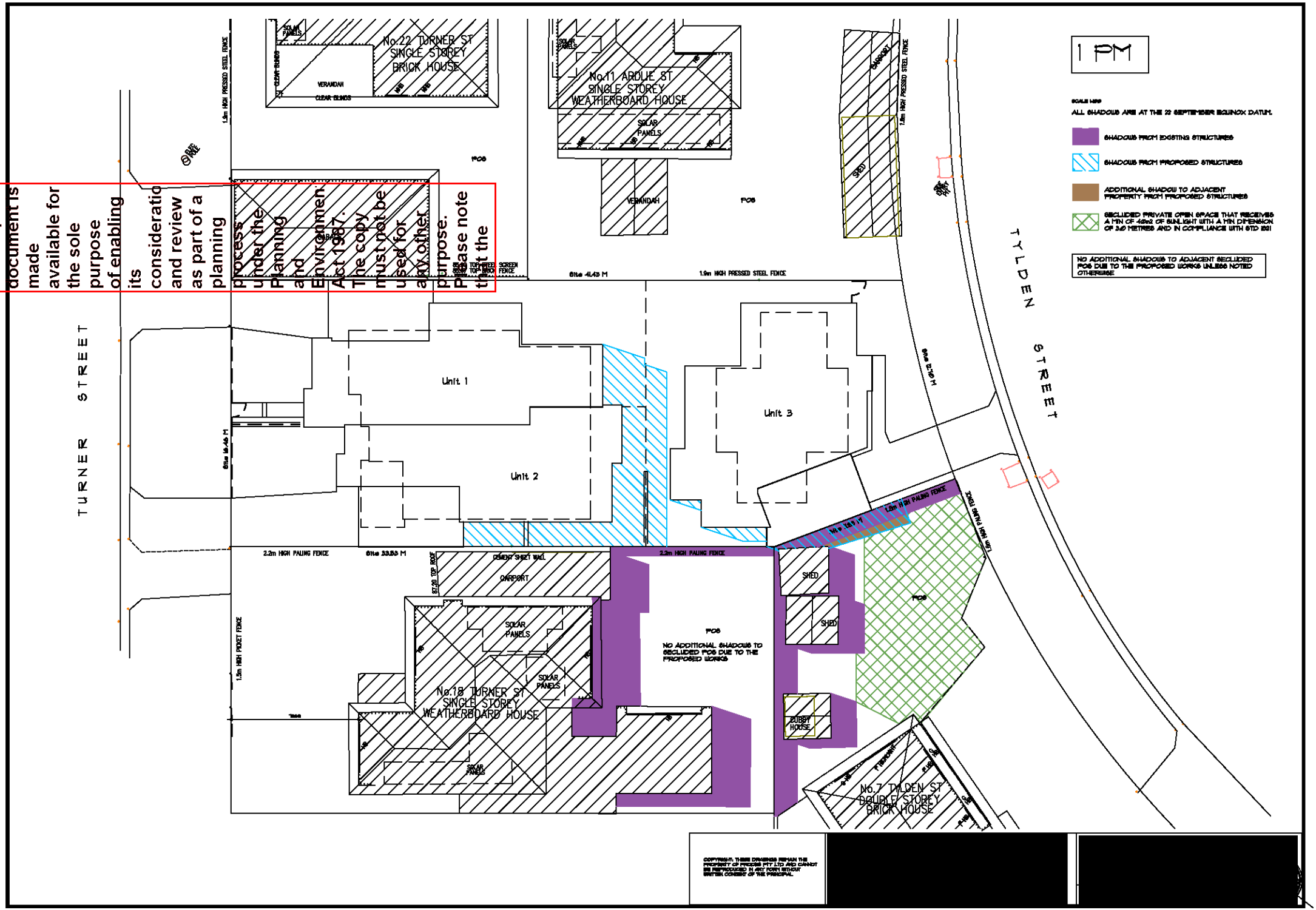


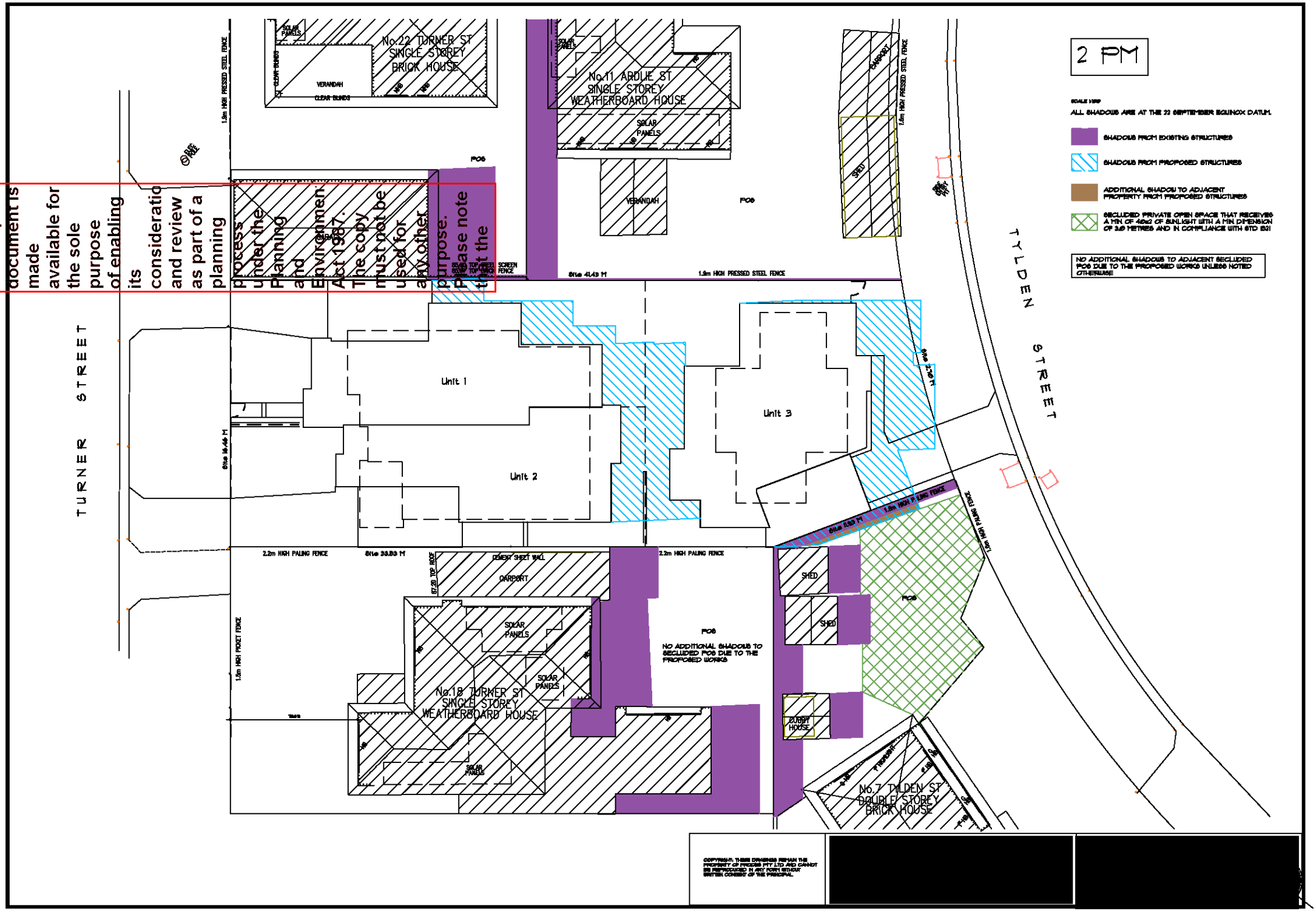


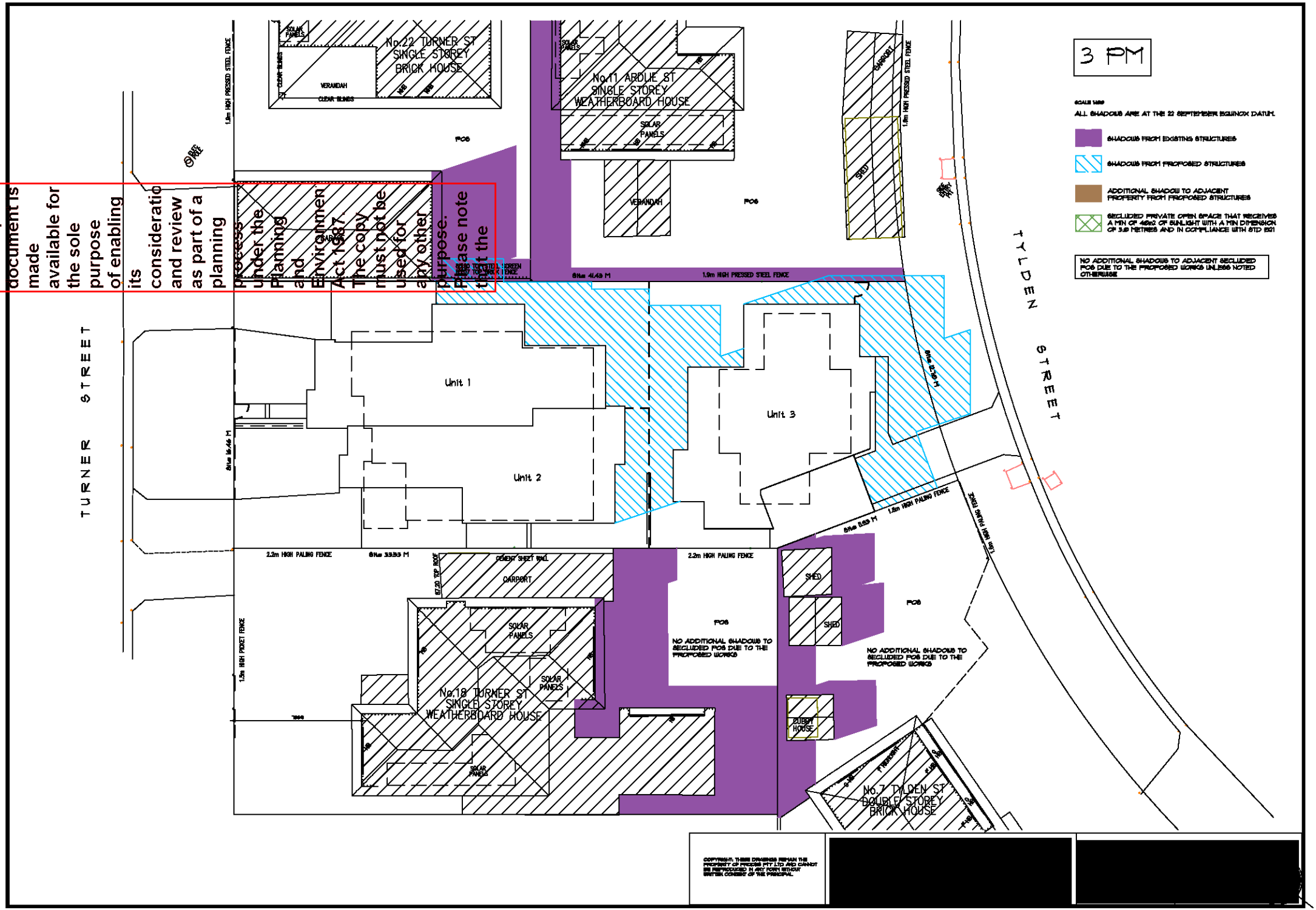












[redacted]

COLOURS AND FINISHES SCHEDULE

BRICKWORK – PGH ‘WARMED STONE’ OR SIMILAR

FEATURE BRICKWORK – LITTLE HAMPTON “NEW ASH BRICK” OR SIMILAR

R1 - LIGHT RENDER TO FIRST FLOOR WALLS – DULUX ‘VANILLA QUAKE’ OR SIMILAR

R2 - DARK RENDER TO UNIT 3 PORTICO AND UNIT 2 BALCONY – DULUX ‘WAYWARD GREY’ OR SIMILAR

HARDIE’S VERTICAL CLADDING - DULUX ‘GHOSTED – HALF STRENGTH’ OR SIMILAR

ROLLER DOORS – TIMBER LOOK COLOURBOND OR SIMILAR

WINDOWS - POWDERCOAT 'SILVER' OR SIMILAR

ROOF TILES – BORAL 'CHARCOAL' OR SIMILAR

GUTTERS/FASCIA'S – COLOURBOND 'MONUMENT' OR SIMILAR

DRIVEWAY – COLOURED CONCRETE. 'GREY' OR SIMILAR

KEYSTONE
ALLIANCE
SUSTAINABILITY SOLUTIONS

SUSTAINABLE DESIGN ASSESSMENT

PROPOSED MULTI-UNIT DEVELOPMENT

20 Turner Street,
Westmeadows

P25776

Ref N°: 18480

[redacted]

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Design Matters Member
Enable, advocate and celebrate good building design

NATIONWIDE HOUSE ENERGY RATING SCHEME

bess TRAINED PROFESSIONAL

greenstar ASSOCIATE

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MUNICIPALITY Hume City Council

SUBJECT: **20 TURNER STREET, WESTMEADOWS**

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1 BACKGROUND

Keystone Alliance Sustainability Solutions has been engaged to prepare a Sustainable Design Assessment for the proposed development at **20 Turner Street, Westmeadows**

2 OBJECTIVE

The report outlines the key Ecologically Sustainable Design (ESD) initiatives for **20 Turner Street, Westmeadows**
The report addresses most of the ESD requirements for **Hume City Council** and provides an overview of the sustainable design initiatives Clause 15.01-2L-03, 53.18 and 15.01-2L-03 of the Hume Planning Scheme for the proposed development and demonstrates how it will be achieved in the project.

3 DOCUMENT REVIEWED

Architectural plans - for **20 Turner Street, Westmeadows**
Prepared by **PRODES**
Ref no. **23501-P1 | DEC 2023**

4 INTRODUCTION

The proposed development consists of
- 3 double storey new dwellings.
- 6 car spaces

5 SITE ASSESSMENT

SITE AREA 689 SQM
LOCATION Westmeadows
MAP

6	**KEY ESD INITIATIVES**	• MANAGEMENT • WATER • ENERGY • STORMWATER • INDOOR ENVIRONMENTAL QUALITY (IEQ) • TRANSPORT • URBAN ECOLOGY
	SUMMARY AND COMMITMENTS	• Water efficient fixtures and fittings. • The design exceeds the NCC code for the energy efficiency requirements (7.0 Star site average). • Electric heat pump hot water system. • LED to be used (4w\m²). • Daylight and motion sensors will be used for all external lighting. • Rainwater harvesting tanks are the measures used to treat the stormwater. • All sanitary flushing, laundries and garden irrigation to operate using rainwater tanks. • Double glazing to all windows and doors. • Low-VOC paints, sealants and adhesives minimum E1 or E0-grade • Electrical design to allow for future car charging point per garage Level 2 (Mode 3) 7 kW 32 Amp EV car charging per port. • Provide junction box including heavy duty 32mm solar conduit from junction box to fixed wall plate in the garages for future photovoltaic cells. • Prepare a building user guide.
8	**BESS SCORE**	60%

Issue	Revision	Date Issue	Author
RFI	-	19.03.2024	FS

9. MANAGEMENT

Best practice for building management means that sustainability is integrated from concept design through the construction process. Good decisions made early will always deliver the maximum benefit for the lowest cost. Best practice building management also means giving future occupants the information they need to be able to run their buildings in the most efficient way.

9.1 THERMAL PERFORMANCE MODELLING

OBJECTIVE | To achieve and protect energy efficient dwellings and buildings.
To ensure the orientation and layout of development reduce fossil fuel energy use and make appropriate use of daylight and solar energy.
To ensure dwellings achieve adequate thermal efficiency

UNIT TYPE	NO.	STAR RATING	HEATING	COOLING
1	1	7.5	61.9	19.0
2	3	7.1	76.4	19.7
3	1	7.2	70.3	20.7

9.2 BUILDING USER GUIDE (BUG)

OBJECTIVE | To encourage and recognise initiatives that will help building users to use the building efficiently

A simple building user guide will be produced and will include information on the building services energy and environmental strategies, monitoring and targeting transport facilities, waste policy, references and any other relevant information.

- Rainwater tank, filters maintenance.
- Waste reduction and opportunities for recycling and diversion.
- Making use of natural ventilation.
- Efficient use of appliances.
- Electrical infrastructure that is available for the future installation of car charger.

The building user guide should be kept in a location that is easily accessible to all building occupants and stakeholders. This may include:

1. The guide can be made available on a secure website or shared online platform that can be accessed from any location.
2. A copy of the guide can be provided to each tenant in their unit.

It is important to ensure that the building user guide is stored in a format that is easily accessible to all building occupants and stakeholders, regardless of their location or device. This helps to ensure that the information is readily available if questions arise about the building's facilities and systems.

10. WATER

Best practice water efficiency means using fixtures and appliances with a high WELS rating, and substituting precious drinking water with alternative water sources (such as greywater and rainwater) for uses such as toilet flushing and garden irrigation, where appropriate

10.1 WATER PROFILE

RAINWATER TANK	Rainwater tanks to be installed.

10.2 FIXTURES, FITTINGS AND CONNECTIONS

SHOWERHEADS	not less than 3 Star WELS between 9.0 and 7.5L\minute
TAPS	5 Star WELS
TOILETS	4 Star WELS
APPLIANCES	Dishwasher with a minimum 4 Star WELS rating will be provided as part of the fit-out to each dwelling.
	Install 1 additional washing machine stop cocks connected to the RWT and clearly labelled "RECYCLED WATER"

10.3 LANDSCAPE DESIGN

Drought tolerant and native species where applicable – as per local council guidelines

NO.	RAINWATER TANK SIZE (L)	ROOF CATCHMENTS AREA (SQM)
TH1	2000L	69
TH2	2000L	81
TH3	4000L	142

11. ENERGY

Best practice design for energy efficiency means designing buildings that need minimal heating and cooling because they are well insulated, have appropriate summer shading, have good orientation to take advantage of the sun for heating, and have high efficiency fittings and appliances. On-site renewable energy generation is also encouraged to supplement or meet energy needs

11.1 ENERGY PROFILE

RENEWABLE ENERGY	Provide junction box including heavy duty 32mm solar conduit from junction box to fixed wall plate in the garages for future photovoltaic cells.
GAS SUPPLY	Gas free development.

11.2 HEATING AND COOLING

TYPE	Reverse Cycle.
ENERGY EFFICIENCY	3 Star (Seasonal Energy Efficiency Ratios – SEER).

11.3 HOT WATER SYSTEM

Electric instantaneous

SOLAR CONTRIBUTION

n/a

11.4 CLOTHESLINE

Outdoor cloth lines.

11.5 CLOTH DRYER

n/a

11.6 LIGHTING

High efficient light fittings (LED – IC4 rated)
Lighting design not to exceed 4w/m² illumination power density.
All external lighting to be controlled with motion sensors or timers.

11.7 INSULATION

SLAB ON GROUND: R1.0 / R2.3
SLAB EDGE: n/a
WALLS: R2.5
ROOF AND CEILING: R5.0 / R6.0 + sarking
WINDOWS AND DOORS: TO COMPLY WITH THE VALUES BELOW

Type	U value	SHGC (±5%)
SLIDING DOOR	4.09 / 3.57	0.61 / 0.56
FRENCH DOOR	4.09 / 3.29	0.55 / 0.45
CASEMENT	5.24 / 3.29	0.45 / 0.45
Fixed	3.59 / 2.51	0.66 / 0.53

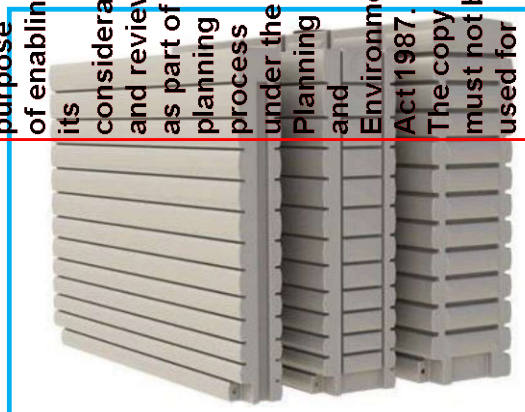
12. STORMWATER MANAGEMENT

Best practice stormwater management means incorporating water sensitive urban design strategies such as rainwater tanks, raingardens, porous paving and landscaping to reduce the volume of run-off and the pollutant load on local waterways.

12.1 STORM SCORE ACHIEVED | 100%

12.2 TREATMENTS MEASURES | Rainwater tanks connected to all residential tenancies sanitary flushing, laundries and garden irrigation.

12.3 STORM REPORT



RAINWATER TANK PRE-FILTER
RAINWATER TANKS CAPACITY ARE ONLY USED FOR RETENTION.

Melbourne Water **STORM Rating Report**

TransactionID:	0
Municipality:	HUME
Rainfall Station:	HUME
Address:	20 TURNER ST
	WEST MEADOWS
	VIC 3049
Assessor:	KASS
Development Type:	Residential - Multiunit
Allotment Site (m2):	689.00
STORM Rating %:	100

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
TH1 ROOF TO RWT1	69.00	Rainwater Tank	2,000.00	4	170.00	82.00
TH1 ROOF UNTREATED	58.00	None	0.00	0	0.00	0.00
TH2 ROOF TO RWT2	81.00	Rainwater Tank	2,000.00	4	166.40	81.00
TH2 ROOF UNTREATED	37.00	None	0.00	0	0.00	0.00
TH3 ROOF TO RWT3	142.00	Rainwater Tank	4,000.00	4	136.00	93.50
DRIVEWAY 1	18.00	None	0.00	0	0.00	0.00
DRIVEWAY 2	25.00	None	0.00	0	0.00	0.00
DRIVEWAY 3	16.00	None	0.00	0	0.00	0.00

BY CONNECTING THE LAUNDRIES TO THE TANKS, AN ALLOWANCE FOR 1 ADDITIONAL OCCUPANT IS MADE IN THE STORM CALCULATIONS AS IT INCREASES THE RE-USE OF THE RETAINED RAINWATER BY A MINIMUM 70 LITRES OF PER WASH WHICH IS EQUIVALENT TO AN ADDITIONAL 4 STAR TOILET (3.5L FLUSH)

It is recommended to install a filtration system to achieve best practice reduction of stormwater, pollutants.
The filtration system consists of the following:
Pre-treatment devices (such as gutter mesh, rain heads). Rain filters are installed after the pump.
A triple action filtration system in the 10" and 20" range provides filtration of fine sediments (down to 15 micron), color and odor in the one cartridg

WSUD CATCHMENTS MAP

DWELLING 1:

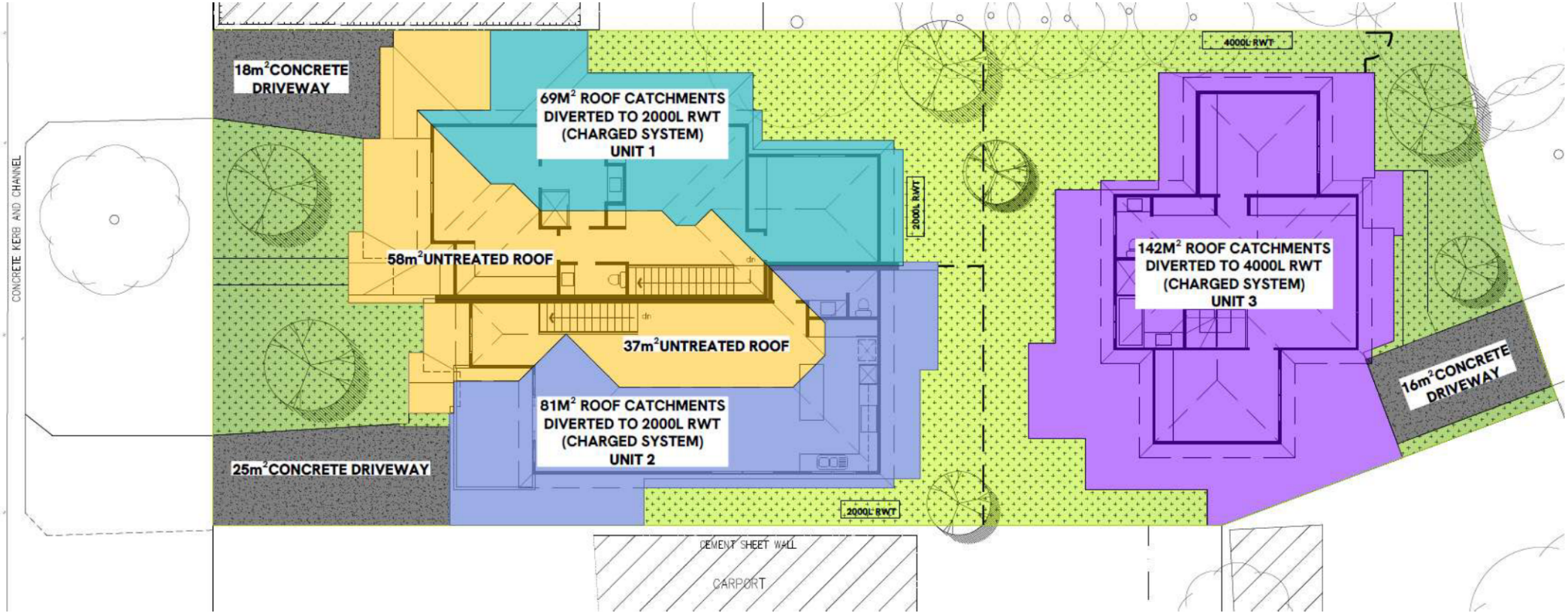
69m² roof catchments diverted via charge system to a 2000L rainwater harvesting tank.
58m² untreated roof catchments.
18m² untreated driveway.

DWELLING 2:

81m² roof catchments diverted via charge system to a 2000L rainwater harvesting tank.
37m² untreated roof catchments.
25m² untreated driveway.

DWELLING 3:

142m² roof catchments diverted via charge system to a 4000L rainwater harvesting tank.
14m² untreated driveway.



WSUD MAINTENANCE SCHEDULE

RAINWATER TANKS

Leaf litter / debris in gutters	**Pump not working**
Regularly clear your gutters. Make sure you cover the tank inlet if you're rinsing down the gutters to avoid debris entering the tank.	Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump life.
Blocked downpipe	**Mains backup or pump not working**
If you see water spilling from the edge of the gutters check that the downpipe is not blocked, removing any debris.	Have you heard the pump operating? If the mains backup switching device fails many people do not notice for a long time. Consider a manual system if the switching device is problematic and you don't mind operating it manually.
First flush diverter clogging	**Overflow**
To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	Check that the overflow is not blocked and that there is a clear path for water to safely spill from the tank through the overflow pipe when full. Check that a clean mesh screen is safely in place to prevent mosquitoes entering the tank.
Debris on the mesh cover over inlets / outlets	**Sediment / debris build-up in tank (more than 20mm thick)**
The fine stainless steel mesh is similar to fly screen mesh. It should be cleaned regularly to ensure it does not become blocked with leaves and other material.	Over time a small amount of fine sediment will collect in the bottom of your tank and this is harmless and natural. It should not be disturbed until it is approx 20 mm thick which may take many years. To clean your tank out simply empty your tank and wash out with a high-pressure washer or hose.
Dirt and debris around the tank base or side.	**Base area**
Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of your tank.	Tanks must be fully supported by a flat and level base. Check for any movement, cracks or damage to the slab or pavers. If damage is observed, empty the tank to remove the weight and have the fault corrected to prevent damage to the tank. There is no warranty from suppliers for damage to a rainwater tank if the base has failed.
Smelly water or mosquitos	**Monitoring the water level**
Rainwater tanks can smell if there is debris in the gutters. Check the gutters and leaf strainers are clean. Mosquitos or wrigglers can make their way into your tank if they are small enough to pass through the inlet strainer. A very small amount of chlorine (approx 4 parts per million) can be put in the tank to kill off mosquitos or the bacteria causing odours. The chlorine will disinfect the water and then evaporate. Chlorine tablets from a pool supplier can be used (but check the recommended dose based on your tank capacity).	A range of devices are available to monitor water level. Some simple float systems can be used effectively.

ITEM	KEY ACTIVITIES	INSPECTION FREQUENCY
ROOF GUTTERS AND DOWNPIPES	Ensure they are in good condition and there is no contamination from the roof catchment area.	In accordance with supplier's recommendations (otherwise 3 monthly).
FIRST FLUSH	To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	
RAINWATER TANK	Check that they are in good structural condition and that there is no evidence of contamination. Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of the tank.	
PUMPS	Check the potable mains back up is not permanently on. Repair or replace pump.	
OVERFLOW	Remove blockages and/or restore connections to stormwater network.	

Maintenance frequency											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Regular maintenance will improve the water quality and extend the life of your system. A well maintained tank isn't likely to need to be cleaned out for up to ten years (when there is more than 20mm of accumulated sediment).											

Inspection and maintenance form			
Asset ID			
Location			
Inspection officer's name			
Date		**Date of last rainfall**	
Photos of site (explanatory notes) **1.** **2.** **3.** **4.** **5.**			
General comments, sketches, description of maintenance undertaken			

Stormwater and sediment laden runoff along roads, drains and footpaths etc	**Drainage management:** Ensure that all works relating to drainage are promptly completed. **Sediment traps:** A sediment control entry\exit system (rock pad) to be placed at the site entry. A suitable sediment barrier is placed down-slope of any on-site soil disturbance usually along the lowest site boundary with the ends returning up-slope. Use barriers to trap coarse sediment at all points where stormwater is leaving the site. Sweep and clean street gutters – do not hose it. Regularly clean litter and debris 'trapped' against site fencing and throughout the general site, and waste collection shall only occur during permitted nominated hours. **Dewatering:** In case of rain ensure that all works relating to drainage are promptly completed. **Stockpile protection:** Stockpiles to be covered during periods of strong wind or when strong winds are expected and with a waterproof cover when rain is expected.	
Asbestos in soil	Asbestos to be handled packaged and removed in accordance with the occupational Health And Safety (asbestos) regulations 1992, EPA publication 364c the transport and disposal of waste asbestos October 2002, and the WorkSafe Australia asbestos code of practice.	
Onsite Fill Material	Excavations will be examined for signs of contamination within any fill (e.g. staining, rubble).	
Imported soil or fill	Any soil or fill imported to the site will be required to be tested by the supplier for contamination. No contaminated soil or fill will be imported to the site. Any imported material used onsite must be classified as suitable for commercial land use.	
Protection of Council assets (streets, footpaths, laneways and reserves)	Prior to commencement of any works on the site, the builder or developer must submit an application for a new vehicular crossover or modification or alteration to an existing crossover proposal for assessment and approval by council's infrastructure and traffic department.	

13. INDOOR ENVIRONMENTAL QUALITY (IEQ)

Best practice design for Indoor Environment Quality means that building occupants can enjoy a comfortable space with good air quality, adequate daylight and ventilation. Indoor environment quality is affected by building orientation and layout, window sizes and specification, shading devices, products used for construction and fit-out and neighbouring structures.

13.1 CROSS VENTILATION

Operable windows and doors are included in the design.

13.2 GLAZING

Double glazed windows and doors to be installed.

13.3 EXTERNAL SHADING

It is recommended to install fixed shading to dwelling north facing windows and doors.
"Building eaves should be designed so their width equals 25% of the window height for the window/door to be considered as adequate shading"
Open pergolas can be considered as external shading only if deciduous creepers / climbing plants are included in the landscape design

13.4 ORIENTATION

Living areas are located to the north.

13.5 INDOOR AIR QUALITY

Low VOC, water based and non-toxic paints, sealants, adhesives, carpet's underlay with recycled component to be used and minimum E1 or E0-grade. Engineered wood products to be specified.
Timber used at the site will be either reused, post-consumer recycled or certified under a forest certification scheme.
Please refer to attached table

FIGURE 4.24: RULE OF THUMB FOR SIZING NORTH WINDOW OVERHANG

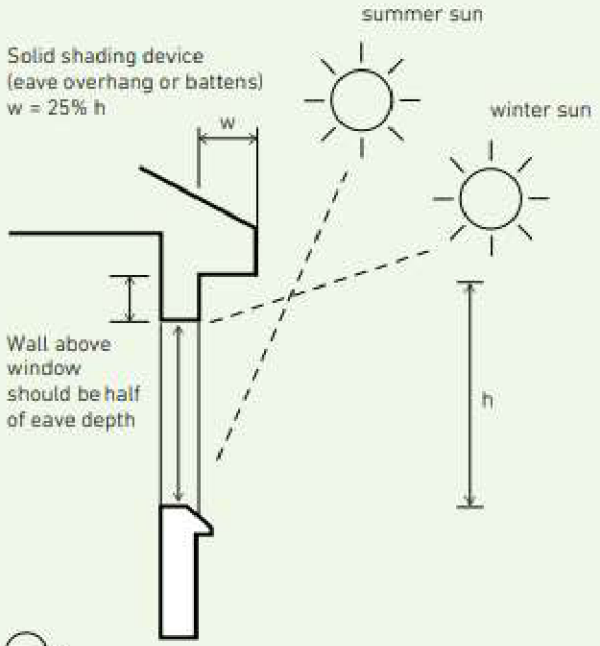
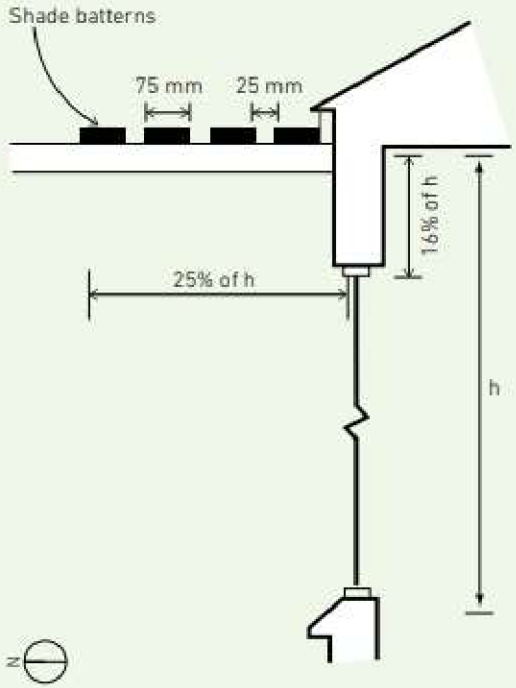


FIGURE 4.25: USE OF SHADE BATTENS ON PERGOLAS



Energy Smart Housing Manual

ARCHITECTURAL AND DECORATIVE COATING PRODUCTS VOC LIMITS

PRODUCT TYPE	VOC LIMIT (G/L)	
	AVERAGE	MAXIMUM
Timber Coloured Spirit Stain - Low VOC		75
Timber Coloured Spirit Stain - Standard		130
Clear Timber Finish - One Pack Interior - Low VOC Clear		75
Timber Finish - One Pack Interior - Standard		130
Latex Primer for Galvanised Iron & Zincalume		20
Interior Latex Sealer (Buildings)		30
Latex Wood Primer (Buildings)		30
Interior Latex Paint - Gloss, Low odour, very low VOC		<5
Interior Latex Paint - Semi-Gloss, Low odour, very low VOC		<5
Interior Latex Paint - Low Gloss, Low odour, very low VOC		<5
Interior Latex Paint - Washable Flat, Low odour, very low VOC		<5
Interior Latex Paint - Ceiling Flat, Low odour, very low VOC		<5
Interior Water Based Paint for Buildings - Gloss	≤60	70
Interior Water Based Paint for Buildings – Semi-Gloss	≤60	70
Interior Water Based Paint for Buildings – Low Gloss	≤40	60
Interior Water Based Paint for Buildings - Flat - Washable	≤45	60
Interior Water Based Paint for Buildings - Flat - Ceilings	≤40	50
Exterior Water Based Paint for Buildings - Gloss	≤55	60
Exterior Water Based Paint for Buildings - Semi-gloss	≤55	60
Exterior Water Based Paint for Buildings - Low Gloss or Matt	≤40	45
Exterior Water Based Paint for Buildings - Gloss, Heavily Pigmented DTS[1]	≤50	70
Exterior Water Based Paint for Buildings - Low Sheen – Heavily Pigmented DTS[1]	≤45	55

NOTE: [1] DTS = direct to substrate

14. TRANSPORT

Best practice design for transport means creating buildings that encourage walking, cycling, public transport, car sharing, and the use of lower emissions vehicles.

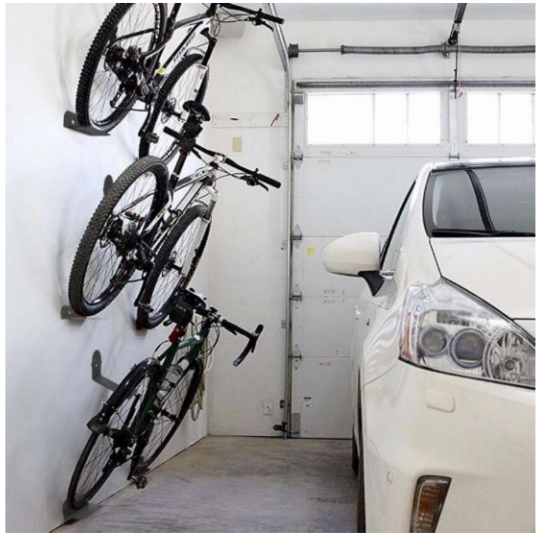
14.1 BICYCLE PARKING

RESIDENTS	n/a
VISITORS	n/a

14.2 ELECTRIC VEHICLE INFRASTRUCTURE

Electrical design to allow for future car charging point per garage

Level 2 (Mode 3) 7 kW 32 Amp EV car charging per port



15. WASTE

Best practice design for waste means re-using materials during construction where possible, and making sure future building occupants have opportunities to easily re-use and recycle their waste.

15.1 CONSTRUCTION WASTE

- 80% recycling target of construction and demolition waste has been adopted for the construction phase of the development.
- A site induction to all personnel to explain the waste plan and ensure that the waste generated is minimised.
- Arranging with recycling contractors to provide clearly marked bins for material separation.
- Waste segregation onsite – Waste materials can be separated onsite into dedicated bins/areas for either reuse onsite or collection by a waste contractor and transport to offsite facilities. Source separation is particularly important in minimising damage to salvaged materials.
- Commitments to recycle or reduce construction waste.
- Prefabricated materials to be specified in the project to reduce the material waste, off-cuts will be recycled.
- An environmental site management plan (ESMP) to be implemented to the council guidelines.
- A private contractor to be engaged for waste collection during construction.
- A logbook that records waste management and collection should be maintained on-site.
- The main contractor should provide waste reports including volumes and performance compared to the 90% recycling target to the project manager or development manager for the project on a regular basis.
- Create measures to minimise on-site litter and remove litter from the site and litter entering the stormwater system.

15.2 OPERATIONAL WASTE

Dual bins in kitchen joinery to be provided.

ORGANIC WASTE	REFER TO WASTE MANAGEMENT PLAN (IF APPLICABLE)
GARDEN WASTE	ALLOCATE AN ADDITIONAL SPACE TO ACCOMMODATE AN ORGANIC WASTE BIN

15.3 MATERIAL SELECTION

CONCRETE	Subject to structural engineer design. Concrete mixes to incorporate at least 40% replacement of coarse aggregate with slag. Concrete mixes to incorporate at least 50% reclaimed water. Concrete mixes to incorporate at least 30% reduction in Portland cement.
STEEL	60% of steel reinforcement manufactured using energy reducing strategies and to be to be supplied by a steel fabricator/contractor accredited to the Environmental Sustainability Charter of the Australian Steel Institute and certified ISO 14001 Environmental Management System (EMS) in place and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).
TIMBER	Forest stewardship Council (FSC), Program for the Endorsement of Forest Certification (PEFC) or recycled. 20% of the project timber cost to be directed for recycled timber
JOINERY	Locally manufactured
FLOORING	75% of cables, pipes and flooring either do not contain PVC or meet Best Practice Guidelines for PVC.
CARPET	Underlay with recycled component to be used

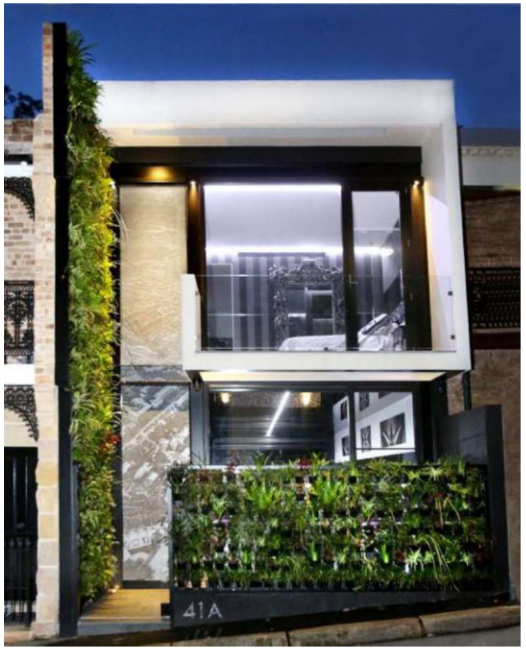
16. URBAN ECOLOGY

Best practice for urban ecology means creating more green spaces for a range of health, social, environmental, biodiversity and economic benefits.

16.1 VEGETATION PERCENTAGE	13%
16.2 GREEN ROOFS	N/A
16.3 GREEN WALLS	N/A
16.4 PRIVATE OPEN SPACES (BALCONY / COURTYARD)	PROVIDE A TAP AND FLOOR WASTE
16.5 FOOD PRODUCTION AREA	N/A

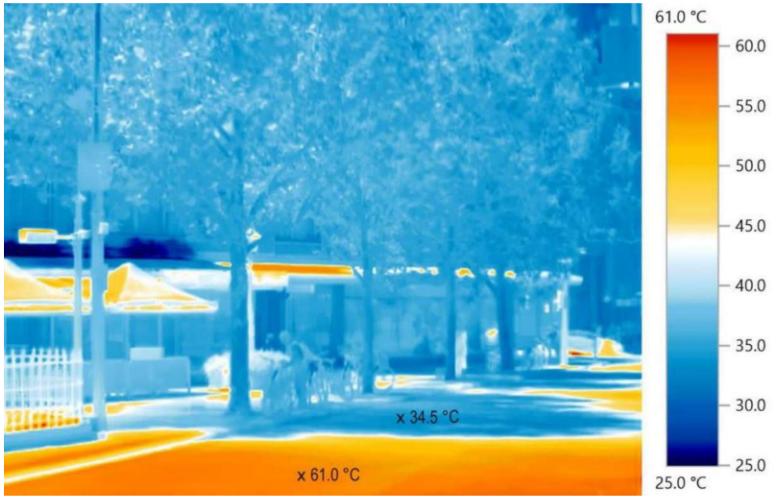
HEAT ISLAND EFFECT
- All insulation used must not contain any Ozone depleting substances
- All HVAC selected to have zero Ozone Depletion Potential

COOLING, HABITAT AND ENJOYABLE SPACES
The proposed landscape for the site, including common open space areas contribute to providing the combined benefits of cooling and adding enjoyable aesthetics for occupants and visitors. The inclusion of trees as well as gardens spaces provide additional urban heat island reduction, biodiversity, food production and social benefits.



VERTICAL GREEN WALL

FOOD PRODUCTION AREA

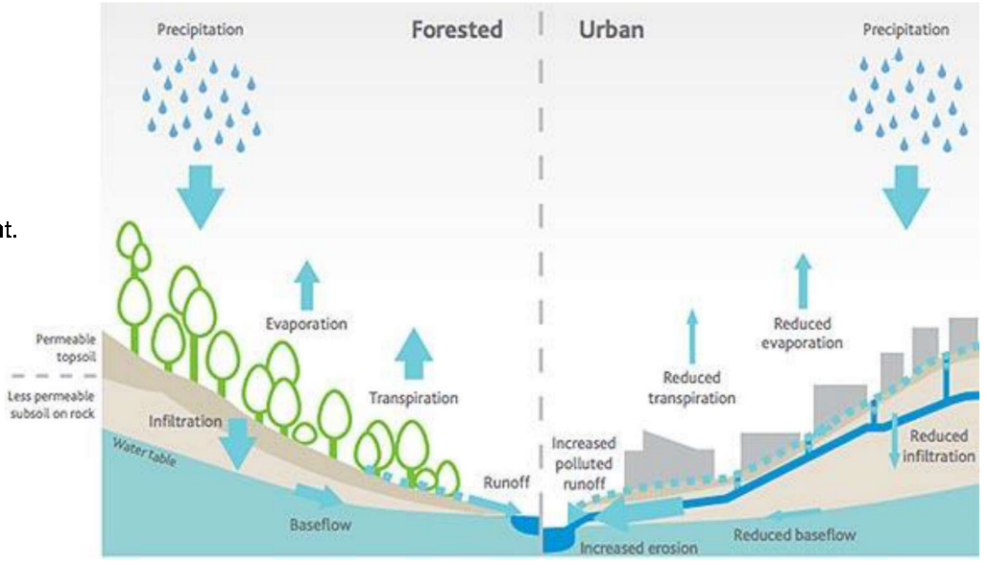


HEATWAVE SHOW THE IMPACT OF URBAN HEAT ISLANDS IN MELBOURNE

Contribution to cooling and improving local habitat

Urban development dramatically changes the local habitat. It will reduce the process of rainwater evaporation and its plants absorption or soaking it into the ground. This happens when clearing land of vegetation and increasing impervious surfaces, which will cause the following:

- Put pressure and pollute the local stormwater in a very short time after a rain.
- Unnatural flows to the local waterways or rivers for a few hours after it rains.
- Making beaches unsuitable for swimming for 1-2 days after heavy rain
- Eroding stream banks and degrading streams
- Increase in pollutant runoff.



Implementing rainwater tanks and/or raingardens will reduce these negative impacts to the local habitat.

Advantages of rainwater tanks are:

- Minimise water usage when used in the toilet, laundry or garden.
- Reduce strain on the stormwater drainage system.
- Retain water close to source.
- Reduce site run-off and flood peaks.

Advantages of raingardens are:

- Reduce pollutant runoff to the creeks and bay.
- Increase green space to assist with cooling.

Benefits of WSUD

Economic	Environmental	Social
Capital cost savings – reduced sizing of off-site pipe work, drains and stormwater infrastructure. **Construction cost savings** – grading and tree clearing. **Water quality cost savings** – reducing the costs of water quality improvement by maintaining existing waterways. Developer cost savings – reduced developer contributions to downstream drainage capacities and open space requirements. **Improved market value** – making such developments more desirable and marketable.	**Hydrological balance** – maintains the hydrological balance by using natural processes of storage, infiltration and evaporation. **Sensitive area protection** – can contribute to protecting environmentally sensitive areas from urban development. **Waterways restoration** – supports restorations and enhancement of urban waterways. **Impact reduction** – minimises the impact of urban development on the environment. **Natural habitats enhancement** – can enhance the diversity of natural habitats/landscapes. Groundwater recharge.	Amenable urban and residential landscapes. High visual amenity. Opportunities to link. community nodes through open space. Improving urban heat island effects.
The use of trees and vegetation in the urban environment brings benefits beyond mitigating urban heat islands including: - Reduced energy use: Trees and vegetation that directly shade buildings decrease demand for air conditioning. - Improved air quality and lower greenhouse gas emissions: By reducing energy demand, trees and vegetation decrease the production of associated air pollution and greenhouse gas emissions. They also remove air pollutants and store and sequester carbon dioxide. - Enhanced stormwater management and water quality: Vegetation reduces runoff and improves water quality by absorbing and filtering rainwater. - Reduced pavement maintenance: Tree shade can slow deterioration of street pavement, decreasing the amount of maintenance needed.		

17 INNOVATION	To encourage design features and technologies that are not recognised elsewhere within BESS because they are new to Victoria, or because they go well beyond the best practice standard in BESS.
	The proposed development is not claiming credits for this criteria
18 CONCLUSION	This report addresses all the features incorporated into the design and specifications of the development. The development exceeds the Built Environment Sustainability Scorecard (BESS) and also the National Construction Code standards. In addition, the proposed development is able to reduce the site stormwater run-off and re-using it within the proposed building. This development is able to achieve the industry best practice.

19. APPLICATIONS AND COMMISSIONING

All recommendation in this report to be included in the architectural plans,
Ensure the report is endorsed with the town planning drawings.

ESD CATEGORY	COMMITMENT	Requirements	Responsibility
GENERAL	**Building Users Guide**	Prepare a building user guide	Developer
WATER	**Water efficient appliances**	Specify and install minimum 4 star WELS	Architect, Builder
	Water efficient showers	install minimum 3 star Showerheads (≥9.0≤7.5)	Architect, Builder
	Water efficient taps	Specify and install minimum 5 star WELS	Architect, Builder
	Water efficient toilets	Specify and install minimum 4 star WELS	Architect, Builder
WSUD	**Rainwater tank**	**8000L** RWT total capacity.	Architect, Builder
	Rainwater re-use	All toilets flush, laundries and garden irrigation.	Architect, Builder
	Driveways	Concrete driveway.	
	Water quality protection	Implement water quality protection measures during construction.	Builder
TRANSPORT	**Car charging**	Electrical design to allow for future car charging point Level 2 (Mode 3) 7 kW 32 Amp EV car charging per port.	Architect, Builder
	Bicycle spaces	n/a	
ENERGY	**Renewable energy**	Provide solar photovoltaic cells **(TH1: 3.2KWh and TH2: 8.4KWh)**	Architect, Builder
	Clothes drying	Clothesline to be provided.	Architect, Builder
	Motion/time switch controls	External lighting to be controlled by motion sensors.	Builder
	Lighting	4W/m².	Architect, Builder
	Hot water heating	**ELECTRIC INSTANTANEOUS.**	Architect, Builder
	NATHERS	**7.0 Star HER** per dwelling.	
	Insulation and sealing	**SLAB:** R2.3 | **WALLS:** R2.5 | **ROOF:** R5.0 + sarking.	Architect, Builder
	HVAC	**3 Star** (Seasonal Energy Efficiency Ratios – SEER).	Architect, Builder
	Glazing	Double glazing to all windows and doors.	Architect, Builder
	Appliances	All appliances installed by the developer will be specified within half an energy efficiency star of the best available.	
INDOOR ENVIRONMENTAL QUALITY	**Paints, Sealants, Adhesives**	Use Low VOC, water based and non-toxic paints, sealants, adhesives and minimum E1 or E0-grade engineered wood.	Builder
	Shading devices	Building horizontal projections.	Architect
	Concrete	Where appropriate, mixes to incorporate replacement of coarse aggregate with slag, reclaimed water and reduction in Portland cement.	Builder
	Timber	Forest stewardship Council (FSC), or Program for the Endorsement of Forest Certification (PEFC) or recycled.	Builder
	Steel	Steel fabricator/contractor accredited to the Environmental Sustainability Charter of the Australian Steel Institute and certified ISO 14001 Environmental Management System (EMS) in place and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).	Builder
WASTE	**Organic Waste**	Allocate an additional space to accommodate a future organic/green waste bin.	Architect, Builder
	Waste separation	Design and install of waste and recycling bins in cabinetry.	Architect, Builder
	Construction Management Plan	Prepare Construction Waste Management Plan to maximise recycling of construction waste.	Builder
	Material Re-use	n/a	Architect, Builder
URBAN ECOLOGY	**Private open space**	Provide a tap and floor waste.	Builder

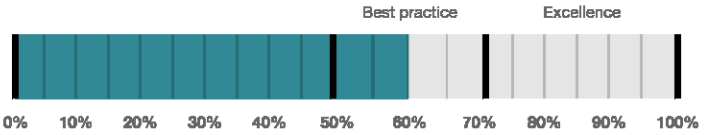
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 20 Turner St Westmeadows Victoria 3049. 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 Hume 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

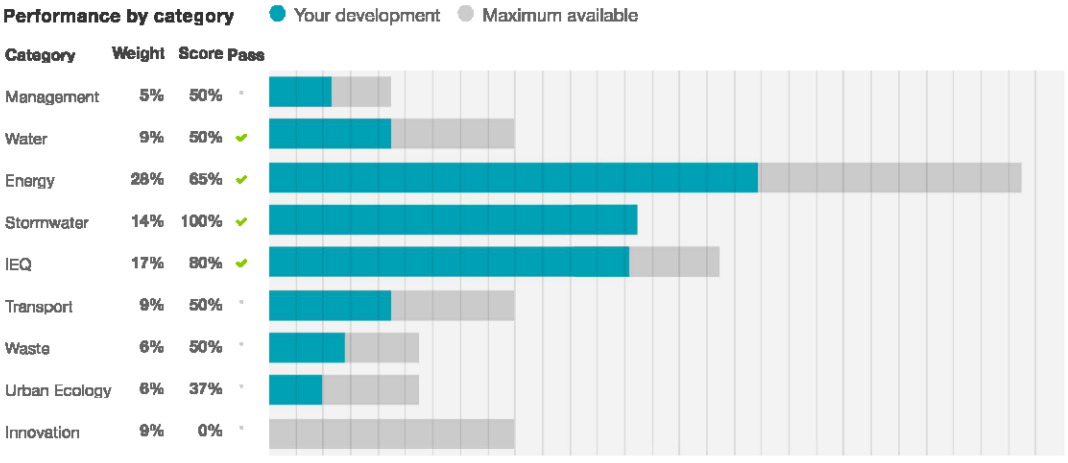


60%

Project details

Address	20 Turner St Westmeadows Victoria 3049
Project no	56975AE8-R1
BESS Version	BESS-7
Site type	Multi dwelling (dual occupancy, townhouse, villa unit etc)
Account	fadi@keystonealliance.com.au
Application no.	P25776
Site area	689.00 m²
Building floor area	536.00 m²
Date	19 March 2024
Software version	1.8.1-B.407

Performance by category



Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	% of total area
Townhouse			
Townhouse 3	1	188 m²	35%
Townhouse 2	1	179 m²	33%
Townhouse 1	1	169 m²	31%
Total	**3**	**536 m²**	**100%**

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Water 3.1	Annotation: Water efficient garden details		-
Energy 3.3	Annotation: External lighting controlled by motion sensors		-
Energy 3.4	Location of clothes line (if proposed)		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
IEQ 2.2	Annotation: Dwellings designed for 'natural cross flow ventilation' (If not all dwellings, include a list of compliant dwellings)		-
IEQ 3.1	Annotation: Glazing specification (U-value, SHGC)		-
IEQ 3.3	North-facing living areas		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Waste 2.1	Location of food and garden waste facilities		-
Urban Ecology 2.1	Location and size of vegetated areas		-
Urban Ecology 2.4	Location of taps and floor waste on balconies / courtyards		-

Supporting evidence

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments		-
Energy 3.5	Average lighting power density and lighting type(s) to be used		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 2.2	A list of dwellings with natural cross flow ventilation		-
IEQ 3.1	Reference to floor plans or energy modelling showing the glazing specification (U-value and Solar Heat Gain Coefficient, SHGC)		-
IEQ 3.3	Reference to the floor plans showing living areas orientated to the north		-

Credit summary

Management Overall contribution 4.5%

	50%	
1.1 Pre-Application Meeting	0%	
2.1 Thermal Performance Modelling - Multi-Dwelling Residential	100%	
4.1 Building Users Guide	100%	

Water Overall contribution 9.5%

Minimum required 50%	50%	✔ Pass
1.1 Potable Water Use Reduction	40%	
3.1 Water Efficient Landscaping	100%	

Energy Overall contribution 27.5%

Minimum required 50%	65%	✔ Pass
1.2 Thermal Performance Rating - Residential	50%	
2.1 Greenhouse Gas Emissions	100%	
2.2 Peak Demand	0%	
2.3 Electricity Consumption	100%	
2.4 Gas Consumption	N/A	⊖ Scoped Out
	No gas connection in use	
2.5 Wood Consumption	N/A	⊖ Scoped Out
	No wood heating system present	
2.6 Electrification	100%	
3.2 Hot Water	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	0%	⊘ Disabled
	No other (non-solar PV) renewable energy is in use.	
4.5 Solar PV - Houses and Townhouses	0%	⊘ Disabled
	No solar PV renewable energy is in use.	

Stormwater Overall contribution 13.5%

Minimum required 100%	100%	✔ Pass
1.1 Stormwater Treatment	100%	

IEQ Overall contribution 16.5%

Minimum required 50%	80%	✔ Pass
2.2 Cross Flow Ventilation	100%	
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 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%

	37%	
2.1 Vegetation	50%	
2.2 Green Roofs	0%	
2.3 Green Walls and Facades	0%	
2.4 Private Open Space - Balcony / Courtyard Ecology	100%	
3.1 Food Production - Residential	0%	

Innovation Overall contribution 9.0%

	0%	
1.1 Innovation	0%	

Credit breakdown

Management Overall contribution 2%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 50.0% 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		100%
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	Yes	

Water Overall contribution 4% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools
Project Water Profile Question	
Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Are you installing a rainwater tank?:	Yes
Water fixtures, fittings and connections	
Showerhead: All	3 Star WELS (>= 7.5 but <= 9.0) (minimum requirement)
Bath: All	Medium Sized Contemporary Bath
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	>= 4 Star WELS rating
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?:	
Townhouse 1	RWT 1
Townhouse 2	RWT 2
Townhouse 3	RWT 3
Non-potable water source connected to Toilets: All	Yes
Non-potable water source connected to Laundry (washing machine): All	Yes
Non-potable water source connected to Hot Water System: All	No
Rainwater Tanks	
What is the total roof area connected to the rainwater tank?:	
RWT 1	69.0 m²
RWT 2	81.0 m²
RWT 3	142 m²
Tank Size:	
RWT 1	2,000 Litres
RWT 2	2,000 Litres
RWT 3	4,000 Litres
Irrigation area connected to tank:	
RWT 1	-
RWT 2	-
RWT 3	-
Is connected irrigation area a water efficient garden?:	
RWT 1	Yes
RWT 2	Yes
RWT 3	Yes

Other external water demand connected to tank?:	
RWT 1	-
RWT 2	-
RWT 3	-

1.1 Potable Water Use Reduction	40%
Score Contribution	This credit contributes 83.3% 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	663 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	582 kL
Output	Proposed (including rainwater and recycled water use)
Project	451 kL
Output	% Reduction in Potable Water Consumption
Project	31 %
Output	% of connected demand met by rainwater
Project	79 %
Output	How often does the tank overflow?
Project	Often
Output	Opportunity for additional rainwater connection
Project	150 kL

3.1 Water Efficient Landscaping	100%
Score Contribution	This credit contributes 16.7% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes

Energy Overall contribution 18% Minimum required 50%

Dwellings Energy Approach	
What approach do you want to use for Energy?:	Use the built in calculation tools
Project Energy Profile Question	
Are you installing any solar photovoltaic (PV) system(s)?:	No
Are you installing any other renewable energy system(s)?:	No
Energy Supply:	All-electric
Dwelling Energy Profiles	
Below the floor is: All	Ground or Carpark
Above the ceiling is: All	Outside
Exposed sides:	
Townhouse 1 Townhouse 2	3
Townhouse 3	4
NatHERS Annual Energy Loads - Heat:	
Townhouse 1	61.9 MJ/sqm
Townhouse 2	76.4 MJ/sqm
Townhouse 3	70.3 MJ/sqm
NatHERS Annual Energy Loads - Cool:	
Townhouse 1	19.0 MJ/sqm
Townhouse 2	19.7 MJ/sqm
Townhouse 3	20.7 MJ/sqm
NatHERS star rating:	
Townhouse 1	7.5
Townhouse 2	7.1
Townhouse 3	7.2
Type of Heating System: All	Reverse cycle space
Heating System Efficiency: All	3 Star
Type of Cooling System: All	Refrigerative space
Cooling System Efficiency: All	3 Stars
Type of Hot Water System: All	Electric Instantaneous
Clothes Line: All	Private outdoor clothesline
Clothes Dryer: All	Occupant to Install

1.2 Thermal Performance Rating - Residential 50%

Score Contribution	This credit contributes 30.0% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Townhouse	7.2 Stars

2.1 Greenhouse Gas Emissions		100%	
Score Contribution	This credit contributes 10.0% 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	35,378 kg CO2		
Output	Proposed Building with Proposed Services (Actual Building)		
Townhouse	15,493 kg CO2		
Output	% Reduction in GHG Emissions		
Townhouse	56 %		
2.2 Peak Demand		0%	
Score Contribution	This credit contributes 5.0% towards the category score.		
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?		
Output	Peak Thermal Cooling Load - Baseline		
Townhouse	42.0 kW		
Output	Peak Thermal Cooling Load - Proposed		
Townhouse	40.4 kW		
Output	Peak Thermal Cooling Load - % Reduction		
Townhouse	3 %		
2.3 Electricity Consumption		100%	
Score Contribution	This credit contributes 10.0% towards the category score.		
Criteria	What is the % reduction in annual electricity consumption against the benchmark?		
Output	Reference		
Townhouse	34,685 kWh		
Output	Proposed		
Townhouse	15,189 kWh		
Output	Improvement		
Townhouse	56 %		
2.4 Gas Consumption		N/A	Scoped Out
This credit was scoped out	No gas connection in use		
2.5 Wood Consumption		N/A	Scoped Out
This credit was scoped out	No wood heating system present		
2.6 Electrification		100%	
Score Contribution	This credit contributes 10.0% towards the category score.		
Criteria	Is the development all-electric?		
Question	Criteria Achieved?		
Project	Yes		

3.2 Hot Water		100%	
Score Contribution	This credit contributes 5.0% towards the category score.		
Criteria	What is the % reduction in annual energy consumption (gas or electricity) of the hot water system against the benchmark?		
Output	Reference		
Townhouse	47,744 MJ		
Output	Proposed		
Townhouse	33,857 MJ		
Output	Improvement		
Townhouse	29 %		
3.3 External Lighting		100%	
Score Contribution	This credit contributes 5.0% 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 5.0% 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	2,172 kWh		
Output	Proposed		
Townhouse	434 kWh		
Output	Improvement		
Townhouse	80 %		
3.5 Internal Lighting - Houses and Townhouses		100%	
Score Contribution	This credit contributes 5.0% 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		0%	⊘ Disabled
This credit is disabled	No other (non-solar PV) renewable energy is in use.		
4.5 Solar PV - Houses and Townhouses		0%	⊘ Disabled
This credit is disabled	No solar PV renewable energy is in use.		

Stormwater Overall contribution 14% Minimum required 100%

Which stormwater modelling are you using?:	Melbourne Water STORM tool	
1.1 Stormwater Treatment		100%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	Has best practice stormwater management been demonstrated?	
Question	STORM score achieved	
Project	100	
Output	Min STORM Score	
Project	100	

IEQ Overall contribution 13% Minimum required 50%

2.2 Cross Flow Ventilation		100%
Score Contribution	This credit contributes 20.0% towards the category score.	
Criteria	Are all habitable rooms designed to achieve natural cross flow ventilation?	
Question	Criteria Achieved ?	
Townhouse	Yes	
3.1 Thermal comfort - Double Glazing		100%
Score Contribution	This credit contributes 40.0% 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 20.0% 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 20.0% towards the category score.	
Criteria	Are at least 50% of 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 50.0% towards the category score.		
Criteria	How many secure and undercover bicycle spaces are there per dwelling for residents?		
Question	Bicycle Spaces Provided ?		
Townhouse	-		
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 50.0% towards the category score.		
Criteria	Are facilities provided for the charging of electric vehicles?		
Question	Criteria Achieved ?		
Project	Yes		

Waste Overall contribution 3%

1.1 - Construction Waste - Building Re-Use		0%
Score Contribution	This credit contributes 50.0% 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 50.0% 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 2%

2.1 Vegetation		50%
Score Contribution	This credit contributes 50.0% 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	13 %	
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 Private Open Space - Balcony / Courtyard Ecology		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Is there a tap and floor waste on every balcony / in every courtyard?	
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	-	
Output	Min Food Production Area	
Townhouse	3 m²	

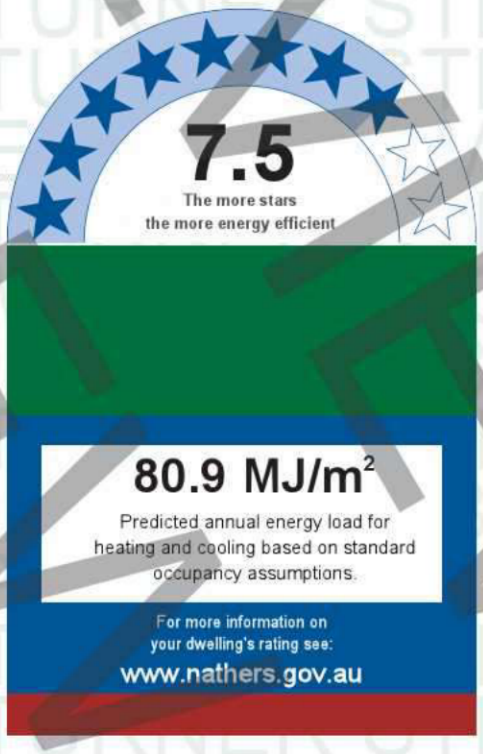
Innovation Overall contribution 0%

1.1 Innovation		0%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

Disclaimer

Nationwide House Energy Rating Scheme
NatHERS Certificate

Generated on 19 Mar 2024 using FirstRate5: 5.3.2b (3.21)



Property

Address	1, 20 TURNER STREET, WESTMEADOWS, VIC, 3049
Lot/DP	-
NCC Class*	Class 1a
Type	New Home
Plans	CJA N33
Prepared by	PRODES PTY LTD

Construction and environment

Assessed floor area (m²)*	
Conditioned*	144.9
Unconditioned*	28.4
Total	173.3
Garage	20.8

Exposure type
suburban

NatHERS climate zone
60 Tullamarine

Thermal performance

Heating	Cooling
61.9 MJ/m²	19 MJ/m²

About the rating
NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	S.W.
Business name	Keystone Alliance Sustainability
Email	fadi@keystonealliance.com.au
Phone	03 9478 8991 - 0424 252 979
Accreditation No.	DMN/10/1076
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.com.au.

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

Apartment entrance doors

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 level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Additional Notes

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
BRD-012-01 A	ESS Casement Window (52mm) DG 4/14/4	5.24	0.45	0.43	0.47
DOW-017-01 A	Aluminium French Door DG 4/12/4	4.09	0.55	0.52	0.58
DOW-007-04 A	Sliding Door DG 4/8/4	4.09	0.61	0.58	0.64
DOW-005-01 A	Manor Awning Window DG 3/12/3	3.9	0.58	0.55	0.61
DOW-015-01 A	Aluminium Fixed Light Window DG 4/12/4	3.59	0.66	0.63	0.69

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
BED 1	BRD-012-01 A	Opening 771	2100	1800	casement	30.0	NW	No

* Refer to glossary.

ENTRY	DOW-017-01 A	Opening 770	2400	850	casement	100.0	NW	No
K/L/M	DOW-007-04 A	Opening 776	2400	3300	sliding	40.0	NE	No
K/L/M	DOW-005-01 A	Opening 775	1800	950	awning	60.0	SE	No
K/L/M	DOW-015-01 A	Opening 774	500	1500	fixed	0.0	NE	No
BED 2	BRD-012-01 A	Opening 777	1200	2100	casement	10.0	NW	No
BATH	BRD-012-01 A	Opening 778	1200	1500	casement	45.0	NE	No
SITTING/STAIRS	BRD-012-01 A	Opening 779	1200	2670	casement	45.0	NE	No
BED 3	BRD-012-01 A	Opening 780	1600	1800	casement	10.0	NE	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)	Orientation	Outdoor shade	Indoor shade
No Data Available							

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
GARAGE	2400	3000	100.0	NW
GARAGE	2400	820	100.0	SE

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	KASS - Masonry Veneer R2.5+	0.4	Medium	Rockwool batt (k = 0.033) (R2.5)	No

2	KASS - Shaftliner	0.5	Medium	Glass fibre batt: R2.0 (R2.0);Glass fibre batt: R2.0 (R2.0)	No
3	KASS - Double Brick	0.4	Medium		No
4	KASS - Fibre Cement R2.5+	0.43	Medium	Rockwool batt (k = 0.033) (R2.5)	Yes
5	KASS - Fibre Cement R2.5+	0.4	Medium	Rockwool batt (k = 0.033) (R2.5)	Yes
6	KASS - 75mm EPS R2.5+	0.4	Medium	Rockwool batt (k = 0.033) (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 1	1	2700	2412	NW	455	No
BED 1	1	2700	1089	NW	801	No
BED 1	1	2700	995	SW	1200	Yes
BED 1	1	2700	997	NE	51	Yes
ENTRY	1	2700	1353	NW	1796	Yes
ENTRY	1	2700	748	SW	0	No
ENTRY	2	2700	4959	SW	0	No
K/L/M	2	2700	6275	SW	0	No
K/L/M	2	2700	1070	SE	0	No
K/L/M	2	2700	4381	SW	0	No
K/L/M	1	2700	3496	SE	0	Yes
K/L/M	1	2700	5002	NE	0	Yes
K/L/M	1	2700	2538	SE	460	Yes
K/L/M	1	2700	5369	NE	455	Yes
GARAGE	3	2700	3485	NW	462	Yes
GARAGE	3	2700	1416	SE	473	Yes
GARAGE	3	2700	5967	NE	0	Yes
BED 2	4	2550	3799	NW	427	No
BED 2	4	2550	746	SW	420	Yes
BED 2	5	2550	1778	NW	420	Yes
BED 2	5	2550	379	SW	0	Yes
BED 2	2	2550	2947	SW	0	No
BED 2	4	2550	3481	NE	424	No
BATH	4	2550	2098	NE	427	No
WC	2	2550	2194	SW	0	No
SITTING/STAIRS	2	2550	4474	SW	0	No
SITTING/STAIRS	2	2550	1091	SE	0	No
SITTING/STAIRS	4	2550	994	SE	430	Yes
SITTING/STAIRS	4	2550	4585	NE	433	No

BED 3	2	2550	3670	SW		0	No
BED 3	6	2550	3482	SE		360	Yes
BED 3	6	2550	4290	NE		360	Yes

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	106.2	
2	KASS - Internal Garage 25	21.5	Rockwool batt: R2.5 (R2.5)

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
BED 1	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	6.7	Enclosed	R0.0	Carpet
BED 1	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	7.2	Enclosed	R0.0	Carpet
ENS 1	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	4.3	Enclosed	R0.0	Tiles
ENTRY	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	4.2	Enclosed	R0.0	Timber
ENTRY	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	2.4	Enclosed	R0.0	Timber
PDR	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	1.9	Enclosed	R0.0	Tiles
LDRY	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	5.9	Enclosed	R0.0	Tiles
K/L/M	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	45.9	Enclosed	R0.0	Timber
K/L/M	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	1.8	Enclosed	R0.0	Timber
K/L/M	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	7.6	Enclosed	R0.0	Timber
GARAGE	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	3.2	Enclosed	R0.0	none
GARAGE	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	17.6	Enclosed	R0.0	none
BED 2	FR5 - Timber Lined	17.5	Enclosed	R0.0	Carpet
BED 2	FR5 - Timber Lined	1.9	Enclosed	R2.5	Carpet
BATH	FR5 - Timber Lined	6.9	Enclosed	R0.0	Tiles
BATH	FR5 - Timber Lined	0.7	Enclosed	R2.5	Tiles
WC	FR5 - Timber Lined	2.2	Enclosed	R0.0	Tiles
SITTING/STAIRS	FR5 - Timber Lined	26.9	Enclosed	R0.0	Carpet
BED 3	FR5 - Timber Lined	14.3	Enclosed	R0.0	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
BED 1	FR5 - Timber Lined	R0.0	No
BED 1	Plasterboard	R5.0	No
ENS 1	FR5 - Timber Lined	R0.0	No
ENTRY	FR5 - Timber Lined	R0.0	No
ENTRY	Plasterboard	R5.0	No
PDR	FR5 - Timber Lined	R0.0	No
LDRY	FR5 - Timber Lined	R0.0	No
K/L/M	FR5 - Timber Lined	R0.0	No
K/L/M	Plasterboard	R5.0	No
K/L/M	Plasterboard	R5.0	No
GARAGE	FR5 - Timber Lined	R0.0	No
GARAGE	FR5 - Timber Lined	R0.0	No
GARAGE	Plasterboard	R0.0	No
BED 2	Plasterboard	R5.0	No
BED 2	Plasterboard	R5.0	No
BATH	Plasterboard	R5.0	No
BATH	Plasterboard	R5.0	No
WC	Plasterboard	R5.0	No
SITTING/STAIRS	Plasterboard	R5.0	No
BED 3	Plasterboard	R5.0	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
ENS 1	1	Exhaust Fans	250	Sealed
PDR	1	Exhaust Fans	250	Sealed
LDRY	1	Exhaust Fans	250	Sealed
K/L/M	1	Exhaust Fans	150	Sealed
BATH	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Disc:Attic-Discontinuous	0.0	0.95	Dark
Disc:Attic-Discontinuous	0.0	0.5	Medium

* Refer to glossary.

Explanatory Notes

About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERSAdministrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in a NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use but may be used to compare how other buildings 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, indoor air temperature and local climate.

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

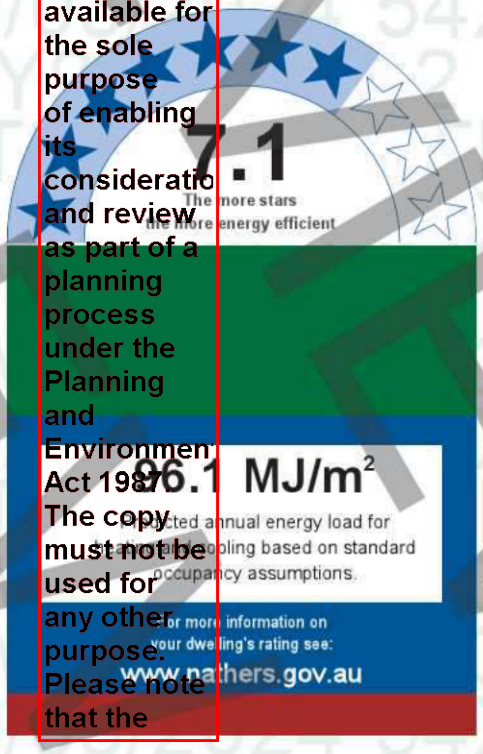
Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
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, rangehoods, 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.
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.
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.
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 window 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
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap 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 device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
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.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulation 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).

Nationwide House Energy Rating Scheme
NatHERS Certificate

Generated on 19 Mar 2024 using FirstRate5: 5.3.2b (3.21)



Property

Address	2, 20 TURNER STREET, WESTMEADOWS, VIC, 3049
Lot/DP	-
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	JAN 23
Prepared by	PRODES PTY LTD

Construction and environment

Assessed floor area (m²)*	
Conditioned*	135.6
Unconditioned*	25.8
Total	161.4
Garage	20.8

Exposure type
suburban

NatHERS climate zone
60 Tullamarine

Thermal performance

Heating	Cooling
76.4 MJ/m²	19.7 MJ/m²

About the rating
NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	S.W.
Business name	Keystone Alliance Sustainability
Email	fadi@keystonealliance.com.au
Phone	03 9478 8991 - 0424 252 979
Accreditation No.	DMN/10/1076
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.com.au.

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

Apartment entrance doors

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 level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Additional Notes

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
DOW-017-08 A	Aluminium French Door DG LightBridge_ClrS0_4-12-4	3.29	0.45	0.43	0.47
DOW-007-05 A	Sliding Door DG 4/8/4ET	3.57	0.56	0.53	0.59

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
ENTRY/HALL	DOW-017-08 A	Opening 793	2400	850	casement	100.0	NW	No
STUDY	DOW-017-08 A	Opening 794	2100	1210	casement	90.0	NW	No
BED 1	DOW-017-08 A	Opening 795	2100	2100	casement	30.0	SW	No

* Refer to glossary.

BED 3	DOW-017-08 A	Opening 799	2100	1800	casement	90.0	SE	No
LDRY	DOW-017-08 A	Opening 796	2100	820	casement	180.0	SW	No
LDRY	DOW-017-08 A	Opening 797	1200	450	casement	90.0	SW	No
BED 2	DOW-017-08 A	Opening 798	2100	1800	casement	90.0	SW	No
K/L/M/S	DOW-017-08 A	Opening 801	1400	1200	casement	45.0	NW	Yes
K/L/M/S	DOW-007-05 A	Opening 802	2400	3000	sliding	45.0	NW	Yes
K/L/M/S	DOW-017-08 A	Opening 803	1600	2100	casement	90.0	SW	No
K/L/M/S	DOW-017-08 A	Opening 804	1400	1500	casement	45.0	SW	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)	Orientation	Outdoor shade	Indoor shade
No Data Available							

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
GARAGE	2400	3000	100.0	NW
GARAGE	2400	820	100.0	SE

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	KASS - Masonry Veneer R2.5+	0.4	Medium	Rockwool batt (k = 0.033) (R2.5)	No

2	KASS - Shaftliner	0.5	Medium	Glass fibre batt: R2.0 (R2.0); Glass fibre batt: R2.0 (R2.0)	No
3	KASS - Double Brick	0.4	Medium		No
4	KASS - Fibre Cement R2.5+	0.43	Medium	Rockwool batt (k = 0.033) (R2.5)	Yes
5	FR5 - 75mm Expanded Polystyrene Clad	0.43	Medium	Glass fibre batt: R2.5 (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)
ENTRY/HALL	1	2700	1425	NW	2054	Yes
ENTRY/HALL	2	2700	5066	NE	0	No
STUDY	1	2700	1429	NW	450	Yes
STUDY	1	2700	610	NW	824	Yes
STUDY	1	2700	1208	SW	1851	Yes
STUDY	2	2700	2252	NE	0	No
BED 1	1	2700	4074	SW	0	Yes
PDR	2	2700	2076	NE	0	No
BATH	2	2550	1593	NE	0	No
BATH	2	2550	1089	NW	0	No
BATH	2	2550	1618	NE	0	No
BED 3	1	2550	596	SW	0	Yes
BED 3	1	2550	3067	SE	0	Yes
BED 3	1	2550	932	NE	0	Yes
BED 3	2	2550	2633	NE	0	No
LDRY	1	2550	1581	SW	0	Yes
BED 2	1	2550	3169	SW	0	Yes
BED 2	1	2550	3506	SE	0	Yes
GARAGE	3	2700	3473	NW	1678	No
GARAGE	3	2700	5980	SW	0	Yes
GARAGE	3	2700	1551	SE	0	Yes
GARAGE	3	2700	355	NE	0	Yes
K/L/M/S	4	2700	2054	NW	420	Yes
K/L/M/S	4	2700	2092	SW	428	Yes
K/L/M/S	5	2700	3555	NW	345	Yes
K/L/M/S	5	2700	11393	SW	347	No
K/L/M/S	5	2700	5061	SE	350	Yes
K/L/M/S	2	2700	9986	NE	0	No
PDR	2	2700	1000	NW	0	No
PDR	2	2700	2450	NE	0	No
WC	5	2700	1541	SE	349	Yes

WC		2	2700	941	NE	0	No

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	89.1	
2	FR5 - Internal Plasterboard Stud Wall	20.1	Glass fibre batt: R2.5 (R2.5)
3	KASS - Internal Garage 25	20.2	Rockwool batt: R2.5 (R2.5)

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
ENTRY/HALL	FR5 - CSOG: Slab on Ground	13.2	Enclosed	R2.3	Timber
ENTRY/HALL	FR5 - CSOG: Slab on Ground	3.1	Enclosed	R2.3	Timber
STUDY	FR5 - CSOG: Slab on Ground	2	Enclosed	R2.3	Timber
STUDY	FR5 - CSOG: Slab on Ground	2.6	Enclosed	R2.3	Timber
ENS 1	FR5 - CSOG: Slab on Ground	4	Enclosed	R2.3	Tiles
BED 1	FR5 - CSOG: Slab on Ground	14.3	Enclosed	R2.3	Carpet
PDR	FR5 - CSOG: Slab on Ground	1.9	Enclosed	R2.3	Tiles
BATH	FR5 - CSOG: Slab on Ground	4.6	Enclosed	R2.3	Tiles
PASSAGE	FR5 - CSOG: Slab on Ground	4	Enclosed	R2.3	Timber
BED 3	FR5 - CSOG: Slab on Ground	5.1	Enclosed	R2.3	Carpet
BED 3	FR5 - CSOG: Slab on Ground	5.2	Enclosed	R2.3	Carpet
LDRY	FR5 - CSOG: Slab on Ground	5	Enclosed	R2.3	Tiles
BED 2	FR5 - CSOG: Slab on Ground	3.7	Enclosed	R2.3	Carpet
BED 2	FR5 - CSOG: Slab on Ground	7.9	Enclosed	R2.3	Carpet
GARAGE	FR5 - CSOG: Slab on Ground	7.1	Enclosed	R0.0	none
GARAGE	FR5 - CSOG: Slab on Ground	13.7	Enclosed	R0.0	none
K/L/M/S	FR5 - Timber Lined	6.6	Enclosed	R2.5	Timber
K/L/M/S	FR5 - Timber Lined	60.4	Enclosed	R2.5	Timber
PDR	FR5 - Timber Lined	3.1	Enclosed	R2.5	Tiles
WC	FR5 - Timber Lined	1.5	Enclosed	R2.5	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
ENTRY/HALL	FR5 - Timber Lined	R2.5	No
ENTRY/HALL	Plasterboard	R6.0	Yes
STUDY	FR5 - Timber Lined	R2.5	No
STUDY	Plasterboard	R6.0	Yes
ENS 1	FR5 - Timber Lined	R2.5	No
BED 1	FR5 - Timber Lined	R2.5	No
PDR	FR5 - Timber Lined	R2.5	No
BATH	FR5 - Timber Lined	R2.5	No

* Refer to glossary.

PASSAGE	FR5 - Timber Lined	R2.5	No
BED 3	Plasterboard	R6.0	Yes
BED 3	FR5 - Timber Lined	R2.5	No
LDRY	FR5 - Timber Lined	R2.5	No
BED 2	Plasterboard	R6.0	Yes
BED 2	FR5 - Timber Lined	R2.5	No
GARAGE	FR5 - Timber Lined	R2.5	No
GARAGE	Plasterboard	R6.0	Yes
K/L/M/S	Plasterboard	R6.0	Yes
K/L/M/S	Plasterboard	R6.0	Yes
PDR	Plasterboard	R6.0	Yes
WC	Plasterboard	R6.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
ENS 1	1	Exhaust Fans	250	Sealed
PDR	1	Exhaust Fans	250	Sealed
BATH	1	Exhaust Fans	250	Sealed
K/L/M/S	1	Exhaust Fans	150	Sealed
WC	1	Exhaust Fans	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	0.0	0.95	Dark

Explanatory Notes

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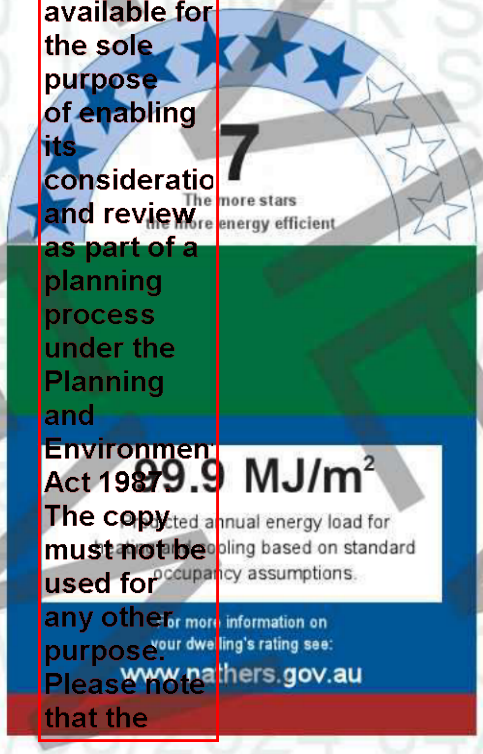
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides 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.
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 type 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
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap 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 device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
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.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulation 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).

Nationwide House Energy Rating Scheme
NatHERS Certificate

Generated on 20 Mar 2024 using FirstRate5: 5.3.2b (3.21)



Property

Address	3, 20 TURNER STREET, WESTMEADOWS, VIC, 3049
Lot/DP	-
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	JAN 23
Prepared by	PRODES PTY LTD

Construction and environment

Assessed floor area (m²)*	
Conditioned*	145.8
Unconditioned*	35.1
Total	180.9
Garage	21.2

Exposure type
suburban

NatHERS climate zone
60 Tullamarine

Thermal performance

Heating	Cooling
81.1 MJ/m²	18.8 MJ/m²

About the rating
NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	S.W.
Business name	Keystone Alliance Sustainability
Email	fadi@keystonealliance.com.au
Phone	03 9478 8991 - 0424 252 979
Accreditation No.	DMN/10/1076
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.com.au.

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the modelling.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

Apartment entrance doors

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 level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Additional Notes

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
DOW-017-08 A	Aluminium French Door DG LightBridge_ClrS0_4-12-4	3.29	0.45	0.43	0.47
DOW-015-07 A	Aluminium Fixed Light Window DG LightBridge_ClrS0_4-12-4	2.51	0.53	0.5	0.56
DOW-007-05 A	Sliding Door DG 4/8/4ET	3.57	0.56	0.53	0.59

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
K/L/M	DOW-017-08 A	Opening 817	2100	2100	casement	30.0	NW	No
K/L/M	DOW-015-07 A	Opening 829	500	1540	fixed	0.0	NW	No

* Refer to glossary.

K/L/M	DOW-015-07 A	Opening 821	2400	600	fixed	0.0	SE	No
K/L/M	DOW-017-08 A	Opening 823	2400	850	casement	180.0	SE	No
K/L/M	DOW-017-08 A	Opening 819	2100	2100	casement	30.0	NW	No
K/L/M	DOW-007-05 A	Opening 818	2400	3000	sliding	45.0	NE	No
BED 1	DOW-017-08 A	Opening 824	2100	2100	casement	30.0	SE	No
STUDY	DOW-017-08 A	Opening 820	2100	1500	casement	30.0	SE	No
LDRY	DOW-017-08 A	Opening 828	2400	720	casement	90.0	NW	No
LDRY	DOW-017-08 A	Opening 827	1200	1200	casement	45.0	SW	No
BED 2	DOW-017-08 A	Opening 835	1600	1800	casement	10.0	SE	No
PDR	DOW-017-08 A	Opening 830	1200	750	casement	90.0	NW	No
SITTING/STAIRS	DOW-017-08 A	Opening 834	1400	2700	casement	90.0	SE	No
BATH	DOW-017-08 A	Opening 831	1200	1200	casement	45.0	NW	No
BED 3	DOW-017-08 A	Opening 833	1600	1800	casement	10.0	SE	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)	Orientation	Outdoor shade	Indoor shade
No Data Available							

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
GARAGE	2400	820	100.0	NW
GARAGE	2400	3000	100.0	ESE

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	KASS - Masonry Veneer R2.5+	0.4	Medium	Rockwool batt (k = 0.033) (R2.5)	No
2	KASS - Double Brick	0.4	Medium		No
3	KASS - Fibre Cement R2.5+	0.43	Medium	Rockwool batt (k = 0.033) (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)
K/L/M	1	2700	5114	NW	0	Yes
K/L/M	1	2700	902	NE	0	Yes
K/L/M	1	2700	2682	NW	0	Yes
K/L/M	1	2700	1912	SW	0	Yes
K/L/M	1	2700	1987	SE	1324	Yes
K/L/M	1	2700	4985	NE	0	Yes
K/L/M	1	2700	3886	NW	0	Yes
K/L/M	1	2700	3428	NE	0	Yes
BED 1	1	2700	1164	SSW	0	Yes
BED 1	1	2700	3336	SE	0	Yes
BED 1	1	2700	1038	NE	1943	Yes
STUDY	1	2700	385	SW	0	Yes
STUDY	1	2700	2973	SE	0	No
STUDY	1	2700	1589	NE	0	Yes
LDRY	1	2700	1582	NW	0	Yes
LDRY	1	2700	3688	SW	0	Yes
GARAGE	2	2700	358	WNW	0	No
GARAGE	2	2700	955	NW	0	Yes
GARAGE	2	2700	253	SW	0	No
GARAGE	2	2700	6086	SSW	0	No
GARAGE	2	2700	3518	ESE	0	Yes
BED 2	3	2550	3345	NW	420	Yes
BED 2	3	2550	3345	SE	424	Yes
BED 2	3	2550	3905	NE	423	No
PDR	3	2550	1989	NW	453	Yes
PDR	3	2550	1101	NE	426	Yes
SITTING/STAIRS	3	2550	2543	SW	438	Yes
SITTING/STAIRS	3	2550	4990	SE	440	No
SITTING/STAIRS	3	2550	1290	NE	430	Yes

* Refer to glossary.

SITTING/STAIRS	3	2550	1518	NE	419	Yes
BATH	3	2550	2895	NW	439	Yes
BATH	3	2550	1259	SW	437	Yes
BED 3	3	2400	3027	NW	427	Yes
BED 3	3	2400	4117	SW	433	No
BED 3	3	2400	3027	SE	415	Yes

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	104.9	
2	KASS - Masonry Veneer R2.5+	21	Rockwool batt (k = 0.033) (R2.5)

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
K/L/M	FR5 - CSOG: Slab on Ground	36.8	Enclosed	R0.0	Timber
K/L/M	FR5 - CSOG: Slab on Ground	5.2	Enclosed	R2.3	Timber
K/L/M	FR5 - CSOG: Slab on Ground	0.9	Enclosed	R2.3	Timber
K/L/M	FR5 - CSOG: Slab on Ground	19.2	Enclosed	R2.3	Timber
K/L/M	FR5 - CSOG: Slab on Ground	2.8	Enclosed	R2.3	Timber
PDR	FR5 - CSOG: Slab on Ground	2.8	Enclosed	R2.3	Tiles
ENS 1	FR5 - CSOG: Slab on Ground	1.1	Enclosed	R2.3	Tiles
ENS 1	FR5 - CSOG: Slab on Ground	3.3	Enclosed	R2.3	Tiles
BED 1	FR5 - CSOG: Slab on Ground	3.3	Enclosed	R2.3	Carpet
BED 1	FR5 - CSOG: Slab on Ground	13.3	Enclosed	R2.3	Carpet
BED 1	FR5 - CSOG: Slab on Ground	1.1	Enclosed	R2.3	Carpet
BED 1	FR5 - CSOG: Slab on Ground	1	Enclosed	R2.3	Carpet
STUDY	FR5 - CSOG: Slab on Ground	4.7	Enclosed	R2.3	Timber
LDRY	FR5 - CSOG: Slab on Ground	0.4	Enclosed	R2.3	Tiles
LDRY	FR5 - CSOG: Slab on Ground	5	Enclosed	R2.3	Tiles
GARAGE	FR5 - CSOG: Slab on Ground	16.8	Enclosed	R0.0	none
GARAGE	FR5 - CSOG: Slab on Ground	4.4	Enclosed	R0.0	none
BED 2	FR5 - Timber Lined	13.1	Enclosed	R0.0	Carpet
PDR	FR5 - Timber Lined	2.2	Enclosed	R0.0	Tiles
SITTING/STAIRS	FR5 - Timber Lined	30.3	Enclosed	R0.0	Carpet
BATH	FR5 - Timber Lined	6.4	Enclosed	R0.0	Tiles
BED 3	FR5 - Timber Lined	4.9	Enclosed	R2.5	Carpet
BED 3	FR5 - Timber Lined	7.6	Enclosed	R0.0	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
K/L/M	FR5 - Timber Lined	R0.0	No

K/L/M	Plasterboard	R6.5	No
K/L/M	Plasterboard	R6.5	No
K/L/M	Plasterboard	R6.5	No
K/L/M	FR5 - Timber Lined	R2.5	No
K/L/M	FR5 - Timber Lined	R0.0	No
PDR	FR5 - Timber Lined	R0.0	No
ENS 1	FR5 - Timber Lined	R0.0	No
ENS 1	FR5 - Timber Lined	R0.0	No
BED 1	Plasterboard	R6.5	No
BED 1	FR5 - Timber Lined	R0.0	No
BED 1	FR5 - Timber Lined	R2.5	No
BED 1	FR5 - Timber Lined	R0.0	No
BED 1	Plasterboard	R6.5	No
STUDY	Plasterboard	R6.5	No
LDRY	FR5 - Timber Lined	R0.0	No
LDRY	Plasterboard	R6.5	No
GARAGE	Plasterboard	R0.0	No
GARAGE	FR5 - Timber Lined	R2.5	No
BED 2	Plasterboard	R5.0	Yes
PDR	Plasterboard	R5.0	Yes
SITTING/STAIRS	Plasterboard	R5.0	Yes
BATH	Plasterboard	R5.0	Yes
BED 3	Plasterboard	R5.0	Yes
BED 3	Plasterboard	R5.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
K/L/M	1	Exhaust Fans	150	Sealed
PDR	1	Exhaust Fans	250	Sealed
ENS 1	1	Exhaust Fans	250	Sealed
PDR	1	Exhaust Fans	250	Sealed
BATH	1	Exhaust Fans	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Framed:Flat - Flat Framed (Metal Deck)	0.0	0.95	Dark
Cont:Attic-Continuous	0.0	0.95	Dark

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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.
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 type 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
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap 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 device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
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.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulation 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).