

Attachment 1 - Advertising Plans & Perspectives

LEVEL	GFA (Excluding Terrace)	GFA Parking	NSA Residential	Residential Amenities	NLA Shops	NLA Focuss & Driv	NLA Restricted Retail	NLA Childcare	NLA Medical	NLA Office	Circulation & Services	Terrace POS	1 Bed	2 Bed	3 Bed	Duplex	Totals
BASEMENT 4	3728.1 m <sup>2</sup>	2965.9 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	1562.3 m <sup>2</sup>	0.0 m <sup>2</sup>	0	0	0	0	0
BASEMENT 3	5011.6 m <sup>2</sup>	4131.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	880.9 m <sup>2</sup>	0.0 m <sup>2</sup>	0	0	0	0	0
BASEMENT 2	11944.6 m <sup>2</sup>	9564.9 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	2256.6 m <sup>2</sup>	0.0 m <sup>2</sup>	0	0	0	0	0
BASEMENT 1	12103.3 m <sup>2</sup>	7520.8 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	2381.3 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	2201.2 m <sup>2</sup>	0.0 m <sup>2</sup>	0	0	0	0	0
GROUND	10766.7 m <sup>2</sup>	3647.6 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	482.6 m <sup>2</sup>	0.0 m <sup>2</sup>	2308.8 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	4305.6 m <sup>2</sup>	0.0 m <sup>2</sup>	0	0	0	0	0
UPPER GROUND	6862.2 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	2895.8 m <sup>2</sup>	898.6 m <sup>2</sup>	801.7 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	2318.1 m <sup>2</sup>	0.0 m <sup>2</sup>	0	0	0	0	0
LEVEL 1	7650.0 m <sup>2</sup>	0.0 m <sup>2</sup>	3991.0 m <sup>2</sup>	590.7 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	363.2 m <sup>2</sup>	221.7 m <sup>2</sup>	1307.8 m <sup>2</sup>	1180.6 m <sup>2</sup>	1271.9 m <sup>2</sup>	13	38	1	0	0	52
LEVEL 2	7217.8 m <sup>2</sup>	0.0 m <sup>2</sup>	4113.3 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	364.1 m <sup>2</sup>	329.4 m <sup>2</sup>	1306.5 m <sup>2</sup>	1102.5 m <sup>2</sup>	603.6 m <sup>2</sup>	9	42	1	10	0	62
LEVEL 3	6484.6 m <sup>2</sup>	0.0 m <sup>2</sup>	4111.1 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	13.3 m <sup>2</sup>	0.0 m <sup>2</sup>	1306.5 m <sup>2</sup>	1051.1 m <sup>2</sup>	1656.5 m <sup>2</sup>	9	41	2	0	0	52
LEVEL 4	5287.0 m <sup>2</sup>	0.0 m <sup>2</sup>	4078.7 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	1208.3 m <sup>2</sup>	692.2 m <sup>2</sup>	12	41	3	0	0	58
LEVEL 5	5271.5 m <sup>2</sup>	0.0 m <sup>2</sup>	4369.8 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	651.7 m <sup>2</sup>	671.8 m <sup>2</sup>	14	42	4	0	0	60
LEVEL 6	2109.2 m <sup>2</sup>	0.0 m <sup>2</sup>	1788.1 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	321.1 m <sup>2</sup>	250.0 m <sup>2</sup>	4	18	2	0	0	24
LEVEL 7	2107.4 m <sup>2</sup>	0.0 m <sup>2</sup>	1786.3 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	321.1 m <sup>2</sup>	254.9 m <sup>2</sup>	4	18	2	0	0	24
LEVEL 8	2107.3 m <sup>2</sup>	0.0 m <sup>2</sup>	1786.2 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	321.1 m <sup>2</sup>	254.9 m <sup>2</sup>	4	18	2	0	0	24
LEVEL 9	2108.6 m <sup>2</sup>	0.0 m <sup>2</sup>	1786.5 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	321.1 m <sup>2</sup>	255.2 m <sup>2</sup>	4	18	2	0	0	24
LEVEL 10	2109.8 m <sup>2</sup>	0.0 m <sup>2</sup>	1788.7 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	321.1 m <sup>2</sup>	254.9 m <sup>2</sup>	4	18	2	0	0	24
LEVEL 11	2109.5 m <sup>2</sup>	0.0 m <sup>2</sup>	1788.4 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	0.0 m <sup>2</sup>	321.1 m <sup>2</sup>	255.2 m <sup>2</sup>	4	18	2	0	0	24
	94506.4 m <sup>2</sup>	27500.4 m <sup>2</sup>	31390.8 m <sup>2</sup>	790.7 m <sup>2</sup>	3369.3 m <sup>2</sup>	886.6 m <sup>2</sup>	5513.6 m <sup>2</sup>	740.6 m <sup>2</sup>	551.1 m <sup>2</sup>	3674.6 m <sup>2</sup>	20440.4 m <sup>2</sup>	8426.1 m <sup>2</sup>	81	312	23	10	426

\*For preliminary feasibility purposes. Areas are not to be used for purpose of lease or sale agreements. Layouts may not comply with building regulations or other regulatory requirements. The information contained in this schedule is believed to be correct at the time of printing. Areas are generally measured in accordance with the Property Council of Australia Method of Measurement.

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APARTMENT MIX				
1 Bed	2 Bed	3 Bed	Duplex	Total
19.0%	73.2%	5.4%	2.2%	100%

Level	Car Spaces							Bicycle Parks	Stores
	Residential	Leased (Ex. Permits)	Restricted Retail	Shops (incl Food & Drink)	Medical	Child Care	Office		
BASEMENT 2	134	46	0	0	0	0	179	0	123
BASEMENT 1	0	116	0	30	26	0	172	0	0
GROUND	0	0	0	65	0	11	76	162	57
	134	161	0	95	26	11	427	162	180

Level	Area
LEVEL 1	3048.6 m <sup>2</sup>
LEVEL 4	999.9 m <sup>2</sup>
TOTAL AREA	4048.6 m <sup>2</sup>

Level	Car Spaces					Bicycle Parks	Stores
	Residential	Leased (Ex. Permits)	Restricted Retail	Shops (incl Food & Drink)	Office		
BASEMENT 1 NORTH	0	0	26	0	0	26	135
BASEMENT 2 NORTH	3	0	56	0	52	123	49
BASEMENT 3	110	0	0	13	0	123	0
BASEMENT 4	76	0	0	0	0	76	136
LEVEL 1 NORTH	0	0	0	0	0	0	9
LEVEL 2 NORTH	0	0	0	0	0	0	9
LEVEL 3 NORTH	0	0	0	0	0	0	9
	189	0	84	0	75	348	194

Level	Car Spaces							Bicycle Parks	Stores
	Residential	Leased (Ex. Permits)	Restricted Retail	Shops (incl Food & Drink)	Medical	Child Care	Office		
	323	161	84	95	26	11	775	346	408

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 4 04/12/18 10:59:46 AM 10/18

15/12/18 11:06AM L:\000001\000001\_000001\000001\_000001\_000001.dwg  
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Mixed Use Development Development Summary 216081 04/28/18 SB/BI

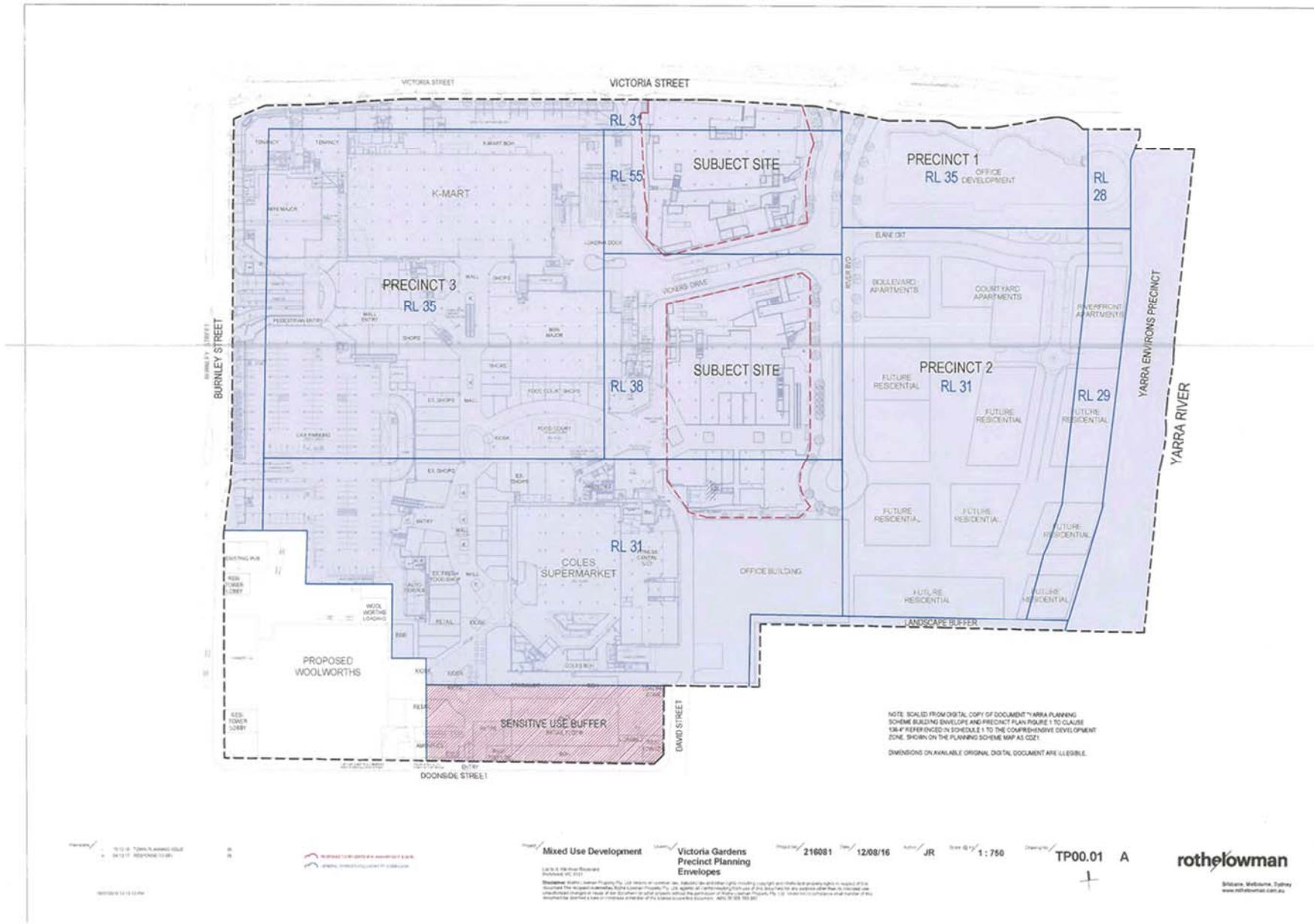
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TP00.00 A



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Attachment 1 - Advertising Plans & Perspectives



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12/08/16

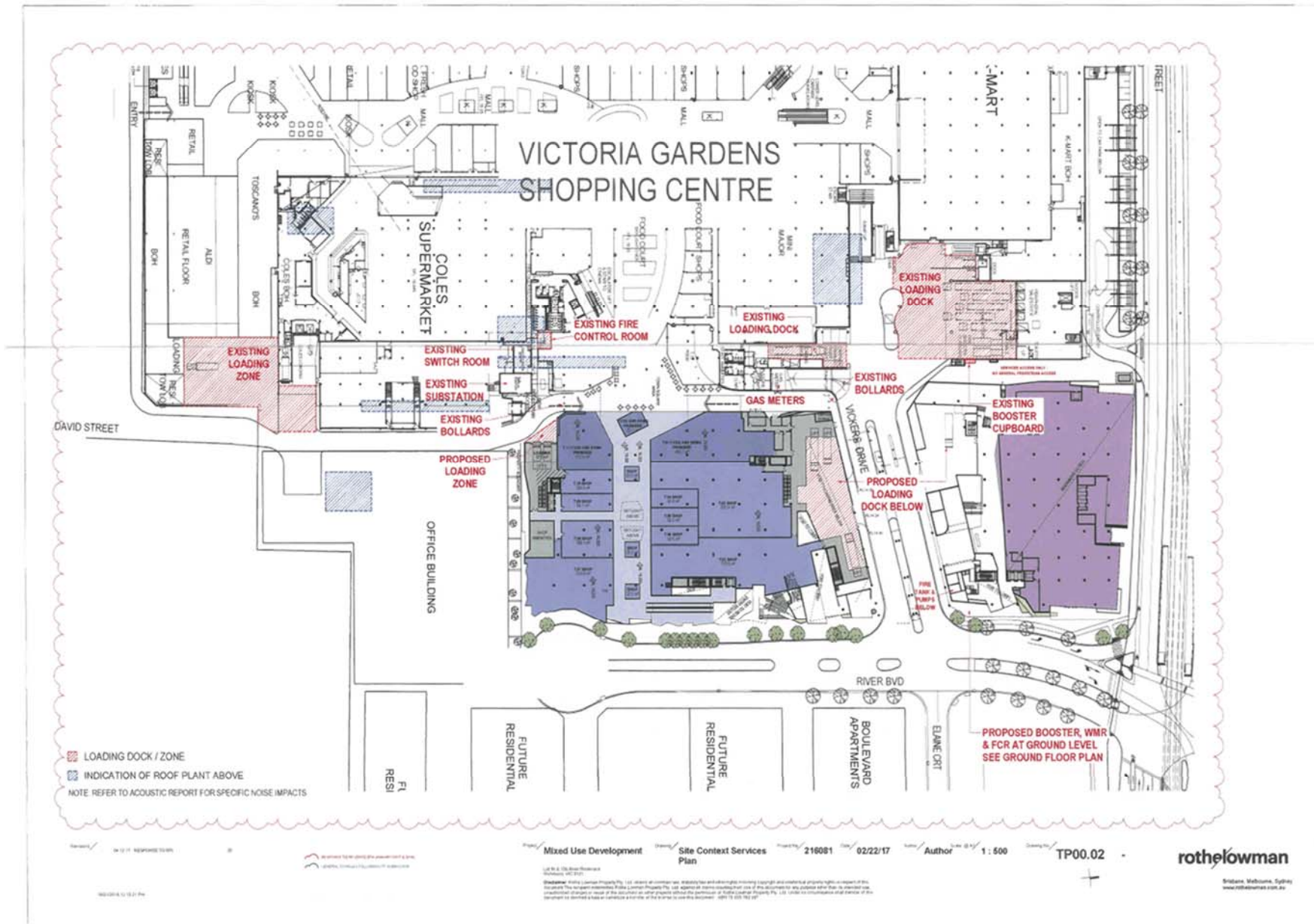
Mixed Use Development  
Victoria Gardens  
Precinct Planning  
Envelopes

216081  
12/08/16  
JR

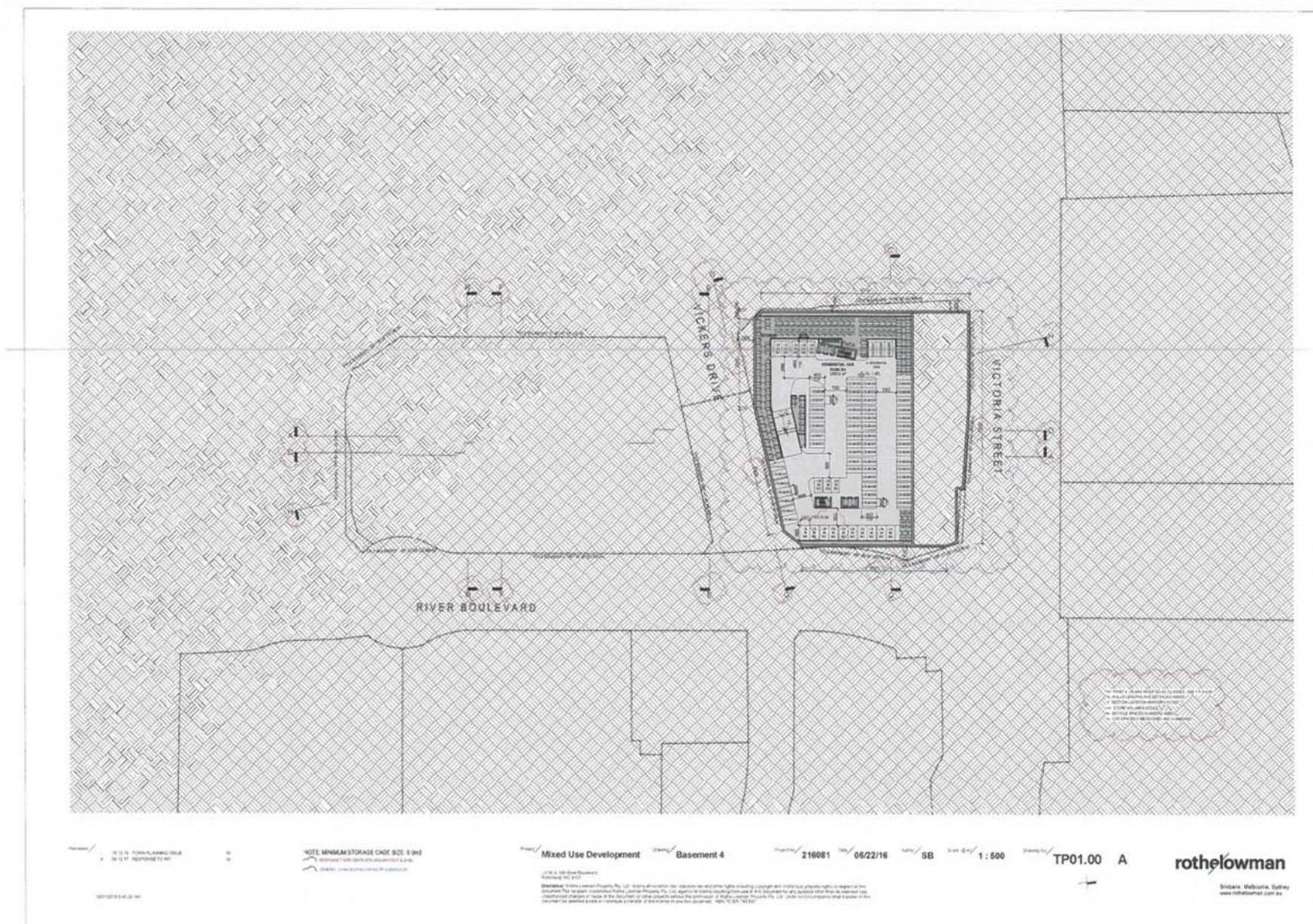
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Melbourne, Sydney  
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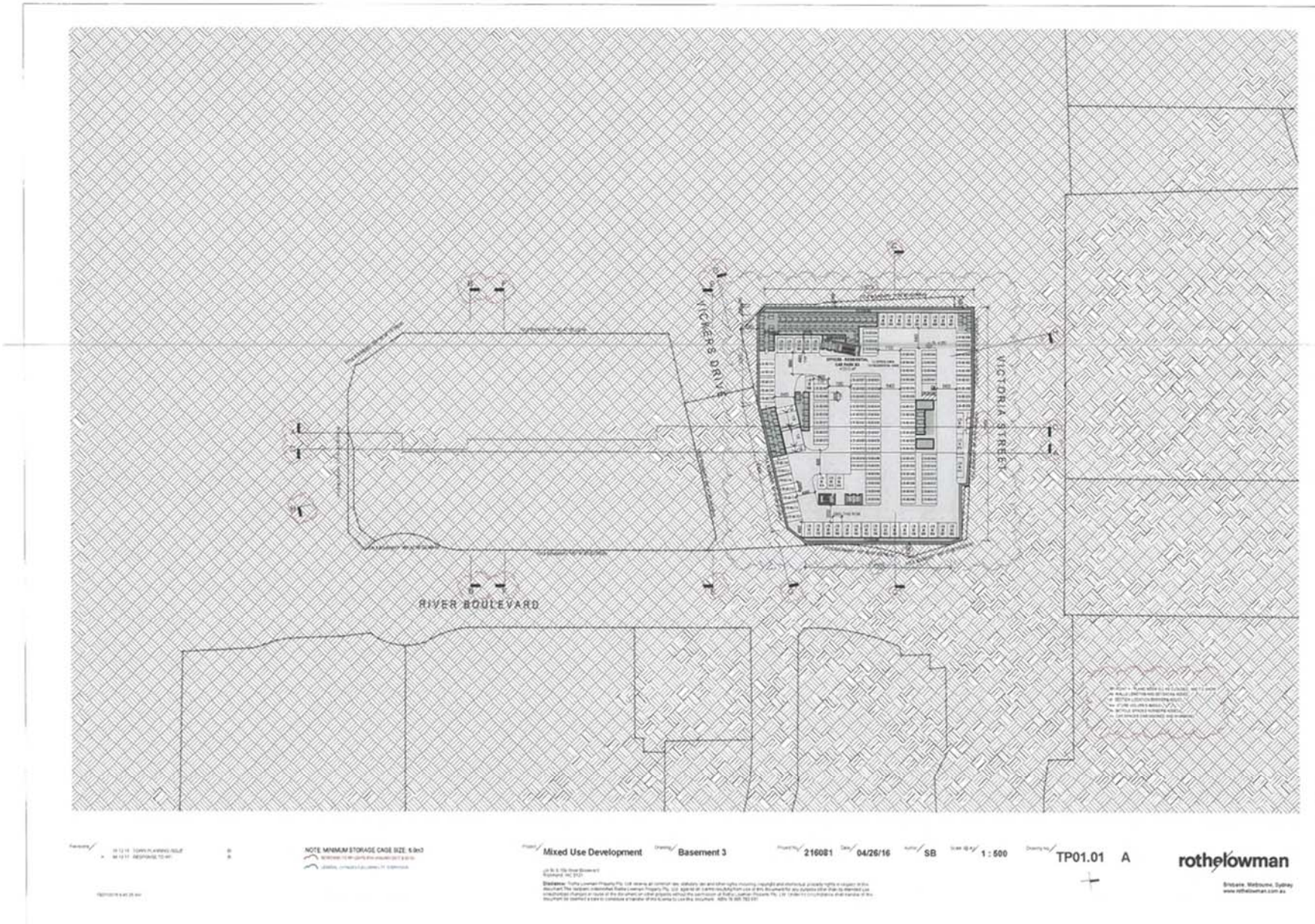
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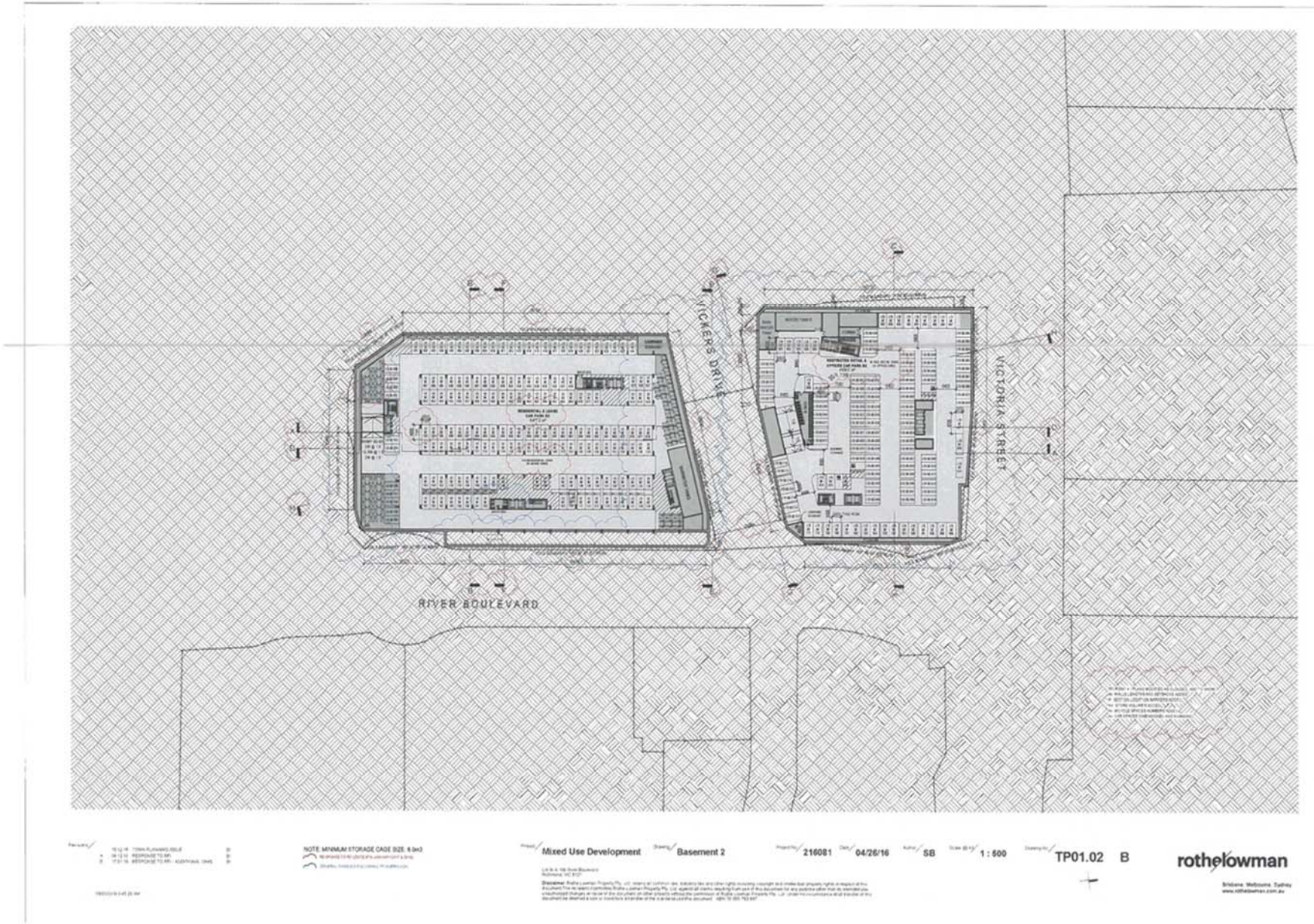
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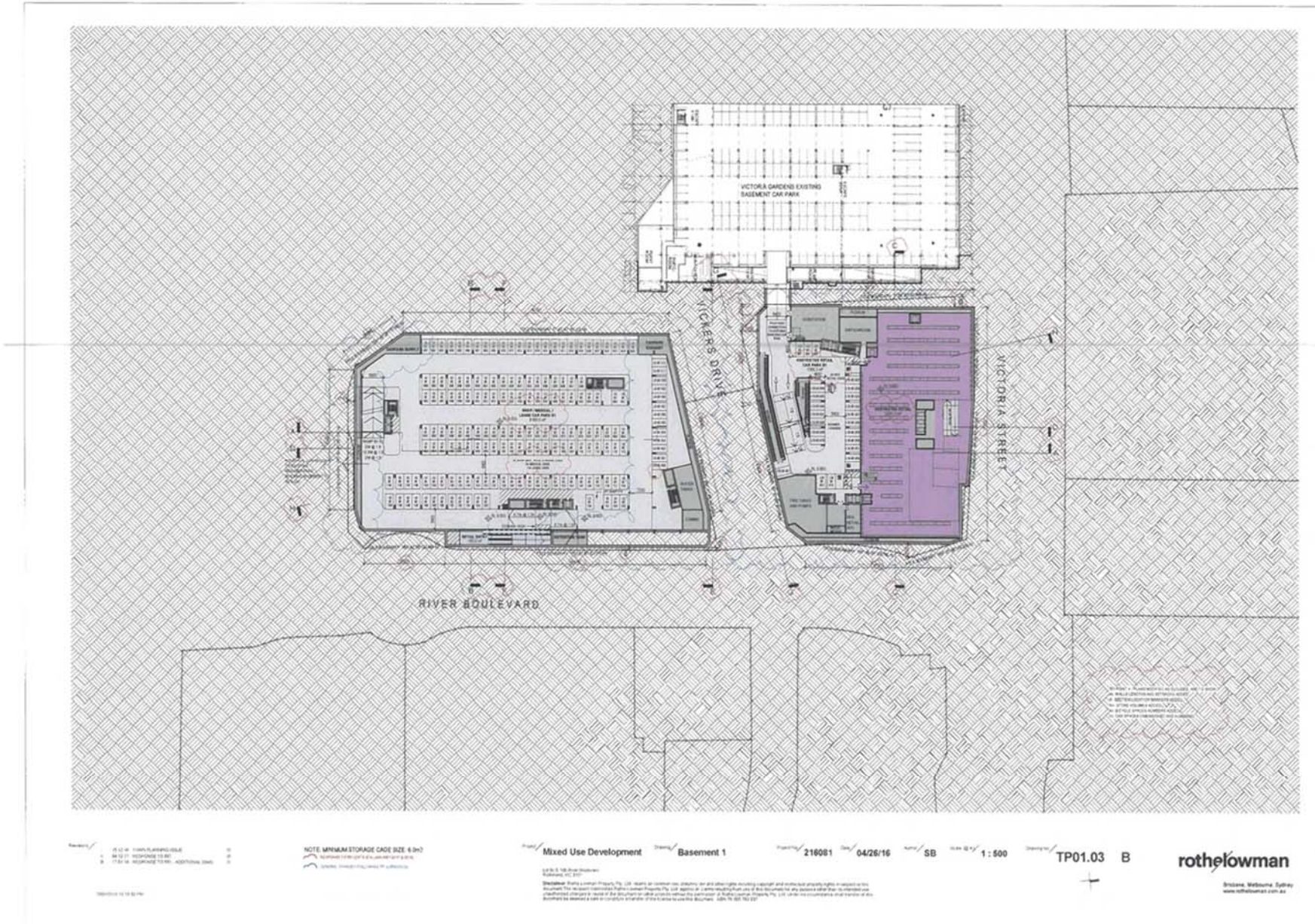
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Attachment 1 - Advertising Plans & Perspectives



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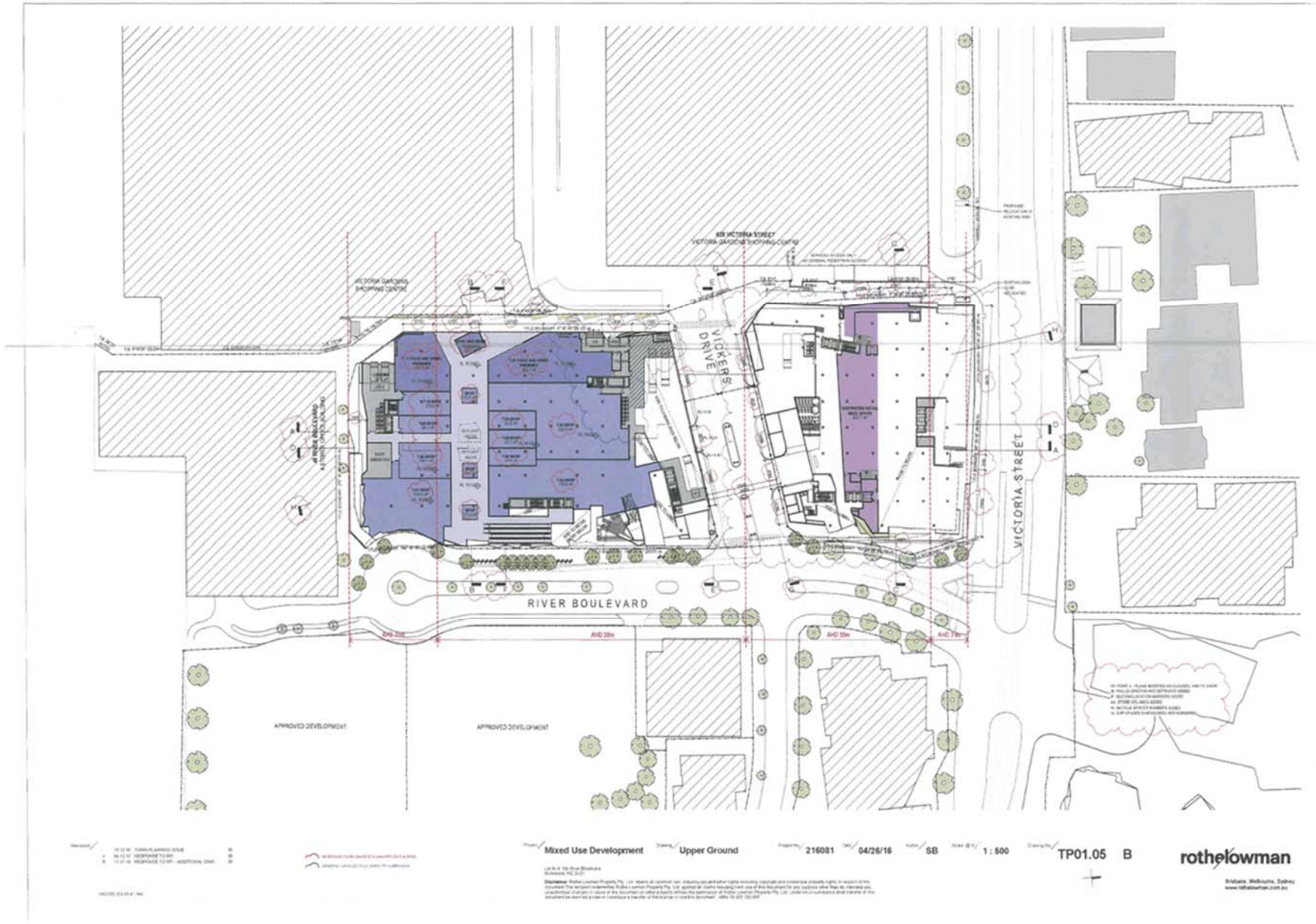


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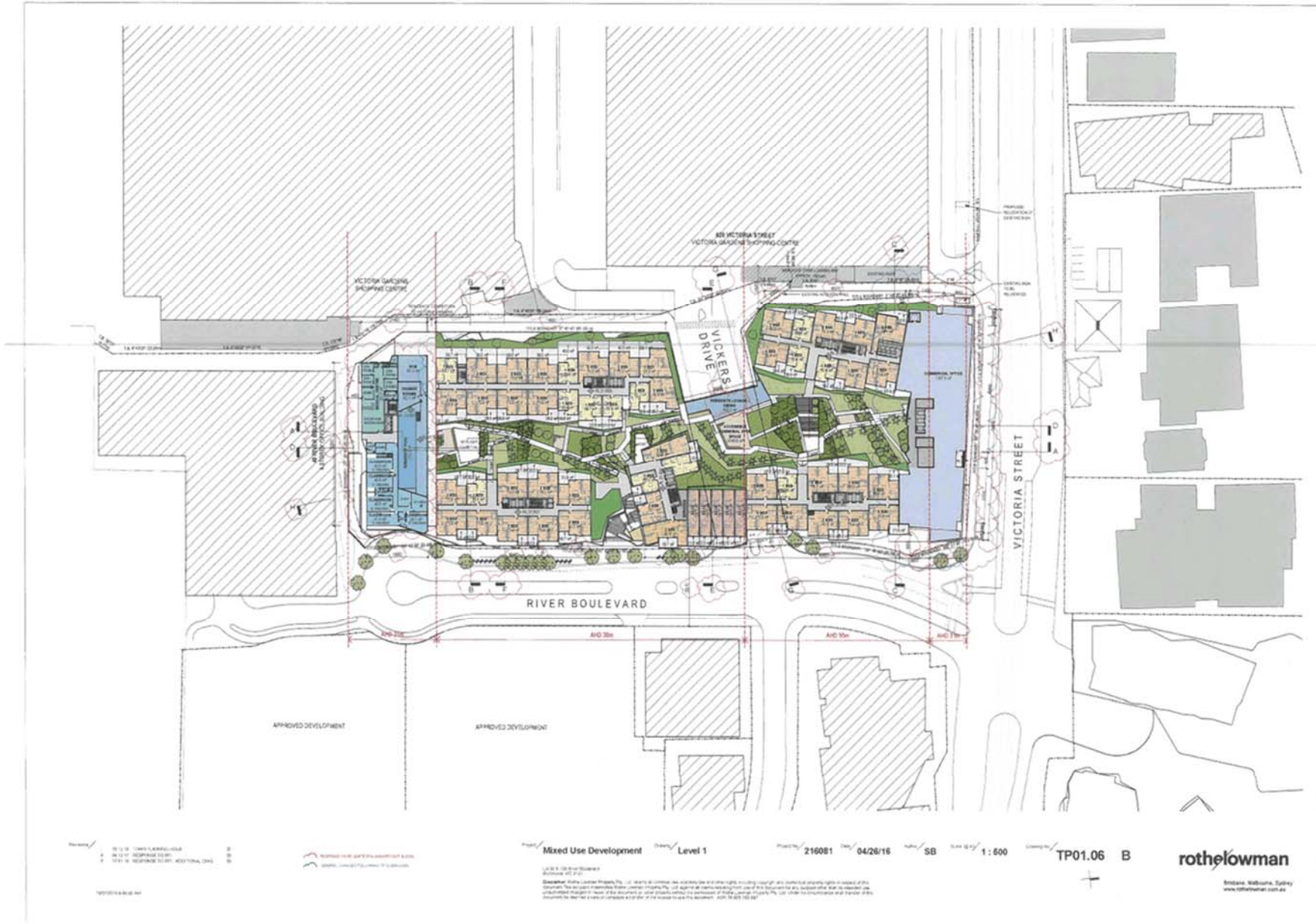




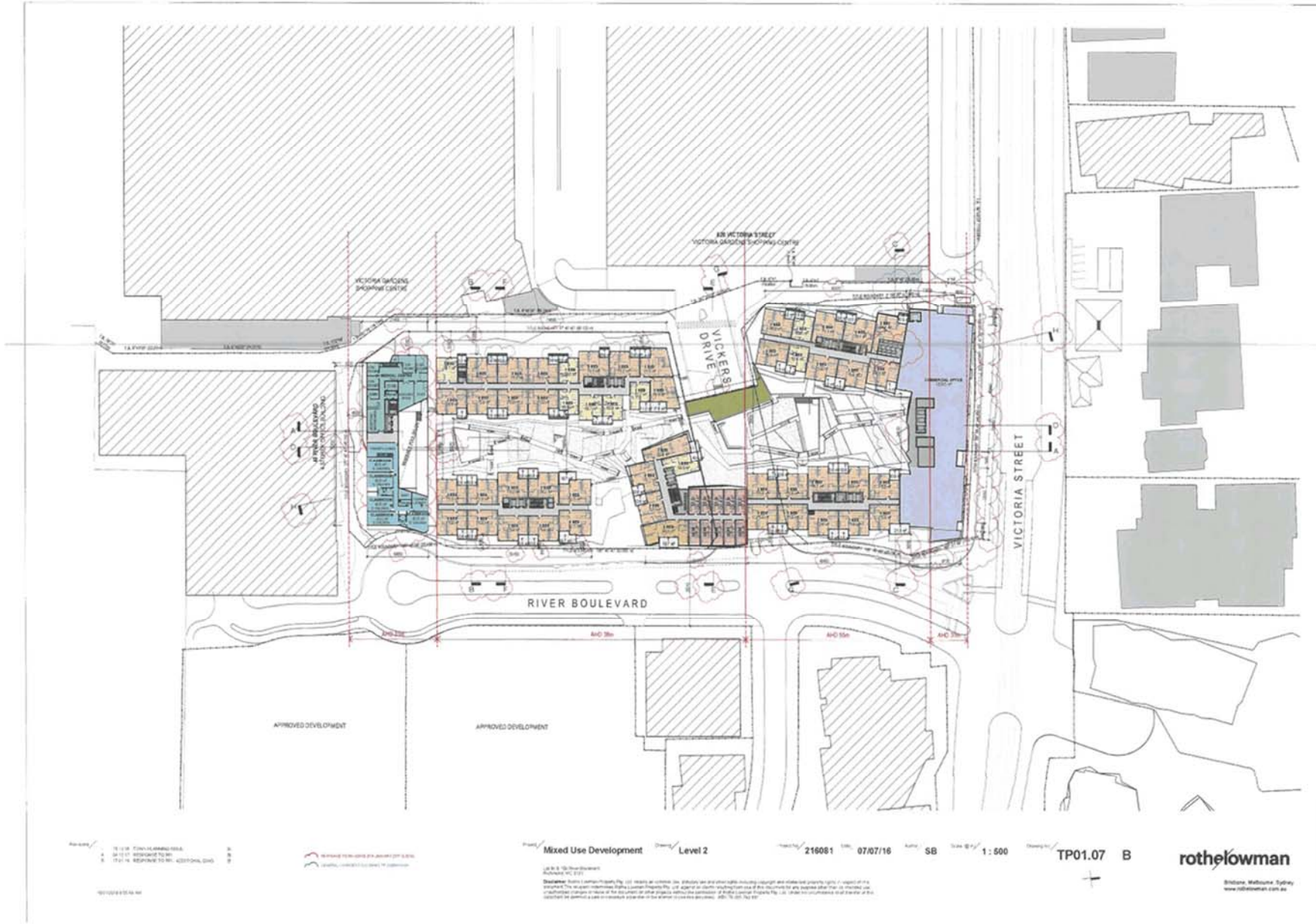
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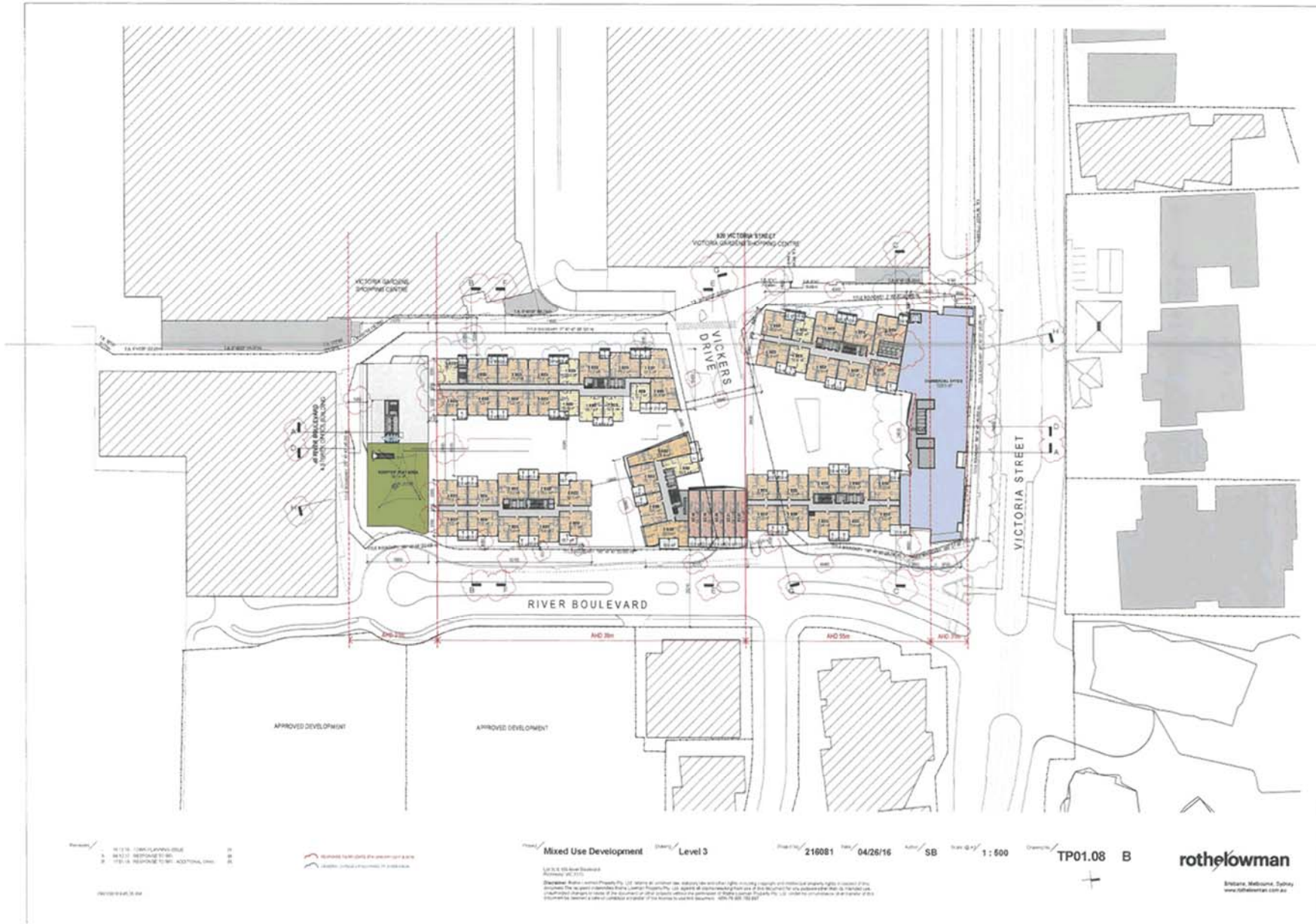
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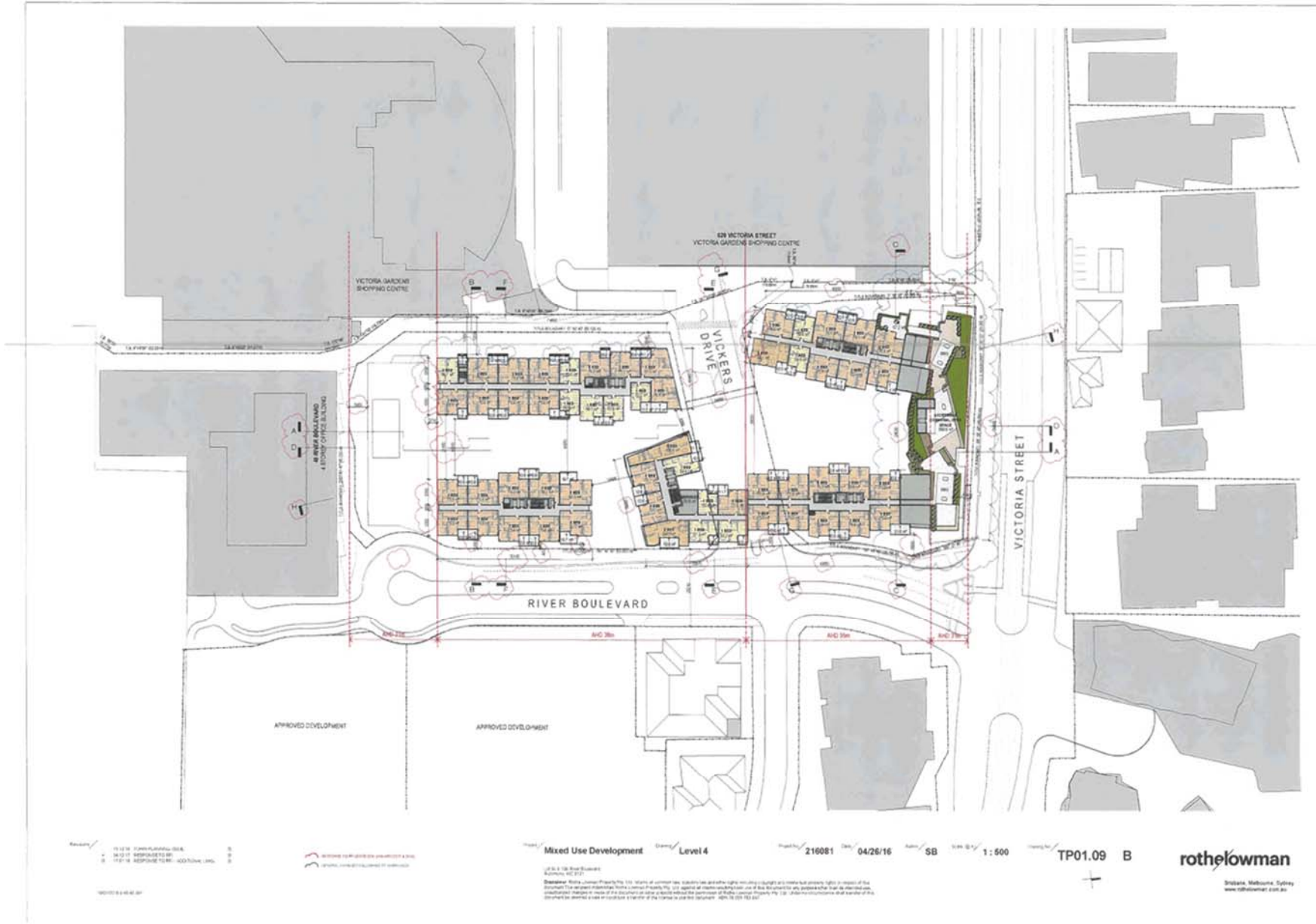
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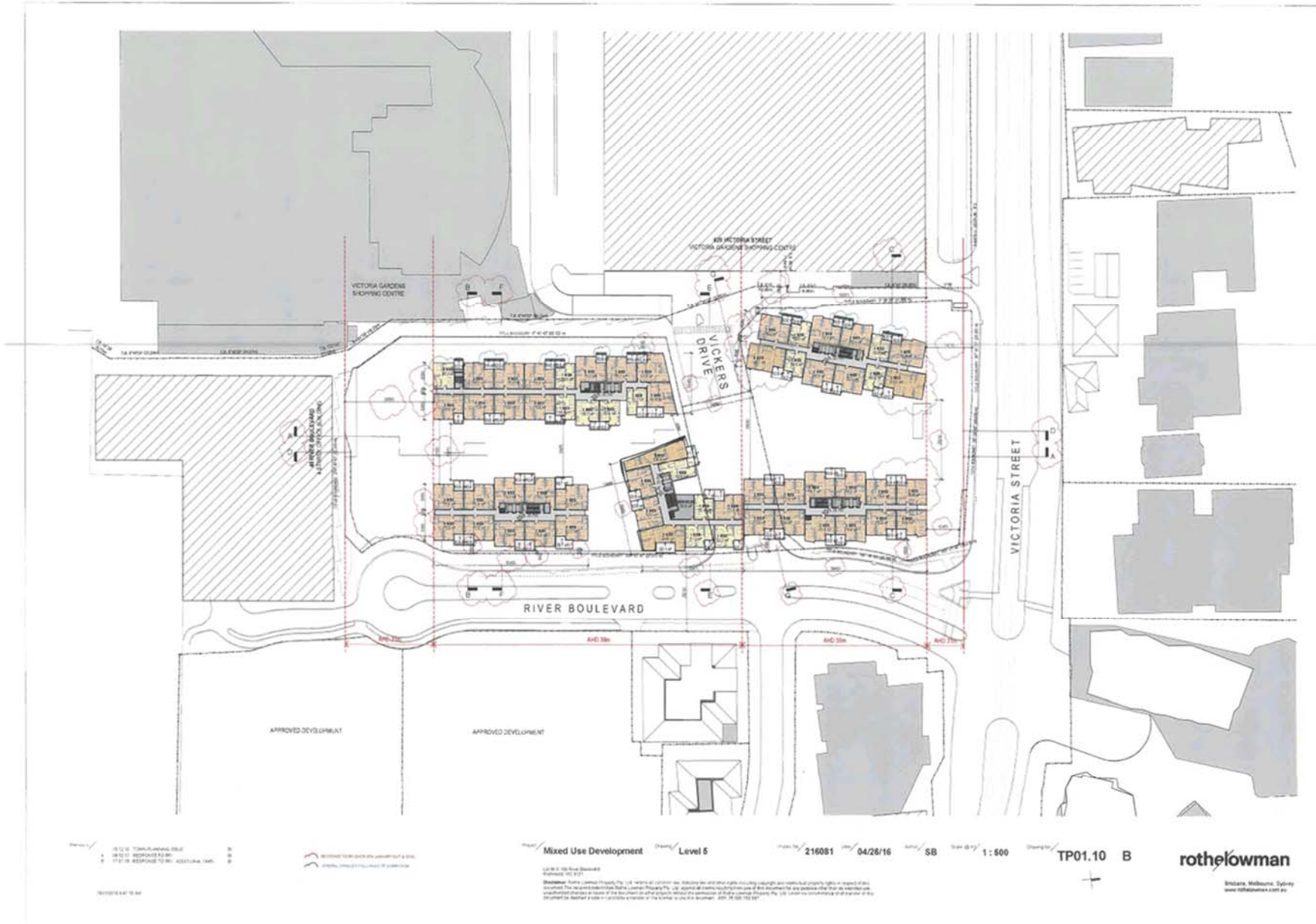
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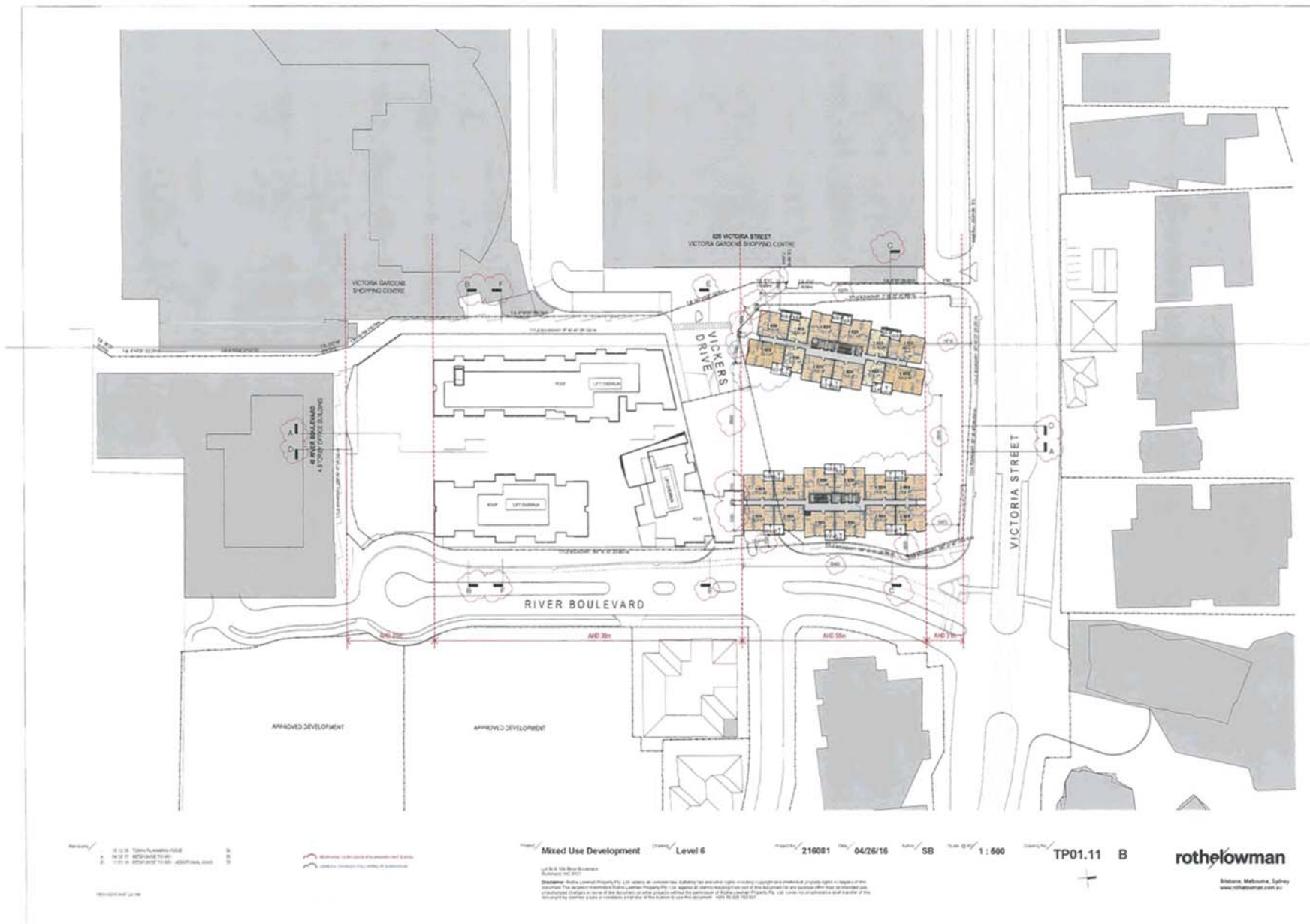
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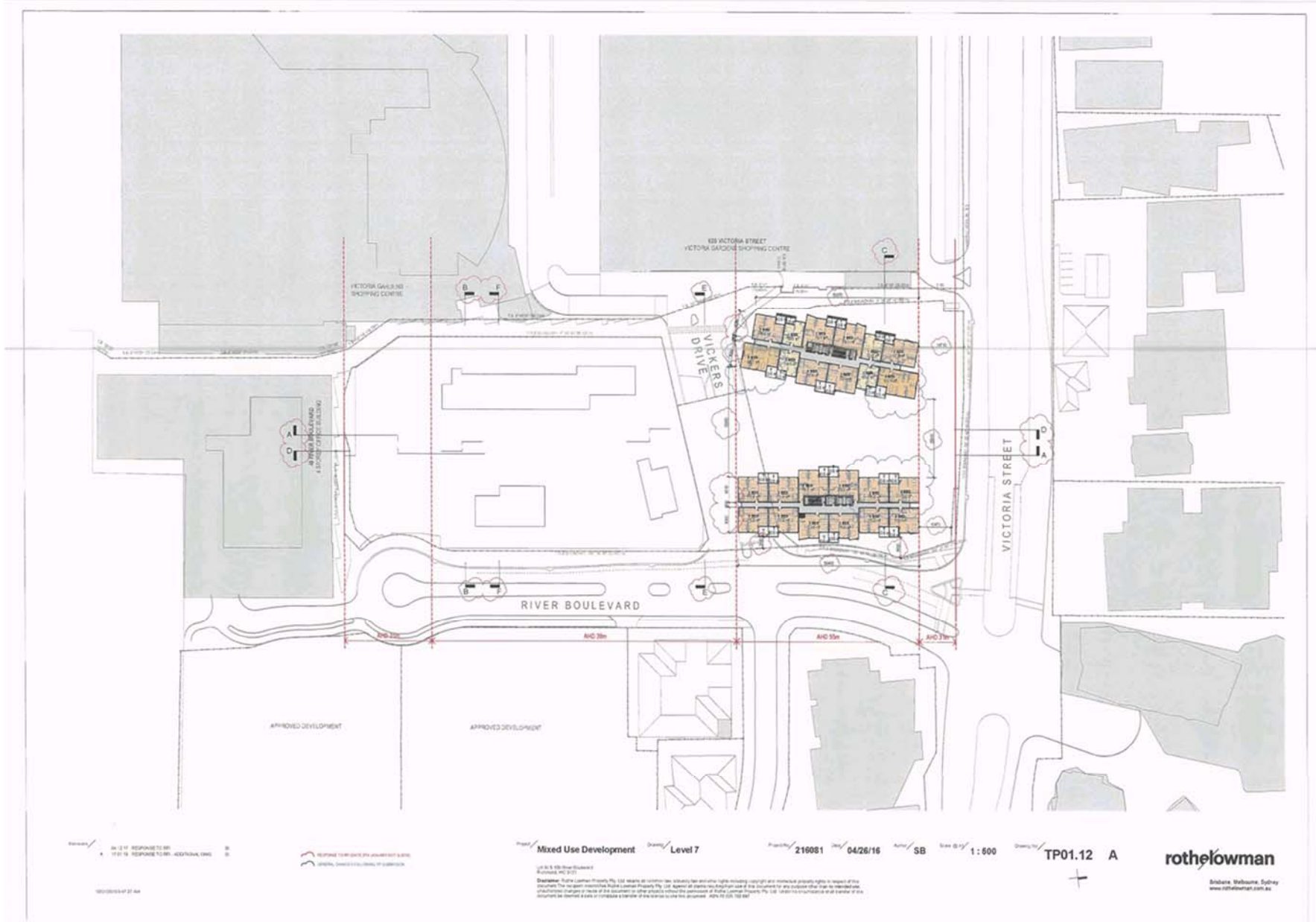
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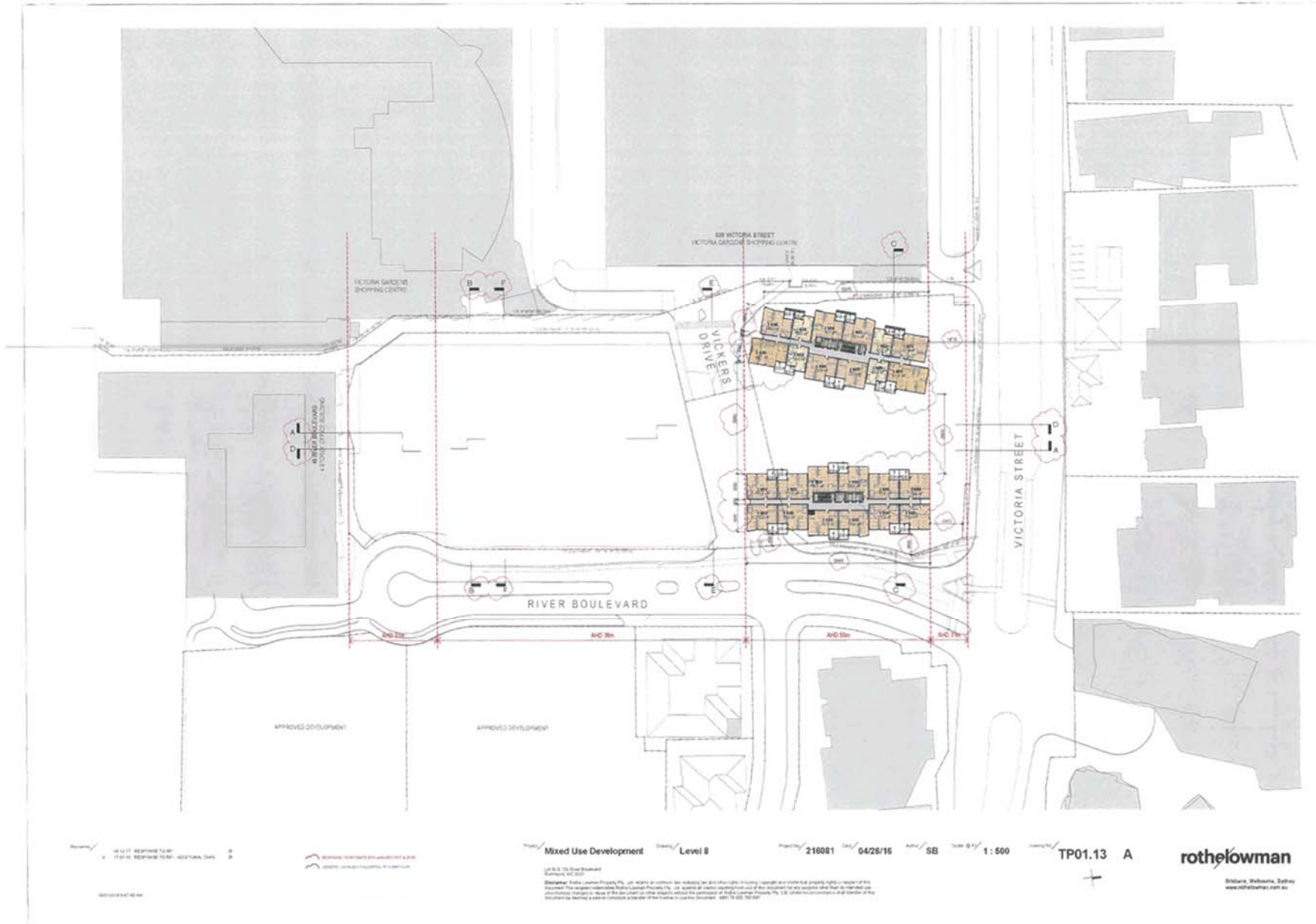


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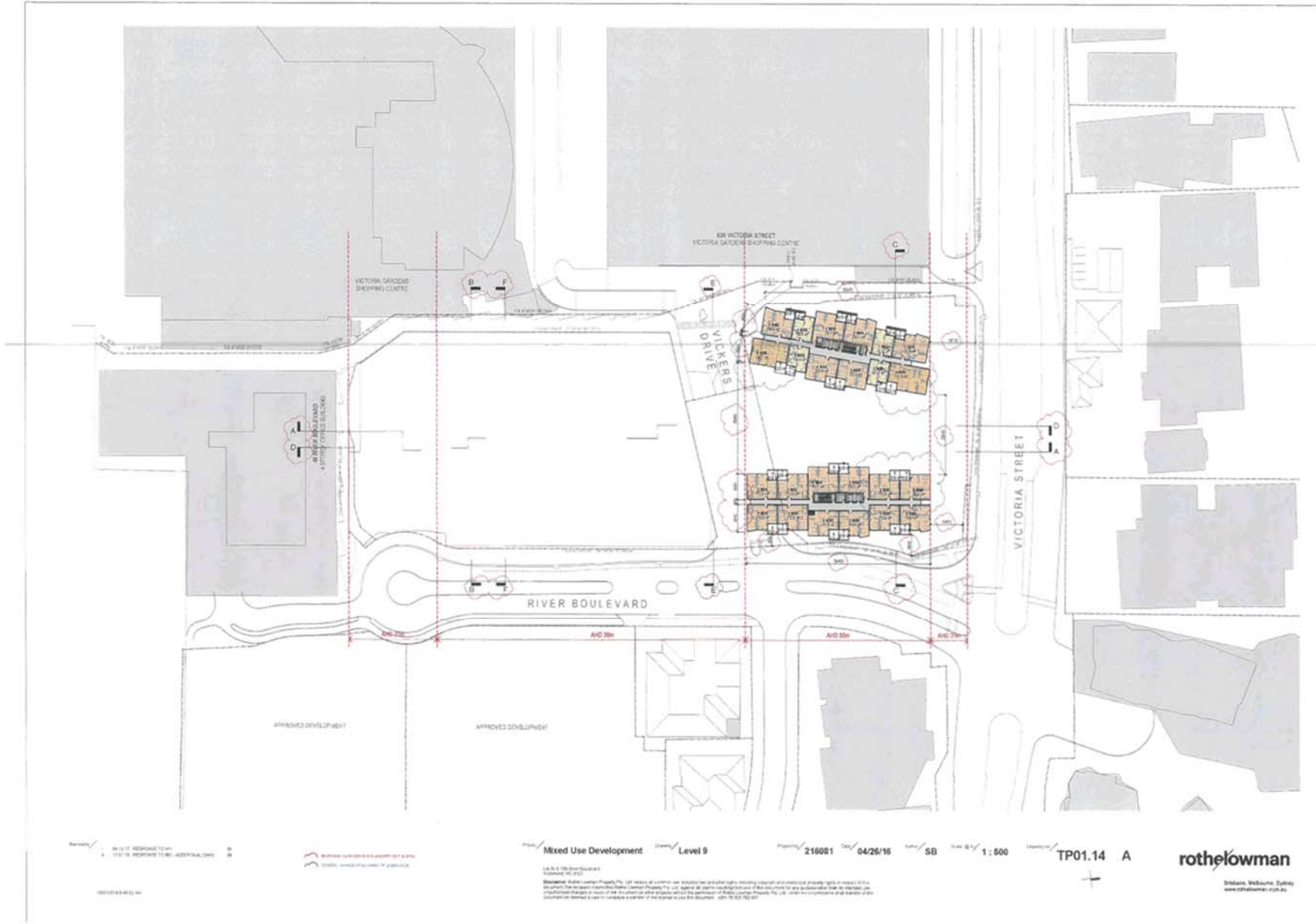




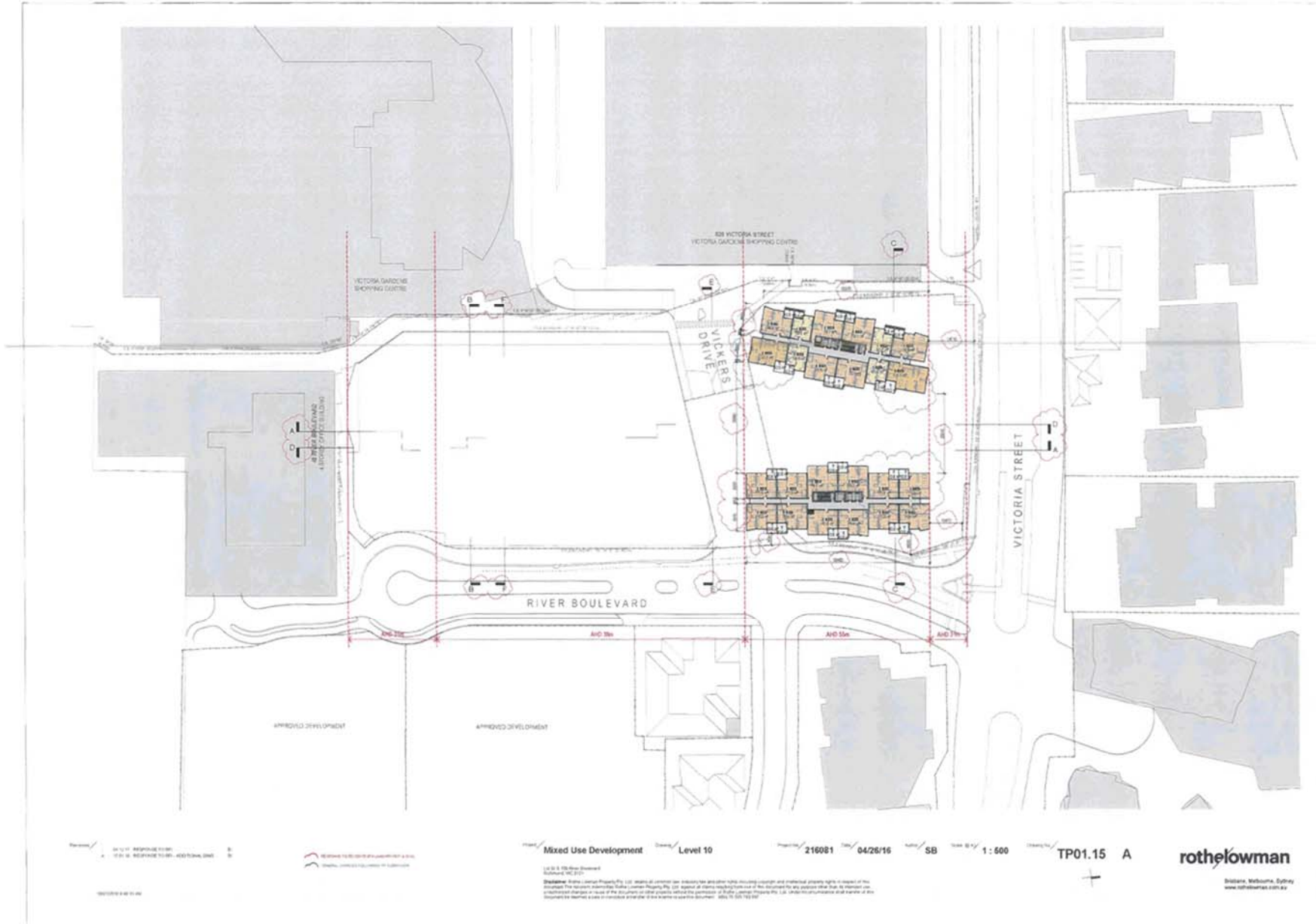
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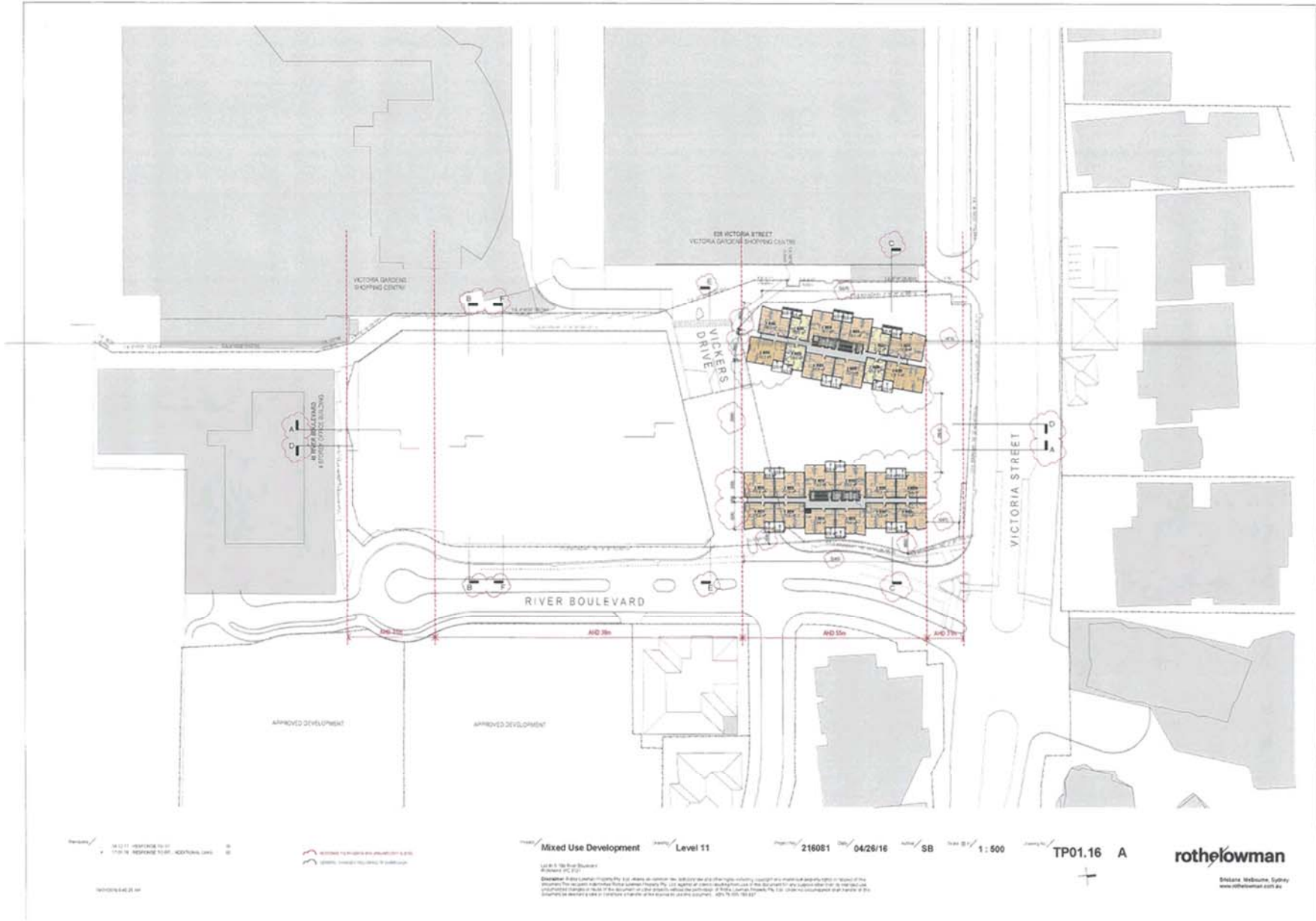
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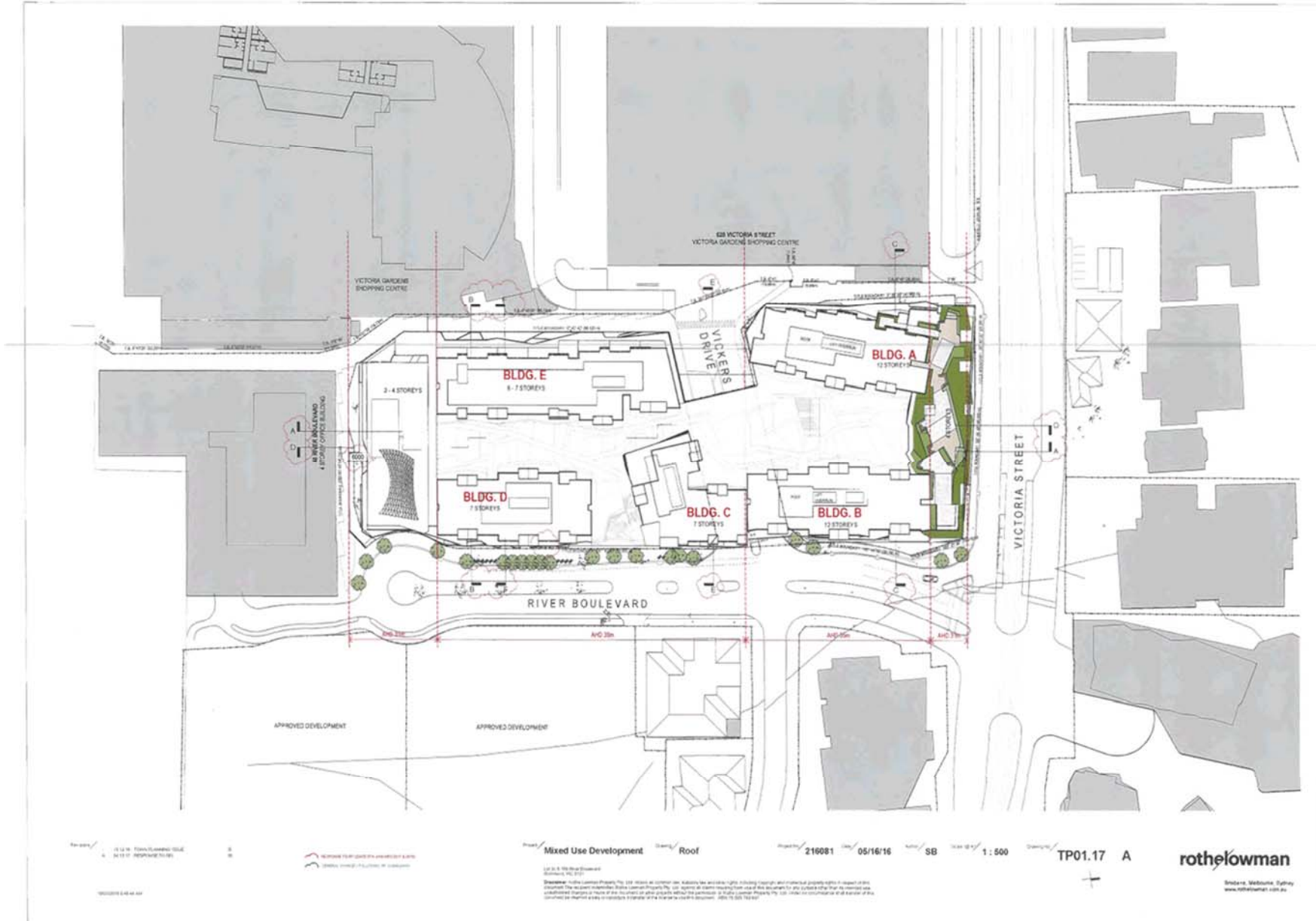
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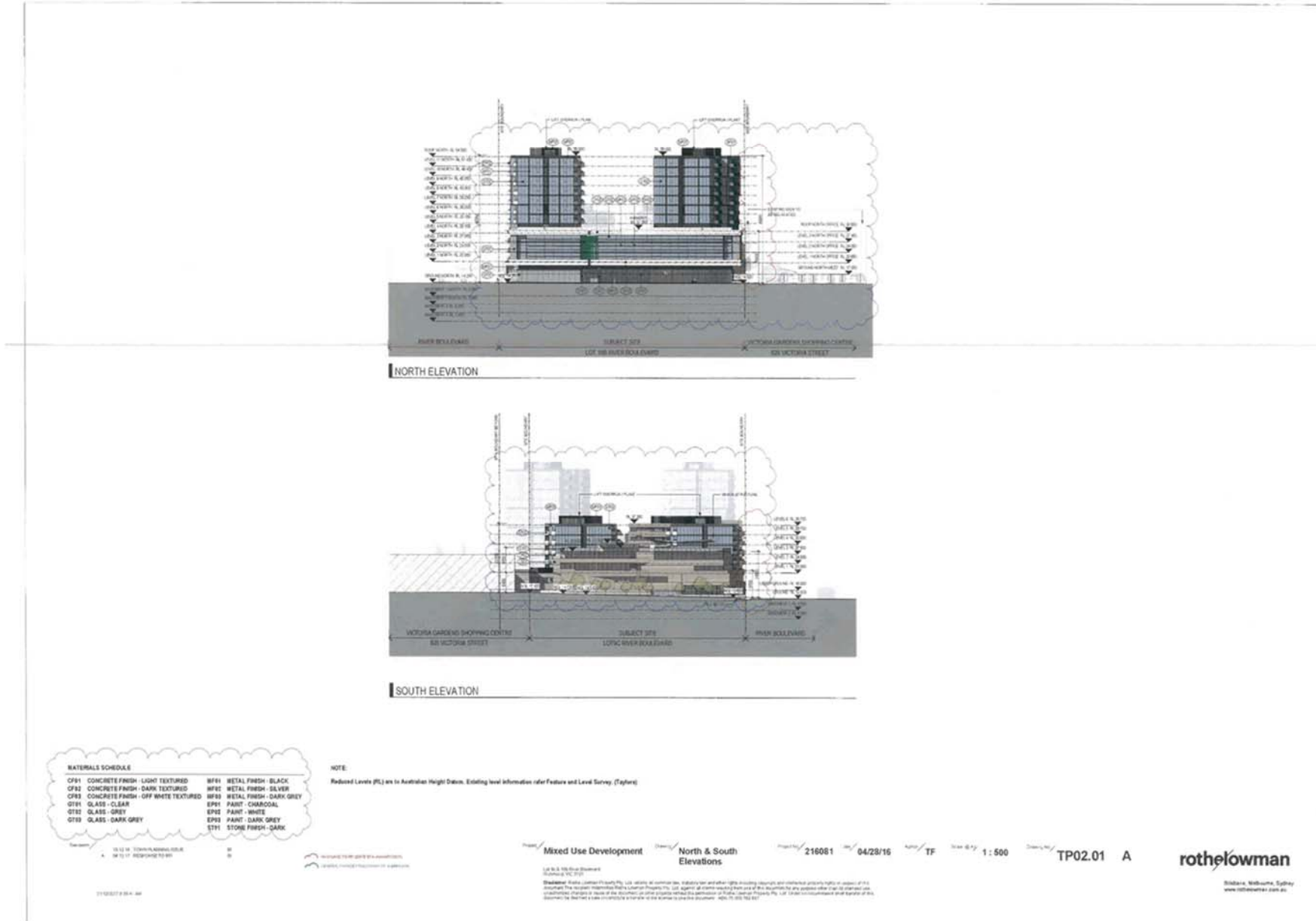
**Attachment 1 - Advertising Plans & Perspectives**



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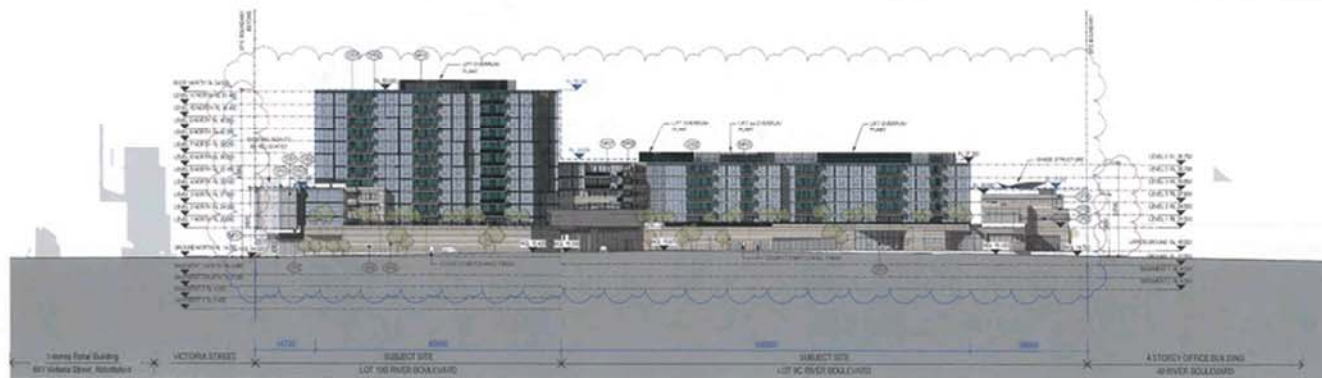
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Attachment 1 - Advertising Plans & Perspectives



EAST ELEVATION



WEST ELEVATION

**MATERIALS SCHEDULE**

CF01 CONCRETE FINISH - LIGHT TEXTURED	MF01 METAL FINISH - BLACK
CF02 CONCRETE FINISH - DARK TEXTURED	MF02 METAL FINISH - SILVER
CF03 CONCRETE FINISH - OFF WHITE TEXTURED	MF03 METAL FINISH - DARK GREY
GF01 GLASS - CLEAR	EP01 PAINT - CHARCOAL
GF02 GLASS - GREY	EP02 PAINT - WHITE
GF03 GLASS - DARK GREY	EP03 PAINT - DARK GREY
	ST01 STONE FINISH - DARK

**NOTE:**  
Reduced Levels (RL) are in Australian Height Datum. Existing level information refer Features and Level Survey (Taylor)

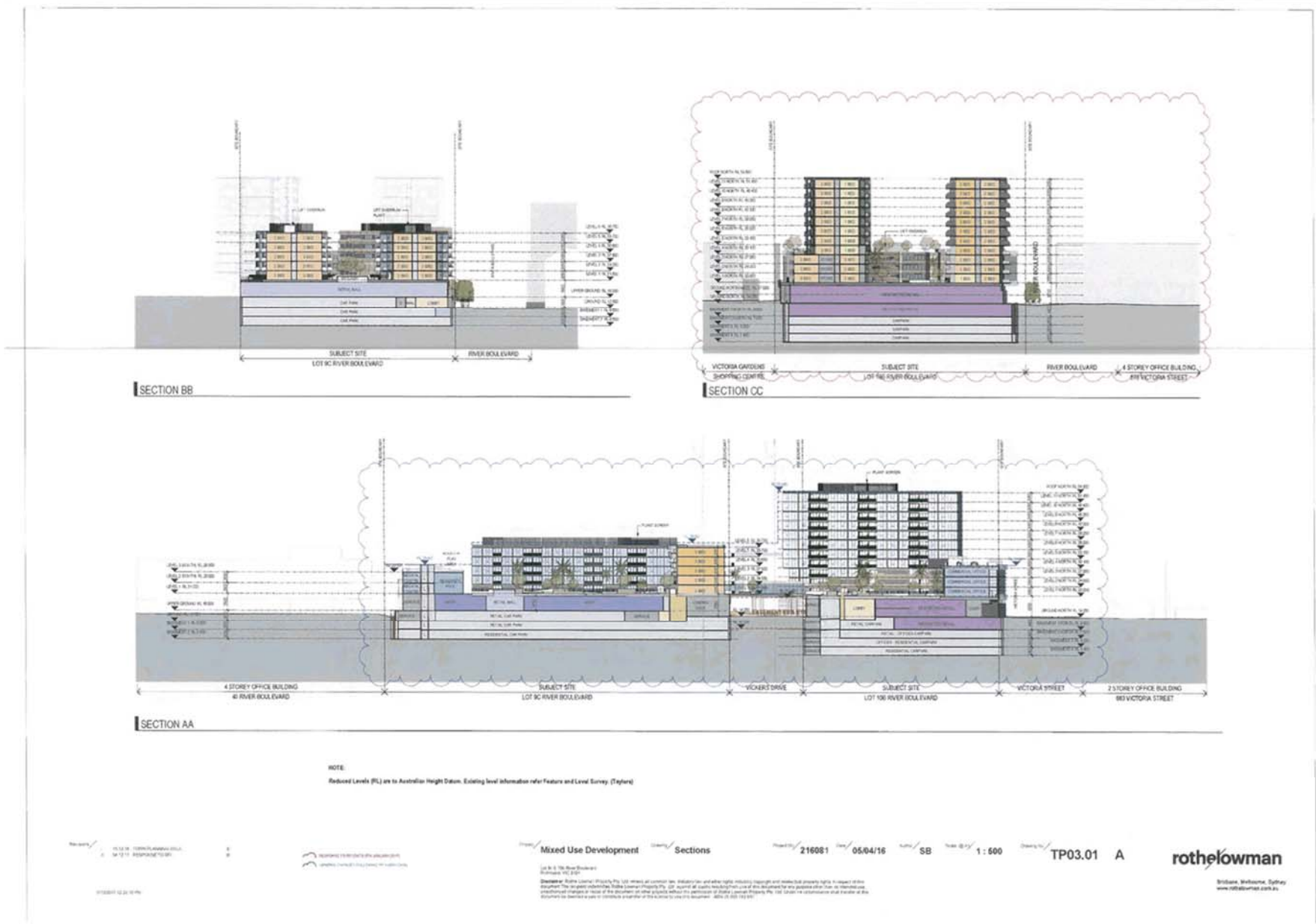
Drawn by: 15/12/16: C.M.A./L.A.M./M.S.L. / 16/12/16: M.S.L.  
Checked by: 16/12/16: M.S.L.

Mixed Use Development | East & West Elevations | Project No: 210081 | Date: 04/28/16 | Author: SB | Scale: 1:500 | Drawing No: TP02.02 A

**rotheflowman**

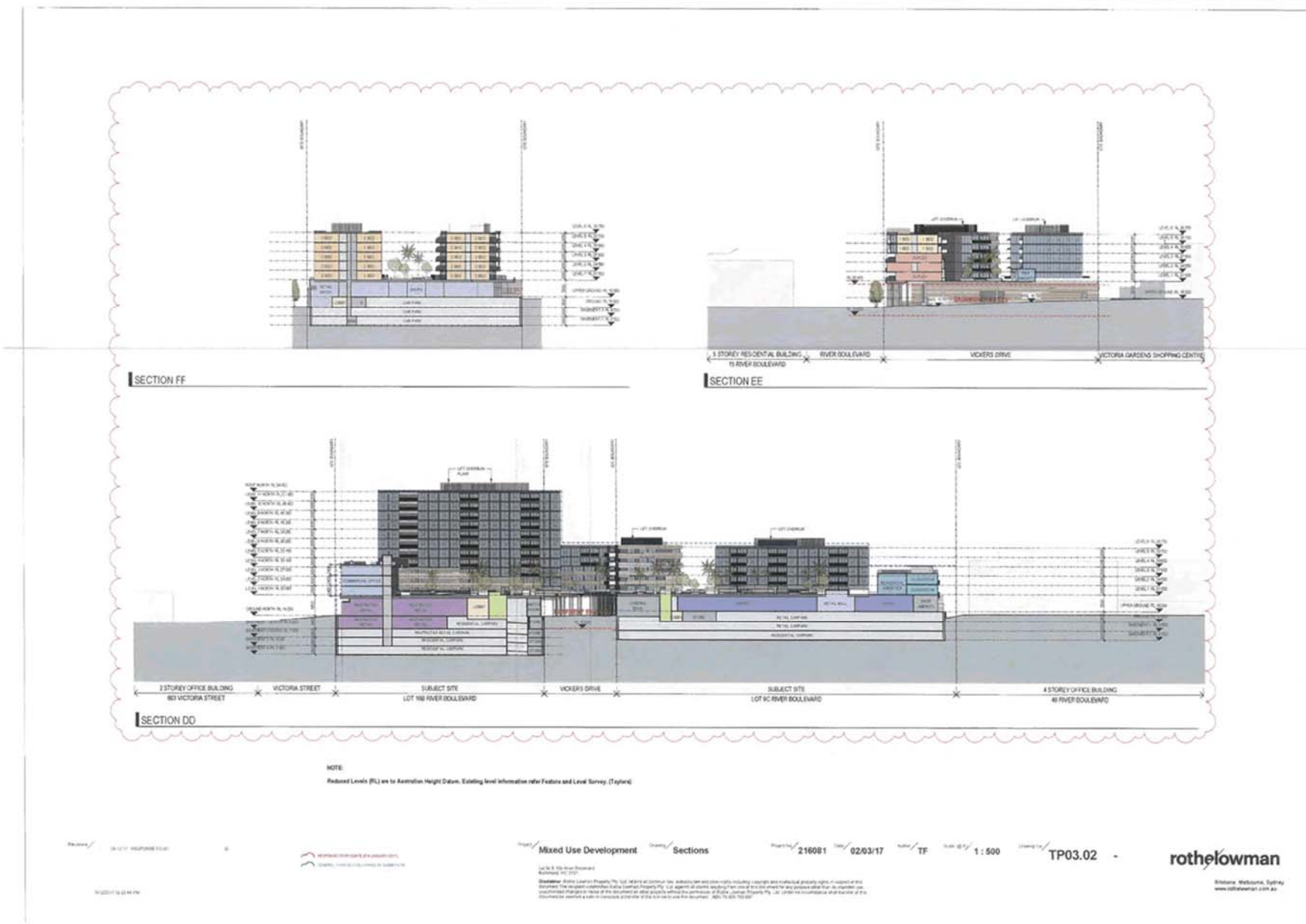
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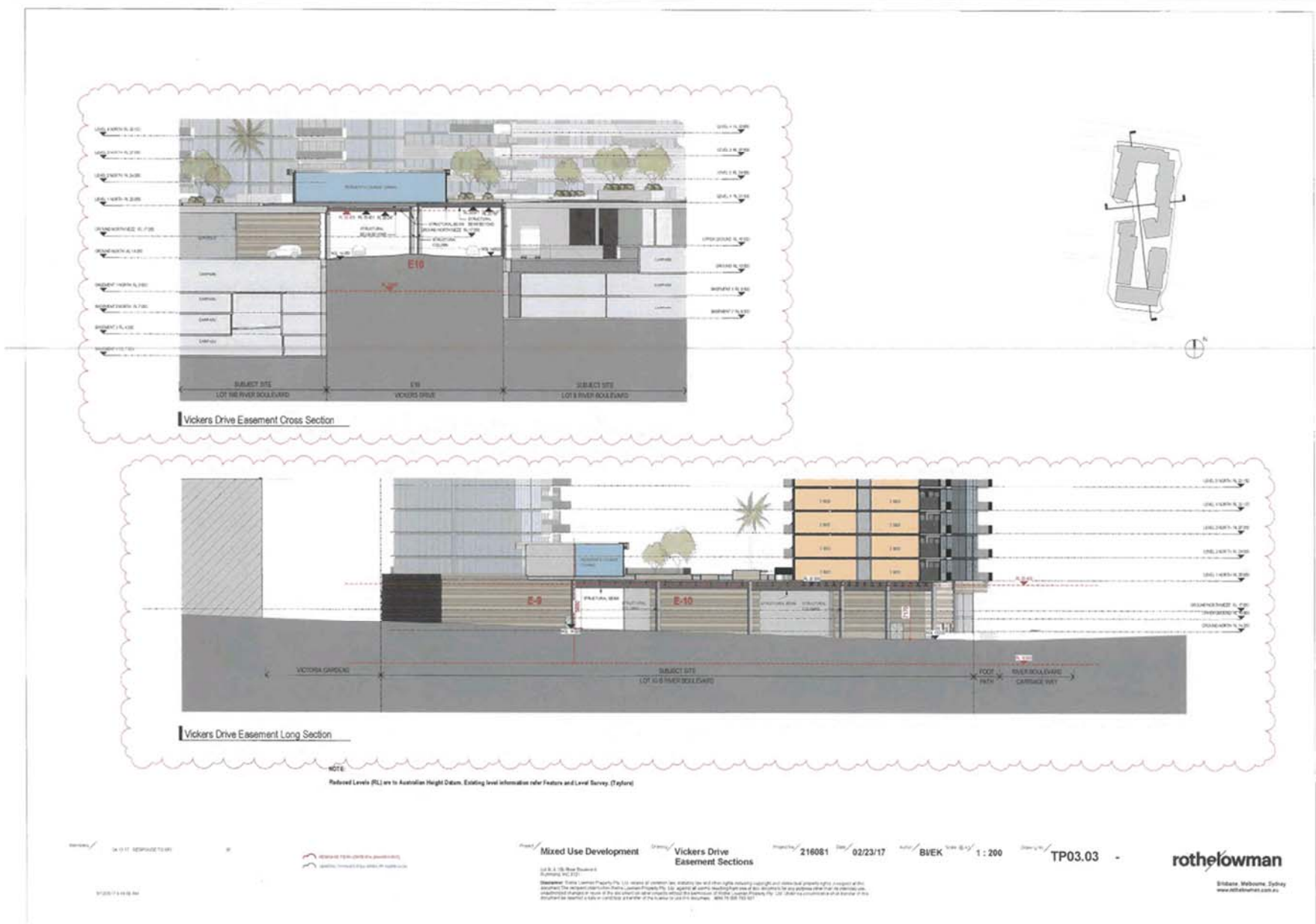




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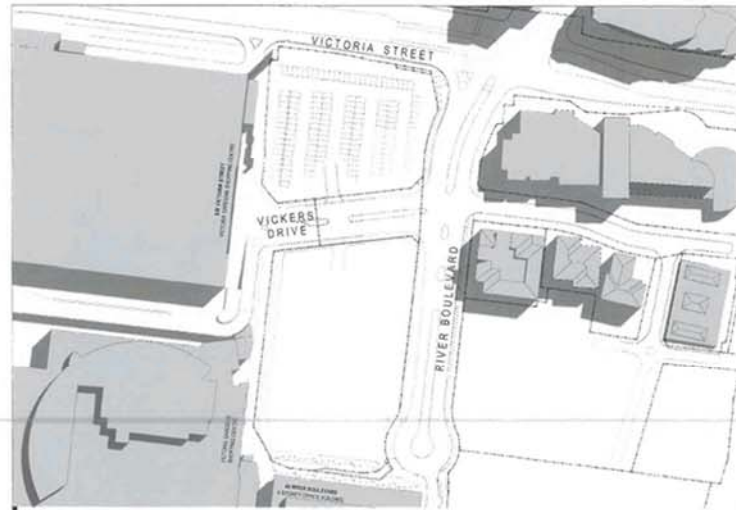
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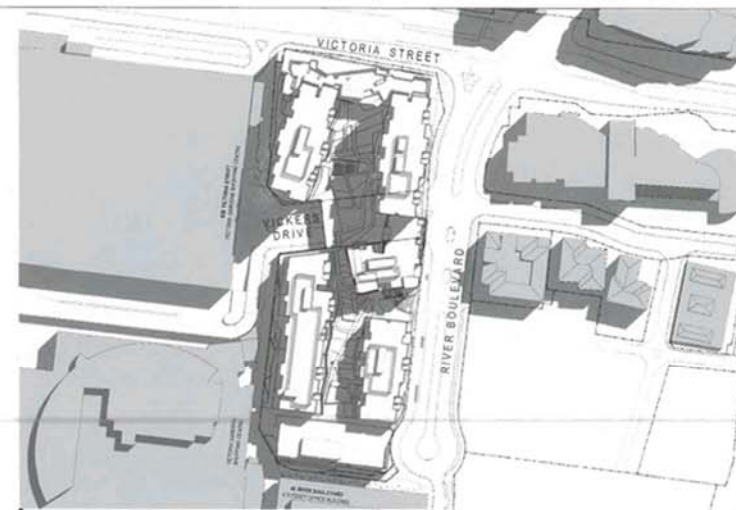
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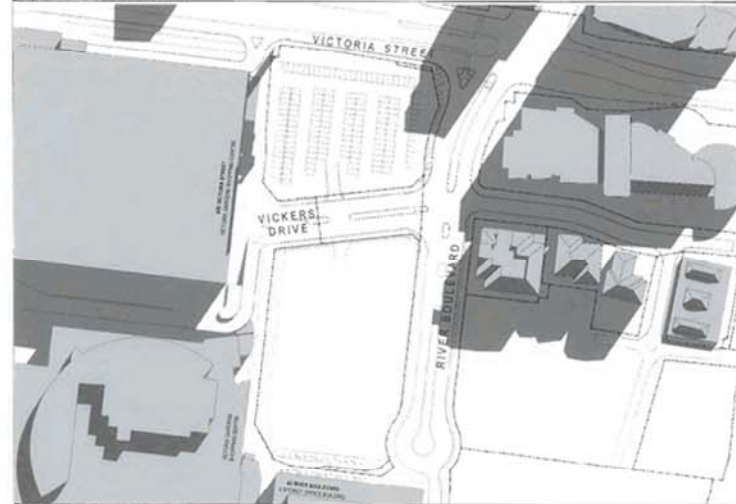
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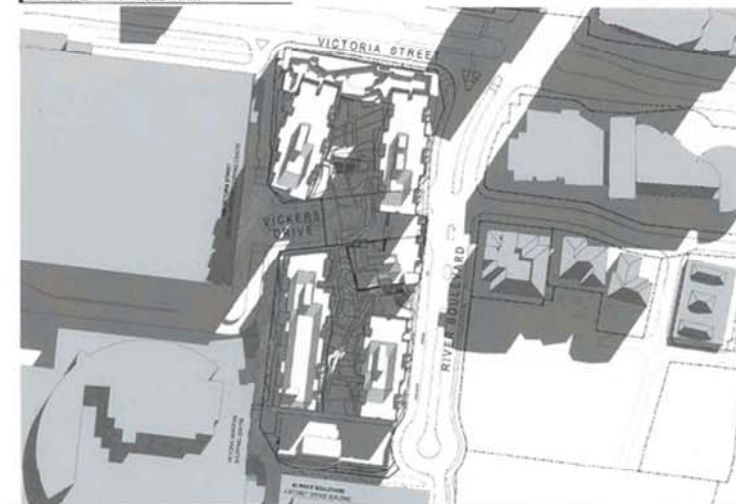
SEPT 22ND - EXISTING 10AM



SEPT 22ND - PROPOSED 10AM



JUNE 21ST - EXISTING 10AM



JUNE 21ST - PROPOSED 10AM

Project: 18/10/18 TORRENTIA ADVERTISING  
Rev: 02/17/18 ADVERTISING 18/10/18

Project: Mixed Use Development

SHADOW DIAGRAMS  
10AM

Project: 216081 Date: 08/24/16 Author: TF

Scale: 1:1000

TP04.02 A

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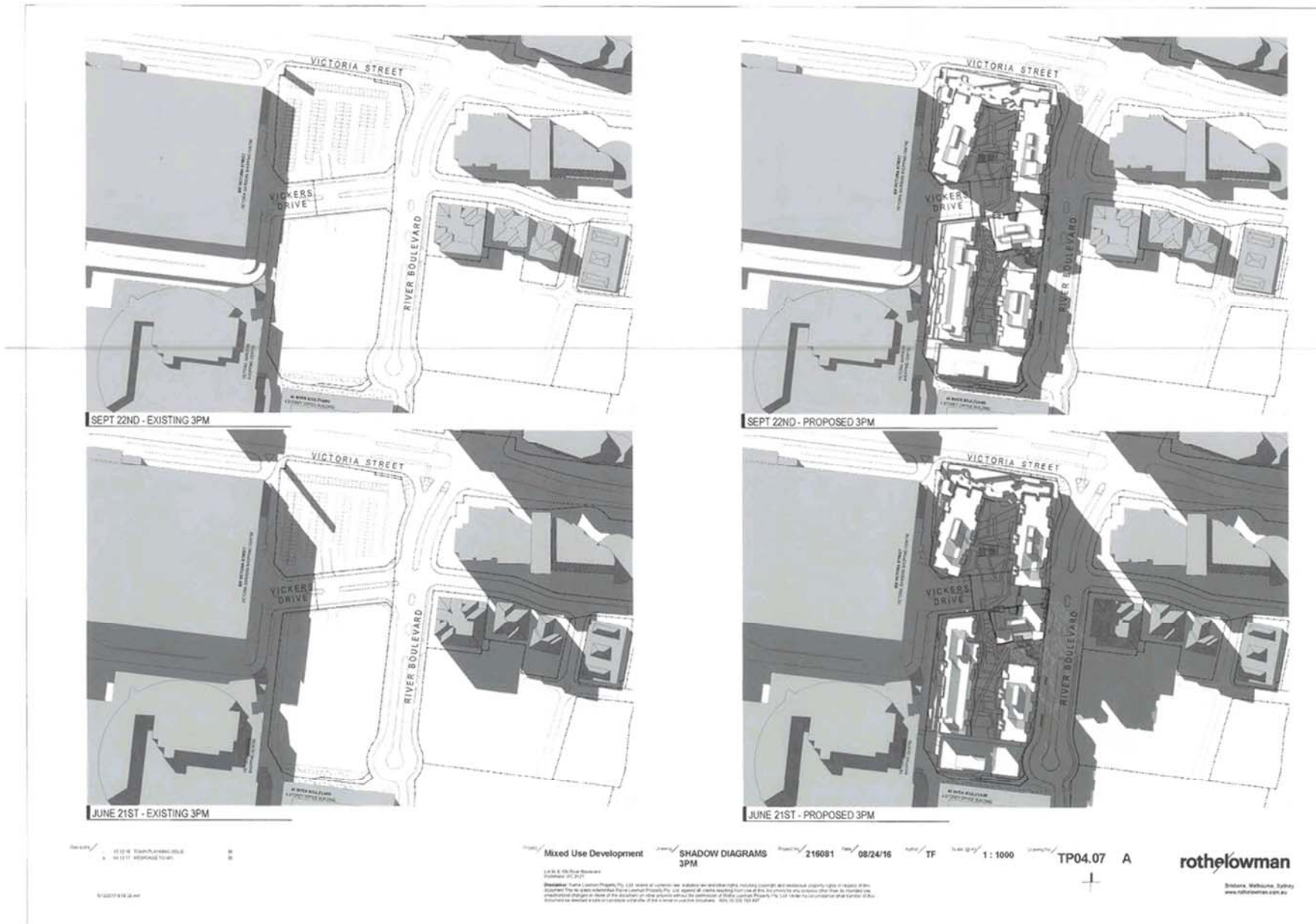


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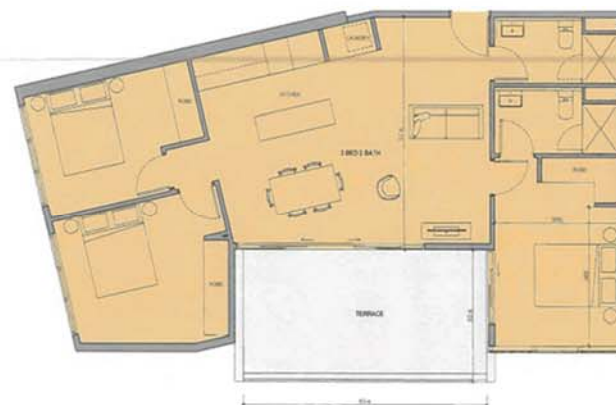


Attachment 1 - Advertising Plans & Perspectives



TYPICAL 3 BED 2 BATH - A

INTERNAL STORAGE W/IN 10.00M<sup>2</sup>  
 BEDS 2 x 12.00 x 2.10  
 BATHS 2 x 1.80 x 1.80  
 LIVING 20.00 x 3.00  
 DINING 10.00 x 3.00  
 KITCHEN 10.00 x 3.00



TYPICAL 3 BED 2 BATH - B

INTERNAL STORAGE W/IN 10.00M<sup>2</sup>  
 BEDS 2 x 12.00 x 2.10  
 BATHS 2 x 1.80 x 1.80  
 LIVING 20.00 x 3.00  
 DINING 10.00 x 3.00

18/05/2017 10:30 AM

REVISIONS TO THIS PLAN  
 1. 18/05/2017 10:30 AM

Mixed Use Development

Typical Apartment Layouts - 3 Bed

216081

10/16/17

AH

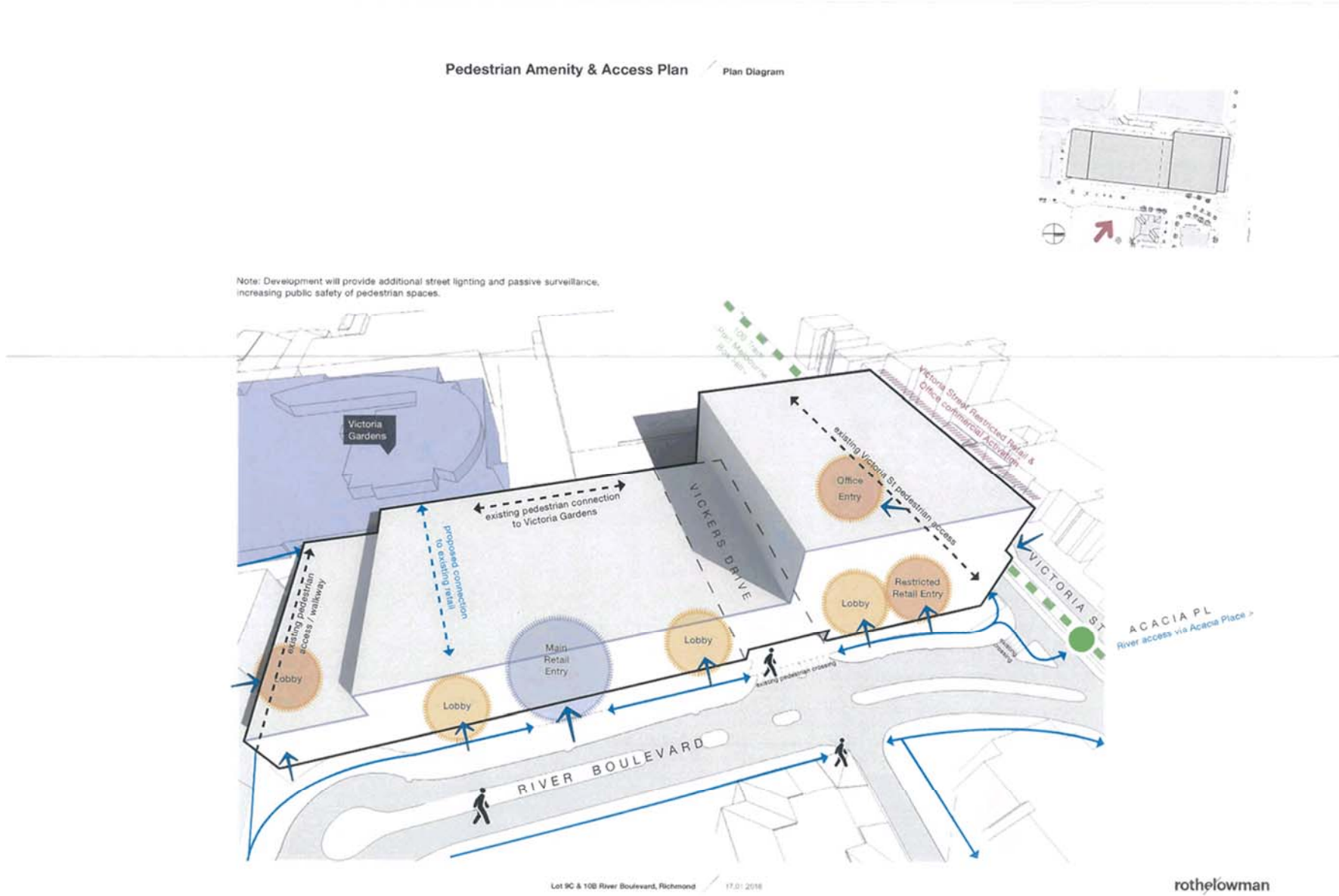
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TP11.04 -

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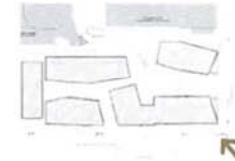


## 4.0 Design Proposal

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.01 Rendered Views



View looking South West across River Boulevard

View taken at 1.7m above NGL

Lot 9C & 10B River Boulevard, Richmond / 216081 3CG108 River Blvd, TP DOC - RF1 - 04.12.17

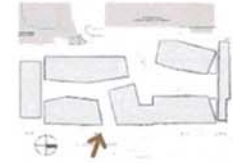
rothelwman

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.02 Rendered Views



View looking West across River Boulevard

View taken at 1.7m above NGL

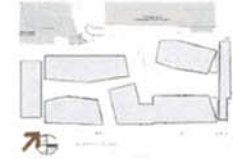
Lot 9C & 10B River Boulevard, Richmond / 216961\_BCA10B River Blvd\_TP.DOC - RP1 - 04.12.17

rothelowman

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.03 Rendered Views



View looking West across River Boulevard

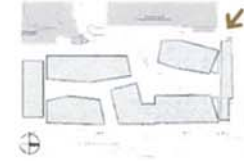
View taken at 1.7m above NGL

Lot 9C & 10B River Boulevard, Richmond / 216081\_IC&10B River Blvd\_TP DOC - RP1 04.12.17

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.04 Rendered Views



View looking South across Victoria Street

View taken at 1.7m above NGL

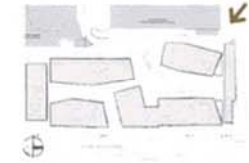
Lot 9C & 10B River Boulevard, Richmond / 216061 9C&10B River Blvd\_TP.DOC - RF1 04.12.17

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.05 Rendered Views



View looking South East across Victoria Street

View taken at 1.7m above NGL

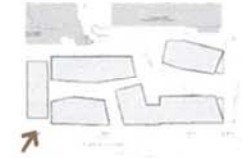
Lot 9C & 10B River Boulevard, Richmond / 2180E1 30610B River Blvd, TP DOC - 181 04.12.17

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.06 Rendered Views



View looking North West along River Boulevard

View taken at 1.7m above NGL

Lot 9C & 10B River Boulevard, Richmond / 215061\_9C&10B River Blvd\_TP.DOC: RP1 04.12.17

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.07 Rendered Views



View looking west along Barkers Road from bridge

View taken at 1.7m above NGL

Lot 9C & 10B River Boulevard, Richmond / 215081\_S0&10B River Blvd\_TP DOC - R01 04.12.17

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Attachment 1 - Advertising Plans & Perspectives

4.0 Design Proposal / 4.08 Rendered Views



View looking east from intersection of Victoria Street and Burnley Street

View taken at 1.7m above NGL

Lot 9C & 10B River Boulevard, Richmond / 210581 9C&10B River Blvd IP DOC - RF1 - 04.12.17

rothelowman

## Attachment 2 - Internal urban design advice



# MEMO

TO: Sarah Thomas (Statutory Planning)  
 FROM: Blake Farmar-Bowers (Urban Design)  
 DATE: 26 March 2018  
 SUBJECT: Lot 9C & 10B River Boulevard, Richmond  
 APPLICATION NO: PLN16/1156 – Development plan application  
 [PLN17/1143 – Planning permit application]  
 DESCRIPTION: The development would allow for the construction of a 13 storey building (plus basement levels) containing dwellings shops, food and drinks premises (cafes), medical centre, childcare centre and restricted retail premises (noting a permit is not required for these uses).

## COMMENTS

Urban Design comments have been sought on the above application, in particular on the proposed public realm and streetscape improvements.

(Comments refer to application drawings available online as at 28 February 2018)

Comments are provided below and as per attached annotated plan.

The Podium 1 Courtyard and Level 4 Roof Deck are not included within this review.

### Drawing Consistency and Scale

Ensure drawings from all disciplines are co-ordinated and existing features (trees and light poles) are shown. Ensure drawing scale is noted, and scale bar is correct.

### Pedestrian Access & Circulation

The following pedestrian links are required as per attached annotated plan:

Note: Drawing packages need to be co-ordinated to resolve inconsistencies between disciplines.

- Pedestrian access from River Boulevard past Childcare and Medical Lobby toward Victoria Gardens Shopping Centres.
- Pedestrian access along Vickers Drive connecting Victoria Gardens Shopping Centre to River Boulevard. Ensure that this is a legible pedestrian connection. Southern footpath may be prioritised as this offers fewer conflict points with vehicles.
- Maintain existing River Boulevard pedestrian crossing at Elaine Court.

To ensure circulation is safe and accessible the following items need to be addressed:

- Include zebra crossing line marking across carpark entries on Vickers Drive to indicate pedestrian priority.
- Ensure lighting levels are compliant on Vickers Drive under Level 1 Podium.
- Define single path of travel on 1:20 ramp at South-east corner, or regrade to a maximum grade of 1:40, to ensure all falls on pavements are compliant with Australian Standards.
- Review streetscape opposite Lobby at River Boulevard and Vickers Drive to ensure 1.8m wide unobstructed path of travel is achieved. Furniture located at this point may be contributing to narrowed footpath width.
- Review footpath on Victoria Street at Western interface to define extent of pedestrian pavement and accessibility.

### Podium Access

Ensure steps from footpath to Level 1 podium are compliant with Australian Standards. Use tactile indicators at street level as per Technical Notes: City of Yarra Public Domain Manual.



## Attachment 2 - Internal urban design advice

### Vehicle Access

Confirm if loading bays located at South-west corner require vehicle access.  
Risk of potential conflict with pedestrians given reduced sight lines.

### Taxi Location

Nominated Taxi rank parking will impact on 2 No. existing London Plane trees and is not supported. Indented parking sits behind existing kerb line and offers an unacceptable offset to existing trees (approximately 0.5-1.0m). Proposed location creates conflict with left hand turning lane and bicycle lane. Nominate alternative location.

### Loading Bays

Loading bays on River Boulevard should be designated as pick up/ drop off parking (Kiss 'n' Ride). Relocate indented parking to allow cyclists direct access to bicycle parking from River Boulevard.

### Pavement materials

Yarra City Council standard footpaths, in this location are asphalt pavements with concrete kerb and channels. The footpath along Victoria Street (Lot 10B) is currently asphalt and should be maintained rather than in-situ concrete as proposed.

River Boulevard footpaths should be nominated as an asphalt pavement.

Bluestone unit paving is supported as a replacement to the existing concrete pavement along the interface adjacent to Victoria Gardens Shopping Centre. Pavement design may be simplified with removal of banding.

Refer to Yarra Standard Drawings and comments provided by Engineering Services.

### Street Tree Planting & Opportunities

It is recommended that proposed tree planting along River Boulevard be distributed evenly. Refer to comments provided by Arboriculture & Streetscapes.

Locations of some proposed trees (River Boulevard central median) clash with existing trees, light poles and pedestrian desire lines. Explore opportunity to extend central median to accommodate additional tree planting. Refer to annotated plan.

Opportunity to implement street tree planting on Victoria Street. Refer to comments provided by Arboriculture & Streetscapes.

### Furniture & Fixtures

Proposed street furniture should be distributed more evenly to align with tree planting and breadth of commercial destinations. Furniture locations should be more responsive to building use and entries. Refer to example below for suggested furniture set-out at street tree locations (Typical Plan & Section).

Timber seats with backs and armrests are supported. Ensure seats are sited in accordance with Technical Notes: City of Yarra Public Domain Manual and Yarra Standard Drawings.

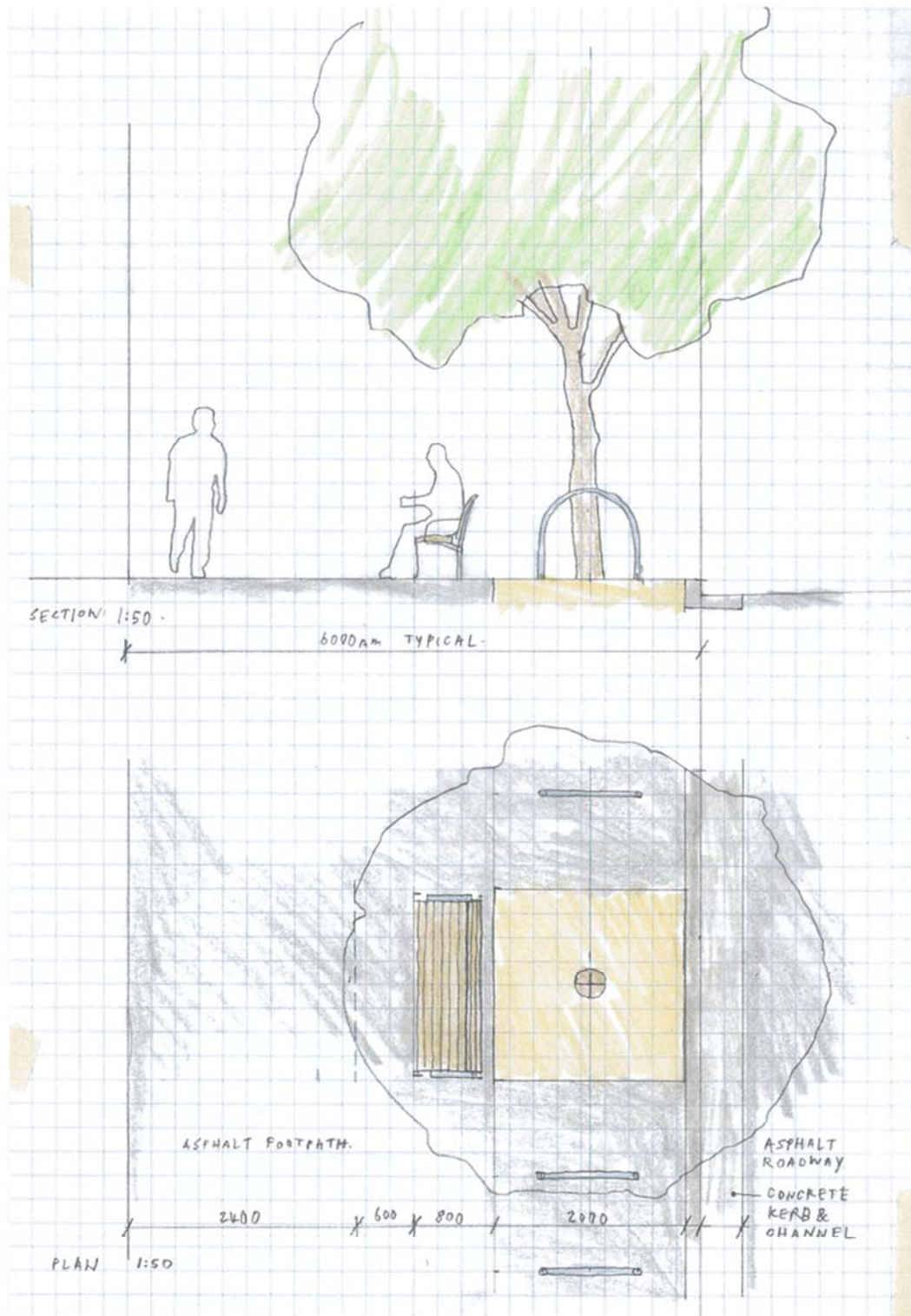
- 600mm offset is required to kerb line of footpaths.
- To maintain adequate clear paths of travel (recommended minimum 1800mm) allow additional 600mm offset in front of seats to accommodate usage.
- Preferred situation is located in front of tree pits or garden beds for an additional buffer to River Boulevard.
- Note image supplied shows SHS legs. Standard seat uses round tube legs.

Banks of bicycle hoops should be avoided to declutter streetscape. 2-3 No. could be positioned at street trees as per example below. Ensure bicycle hoops are sited in accordance with Technical Notes: City of Yarra Public Domain Manual.

Adjust orientation of drinking fountain so it faces shops/lobby rather than roadway. Ensure suitable clearance is provided to allow universal access.

Use single rubbish bin enclosures as all rubbish is collected from standard bins and recycling is sorted post collection.

Attachment 2 - Internal urban design advice



**Furniture set-out**  
Suggested furniture set-out at street tree locations (Typical Plan & Section).

## Attachment 3 - Acoustic peer review (SLR)



7 March 2018

640.10090.05260 10-20 River Bvd Richmond 20180307.docx

City of Yarra  
P.O. Box 168  
Richmond VIC 3121

**Attention: Sarah Thomas**

Dear Sarah

### 10-20 River Boulevard Richmond Development Application Acoustical Review

SLR Consulting Pty Ltd (SLR) has been retained by the City of Yarra to provide a review of the acoustic assessment report for the mixed use development proposed for 10-20 River Boulevard Richmond.

Details of the report are as follows:

- Title: Lots 9 & 10, Victoria Gardens, Noise Impact Assessment
- Reference: 20161748.1/1909A/R4/JZ
- Date: 7 February 2018
- Prepared for: Victoria Gardens Developments Pty Ltd
- Prepared by: Acoustic Logic

We are not aware of any planning permit for the development. The provided acoustic report provides a general assessment of external noise intrusion and noise emissions from the site.

## 1 Preliminary

*(Section 2 of the report)*

The proposed use and the location of nearby uses are identified in these sections of the report.

The proposal is for a mixed use development comprising commercial, retail, childcare and medical centre, two towers of residential apartments at 5 and 11 storey respectively, as well as underground carpark.

The development is directly east of the existing Victoria Gardens shopping centre / Ikea and will have an interface with the shopping centre.

Commercial and residential apartments are also located to the east of the development.

There are primarily 2 main noise sources that impact the development, being traffic noise and mechanical plant & loading dock noise from Ikea / Victoria Gardens.

## Attachment 3 - Acoustic peer review (SLR)

## 2 Assessment Criteria

### 2.1 Traffic Noise

*(Section 5.1 of the acoustic report)*

Noise from transportation is proposed to be assessed to the levels nominated in Australian Standard AS/NZS2107:2000. Acoustic Logic nominate the upper end of the Australian Standard Range, being:

- Day Period: 45 dBA, Leq 15h to all habitable Rooms
- Night Period: 40 dBA Leq 9h to bedrooms

**SLR Comments:** *The above targets are not acceptable for providing a reasonable level of amenity to occupants. Our recommended traffic noise design targets are:*

- Day Period: 40 dBA, Leq 15h to all Habitable Rooms
- Night Period: 35 dBA Leq 8h to bedrooms

**AND**

- Loudest hour of road traffic noise is not to exceed 45 dBA Leq, 1h in habitable rooms from 7 am to 10 pm, and 40 dBA Leq, 1h in bedrooms from 10 pm to 7 am.

*The above targets are considered more appropriate and align with the new Better Apartment Design Standards (BADS) targets, and also with the NSW Road Noise Policy 2011 targets. We have been recommending the above targets to City of Yarra for over 5 years, and they have been adopted on many projects.*

### 2.2 Plant Equipment and Loading Dock Noise

*(Section 5.2 and 8 of the acoustic report)*

Section 8 of the Acoustic Logic report presents the formal determined SEPP N-1 criteria as follows:

- Day: 60 dBA, Evening: 54 dBA, Night: 49 dBA

Section 8.2 presents the Domestic Noise Guideline (EPA Publication 1254) criteria as follows:

- Day / Evening: 61 dBA, Night: Inaudibility

In Section 5.2 Acoustic Logic discuss that all noise from adjacent uses should achieve formal SEPP N-1 noise limits at the development. Where this cannot be achieved, a sealed façade would technically be required to achieve formal compliance. This approach is usually highly undesirable from a building ventilation amenity outcome.

Given the above, Acoustic Logic suggest that plant noise and equipment / loading dock noise be designed to internal SEPP N-1 based criteria, where residents have the option of user controlled amenity – ie openable windows.

The SEPP N-1 internal criteria are based on the external criteria -15 dB. Acoustic Logic present the internal night period noise criterion of 34 dBA Leq(30min).

**Attachment 3 - Acoustic peer review (SLR)****SLR Comments:**

*The general approach from Acoustic Logic is appropriate, however we believe there are some technical errors in the derivation of the noise criteria in the report. This is both for the SEPP N-1 criteria and the Domestic Noise Guidelines criteria.*

SEPP N-1 Criteria

*In Section 8.2 Acoustic Logic determine the influencing factor for the site of 0.4. We also have calculated a similar Influencing Factor. However, the determined Zoning Levels (for an IF of 0.4) are incorrect in table 11 of their report. The Zoning Levels should be, according to our calculation, 2 dB lower than shown.*

*The final noise limits are determined with consideration to both the Zoning Levels, and background levels collected on site. Acoustic Logic use background data collected in an exposed location, near Victoria Street, for determining the noise limits. This location does not represent a potentially more shielded or set-back location on the site (eg. a location facing the loading docks).*

*The noise limits need to be recalculated, and it may be more appropriate to adopt zoning levels as the noise limits in the absence of specific background measurements at more shielded locations on the site.*

*The above error also follows onto the determined internal criteria, which were 34 dBA in the Acoustic Logic report, but should be 32 dBA according to our calculation. This needs to be checked and amended by Acoustic Logic.*

*The approach of allowing for internal noise criteria (user controlled amenity via appropriate glazing design) has been adopted previously in CoY applications, as formal compliance to SEPP N-1 is often highly impractical in mixed use areas. We have generally accepted this approach but have advised that the criteria are based on the lower of either:*

- SEPP N-1 internal criteria (as per the AL approach)
- 30 dBA inside

*Although we would prefer to see the 30 dBA criterion adopted, we would generally accept the SEPP N-1 internal criterion of 32 dBA (which is similar) on this site, as long as all relevant penalty adjustments are applied to the subject noise sources – ie tonality, impulsivity etc should be included as per normal SEPP N-1 approaches. The noise sources associated with the loading docks would likely attract such penalties (eg. reversing beepers, impact sounds).*

*Also, where night period sources are involved, it is necessary to consider sleep disturbance criteria from these sources – eg. a loading dock and truck pass-bys should be designed to appropriate sleep disturbance targets within the development.*

*The aim of these additional requirements is to minimise the risk of complaint from residents; this is necessary given that the proposed development introduces a non compliance to formal SEPP N-1 criteria for the Victoria Gardens shopping centre.*

Domestic Noise (EPA Publication 1254) Criteria

*Table 13 shows a Day / Evening criterion of 61 dBA Leq for the site. This is inappropriate because:*

- a. *The background noise was collected at an exposed location towards Victoria Street, and does not represent background levels to the rear / more shielded locations on the site.*

## Attachment 3 - Acoustic peer review (SLR)

- b. *The averaged evening background level appears to have been used instead of the lowest short term background level. The 1254 Guidelines require noise to be not more than 5 dBA above background at all times, and long term averaging of background levels does not provide for an appropriate baseline level to ensure this.*

*We would expect background levels and associated noise criteria to be lower than what has been adopted.*

### 3 Measurements

#### 3.1 Traffic Noise

*(Section 6.1 of the acoustic report)*

Attended short term measurements and longer term noise logging was undertaken by Acoustic Logic at the subject site.

The traffic noise measurements included:

- Attended measurements along Victoria Street and River Boulevard (setback 30 m and 80 m from Victoria Street) during typical morning and evening peak traffic conditions
- Noise logging undertaken on the roof of the existing commercial building to the east (14-21 December 2017).

Results are summarised in Table 4, 5 and 6 for traffic noise.

**SLR Comments:** *The measurement locations and general presented data is reasonable for quantifying traffic noise to the site.*

#### 3.2 Plant Equipment Noise

*(Section 6.2 of the acoustic report)*

Acoustic Logic undertook noise measurements around mechanical plant associated with the Victoria Gardens Shopping Centre, Ikea and commercial Office building at 40 River Boulevard on 12 December 2016. The results of measurements are provided in Table 8 of their report.

Measurements were also collected along the loading dock over 3 different attended surveys. The results are presented as 15 minute measurements in Table 9.

**SLR Comments:** *The approach undertaken by Acoustic Logic represents good practice. The relevant noise sources have generally been collected. However we note that the following should be considered / reviewed:*

- *The noise survey for the roof plant was in 2016. It should be confirmed that there has been no significant change in plant equipment on the subject site (ie no additional plant added etc.) or in operational modes of equipment.*
- *The loading dock noise should also be quantified as 'Lmax' noise levels if the docks are used at night, such that appropriate sleep disturbance consideration can be undertaken. We would assume that Acoustic Logic would likely have this data stored in their test instrumentation. This should include any truck pass-by noise to the new development.*

## Attachment 3 - Acoustic peer review (SLR)

### 3.3 Noise Modelling

(Section 6.4 of the acoustic report)

Acoustic Logic use the collected data to create a noise model of all the noise sources on site, and show the predicted noise levels at the façade of the proposed development in Appendix 2 of their report.

Review of the Appendix 2 noise plots shows noise levels in the order of 60-62 dBA at the most exposed facades of the proposed development, due to mechanical plant and loading dock noise. This exceeds day, evening and night period SEPP N-1 criteria.

The noise modelling plots also show traffic noise levels of approximately 66-68 dBA along Victoria Street facades.

**SLR Comments:** *The approach undertaken by Acoustic Logic represents good practice given the number of noise sources, and complex geometry of the proposed development. Technical details of the noise model inputs (eg. sound power levels) are not provided. This would be preferred for general transparency and to allow for an indicative technical review to be undertaken. Note that it would not be a straight forward exercise for SLR to fully review this work without undertaking independent measurements and noise modelling.*

## 4 Evaluation of Noise Intrusion

(Section 7 of acoustic report)

Recommended glazing, including composition and acoustic (Rw ratings) are provided in this section, as well as comment on construction of roof and walls of the development.

Section 7.4 also specifies an acoustic cover for the Ikea loading dock, which is in close proximity directly to the west of the development.

**SLR Comments:** *The advice is appropriately specified. All acoustic design advice will need to be reviewed to reflect the corrected noise criteria and design targets as discussed above (for traffic, SEPP N-1 etc.).*

## 5 Plant and Equipment from Site

(Section 8.3 of acoustic report)

This section of the report discusses plant and equipment from the proposed development to residential uses. As there is no formal mechanical design yet for the development, indicative guidance is provided for typical plant equipment items such as carpark exhaust fans, air handling equipment and condensers.

Comment is also provided on any music noise emissions, noise from the medical and childcare centre and deliveries. The report recommends deliveries only occur after 7am weekdays, 9 am Sundays and before 6 pm on all days.

The report generally requires that all such sources are designed to meet formal SEPP N-1 and SEPP N-2 criteria.

## Attachment 3 - Acoustic peer review (SLR)

**SLR Comments:** *The commentary provided is reasonable given there is no mechanical plant equipment design available for the site during the planning stage. However, given the size of the development and the potential for it to have significant sources of mechanical plant, the report should be clear in recommending that a detailed acoustical review be undertaken of the design during the detailed design stage of the development.*

### 6 SLR Summary

A review of the acoustic report for the mixed use development is provided above. The items we recommend are addressed in further detail are summarised below:

#### Noise Criteria

- SEPP N-1 criteria need to be re-evaluated to ensure the correct criteria are provided for more shielded locations on the site. The presented criteria (and the associated internal SEPP N-1 criteria) are in the order of 2 dBA too high. This will have implications in the mechanical design targets, and in the assessment of existing loading dock / plant equipment noise to the western interface apartments.
- Traffic noise should be assessed to the recommended criteria in this report, which are more in line with the current BADs targets. This will have implications on the selected glazing for traffic noise control.
- Domestic Noise Guideline Criteria need to be reviewed and must be based on the lowest short term background levels at a shielded / setback location on the site.

#### Mechanical plant noise assessment from Victoria Gardens

- Acoustic Logic should confirm if their site testing from 2016 is still representative of current plant equipment installation and noise emissions.
- Loading dock noise, if it occurs at night, should also be assessed to sleep disturbance criteria at the future apartments

#### Other

- Noise from any loading dock and gates / doors on the site has not been commented on. There would be a number of apartments overlooking Vickers Drive (and also directly above the loading areas) that could potentially be exposed to this. The report recommends restricted loading access (7am -6pm weekdays and Saturdays, 9am -6pm Sunday). This is a reasonable amenity protection approach, but must be implemented. Noise from commercial loading docks is strictly required to comply with SEPP N-1.
- The southern end of the development includes the childcare centre. A rooftop play area is shown within very close proximity to the south most apartments. Noise from outdoor play areas may provide some amenity impact to the nearest residential apartments. This should be assessed. While there are no mandatory requirements for voice noise, appropriate assessment can be provided using SEPP N-1 based targets (or lowest background + 10 dB). Provision of perimeter screening, or upgraded glazing may suffice given the nature of the noise source.
- The report should recommend that a full detailed acoustical mechanical review be undertaken during the design stage of the development, given the scale and significant sources of noise likely.
- Given the scale of the development, and the risk associated with the Victoria Gardens mechanical plant and loading docks, we would recommend that the permit include a requirement for post construction noise testing to confirm the appropriate internal design targets have been met. We also recommend this approach for the traffic noise façade design.



### Attachment 3 - Acoustic peer review (SLR)

City of Yarra  
10-20 River Boulevard Richmond  
Development Application Acoustical Review

Job No: 640.10090.05260  
Filename: 640.10090.05260 10-20 River Bvd Richmond  
20180307.docx  
Date: 7 March 2018

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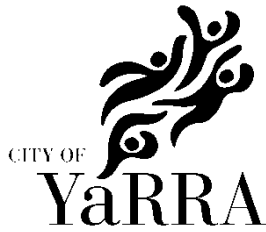
Regards



**Jim Antonopoulos**  
Principal - Acoustics

Checked/  
Authorised by: DW

## Attachment 4 - Engineering comments



## MEMO

**To:** Sarah Thomas  
**From:** Mark Pisani  
**Date:** 12 April 2018  
**Subject:** Application No: PLN17/1143  
 Description: Major Development  
 Site Address: 10 and 20 River Boulevard, Richmond

I refer to the above Planning Application received on 28 February 2018 and the accompanying Transport Impact Assessment report prepared by GTA Consultants in relation to the proposed development at 10 and 20 River Boulevard, Richmond. Council's Engineering Services unit provides the following information:

**CAR PARKING PROVISION****Proposed Development**

Under the provisions of the Comprehensive Development Zone – Schedule 1 and Clause 52.06-5 of the Yarra Planning Scheme (where applicable), the development's parking requirements are as follows:

Proposed Use	Quantity/ Size	Statutory Parking Rate	No. of Spaces Required	No. of Spaces Allocated
Residential	426 dwellings	1.5 spaces per dwelling	639	320
Office	3,924 m <sup>2</sup>	2.5 spaces per 100 m <sup>2</sup>	98	78
Shop	3,369 m <sup>2</sup>	4.5 spaces per 100 m <sup>2</sup>	151	95
Food and Drink	858 m <sup>2</sup> /285 seats	0.3 spaces per seat	85	
Restricted Retail	5,520 m <sup>2</sup>	2.0 spaces per 100 m <sup>2</sup>	110	84
Childcare Centre	100 children	0.22 spaces to each child	22	11
Medical Centre	8 practitioners	5 spaces to the first person providing health services plus 3 spaces to every other person providing health services	26	26
<b>Total</b>			<b>1,131 Spaces</b>	<b>614 Spaces plus 161 leased spaces*</b>

Rates adopted from Clause 52.06-5

\* The 161 leased spaces are for use by the existing office at 680 Victoria Street.

## Attachment 4 - Engineering comments

### Car Parking Demand Assessment

In reducing the number of parking spaces required for the proposed development, Clause 18 – *Car parking control* states that the Responsible Authority must consider the following:

- *The likely Demand for Car Parking Spaces – Residential Dwellings.* GTA Consultants have sourced ABS census data for car ownership for flat type dwellings in Yarra for the years 2006, 2011 and 2016 and has also quoted statutory parking rates from Schedule 1 to the Priority Development Zone PDZ1 (Flockhart Street) and Schedule 3 to the Comprehensive Development Zone CDZ3 (2 Gough Street, Cremorne). To provide an overall parking demand rate for one-, two- and three-bedroom dwellings, GTA Consultants have adopted a rate of 0.75 spaces per dwelling, recognising that a proportion of dwellings would not own or use a motor vehicle. Providing a lesser rate than the statutory 1.5 spaces per dwelling would potentially provide modal shift towards using more sustainable forms of transport. We consider the adoption of 0.75 spaces per dwelling to be appropriate, especially since residents are within walking distance of shops, supermarkets, businesses, essential facilities, places of employment and public transport.
- *Parking Demand associated with Residential Visitors.* Although Clause 18 of Schedule 1 to the Comprehensive Development Zone does not specifically mention residential visitors, the development would generate a residential visitor parking demand. Peak parking for residential visitors generally occurs on weekday evenings and at weekends. Applying an established empirical peak residential parking rate of 0.12 spaces per dwelling for the 426 dwellings would result in a parking demand of 51 spaces. During normal business hours, the visitor parking rate would be much less than the 0.12 spaces per dwelling. Daytime visitor parking would be around 0.07 spaces per dwelling, which would result in 29 to 30 spaces. GTA have adopted a peak visitor rate of 0.04 spaces per dwelling based on surveys undertaken of residential developments in various inner city locations (details unknown). Although the GTA visitor parking rate seems low, it is agreed that the visitor parking would be accommodated within the expanse of the Victoria Gardens Shopping Centre. Multi-purpose trips would likely be made by residential visitors.
- *Parking Demand for Office Use.* Parking associated with office type developments is generally long-stay parking for employees and short term parking (say up to two hours' duration) for customers and clients. The development would be providing on-site office parking at a rate of 1.99 spaces per 100 square metres (78 spaces for 3,924 square metres of office floor space). Throughout the municipality, a number of developments have been approved with reduced office rates, as shown in the following table:

Development Site	Approved Office Parking Rate
<b>Cremorne</b>	
9-11 Cremorne Street PLN16/0171 (Amended) issued 13 June 2017	0.85 spaces per 100 m <sup>2</sup> (20 on-site spaces; 2,329 m <sup>2</sup> )
<b>Collingwood</b>	
71-93 Gipps Street PLN16/1150 issued 30 August 2017	0.96 spaces per 100 m <sup>2</sup> (86 on-site spaces; 8,923 m <sup>2</sup> )
2-16 Northumberland Street PLN16/1150 issued 14 June 2017	0.89 spaces per 100 m <sup>2</sup> (135 on-site spaces; 15,300 m <sup>2</sup> )

An office parking rate of 1.99 spaces per 100 square metres of floor area is considered appropriate.

#### **Attachment 4 - Engineering comments**

- *Car Parking Demand for Shop and Food and Drink Uses.* To determine the likely parking demand for the shop and food and drink uses of the site, GTA Consultants had conducted a car parking demand survey of the Victoria Gardens Shopping Centre on Saturday 14 October 2017 from 9:00am to 7:00pm. An inventory of 2,340 spaces was identified. The survey recorded the peak parking occupancy occurring at 3:00pm (at 62%). The peak car parking demand had equated to a rate of 3.0 spaces per 100 square metres of floor area. Applying this rate to the two uses would result in a car parking demand of 127 spaces. GTA have also indicated that surveys of the car park throughout the year recorded weekday parking demands were around 75% of peak weekend parking demands. We agree that a weekday parking demand of 95 spaces could be accommodated.
- *Car Parking Demand for Restricted Retail Use.* GTA Consultants have adopted the rate of 2.0 spaces per 100 square metres as an appropriate car parking demand rate for the restricted retail premises.
- *Parking Demand for Childcare Centre.* It is agreed that the rate of 0.22 spaces per child is high. Council has approved childcare centres with rates lower than the statutory parking rate. One such site was at 556 Swan Street, Richmond (PLN15/0302 issued on 22 March 2016), was approved with an on-site car parking rate of 0.134 spaces per child. Applying this rate would yield 13 spaces. Providing 11 on-site spaces to the proposed childcare centre is considered appropriate.
- *Parking Demand for Medical Centre.* The proposed on-site parking provision for the medical centre matches the statutory parking rate and is therefore satisfactory.

#### **Adequacy of Car Parking**

From a traffic engineering perspective, the on-site car parking provision of the site is considered appropriate in the context of the development and the surrounding area. Any possible parking overflow from the subject development could be absorbed within the broader Victoria Gardens Shopping Centre car park.

Council's Civil Engineering unit has no objection to the reduction in the car parking requirement for this site.

## Attachment 4 - Engineering comments

### TRAFFIC GENERATION

#### Trip Generation

The traffic generation for the site adopted by GTA Consultants is as follows:

Proposed Use	Adopted Traffic Generation Rate	Weekday Peak Hour		Saturday Peak Hour
		AM	PM	Midday
Residential (320 on-site spaces)	0.16 trips per on-site space in each weekday peak hour 0.10 trips per on-site space in each Saturday peak hour	51	51	32
Office (78 on-site spaces)	0.50 trips per on-site space in each weekday peak hour	39	39	0
Retail, Restricted Retail Food & Drink (49,000 m <sup>2</sup> )	0.67 trips per 100 m <sup>2</sup> of floor area in weekday AM peak 2.30 trips per 100m <sup>2</sup> of floor area in weekday PM peak 3.71 trips per 100 m <sup>2</sup> of floor area in Saturday peak	26	49	144
Childcare Centre (22 children)	0.425 trips per child in each weekday peak hour	43	43	0
Medical Centre (8 practitioners)	2.35 trips per practitioner in each weekday AM peak hour 2.90 trips per practitioner in each weekday PM peak hour 2.90 trips per practitioner in each Saturday peak	19	23	23
<b>Total</b>		<b>178</b>	<b>245</b>	<b>199</b>

#### Other Nearby Development

In assessing the traffic impact of the subject site, GTA have also provided trip generation data for three major nearby developments: 607-627 Victoria Street, 647-649 Victoria Street and 25-35 River Boulevard.

#### Traffic Distribution

The traffic distribution assumptions made by GTA for the various uses of the development traffic are considered reasonable for the traffic analysis of the site.

#### Traffic Impact of Subject Site

The traffic generated by the subject site and the three large recently approved sites would impact the intersection of Victoria Street and River Boulevard-Acacia Place. The traffic impact of the Victoria Street/River Boulevard-Acacia Place intersection was assessed using the SIDRA program, which measures intersection performance. SIDRA modelling works well under free flowing traffic conditions and may have limitations, such as queuing of downstream traffic.

The results of the post-development modelling suggest that the intersection would continue to operate satisfactorily when the subject site and the three nearby developments are operational. However, very little mention was made on the impact of the Victoria Street/Burnley Street intersection. It may be helpful if the intersection of Victoria Street and Burnley Street be assessed in conjunction with the Victoria Street/River Boulevard Acacia Place intersection.

In the AM peak hour, do stationary traffic queues along Victoria Street (westbound traffic) extend beyond the Victoria Street/River Boulevard-Acacia Place intersection?

The traffic impacts surrounding the site need to be detailed and discussed further, rather than look at one intersection in isolation.

**Attachment 4 - Engineering comments****DEVELOPMENT LAYOUT DESIGN****Layout Design Assessment**

Rothe Lowman Drawing Nos. TP00.02, TP01.00, TP01.01 Rev A dated 4 December 2017

TP01.02, TP01.03, TP01.04 Rev B dated 17 January 2018

Item	Assessment
<b>Access Arrangements</b>	
Development Entrance – Vickers Drive Access	The proposed 9.65 metre wide entrance satisfies the Australian/New Zealand Standard AS/NZS 2890.1:2004.
Development Entrance – River Boulevard Access	The proposed 9.63 metre wide entrance satisfies AS/NZS 2890.1:2004.
Visibility – Vickers Drive Access	A pedestrian sight triangle has not been provided for the exit lane of the entrance onto Vickers Drive.
Visibility – River Boulevard Access	A pedestrian sight triangle has not been superimposed on the north side of the entrance.
Headroom Clearance	Not dimensioned on the drawings.
Internal Ramped Accessways	Ramped accessways have widths of 6.4 to 6.9 metres and also satisfy AS/NZS 2890.1:2004.
<b>Car Parking Modules</b>	
At-grade Parking Spaces	The dimensions of the regular at-grade parking spaces (2.6 metres by 4.9 metres) satisfy <i>Design standard 2: Car parking spaces</i> of Clause 52.06-9.
Accessible Parking Space	With the exception of the lengths (which satisfy <i>Design standard 2</i> ), the accessible parking spaces and associated shared areas satisfy the Australian/New Zealand Standard AS/NZS 2890.6:2009.
Parallel Parking Spaces	The dimensions of the parallel parking spaces (6.7 metres by 2.3 metres) satisfy <i>Design standard 2</i> .
Aisles	The aisle widths range from 5.6 metres to 8.0 metres and satisfy <i>Table 2: Minimum dimensions of car parking spaces and accessways</i> of Clause 52.06-9.
Column Depths and Setbacks	Not dimensioned on the drawings. Columns do not appear to have been provided for the car parking levels for the north building.
Clearances to Walls	Not dimensioned on the drawings.
Bind Aisle Extensions	Not dimensioned on the drawings.
<b>Gradients</b>	
Ramp Grade for First 5.0 metres inside Property – Vickers Drive and River Boulevard	The ramps grades for the first 5.0 metres inside the entrances are horizontal and satisfy <i>Design standard 3: Gradients</i> .
Ramp Grades and Changes of Grade	The ramp grades and changes of grade satisfy <i>Table 3 Ramp Gradients</i> of Clause 52.06-9. The lengths of the ramp grades for the internal ramps in the north building have not been dimensioned.

**Attachment 4 - Engineering comments**

Item	Assessment
<b>Loading and Truck Movements</b>	
Loading Docks	Areas set aside for loading are located in both the north and south buildings. Swept path diagrams for the 8.8 metre and 12.5 metre long services vehicles entering and exiting the loading areas are considered satisfactory.
Waste Collection Vehicle	The swept path diagrams for the 6.34 metre long waste collection vehicle entering, circulating and exiting the south building via River Boulevard are considered satisfactory. Swept path diagrams for the waste collection vehicle servicing the north building via Vickers Drive are also satisfactory.
Loading Area – South West Corner of Site	A check of the Upper Ground plan indicates that there is a loading area located at the south west corner of the south building. Details are very scant and it is unknown how vehicles would access this facility. If it is proposed to have vehicular access to the loading area, this would cause potential safety concerns for pedestrians.
<b>Other Items</b>	
Vehicle Turning Movements – Vickers Drive Access	The swept path movements for a B99 design vehicle and an oncoming B85 design vehicle into the entrance of the north building via Vickers Drive are considered satisfactory.
Vehicle Circulation within Basement Levels 1 and 2 – North Building	The swept path movements for a B99 design vehicle and an oncoming B85 design vehicle with the aisles of basement levels 1 and 2 of the north building are considered satisfactory.
Indented Loading Bay – West Side of River Boulevard	The use of the indented bay on the west side of River Boulevard is considered inappropriate. This bay should be used for short-stay parking or drop-off.
Indented Taxi Rank – West Side of River Boulevard	The location of the indented taxi rank is inappropriate having regard to the proximity of the left turn slip lane. Should be relocated to an alternative position where pedestrians are likely to congregate.
Height Clearance – Above Vickers Drive	To be clearly dimensioned on the drawings, from the surface of the carriageway to the underside the building spanning across Vickers Drive. The height clearance shall be no less than 4.8 metres.

**Attachment 4 - Engineering comments**

**Design Items to be Addressed**

Item	Details
Visibility – Vickers Drive Entrance	A pedestrian sight triangle should be provided at the exit lane of the entrance. If a sight triangle cannot be provided, a CCTV monitor should be installed to view pedestrians walking along the Vickers Drive footpath.
Visibility – River Boulevard Entrance	A pedestrian sight triangle should be superimposed/provided at the exit lane of the entrance. If a sight triangle cannot be provided, a CCTV monitor should be installed to view pedestrians walking along the River Boulevard footpath.
Headroom Clearances	To be dimensioned on the drawings.
Column Depths and Setbacks	To be dimensioned on the drawings.
Clearances to Walls	To be dimensioned on the drawings.
Blind Aisle Extensions	To be dimensioned on the drawings.
Ramp grade Lengths – North Building	The ramp grade lengths for the internal ramped accessways are to be dimensioned on the drawings.

**ROAD SAFETY AUDIT**

Before a Planning Permit is issued for the site, it is recommended that a Road Safety Audit of the development, especially in relation to the loading dock and their interface with footpaths, at the design phase be undertaken by an independent accredited Road Safety Auditor.

The loading docks and vehicular entrances present potential conflict issues with pedestrians, bicycles and other vulnerable road users. The road safety aspects of these design elements must be examined and assessed. Recommendations from the Road Safety Audit should be considered before any revisions to the design are made.

The Road safety Audit must be completely independent of the application’s traffic impact assessment and should be undertaken in accordance with the guidelines set out in Austroads *Guide to Road Safety Part 6: Road Safety Audits*.

**IMPACT ON COUNCIL ROAD ASSETS**

The construction of the new buildings, the provision of underground utilities and construction traffic servicing and transporting materials to the site will impact on Council assets. Trenching and areas of excavation for underground services invariably deteriorates the condition and integrity of footpaths, kerb and channel, laneways and road pavements of the adjacent roads to the site.

It is essential that the developer rehabilitates/restores laneways, footpaths, kerbing and other road related items, as recommended by Council, to ensure that the Council infrastructure surrounding the site has a high level of serviceability for residents, employees, visitors and other users of the site.



## **Attachment 4 - Engineering comments**

### **ENGINEERING CONDITIONS**

#### **Civil Works**

Upon the completion of all building works and connections for underground utility services,

- The kerb and channel along the property's River Boulevard, Vickers Drive and Victoria Street road frontages must be reconstructed to Council's satisfaction and at the Permit Holder's cost.
- The footpath along the property's River Boulevard, Vickers Drive and Victoria Street road frontages must be reconstructed to Council's satisfaction and at the Permit Holder's cost. The footpath must have a cross-fall of 1 in 40 or unless otherwise specified by Council.
- The vehicle crossings servicing the development's entrances on the north side of Vickers Drive and the west side of River Boulevard must be constructed to Council's satisfaction. Materials to be used must comply with Council's *Infrastructure Road Materials Policy*. The vehicle crossings must satisfy the vehicle ground clearance requirements for the B99 design vehicle.
- The northbound carriageway of River Boulevard, from the south end to the intersection with Victoria Street must be profiled (grind the top layer of asphalt, up to a depth of 50 mm) and re-sheeted to Council's satisfaction and at the Permit Holder's cost.
- All redundant vehicle crossings within and surrounding the site must be demolished and reinstated with paving, kerb and channel to Council's satisfaction and at the Permit Holder's cost.
- Before the buildings are occupied, or by such later date as approved in writing by the Responsible Authority, external public lighting capable of illuminating footpaths, pedestrian walkways and dwelling entrances must be provided. Lighting must be:
  - located;
  - directed;
  - shielded; and
  - of limited intensity,

to the satisfaction of the Responsible Authority by way of a Public Lighting Plan.

#### **Road Asset Protection**

- Any damaged roads, footpaths and other road related infrastructure adjacent to the development site as a result of the construction works, including trenching and excavation for utility service connections, must be reconstructed to Council's satisfaction and at the developer's expense.

#### **Construction Management Plan**

- A Construction Management Plan must be prepared and submitted to Council. The Plan must be approved by Council prior to the commencement of works. A detailed dilapidation report should detail and document the existing and post construction conditions of surrounding road infrastructure and adjoining private properties.

#### **Impact of Assets on Proposed Development**

- Any services poles, structures or pits that interfere with the proposal must be adjusted, removed or relocated at the owner's expense after seeking approval from the relevant authority.
- Areas must be provided inside the property line and adjacent to the footpath to accommodate pits and meters. No private pits, valves or meters on Council property will be accepted.

## **Attachment 4 - Engineering comments**

### **Removal, Adjustment, Changing or Relocation of Parking Restriction Signs**

- No parking restriction signs or line-marked on-street parking bays are to be removed, adjusted, changed or relocated without approval or authorisation from Council's Parking Management unit and Construction Management branch.
- Any on-street parking reinstated as a result of development works must be approved by Council's Parking Management unit.
- The removal of any kerbside parking sensors and any reinstatement of parking sensors will require the Permit Holder to pay Council the cost of each parking sensor taken out from the kerb/footpath/roadway. Any costs associated with the reinstatement of road infrastructure due to the removal of the parking sensors must also be borne by the Permit Holder.

**Attachment 4 - Engineering comments****NON-PLANNING ADVICE FOR THE APPLICANT**

<b>Item</b>	<b>Details</b>
Legal Point of Discharge	The applicant must apply for a Legal Point of Discharge under Regulation 610 – Stormwater Drainage of the <i>Building Regulations 2006</i> from Yarra Building Services unit. Any storm water drainage within the property must be provided and be connected to the nearest Council pit of adequate depth and capacity (legal point of discharge), or to Council's satisfaction under Section 200 of the <i>Local Government Act 1989</i> and Regulation 610.
Discharge of Water from Development	<ul style="list-style-type: none"> <li>▪ Only roof runoff, surface water and clean groundwater seepage from above the water table can be discharged into Council drains.</li> <li>▪ Contaminated ground water seepage into basements from above the water table must be discharged to the sewer system through a trade waste agreement with the relevant authority or in accordance with EPA guidelines.</li> <li>▪ Contaminated groundwater from below the water table must be discharged to the sewer system through a trade waste agreement from the relevant sewer authority.</li> <li>▪ Council will not permit clean groundwater from below the groundwater table to be discharged into Council's drainage system. Basements that extend into the groundwater table must be waterproofed/tanked.</li> </ul>
Road Reinstatements	All road pavement reinstatements must be consolidated as single full-width areas of reinstatement to reduce further construction joints in the pavement.
Redundant Pits and Services	Redundant pits/services to be removed and Council assets to be reinstated.
Details on Drawings	Additional dimensions to be provided on the drawings for widths of all footpaths, nature strips, roadway sections and vehicle crossings. Further assessment and comments to be provided following the receipt of these dimensioned plans.
Service Easement	Applicant to liaise with relevant authorities regarding proposed basement connection between 600 Victoria Street and 10 River Boulevard. There is currently a service easement that intersects with the alignment of this proposed underground connection. Consent from authorities may be required.
Section 173 Agreement	A Section 173 Agreement is to be drafted to ensure that publically trafficable footpaths and roadways are maintained and kept clear of obstructions. This is particularly important along the River Boulevard frontage where pedestrians are redirected within the title boundary.
Irrigation Assets	Irrigation assets surrounding the site to be identified prior to works commencing. Open space to provide comment as to whether they are to be retained or relayed at the cost of the applicant.
Proving of Underground Services	The proving of underground services is to be conducted prior to works commencing on-site to ensure that all services surrounding the site have been identified. Permission from the relevant service authorities must be obtained if works will impact the service authorities' assets.

<b>Item</b>	<b>Details</b>
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**Attachment 4 - Engineering comments**

Detailed Engineering Design	The developer must prepare and submit detailed design drawings of all road infrastructure works and drainage works associated with this development for assessment and approval.
Footpath Materials	Proposed footpath pavers along the west side of River Boulevard and the south side of Victoria Street should be as per Council Standard Drawing YSD416 <i>Swan Bluestone Paving for Footpath</i> .
Existing Stormwater Pits	Existing stormwater pits close to the proposed vehicle crossings on Vickers Drive are to be shown on submitted plans. Stormwater pits may require to be relocated, at the cost of the applicant, subject to the assessment and approval of the developments civil design by Council's Civil Engineering unit.

## Attachment 5 - ESD advice

### Sustainable Management Plan (SMP)

Referral Response by Yarra City Council



#### ESD in the Planning Permit Application Process

Yarra City Council's planning permit application process includes Environmentally Sustainable Development (ESD) considerations. This is now supported by the ESD Local Policy Clause 22.17 of the Yarra Planning Scheme, entitled *Environmentally Sustainable Development*.

The Clause 22.17 requires all eligible applications to demonstrate best practice in ESD, supported by the Built Environment Sustainability Scorecard (BESS) web-based application tool, which is based on the Sustainable Design Assessment in the Planning Process (SDAPP) program.

As detailed in Clause 22.17, this application is a 'large' planning application as it meets the category *Residential 1. Ten or more dwellings*.

#### What is a Sustainable Management Plan (SMP)?

An SMP is a detailed sustainability assessment of a proposed design at the planning stage. An SMP demonstrates best practice in the 10 Key Sustainable Building Categories and;

- Provides a detailed assessment of the development. It may use relevant tools such as BESS and STORM or an alternative assessment approach to the satisfaction of the responsible authority; and
- Identifies achievable environmental performance outcomes having regard to the objectives of Clause 22.17 (as appropriate); and
- Demonstrates that the building has the design potential to achieve the relevant environmental performance outcomes, having regard to the site's opportunities and constraints; and
- Documents the means by which the performance outcomes can be achieved.

An SMP identifies beneficial, easy to implement, best practice initiatives. The nature of larger developments provides the opportunity for increased environmental benefits and the opportunity for major resource savings. Hence, greater rigour in investigation is justified. It may be necessary to engage a sustainability consultant to prepare an SMP.

#### Assessment Process:

The applicant's town planning drawings provide the basis for Council's ESD assessment. Through the provided drawings and the SMP, Council requires the applicant to demonstrate best practice. The following comments are based on the review of the architectural drawings, prepared by Rothe Lowman (Rev B prepared 17.01.2018), the accompanying SMP, prepared by Norman Disney Young (Rev 2 12.09.2017), and the Stormwater Management Plan prepared by Bonacci Group (May 2017).

**Attachment 5 - ESD advice**

**Sustainable Management Plan (SMP)**  
Referral Response by Yarra City Council



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Attachment 5 - ESD advice

**Sustainable Management Plan (SMP)**  
Referral Response by Yarra City Council




**Assessment Summary:**

Responsible Planner:	Sarah Thomas		
ESD Advisor:	Euan Williamson		
Date:	19.03.2018	Planning Application No:	PLN16/1156
Subject Site:	10-20 River Boulevard, Richmond		
Site Area:	Approx. 14,152m <sup>2</sup>	Site Coverage:	100%
Project Description:	13 storey mixed use development.		
Pre-application meeting(s):	None.		

**The standard of the ESD does not meet Council's Environmental Sustainable Design (ESD) standards.** Should a permit be issued, the following ESD commitments (1) and deficiencies (2) should be conditioned as part of a planning permit to ensure Council's ESD standards are fully met.

*Furthermore, it is recommended that all ESD commitments (1), deficiencies (2) and the outstanding information (3) are addressed in an updated SMP report and are clearly shown on Condition 1 drawings. ESD improvement opportunities (4) have been summarised as a recommendation to the applicant.*

**(1) Applicant ESD Commitments:**

- Average 6.5 Star (minimum) NatHERS ratings for dwellings.
- Non-residential areas to be 15% improvement on NCC energy efficiency standards for thermal performance & a 5% improvement on glazing allocations for each level, or a 10% improvement via JV3 modelling.
- A MUSIC model demonstrating best practice has been submitted that relies on ~9,978m<sup>2</sup> of roof connected to 60,000 litres of rainwater storage for landscape irrigation and toilet flushing. Overflow to be filtered through a propriety filtering device.
- Access to ventilation is good to most dwellings. Single sided dwellings have reasonable access to natural ventilation. Non-residential areas to have mechanical air-flow rates at least 50% above the AS1668 requirements.
- Good daylight access good to most dwellings.
- Reverse-cycle split systems (minimum 3 Star) and a centralised VRF system with heat recovery. Energy efficient non-residential HVAC below NCC requirements.
- Energy efficient hot water and lighting.
- Water efficient fixtures and taps.
- Electric vehicle charging facilities provided.

**(2) Application ESD Deficiencies:**

- There are large areas of glazing exposed to summer sun angles and very high levels of summer solar heat gain. Recommend additional external shading systems on all exposed east, west and north facing facades to reduce cooling loads and improve thermal comfort. Please provide sample NatHERS ratings for dwellings and demonstrate that cooling loads do not exceed the 30MJ/m<sup>2</sup> threshold.
- The site area and lot boundaries in the Stormwater Management Plan do not match the architectural drawings and omit a large component of the connecting podium area. The Stormwater Management Plan describes all roof runoff from both sections of the building connecting to a common rainwater tank on Lot 9C (southern), but the architectural drawings show rainwater tank in basements of both areas. Toilet flushing is proposed but it not clear where the toilets are located, how many toilets will be connected and what the annual demand will be. This is fundamental for understanding the effectiveness of the stormwater management system proposed. Under-utilised rainwater tanks will constantly overflow.

**Attachment 5 - ESD advice**

**Sustainable Management Plan (SMP)**

Referral Response by Yarra City Council



- The carpark exhaust is located in the common area podium garden. Recommend that the carpark exhaust is relocated away from the common area garden and is filtered to remove carpark pollutants.
- 278 secure bicycle parking spaces on ground floor and carparking levels for staff, residents and an additional 44 spaces for visitors. Recommend increasing the number of residential, staff and visitor bike spaces to 426 for residents, plus spaces for staff, plus visitor bike parking spaces.
- Ensure that adequate end of trip facilities are provided to support cyclist riding to work.

**(3) Outstanding Information:**

- Please provide sample NatHERS ratings for dwellings and demonstrate that cooling loads do not exceed the 30MJ/m<sup>2</sup> threshold. Ensure that glazing VLT is no less than 0.6% as used in the daylight modelling.
- Please provide a completed JV3 model or DTS Section J report prior to occupancy demonstrating non-residential energy efficiency standards have been met.
- It appears on the detailed dwelling plans that some bedrooms do not have operable windows. Ensure that all habitable rooms have an operable window to facilitate natural ventilation.\
- A solar PV array(s) of unknown size and capacity to contribute to onsite electricity consumption. Please provide more details regarding the solar PV array, including approximately size and location and contribution to electricity consumption.
- Please indicate the number of location of electric vehicle charging infrastructure.

**(4) ESD Improvement Opportunities**

- Consider a clear commitment to the 6.8 Star average NatHERS standard, as recommended in the SMP.
- Consider providing composting for organic residential waste.

**Further Recommendations:**

The applicant is encouraged to consider the inclusion of ESD recommendations, detailed in this referral report. Further guidance on how to meet individual planning conditions has been provided in reference to the individual categories. The applicant is also encouraged to seek further advice or clarification from Council on the individual project recommendations.



**Attachment 5 - ESD advice**

**1. Indoor Environment Quality (IEQ)**

**Objectives:**

- to achieve a healthy indoor environment quality for the wellbeing of building occupants.
- to provide a naturally comfortable indoor environment will lower the need for building services, such as artificial lighting, mechanical ventilation and cooling and heating devices.

Issues	Applicant's Design Responses	Council Comments	CAR*
Natural Ventilation and Night Purging	<p>Access to ventilation is good to most dwellings. Single sided dwellings have reasonable access to natural ventilation.</p> <p>Non-residential areas to have mechanical air-flow rates at least 50% above the AS1668 requirements.</p>	<p>It appears that some bedrooms do not have operable windows. Ensure that all habitable rooms have an operable window to facilitate natural ventilation.</p> <p>Recommend that the carpark exhaust is relocated away from the common area gardens and dwellings, and is filtered to remove carpark pollutants.</p>	2
Daylight & Solar Access	Good daylight access good to most dwellings, non-residential areas will have passable daylight.	-	1
External Views	External views from all dwellings and common areas.	-	1
Hazardous Materials and VOC	95% of paints, adhesives, sealants, carpets will be low-VOC type. And at least 95% of timber products will be low formaldehyde content.	-	1
Thermal Comfort	<p>Good thermal comfort is determined through a combination of good access to ventilation, balanced passive heat gains and high levels of insulation.</p> <p>The application proposes:</p> <ul style="list-style-type: none"> <li>- Good natural ventilation</li> <li>- Little shading proposed</li> <li>- Average thermal efficiency standards.</li> </ul>	Please refer to section on, <i>NCC Energy Efficiency Requirements Exceeded and Effective Shading</i>	2

\* Council Assessment Ratings:

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

SDAPP Fact Sheet: [1. Indoor Environment Quality](#)  
 Good Environmental Choice Australia Standards [www.geca.org.au](http://www.geca.org.au)  
 Australian Green Procurement [www.greenprocurement.org](http://www.greenprocurement.org)  
 Residential Flat Design Code [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)  
 Your Home [www.yourhome.gov.au](http://www.yourhome.gov.au)

Attachment 5 - ESD advice

## 2. Energy Efficiency

**Objectives:**

- to ensure the efficient use of energy
- to reduce total operating greenhouse emissions
- to reduce energy peak demand
- to minimize associated energy costs.

Issues	Applicant's Design Responses	Council Comments	CAR*
NCC Energy Efficiency Requirements Exceeded	<p>Average 6.5 Star (minimum) NatHERS ratings for dwellings.</p> <p>Non-residential areas to be 15% improvement on NCC energy efficiency standards for thermal performance &amp; a 5% improvement on glazing allocations for each level, or a 10% improvement via JV3 modelling.</p>	<p>Please provide sample NatHERS ratings for dwellings and demonstrate that cooling loads do not exceed the 30MJ/m<sup>2</sup> threshold. Ensure that glazing VLT is no less than 0.6% as used in the daylight modelling.</p> <p>Consider a clear commitment to the 6.8 Star average NatHERS standard, as recommended in the SMP.</p> <p>Please provide a completed JV3 model or DTS Section J report prior to occupancy demonstrating non-residential energy efficiency standards have been met.</p>	3
Hot Water System	Centralised condensing gas hot water with a minimum of 30% solar thermal contribution.	-	1
Peak Energy Demand	Peak demand reduced through various initiatives.	-	1
Effective Shading	There are large areas of glazing exposed to summer sun angles and very high levels of summer solar heat gain.	<p>Recommend additional external shading systems on all exposed east, west and north facing facades to reduce cooling loads and improve thermal comfort.</p> <p>Please provide sample NatHERS ratings for dwellings and demonstrate that cooling loads do not exceed the 30MJ/m<sup>2</sup> threshold.</p>	2
Efficient HVAC system	Reverse-cycle split systems (minimum 3 Star) and a centralised VRF system with heat recovery. Energy efficient non-residential HVAC below NCC requirements.	-	1
Efficient Lighting	Energy efficient LED lighting 10% improvement on NCC minimum requirements.	-	1
Electricity Generation	A solar PV array(s) of unknown size and capacity to contribute to onsite electricity consumption.	Please provide more details regarding the solar PV array.	3

**Attachment 5 - ESD advice**

			including approximately size and location and contribution to electricity consumption.
Other	-	-	-

**\* Council Assessment Ratings:**

- 1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**
- 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

- SDAPP Fact Sheet: [2. Energy Efficiency](#)
- House Energy Rating [www.makeyourhomegreen.vic.gov.au](http://www.makeyourhomegreen.vic.gov.au)
- Building Code Australia [www.abcb.gov.au](http://www.abcb.gov.au)
- Window Efficiency Rating Scheme (WERS) [www.wers.net](http://www.wers.net)
- Minimum Energy Performance Standards (MEPS) [www.energyrating.gov.au](http://www.energyrating.gov.au)
- Energy Efficiency [www.resourcesmart.vic.gov.au](http://www.resourcesmart.vic.gov.au)

**Attachment 5 - ESD advice**

**3. Water Efficiency**

**Objectives:**

- to ensure the efficient use of water
- to reduce total operating potable water use
- to encourage the collection and reuse of rainwater and stormwater
- to encourage the appropriate use of alternative water sources (e.g. grey water)
- to minimise associated water costs.

Issues	Applicant's Design Responses	Council Comments	CAR*
Minimising Amenity Water Demand	Water efficient taps and fittings throughout, including: <ul style="list-style-type: none"> <li>- 4 Star toilets</li> <li>- 5 Star tapware</li> <li>- 3 Star showers &lt;7.5 litres/min</li> <li>- 5 Star dishwashers &amp;</li> <li>- 4 Star washing machines</li> </ul>	-	1
Water for Toilet Flushing	A 60,000 litre rainwater tank connected to toilets for flushing & landscape irrigation.	-	1
Water Meter	Water metering for all major common area uses.	-	1
Landscape Irrigation	Provided by rainwater.	-	1
Other	-	-	-

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

- SDAPP Fact Sheet: [3. Water Efficiency](#)  
 Water Efficient Labelling Scheme (WELS) [www.waterrating.gov.au](http://www.waterrating.gov.au)  
 Water Services Association of Australia [www.wsaa.asn.au](http://www.wsaa.asn.au)  
 Water Tank Requirement [www.makeyourhomegreen.vic.gov.au](http://www.makeyourhomegreen.vic.gov.au)  
 Melbourne Water STORM calculator [www.storm.melbournewater.com.au](http://www.storm.melbournewater.com.au)  
 Sustainable Landscaping [www.ourwater.vic.gov.au](http://www.ourwater.vic.gov.au)

Attachment 5 - ESD advice

### 4. Stormwater Management

**Objectives:**

- to reduce the impact of stormwater runoff
- to improve the water quality of stormwater runoff
- to achieve best practice stormwater quality outcomes
- to incorporate Water Sensitive Urban Design principles.

Issues	Applicant's Design Responses	Council Comments	CAR*
STORM Rating	<p>A MUSIC model demonstrating best practice has been submitted that relies on ~9,978m<sup>2</sup> of roof connected to 60,000 litres of rainwater storage for landscape irrigation and toilet flushing</p> <p>Overflow to be filtered through a propriety filtering device.</p>	<p>The site area and lot boundaries in the Stormwater Management Plan do not match the architectural drawings and omit a large component of the connecting podium area.</p> <p>The Stormwater Management Plan describes all roof runoff from both sections of the building connecting to a common rainwater tank on Lot 9C (southern), but the architectural drawings show rainwater tank in basements of both areas.</p> <p>Toilet flushing is proposed but it not clear where the toilets are located, how many toilets will be connected and what the annual demand will be. This is fundamental for understanding the effectiveness of the stormwater management system proposed. Under-utilised rainwater tanks will constantly overflow.</p>	2
Discharge to Sewer	-	-	-
Stormwater Diversion	-	-	-
Stormwater Detention	60,000 litres of rainwater tanks detailed above will act in a detention capacity.	-	1
Stormwater Treatment	-	-	-
Others	-	-	-

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

SDAPP Fact Sheet: [4. Stormwater Management](#)

## Attachment 5 - ESD advice

Melbourne Water STORM calculator [www.storm.melbournewater.com.au](http://www.storm.melbournewater.com.au)  
Water Sensitive Urban Design Principles [www.melbournewater.com.au](http://www.melbournewater.com.au)  
Environmental Protection Authority Victoria [www.epa.vic.gov.au](http://www.epa.vic.gov.au)  
Water Services Association of Australia [www.wsaa.asn.au](http://www.wsaa.asn.au)  
Sustainable Landscaping [www.ourwater.vic.gov.au](http://www.ourwater.vic.gov.au)

Attachment 5 - ESD advice

## 5. Building Materials

**Objectives:**

- to minimise the environmental impact of materials used by encouraging the use of materials with a favourable lifecycle assessment.

Issues	Applicant's Design Responses	Council Comments	CAR*
Reuse of Recycled Materials	3% of all products by costs to meet Green star sustainable products guidelines.	-	1
Embodied Energy of Concrete and Steel	60% of steel reinforcing will be produced with energy efficient processes.	Consider recycled water and post-industrial process materials, such as slag or fly ash to reduce the % volume of Portland cement.	4
Sustainable Timber	95% of timber to be sustainable timber sourced with FSC or PEFC certification.	Consider FSC accredited sustainable timber or recycled timber only.	1
Design for Disassembly	No information has been provided.	Consider a small pallet of materials and construction techniques that can assist in disassembly.	4
PVC	90% of PVC used will meet best practice guidelines.	-	1

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

SDAPP Fact Sheet: [5. Building Materials](#)  
 Building Materials, Technical Manuals [www.yourhome.gov.au](http://www.yourhome.gov.au)  
 Embodied Energy Technical Manual [www.yourhome.gov.au](http://www.yourhome.gov.au)  
 Good Environmental Choice Australia Standards [www.geca.org.au](http://www.geca.org.au)  
 Forest Stewardship Council Certification Scheme [www.fsc.org](http://www.fsc.org)  
 Australian Green Procurement [www.greenprocurement.org](http://www.greenprocurement.org)

**Attachment 5 - ESD advice**

**6. Transport**

**Objectives:**

- to minimise car dependency
- to ensure that the built environment is designed to promote the use of public transport, walking and cycling.

Issues	Applicant's Design Responses	Council Comments	CAR*
Minimising the Provision of Car Parks	Car parking throughout podium and basement levels.	-	1
Bike Parking Spaces	278 secure bicycle parking spaces on ground floor and carparking levels for staff, residents and an additional 44 spaces for visitors.	Recommend increasing the number of residential, staff and visitor bike spaces to 426 for residents, plus spaces for staff, plus visitor bike parking spaces.	2
End of Trip Facilities	No information has been provided.	Ensure that adequate end of trip facilities are provided to support cyclist riding to work.	2
Car Share Facilities	No information has been provided.	-	1
Electric vehicle charging	Electric vehicle charging facilities provided.	Please indicate the number of location of electric vehicle charging infrastructure.	3

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

SDAPP Fact Sheet: [6. Transport](#)  
 Off-setting Car Emissions Options [www.greenfleet.com.au](http://www.greenfleet.com.au)  
 Sustainable Transport [www.transport.vic.gov.au/doi/internet/icy.nsf](http://www.transport.vic.gov.au/doi/internet/icy.nsf)  
 Car share options [www.yarracity.vic.gov.au/Parking-roads-and-transport/Transport-Services/Carsharing/](http://www.yarracity.vic.gov.au/Parking-roads-and-transport/Transport-Services/Carsharing/)  
 Bicycle Victoria [www.bv.com.au](http://www.bv.com.au)



**Attachment 5 - ESD advice**

**7. Waste Management**

**Objectives:**

- to ensure waste avoidance, reuse and recycling during the design, construction and operation stages of development
- to ensure long term reusability of building materials.
- to meet Councils' requirement that all multi-unit developments must provide a Waste Management Plan in accordance with the *Guide to Best Practice for Waste Management in Multi-unit Developments 2010*, published by Sustainability Victoria.

Issues	Applicant's Design Responses	Council Comments	CAR*
Construction Waste Management	A CWMP with a recycling/reuse target for construction and demolition waste has been set.	-	1
Operational Waste Management	General waste and recycling waste. Dual waste chutes provided.	Consider providing composting for organic residential waste	4
Storage Spaces for Recycling and Green Waste	Area for bins, including recycling, can be identified on the plans.	-	1
Others	-	-	-

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

- SDAPP Fact Sheet: [7. Waste Management](#)  
 Construction and Waste Management [www.sustainability.vic.gov.au](http://www.sustainability.vic.gov.au)  
 Preparing a WMP [www.epa.vic.gov.au](http://www.epa.vic.gov.au)  
 Waste and Recycling [www.resourcesmart.vic.gov.au](http://www.resourcesmart.vic.gov.au)  
 Better Practice Guide for Waste Management in Multi-Unit Dwellings (2002) [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)  
 Waste reduction in office buildings (2002) [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

**Attachment 5 - ESD advice**

**8. Urban Ecology**

**Objectives:**

- to protect and enhance biodiversity
- to provide sustainable landscaping
- to protect and manage all remnant indigenous plant communities
- to encourage the planting of indigenous vegetation.

Issues	Applicant's Design Responses	Council Comments	CAR*
On Site Topsoil Retention	There is no productive topsoil on this site.	-	NA
Maintaining / Enhancing Ecological Value	Landscaping to podium courtyard and ground floor surrounding the building.	-	1
Heat Island Effect	No specific information has been submitted.	-	1
Communal Spaces	Resident's lounge and communal spaces.	-	1

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

SDAPP Fact Sheet: [8. Urban Ecology](#)  
 Department of Sustainability and Environment [www.dse.vic.gov.au](http://www.dse.vic.gov.au)  
 Australian Research Centre for Urban Ecology [www.arcue.botany.unimelb.edu.au](http://www.arcue.botany.unimelb.edu.au)  
 Greening Australia [www.greeningaustralia.org.au](http://www.greeningaustralia.org.au)  
 Green Roof Technical Manual [www.yourhome.gov.au](http://www.yourhome.gov.au)

**Attachment 5 - ESD advice**

**9. Innovation**

**Objective:**

- to encourage innovative technology, design and processes in all development, which positively influence the sustainability of buildings.

Issues	Applicant's Design Responses	Council Comments	CAR*
Significant Enhancement to the Environmental Performance	-	-	-
Innovative Social Improvements	-	-	-
New Technology	-	-	-
New Design Approach	-	-	-
Others	-	-	-

**\* Council Assessment Ratings:**

- 1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

- SDAPP Fact Sheet: [9. Innovation](#)  
 Green Building Council Australia [www.gbca.org.au](http://www.gbca.org.au)  
 Victorian Eco Innovation lab [www.ecoinnovationlab.com](http://www.ecoinnovationlab.com)  
 Business Victoria [www.business.vic.gov.au](http://www.business.vic.gov.au)  
 Environment Design Guide [www.environmentdesignguide.com.au](http://www.environmentdesignguide.com.au)

Attachment 5 - ESD advice

## 10. Construction and Building Management

**Objective:**

- to encourage a holistic and integrated design and construction process and ongoing high performance

Issues	Applicant's Design Responses	Council Comments	CAR*
Building Tuning	Independent commissioning agent ensuring comprehensive commissioning and tuning of all major appliances and building services.	-	1
Building Users Guide	Operation and Maintenance manual will be provided to the FM team explaining optimal usage of building services and sustainability features and common areas.	Building information should also go to the residents and staff using the building not just the facilities management team.	1
Contractor has Valid ISO14001 Accreditation	Head contractor will be ISO 14001 certified and implement an Environmental Management Plan to monitor and control activities undertaken during construction.	-	1
Construction Management Plan	Head contractor will be ISO 14001 certified and implement an Environmental Management Plan to monitor and control activities undertaken during construction.	-	1
Others	-	-	-

**\* Council Assessment Ratings:**

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

**References and useful information:**

SDAPP Fact Sheet: [10. Construction and Building Management](#)

ASHRAE and CIBSE Commissioning handbooks

International Organization for standardization – ISO14001 – Environmental Management Systems

Keeping Our Stormwater Clean – A Builder's Guide [www.melbournewater.com.au](http://www.melbournewater.com.au)

## Attachment 5 - ESD advice

## Sustainable Management Plan (SMP)

for planning applications being considered by Yarra Council



## Applicant Response Guidelines

### Project Information:

Applicants should state the property address and the proposed development's use and extent. They should describe neighbouring buildings that impact on or may be impacted by the development. It is required to outline relevant areas, such as site permeability, water capture areas and gross floor area of different building uses. Applicants should describe the development's sustainable design approach and summarise the project's key ESD objectives.

### Environmental Categories:

Each criterion is one of the 10 Key Sustainable Building Categories. The applicant is required to address each criterion and demonstrate how the design meets its objectives.

### Objectives:

Within this section the general intent, the aims and the purposes of the category are explained.

### Issues:

This section comprises a list of topics that might be relevant within the environmental category. As each application responds to different opportunities and constraints, it is not required to address all issues. The list is non-exhaustive and topics can be added to tailor to specific application needs.

### Assessment Method Description:

Where applicable, the Applicant needs to explain what standards have been used to assess the applicable issues.

### Benchmarks Description:

The applicant is required to briefly explain the benchmark applied as outlined within the chosen standard. A benchmark description is required for each environmental issue that has been identified as relevant.

### How does the proposal comply with the benchmarks?

The applicant should show how the proposed design meets the benchmarks of the chosen standard through making references to the design brief, drawings, specifications, consultant reports or other evidence that proves compliance with the chosen benchmark.

### ESD Matters on Architectural Drawings:

Architectural drawings should reflect all relevant ESD matters where feasible. As an example, window attributes, sun shading and materials should be noted on elevations and finishes schedules, water tanks and renewable energy devices should be shown on plans. The site's permeability should be clearly noted. It is also recommended to indicate water catchment areas on roof- or site plans to confirm water re-use calculations.

## Attachment 6 - Strategic Transport Comments



# Planning Referral

---

**To:** Sarah Thomas  
**From:** Julian Wearne  
**Date:** 26/03/2018  
**Subject:** Strategic Transport Comments  
**Application No:** PLN17/1143  
**Description:** 13 storey building (plus basement levels) containing dwellings shops, food and drinks premises (cafes), medical centre, childcare centre and restricted retail premises (noting a permit is not required for these uses).  
**Site Address** 10-20 River Boulevard, Richmond

---

I refer to the above Planning Application referred on 01/03/2018, and the accompanying Traffic report prepared by GTA Consultants in relation to the proposed development at 10-20 River Boulevard, Richmond. Council's Strategic Transport unit provides the following information:

### ***Plan consistency***

It is noted there are a number of inconsistencies between the proposed development plans and the landscape plans (which include a Movement & Circulation plan). All inconsistencies, including (but not limited to) the following should be addressed:

- Bicycle parking locations;
- Pedestrian crossings and footpaths; and
- Loading bay locations

### ***Access and safety***

The following safety and access concerns should be addressed:

#### Taxi rank location and on-road bike lane (River Boulevard)

The development plans show a taxi-rank between two existing trees on the western side of River Boulevard. This taxi rank location is directly adjacent the existing left-turning slip lane. This slip lane abuts an on-street painted bike lane, which is not shown on the plan.

Additional information is required as to whether the existing bike lane is proposed to be retained. Removal of the lane is unlikely to be supported without sufficient justification.

Assuming the bike lane is to be retained, taxi's using the rank are likely to cause conflict with cyclists and the operations of the slip lane. Taxi's will need to cross the slip and bike lanes once to enter the bay, then again if they are turning right.

If a taxi rank is required on River Boulevard, this should be located adjacent the southern building.

#### Loading bay & 'kiss and drive' bay pedestrian and cyclist conflict (River Boulevard)

The ground-floor development plans show an indented loading bay on River Boulevard adjacent the southern building. This also appears to serve as a short-term parking bay for 'kiss and drive' drop-offs. The location of the loading bay is not supported given River Boulevard is shown as a major pedestrian cyclist circulation point, and trucks should be discouraged from using this part of the development.

## Attachment 6 - Strategic Transport Comments

Further, 94 bicycle storage locations are shown near this bay, with cyclists urged to travel south to access River Boulevard via the building entrance. It would be preferred if cyclists had a direct line to River Boulevard from the building entrance. This could be accompanied by shifting the indented bays, having multiple smaller indented bays.

### On-street visitor bicycle parking (River Boulevard)

The existing layout of on-street visitor bike parking rails is likely to reduce pedestrian permeability due to the bays being located in large "blocks". It would be preferred if bays were spread apart in smaller groups along the River Boulevard frontage.

### Footpath continuity and Vickers Drive pedestrian vehicle conflict (Western Elevation)

A small section of the footpath adjacent the western elevation of the southern building, is shown as ending at a garden-bed; before the footpath begins again on the northern face of the building. This appears to have been placed to discourage pedestrian movements along the Vickers Drive footpaths, which feature vehicle and loading bay crossovers.

Whilst minimising conflict between pedestrians is essential, given these footpaths are the most direct route to the existing shopping centre entrance; it appears more than likely many pedestrians would continue to use Vickers Drive to access the centre. Rather than attempt to deter pedestrians by removing a section of the footpath, a continuous footpath should be provided; and the crossovers along Vickers Drive should be treated to reduce the likelihood of conflict between pedestrians and vehicles.

### Loading bay and pedestrian conflict (south west corner)

A 'loading' area is shown in the south-west corner of the southern building at the upper-ground-floor level on the development plans. The loading area is not shown on the Movement and Circulation page of the Landscape plans; however pedestrians are shown to circulate directly past this location.

Additional information regarding the nature of this loading bay is required. If loading via vans or trucks is proposed, there is a high likelihood of conflict with pedestrians. This is especially problematic given the childcare centre is located to the south of the loading bay, and a significant portion of pedestrians using this path are likely to be children.

## ***Bicycle Parking Provision***

### **Statutory Requirement**

Under the provisions of Clause 52.34-3 of the Yarra Planning Scheme, the development's bicycle parking requirements are as follows:

Proposed Use	Quantity/ Size	Statutory Parking Rate	No. of Spaces Required	No. of Spaces Allocated
Dwellings	426 dwellings	In developments of four or more storeys, 1 resident space to each 5 dwellings	85 resident spaces	
		In developments of four or more storeys, 1 visitor space to each 10 dwellings	43 visitor spaces.	
Medical centre	8 practitioners	1 employee space to each 8 practitioners	1 employee spaces	
		1 visitor space to each 4 practitioners	2 visitor spaces.	
Office (other than	3925 sqm	1 employee space to each 300 sqm of net floor area if the net floor area exceeds 1000 sqm	13 employee spaces	

**Attachment 6 - Strategic Transport Comments**

specified in the table)		1 visitor space to each 1000 sqm of net floor area if the net floor area exceeds 1000 sqm	4 visitor spaces.	
Retail premises <sup>1</sup> (other than specified in this table)	859 sqm	1 employee space to each 300 sqm of leasable floor area	3 employee spaces	
		1 visitor space to each 500 sqm of leasable floor area	2 visitor spaces.	
Shop <sup>2</sup>	8884 sqm	1 employee space to each 600 sqm of leasable floor area if the leasable floor area exceeds 1000 sqm	15 employee spaces	
		1 visitor space to each 500 sqm of leasable floor area if the leasable floor area exceeds 1000 sqm	18 visitor spaces.	
<b>Bicycle Parking Spaces Total</b>			<b>117 resident / employee spaces</b>	<b>278 resident / employee spaces</b>
			<b>69 visitor spaces</b>	<b>68 visitor spaces</b>
<b>Showers / Change rooms</b>		1 to the first 5 employee spaces and 1 to each additional 10 employee spaces	<b>4 showers / change rooms</b>	<b>X showers / change rooms</b>

The development provides a total of 161 additional resident/employee spaces over the requirements of the planning scheme, but provides 1 less visitor space than required by the planning scheme.

**Adequacy of visitor spaces**

68 spaces are noted as visitor bicycle parking spaces. The provision of the visitor spaces is inadequate for the following reasons:

- 68 spaces does not meet the statutory requirement of 69 visitor spaces, nor does it cater for Yarra’s current or predicted future cycling demand. At minimum 107 visitor spaces should be provided for the following reasons:
  - Best-practice requires a rate of 1 visitor space to each 500sqm of office space<sup>3</sup>, requiring 8 spaces for the office use.
  - Best-practice requires a rate of 0.25 visitor spaces to each dwelling<sup>3</sup>, requiring 107 spaces for the 426 dwellings.
  - The statutory rate for the remaining uses equals 22 spaces.
  - Given the mixed use development proposed, it is expected visitors to the site are likely to be spread across the day; therefore visitor spaces for the various uses could be consolidated to the expected peak demand for the residential use.
- Visitor bike spaces should be spread across the development to cater for the various uses, with the vast majority of spaces located in close proximity to the entrances to the residential component.

**Adequacy of employee spaces**

*Number of spaces*

Whilst the proposal includes a surplus of 161 resident/employee spaces above the requirements of the planning scheme, it is noted:

- A reduction of 356 car parking spaces is sought (31% of the statutory requirement);

<sup>1</sup> Food and drinks premises

<sup>2</sup> Includes Shops and ‘Restricted Retail’

<sup>3</sup> Category 6 of the Built Environment Sustainability Scorecard (BESS) offers the following best-practice guidance for residential visitor bicycle parking rates: “Residential developments should provide 0.25 visitor spaces per dwelling” and the following advice for Office uses: “offices should provide 1 visitor space per 500m2 net lettable area”.



## Attachment 6 - Strategic Transport Comments

- the subject site is located in an inner-urban area with already cycling demand, and trends indicate demand will continue to increase; and
- both local and state planning policies include objectives to promote sustainable transport modes, including cycling.
- Given the above, best-practice requires a rate of 1 space to each dwelling<sup>4</sup> (426 spaces), 1 space to each 100sqm of office floor space<sup>5</sup> (40 spaces), plus the statutory rate for the other uses (19 spaces).
- It is expected some (approximately 15-30%) of the residential spaces are likely to be vacant during normal office hours and therefore some spaces could be consolidated between the various uses.
- Therefore it is recommended a minimum of 426 resident/employee spaces be provided.
- It would be acceptable if a further reduction in car parking spaces was sought to provide additional bicycle parking spaces.
- At minimum, 6 changeroom / shower facilities should be provided. These should be located in facilities expected to be used by employees at the development.

### *Design and location of employee spaces and facilities*

Employee and resident spaces appear to be generally adequately located and designed for the following reasons:

- Employee/resident bicycle parking is provided at Basement 2 and Basement 1 and Ground-Floor. Due to the steep ramps that provide access to the car park, it is envisioned most cyclists would choose to access the spaces via the lift shaft.
- All spaces appear to be provided within secure facilities, as required under standard AS2890.3.
- All secure facilities are located within reasonable proximity to lifts and other access points.

However, the following information / changes should be included, in revised plans:

- Walkways and storage area dimensions to demonstrate compliance with Australian Standard AS2890.3;
- At least 20% of bicycle spaces within each floor, to each basement provided as horizontal rails as per the requirements of AS2890.3.
- All additional spaces (as required above) located between Basement Levels 2 and Ground Floor.

### ***Electric vehicles / share cars / other relevant topics?***

Council's BESS guidelines encourage the use of fuel efficient and electric vehicles (EV). Provision of EV charging points should be included in each basement. Additionally, to ensure the potential for future expanded provision for electric vehicle charging all car parking areas should be electrically wired to be 'EV ready'. A minimum 40A single phase electrical sub circuit should be installed to these areas for this purpose.

### ***Green Travel Plan***

Given the development has a total non-residential floor area of more than 1,000sqm, pursuant to Clause 22.17-4 a Green Travel Plan (GTP) must be provided. The following information should be included:

- (a) a description of the location in the context of alternative modes of transport;
- (b) employee and resident welcome packs (e.g. provision of Myki/transport ticketing);

<sup>4</sup> Category 6 of the BESS offers the following for best-practice guidance for resident bicycle parking rates: "As a rule of thumb, at least one bicycle space should be provided per dwelling for residential buildings."

<sup>5</sup> Category 6 of the Built Environment Sustainability Scorecard (BESS) offers the following best-practice guidance for bicycle parking rates: 'Non-residential buildings should provide spaces for at least 10% of building occupants.' Assuming a floor-space occupancy of 1 staff member to 10sqm (which is the maximum rate allowed under the National Construction Code for fire safety), providing bicycle spaces for 10% of occupants results in a rate of 1 space per 100sqm of floor area

## **Attachment 6 - Strategic Transport Comments**

- (c) the provision of real time passenger information displays for nearby stops within each lobby;
- (d) sustainable transport goals linked to measurable targets, performance indicators and monitoring timeframes;
- (e) a designated 'manager' or 'champion' responsible for coordination and implementation;
- (f) details of bicycle parking and bicycle routes;
- (g) details of GTP funding and management responsibilities;
- (h) security arrangements to access the employee bicycle storage spaces; and
- (i) signage and wayfinding information for bicycle facilities and pedestrians pursuant to Australian Standard AS2890.3;
- (j) Reference to a minimum 40A single phase electrical sub circuit should be installed to the basement levels for 'EV readiness'; and
- (k) provisions for the Green Travel Plan to be updated not less than every 5 years.

## **Recommendations**

The following should be shown on the plans before endorsement:

1. All inconsistencies between the development plans and the landscape plans resolved.
2. The taxi-rank adjacent the northern building on River Boulevard deleted.
3. The loading bay on River Boulevard deleted.
4. On-street bicycle parking along River Boulevard spread out to promote pedestrian permeability.
5. A continuous footpath adjacent the western elevation of the southern building.
6. Appropriate treatment of the vehicle crossovers and loading bays along Vickers Drive to minimise the likelihood of conflict with pedestrians.
7. Additional information regarding the 'loading area' at the south-west corner of the southern building, and conflict with pedestrians suitable addressed.
8. A minimum of 107 visitor bicycle parking spaces in a location accessible and convenient for visitor use.
9. A minimum of 426 resident/employee bicycle spaces. All the spaces must be within secure facilities. A minimum of 20% of the spaces at each level and within each basement must be provided as horizontal at ground spaces. All the spaces must be located at or between Basement 2 and ground-floor, and with reasonable proximity and access to:
  - a. Building entrances and/or lift shafts;
  - b. Both the north and southern ends of the development; and
  - c. (For employee spaces) end of trip facilities, including showers and change rooms.
10. A minimum of six change-rooms / showers as 'end of trip' cyclist facilities.
11. Dimensions of bicycle storage spaces, and relevant access ways noted to demonstrate compliance with Australian Standard AS2890.3 or to the satisfaction of the Responsible Authority.
12. Provision of a number of electric vehicle charging facilities in each basement.
13. The provision of a minimum 40A single phase electrical sub circuit should be installed to all car park areas for the purpose of allowing easy installation of electric vehicle charging stations in the future.

A Green Travel Plan / An Amended Green Travel Plan should be provided with the information outlined previously.

Regards

**Julian Wearne**

Sustainable Transport Officer  
Strategic Transport Unit

## Attachment 7 - Wind peer review (Vipac)



**Vipac Engineers and Scientists Limited**

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City of Yarra

09-03-2018

333 Bridge Road

Ref: 30N-18-0050-TNT-639113-0

Richmond, Victoria, 3121, Australia

**Attention: Sarah Thomas**

Dear Sarah,

10 & 20 River Boulevard, Richmond - Peer Review

This peer review of the MEL Consultants Environmental Wind Speed Measurements report (MEL Consultants Report 39/17) is based on Vipac's experience as a wind-engineering consultancy.

Vipac have reviewed the wind test report and relative drawings provided (see the list of files in the attachment). Our comments are as follows:

- The MEL Consultants Environmental Wind Speed Measurements report has been prepared based on a 1:400 scaled model wind tunnel test. The report includes the following main Sections: Introduction, Environmental Wind Criteria, Model and Experimental Techniques, Discussion of Results and Conclusions. Detailed test data were presented in the Figures section. Attached to the report are two publications related to the pedestrian level wind assessment criteria.
- We have no issue with the criteria for wind environmental conditions developed in 1978 by W. H. Melbourne, which was adapted in this report. Vipac have no comment regarding the mentioned criteria based on 20% or 0.1% probability of occurrence, as they are not actually used in the assessment in the report.
- In the Model and Experimental Techniques section, a 300 m minimum radius proximity model was used and is substantially correct. The Category 3 exposure was used in the assessment; this was also appropriate.
- In the Discussion of Results section, the report clearly addressed the wind speed measurement results street by street around the development and podium roof as well as roof top terraces.
- The report assessed the wind conditions on podium roof and roof top terraces and found that these locations met Walking criterion as a minimum. Many areas would also meet the more stringent standing criterion. Vipac agree with the use of walking criterion as a minimum to assess the podium roof and rooftop terraces.

09-03-2018

30N-18-0050-TNT-639113-0

*Commercial-In-Confidence*

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**Attachment 7 - Wind peer review (Vipac)**

City of Yarra  
 10 & 20 River Boulevard, Richmond - Peer Review  
 Review of the Environmental Winds Test Report

- The Conclusions indicated that all test locations fulfil the recommended wind criteria for the basic configuration with amelioration strategies. The amelioration strategies can be found in Figure 5a on Page 21.
- The report used the upper ground level plan (with no entrances shown, see Figure 2 in the attachment) instead of the ground level plan. Upon review of the ground level plan, the main building entrances on River Blvd and Victoria Street, as well as shop entrance at River Blvd (see Figure 1 in the attachment), should be assessed against the standing criterion in Vipac's practice. Although the wind speeds at these locations were not measured in the report, from the closest measurement results (Locations 8, 9, and 10) Vipac can conclude that the entrances on River Blvd would fulfil standing criterion for all wind directions. For the entrance on Victoria Street, the closest measurement location is number 19, at which the measurement indicated all directions except the north fulfilled the standing criterion. The walking comfort criterion is fulfilled for the north direction. Due to the set-in entrance design, this entrance would be expected to have more quiet wind conditions than Location 19. As such, the front of this entrance would be deemed to fulfil standing criterion as well.

In conclusion, the MEL Consultants Environmental Wind Assessment used the proper model, experimental and analysis methodology to assess the wind effects on the pedestrian level spaces around the proposed development, podium roof and rooftop terraces in detail. The locations of high wind conditions have been identified and were rectified with wind control strategies. The conclusions are substantially valid.

Although they have not assessed the front areas of the entrances on River Blvd and Victoria Street, from the test results of the nearest locations, Vipac can estimate that these areas would have acceptable wind conditions.

Yours sincerely,

**Vipac Engineers & Scientists Ltd**

Zhuyun Xu  
**Senior Wind Engineer**

Sophie Lamande  
**Wind Group Leader**

09-03-2018

30N-18-0050-TNT-639113-0

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## Attachment 7 - Wind peer review (Vipac)



City of Yarra  
10 & 20 River Boulevard, Richmond - Peer Review  
Review of the Environmental Winds Test Report

**Attachments:**

**File list received**

Name	Date modified
 Landscape Plans (1)	1/03/2018 2:0.
 Perspectives	1/03/2018 2:0.
 Plans Part 1 (2)	1/03/2018 2:0.
 Plans Part 2 (2)	1/03/2018 2:0.
 Plans Part 3 (2)	1/03/2018 2:0.
 Plans Part 4 (1)	1/03/2018 2:0.
 Plans Part 5	1/03/2018 2:0.
 Plans Part 6	1/03/2018 2:0.
 Plans Part 7	1/03/2018 2:0.
 Plans Part 8	1/03/2018 2:0.
 Plans Part 9	1/03/2018 2:0.
 Wind Impact Assessment (2)	1/03/2018 2:0.

Attachment 7 - Wind peer review (Vipac)



City of Yarra  
10 & 20 River Boulevard, Richmond - Peer Review  
Review of the Environmental Winds Test Report

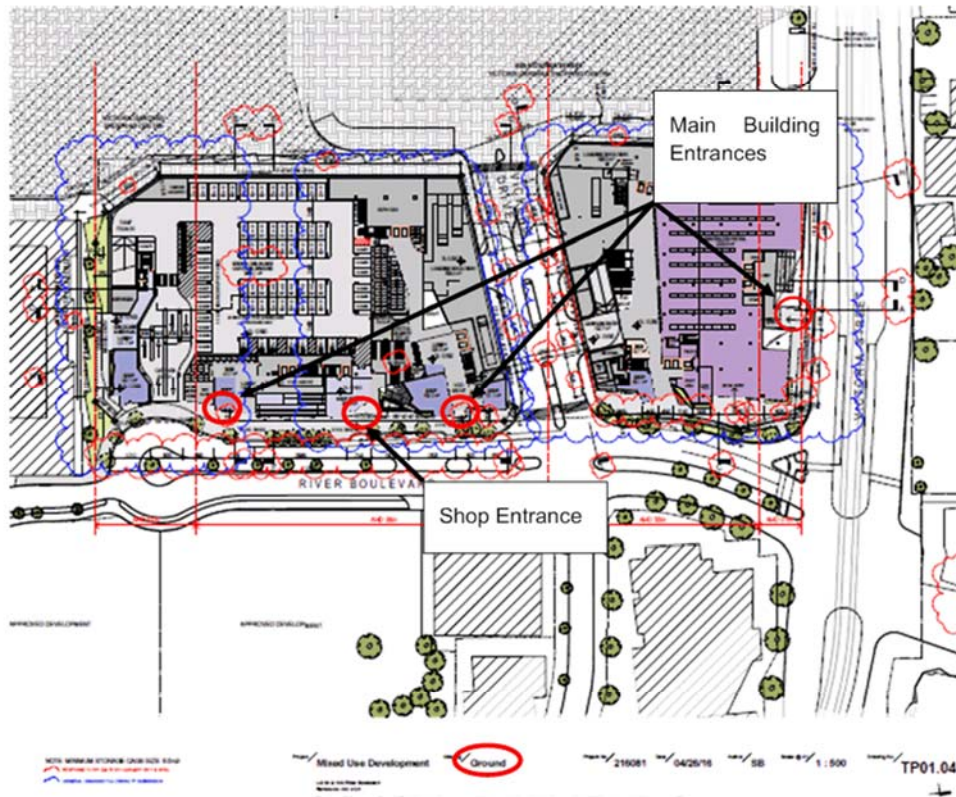


Figure 1: Building entrances at ground floor.

09-03-2018

30N-18-0050-TNT-639113-0

Commercial-In-Confidence

Page 4 of 5

Attachment 7 - Wind peer review (Vipac)



City of Yarra  
10 & 20 River Boulevard, Richmond - Peer Review  
Review of the Environmental Winds Test Report

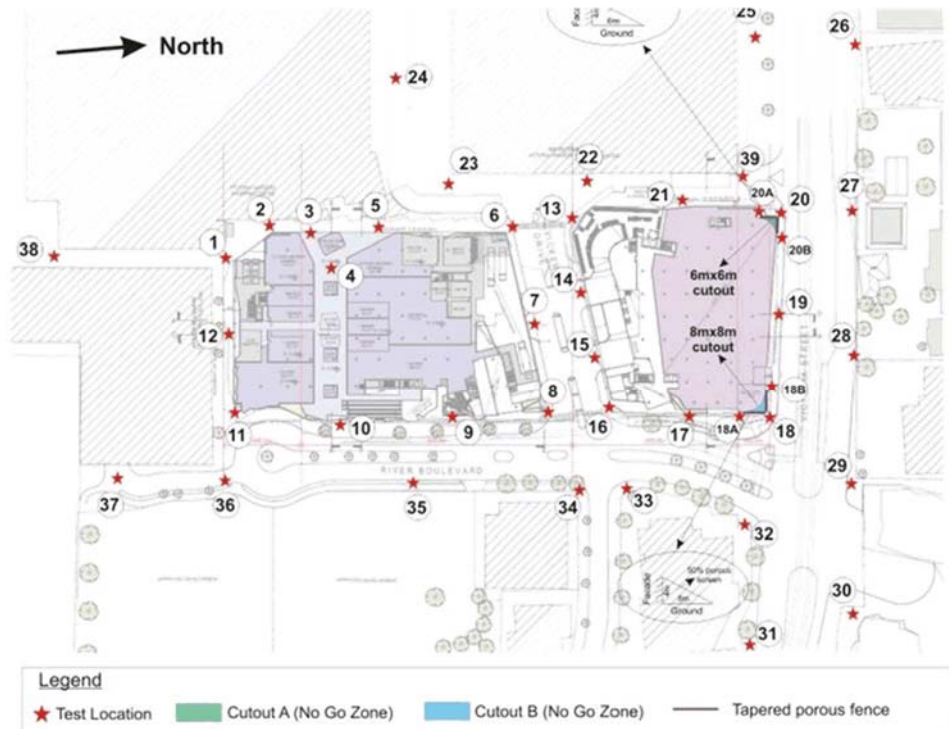


Figure 5a - Ground Level Test Locations with wind amelioration strategies

Figure 2: Measurement Locations in the report  
Note: this is upper ground level in the drawing set provided

**Attachment 8 - Open space advice**



**Memo**

<b>To: Sarah Thomas</b>	diverse
<b>Cc: Clare Lee, Carrie Lindsay, Paul Whitten and Glen Williams</b>	vibrant
<b>From: Craig Lupton</b>	exciting
<b>Date: 4 April 2018</b>	
<b>Subject: 10 and 20 River Boulevard Richmond</b>	inclusive

Hi Sarah

The streetscapes and Natural Values Team provides the following comments in relation to 10 and 20 River Boulevard, Richmond:

**River Boulevard Street Tree Planting**

- Given the sites proximity to the Yarra River, it is preferable that new trees are consistent with the dominant native species in the street [Rose Gum (*Angophora costata*)] and/or local indigenous trees that enhance urban biodiversity values .i.e. Yellow Box (*Eucalyptus Melliodora*) and Melbourne Yellow Gum (*Eucalyptus leucoxylon ssp. connata*). London Plane trees are not supported for any new tree planting.
- *Eucalyptus leucoxylon megalocarpa* 'Elite' (Large Fruited Yellow Gum) should be substituted with the local indigenous Melbourne Yellow Gum (*Eucalyptus leucoxylon ssp. connata*).
- On the west side of River Boulevard it is preferable to have regular spacing of street trees along the eastern edge of the site. It is also preferable not to position a tree in the small outstand at the Victoria St intersection so that pedestrian access to Victoria Street is enhanced.
- It is preferable to have more widely distributed bike parking to enable regular street tree alignment.
- There are currently five (5) London Plane trees in the centre median closest to Victoria Street (drawings only show 4 trees). There is a new tree proposed for the southern end of this median which is not supported as there is a street light in this location and a pedestrian link (also not on the drawings).
- It is recommended the proposed taxi rank is relocated as it is too close to the existing street trees (TP01.04).

**Low Planting**

- It would be preferable to limit any low planting to the areas closer to Victoria Street to provide an entrance statement to the development. The remaining tree planting could be standard footpath planting.



## **Attachment 8 - Open space advice**

### **North South Pedestrian Link the Western Edge of the Site**

- Two (2) additional trees are proposed. It may not be possible to plant one of these due to nearby gas meters (middle tree on landscape drawings pg.3).

### **Southern edge pedestrian link**

- There is a new tree proposed at the western end. For consistency, it would be preferable that this is a palm tree to match existing palm species.

### **Victoria Street**

- The 6.4m height from ground level to the canopy at Level 1 provides an opportunity to plant small footpath trees along the Victoria Street frontage. Native trees such as Water Gum (*Tristaniopsis laurina* 'Luscious') are preferable due to the proximity of the Yarra River.

### **Tree Protection**

- A Tree Protection Management Plan (TMP), including a non-destructive exploratory root excavation for all street trees along the west boundary of the current carpark area is required.
- The TMP must also consider the canopies of trees along River Blvd.
- Council supports the removal of one juvenile Council tree at the south western end of River Blvd subject to the applicant covering reinstatement costs.
- There is one (1) London Plane tree in the Vickers Drive centre median on the applicants land. This tree may require a local law permit for removal if it meets the criteria for a 'significant tree' under General Local Law (2016).
- There are three (3) Poplars located in the south west corner that meet the criteria for a 'significant tree' and will therefore require a permit under General Local Law (2016).
- The Palms may require a local law permit for removal if they meet the criteria for a 'significant tree' and will therefore require a permit under General Local Law (2016).

### **Podium 1 Landscaping**

- A concern with Podium 1 landscape is the extent of shade caused by the buildings. It appears as though there will be approximately two (2) hours of sun in summer and in winter the site will not get full sun coverage.

### **General Comments**

- The species list requires a review to provide accurate names and mature heights/spreads.
- Water systems utilising on-site water must be shown and consider ongoing maintenance requirements.
- Concern for light availability to the remaining Palms on the south boundary (north of the neighbouring site) and the Pyrus on the west boundary (east of the neighbouring property).
- The tree planting spaces need to be defined to provide accurate soils areas, volumes and if planting spaces are planned to extend below hard landscape areas. This information will assist in assessing the viability of implementing strata cells or structural soils to optimise the growth zone for roots and to stabilise the tree.

Please let me know if you require any further information.

Kind Regards

**Craig Lupton**

Coordinator Streetscapes and Natural Values

**Attachment 9 - External urban design advice**



**10 & 20 River Boulevard, RICHMOND**

**Urban Design Referral**

<b>Date</b>	3 <sup>rd</sup> April 2018
<b>Council Reference</b>	PLN16/1156
<b>To</b>	Sarah Thomas
<b>From</b>	David Lock Associates

**INTRODUCTION**

In March 2018, the City of Yarra requested that David Lock Associates ('DLA') undertake an urban design assessment of a proposed Development Plan at 10 - 20 River Boulevard, Richmond (the 'subject site'). The proposed Development Plan seeks approval to facilitate the construction of a range of mixed use buildings that rise to a maximum building height of 13 storeys (inc. mezzanine).

In undertaking this assessment we have had regard to the following:

- The relevant provisions of the Yarra Planning Scheme (the 'Planning Scheme') and relevant Incorporated and Reference Documents, including:
  - The 'Victoria Gardens Urban Design Guidelines (1997)', including appended 'Victoria Gardens – Building Envelope and Precinct Plan and Precinct 3 Plan – Warehouse Area';
  - The 'Victoria Street Activity Precinct Urban Design Framework (2004);
  - The 'Victoria Street East Precinct Richmond Urban Design Framework' (November 2005); and
  - The adopted 'Victoria Street Structure Plan (2010)'.
- The physical context of the subject site and wider area, including (but not limited to):
  - The existing Victoria Gardens Shopping Centre built form context west of the subject site;
  - The existing built form context north-east of the subject site at 677-681 Victoria Street, Abbotsford ('Haven', 'Eden' and 'Sanctuary' development), comprised of residential built form that rises up to a maximum of approximately 10 storeys in height;
  - The existing built form context of Burnley Street west of the subject site, comprised of numerous residential developments in the order of seven residential storeys in height (including the SJB-designed 'A Place to Live' development at 522 Victoria Street); and
  - The emerging approved built form context of the subject site's wider area, including 647-649 Victoria Street, Abbotsford (10 storeys) and 25-35 River Boulevard, Richmond (8 storeys).
- The Development Plan prepared by RotheLowman Architects (Revision B, dated 17 January 2018 [post RFI]), including indicative development renders; and

## Attachment 9 - External urban design advice



- The town planning report prepared by SJB Planning (December 2017).

### ASSESSMENT

It is clear from our review of the above that the key urban design issues pertaining to the proposal are as follows:

- Is the proposal appropriate with respect to the existing and preferred future **character** of the eastern Victoria Street Major Activity Centre (MAC) environs?; and
- Will the proposal result in acceptable **public realm and offsite amenity impacts**?

These are addressed in turn.

### CHARACTER

#### *Context*

The subject site is a large, vacant landholding comprising a total area of 1.4ha (approx.) located on the southern side of Victoria Street, Richmond, within the broader block bound by the Yarra River (to the east) and Burnley Street (to the west). The site abutted to the west by the Victoria Gardens Shopping Centre ('Victoria Gardens'), has a direct eastern street frontage to River Boulevard, and is dissected by Vickers Drive (which we understand to be a private road). A gentle slope runs NE-SW through the site.

In terms of abutments, Victoria Gardens is a large commercial 'big box' regionally-significant shopping centre that presents to the public realm with an equivalent four storey commercial envelope. Victoria Gardens interfaces to the subject site with a mix of pedestrian entrances, ramped vehicle accessways and benign retail sideage, noting that the shopping complex sets back approximately 15m from Victoria Street itself. Victoria Street is located directly north of the subject site, which is a 30m (approx.) wide regionally-significant road reserve that forms the spine of the Victoria Street MAC. River Boulevard abuts the subject site for the entirety of the site's eastern interface, which is a 24m wide (approx.) local access cul-de-sac flanked by a mix of existing residential and commercial built form of approximately 4-5 storeys in height. Finally, a four storey commercial complex used for the purpose of 'Bae Systems' is located directly south of the subject site, across a privately-owned east-west public landscape linkage.

In terms of broader context, the subject site's broader area is clearly undergoing transformative built form change in the achievement of a preferred, intensive future character. The magnitude of development occurring in proximity to the subject site is such that the subject site effectively presents as one of the last 'remnant' development sites within the broader Victoria Street East precinct. The intensity of development occurring within proximity of the subject site is juxtaposed by the natural qualities of the Yarra River linear open space corridor, which is located approx. 150m east (and downslope) of the subject site.

Attachment 9 - External urban design advice



The mandate for transformative built form change in proximity to the subject site stems from the underlying policy context of the subject site and broader area. The entirety of the subject site and all abutting properties are zoned 'Comprehensive Development Zone Schedule 1 (CDZ1 – Victoria Gardens Comprehensive Development)', which - of relevance from a character perspective - seeks to 'encourage the comprehensive redevelopment of land on the south side of Victoria Street between Burnley Street and the Yarra River' and ensure that future development is compatible with future context. Clause 4.0 of the CDZ1 exempts buildings and works from requiring planning approval if it is generally in accordance with a Development Plan prepared and approved earlier, and Clause 10.0 of the CDZ1 clearly states that such a Development Plan must be generally in accordance with the 'Victoria Gardens Building Envelope and Precinct Plan and Precinct 3 Plan – Warehouse Area' (the 'Precinct Plan').

Clause 17 of the CDZ1 identifies that a building or works must not exceed the height above AHD for any particular site as shown on the Precinct Plan, with the corresponding addendum to the 1997 Victoria Gardens Urban Design Guidelines clearly stating that RL heights are measured in relation to AHD. Both the CDZ1 and underpinning precinct plan therefore set an anticipated mandatory built form vision as follows:

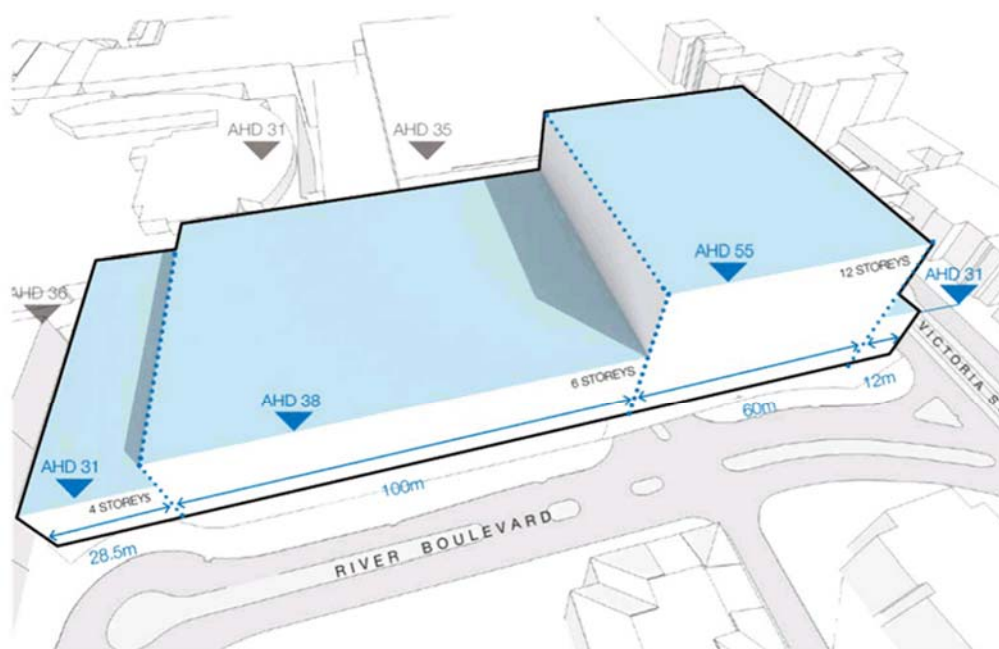


Figure 1 - Visual Illustration of Victoria Gardens Building Envelope and Precinct Plan and Precinct 3 Plan – Warehouse Area (Source: RotheLowman Architects)

In terms of overlays, the subject sites northern interface to Victoria Street is affected by Design and Development Overlay Schedule 2 '(DDO2 – Main Roads and Boulevards)' which – of relevance

## Attachment 9 - External urban design advice



– seeks to recognise the importance of main roads to the image of the City. The site’s remaining overlay is irrelevant from an urban design perspective (EAO).

The balance of the Planning Scheme generally directs the highest intensity of municipal built form change to Activity Centres (such as Victoria Street) and/or Strategic Redevelopment Sites (such as the subject site) - refer Clauses 21.03, 21.05 and 21.08 & 22.11. Specifically, Clause 21.08 identifies the subject site as being within the ‘North Richmond’ neighbourhood (where a mix of uses within built form sympathetic to the Yarra River environs are encouraged), and Clause 22.11 seeks context-responsive built form outcomes that do not unreasonably impact upon views from the Yarra River Corridor.

Finally, the ‘Victoria Gardens Urban Design Guidelines (1997)’ and – more recently – ‘Victorian Urban Design Guidelines (2017)’ both articulate high level urban design aspirations, that combine with the overarching intent of the ‘Victoria Street Structure Plan (2010)’ to cement expectations for high quality urban design outcomes on sites such as the subject site.

Therefore, taken together, the physical location of the subject site and emerging built form condition of the subject site’s broader area both support more intensive development on site in-principle, in the achievement of a preferred future built form character comprised of ‘more intensive’ built form. The site’s CDZ1 (and underpinning 1997 Guidelines) provides the most useful policy guidance as to how best to achieve this.

### *Victoria Street Interface*

As viewed from Victoria Street, the Development Plan seeks approval to present with a 5 storey commercially-used streetwall (including mezzanine) that rises to a maximum building height of 16.85m (approx.). Above this, the Development Plan seeks approval to rise to a total height of 13 storeys (40.9m – including mezzanine) massed between two residential towers set back approximately 10-15m from Victoria Street.

The starting point in the consideration of the Development Plan’s interface to Victoria Street are the provisions of the Precinct Plan, which articulate a future character aspiration comprised of a 16.9m high street wall (RL31 minus an approximate corresponding NGL AHD of 14.1) with taller built form that rises to a maximum height of approximately 41.64m (RL55 minus an approximate corresponding NGL AHD of 13.36), set back 12m from a Victoria Street reference point that does not appear to align with the subject site’s title boundary.

At the height and massing proposed, the Development Plan is directly consistent with the future character aspirations of the Precinct Plan insofar as it relates to Victoria Street. Importantly, the Development Plan’s proposed street wall responds to the height datum of existing built form context in proximity to the subject site on the southern side of Victoria Street (Victoria Gardens as well as the ‘Nova Building’) in a manner that provides a greater sense of spatial definition to Victoria Street compared to existing context. Above this, the height of the tallest elements of the proposal’s interface to Victoria Street are similarly consistent with the character aspirations of the

## Attachment 9 - External urban design advice



Precinct Plan, in a manner that responds to the general scale and magnitude of existing and approved development within the subject site's portion of Victoria Street (including the 'Haven', 'Eden' and 'Sanctuary' development). This is supported.

Whilst we do note that the Development Plan seeks approval for small variations to the mandatory height aspirations of the CDZ1 and underpinning Precinct Plan (such as a 950mm high parapet to the proposed Victoria Street streetwall), the extent of discretion sought for the approval of each is generally consistent with dot point 2 of Clause 17 of the CDZ1 and is of limited character impact.

Significantly, the applicant's architectural resolution of the Development Plan's response to the Precinct Plan's envelope parameters has been skilfully handled. Insofar as the Development Plan relates to Victoria Street, the proposed 'horizontal' of the architectural expression responds to the broad allotment width characteristic of the southern side of Victoria Street in a manner that responds to the primary transient experience of this space at higher speeds by vehicle. Similarly, the proposed upper levels of the Development Plan's Victoria Street interface have been diffused into two distinct tower forms by way of an internal minimum inter-tower separation of 25.9 meters, which – when combined with the juxtaposing of materiality between 'tower' and 'base' – results in a high quality and visually interesting architectural composition that is suitably responsive to the prominent location of the subject site within the broader Victoria Street streetscape and aspirations of DDO2.

The Development Plan's proposed interface Victoria Street is appropriate from a character perspective.

### *River Boulevard Interface*

As viewed from River Boulevard, the Development Plan seeks approval to present a stepped building form that varies between approximately 40.75m (13 storeys) to 16.9m (4 storeys). A key difference between the Development Plan's proposed River Boulevard interface in comparison to Victoria Street is that no significant upper form setbacks are proposed, but rather a variation in materiality is relied upon to obtain a level of streetwall 'definition'.

Again, the starting point in the consideration of the Development Plan's interface to River Boulevard are the provisions of the Precinct Plan, which articulate a future character aspiration comprised of the 'sideage' of the aforementioned Victoria Street streetwall, the aforementioned tower form, a 'midrise' form up to 25.5m in height (RL38 minus an approximate corresponding NGL AHD of 12.5) and a 'lowrise' built form outcome within the south of the subject site up to approximately 18.5m in height (RL31 minus an approximate corresponding NGL AHD of 12.5). No street setbacks from River Boulevard are articulated within the Precinct Plan.

At the height and massing proposed, the Development Plan is directly consistent with the future character aspirations of the Precinct Plan insofar as it relates to River Boulevard. Importantly, the Development Plan's proposed prevailing street wall height of 4-7 storeys responds to the existing

## Attachment 9 - External urban design advice



height datum evident within River Boulevard (including the four commercial storeys 'Bae Systems' development at the southern terminus of River Boulevard) in a manner achieves a comfortable prevailing 1:1 building-height-to-street-width relationship with River Boulevard (~24m wide). Importantly, where taller elements are proposed to the River Boulevard interface, we note that they have been massed contextually in a way that responds to the site's terminus location at the western end of Elaine Court.

As with the Development Plan's proposed interface to Victoria Street, again the architectural resolution of the Development Plan's streetscape interface has been ably handled by way of a well-resolved application of juxtaposing materials (tactile 'light and dark textured concrete finishing' [CF01 and CF02] as well as glazing) to achieve a clear distinction between 'base' and 'upper form'. In particular, the 'framing element' to the eastern (and western) elevations of the Development Plan's Victoria Street streetwall is elegant and simple and of particularly high design quality.

Whilst the resultant visual outcome is generally high quality and well-modulated, further consideration should be given to the sheer extent of concrete materiality proposed for the full height of the southernmost childcare 'nodule' of the Development Plan's proposed River Boulevard as a means of achieving a higher degree of architectural resolution at the southern terminus of River Boulevard. Refer also to the discussion on 'Public Realm Amenity' below.



Figure 2 – Indicative render view of the design resolution of the proposed childcare nodule to River Boulevard (Source: RotheLowman Architects)

Subject to this, the Development Plan's propose interface to River Boulevard is appropriate from a character perspective.

## Attachment 9 - External urban design advice



### PUBLIC REALM AND OFFSITE AMENITY

#### *Public Realm Amenity*

The CDZ1 (and underpinning 1997 Urban Design Guidelines) combine with more 'recent' policy provisions (such as Clauses 15 and 22.11 of the Planning Scheme, as well as DDO2 and the Victorian Urban Design Guidelines [2017]) in seeking the achievement of a broad range of high quality public realm urban design outcomes.

In response, the proposal's Ground Floor program has been designed to appropriately respond to Victoria Street and River Boulevard by way of a mix of active commercial, retail and residential entry lobbies. The considered use of mezzanine levels assists in offsetting the difficulties associated with achieving Ground Floor public realm activation, the use of double height curtain glazing to the Victoria Gardens River Boulevard entrance is exceptionally legible, and the concentration of 'back of house' facilities to Vickers Drive is broadly logical and appropriate. However, the Development Plans' proposed relationship to the surrounding public realm could be enhanced through consideration of the following:

- Providing meaningful weather protection to the Victoria Street and River Boulevard public realms by way of architecturally integrated weather canopies (rather than intermittent cantilevered recesses). Canopies should seek to cover the full width of each of the subject site's street interfaces, extend no less than 750mm from the kerb line, and be situated no higher than 4m above the NGL of the public realm;
- Providing further information with respect to the pedestrian experience of Vickers Drive, above and beyond the elevation information provided at TP03.03. The applicant should be invited to prepare render views from River Boulevard and articulate in greater detail the active and passive wayfinding approaches to pedestrian movement through this space in the appurtenant Pedestrian Amenity and Access Plan (as per Clause 7.0 of the CDZ1);
- Rationalising the proposed 'shop' and 'childcare/medical lobby' within the south-east of the Development Plan's proposed Ground Floor program into a single, enlarged childcare lobby that benefits from a direct River Boulevard frontage;
- Introducing considered 'control points' to the proposed communal private open space as a means of preventing full, open public access; and
- Clarifying the specific mechanisms in which 'No General Pedestrian Access' is intended to be precluded to the services area west of the subject site, between the proposed Victoria Street streetwall and Victoria Gardens.

Design detail aside, the applicant's approach to 'funelling' pedestrian movements between Victoria Gardens and River Boulevard is logical, the extent of upper public realm activation and passive surveillance to both Victoria Street and River Boulevard is sound, and the extent of public



## Attachment 9 - External urban design advice



realm Equinox overshadowing is of limited public realm amenity consequence. Importantly, the proposed Development Plan will not unreasonably impact upon the existing qualities and character of the Yarra River Corridor.

### *Private Realm (Offsite) Amenity*

The subject site does not have any direct abutments to residential developments, or properties located within a residential zone. Whilst a number of residential buildings are located to the east of the subject site across River Boulevard, all are sufficiently well separated by way of the road network with respect to overlooking, overshadowing and visual bulk commensurate with reasonable amenity expectations for CDZ-zoned properties in identified future change areas.

### **OTHER**

With respect to equitable development, we are not of the opinion that any of the subject site's abutting properties are likely future development sites given their existing built form condition relative to the maximum mandatory building heights of the CDZ1 and underpinning precinct plan. In any event, any proposed residential use that is reliant on an abutting property for primary amenity is sufficiently set back from an equitable development perspective.

Finally, please also note that we have not considered any aspect of the proposed Development Plan from an internal amenity perspective, and make no commentary accordingly.

### **SUMMARY**

In summary, the physical location of the subject site and emerging built form condition of the subject site's broader area both support more intensive development on site in-principle in the achievement of a preferred future built form character. The site's CDZ1 (and underpinning 1997 Guidelines) provide the most useful policy guidance as to how best to achieve this.

In effect, the urban design challenge before the applicant is to devise a Development Plan that 'evolves' the metric envelope provisions of the CDZ1 and Precinct Plan in a manner that is architecturally resolved and contextually responsive. Our opinion is that the Development Plan outcome before Council achieves this in principle.

Whilst fundamentally supportive of the applicant's Development Plan outcome in its current form, we recommend the following minor design changes from an urban design perspective:

- **Further consider the design resolution of the proposed childcare node within the south of the Development Plan's River Boulevard interface. Consideration should be given to greater use of alternating materiality, and achieving greater activation and passive surveillance of River Boulevard at Level 1 and above;**

**Attachment 9 - External urban design advice**



- Provide meaningful weather protection to the Victoria Street and River Boulevard public realms by way of architecturally integrated weather canopies (rather than intermittent cantilevered recesses). Canopies should seek to cover the full width of each of the subject site’s street interfaces, extend no less than 750mm from the kerb line, and be situated no higher than 4m above the NGL of the public realm;
- Provide further information with respect to the pedestrian experience of Vickers Drive, above and beyond the elevation information provided at TP03.03. The applicant should be invited to prepare render views from River Boulevard, and articulate the active and passive wayfinding approaches to pedestrian movement through this space in the appurtenant Pedestrian Amenity and Access Plan (as per Clause 7.0 of the CDZ1);
- Rationalise the proposed ‘shop’ and ‘childcare/medical lobby’ within the south-east of the Development Plan’s proposed Ground Floor program into a single, enlarged childcare lobby that benefits from a direct River Boulevard frontage;
- Introduce considered ‘control points’ to the proposed communal private open space as a means of preventing full, open public access; and
- Provide further information regarding the intended mechanisms in which ‘No General Pedestrian Access’ is intended to be precluded to the services area west of the subject site, between the proposed Victoria Street streetwall and Victoria Gardens.

Please do not hesitate to contact Brodie Blades on (03) 9682 8568 or at [brodieb@dlaaust.com](mailto:brodieb@dlaaust.com) should you wish to discuss any aspect of the above further.

**DAVID LOCK ASSOCIATES**

## **Attachment 10 - Council Heritage Advice (extract of emails)**

### **Council's Heritage Advisor advice**

Email dated 15 May 2018:

*There was a tramway shed in the north-east corner as per MMBW plan 1071, 1903. You can see the tram lines from Victoria Street so it might have been an engine shed for the cable tram, suggested by the presence of pits, or an overnight storage shed for trams. I will have a look on site tomorrow.*

[http://search.slv.vic.gov.au/primo\\_library/libweb/action/dlSearch.do?dscnt=1&onCampus=false&query=any%2Ccontains%2Cmmbw%20burnley%20victoria&bulkSize=20&tab=default\\_tab&group=ALL&vid=MAIN&institution=SLVPRIMO&fromLogin=true&search\\_scope=Everything](http://search.slv.vic.gov.au/primo_library/libweb/action/dlSearch.do?dscnt=1&onCampus=false&query=any%2Ccontains%2Cmmbw%20burnley%20victoria&bulkSize=20&tab=default_tab&group=ALL&vid=MAIN&institution=SLVPRIMO&fromLogin=true&search_scope=Everything)

Email dated 16 May 2018:

*I went to the site. It is basically an asphalted car park set above a battered (sloped) embankment up from Victoria St. While it might be at that level to connect to the Victoria Gardens car park and whatever else, it might also have been a quick and cheap job to disguise the bluestone plinth or footings of the tram building and leave it for someone else to deal with. I am waiting for HV to send me some standard words re a watching brief which I think is what might be required for an archaeologist as there is nothing visible on the surface. Will advise when I receive it.*

Email dated 18 May 2018, once it was known that the site is a heritage inventory site, the Council planner asked 'Being on the Victorian Heritage Inventory- it looks like there are Heritage Vic Requirements'. Council's Heritage Advisor returned an email on the same day 'No[w] that I have that piece of information – YES'.

**Attachment 11 - External traffic review (Cardno)**



Our Ref: V180334:EK  
 Contact: Eric Kydd

26 April 2018

City of Yarra  
 PO Box 168  
**Richmond VIC 3121**

Attention: Sarah Thomas

**Cardno Victoria Pty Ltd**  
 ABN 47 106 610 913

Level 4  
 501 Swanston Street  
 Melbourne 3000  
 Australia

Phone +61 3 8415 7777  
 Fax +61 3 8415 7788

www.cardno.com

Dear Sarah,

**10 AND 20 RIVER BOULEVARD, RICHMOND  
 TRAFFIC ENGINEERING PEER REVIEW**

This letter has been prepared to review the proposed development at 10 and 20 River Boulevard, Richmond, in particular Transport Impact Assessment report prepared by GTA Consultants (Reference: V128260 – Draft B version, dated 19 December 2017).

The GTA report references plans (Project No. 216081, Drawing No.'s TP01.00 – TP01.17 rev A) and development schedule (TP00.00 rev A) prepared by Rothelowman generally dated 26 April 2016. This letter will review and address the proposed development in the context of this documentation.

We note that any traffic engineering content within the GTA report that has not been directly addressed in this letter (including *Appendices*) is otherwise generally supported by Cardno.

**Peer Review of Transport Impact Assessment**

Introduction

**Background & Proposal**

A summary of the proposed development has been included in Table 1-1 and is based on town planning drawings prepared by Rothelowman (Project Number: 216081, Drawing No.'s TP01.00 – TP01.17 rev A dated 26 April 2016).

Table 1-1 Development Schedule

Use	Description	Number / Size
Residential Dwellings	One bedroom	81 apartments
	Two bedroom	312 apartments
		10 duplex's
	Three bedroom	23 apartments
<b>Total Residential Apartments</b>		<b>426 dwellings</b>
Office		3,924.8 m <sup>2</sup>
Medical Centre		551.1 m <sup>2</sup>
Child Care Centre		100 children
Restricted Retail Premises		5513.8 m <sup>2</sup>
Food & Drink Premises		858.6 m <sup>2</sup>
Shop		3369.3 m <sup>2</sup>

Australia • Belgium • Canada • Colombia • Ecuador • Germany • Indonesia • Kenya • Myanmar • New Zealand • Nigeria • Papua New Guinea • Peru • Philippines • Singapore • Timor-Leste • United Kingdom • United States • Operations in over 100 countries

**Attachment 11 - External traffic review (Cardno)**

V180334: EK  
26 April 2018

2



We note that the development schedule provided in Table 1.1 of the GTA report generally mirrors the Development Summary provided by Rothelowman (TP00.00 rev A).

It is, however, noted that both the GTA report and Rothelowman Development Summary state that the proposed child care centre is able to accommodate up to 100 children, whereas plans indicate that a total of ten (10) rooms able to accommodate 12 children per room are proposed, equating to 120 children. This is to be clarified given the implications on statutory car and bicycle parking requirements.

Based on a review of town planning drawings, a total of **774 car parking spaces** are supplied on-site across ground floor and four basement levels, inclusive of 13 disabled spaces (refer page 1 of GTA report). Of these spaces, **348** are proposed across Lot 10 (10 River Boulevard) and **427** are proposed across Lot 9 (20 River Boulevard).

Additionally, a total of **346 bicycle parking spaces** are accurately represented in the Development Summary and Town Planning drawings. Of these spaces, 96 are presented in the form of ground-mounted horizontal hoops, with the remaining 250 bicycle parking spaces in the form of 'Ned Kelly' vertical wall-mounted racks.

We do, however, note the following with regard to proposed car and bicycle parking numbers:

- > Plans indicate a total of 15 disabled bays are proposed (7 across basement levels and 8 at ground level) whereas the GTA report states that 13 spaces are provided; and
- > Bicycle parking numbers may change given a number of wall-mounted racks are deemed non-compliant with AS 2890.3:2015, in particular regarding appropriate offsets to adjacent walls.

The adequacy of the proposed car and bicycle parking provisions, allocations and layouts will be discussed in the later stages of this letter.

#### **Subject Site**

The GTA report states "*The site of approximately 91,400sqm has frontages to...*" It appears this is a grammatical typing error, given Cardno's estimate of the combined Lot 9 and Lot 10 areas equates to approximately 14,000 m<sup>2</sup>. This area is also referenced in the Planning Permit Application report prepared by SJB Planning dated December 2017.

#### **Bicycle Parking & Associated Facilities**

Cardno has reviewed Section 3 of the GTA report which relates to the development's bicycle considerations, offering the following comments with regard to provision, access and layout aspects:

##### **Statutory Requirements**

###### *Bicycle Parking Provision*

Cardno supports GTA's assessment of the statutory bicycle parking requirement generated by the proposed development as defined in Table 3.1 of the report, which indicates that the proposal generates the requirement to provide a total of 192 bicycle parking spaces on-site. Of these spaces, 124 are to be provided for employees/residents and the remaining 68 are allocated to visitors.

As it is proposed to supply 278 resident/employee spaces and 68 visitor spaces as part of the development, the proposed bicycle parking supply does indeed notably exceed the statutory requirements in this instance. Further, Cardno holds no reservations towards the *indicative* resident/staff bicycle parking allocation ratio proposed by the applicant.

It is, however, recommended that appropriate bicycle parking way-finding signage is provided to assist visitors in locating bicycle parking spaces located within Lot 9 – Ground Level car park. Visitor parking appears to have been generally provided in safe and conveniently accessible locations.

###### *Associated Facilities*

The GTA report state that, as a total of 39 staff spaces are required to be provided as part of the development, the proposal generates a statutory requirement of four change rooms/showers; this is agreed. The GTA report states that these have been provided within the development, yet we were able to locate only three (3) shower/changeroom facilities throughout the plans provided.

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### *Bicycle Parking Layout & Access*

Cardno is generally in agreement that the proposed bicycle parking layout has been designed in accordance with Australian Standard Parking Facilities Part 3: Bicycle Parking (AS 2890.3:2015). We do, however, note:

- > The 3-4 easternmost ground mounted spaces along the southern wall within the secure bicycle store located on Lot 10 – Basement 2 do not appear to be provided with the mandatory 1.5m aisle width. It is recommended that these spaces be converted to vertical wall-mounted spaces, or the proposed arrangement be revisited.
- > A number of bicycle parking spaces provided in the form of 'Ned Kelly' vertical wall-mounted racks within the Lot 9 – Ground Level secure bicycle store (typically at aisle ends) are positioned less than 500mm from adjacent walls. These offsets are to be amended.
- > Clause 2.1 (e) within AS2890.3:2015 states:  
*"...to include a minimum of 20% of ground level (horizontal) BPDs in any bicycle parking facility. This is to provide for those riders unable to lift a bicycle to a hanging BPD, and for parking of non-standard bicycles."* The GTA report states that a minimum of 20% of the bicycle parking spaces are provided as horizontal on-ground spaces, in reference to the requirement specified under AS2890.3:2015. In this instance, GTA have assessed this requirement across the entire bicycle parking provision. In Cardno's experience, in some instances, the 20% requirement should be individually applied across each bicycle parking facility (i.e. secure bike stores across various levels).

### Sustainable Transport Considerations

#### *Mode Share Targets*

Given the potential green travel plan initiatives proposed as part of the development and the subject site's proximity to public transport, walking and cycling amenities, Cardno is of the opinion that the proposed mode share targets outlined in Table 4.3 of the GTA report are appropriate in the context of the development. This is further supported by the various existing sustainable transport policies applicable to the site.

### Car Parking Provision

#### **Statutory Car Parking Requirements**

Cardno supports GTA's assessment of the statutory car parking requirements for the proposed development, with alternative car parking rates adopted across several land uses listed under CDZ1 where applicable (in place of Clause 52.06-5 rates). Cardno is supportive of GTA's statement that the rates incorporated into the CDZ1 are somewhat dated and their validity in the context of the proposal ought to be verified.

It is agreed that, based on the above and the size and number of proposed new uses as outlined within Table 5.1 of the GTA report, the proposed development generates a statutory requirement to provide a total of **1,131 on-site car parking spaces**.

Further, based on the existing leasing agreement applicable to Lot 10 (having to provide a minimum of 161 car spaces on-site for the existing office development located at 680 Victoria Street), the proposed development generates a net requirement for the minimum provision of 1,292 car spaces on-site. Based on the proposed provision of on-site car parking, it is agreed that the application seeks a statutory car parking **reduction for a total of 517 spaces**.

We do, however, note that the proposed number of seats provided as part of the various food and drink premises is not shown on the plans and appears to have been assumed (being 285 seats). The traffic report does not list any assumptions made in calculating the number of seats and therefore this number cannot be accurately quantified.

#### **Decision Guidelines for Permit Applications**

##### *Resident Car Parking - ABS Car Ownership Rates*

It is agreed that the rates sourced from ABS car ownership data from the 2006, 2011 and 2016 censuses indicate that car ownership rates in the Yarra LGA are *substantially* lower than those specified within the CDZ1 for dwelling uses (1.5 car spaces to *each* dwelling), likely due to recent changes in residential parking provision rates for new apartment developments.

The GTA report states that car parking ownership rates are broadly approaching the following levels:

- > *One-bedroom dwelling: 0.7 to 0.75 vehicles per dwelling;*

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- > Two-bedroom dwelling: 1.00 vehicle per dwelling; and
- > Three-bedroom dwelling: 1.40 to 1.50 vehicles per dwelling.

By way of comparison, Cardno’s review of the latest set of ABS census data (2016) for the Yarra LGA identified some minor discrepancies relating to average car ownership, as highlighted in Table 1-2. Additionally, the Yarra LGA data has been cross-referenced with car ownership data sourced for the state suburb of Richmond (2016 census) and shown below.

Table 1-2 ABS Car Ownership Statistics (2016 Census) - Rate Comparisons

Type of Dwelling		Yarra LGA		Richmond
		GTA Identified Rates	Cardno Identified Rates	Cardno Identified Rates
One-bedroom Flat/Unit/Apartment	Average cars per dwelling	0.75	0.71	0.89
Two-bedroom Flat/Unit/Apartment		1.04	0.95	1.35
Three-bedroom Flat/Unit/Apartment		1.49	1.21	1.55

The summary of the identified rates provided in Table 1-2 indicates some similarities in car ownership rates recorded by GTA and Cardno across the 2016 census data, noting Cardno’s rates recorded for Yarra LGA were found to be fractionally lower than those presented by GTA (albeit the average car ownership for three-bedroom dwellings). Conversely, the rates determined by Cardno for the state suburb of Richmond were considerably higher than all Yarra LGA rates presented, most notably represented in the average car ownership rates for two bedroom flats/units/apartments (a significant difference of 0.4 spaces per dwelling when compared to the Cardno rate sourced). It is noted that these were not presented for comparison in the GTA report.

Notwithstanding the above, upon review of the existing accessibility of existing public transport services in the immediate vicinity of the site, the census car ownership data presented by GTA and the constrained nature of the surrounding road network, Cardno agrees that the proposed development is expected to generate parking demands at a lower rate than those specified within the CDZ1 and derived from census data in recent years. As such, the proposed average rate of 0.75 spaces per dwelling is generally supported by Cardno, noting it generally mirrors rates recently adopted for similar developments within the Yarra LGA. Further, it is worth noting 2016 ABS car ownership data indicated that approximately 38% and 34% of one-bedroom flats/units/apartments in the Yarra LGA and state suburb of Richmond, respectively, do not own a private motor vehicle.

*Residential Visitor Car Parking*

In consideration of existing public transport amenities, proposed visitor bicycle parking provision and the proposed development’s proximity to the Victoria Gardens Shopping Centre retail parking areas, the anticipated residential visitor demand rate for **0.04 spaces per dwelling** sourced from various parking surveys by GTA is considered appropriate by Cardno in this instance.

Cardno agrees that GTA’s proposal to accommodate all anticipated residential demand within the adjacent shopping centre car park areas is reasonable given the existing availability identified during surveys undertaken in October 2017 (a peak occupancy of only 67% was identified).

*Shop (including Food and Drink) Car Parking*

Cardno is supportive of the proposed shop (including food and drink) rate of **3.0 spaces per 100 square metres** of “retail” floor area, with this demand rate reflective of peak demand rates derived at the adjacent shopping centre during surveys undertaken on a typical Saturday. Consequently, it is deemed appropriate that the development proposes to supply 127 on-site spaces to cater for the likely peak demands associated with these uses. Further, the likelihood of multi-purpose (shop-related) trips between the adjacent shopping centre and the development’s shop uses further supports the reduced rate of 3.0 spaces per 100 square metres of leasable floor area as compared to the CDZ1 shop rate which calls for 4.5 spaces to be provided.

*Office / Commercial Car Parking*

Surveys of office developments located within the Yarra LGA previously undertaken by Cardno and other consultancies have indicated that a high proportion of employees are displaying a preference to choose alternative transport modes, despite available on-site parking being unconstrained in some instances. As noted by GTA, Cardno also observed an example of this during a recent site inspection, where the existing

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Lot 10 at-grade car park currently provided to cater for a nearby office development was underutilised at 9:30am on a typical weekday.

Staff and visitors of the proposed office component are likely to choose to take alternative transport modes due to the site location with respect to sustainable transport modes. The site has excellent access to these modes and Melbourne's bicycle network. It is expected that a constrained parking environment will encourage this choice and a greater proportion of staff will choose alternative transport options. In constrained commercial parking situations, car parking demand is more accurately defined as a function of the on-site supply, rather than the floor area proposed.

Furthermore, as noted by GTA, it is unlikely that the development will have any effect on the on-street parking resources within the surrounding area given the existing restrictions in place are not designed to accommodate long-term demands.

Based on the above and in consideration of the various Council policies in effect, the proposed on-site parking provision of **2.0 spaces per 100 square metres** of floor area is considered to be consistent with Council strategies to strongly encourage the use of alternative transport modes. Cardno is of the opinion that this rate is therefore appropriate.

### *Restricted Retail Car Parking*

GTA has adopted the CDZ1 rate of **2.0 spaces per 100 square metres** for proposed restricted retail land uses which is considered appropriate.

### *Childcare Car Parking*

Given the land use is not specified under the CDZ1, Cardno agrees that it is appropriate to utilise the Clause 52.06-5 rate of **0.22 spaces per child** for the proposed childcare centre, generating the statutory requirement for 22 spaces on-site (if the final number of children equates to 100, not 120 as noted previously).

Although it seems generally rational to split the proposed on-site parking allocation equally between staff and parent drop-off/pick-up, the report fails to acknowledge the likely number of staff members at the childcare centre. The current proposed car parking supply could therefore potentially relate to an undersupply or oversupply of staff/parent parking.

Cardno is supportive of the proposed use of childcare centre spaces in being available to retail customers and residential visitors outside of childcare centre hours.

### *Medical Centre Car Parking*

Cardno is supportive of GTA's proposal to adopt the Clause 52.06-5 Planning Scheme car parking rates for the proposed medical centre. Further, Cardno is supportive of medical centre spaces being available to retail customers and residential visitors outside of medical centre hours.

### *Sharing of Car Parking*

Cardno is generally satisfied with the temporal demand assessment presented by GTA, noting the following:

- > Section 5.2.1 of the GTA report states that the full statutory rate has been adopted for the proposed childcare centre use, yet Table 5.2 states that 11 spaces will be provided on-site. Further, it is difficult to determine whether the anticipated peak weekday demand for 11 spaces is appropriate given fluctuations in staff numbers during the day are unknown.
- > Notwithstanding, the assessment of temporal demands presented appears to be generally conservative, noting GTA anticipates that all 161 spaces allocated to the existing leased office space will be occupied during the weekday peak. This is highly unlikely to be the case given the current level of underutilisation identified.

### *Disabled Car Parking*

Based on an assessment of Part D3 to the Building Code of Australia, it is agreed that the various land uses contemplated as part of the proposed development generate a requirement for a minimum provision of seven (7) disabled parking spaces on-site.

Consequently, the proposed on-site provision of 13 as stated in the GTA report (or 15 spaces as shown within plans) is considered appropriate in this instance.

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**Car Parking & Vehicle Access Layout***Car Park Layout*

Cardno has reviewed Section 6 of the GTA report which relates to the development's car park layout and access arrangements, offering the following comments for consideration:

Cardno is satisfied that the proposed car park layout has been generally designed in accordance with the relevant Planning Scheme and Australian Standard requirements, albeit noting:

- > Car space L10 B2 006 is to be offset by 300mm from car space L10 B2 007; and
- > In certain areas, shared zones between accessible bays are shown as overlapping (i.e. L10-B2 16 & 17) and could be considered non-compliant with AS requirements. It is, however, anticipated that these spaces will remain functional for their intended purpose providing at least 2.4m between spaces.

*Vehicle Access Layout*

- > It is agreed that the proposed site access points have been designed in accordance with AS2890.1:2004 to accommodate two-way access;
- > The angle required for inbound vehicles utilising the left lane appears relatively tight to negotiate and may potentially be difficult to manoeuvre. It is recommended a swept path analysis is undertaken to confirm comfortable site access; and
- > Cardno is generally satisfied that the design of the access ramp and internal ramps including maximum grades is consistent with the guidelines within the Yarra Planning Scheme and Australian Standards.

**Loading & Waste Collection***Statutory Requirements, Layout and Refuse Collection*

We note Clause 52.07 was deleted from the Planning Scheme in January 2018. Clause 65 now has a decision guideline that requires the responsible authority to consider "The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts."

In consideration of the above with regard to the proposed loading and waste collection facilities, Cardno is satisfied that:

- > Sufficient manoeuvring area appears to be provided within loading bays to allow for appropriate access manoeuvres by nominated loading/waste collection vehicles; and
- > Swept path diagrams provided as Appendix B to the GTA report are deemed generally appropriate when considering manoeuvring pathways and clearance line offsets. Noting 300mm clearance lines have been shown however additional clearance appears to be catered for.

Regarding the proposed indented parallel loading bay/taxi zone on River Boulevard (fronting Lot 9), it is recommended GTA clarify the proposed space widths as these do not appear in accordance with Table 2.1 of AS 2890.5 – 1993.

**Traffic Impact**

Cardno has reviewed Section 8 of the GTA report which relates to the development's traffic considerations, offering the following comments for review.

**Traffic Generation – Proposed Development***Retail (incl. Food & Drink) and Restricted Retail Traffic Generation*

Cardno generally agrees with the statements made by GTA that "as a shopping centre floor area increases, the resultant traffic generation rate decreases" and "...the additional floor area of an expanded centre typically generates traffic at a rate equal to approximately 40% (or less) of the existing rate". Cardno typically adopts traffic generation rates of 20% of the existing rate, hence we agree the proposed rate is considered conservative in this instance, acknowledging that the existing traffic generation rate was derived in December (approaching Christmas holidays).

Further, given the development is anticipated to operate somewhat independently of the adjacent shopping centre, the likelihood of multipurpose trips (which in essence determines the percentage of the existing rate adopted) is typically less for developments of this nature when compared to shopping centre expansions. Consequently, the adopted traffic generation rate is considered appropriate in this instance.

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*Residential Traffic Generation*

GTA has derived a residential traffic generation rate from surveys of the nearby Green Square residential development located at 609-615 Victoria Street, Richmond, with rates of 0.16 movements per car space during morning and evening weekday peaks, and 0.10 movements per car space during the Saturday peak.

Cardno previously conducted traffic surveys to determine the traffic generation for the existing land uses within the Victoria Garden Precinct. The results indicated a traffic generation rate of 0.37 and 0.41 movements / dwelling for the AM and PM commuter peak hours respectively. These rates were later adopted in the Traffic & Transport Assessment report prepared by Cardno for the proposed residential development located at 647-649 Victoria Street, Richmond.

Further, surveys undertaken by Cardno at apartment complexes in Toorak, South Yarra, Jolimont and Beacon Cove have shown daily traffic generation rates ranging from 2.5 to 4.6 movements per apartment dwelling, with peak hour generation rates of between 0.25 and 0.5 vehicle movements per apartment dwelling with an allocated parking space.

It is noted, the residential traffic generation rates adopted by GTA are slightly lower than typical rates adopted by Cardno for developments similar in nature and location. Having said that, considering the site's proximity to public transport, walking and cycling amenities as well as the recent surveys undertaken by GTA at the Green Square development, the residential traffic generation rates put forward are not inconceivable.

*Office Traffic Generation*

The weekday traffic generation rates adopted by GTA (being 0.5 movements per car space) mirror case study data held on file by Cardno, and are therefore considered appropriate. Further, any traffic that is likely to be generated by the office component during weekends is not likely to occur during the Saturday peak.

*Childcare Traffic Generation*

The weekday AM and PM peak traffic generation rates adopted by GTA (being 0.85 movements per child) generally reflects rates nominated by the New South Wales Roads and Traffic Authority's Guide to Traffic Generating Developments (RTA Guide) as well as Cardno case study data. Further, we are generally satisfied that the lower traffic generation rate of 0.425 movements per child (i.e. 50% reduction) is considered appropriate in the context of the adjacent shopping centre (increased likelihood of multipurpose / internal trips).

*Medical Centre Traffic Generation*

Cardno have typically found an empirical assessment is required to determine traffic generation movements for practitioners at medical centres, given the way in which operating characteristics can vary between centres for a variety of reasons such as the nature of services offered, operating hours, consultation time brackets etc.

Typically, Cardno will conservatively assume that patient consultations may be conducted in all consulting rooms at times coincident with the AM & PM commuter peaks, with consultations assumed to be scheduled at intervals of 20 minutes, on average. Further, support staff are anticipated to arrive at work during the AM peak and depart during the PM peak, with practitioner arrival / departure times typically varying.

In the case of the proposed medical centre, adopting the above assessment would result in a total of 24 inbound and 24 outbound movements (48 total movements) generated during the weekday AM and PM peak periods. Similar movements would be anticipated during weekend peak times. It is noted that these movements do not account for staff arrivals and departures. Further, a discount would apply when considering internal and multipurpose trips however GTA's proposed 50% reduction of traffic could be considered relatively high, given the particular nature of the use.

**Traffic Generation – Other Developments**

Cardno are generally supportive of GTA's proposed traffic generation estimates outlined in Table 8.7, noting the residential traffic generation rate was derived from surveys at a nearby residential development similar in nature to the proposed development. It would appear that non-residential traffic generation estimates are also conservative during weekday and Saturday peak periods; these have likely been assumed as staff inbound and outbound movements in the AM and PM peak periods, respectively. The descriptions of each development (use and corresponding sizes) appear generally accurate.

Further, we generally agree that the nearby developments are anticipated to generate a total of 204 movements during the weekday AM and PM peak periods, and 132 movements during the Saturday peak whilst adopting the GTA traffic generation rates.

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We do however note that Cardno has recently prepared a car parking assessment in support of amended development plans for the site at 647-649 Victoria Street, Richmond (CG150406LET005\_F01 dated 05/04/2018). As part of the amended planning permit application, it is understood an additional level of basement car parking is proposed, increasing the on-site supply to 203 spaces. This represents an overall increase of 57 spaces understood to be fully allocated to residents. Assuming GTA's derived traffic generation rates, a further nine (9) and six (6) traffic movements will be required to be distributed throughout the local road network during weekday and Saturday peak hours, respectively. Cardno respects that the planning permit amendment being sought would have been unbeknown to GTA at the time of preparing the traffic engineering report in question.

**Traffic Distribution**

We offer the following comments in relation to proposed traffic distribution assumptions adopted by GTA:

- > In consideration of the factors described in the report, Cardno is satisfied that a reasonable directional distribution and assignment of traffic generated by the proposal has been adopted by GTA;
- > The GTA traffic report states *"Of the vehicles travelling to and from the west for the Lots 9 and 10 developments only, it is further assumed that 50% of these vehicles will travel through the existing Centre car park from Burnley Street. This assumption is considered appropriate as vehicles are likely to travel via the fastest route, which in the peak hours will be via the existing shopping centre..."*. In this regard, Cardno considers the 50% assumption to be slightly high: factoring in additional internal centre movements will require travelling through further boom gates and considering the current operating conditions at the intersection of Victoria Street / Burnley Street / Walmer Street; and
- > The directional splits between inbound and outbound movements as quoted by GTA in Table 8.8 are considered appropriate from Cardno's perspective. These percentage splits are consistent with case study data held on file and are commonly adopted by Cardno.

**Future Traffic Volumes**

Cardno has reviewed Section 8.5 of the GTA report which relates to future traffic volumes relating to the proposed development with regard to the signalised intersection of River Boulevard / Victoria Street / Acacia Place. It has been calculated that eastbound and westbound traffic distributions (30% eastbound and 70% westbound) have been adopted for the nearby developments.

**Traffic Impact**

Cardno has reviewed Section 8.6, Table 8.9 and Appendix C of the GTA report which relate to anticipated traffic impacts of the proposal, supported by results obtained from the SIDRA Intersection analysis undertaken by GTA.

In order to validate the accuracy of results quoted by GTA, Cardno have ran a SIDRA model, focusing on the post development PM peak period as the likely 'worst-case' scenario. It is noted that the accuracy of Cardno's reproduced model is limited to the available information. Discrepancies between the two models may be influenced by unknown inputs such as lane lengths, phase times and other model parameters.

Results of Cardno's SIDRA analysis comparison revealed similar outputs and negligible discrepancies in the degree of saturation, average delay and queue lengths and therefore we considered GTA's analysis and results appropriate. Overall, the intersection appears to currently operate under "acceptable" conditions (as per the table presented in Section 8.7) and is anticipated to continue to operate under similar conditions.

Additionally, we offer the following key items for consideration:

- > The GTA report states *"The existing scenario has been tested assuming the existing phasing surveyed."* It is unsure whether only the cycle time was recorded or if phase-specific details were obtained. The model does not provide any information on the phasing sequence – this has been likely sourced from VicRoads Op Sheets; and
- > Assuming this information was not supplied to GTA, the accuracy of phasing information *could* be cross-referenced against VicRoads IDM data if required.

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### Controlled Access Assessment

Whilst Cardno is satisfied with the queuing analysis presented by GTA in Section 8.7 of the report, it is suggested calculation outputs are provided to validate the results. Additionally, any parameters used in the calculation should be detailed, or ideally the analysis spreadsheet provided as an appendix to the report.

Further, as previously noted the angle required for inbound vehicles utilising the left lane is relatively tight to negotiate and appears as though it may potentially be difficult to manoeuvre. A swept path analysis for this manoeuvre is recommended to confirm comfortable access.

We trust you find the above information satisfactory. Please feel free to get in touch should you require further clarification.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Eric Kydd".

Eric Kydd  
Senior Engineer - Traffic Transport & Parking  
for Cardno  
Direct Line: +61 3 8415 7523  
Email: [Eric.Kydd@cardno.com.au](mailto:Eric.Kydd@cardno.com.au)

**Attachment 12 - Services Contract Unit advice**

**From:** Orr, Patrick  
**Sent:** Tuesday, 3 April 2018 11:30 AM  
**To:** Thomas, Sarah  
**Subject:** RE: 10 and 20 River Boulevard

Hi Sarah,

The plan is not satisfactory from our perspective as we have no details regarding intended use of the medical facility and how that may impact those within the development. As you are the author of the plan, if you do not deem this as important upfront information, you may condition this information.

Regards,

Patrick Orr  
Contract Management Officer  
City Works  
Yarra Operations Depot, Clifton Hill

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