

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

101 Cremorne Street, Cremorne

© Ark Resources 2024

The information contained in this document that has been produced by Ark Resources Pty Ltd is solely for the use of Ark Resources' Client for the purpose for which it has been prepared and Ark Resources undertakes no duty to or accepts any responsibility to any third party who may rely upon this document.

All material contained in this report is subject to Australian copyright law. Copyright in the document is owned by Ark Resources Pty Ltd. No material from this document may, in any form or by any means, be reproduced, stored in a retrieval system or transmitted, without prior written permission from Ark Resources.

Any enquiries regarding the use of this report should be directed to:

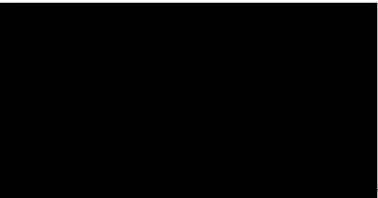
This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Contents

1.0	Introduction	3
2.0	Site Description	5
3.0	Key ESD Initiatives	7
4.0	NABERS Energy Rating	8
5.0	MUSIC Modelling	9
6.0	Green Star Building	11
7.0	Conclusion	13

Appendices

Appendix A.	Green Star Building Pathway	14
Appendix B.	NABERS Summary Results	26
Appendix C.	MUSIC Modelling	49
Appendix D.	WSUD Maintenance Manual	53
Appendix E.	Solar Photovoltaics	56
Appendix F.	Site Management Plan	58



Issue	Date	Prepared	Checked	Status
A	26.05.2023	FP/HM/DO/LD	MR	TP Draft
B	31.08.2023	FP/HM/DO/LD	MR	TP Draft
C	05.10.2023	FP/HM/DO/LD	MR	TP
D	20.11.2023	FP/HM/DO/LD	MR	TP
E	04.07.2024	FP/HM/DO	LD	TP Draft
F	30.07.2024	FP/HM/DO	LD	TP

**ADVERTISED
PLAN**

1.0 Introduction

Ark Resources has been engaged by Bayley Stuart to provide advice in relation to environmentally sustainable development outcomes from the proposed development at 101 Cremorne Street, Cremorne.

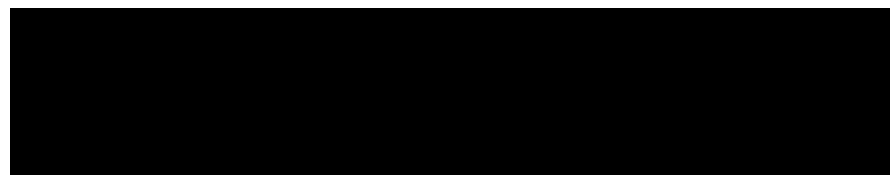
The proposed commercial development at 101 Cremorne Street, Cremorne has been designed to meet Clauses 15.01-2S & 15.01-2L (Building Design), 15.01-2L-01 (Environmentally Sustainable Development) and 53.18 (Stormwater Management) of the City of Yarra Planning Scheme. This report demonstrates how the development meets the policy objectives of these Clauses.

This report contains a summary of:

- Environmental objectives adopted for the development
- Sustainable design initiatives integrated into the design of the project.

Performance outcomes in this report are based on:

- Discussions and correspondence with



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

Architectural drawings prepared by CHT Architects set out below.

Cover Sheet	TP0.00	C	25.06.2024
Site Plan Existing	TP0.01	C	25.06.2024
Existing & Demolition Plan	TP0.02	C	25.06.2024
Site Plan Proposed	TP0.03	C	25.06.2024
Level B2	TP1.01	C	25.06.2024
Level B1	TP1.02	C	25.06.2024
Level 00	TP1.03	C	25.06.2024
Level 01	TP1.04	C	25.06.2024
Level 02	TP1.05	C	25.06.2024
Level 03	TP1.06	C	25.06.2024
Level 04	TP1.07	C	25.06.2024
Level 05	TP1.08	C	25.06.2024
Level 06	TP1.09	C	25.06.2024
Level 07	TP1.10	C	25.06.2024
Level 08	TP1.11	C	25.06.2024
Level 09	TP1.12	C	25.06.2024
Level 10	TP1.13	C	25.06.2024
Level 11	TP1.14	C	25.06.2024
Roof Level	TP1.15	C	25.06.2024
West Elevation - Cremorne St	TP2.00	C	25.06.2024
North Elevation - Kelso St	TP2.01	C	25.06.2024
East Elevation	TP2.02	C	25.06.2024
South Elevation	TP2.03	C	25.06.2024
Section A	TP3.001	C	25.06.2024
Section B	TP3.002	C	25.06.2024

Section C	TP3.003	C	25.06.2024
Shadow Diagrams - Proposed	TP4.00	C	25.06.2024
Shadow Diagrams - Proposed	TP4.01	C	25.06.2024

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

2.0 Site Description

The building comprises the following uses:

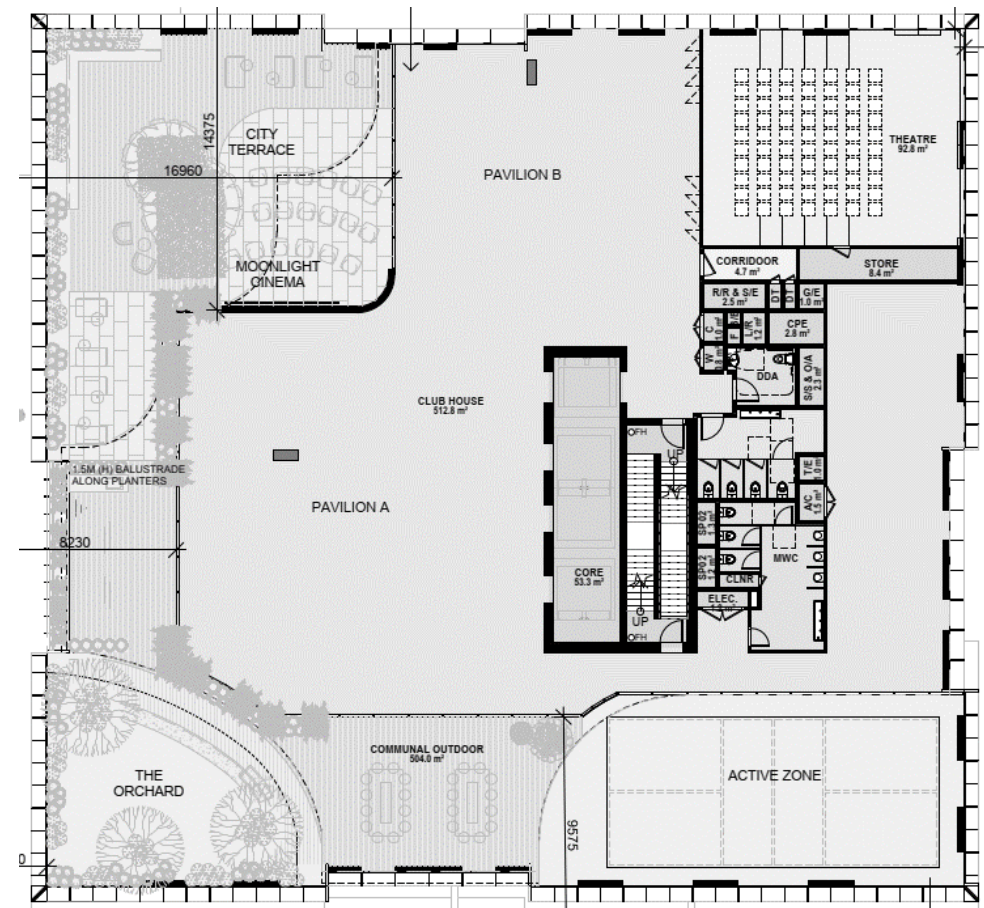
- Commercial tenancies with a total NLA of approximately 11,513,m²; and
- Located within the City of Yarra
- Site area 1,749m² (approximately)
- Surrounds predominantly commercial use

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

A plan of the roof terrace level of the proposed development is provided below.

An image of the site and the surrounding locale is provided on the following page.










3.0 Key ESD Initiatives

ADVERTISED PLAN

A detailed analysis has been undertaken in order to nominate the ESD initiatives required and confirm the performance outcomes achieved. The results of this analysis are set out in the remainder of this report.

An assessment of sustainable design outcomes of the proposed development has been undertaken with Green Star Buildings, NABERS and MUSIC benchmarking tools. The information presented in this report demonstrates that:

The following key sustainable design initiatives have been incorporated into this project:

<p>Energy Commitment to 100% Green Power</p> 	<p>Transport Electric vehicle chargers and infrastructure</p> 	<p>Green Star Buildings The development achieve a certified Green Star Buildings performance standard</p> <p>5.0 star</p>	<p>NABERS Energy A Commitment Agreement will be in place to achieve NABERS Energy rating of:</p> <p>5.5 star</p>
<p>Water Rainwater harvesting system for toilet flushing</p> 	<p>Performance High-performance glazing and energy efficient building services, appliances and fixtures</p> 	<p>Daylight The project meets the Green Star Building Daylight standard</p> <p>69%</p>	<p>Stormwater The development meets the Best Practice standard for stormwater quality.</p> 

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

4.0 NABERS Energy Rating

The NABERS for Office Base-Building energy simulation results are broken down in the table below:

<p>Total Electricity Use</p> <p>295</p> <p>MWh/ year</p>	<p>Total Natural Gas Use</p> <p>-</p> <p>MJ/ year</p>		<p>NABERS rating (estimated)</p> <p>6.0</p> <p>stars</p>
<p>PV output</p> <p>28</p> <p>MWh/ year</p>	<p>Total Energy Use with PV offset</p> <p>267</p> <p>MWh/ year</p>	<p>Energy intensity of the building as modelled</p> <p>24</p> <p>kWh/m² /year</p>	<p>NABERS rating with half star margin (estimated)</p> <p>5.5</p> <p>stars</p>

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

The energy intensity of the building as modelled is 24 kWh/m² which equates to 6.0 stars. At this initial stage of design development, it is appropriate to reduce this value by a half star modelling margin. Refer to Appendix B for summary of assumptions.

There is likely to be potential for cost-effective reduction of energy consumption of common area lighting, fans, pumps etc.

ADVERTISED
PLAN

5.0 Daylight Modelling

Daylight modelling has been undertaken to determine internal daylight levels within the proposed office development.

Results of daylight assessment are based on the Green Star Buildings standard for daylight modelling to commercial areas as follows:

- 40% of total space floor area to have a spatial daylight autonomy greater than 160 Lux for 80% of daylight hours (8am – 6pm), applicable to all commercial spaces. Minimum of 20% of each space floor area must have a spatial daylight autonomy greater than 160 Lux for 80% of daylight hours.

The modelling results and software input assumptions are provided in Appendix G.

The extrapolated results of the daylight modelling confirms that:

Commercial areas meet the Green Star Buildings standard

69%

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

6.0 MUSIC Modelling

To assess the quality of stormwater runoff from the site, an analysis has been undertaken using MUSIC Modelling software.

The proposed development exceeds the pollutant load reduction targets set out in the Best Practice Environmental Management Guidelines (BPEMG)

Reduction in Total Suspended Solids (TSS) load:	Reduction in Total Phosphorus (TP) load:
96.4%	87.9%
Reduction in Total Nitrogen (TN) load:	Reduction in Gross Pollutants (GP) load:
88.2%	99.8%

The results indicate that the project meets the criteria for Exceptional Performance for both the flow reduction, and pollutant (particulate and nutrient) reduction requirements of Green Star Buildings credit 39 Waterway Protection.

Refer to Section 5.0 and Appendix C for the MUSIC rating assumptions and results and Appendix D for the WSUD Maintenance Manual.

A rainwater harvesting system will be installed comprising:

- Rainwater harvesting from all roof and terrace areas (approx. 1,505m²):
- Filtration and treatment of all rainwater prior to draining into the tank
- Total storage volume of 50kL rainwater tanks
- Re-use of captured water for flushing of all toilets

In addition to the harvesting and re-use of rainwater, the following features will be incorporated into the proposed design to facilitate treatment of stormwater runoff:

A Rocla CDS Nipper gross pollutant trap (or equivalent primary treatment device) located near stormwater Legal Point of Discharge to capture suspended solids and litter generated onsite.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

7.0 Green Star Building

The Green Star Buildings (v1 Rev B) tool has been used as a benchmarking framework for the proposed scheme and demonstrates that the development has the preliminary design potential to achieve a 5 Star standard.

A detailed Green Star assessment has been undertaken to confirm the credits achievable by the proposed scheme.

The initiatives which contribute to the 5 Star Green Star Buildings rating are detailed in Section 7.1 and Appendix A below.

Please note that this analysis is based on the best information currently available in relation to the technical and commercial feasibility of the initiatives proposed. Further investigation will be undertaken during design development which may result in change to the package of initiatives specified in order to meet the 5 Star Green Star standard.

**ADVERTISED
PLAN**

Green Star Building Rating

5 star

Total Points Targeted

39 pts

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Note that a minimum of 35 points must be achieved for a 5 star Green Star Buildings rating to be achieved. A points margin of 10% has been incorporated into the pathway presented in this report as a contingency to allow for the inevitable change to the pathway inclusive of attrition which typically occurs during the detailed design and construction phases. This does not imply that the applicant commits to delivering more than the points required for the rating targeted.

7.1 Summary of Green Star Building credits targeted

Credit	Target	Points	
1	Industry Development	Credit Achievement	1
2	Responsible Construction	Credit Achievement	1
3	Verification and Handover	Credit Achievement	1
4	Operational Waste	Minimum Expectation	
5	Responsible Procurement		
6	Responsible Structure		
7	Responsible Envelope		
8	Responsible Systems		
9	Responsible Finishes		
10	Clean Air	Minimum Expectation	
11	Light Quality	Minimum Expectation	
12	Acoustic Comfort	Credit Achievement	2
13	Exposure to Toxins	Minimum Expectation	
14	Amenity and Comfort	Credit Achievement	2
15	Connection to Nature	Credit Achievement	1
16	Climate Change Resilience	Credit Achievement	1
17	Operations Resilience	Credit Achievement	2
18	Community Resilience		
19	Heat Resilience	Credit Achievement	1
20	Grid Resilience		
21	Upfront Carbon Emissions	Credit Achievement	3
22	Energy Use	Credit Achievement	3
23	Energy Source	Exceptional Performance	6
24	Other Carbon Emissions	Credit Achievement	2
25	Water Use	Minimum Expectation	

26	Life Cycle Impacts		
27	Movement and Place	Credit Achievement	3
28	Enjoyable Places		
29	Contribution to Place		
30	Culture, Heritage and Identity		
31	Inclusive Construction Practices	Credit Achievement	1
32	Indigenous Inclusion		
33	Procurement and Workforce Inclusion		
34	Design for Inclusion	Credit Achievement	2
35	Impacts to Nature	Credit Achievement	2
36	Biodiversity Enhancement		
37	Nature Connectivity		
38	Nature Stewardship		
39	Waterway Protection	Exceptional Performance	4
40	Market Transformation		
41	Leadership Challenges	Credit Achievement	1

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

Refer to Appendix A for details of credit requirements

ADVERTISED
PLAN

8.0 Conclusion

This report provides details of a comprehensive package of sustainable design features which will be integrated into the design and specification of the proposed commercial development in order to improve environmental outcomes during occupation.

In terms of performance outcomes, the analysis presented in this report demonstrates that the proposed development will:

- attain a certified 5 star Green Star standard based on the Buildings rating tool (V1 Rev B);
- achieve a NABERS Energy 5.5 star rating via the formal *Commitment Agreement* process;
- attain the Best Practice standard for urban stormwater quality

Accordingly, the sustainable design outcomes from the proposed development are considered to be consistent with the objectives of Clauses 15.01-2S & 15.01-2L (Building Design), 15.01-2L-01 (Environmentally Sustainable Development) and 53.18 (Stormwater Management) of the City of Yarra Planning Scheme.

Please note that this analysis is based on the best information currently available in relation to the technical and commercial feasibility of the initiatives proposed. Further investigation will be undertaken during design development which may result in change to the package of initiatives specified in order to meet the 5 star Green Star Buildings

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

Green Star

The combination of design features and services initiatives meets all the standards for a Green Star Building Rating of:

5 star

NABERS Energy

A Commitment Agreement will be in place to achieve NABERS Energy rating of:

5.5 star

Best Practice

The development meets the Best Practice standard for stormwater Quality



Appendix A. Green Star Building Pathway

The key design elements and processes which underpin the preliminary Green Star rating are summarised in the table below. The design attributes will be incorporated into the design in accordance with the technical criteria for each credit set out in the Green Star Buildings Technical Manual (v1 Revision B, 10 December 2021).

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
1 Industry Development The development facilitates industry transformation through partnership, collaboration, and data sharing	The building owner or developer appoints a Green Star Accredited Professional (GSAP).	1	Strategy
	The building owner or developer discloses the cost of sustainable building practices to the GBCA. The project team must complete, and include in the submission, the Green Star Financial Transparency disclosure template. The template requires and enables the project team to submit the cost of sustainable building practices of the project including design, construction and documentation to the GBCA.		Brief
	The building owner or developer markets the building to highlight its sustainability achievements. The project team must: <ul style="list-style-type: none"> – Provide information from the project's marketing team must answer the questions in the submission form for a Green Star Case Study. The case study seeks information on the sustainability initiatives that the building targeted to enable it being featured on the GBCA's website – Detail how the building will detail its sustainability achievements to its stakeholders. The stakeholders are defined as the typical building occupants and visitors. 		Concept
	The building owner or developer appoints a Green Star Accredited Professional (GSAP).		Design
2 Responsible Construction The builder's construction practices reduce impacts and promote opportunities for improved environmental and social outcomes	The builder must have an environmental management system (large builders will need to be ISO14001 accredited).	MINIMUM EXPECTATION	Tender
	The site must have a project specific Environmental Management Plan (EMP). The EMP must be developed to cover the scope of construction activities to assist the head contractor and its service providers to manage environmental performance conditions and impacts arising from demolition, excavation, and construction. It must be implemented from the start of construction and include all works within the project scope.		Construction
	80% of Construction and demolition waste must be recycled.		
	The builder must have an environmental management system (large builders will need to be ISO14001 accredited).		
	Sustainability training is provided to construction workers.		
	The head contractor must provide the following training:		

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
	<ul style="list-style-type: none"> - Information on the sustainable building certification(s) sought, including: <ul style="list-style-type: none"> · the sustainability attributes of the building and their benefits · the value of certification · the role site worker(s) play in delivering a sustainable building 		
<p>3 Verification and Handover</p> <p>The building has been optimised and handed over to deliver a high level of performance in operation</p>	<p>90% of construction and demolition waste is diverted from landfill, and waste contractors and facilities comply with the Green Star Construction and Demolition Waste Reporting Criteria</p> <p>The building is set up for optimum ongoing management due to its appropriate metering and monitoring systems.</p> <p>The building must have accessible energy and water metering for all common uses, major uses, and major sources.</p> <p>The meters must be connected to a monitoring system capable of capturing and processing the data produced by the meters. The monitoring system must accurately and clearly present the metered data and include reports on consumption trends for the automatic monitoring system.</p> <p>The building has set environmental performance targets, designed and tested for airtightness, been commissioned, and will be tuned.</p> <p>The project team must perform the following:</p> <ul style="list-style-type: none"> - Prior to construction: <ul style="list-style-type: none"> · Set environmental performance targets · Perform a services and maintenanceability review · Design for airtightness - During construction and practical completion: <ul style="list-style-type: none"> · Commission the building · Engage building tuning service provider · Test for airtightness - After practical completion: <ul style="list-style-type: none"> · Tune the building over the next 12 months <p>The project team create and deliver operations and maintenance information to the facilities management team at the time of handover. Information is available to building users on how to best use the building.</p> <p>The project team must provide operations and maintenance information for all nominated building systems to the building owner (or designated representative). This means:</p> <ul style="list-style-type: none"> - Appropriate content for all nominated building systems has been developed and provided - The appropriate user group has access to the information they require to deliver best practice environmental outcomes 	1	Design Tender Construction Handover Use

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

MINIMUM EXPECTATION

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
	<ul style="list-style-type: none"> – Guidance on keeping information up to date is provided to the facilities management team in these documents 		
	<p>An independent level of verification is provided to the commissioning and tuning activities through the involvement of an independent commissioning agent.</p> <p>or</p> <p>The project uses a soft landings approach that involves the future facilities management team.</p>	1	
<p>4 Operational Waste</p> <p>Operational waste can be separated and recovered in a safe and efficient manner</p> <p>The building must have appropriate spaces for waste management and an appropriately sized loading dock</p>	<p>The building is designed for the collection of separate waste streams.</p> <p>The building must provide bins or storage containers to building occupants to enable them to separate their waste. These bins must be labelled and easy to access, and evenly distributed throughout the building. They must also allow for separating the following as a minimum:</p> <ul style="list-style-type: none"> – General waste going to landfill – Recycling streams to be collected by the building’s waste collection service, including: <ul style="list-style-type: none"> • paper and cardboard • glass • plastic – One additional waste stream identified by the project team. This may include collecting any of the following waste types: <ul style="list-style-type: none"> • organics, e-waste, batteries <p>The building provides a dedicated and adequately sized waste storage area.</p> <p>A dedicated area, or areas, for the storage and collection of the applicable waste streams must be provided. The storage area must be sized to accommodate all bins or containers, for all applicable waste streams, for at least one collection cycle.</p> <p>The building ensures safe and efficient access to waste storage areas for both occupants and waste collection contractors.</p> <p>A waste specialist and/or contractor must sign-off on the designs to confirm they are adequately sized and located for the safe and convenient storage and collection of the waste streams identified.</p>	MINIMUM EXPECTATION	Design Handover Use
<p>10 Clean Air</p> <p>Pollutants entering the building are minimised, and a high level of fresh air is provided to ensure levels of indoor pollutants are maintained at acceptable levels</p>	<p>Non-residential building ventilation systems must be designed to comply with ASHRAE Standard 62.1:2013 or AS 1668:2012 (whichever is greater) regarding minimum separation distances between pollution sources and outdoor air intakes.</p> <p>All new and existing ductwork that serves the building must be cleaned prior to occupation in accordance with a recognised Standard.</p> <p>The building must be provided with at an adequate amount of outside air.</p> <p>The regularly occupied areas must be provided with good access to outdoor air, appropriate for the activities and conditions by using one of the following options:</p>	MINIMUM EXPECTATION	Design Tender Construction Handover Use

ADVERTISED PLAN
 This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
	<p>Where ventilation is by mechanical means, the building must provide outdoor air as per AS1668.2:2012 for the default occupancy.</p> <p>Where ventilation is by natural means, the building must meet natural ventilation requirements as per AS1668.4:2012. Where active heating or cooling is provided, a dedicated and controlled outside air path must be constructed and commissioned at a rate of at least 2.5L/s per bedroom and living space, with a minimum of 5L/s per unit. Outside air must be provided to each space that is heated or cooled.</p> <p>Point source pollutants must be exhausted directly outside (printers, kitchens).</p>		
<p>11 Light Quality</p> <p>The building provides good daylight and its lighting is of high quality</p>	<p>Lighting within the building meets minimum comfort requirements.</p> <p>Lighting within the building must meet the following requirements:</p> <ul style="list-style-type: none"> - All LED lighting installed has no observable effect as per the standard IEEE 1789-2015 - Light sources must have a minimum Colour Rendering Index (CRI) 85 or higher - Light sources must meet best practice illuminance levels for each task within each space type with a maintained illuminance that meets the levels recommended in AS/NZS 1680.1:2006 - The maintained Illuminance values must achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006, with a maintenance factor method as defined in AS/NZS 1680.4 - All light sources must have a maximum of 3 MacAdam Ellipses deviation. <p>Good lighting levels suitable for the typical tasks in each space are available.</p> <p>The building provides adequate levels of daylight.</p> <ul style="list-style-type: none"> - Ensures regularly occupied areas are in reasonable proximity to glazed façades, windows, or skylights - Maximises daylight to spaces that prioritise learning, healing, and living: <ul style="list-style-type: none"> · For apartments, how in 95% of all apartments, the living rooms and all bedrooms have access to a view and daylight. 	<p>MINIMUM EXPECTATION</p>	<p>Concept Design Tender</p>

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage																																																																						
<p>12 Acoustic Comfort</p> <p>The building provides acoustic comfort for building occupants</p>	<p>Internal noise levels from services and the outside is limited through an acoustic comfort strategy. The Acoustic Comfort Strategy is to include:</p> <ul style="list-style-type: none"> – A summary of the Standards, legislation, guidelines, and other requirements that apply to the project – The proposed performance metrics for each of the Acoustic Comfort criteria relevant to the different uses within the building and whether this exceeds minimum legislative or best practice guidelines – Description of how the design solution is intended to achieve the proposed performance metrics 	MINIMUM EXPECTATION	<p>Design Tender Construction Handover</p>																																																																						
	<p>Internal ambient noise levels in the regularly occupied areas must be no greater than the upper range value relevant to the activity type in each space as recommended in the current AS/NZS 2107:2016.</p> <p>and/or</p> <p>Internal ambient noise levels in the regularly occupied areas must be no greater than the upper range value relevant to the activity type in each space as recommended in the current AS/NZS 2107:2016.</p> <p>and/or</p> <p>The project must address noise transmission between enclosed spaces within the regularly occupied area. Compliance can be demonstrated via either:</p> <ul style="list-style-type: none"> – Privacy – Sound insulation <p>And/or</p> <p>The building minimises impact noise that is transmitted into the regularly occupied area with ISO 16283-2 and/or</p> <p>Reverberation time in the regularly occupied area must be below the maximum stated in the 'Recommended Reverberation Time' provided in Table 1 of AS/NZ 2107:2016.</p> <div data-bbox="846 625 1388 967" style="border: 2px solid red; padding: 5px; text-align: center; color: red; font-weight: bold;"> <p>This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.</p> </div> <table border="1" data-bbox="488 986 1142 1442"> <thead> <tr> <th>Project Type</th> <th>Maximum Internal Noise Levels</th> <th>Minimum Internal Noise Levels</th> <th>Acoustic Separation</th> <th>Impact Noise Transfer</th> <th>Reverberation Control</th> <th>Requirement for 2 points</th> </tr> </thead> <tbody> <tr> <td>Residential (Class 2, 3 & 9a)</td> <td>•</td> <td></td> <td>•</td> <td>•</td> <td></td> <td>2/3</td> </tr> <tr> <td>Healthcare</td> <td>•</td> <td></td> <td>•</td> <td>•</td> <td>•*</td> <td>3/4</td> </tr> <tr> <td>Schools</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>3/5</td> </tr> <tr> <td>Fit-out (commercial)</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>4/5</td> </tr> <tr> <td>Fit-out (retail)</td> <td>•</td> <td></td> <td>•</td> <td>•</td> <td>•</td> <td>3/4</td> </tr> <tr> <td>Base build (commercial)</td> <td>•</td> <td></td> <td>•</td> <td></td> <td></td> <td>2/2</td> </tr> <tr> <td>Base build (retail)</td> <td>•</td> <td></td> <td>•</td> <td></td> <td></td> <td>2/2</td> </tr> <tr> <td>Sport and Leisure</td> <td>•</td> <td></td> <td>•</td> <td>•</td> <td>•</td> <td>3/4</td> </tr> <tr> <td>Industrial</td> <td>•</td> <td></td> <td>•</td> <td></td> <td></td> <td>2/2</td> </tr> </tbody> </table>	Project Type	Maximum Internal Noise Levels	Minimum Internal Noise Levels	Acoustic Separation	Impact Noise Transfer	Reverberation Control	Requirement for 2 points	Residential (Class 2, 3 & 9a)	•		•	•		2/3	Healthcare	•		•	•	•*	3/4	Schools	•	•	•	•	•	3/5	Fit-out (commercial)	•	•	•	•	•	4/5	Fit-out (retail)	•		•	•	•	3/4	Base build (commercial)	•		•			2/2	Base build (retail)	•		•			2/2	Sport and Leisure	•		•	•	•	3/4	Industrial	•		•			2/2	2	
Project Type	Maximum Internal Noise Levels	Minimum Internal Noise Levels	Acoustic Separation	Impact Noise Transfer	Reverberation Control	Requirement for 2 points																																																																			
Residential (Class 2, 3 & 9a)	•		•	•		2/3																																																																			
Healthcare	•		•	•	•*	3/4																																																																			
Schools	•	•	•	•	•	3/5																																																																			
Fit-out (commercial)	•	•	•	•	•	4/5																																																																			
Fit-out (retail)	•		•	•	•	3/4																																																																			
Base build (commercial)	•		•			2/2																																																																			
Base build (retail)	•		•			2/2																																																																			
Sport and Leisure	•		•	•	•	3/4																																																																			
Industrial	•		•			2/2																																																																			

ADVERTISED PLAN

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage																															
<p>13 Exposure to Toxins</p> <p>The building's occupants are not directly exposed to toxins in the spaces they spend time in</p>	<p>The building's paints adhesives, sealants, and carpets are low in TVOC or non-toxic.</p> <p>At least 95% of internally applied paints, adhesives, sealants (by volume) and carpets (by area) must meet stipulated 'Total Volatile Organic Compounds (TVOC) Limits' below.</p> <p>Paints, Adhesives and Sealants</p> <table border="1" data-bbox="488 300 1160 893"> <thead> <tr> <th data-bbox="488 363 846 386">Product category</th> <th data-bbox="846 331 1160 418">Max. Total Volatile Organic Compounds (TVOC) content in grams per litre (g/L) of ready to use product</th> </tr> </thead> <tbody> <tr> <td data-bbox="488 450 846 472">General purpose adhesives and sealants</td> <td data-bbox="846 450 1160 472">50</td> </tr> <tr> <td data-bbox="488 513 846 536">Interior wall and ceiling paint, all sheen levels</td> <td data-bbox="846 513 1160 536">16</td> </tr> <tr> <td data-bbox="488 577 846 600">Trim, varnishes, and wood stains</td> <td data-bbox="846 577 1160 600">75</td> </tr> <tr> <td data-bbox="488 641 846 663">Primers, sealers, and prep coats</td> <td data-bbox="846 641 1160 663">65</td> </tr> <tr> <td data-bbox="488 705 846 737">One and two pack performance coatings for floors</td> <td data-bbox="846 705 1160 737">140</td> </tr> <tr> <td data-bbox="488 769 846 817">Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives</td> <td data-bbox="846 769 1160 817">25</td> </tr> <tr> <td data-bbox="488 849 846 896">Structural glazing adhesive, wood flooring and laminate adhesives and sealants</td> <td data-bbox="846 849 1160 896">100</td> </tr> </tbody> </table> <p>Carpets</p> <table border="1" data-bbox="488 938 1429 1232"> <thead> <tr> <th data-bbox="488 944 810 967">Compliance option</th> <th data-bbox="810 944 1133 967">Test protocol</th> <th data-bbox="1133 944 1429 967">Limit</th> </tr> </thead> <tbody> <tr> <td data-bbox="488 1024 810 1046">ASTM D5116</td> <td data-bbox="810 992 1133 1015">ASTM D5116 - Total VOC limit*</td> <td data-bbox="1133 992 1429 1015">limit* 0.5mg/m² per hour</td> </tr> <tr> <td data-bbox="488 1046 810 1069">ASTM D5116</td> <td data-bbox="810 1046 1133 1094">ASTM D5116 - 4-PC (4-Phenylcyclohexene) *</td> <td data-bbox="1133 1046 1429 1069">0.05mg/m² per hour</td> </tr> <tr> <td data-bbox="488 1120 810 1142">ISO 16000 / EN 13419</td> <td data-bbox="810 1120 1133 1168">ISO 16000 / EN 13419 - TVOC at three days</td> <td data-bbox="1133 1120 1429 1142">0.5 mg/m² per hour</td> </tr> <tr> <td data-bbox="488 1200 810 1222">ISO 10580 / ISO/TC 219 (Document N238)</td> <td data-bbox="810 1184 1133 1232">ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours</td> <td data-bbox="1133 1184 1429 1206">0.5mg/m² per hour</td> </tr> </tbody> </table> <p>The building's engineered wood products are low in TVOC or non-toxic.</p> <p>Either no new engineered wood products are used in the building, or at least 95% (by area) of all engineered wood products meet specified formaldehyde emission limits, as per the following:</p>	Product category	Max. Total Volatile Organic Compounds (TVOC) content in grams per litre (g/L) of ready to use product	General purpose adhesives and sealants	50	Interior wall and ceiling paint, all sheen levels	16	Trim, varnishes, and wood stains	75	Primers, sealers, and prep coats	65	One and two pack performance coatings for floors	140	Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	25	Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100	Compliance option	Test protocol	Limit	ASTM D5116	ASTM D5116 - Total VOC limit*	limit* 0.5mg/m ² per hour	ASTM D5116	ASTM D5116 - 4-PC (4-Phenylcyclohexene) *	0.05mg/m ² per hour	ISO 16000 / EN 13419	ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m ² per hour	ISO 10580 / ISO/TC 219 (Document N238)	ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m ² per hour	MINIMUM EXPECTATION	<p>Design</p> <p>Tender</p> <p>Construction</p> <p>Handover</p>
Product category	Max. Total Volatile Organic Compounds (TVOC) content in grams per litre (g/L) of ready to use product																																	
General purpose adhesives and sealants	50																																	
Interior wall and ceiling paint, all sheen levels	16																																	
Trim, varnishes, and wood stains	75																																	
Primers, sealers, and prep coats	65																																	
One and two pack performance coatings for floors	140																																	
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	25																																	
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100																																	
Compliance option	Test protocol	Limit																																
ASTM D5116	ASTM D5116 - Total VOC limit*	limit* 0.5mg/m ² per hour																																
ASTM D5116	ASTM D5116 - 4-PC (4-Phenylcyclohexene) *	0.05mg/m ² per hour																																
ISO 16000 / EN 13419	ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m ² per hour																																
ISO 10580 / ISO/TC 219 (Document N238)	ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m ² per hour																																

ADVERTISED PLAN
 This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Green Star Credit Project Outcomes	Credit outcomes				Target	Project Stage
	<p>Test protocol</p> <p>AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood</p> <p>AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16</p> <p>AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16</p> <p>AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)</p> <p>Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL</p> <p>JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460</p> <p>JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460</p> <p>JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)</p>	<p>Emissions Limit / Unit of Measurement</p> <p>≤1mg/L</p> <p>≤1.5 mg/L</p> <p>≤1mg/L</p> <p>≤1mg/L</p> <p>≤1mg/L</p> <p>≤1mg/L</p> <p>≤1mg/L</p> <p>≤0.1 mg/m³hr*</p>	<p>Test protocol</p> <p>ASTM D5116 (applicable to high pressure laminates and compact laminates)</p> <p>ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates</p> <p>ASTM D6007</p> <p>ASTM E1333</p> <p>EN 717-1 (also known as DIN EN 717-1)</p> <p>EN 717-2 (also known as DIN EN 717-2)</p>	<p>Emissions Limit / Unit of Measurement</p> <p>≤0.1 mg/m³hr</p> <p>≤0.1 mg/m³hr (at 3 days)</p> <p>≤0.12mg/m³**</p> <p>≤0.12mg/m³**</p> <p>≤0.12mg/m</p> <p>≤3.5mg/m³hr</p>		
<p>14 Amenity and Comfort</p> <p>The building provides internal amenities that improve occupant experience of using the building</p>	<p>Occupants are not exposed to banned or highly toxic materials in the building. A comprehensive hazardous materials survey must be carried out on any existing buildings or structures on the project site, in accordance with the relevant Environmental and Work Health and Safety (WHS) legislation.</p>				2	<p>Brief</p> <p>Concept</p> <p>Design</p> <p>Tender</p> <p>Handover</p> <p>Use</p>
<p>15 Connection to Nature</p> <p>The building fosters connection to nature for building occupants</p>	<p>At least 60% of regularly occupied areas must have a clear line of sight to a high quality internal or external view. All floor areas within 8m from a compliant view meet this credit criterion.</p> <p>Indoor plants must be provided in regularly occupied areas. One or more plants in pots with a soil surface area totalling at least 500cm² for every 15m² of the regularly occupied spaces is required.</p> <p>Project teams must provide a narrative against a set of design principles to show how the project's ambition for nature inspired design has been embedded from design concept stage.</p> <p>or</p> <p>Occupants can interact with nature either inside the building, or externally through a green façade (or wall) or garden.</p> <p>At least 5% of the building's regularly occupied areas or land within the site boundary (whichever is greater) must be planted area (either vertical or horizontal).</p>				1	<p>Brief</p> <p>Concept</p> <p>Design</p> <p>Tender</p> <p>Handover</p> <p>Use</p>

This copied document to be made available for the sole purpose of enabling its consideration and review as part of the planning and design of the Sustainable Management Plan. The document must not be used for any purpose which infringes any copyright.

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
<p>16 Climate Change Resilience</p> <p>The building has been built to respond to the direct and indirect impacts of climate change</p>	<p>The project team completes the climate change pre-screening checklist. The project team communicates the building's exposure to climate change risks to the applicant</p> <p>Project-specific Climate Change Risk & Adaptation assessment undertaken during early schematic stage</p>	<p>MINIMUM EXPECTATION</p> <p>1</p>	<p>Strategy Brief Concept Design</p>
<p>17 Operations Resilience</p> <p>The building can respond to acute shocks and chronic stresses that can affect its operations over time</p>	<p>The project team undertakes a comprehensive risk assessment of the acute shocks and chronic stresses likely to influence future building operations, including:</p> <ul style="list-style-type: none"> - Failure of critical infrastructure (power, water and digital) - Health pandemic - Water security - Geological hazards (landslides, earthquakes, tsunamis) - Direct attack (cyber and physical) - Ageing infrastructure - Rising cyber dependency - Increasing energy costs - Lack of transport accessibility and availability <p>The building's design and future operational plan addresses any high or extreme system-level interdependency risks.</p> <p>The building's design maintains a level of survivability and design purpose in a blackout. The building must then be designed to account for its design purpose and provide a measure of survivability for the likely occupants.</p>	<p>2</p>	<p>Strategy Brief Concept Design</p>
<p>19 Heat Resilience</p> <p>The building reduces its impact on heat island effect</p>	<p>At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect.</p> <p>The strategies that can be used to reduce the heat island are:</p> <ul style="list-style-type: none"> - Vegetation - Green roofs - Roofing materials, including shading structures, having the following: <ul style="list-style-type: none"> · For roof pitched <15°- a three-year SRI of minimum 64 · For roof pitched >15°- a three-year SRI of minimum 34 - Unshaded hard-scaping elements with a three-year SRI of minimum 34 or an initial SRI of minimum 39 - Hardscaping elements shaded by overhanging vegetation 	<p>1</p>	<p>Design Tender Construction</p>

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

ADVERTISED PLAN

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
<p>21 Upfront Carbon Emissions</p> <p>The building's upfront carbon emissions from materials and products have been reduced and offset</p>	<p>The building's upfront carbon emissions are at least 10% less than those of a reference building, calculated using the Upfront Carbon Emissions calculator.</p> <p>The building's energy use is at least 20% less than a reference building, calculated using the Upfront Carbon Emissions calculator.</p> <p>Where an existing building less than 30 years old has been fully or partly demolished for construction, an embodied carbon calculation must be done for the demolished portion and these emissions offset.</p> <p>Where the existing building is between 30 to 50 years old, the contribution must be calculated and discounted at 10% for every two additional years past year 30.</p>	<p>MINIMUM EXPECTATION</p>	<p>Strategy Brief Concept Design</p>
<p>22 Energy Use</p> <p>(Reference Pathway)</p> <p>The building has low energy consumption</p>	<p>The building has at least a 10% lower energy consumption than one built to the National Construction Code 2019.</p> <p>The building has at least a 20% lower energy consumption than one built to the National Construction Code 2019.</p>	<p>MINIMUM EXPECTATION</p>	<p>Brief Concept Design Tender</p>
<p>23 Energy Source</p> <p>The building's energy comes from renewables</p>	<p>The building provides a Zero Carbon Action Plan.</p> <p>The Zero Carbon Action Plan must include a target date by when the building is expected to operate as fossil fuel free. The Zero Carbon Action Plan must cover all energy consumption, procurement, and generation and cannot rely on procuring renewable fuels as its only solution. It must also include infrastructure provided for tenants or future occupants such as gas installations for cooking.</p> <p>100% of the building's electricity comes from renewable electricity</p> <p>100% of the building's energy comes from renewables</p>	<p>MINIMUM EXPECTATION</p>	<p>Brief Concept Design Tender</p>
<p>24 Other Carbon Emissions</p> <p>The building's emissions from refrigerants, upfront carbon, and remaining carbon sources are eliminated or offset</p>	<p>The building owner eliminates emissions from high global warming potential refrigerants.</p> <p>or</p> <p>The building owner offsets emissions from refrigerants.</p>	<p>2</p>	<p>Concept Design Tender Construction</p>

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
<p>25 Water Use</p> <p>The building has low water use</p>	<p>The building installs efficient water fixtures:</p> <p>Taps 5 star</p> <p>Toilets 4 star</p> <p>Urinals 5 star</p> <p>Showers 3 star (<= 7.5 l/m)</p> <p>Dishwashers 5 star</p> <p style="text-align: center;">ADVERTISED PLAN</p>	MINIMUM EXPECTATION	<p>Design</p> <p>Tender</p> <p>Construction</p> <p>Use</p>
<p>27 Movement and Place</p> <p>The building's design and location encourage occupants and visitors to use active, low carbon, and public transport options instead of private vehicles</p>	<p>There are showers, lockers, and change rooms in the building</p>	MINIMUM EXPECTATION	<p>Strategy</p> <p>Brief</p> <p>Concept</p> <p>Design</p> <p>Tender</p> <p>Construction</p>
	<p>The facilities are accessible, inclusive, and located in a safe and protected space</p> <p>The building's access prioritises cycling and includes bicycle parking facilities, as follows:</p> <ul style="list-style-type: none"> - 136 secure bicycle spaces - Cycle maintenance rack and foot pump - Staff EoT facilities including: <ul style="list-style-type: none"> o 9 showers, o 136 lockers - Changing area with benching & ironing facilities <p>Clear, safe and inclusive access to cyclist facilities via 2 lifts. 2-way ramp also provided (non-dedicated) – gradients of 1:10 or greater to incorporate minimum slip resistance classification of P5 in accordance with AS 4586.</p> <p>Sustainable Transport Plan to be prepared and implemented.</p> <p>EV charging infrastructure:</p> <ul style="list-style-type: none"> - Chargers to 5% of car spaces: 5 chargers (minimum 7kW capacity) - EV charging to include load management supervisor hardware - Electrical containment e.g. trunking/conduit installed to facilitate future installation of cabling supplying a further 20% of car spaces (20 spaces) <p>Transport options that reduce the need for private fossil fuel powered vehicles are prioritised.</p> <p>Walkability encouraged via access to at least 10 amenities across 5 categories – Walkscore = 91</p>	3	

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
<p>31 Inclusive Construction Practices</p> <p>The builder's construction practices promote diversity and reduces physical and mental health impacts</p>	<p>There are provisions for providing gender appropriate facilities and personal protective equipment</p> <p>The head contractor also installs policies on-site to increase awareness and reduces instances of discrimination, racism, and bullying</p> <p>The head contractor must show that they have introduced programs and solutions to address Physical and Mental Health of potential site workers and sub-contractors based on a needs analysis. The project must provide an evaluation report to the client and sub-contractors on the effectiveness of the program.</p>	<p>MINIMUM EXPECTATION</p> <p>1</p>	<p>Strategy</p> <p>Brief</p> <p>Tender</p> <p>Construction</p>
<p>34 Design for Inclusion</p> <p>The building is welcoming to a diverse population and is welcoming to their needs</p>	<p>The building's design and construction must be able to be navigated and enjoyed by stakeholders of diverse ages, genders, and physical and mental abilities. This applies to common spaces, bathroom facilities, and amenities provided within the building.</p>	<p>2</p>	<p>Concept</p> <p>Design</p> <p>Tender</p> <p>Construction</p> <p>Handover</p> <p>Use</p>
<p>35 Impacts to Nature</p> <p>Ecological value is conserved and protected</p>	<p>The building was not built on, or significantly impacted, a site with a high ecological value</p> <p>The building's light pollution has been minimised. All outdoor lighting on the project complies with AS/NZS4282:2019 Control of the obtrusive effects of outdoor lighting.</p> <p>There is ongoing monitoring, reporting, and management of the site's wetland ecosystem</p> <p>The project team must demonstrate how they have attempted to understand their site's historical and current ecological context by documenting the site's current ecological values by type and biomass. This includes terrestrial and aquatic ecological values, geologic features, and soils (including interaction with living things). When determining biodiversity value, the project must reference local, regional, state, and national priorities and strategies.</p> <p>If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.</p>	<p>MINIMUM EXPECTATION</p> <p>2</p>	<p>Strategy</p> <p>Brief</p> <p>Concept</p> <p>Design</p>

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

ADVERTISED
PLAN

Green Star Credit Project Outcomes	Credit outcomes	Target	Project Stage
39 Waterway Protection Local waterways are protected, and the impacts of flooding and drought are reduced	The project demonstrates a reduction in average annual stormwater discharge (ML/yr) of 80% across the whole site (Refer to Appendix C.4 for discharge rates). Specified pollution reduction targets are met (Refer to Section 5.0 and Appendix C for MUSIC modelling results and assumptions)	4	Concept Design Construction Handover
41a Leadership Challenge Climate Positive Pathway	Project meets a Leadership Challenge developed by the GBCA	1	
Total Green Star Points		39	
Green Star Rating		5 Star	

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Appendix B. NABERS Summary

B.1 Energy Simulation Model

Images of the energy simulation model used for the proposed building are shown below..

**ADVERTISED
PLAN**

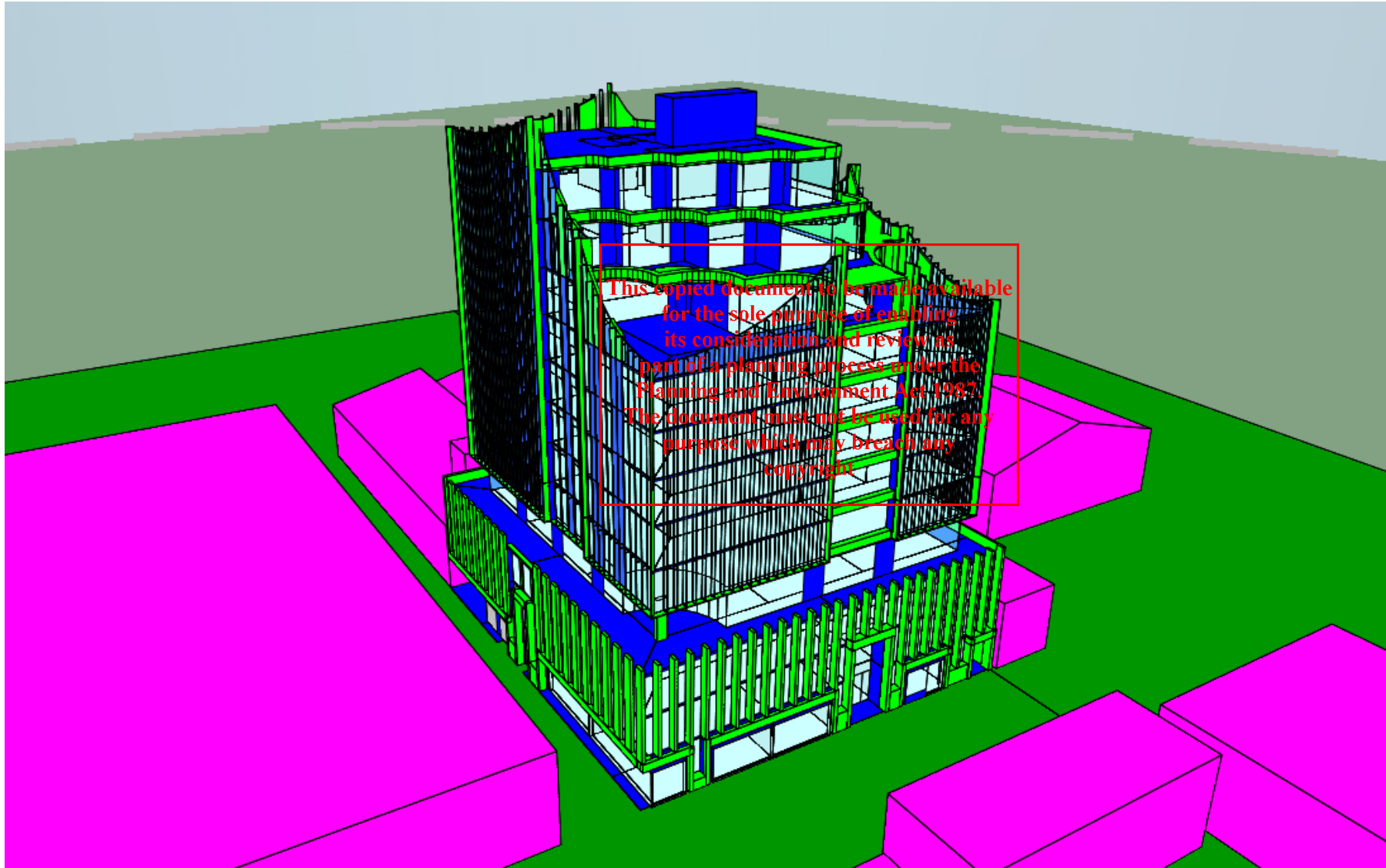


Figure 1 View of the 3D model from North-West

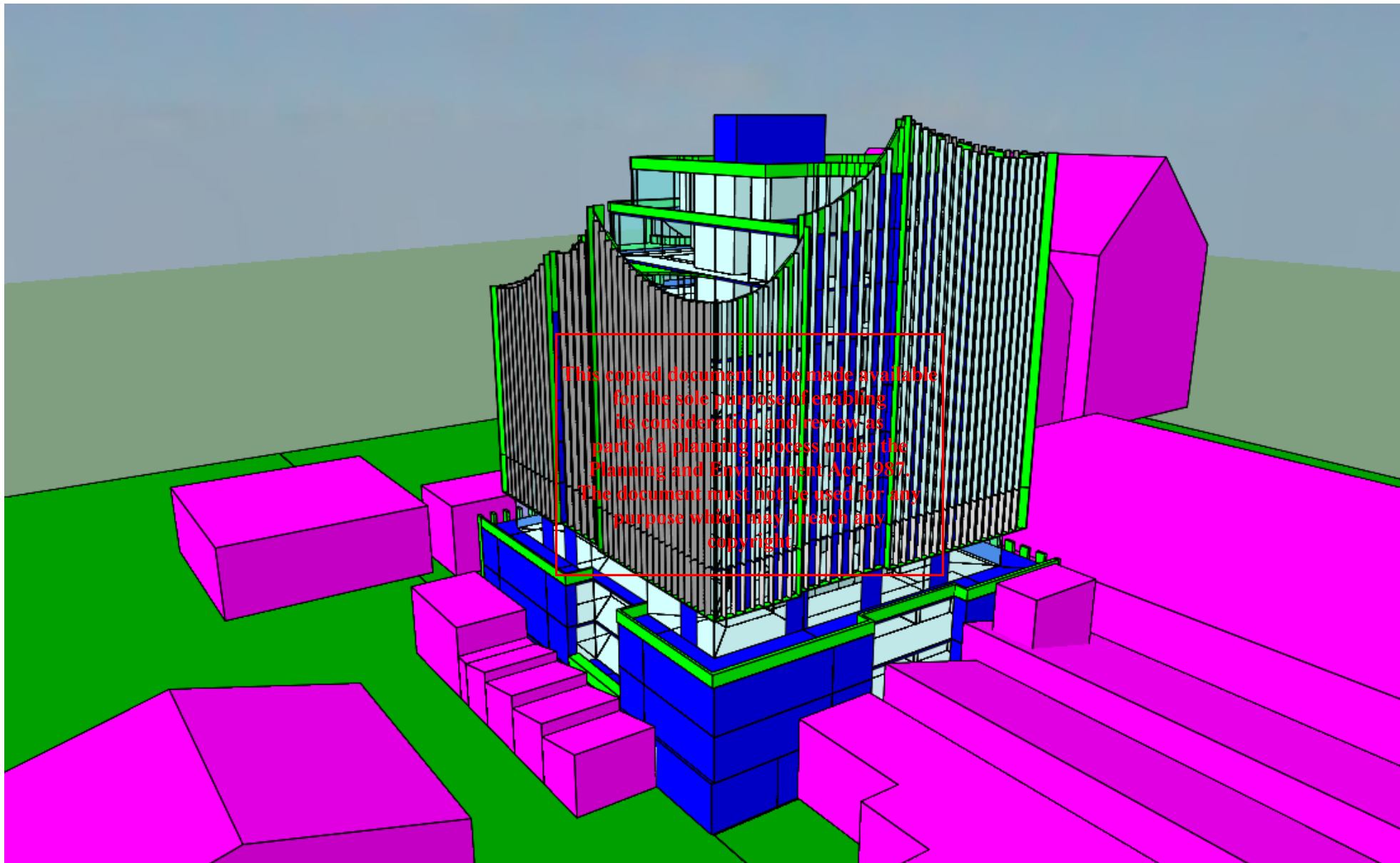


Figure 2 View of the 3D model from South-East

ADVERTISED PLAN

B.2 Building Envelope Details and Assumptions

**ADVERTISED
PLAN**

Energy modelling is based on the following building fabric performance specifications:

B.2.1 Walls

		Added Insulation requirement	Modelled total system performance [1]
External walls (m ² K/W)	<u>Concrete External Wall</u> 90mm Bradford Gold Hi-performance insulation or equivalent	R=2.5 or more to meet acoustic insulation requirements	Rt = 1.60
	<u>Spandrel Panels</u> 75mm Bradford Gold Hi-performance insulation or equivalent	R=2.0 or more to meet acoustic insulation requirements	Rt = 0.45
Internal walls (m ² K/W)	<u>Insulated internal walls</u> 75mm Bradford Gold Hi-performance insulation or equivalent	R=2.0 or more to meet acoustic insulation requirements	Rt = 1.60

[1] These are total system values accounting for horizontal thermal bridging in accordance with NZS 4214: (2006), or BRE 497 (2016).

Refer to B.6 for Wall Insulation Mark-Up.

B.2.2 Roofs/soffits/floors

		Added Insulation requirement	Modelled total system performance [1]
External roofs (m ² K/W)	<u>Concrete slab Roof system with suspended ceiling</u> 60mm Kooltherm K10 G2 Soffit Board or equivalent	R=2.75 or more to meet acoustic insulation requirements	Rt = 3.20
	Solar reflective index (SRI) For roof pitched <15° – an initial SRI of minimum 82; modelled as a three-year SRI of 70	82	82
Soffits (m ² K/W)	<u>Separating conditioned and outside spaces</u> 50mm Kooltherm K10 G2 Soffit Board or equivalent	R=2.30 or more to meet acoustic insulation requirements	Rt = 2.60
	<u>Separating conditioned and internal non-conditioned</u> e.g. basement carparks and ancillary spaces 50mm Kooltherm K10 G2 Soffit Board or equivalent	R=2.30 or more to meet acoustic insulation requirements	Rt = 2.60
Ground-bearing floor slabs	Conditioned space above: Load-bearing perimeter insulation 1000mm wide	N/A	N/A

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

(m ² K/W)	Non-conditioned space above	None	None
----------------------	-----------------------------	------	------

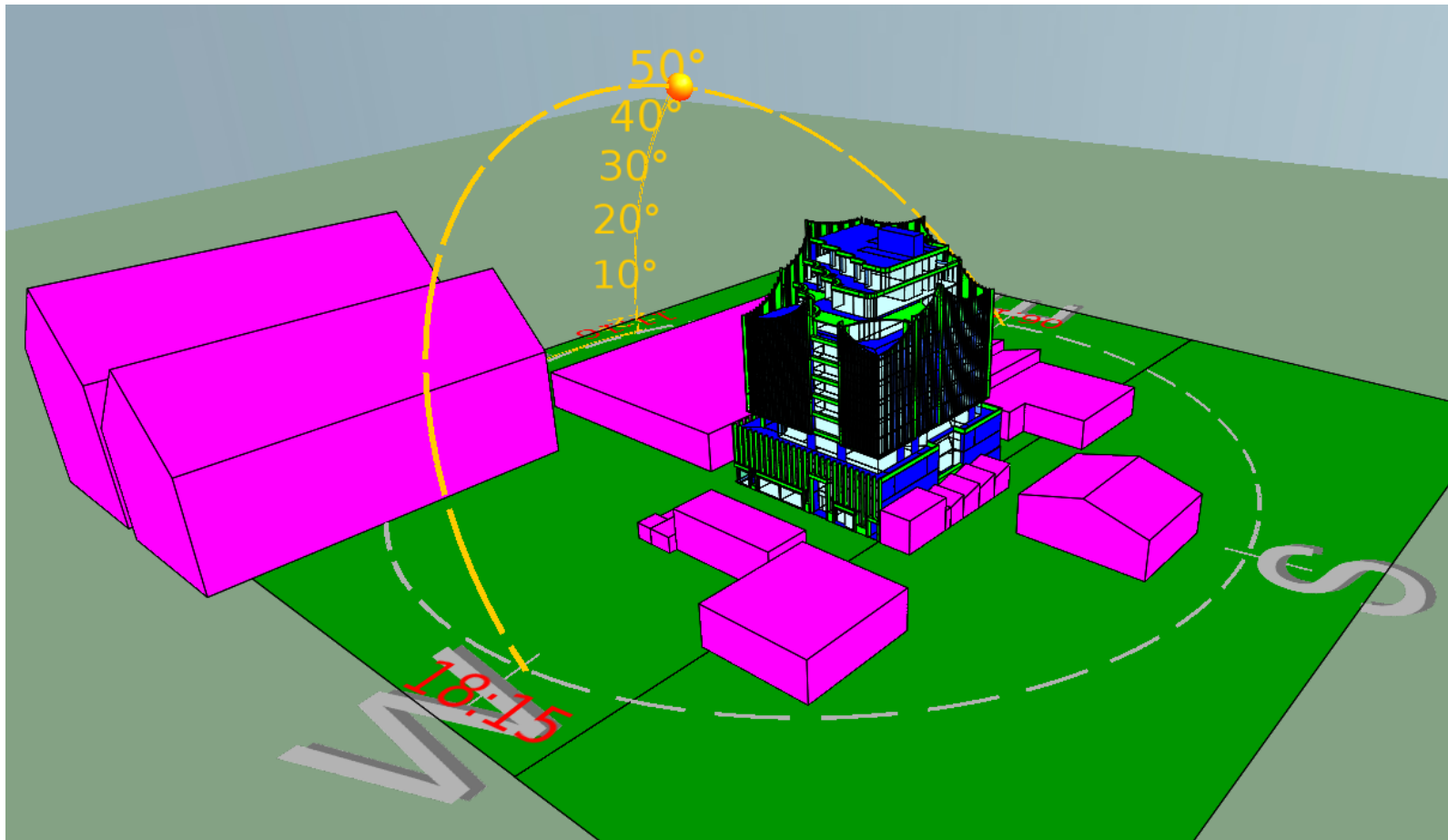
[1] Modelled performances (Rt) are total system values accounting for horizontal thermal bridging in accordance with NZS 4214: (2006), or BRE 497 (2016).

Refer to B.5 for Soffit Insulation Mark-Up.

Any insulation types or products referenced or implied in this report are nominal only and do not imply fitness for purpose beyond energy performance considerations. All insulation materials used in a Class 2 to 9 building must also comply with the relevant non-combustibility requirements and fire hazard properties of the National Construction Code (NCC) and associated standards and regulations. The fire hazard properties of all materials should be confirmed independently with an appropriately qualified fire engineering professional prior to specification.

B.2.3 Shading

Shading from external shading devices and adjacent buildings have been incorporated into the simulation model.



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

B.2.4 Fenestration

	Non-thermally broken frames	U-value W/m^2K	SHGC (g-value)
General glazing	Frame – Aluminium non-thermally broken (whole of window system properties):		
	<u>Glazing for Ground Floor (GL-01)</u>		
	– Fixed glazing	3.0	0.58
	– Hinged/Sliding Doors	3.2	0.48
	<u>Glazing for Level 1 - 11 (GL-02)</u>		
	– Fixed glazing	3.0	0.23
	– Hinged/Sliding Doors	3.2	0.19
	Indicative DGU specification: low-e (centre-pane), Argon-filled cavities:		
	– GL-01: 6mm Energy Advantage / 12mm Air / 6mm Clear (or equivalent)		
	– GL-02: 24mm Insulglass Max 564 Air (or equivalent)		

Whole-of-window energy performance shall be calculated by the glazing fabricator using LBNL THERM software v7 in accordance with AFRC modelling protocol. Modelling shall be done by a consultant approved by Ark Resources. Modelling report shall be submitted for review and comment before window fabrication.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

B.3 Infiltration Air Permeability

The building envelope shall achieve a maximum air permeability criterion of 7.5m³/h/m² of building envelope area at 50Pa test pressure.

Modelled average air infiltration in use is 5% of test pressure leakage, in accordance with CIBSE Guide A. This is calculated to be equivalent to 0.06 ach (air changes per hour)

Testing standards

Air pressure testing (blower door testing) shall be carried out by a member of the Air Tightness Testing and Measurement Association (ATTMA) or a testing member of the Air Infiltration and Ventilation Association of Australia (AIVAA).

Testing shall be carried out in accordance with AS/NZS ISO 9972:2015 'Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method'.

Testing area requirements

The air permeability test may be carried out across a sample area, if not the whole building. For sample area testing, the test shall be carried out on either 5,000m² or 20% of the building's total envelope area, whichever is greater.

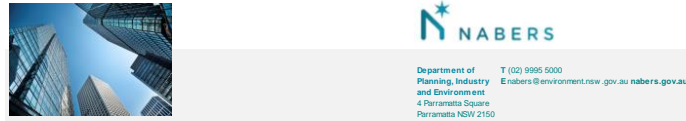
The sample areas tested must include the upper most occupied floor of the building, and be representative of the external envelope construction, including different façade types and building geometries, for the building as a whole.

Levels can be tested separately as compartments. For commercial buildings, compartment testing is acceptable where the individual compartments are greater than 1,000m².

**ADVERTISED
PLAN**

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

B.4 NABERS Reverse Calculators



NABERS Energy and Water for Offices Reverse Calculator



Version: V22 Date: Apr-23

The NABERS Energy and Water for Offices reverse calculator helps you calculate the maximum amounts of energy and water a building can use to achieve a star rating that you specify. To ensure you achieve the rating, you should allow a factor of safety, and not design to the minimum figure for each star band. The outputs are the maximum amounts of energy and water allowed to be used to achieve the rating you nominate.

Note: the reverse calculator provides targets in 0.1 star increments, but NABERS only certifies 0.5 star increments from 1 to 6 stars.

1. ENTER THE TYPE OF OFFICE BUILDING YOU ARE RATING

Base Building

2. ENTER THE STAR RATING YOU WISH TO ACHIEVE

5.5 STARS

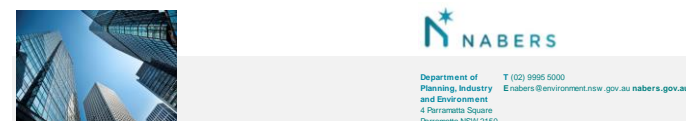
3. ENTER THE BUILDING INFORMATION

Building Postcode	3121
Net Lettable Area of the building (m ²)	10,917.0
Hours of servicing (hrs/week)	50.0
Percentage Breakdown of Energy Consumption:	
Electricity (MJ)	100%
Gas (MJ)	
Diesel (MJ)	

RESULTS

Benchmarking factor at selected rating	N/A	kgCO ₂ -e/year
Maximum Benchmarking Emissions at 5.5 Star NABERS Energy	441,452	kgCO ₂ -e/year
Reporting Emissions for this Office - Scope 1, 2 and 3	429,301	kgCO ₂ -e/year
Reporting Emissions for this Office - Scope 1 and 2	388,801	kgCO ₂ -e/year
Benchmarking Emissions Intensity at 5.5 Star NABERS Energy	40.4	kgCO ₂ -e/m ² .year
Energy Intensity at 5.5 Star NABERS Energy	133.6	MJ/m ² .year
Maximum Allowable Fuel Consumption		
Target Max Electricity	405,001	kWh per annum
Target Max Gas	-	MJ per annum
Target Max Diesel	-	L per annum

Figure 3: NABERS Reverse Calculator 5.5 Stars: 133.6 MJ/m²/annum



NABERS Energy and Water for Offices Reverse Calculator



Version: V22 Date: Apr-23

The NABERS Energy and Water for Offices reverse calculator helps you calculate the maximum amounts of energy and water a building can use to achieve a star rating that you specify. To ensure you achieve the rating, you should allow a factor of safety, and not design to the minimum figure for each star band. The outputs are the maximum amounts of energy and water allowed to be used to achieve the rating you nominate.

Note: the reverse calculator provides targets in 0.1 star increments, but NABERS only certifies 0.5 star increments from 1 to 6 stars.

1. ENTER THE TYPE OF OFFICE BUILDING YOU ARE RATING

Base Building

2. ENTER THE STAR RATING YOU WISH TO ACHIEVE

6 STARS

3. ENTER THE BUILDING INFORMATION

Building Postcode	3121
Net Lettable Area of the building (m ²)	10,917.0
Hours of servicing (hrs/week)	50.0
Percentage Breakdown of Energy Consumption:	
Electricity (MJ)	100%
Gas (MJ)	
Diesel (MJ)	

RESULTS

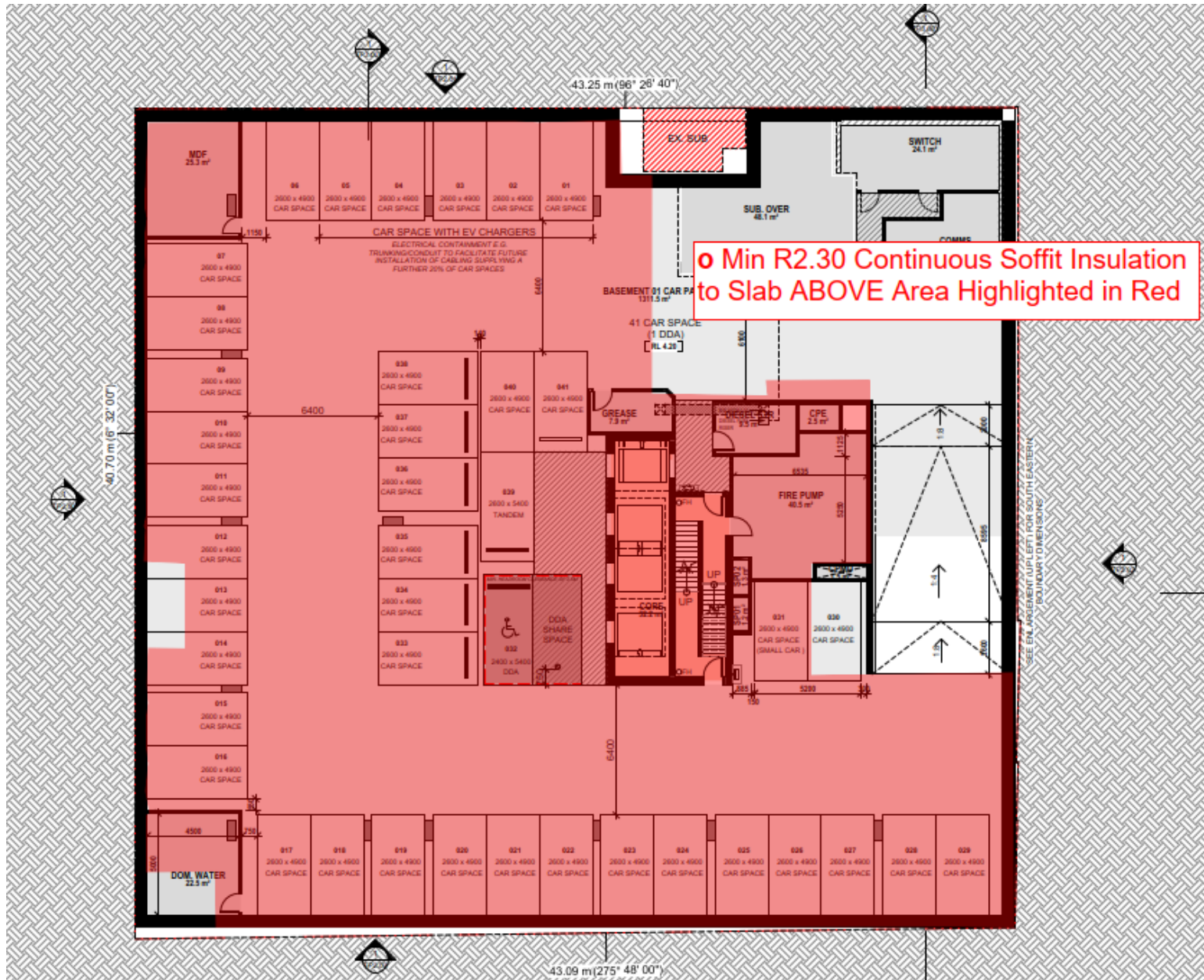
Benchmarking factor at selected rating	N/A	kgCO ₂ -e/year
Maximum Benchmarking Emissions at 6 Star NABERS Energy	294,302	kgCO ₂ -e/year
Reporting Emissions for this Office - Scope 1, 2 and 3	286,202	kgCO ₂ -e/year
Reporting Emissions for this Office - Scope 1 and 2	259,202	kgCO ₂ -e/year
Benchmarking Emissions Intensity at 6 Star NABERS Energy	27.0	kgCO ₂ -e/m ² .year
Energy Intensity at 6 Star NABERS Energy	89.0	MJ/m ² .year
Maximum Allowable Fuel Consumption		
Target Max Electricity	270,002	kWh per annum
Target Max Gas	-	MJ per annum
Target Max Diesel	-	L per annum

Figure 4: NABERS Reverse Calculator 6.0 Stars: 89 MJ/m²/annum

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

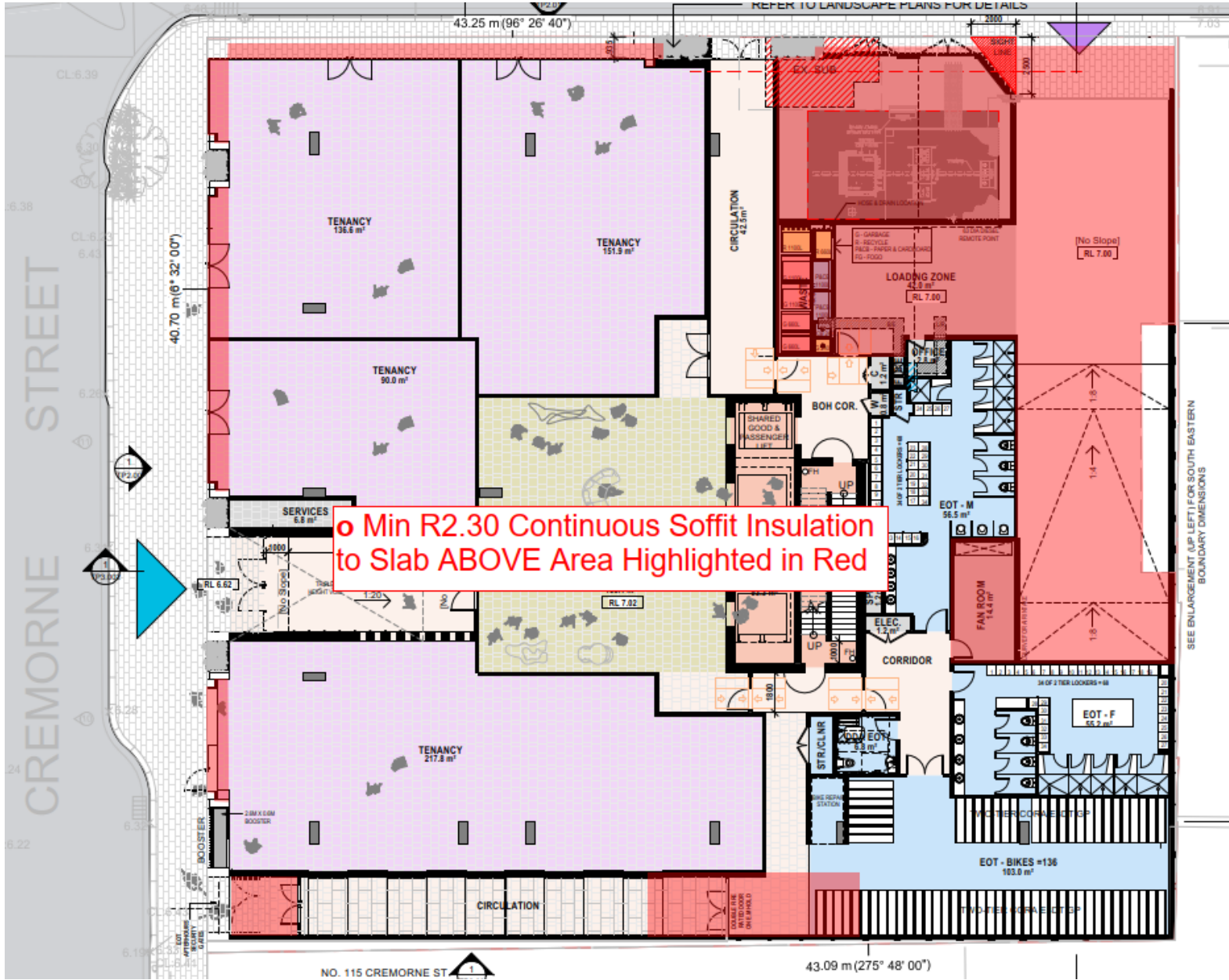
B.5 Soffit Insulation Mark-Up



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Basement 1 Soffit Insulation Mark-up

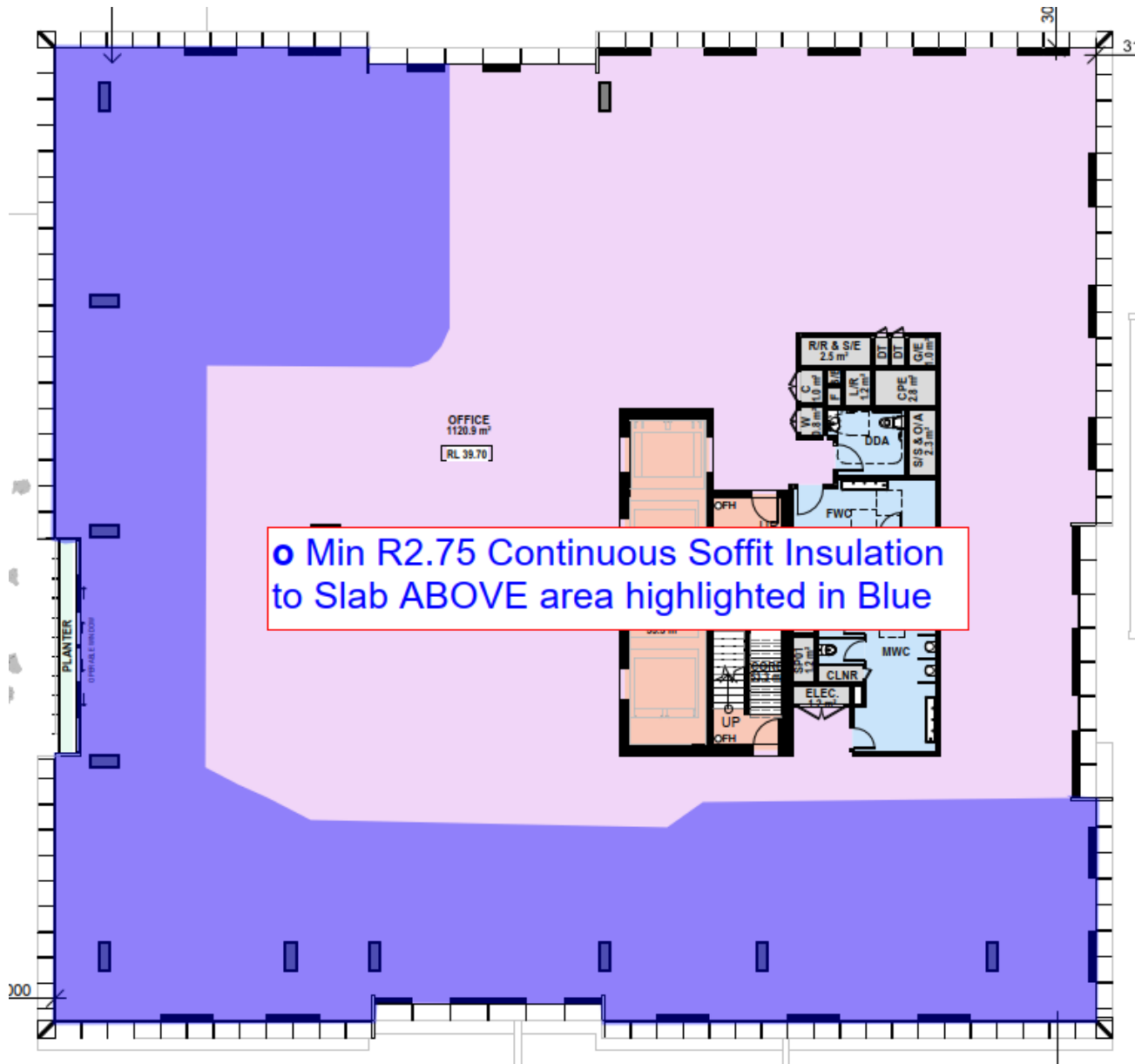


This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Min R2.30 Continuous Soffit Insulation to Slab ABOVE Area Highlighted in Red

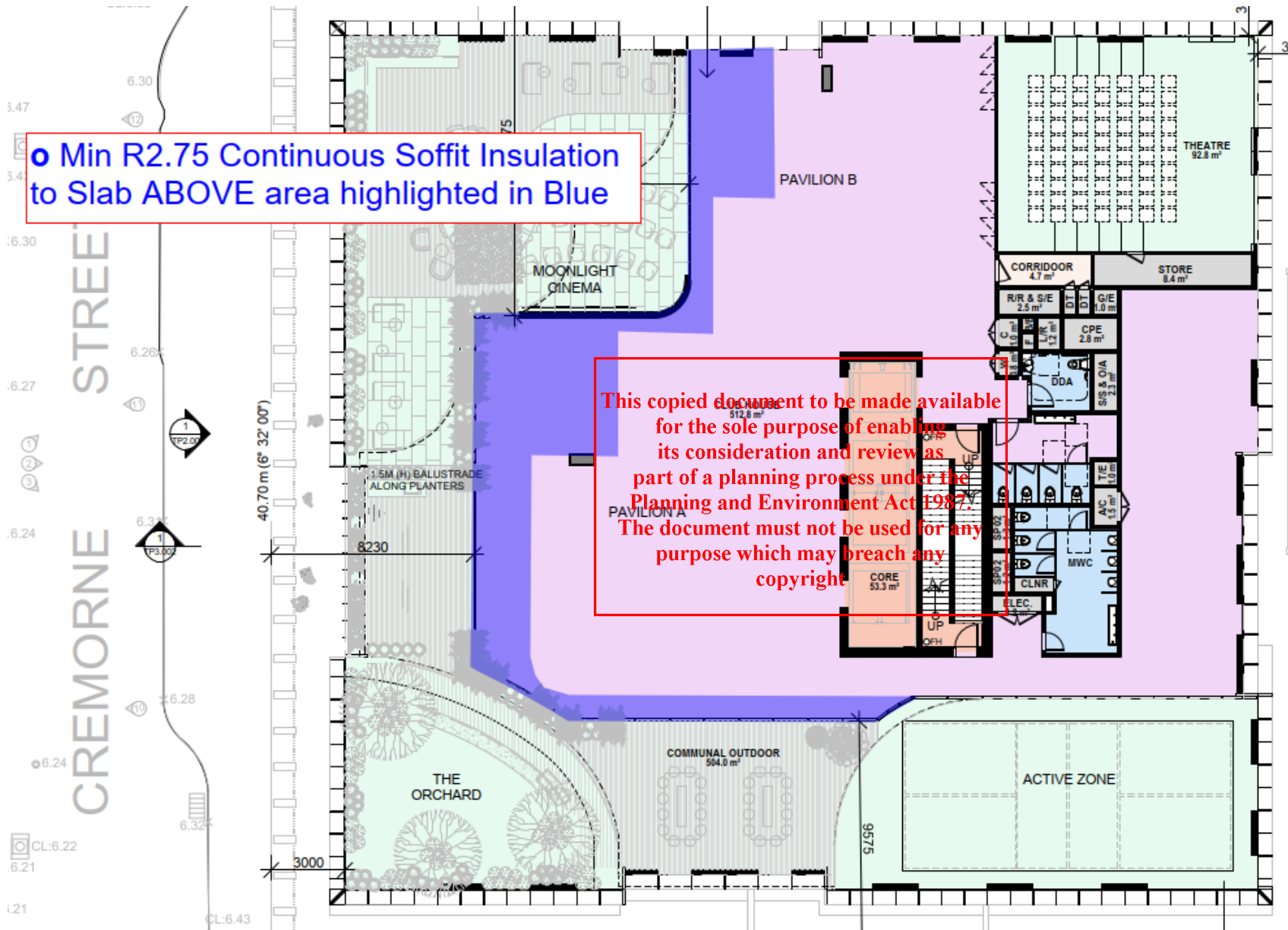
Ground Floor Soffit Insulation Mark-up



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Level 8 Soffit Insulation Mark-up

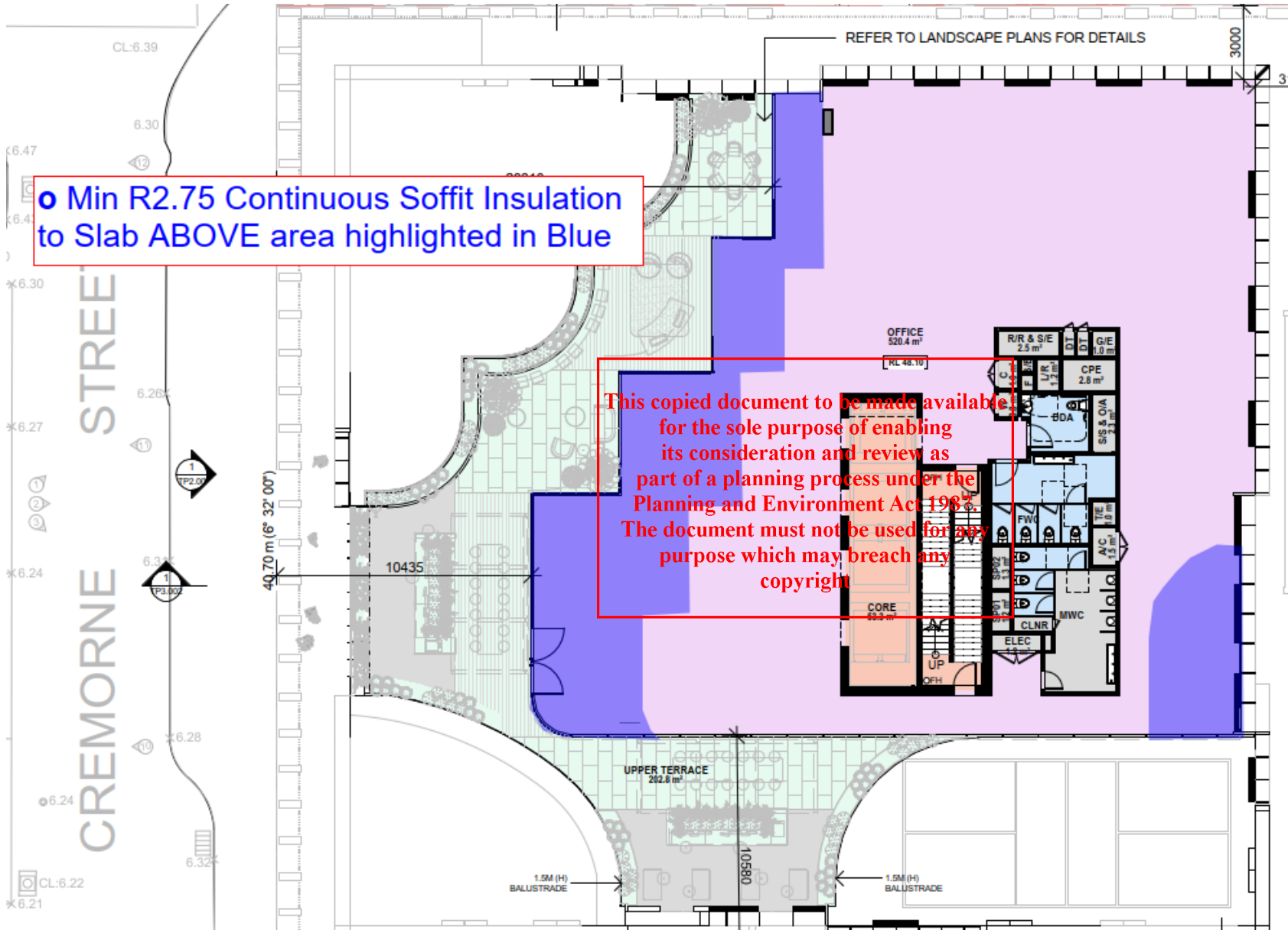


Min R2.75 Continuous Soffit Insulation to Slab ABOVE area highlighted in Blue

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Level 9 Soffit Insulation Mark-up



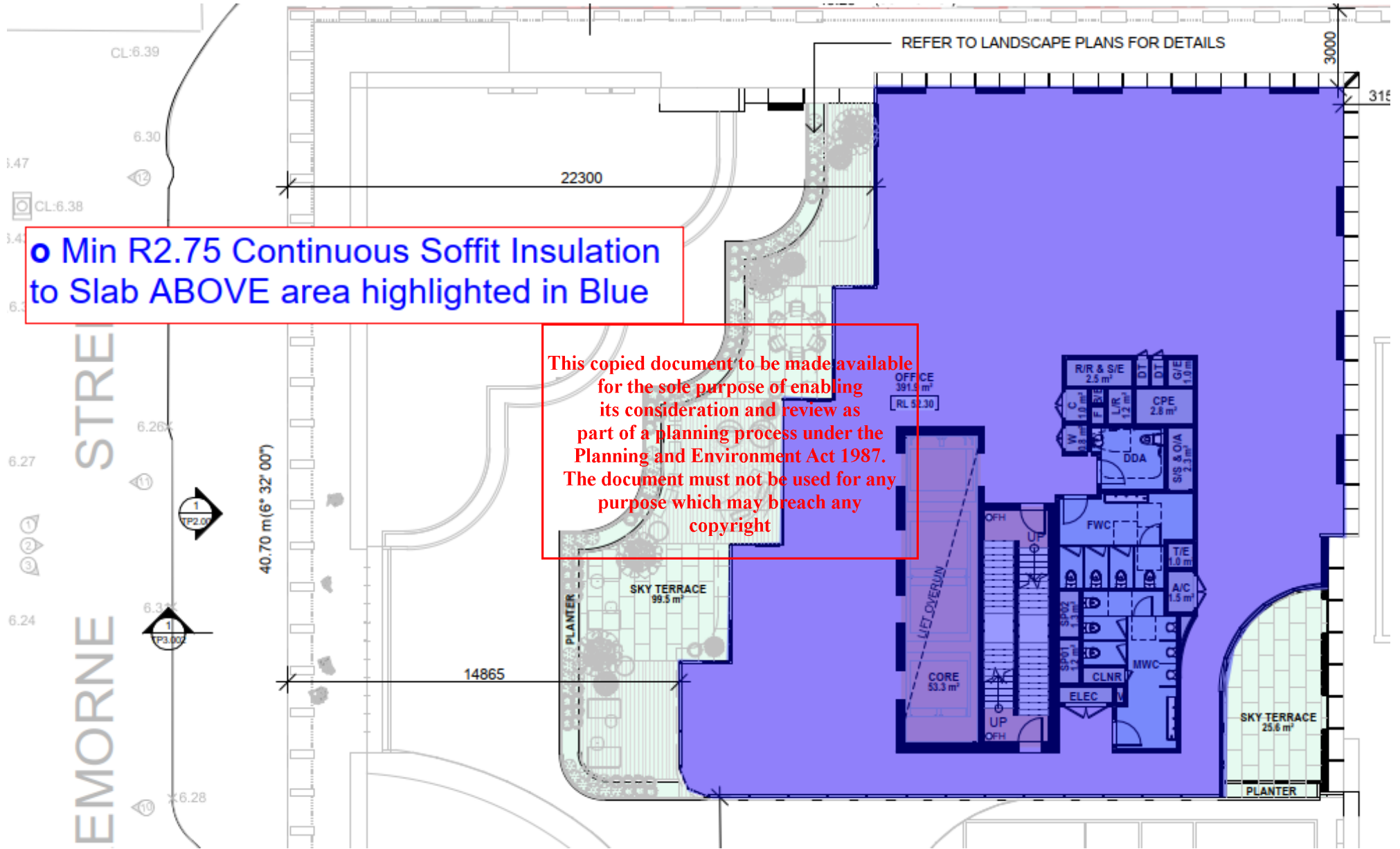
Min R2.75 Continuous Soffit Insulation to Slab ABOVE area highlighted in Blue

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

ADVERTISED PLAN

Level 10 Soffit Insulation Mark-up

ADVERTISED PLAN

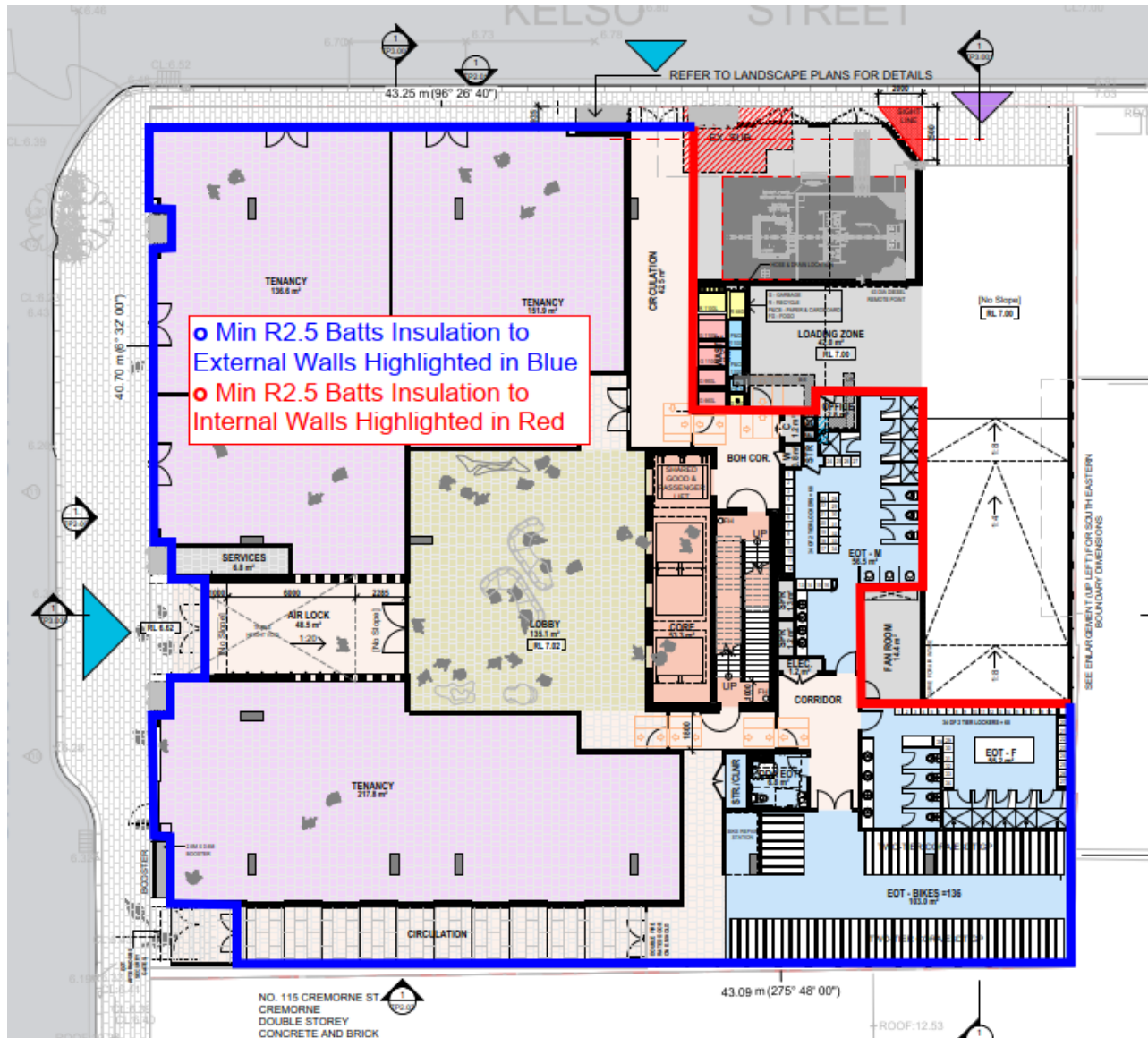


Min R2.75 Continuous Soffit Insulation to Slab ABOVE area highlighted in Blue

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Level 11 Soffit Insulation Mark-up

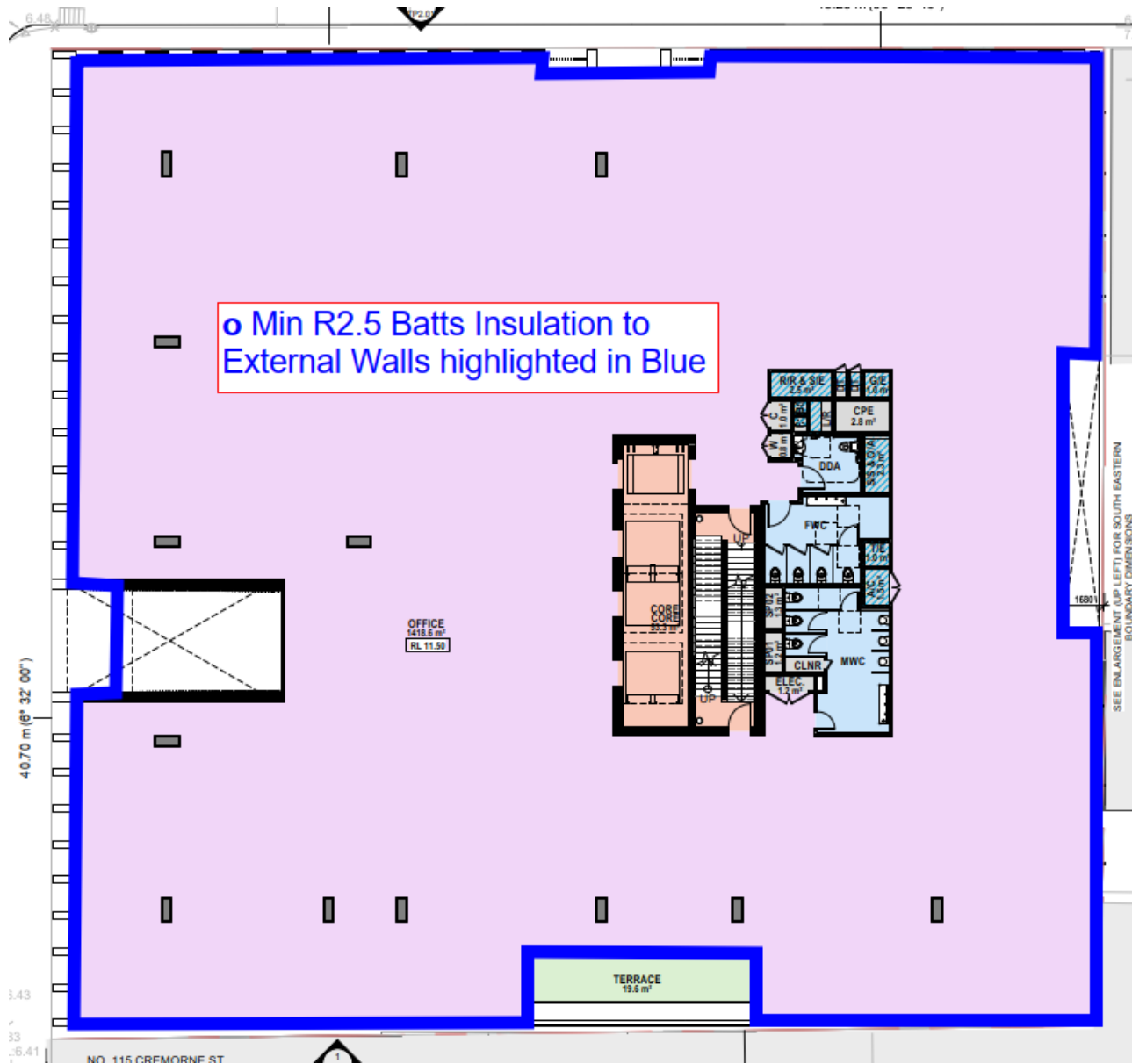
B.6 Wall Insulation Mark-Up



Ground Floor Wall Insulation Mark-Up

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

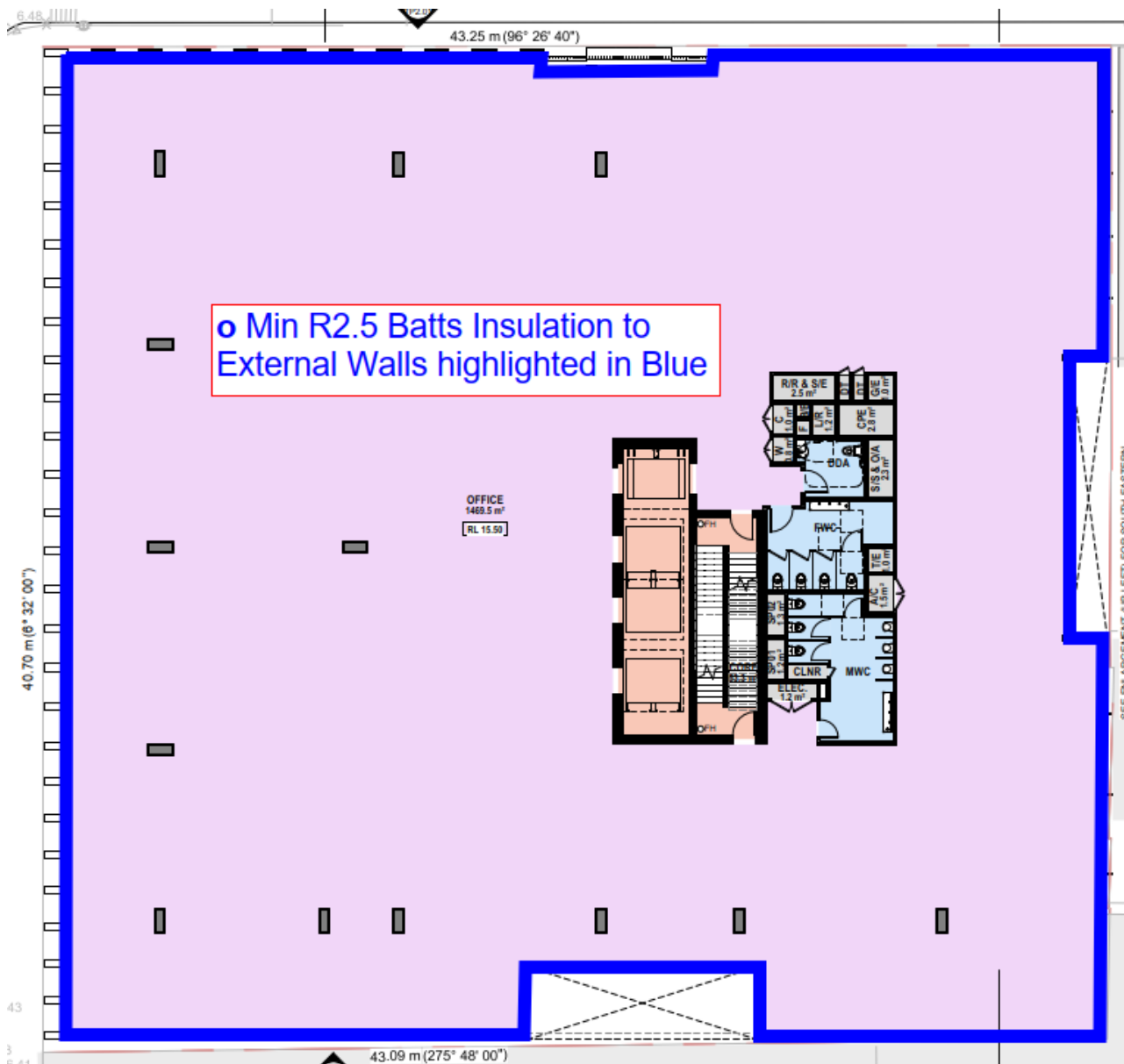
**ADVERTISED
PLAN**



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Level 1 Wall Insulation Mark-Up

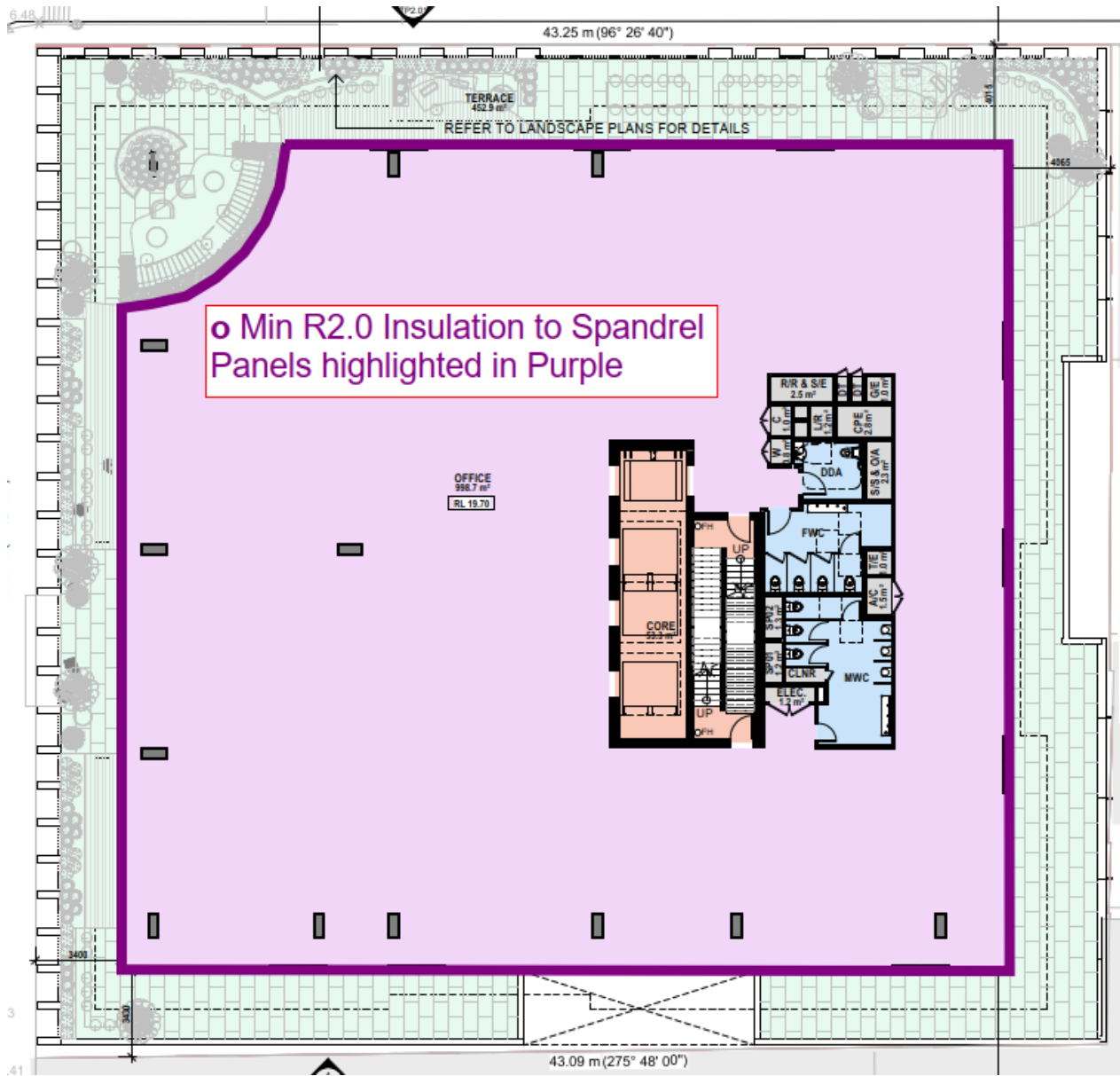


Min R2.5 Batts Insulation to External Walls highlighted in Blue

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Level 2 Wall Insulation Mark-Up

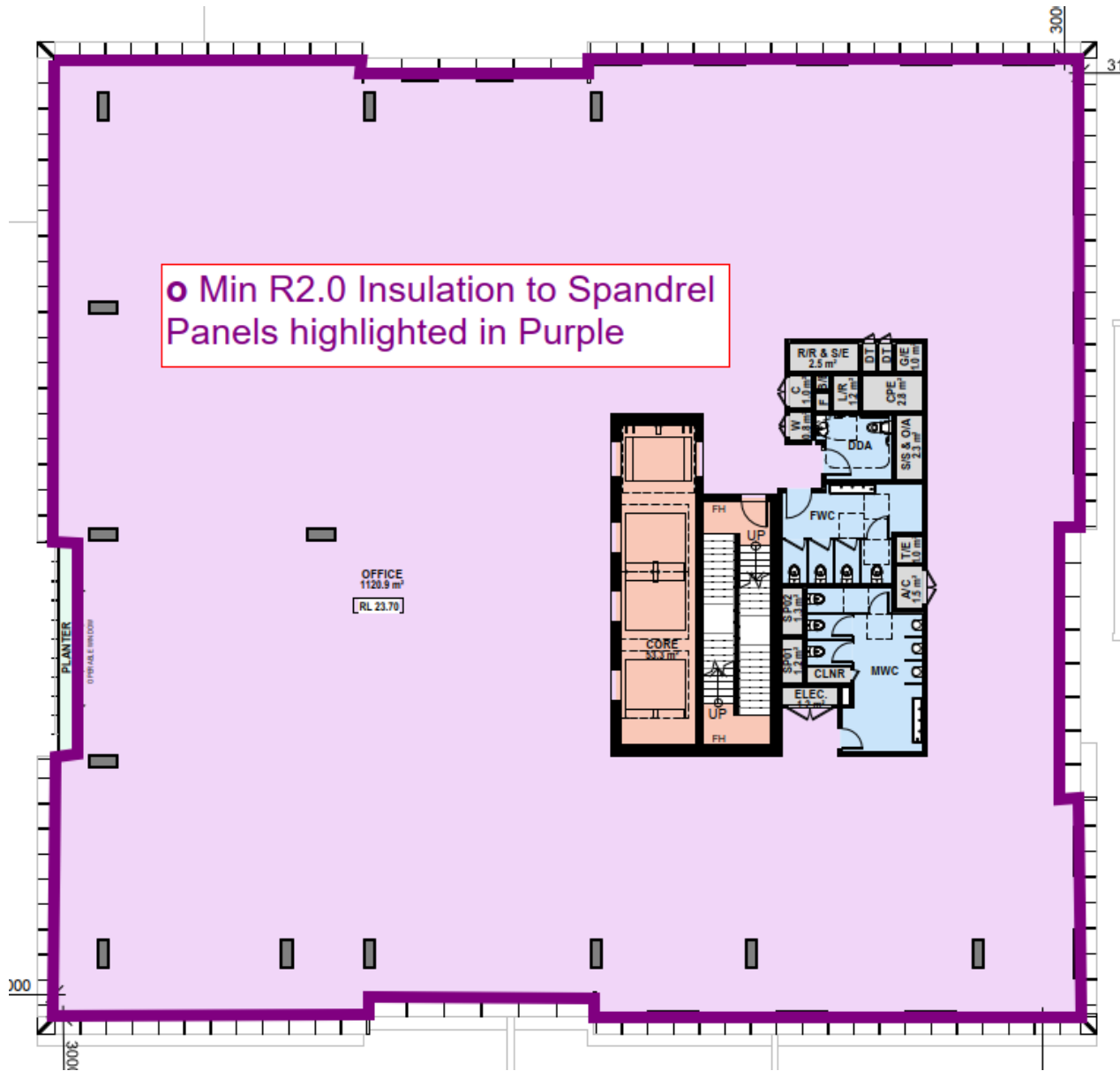


o Min R2.0 Insulation to Spandrel Panels highlighted in Purple

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

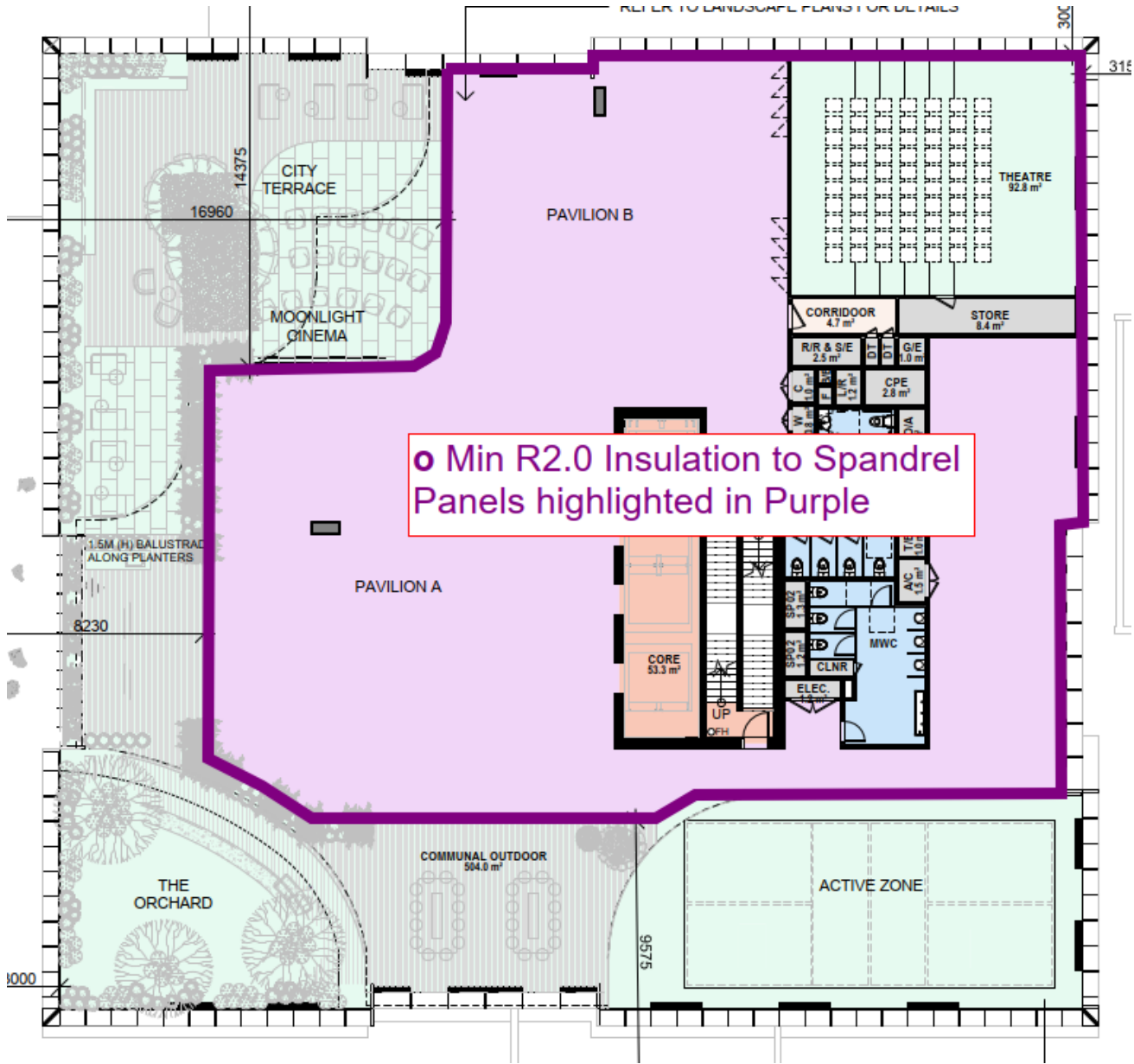
Level 3 Wall Insulation Mark-Up



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

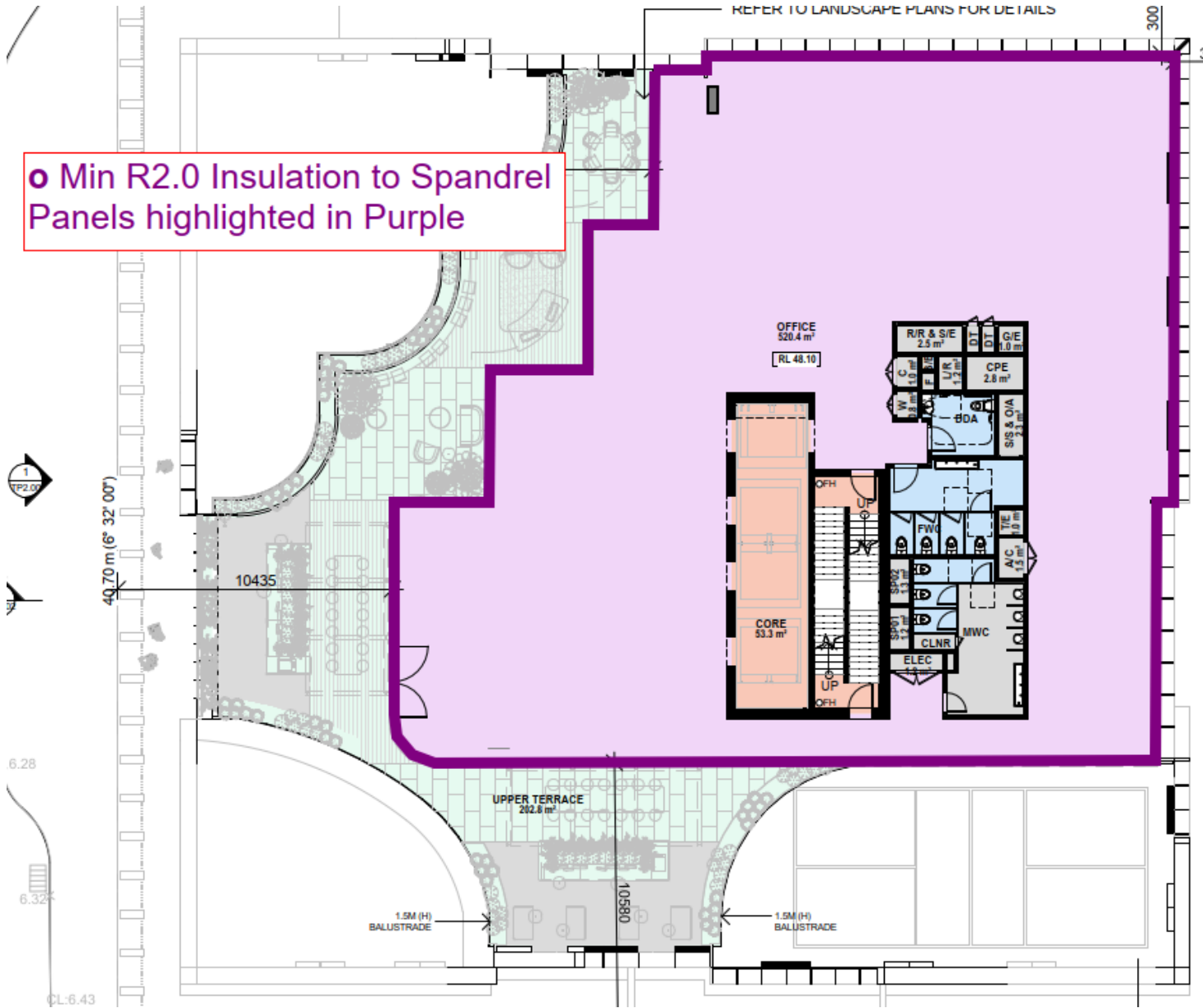
Level 4-8 Wall Insulation Mark-Up



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Level 9 Wall Insulation Mark-Up

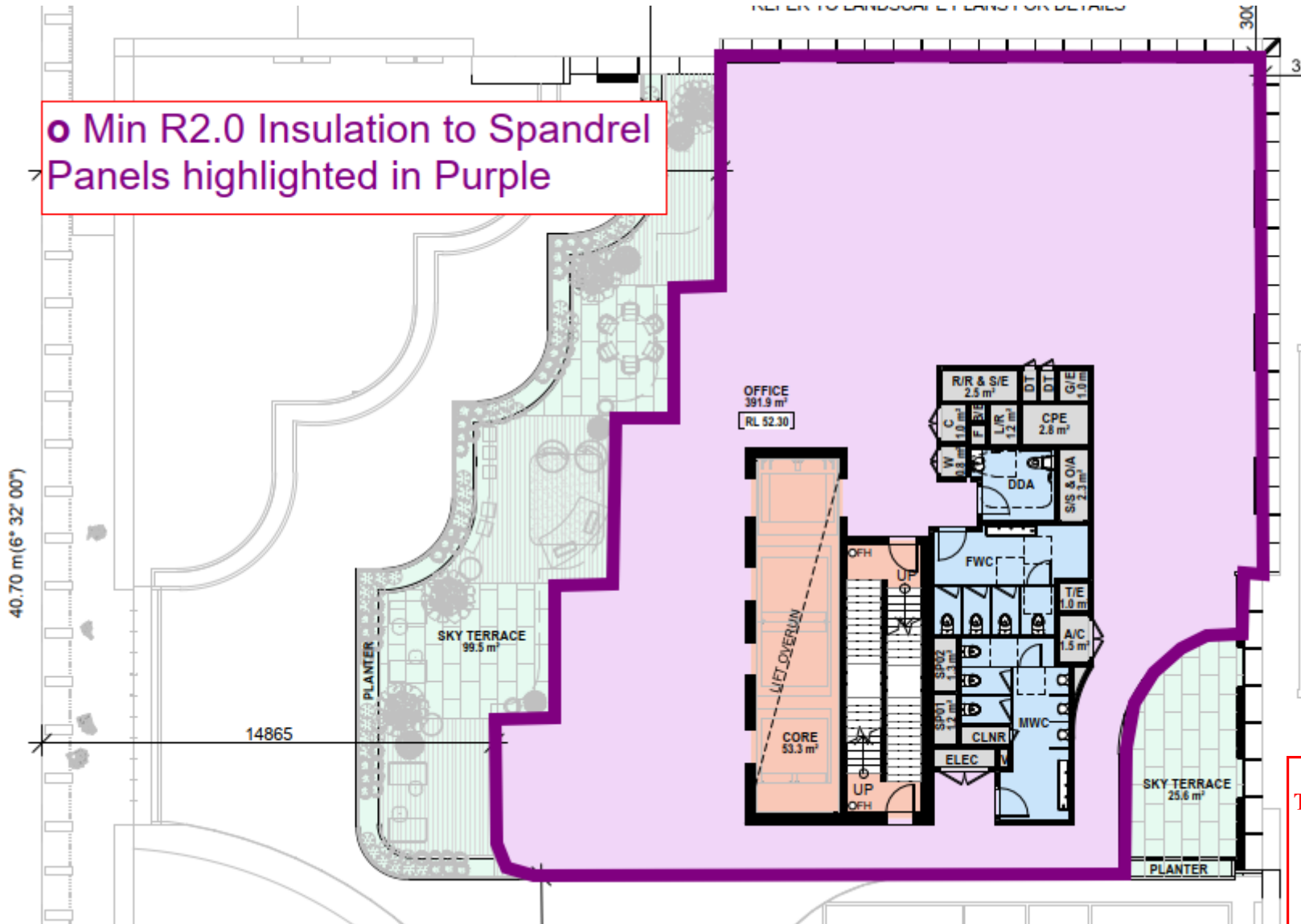


This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Level 10 Wall Insulation Mark-Up

o Min R2.0 Insulation to Spandrel Panels highlighted in Purple

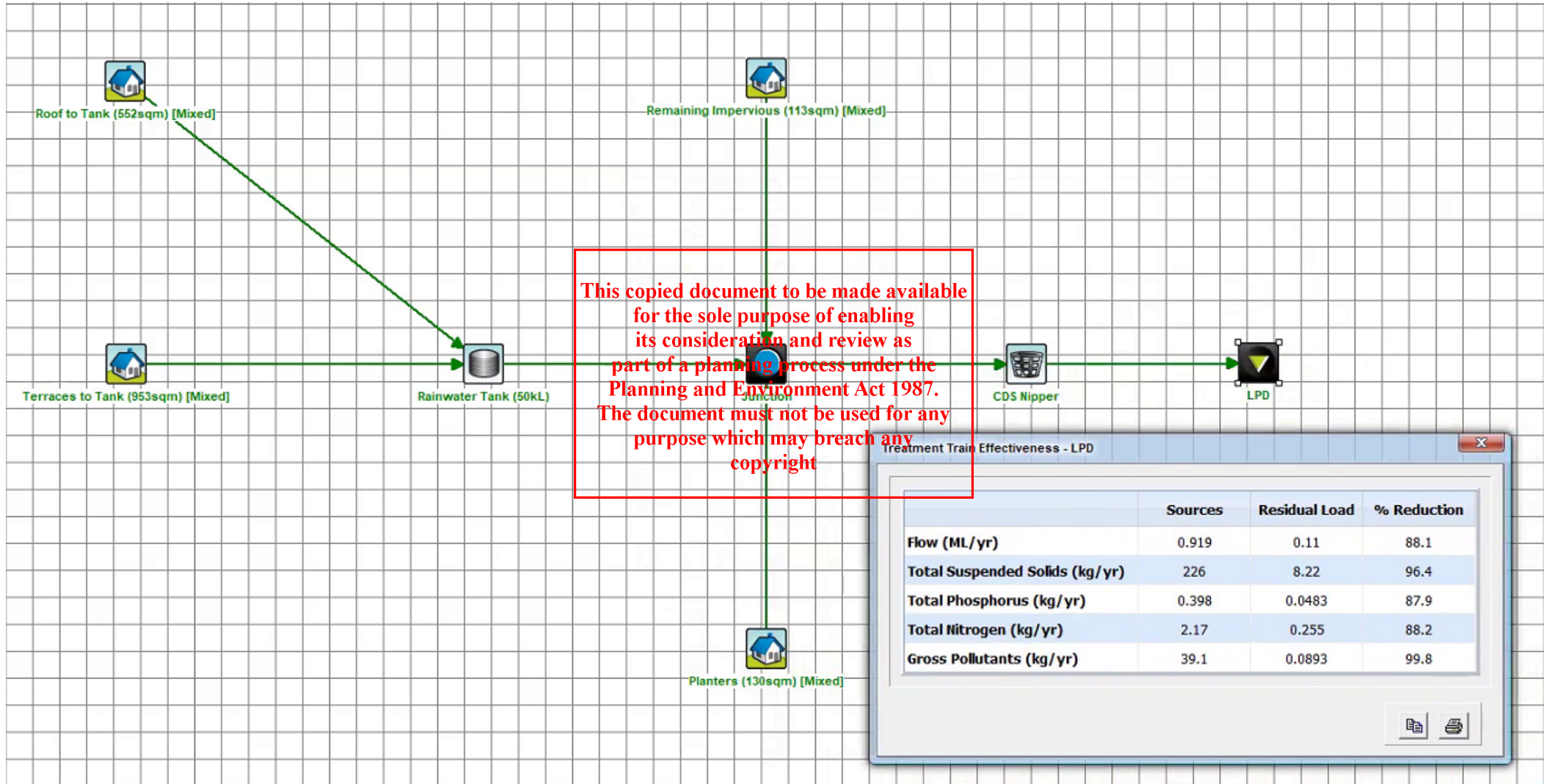


**ADVERTISED
PLAN**

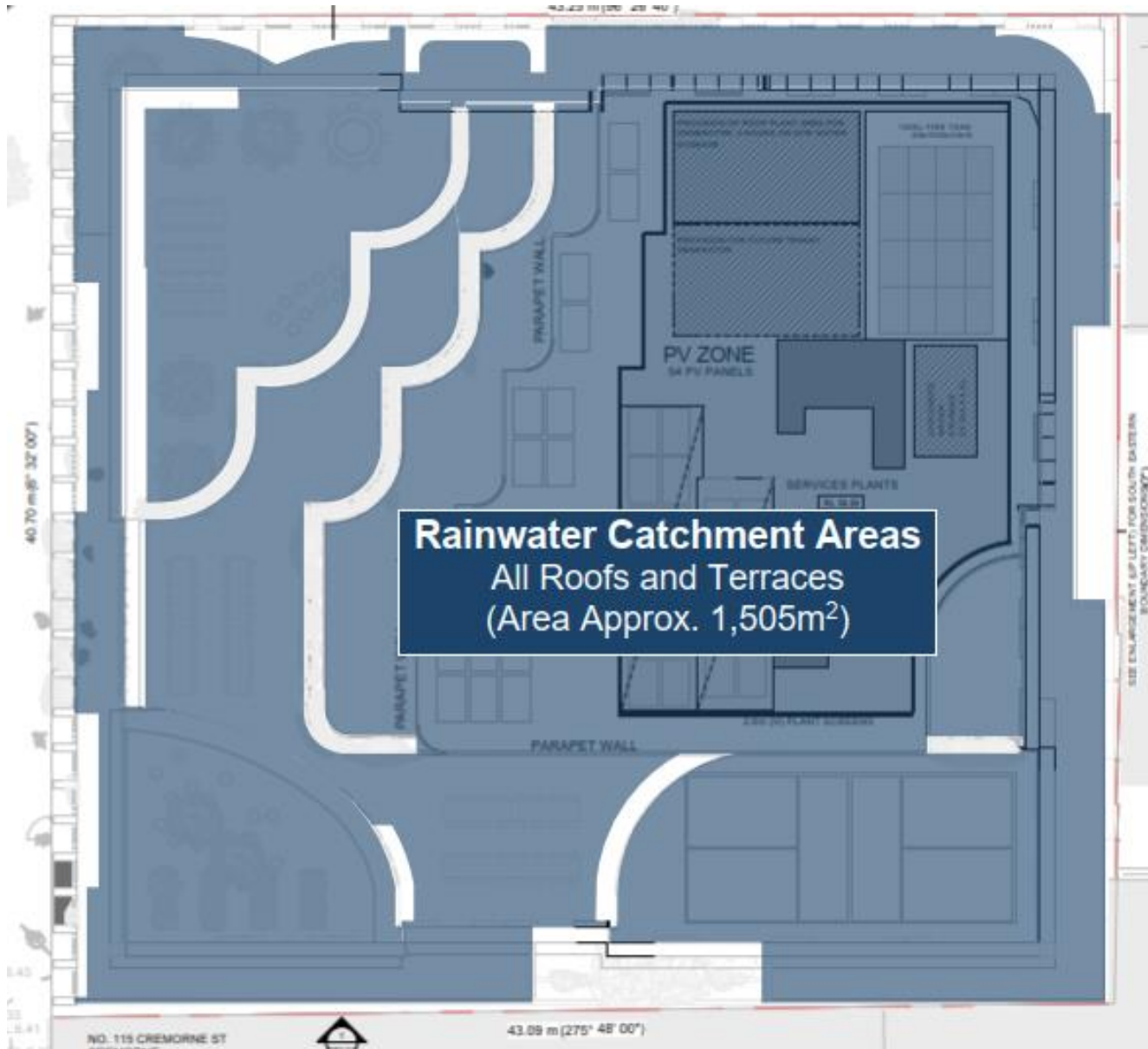
This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Level 11 Wall Insulation Mark-Up

C.1 MUSIC Schematic



C.2 Rainwater Catchment Areas



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

C.3 MUSIC Modelling Assumptions and Inputs

Area Name	Area [m ²]
Total Roof Areas to Rainwater Tank	552
All Terraces to Rainwater Tank	953
All Planters	130
Remaining Area	113
Total Site Area	1,749

Treatment Devices Features	
Rainwater Tank	50 kL
Est. daily water demand for Toilet Flushing	4,206 kL/day
All toilets throughout Development	
**Primary Treatment System 1 (Gross Pollutant Trap)	Rocla CDS Nipper (or equivalent)

NOTES:

**Nutrient reduction (Phosphorous and Nitrogen) not attributed to GPT as per Melbourne Water MUSIC guidelines.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED
PLAN

C.4 MUSIC Results

Pollutant	MUSIC Model Results	Green Star Building Targets (Exceptional Performance)	Melbourne Water Targets
Reduction in Stormwater Discharge	88.1%	80.0%	-
Reduction in Total Suspended Solids (TSS)	96.4%	90.0%	80.0%
Reduction in Total Phosphorus (TP)	87.9%	70.0%	45.0%
Reduction in Total Nitrogen (TN)	88.2%	60.0%	45.0%
Reduction in Total Gross Pollutants	99.8%	95.0%	70.0%
<i>Compliance with Project Targets</i>		YES	YES

Rainfall data	
Rainfall Range & Station Name	B - Melbourne Airport (500-650mm)
10 Year Period	B - 1971-1980
Mean annual rainfall	B - 575mm
Evapotranspiration	B - 1041
Time step	6 minutes
Estimation method	Stochastically generated

Soil properties - Melbourne	
Soil store capacity	120mm
Field capacity	50mm

GPT Pollutant Removal Rates (Rocla CDS Nipper)	
Total Suspended Solids	70%
Total Nitrogen	0%
Total Phosphorous	0%
Gross Pollutants	98%
Validation report	CRC for Catchment Hydrology

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Appendix D. WSUD Maintenance Manual

Rainwater Harvesting System Maintenance Program

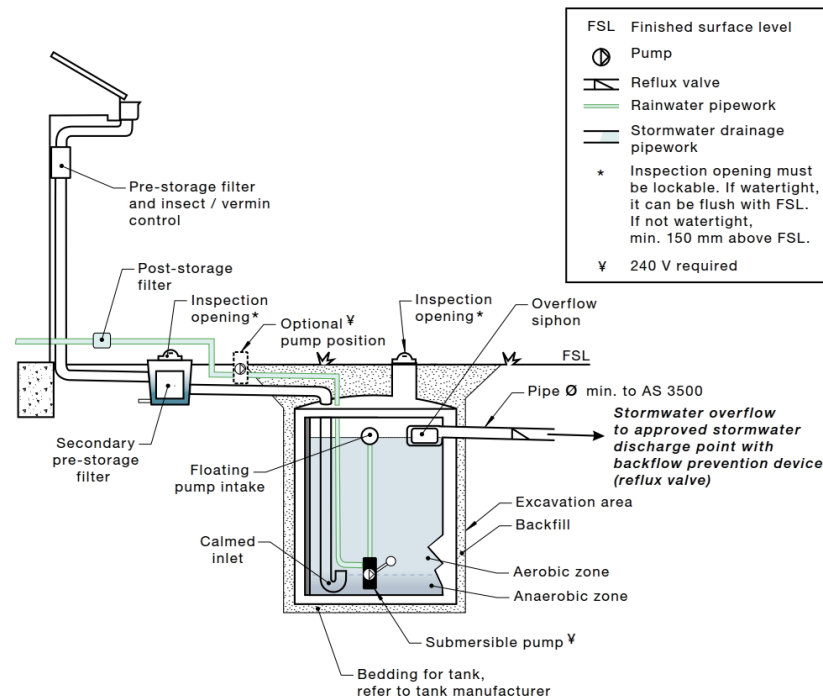
Once installed, a systematic maintenance program will be implemented by the owner's corporation maintenance contractor to ensure the rainwater harvesting system operates as designed and water quality is maintained.

The scope of the maintenance program will include inspection and rectification of issues associated with:

- Roof gutters and downpipes
- First flush screens and filtration devices
- Pumps
- Distribution pipework and reticulation systems
- Overflow systems

Inspections of the system and any maintenance works required will be undertaken on a quarterly basis or as per manufacturers guidelines.

The rainwater harvesting system will be installed in accordance with the guidelines set out in the Rainwater Design & Installation Handbook published by the National Water Commission¹. A schematic diagram of the rainwater tank installation is provided below.



ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Rainwater Tank Element	Inspection Item	Y/N	Likely Maintenance Task
Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly
First flush diverter	Is there anything blocking the first flush diverter (Leaves etc.)?		Remove by hand and dispose responsibly
Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace device. Consider a manual switching device.
Mesh cover	Has the mesh cover deteriorated or have any holes in it?		Replace mesh cover.
Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
Pump	Is the pump working effectively? Have you had it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
Pipes and taps	Are pipes and taps leaking?		Repair as needed.
Overflow	Is the overflow clear and connected to the storm water network?		Remove blockages and/or restore connections to stormwater network.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Maintenance Frequency												
	J	F	M	A	M	J	J	A	S	O	N	D
All tasks	X			X			X			X		

ADVERTISED PLAN

Gross Pollutant Trap (GPT) Maintenance Program

Once installed, a systematic maintenance program will be implemented by the landowner to ensure the GPT operates as designed and water quality is maintained.

Cleaning and maintenance will be carried out in accordance with the manufacturer's written guidelines. Maintenance requirements and frequencies are dependent on the pollutant load characteristics.

The scope of the maintenance program will include inspection and rectification of issues associated with:

- Manhole cover
- Inlet pipe
- Outlet
- Screening area
- Collection area

Inspections of the GPT and any maintenance works required will be undertaken as outlined as a guide in the maintenance schedule below. Manufacturer's guidelines will take precedence.

Maintenance Action

3-6 MONTHLY

- Check components for damage.
- Check that the inlet and outlet are free from debris or obstructions.
- Remove large floating pollutants.
- Measure sediment depth.

12-24 MONTHLY (or as guided by sediment depth)

- Removal of accumulated sediment and gross pollutants.
- Inspection of screen and cleaning if required.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

Appendix E. Solar Photovoltaics

During the construction phase, high-efficiency solar PV modules with a total capacity of 23.7 kWp will be installed at roof level as per the preliminary layout indicated below.

PV modules should be oriented in pairs to the east and west at 10-15° tilt and have at least 440Wp capacity (i.e. over 33% more efficient than traditional 360Wp 60-cell modules). High-efficiency modules deliver more compact arrays with inherently lower embodied ecological impact per unit of generation than standard efficiency modules.



The undulating east-west configuration prevents self-shadowing of the array and provides a low-profile installation with maximised packing factor. It also helps maximise self-consumption due to its flatter and broader power output yield profile.

Total yield of this array will be approximately 28 MWh per annum equating to an estimated annual carbon emissions offset of 25.7 tonnes CO₂-e per annum.

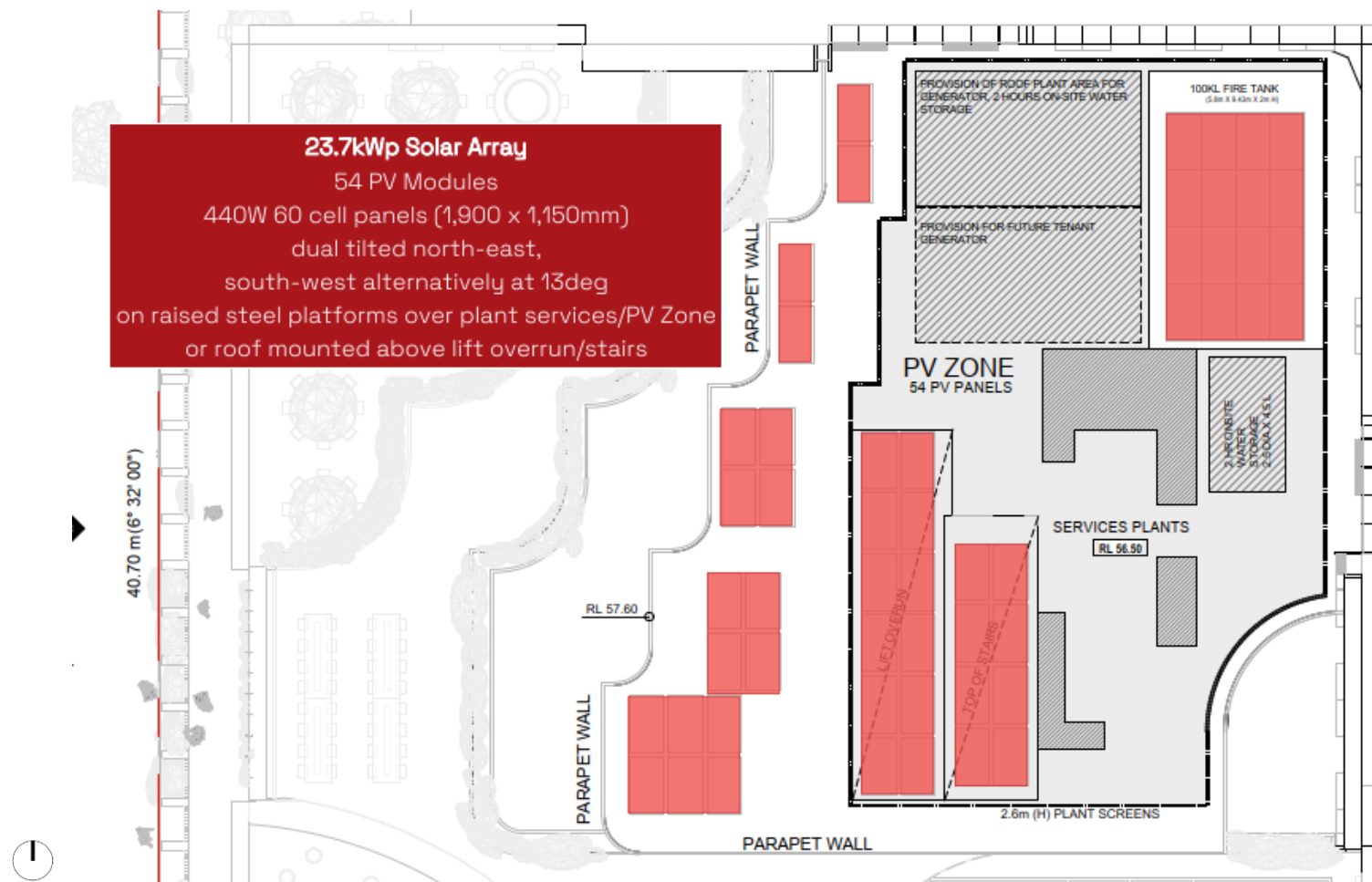


Figure 1 Indicative Solar Photovoltaic array layout

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

East facing array output

RESULTS

 Print Results

13,955 kWh/Year*

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)
January	6.87	1,881
February	6.17	1,543
March	4.89	1,389
April	3.33	914
May	2.08	591
June	1.74	483
July	1.86	540
August	2.68	782
September	3.84	1,075
October	5.07	1,446
November	5.56	1,512
December	6.58	1,800
Annual	4.22	13,956

West facing array output

RESULTS

 Print Results

14,017 kWh/Year*

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)
January	6.97	1,916
February	6.32	1,583
March	4.86	1,377
April	3.32	904
May	2.10	599
June	1.76	488
July	1.84	530
August	2.62	758
September	3.88	1,085
October	5.05	1,435
November	5.69	1,549
December	6.56	1,795
Annual	4.25	14,019

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Appendix F. Site Management Plan

It is important to protect waterways into which stormwater systems drain into from various pollutants. The key pollutants at risk of entering the stormwater system during construction phase include:

- Sediments (soil, sand, gravel and concrete washings); and
- Litter, debris etc.

These pollutants arise from factors such as dirt from construction vehicles, stockpiles located close to surface runoff flow paths, and surface runoff from disturbed areas during earthmoving and construction works. It is therefore important to have measures that either prevent or minimise the pollutant loads entering stormwater system during construction.

In order to mitigate the impacts of the above pollutants on the stormwater system, the following stormwater management strategies will be implemented during the construction phase as appropriate:

- Installation of onsite erosion and sediment control measures. All installed control measures shall be regularly inspected & maintained to ensure their effectiveness. Such measures may include (but not limited to):
 - Silt fences
 - sediment traps
 - hay bales
 - geotextile fabrics
- Where possible, litter bins with a lid will be used to prevent litter from getting blown away and potentially entering stormwater drains.

Additionally, the following work practices shall be adopted to reduce stormwater pollution:

- Site induction by the head contractor/ builder to make personnel aware of stormwater management measures in place
- Employ suitable measures to reduce mud being carried off-site into the roadways such as installing a rumble grid/ gravel/ crushed-rock driveway (or equivalent measure) to provide clean access for delivery vehicles, removing mud from vehicle tyres with a shovel etc.
- Safe handling and storage of chemicals, paints, oils and other elements that could wash off site to prevent them from entering stormwater drains.
- Where practicable, stockpiles will be covered, located within the site's fence and away from the lowest point of the site where surface runoff will drain to. This initiative will minimise erosion.

Accordingly, the measures presented above are considered appropriate for the proposed development at this stage of the project. The measures will reduce the pollutants entering stormwater system from the site during construction works thereby protecting waterways.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

Appendix G. Daylight Modelling Results and Assumptions

G.1 Results

Commercial Areas

Room	Level	Floor Area (m ²)	GSB sDA 160, 80%
Tenancy 1	Ground	136.6	100
Tenancy 2	Ground	90	67
Tenancy 3	Ground	27.8	25
Tenancy 4	Ground	151.9	20
Office	Level 1	148.6	29
Office	Level 3	998.7	99
Office	Level 4	1120.9	80
Clubhouse/Lounge	Level 9	512.8	93
Theatre	Level 9	92.8	100
Office	Level 10	520.4	96
Office	Level 11	391.9	96

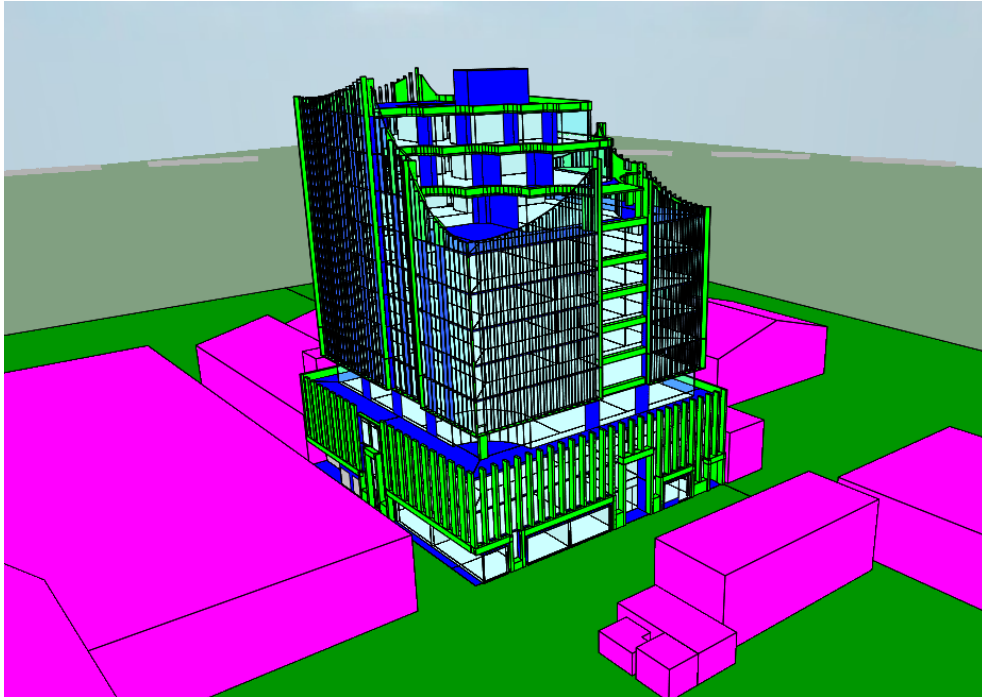
This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

Extrapolated Results

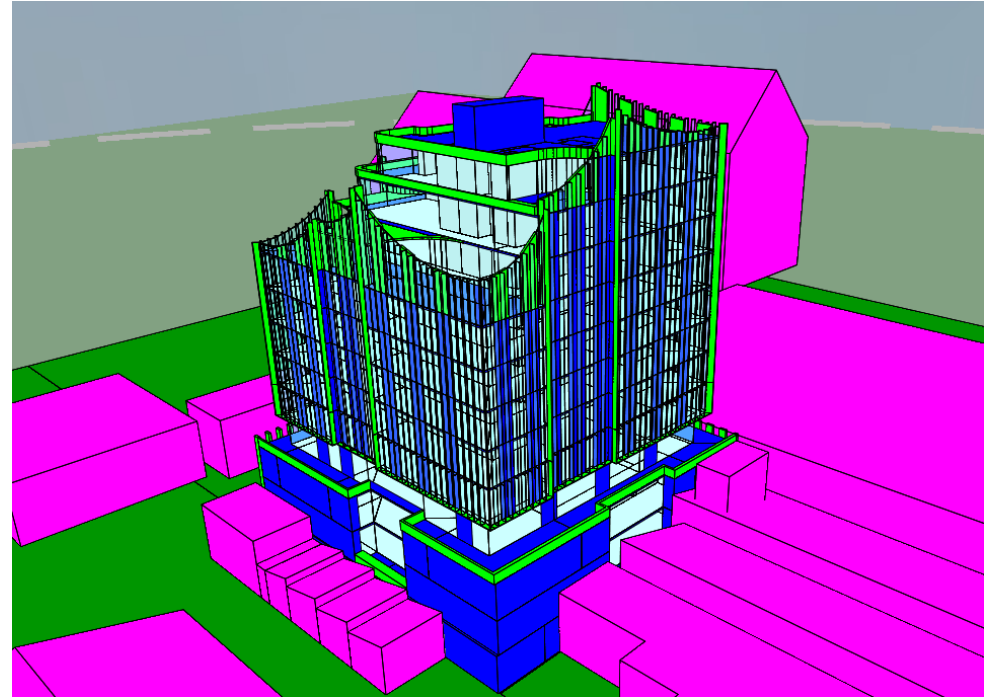
Total Floor Area (m ²)	sDA 160, 80% (Area Weighted Average)
11,606.2	69

ADVERTISED
PLAN

G.2 Model Images



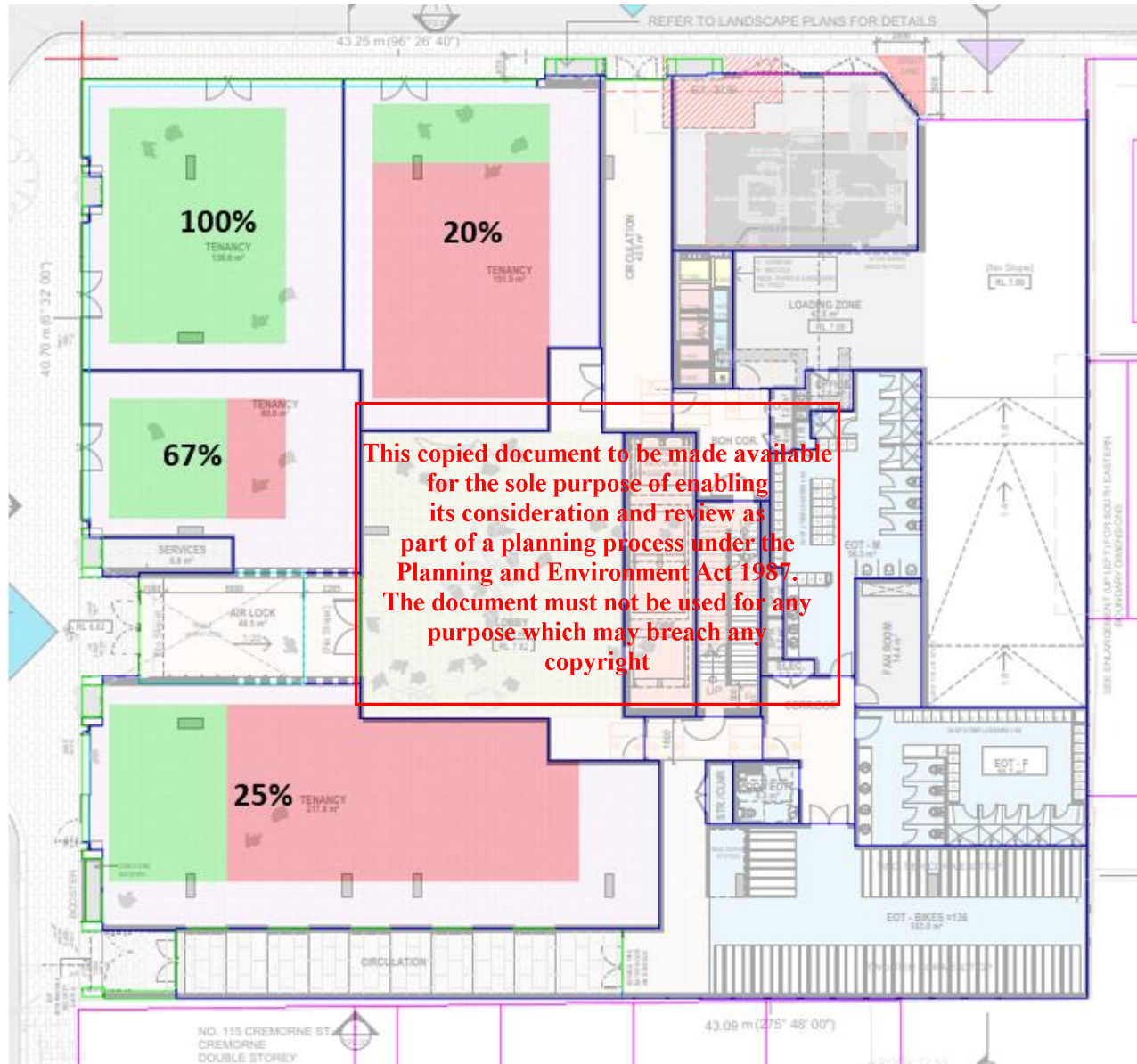
IES Model view from North-West



IES Model view from South-East

**ADVERTISED
PLAN**

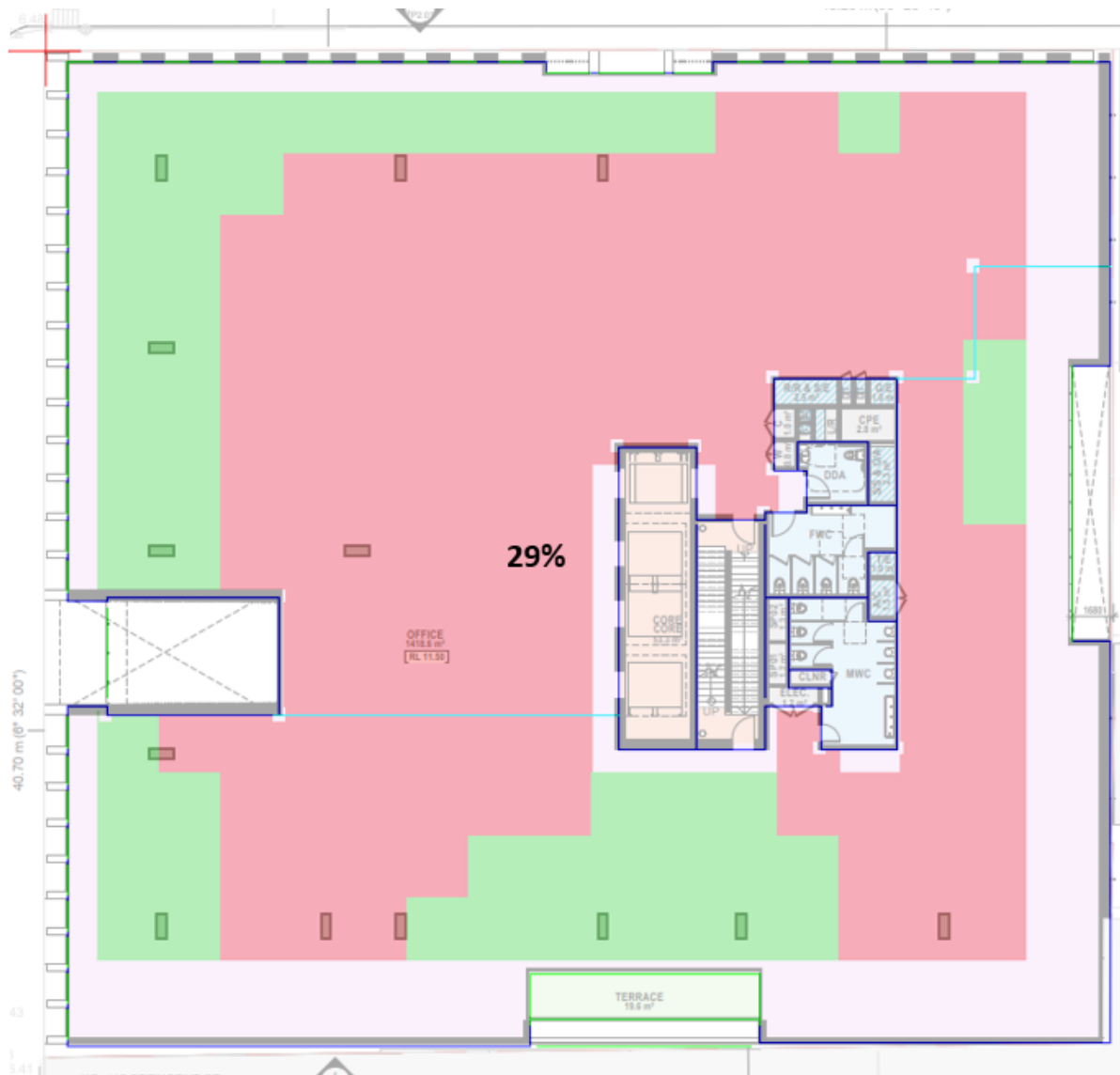
This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

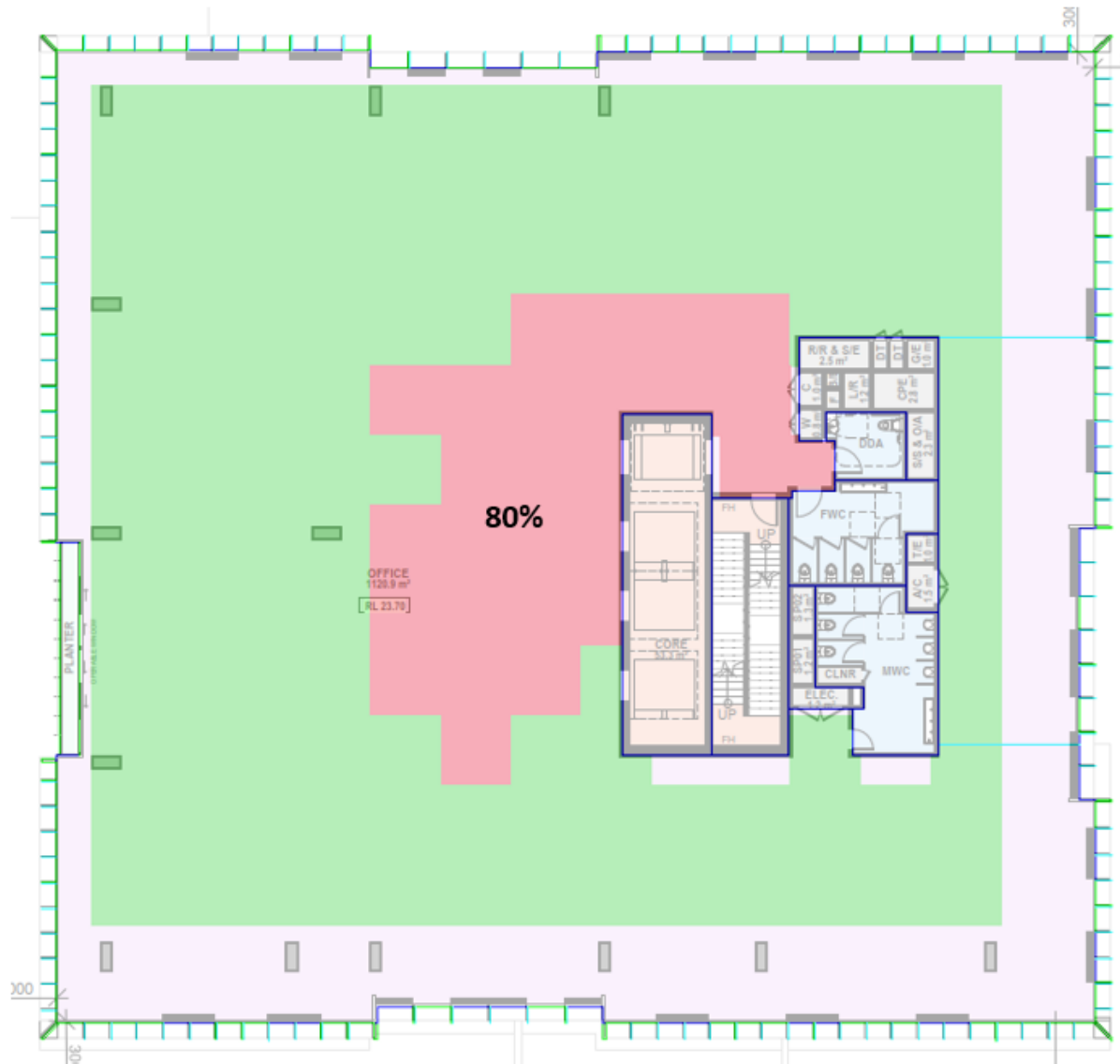
Ground Floor Tenancies sDA Contour Plot



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

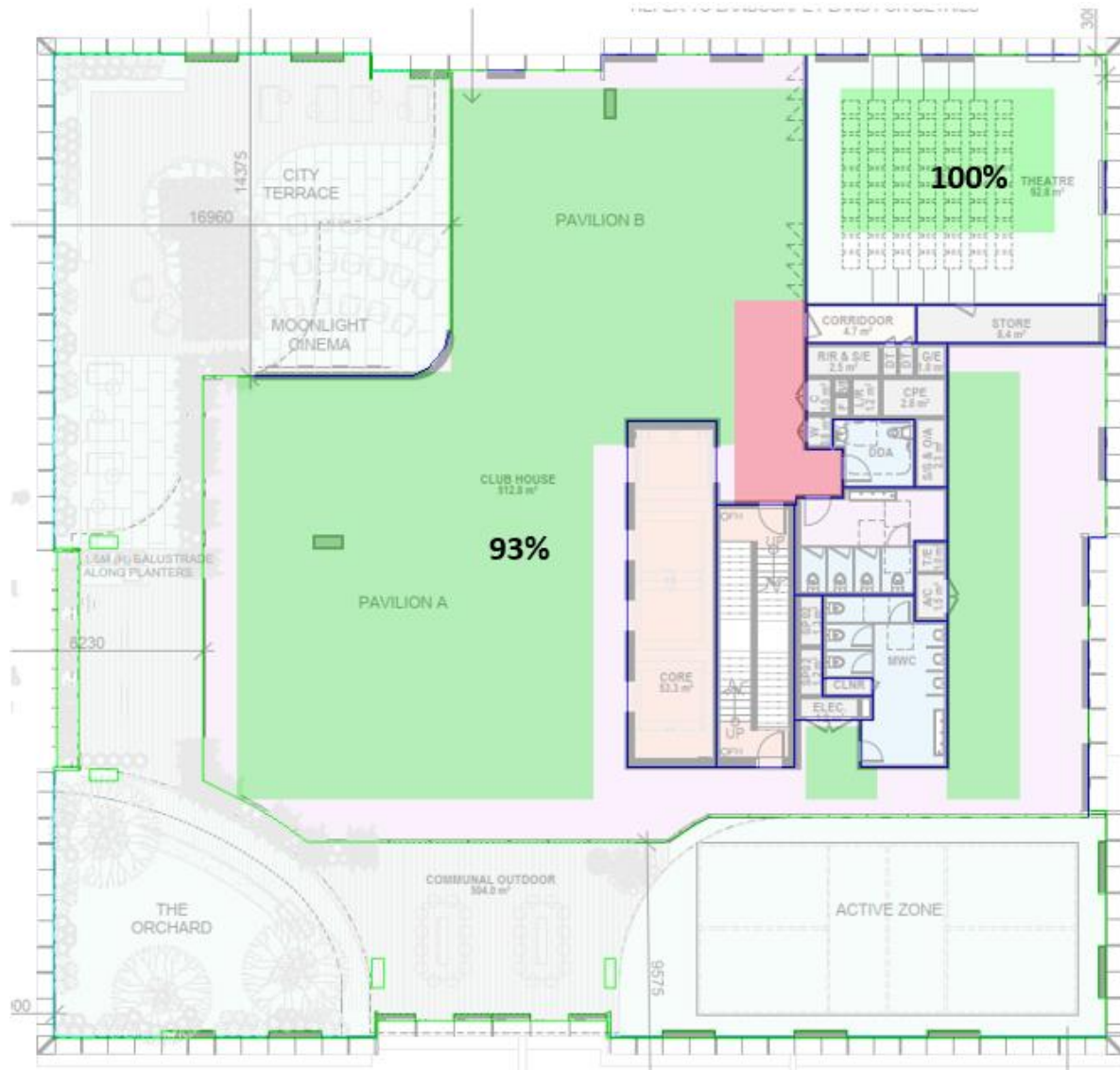
Level 1 Office sDA Contour Plot



Level 4 Office sDA Contour Plot

ADVERTISED PLAN

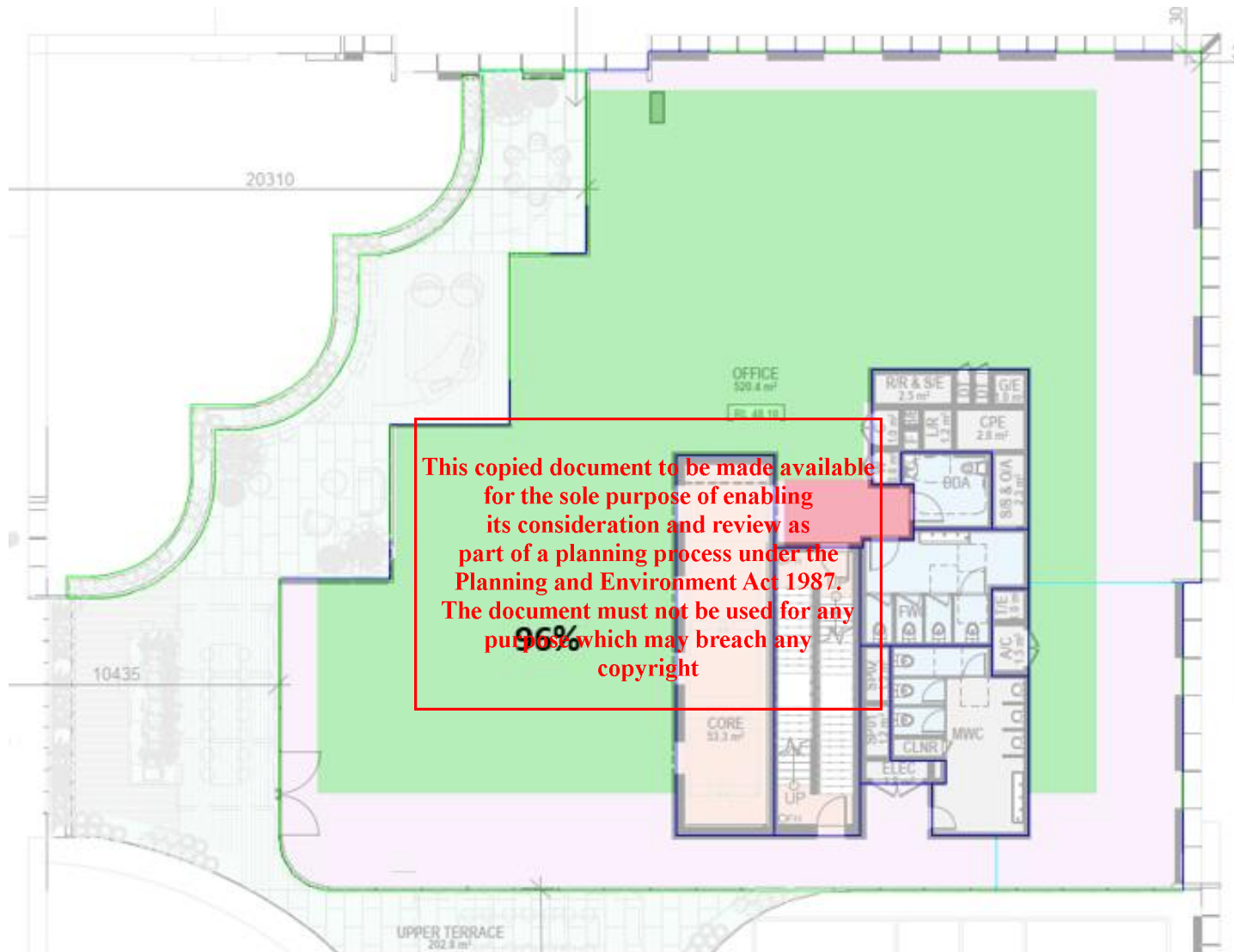
This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright



Level 9 Amenities sDA Contour Plot

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright



Level 10 Office sDA Contour Plot

ADVERTISED PLAN

G.3 Assumptions

Assumed Glazing Visual Light Transmittance

Glazing Type	Visible Light Transmittance (VLT)
	%
Exterior glazing clear (Ground Floor)	70
Exterior glazing neutral/hue (L1-11)	40

Sky conditions: Perez Sky

Assumed Surface Reflectances

Construction Element	Reflectance (%)	Description
Floors	30	Light-coloured flooring
Internal Walls	70	Assumes white paint
Ceilings	80	Assumes white paint
External Fabric	40	Red brick
Adjacent Buildings	40	Medium colour finish
External Paving	40	Grass and light-coloured pavers
Roads	10	Tarmac

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright