

924 Hunter Street, Newcastle West, NSW, 2302

An aerial photograph of a city area, likely San Francisco, showing a dense urban grid. A 3D model of a building, which appears to be a multi-story structure with a flat roof, is placed on a street intersection. The building is oriented vertically, with its front facade facing the viewer. The surrounding area includes residential buildings, commercial structures, and a large body of water (the bay) on the right side. A bridge is visible in the background, crossing the water. The image is used to illustrate the placement and orientation of a building in a specific urban context.

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issue	description	date	verified
01	Issue for Review	20/7/21	01
02	Issue for Pre-DA	16/9/21	02
03	Issue for Pre-DA	27/9/21	03
04	Issue for DRAFT DA	8/10/21	04
A	Issue for Development Application	21/10/21	A
E	Issue for RFI Response	30/5/22	E

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Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

Preliminary Cover Sheet

AS SHOWN	SC	30/5/22
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Development Application

Newcastle Indigenous History

The Awabakal and Worimi peoples are recognised as the traditional custodians of this area now known as Newcastle. Its Aboriginal naming is 'Muloobinba' (place of 'edible sea fern').

Whibay-gamba names the city's famous landmark, Nobbys. An Aboriginal dreaming story about Nobbys tells of a giant kangaroo that lives inside the island, and how he would sometimes shake his tail making the land tremble (a reference to the region's long history of seismological activity).

The Awabakal peoples were the first to discover and use coal in the Hunter. A dreaming story conveys that a volcanic eruption left a hole in the ground causing a darkness and quietness to descend over the land. The people thought they needed to cover up this darkness and fire to keep light and sound in the world. They placed foliage and rocks over the hole, and for generations after those who passed that spot would stamp the ground pressing the darkness and fire together creating 'nikkin', or coal. The volcanic plug near Redhead is the site of this dreaming and is called 'Kintirabin'.

The Awabakal and Worimi traded with neighbouring groups and came together for corroborees, ceremonies and feasting. The locals enjoyed a varied diet of bush foods (including mulubin), fish, freshwater shellfish, bandicoots, possums, wallabies, kangaroos, emus and on occasions would invite neighbouring tribes to feast on beached whales.

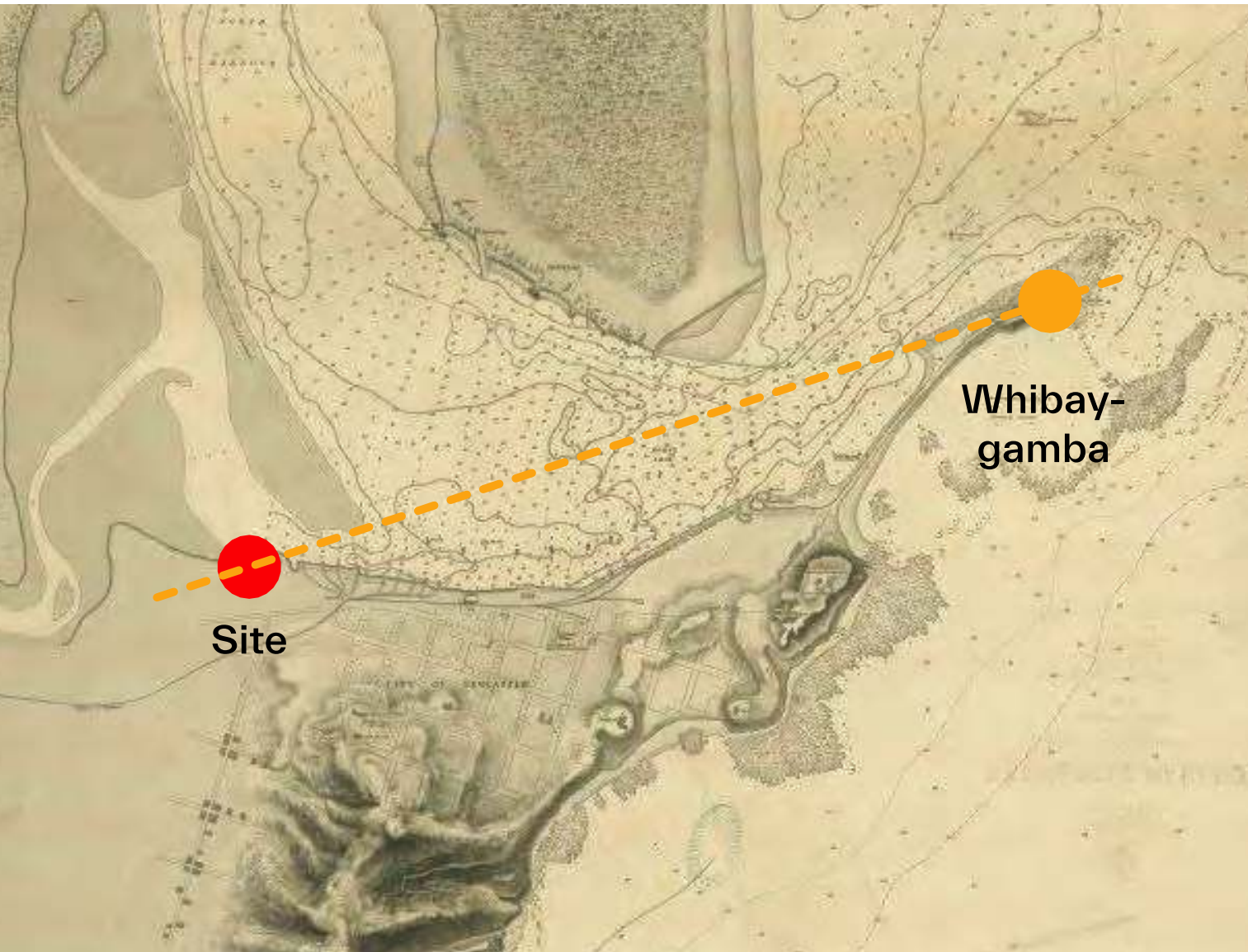
As many as 100 campsites lined the Hunter coastline prior to European settlement. A burial site was located near Hunter Street in 1915; stone artefacts unearthed at the Convict Lumber Yard also provide evidence that large communal groups camped at Newcastle. Records noting the locations of significant sites such as bora grounds, ceremonial stone arrangements and carved trees add to the fabric of what was a rich and vibrant cultural life on the shores of the Coquun (Hunter River).

Online Source: Mrs McShane's Online Classroom
Newcastle - Aboriginal History
<https://mrsmcshane.weebly.com/local-aboriginal-history.html>

"evidence large communal groups camped at Newcastle."



Online Source: Map of Indigenous Australia
<https://aiatsis.gov.au/explore/map-indigenous-australia>



Online Source: 1867 Australia East Coast - New South Wales (NSW)
Newcastle Harbour (Courtesy of the State Library of Victoria)
<https://hunterlivinghistories.com/history/>

Site Post Colonial History

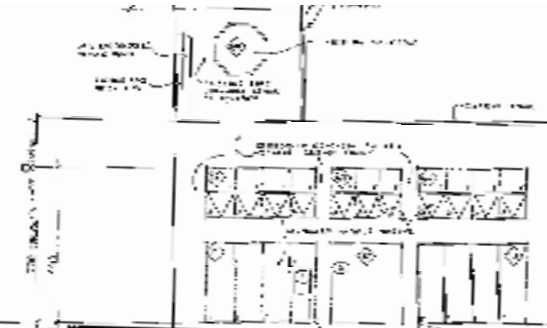
"In 1938-1939 one of Australia's key dairy producers, Dairy Farmer's Co-operative Milk Company Limited, built a distinctive premises in the West End, taking up a large block bounded by Hunter, Railway and Tighe streets. It was to house Dairy Farmers' administration offices and adjacent to it was a complex of buildings for the receiving, handling, bottling and distribution of bulk milk. A large loading dock catered for the army of trucks constantly moving in and out of the site and a state-of-the-art bottling plant washed and sterilised 4,000 bottles daily, with power coming from two on-site boilers. The administration offices faced Hunter Street and the building's façade featured an enormous milk bottle formed out of glass bricks relieved with coloured terracotta panels. This fanciful whimsy soon became the building's defining feature. Reputedly Joseph Likely, who was a member of the Dairy Farmers staff, was responsible for the building's unique look.

Inside, behind the iconic glass milk bottle, a staircase allows access to the top floor and to the building's two clock faces, one on the western side of the building and the other on the eastern. Originally these clocks were decorated with an illuminated advertising slogan reading: 'Dairy Farmers Milk. Precious as Time'. The whole Dairy Farmers' complex became so well-known that this part of Newcastle West was described as 'Dairy Farmers' Corner'.

The company stayed for over 30 years and in 1991, after they left the site, it was re-developed for Regal Motors. This meant demolishing the entire milk distribution area, but thankfully saving the delightful Dairy Farmers' administration building, complete with its iconic milk bottle. The Dairy Farmers' sign is still at the top of the building, the two clocks can still be seen from Hunter Street (albeit without their advertising slogans) and the building still has its original front door complete with the heavy glass panels etched 'D.F.M.'. To Novocastrians, no matter who is there now, this part of the West End will always be 'Dairy Farmer's Corner.'"

Online Source: Marvellous Milk - 6th January 2016
(West End Adventures)

Dairy Farmers Corner:
"a complex of buildings"



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Nominated Architects: Cairne King NSW ARB 7574 / Stuart Campbell NSW ARB 7545

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key plan

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project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Preliminary
Site History

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-0002	E	

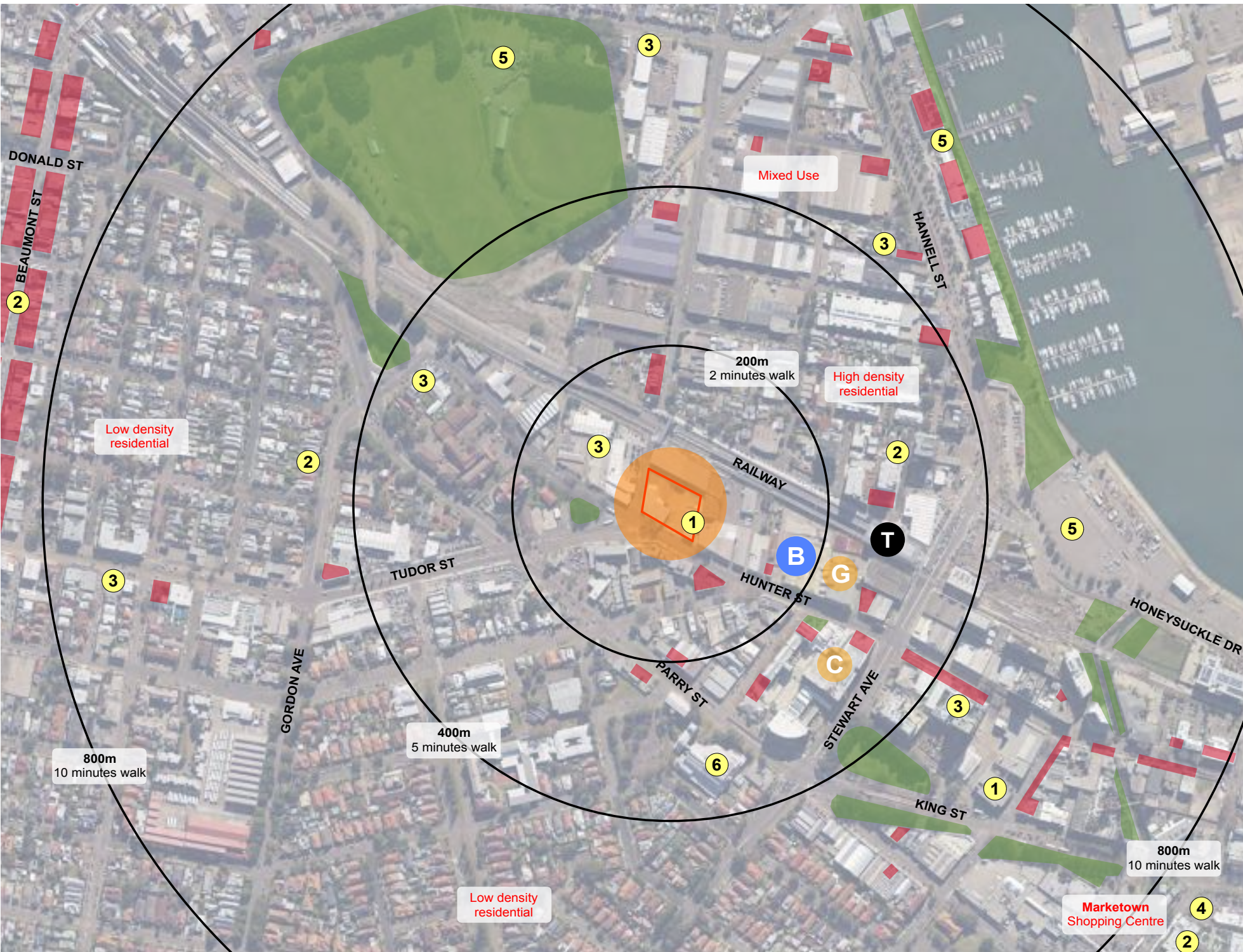
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Development Application

Site Location



Local Amenity



- Site
- Immediate context - local foot traffic
- Gym
- Doctors
- Childcare
- Markettown Shopping Centre
- Public Amenities
- Tafe
- Recreation / Sporting Fields
- Cafe / Food
- Newcastle Heavy Rail / Light Rail Interchange
- Proposed Newcastle Bus Interchange
- The Store, NSW State Government - 9,000sqm
- Newcastle City Council

Connectivity



- Site
- Immediate context - local foot traffic
- Newcastle Heavy Rail / Light Rail Interchange
- Proposed Newcastle Bus Interchange
- Heavy Rail
- Light Rail
- Bus
- Separated Cycleway
- Proposed Separated Cycleway
- Other Cycle Routes
- Heavy Rail Pedestrian Overpass

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project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

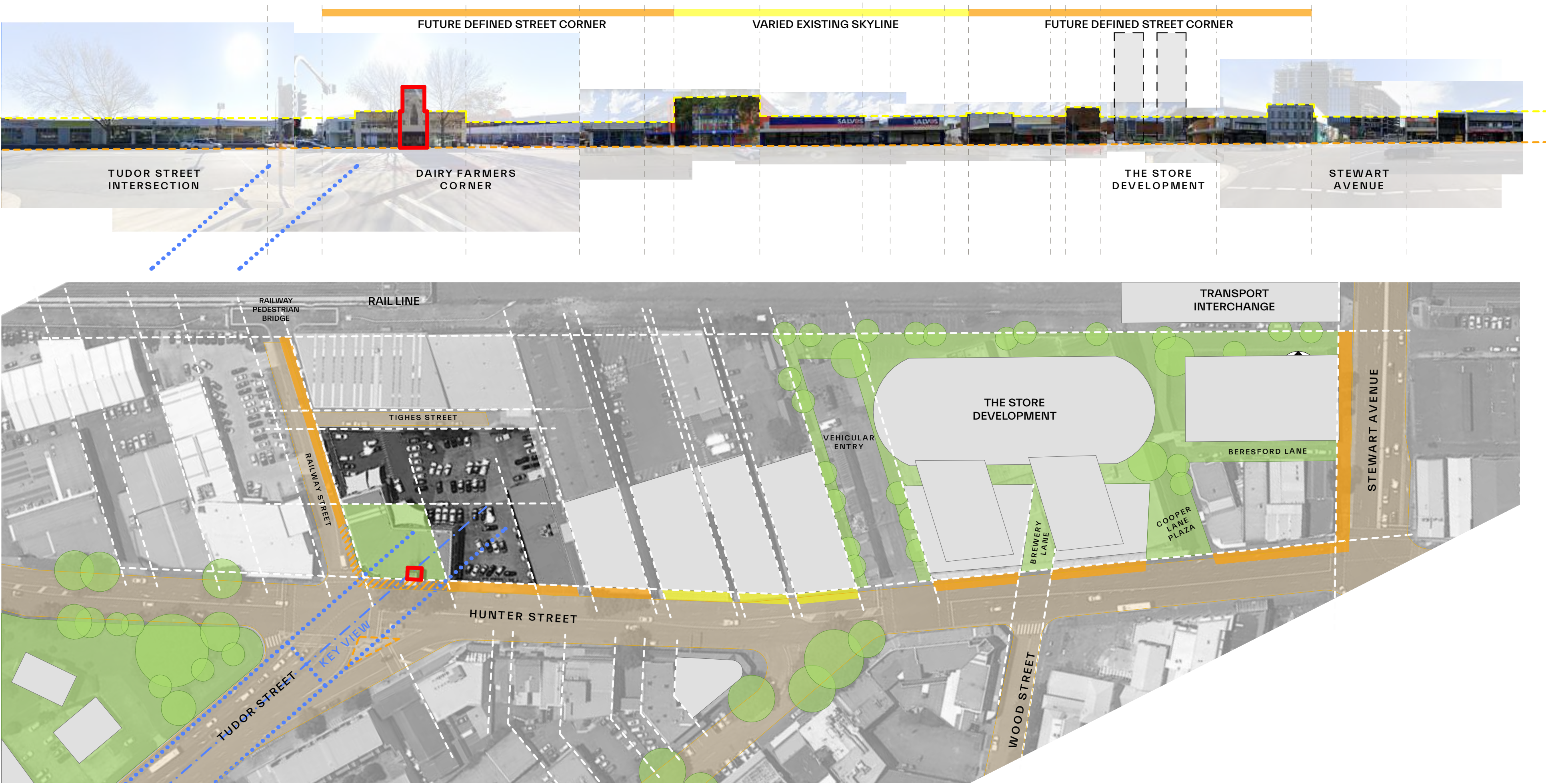
Preliminary
Site Context

drawing scale	drawn	verified	date
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project #	drawing #	issue	
21014	A-0003	E	

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Development Application

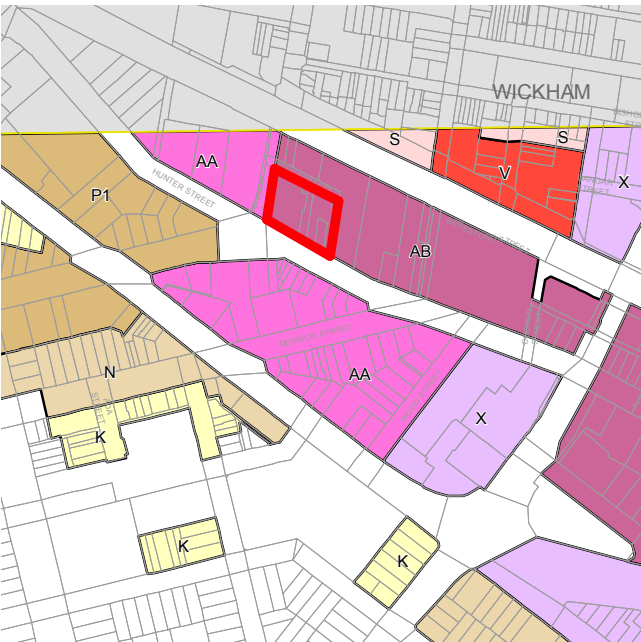
Public Domain & Street Character



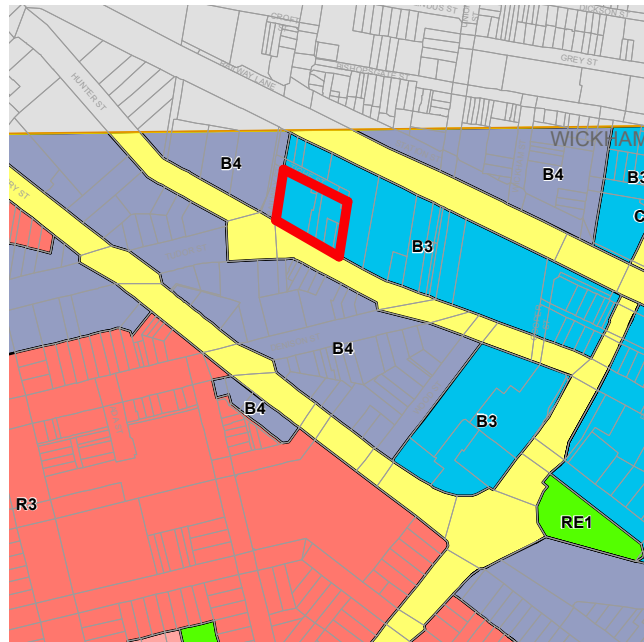
Key Planning Controls

LEP

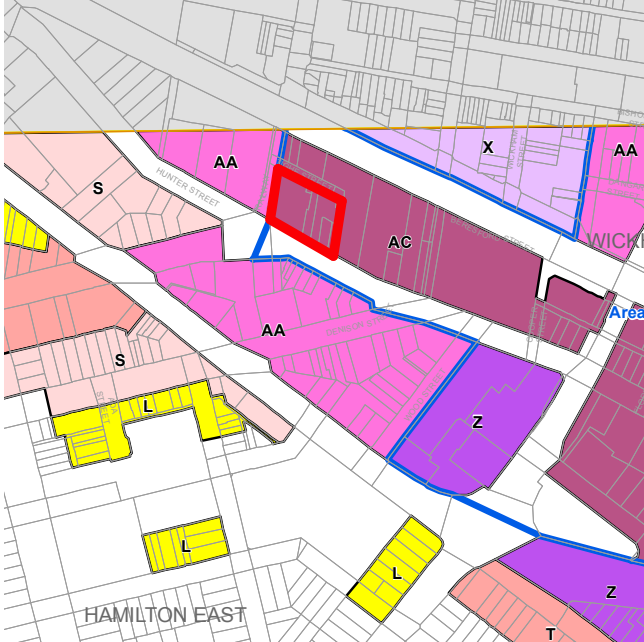
Height
90m



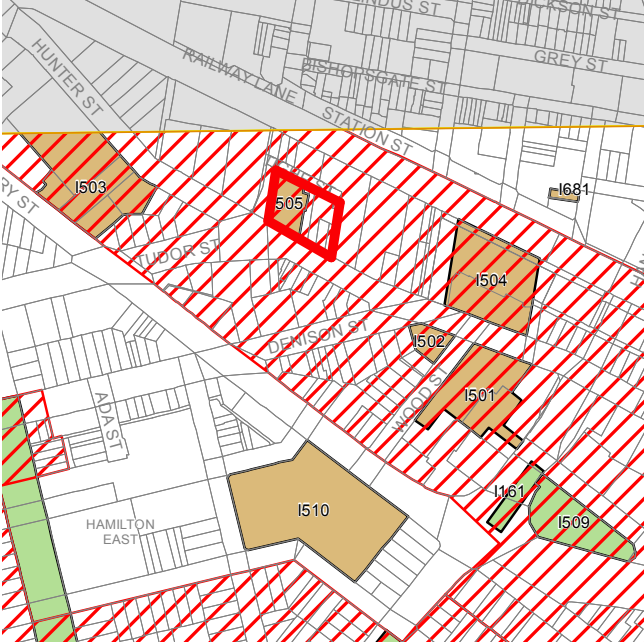
Zone
B3 Commercial Core



FSR
8:1 (5:1 for residential use
under LEP clause 7.10)



Heritage
Conservation Zone & Item



DCP

West End Character Area



Figure 6.01-3: West End Character Area

Street Wall Height
16m Typical / 8m to Hunter St



Figure 6.01-12: Street wall heights plan

Setbacks
0m below street wall
6m above street wall to 45m height / 12m above 45m

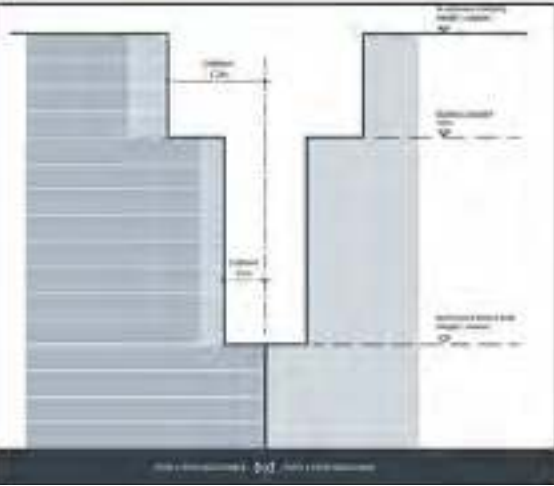


Figure 6.01-13 Section illustrating minimum side and rear setbacks



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key plan

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Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Preliminary
Street Character & Key
Planning Controls

drawing scale	drawn	verified	date
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Development Application

Existing Site Conditions



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POTENTIAL FUTURE IMPROVED PEDESTRIAN OVERPASS UPGRADE CONNECTING HUNTER ST TO WICKHAM

APPROX EXISTING KIOSK SUBSTATION

SITE

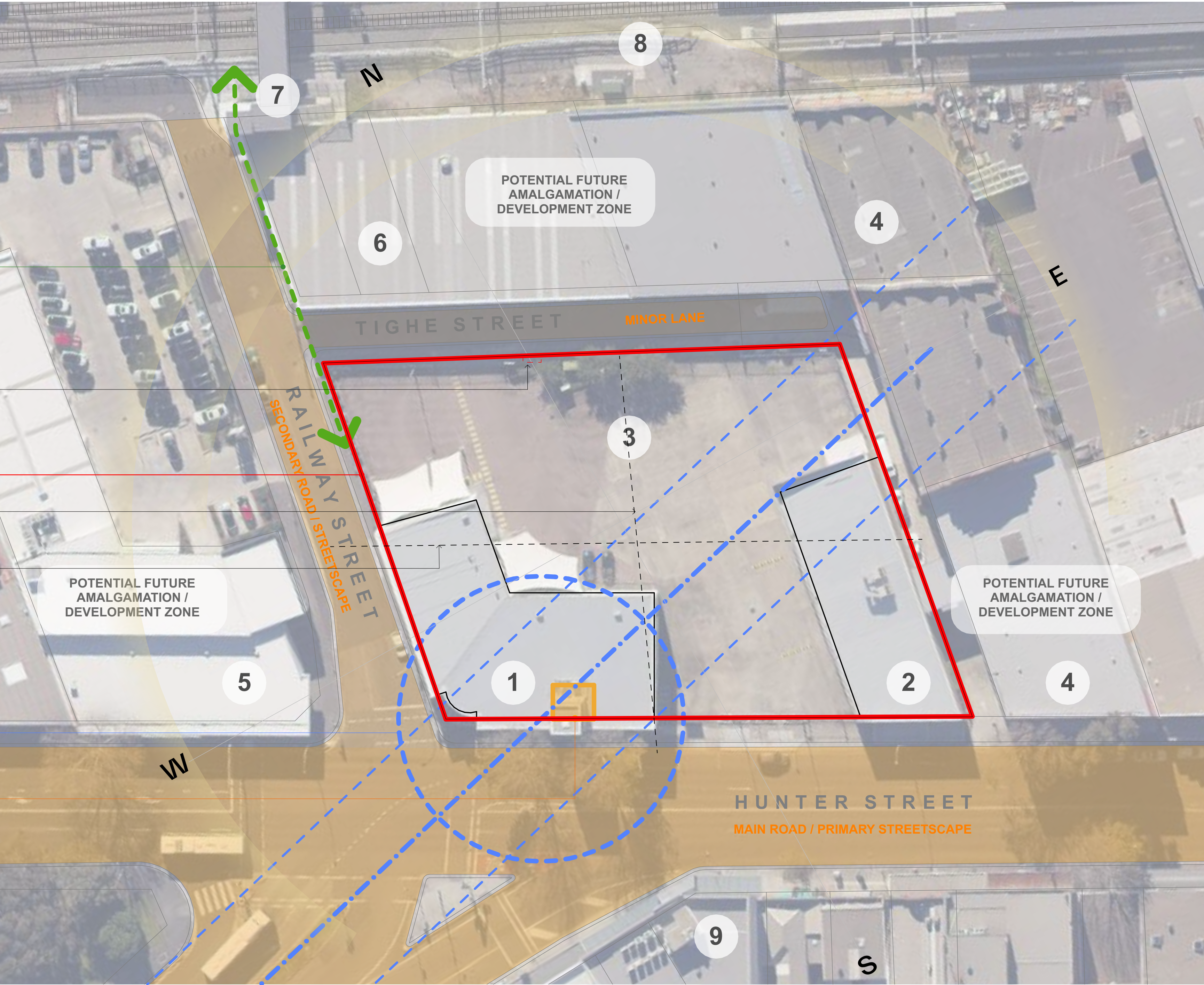
APPROX EXISTING ELECTRICAL LV MAIN

APPROX EXISTING SEWER LINE

HIGH VISIBILITY CORNER ON TUDOR ST AXIS

LOCAL HERITAGE ITEM DAIRY FARMERS 'CLOCK TOWER'

- 1 Vacant car dealer
- 2 Gym
- 3 Car park
- 4 Kennards storage
- 5 Car dealer
- 6 Car service centre
- 7 Pedestrian overpass
- 8 Heavy rail line
- 9 Commercial / retail



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key plan

consultants	
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Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Preliminary
Existing Site Conditions

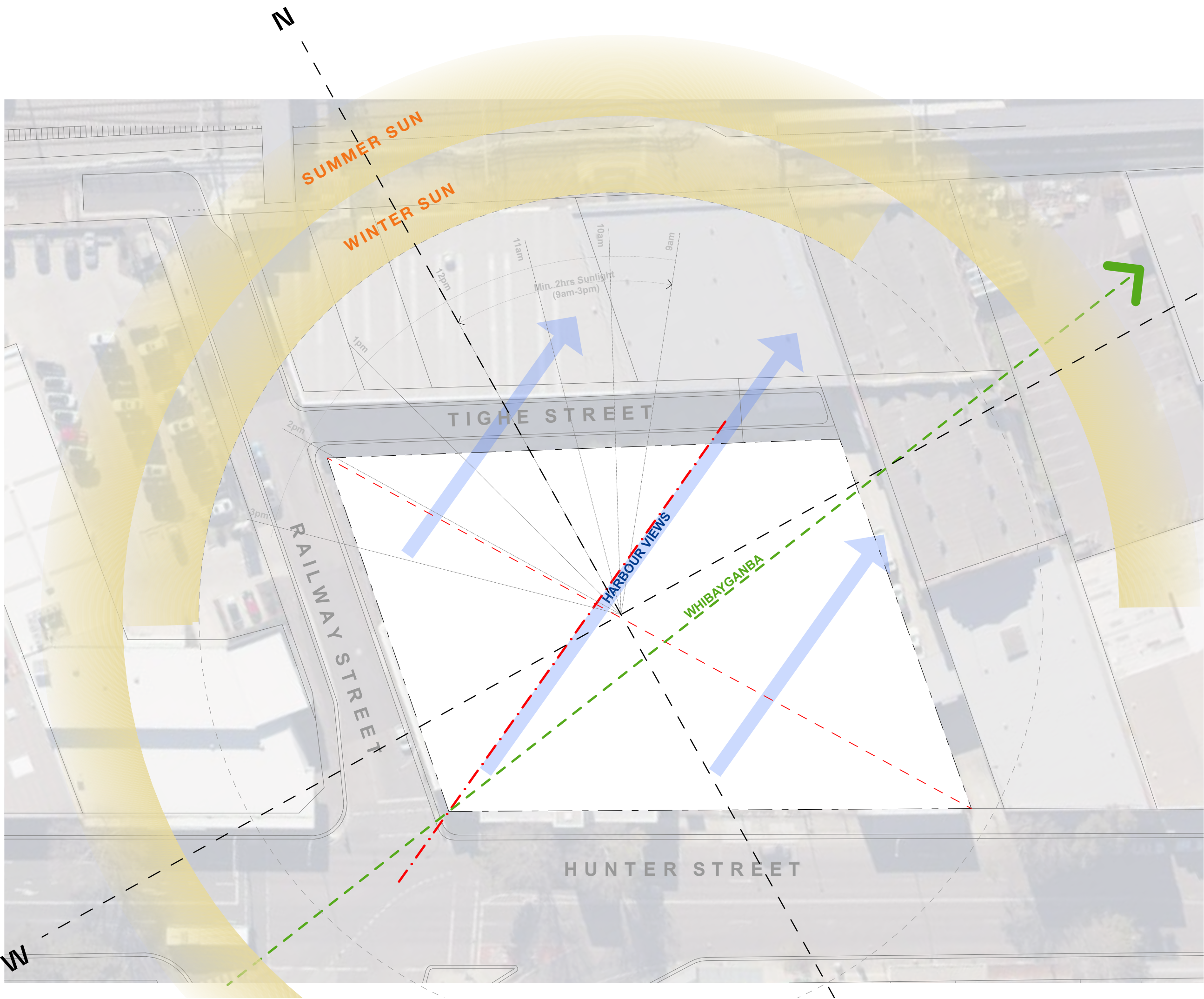
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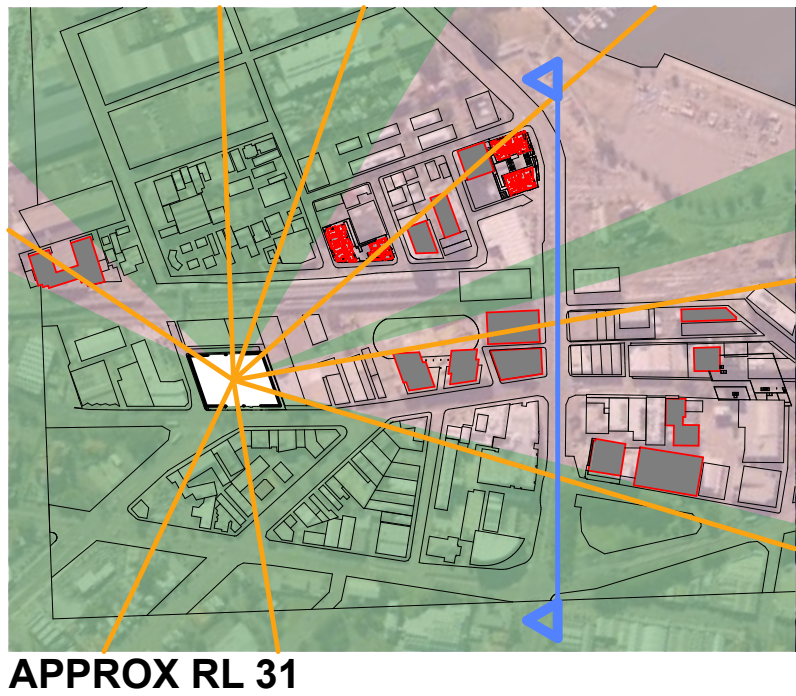
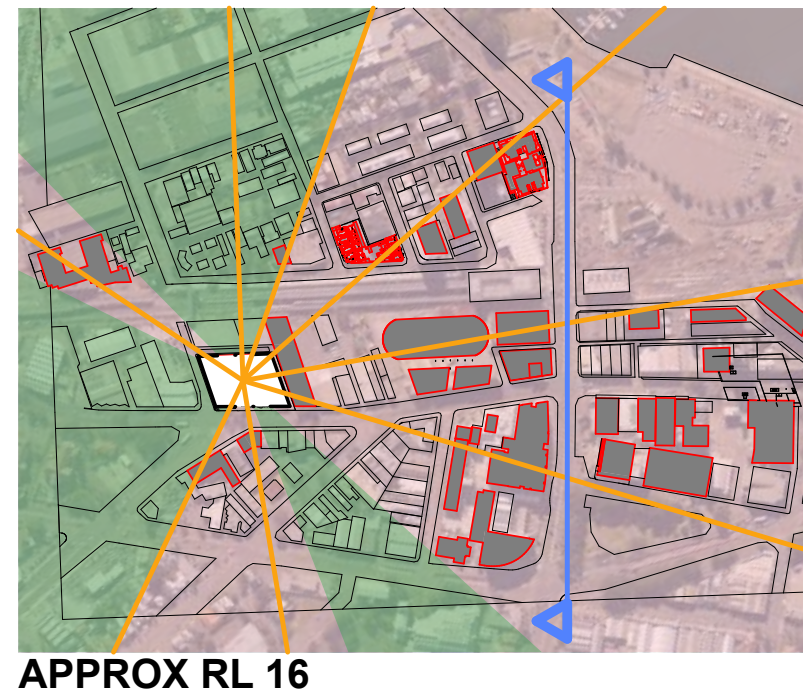
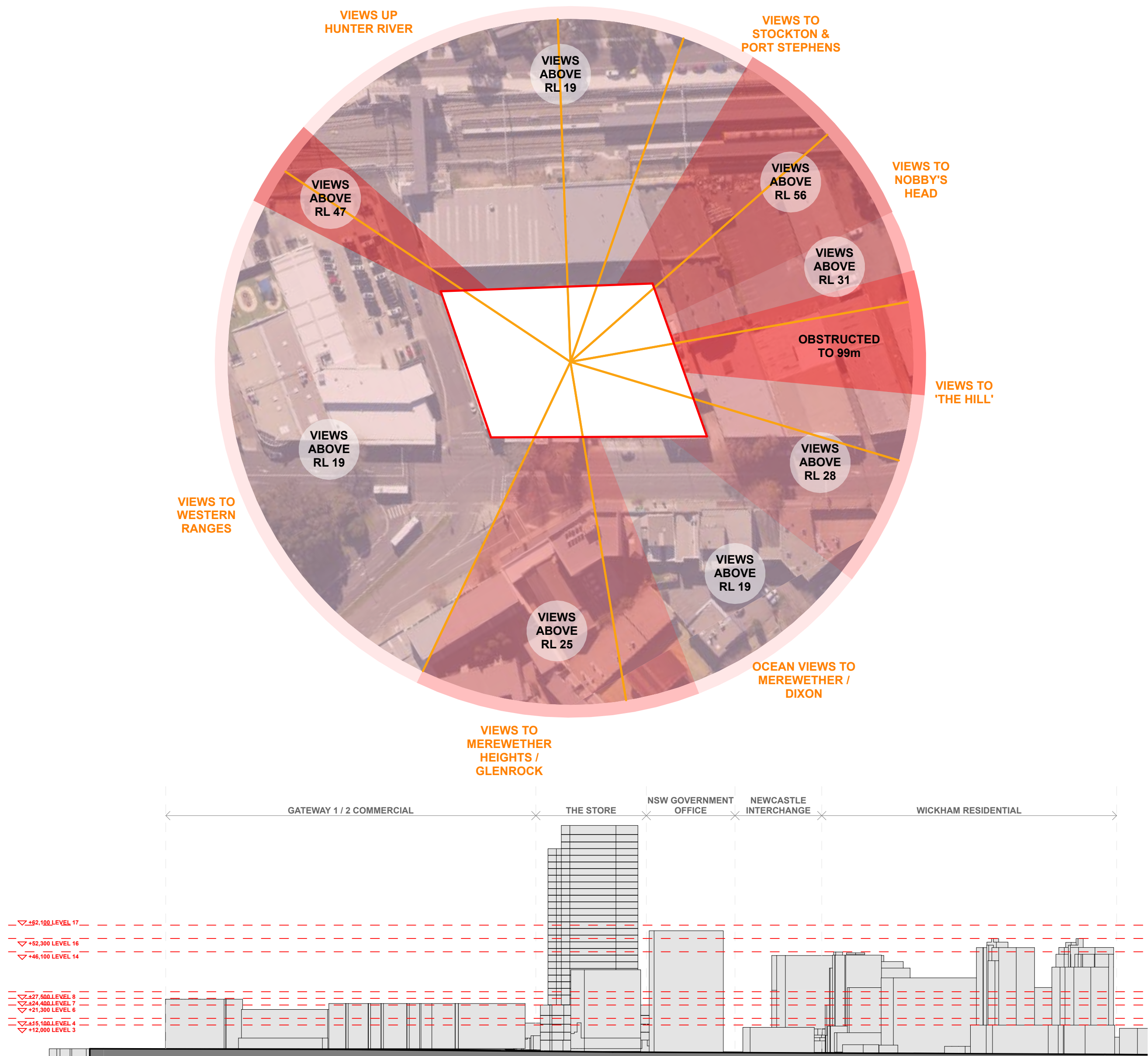
Development Application

Residential Amenity
- Aspect & Orientation

Solar access
Orientation to Whibayganba
Key harbour views on North / East axis



Residential Amenity - View Height Analysis



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key plan

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project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Preliminary
Residential Amenity
Analysis

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-0006	E	

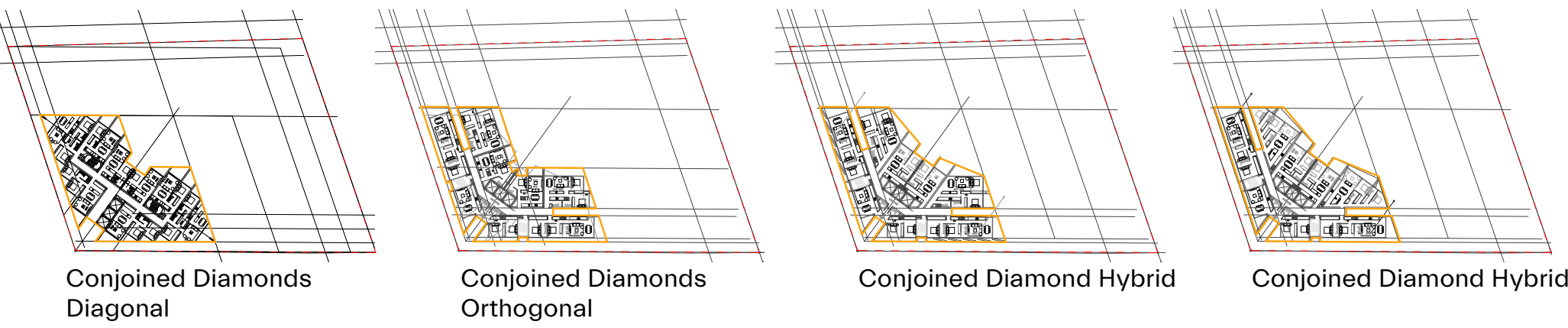
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Development Application

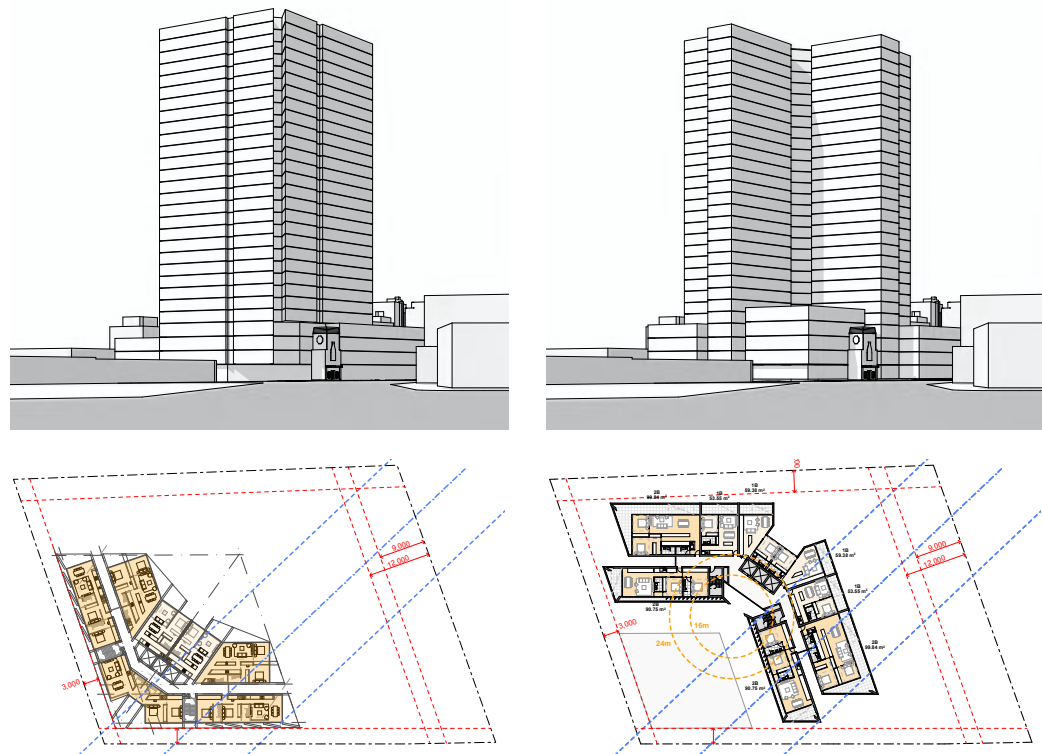
Design Competition Waiver Iterative Concept Analysis - Single Tower Schemes

Rigorous development & analysis of single tower schemes, measured against the key design principles

Initial
planning
&
analysis



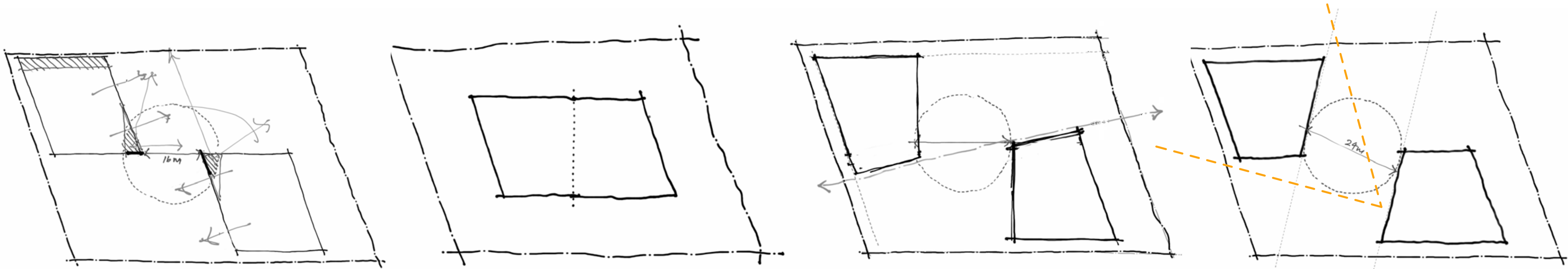
Further
iterative
analysis



Batman Batman Flipped

Stop / Pause / Review

Critical Analysis of Two Tower Form



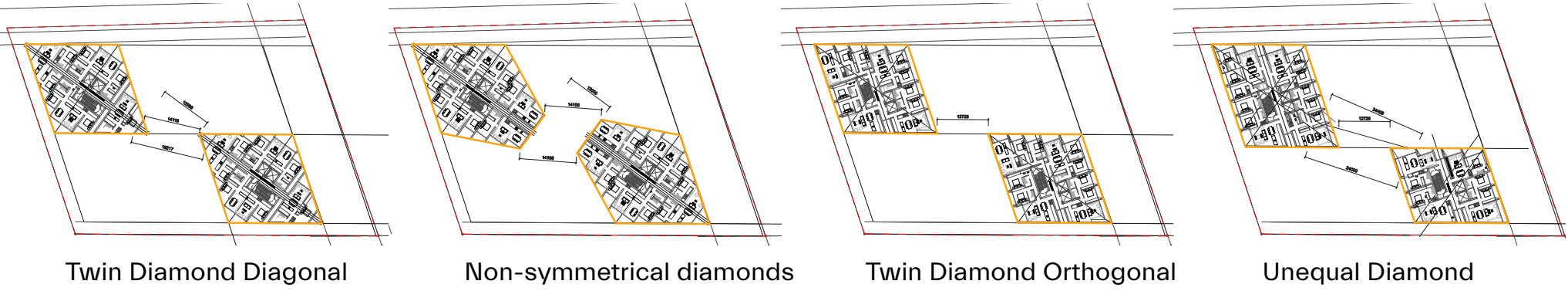
Critical analysis of two tower forms Address separation & setback issues, bulk & scale

Inverted geometry creates variation in urban form from all angles Privacy benefits of offset towers Maximise solar

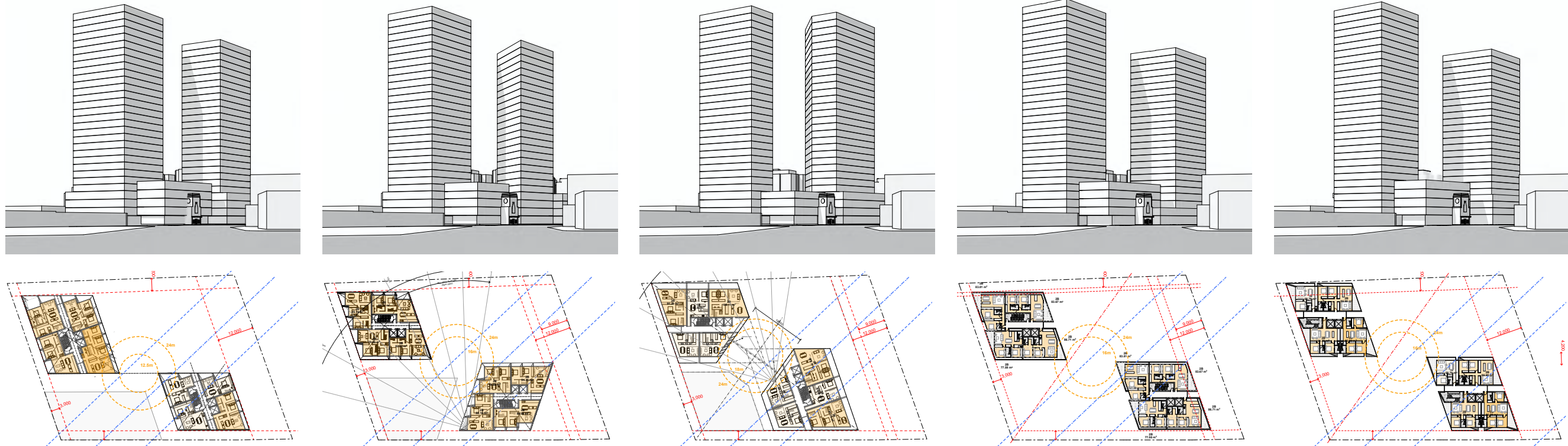
Design Competition Waiver Iterative Concept Analysis - Two Tower Schemes

Rigorous development & analysis of two tower schemes, measured against the key design principles

Initial
planning
&
analysis



Further
iterative
analysis



Major Minor Twin Diamond Rotated Overlapping diamonds Twin Diamond Reduced Setback Twin Diamond Stretched Reduced Setback

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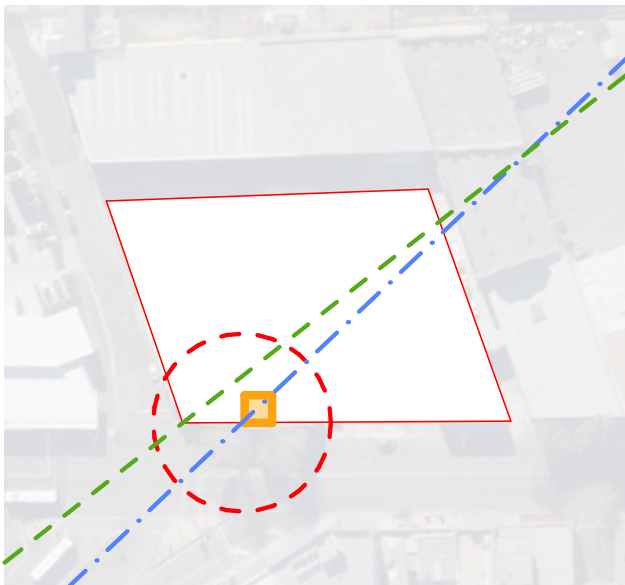
drawing title
Preliminary
Concept Development

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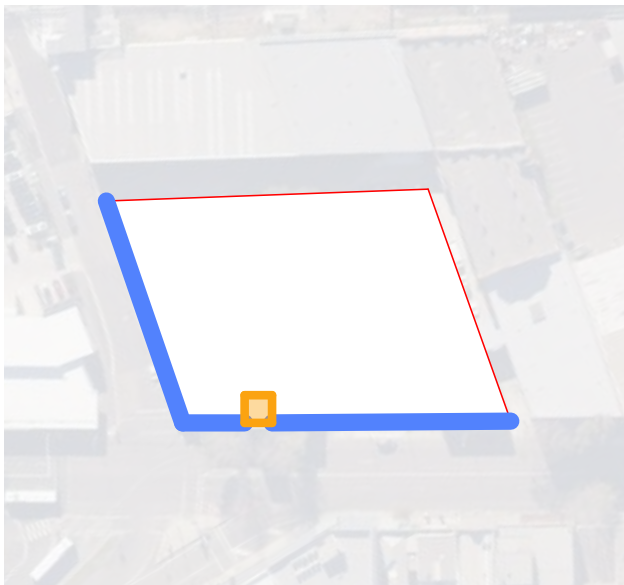
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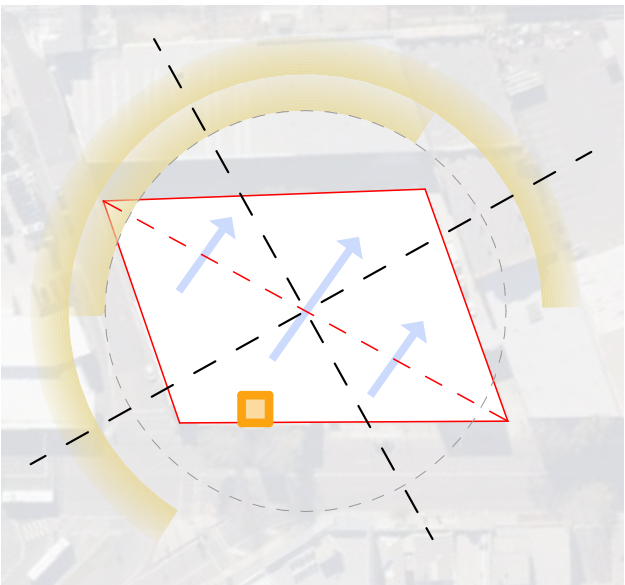
Dairy Farmers Corner Key Design Principles



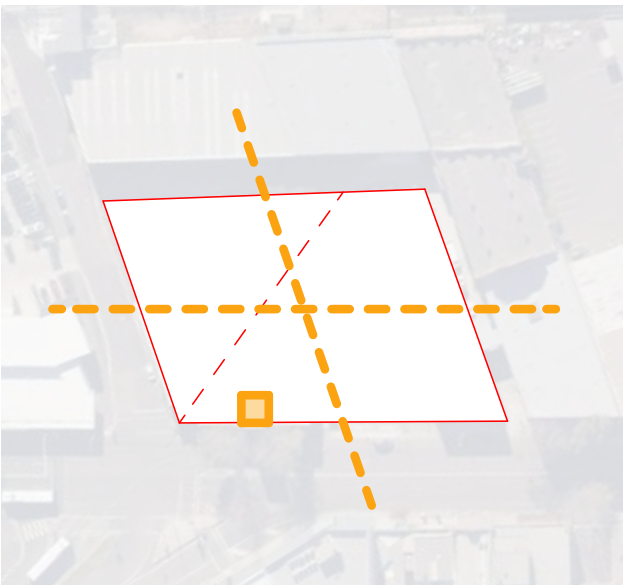
Contribution to Place
Response to history & heritage
Local character
Fit with context



Public Domain
Public space
Connectivity
Diversity of uses & housing types

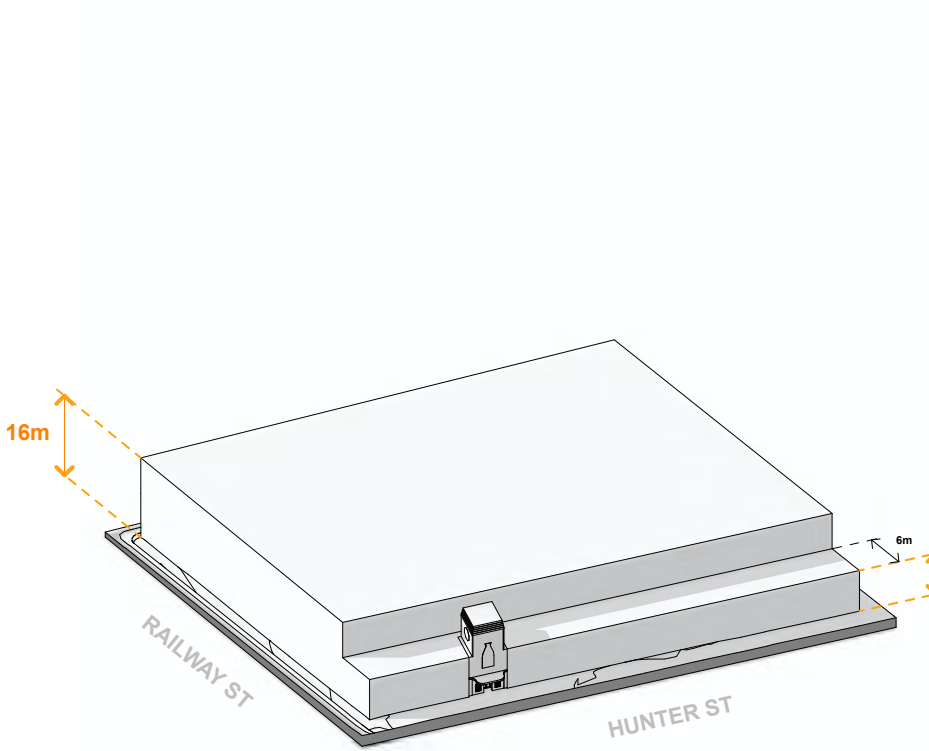


Residential Amenity
Solar access
Natural ventilation
Views & aspect
Sustainability
Functional layouts
Apartment Design Guide

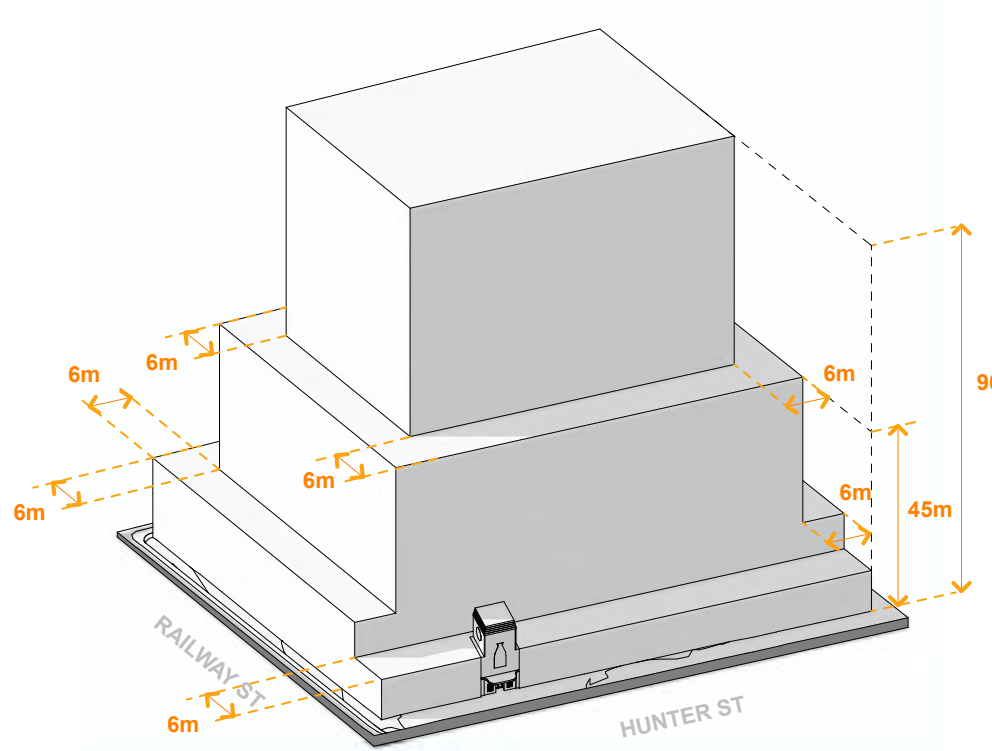


Urban Form
Site geometry
Bulk, scale & proportions
Functional & efficient
Materiality

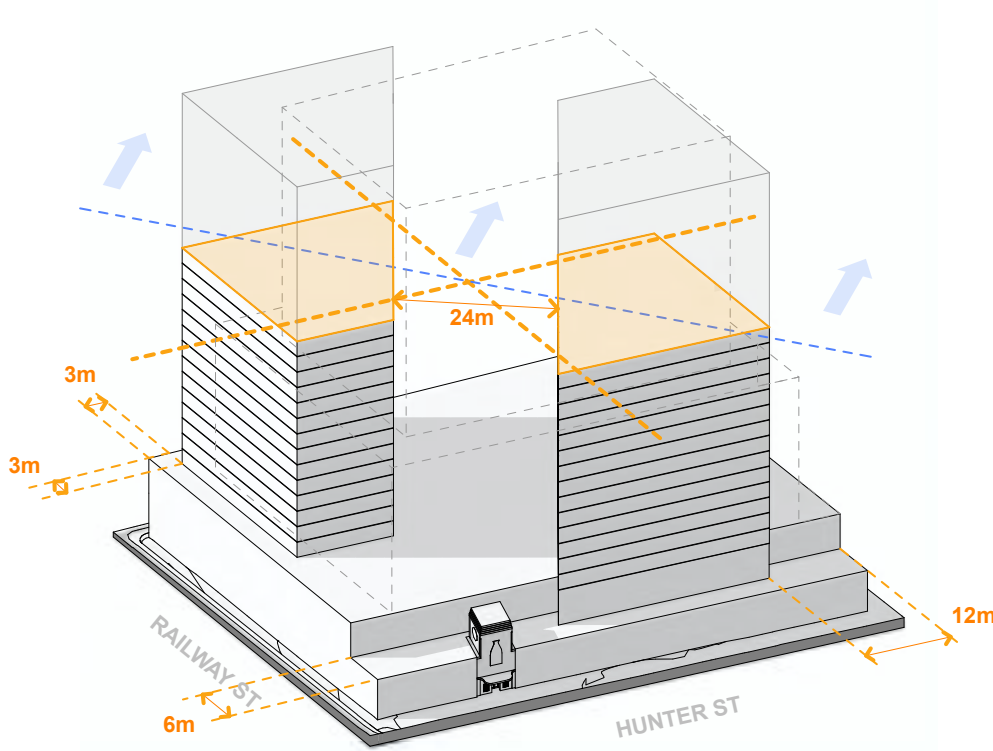
Concept Massing



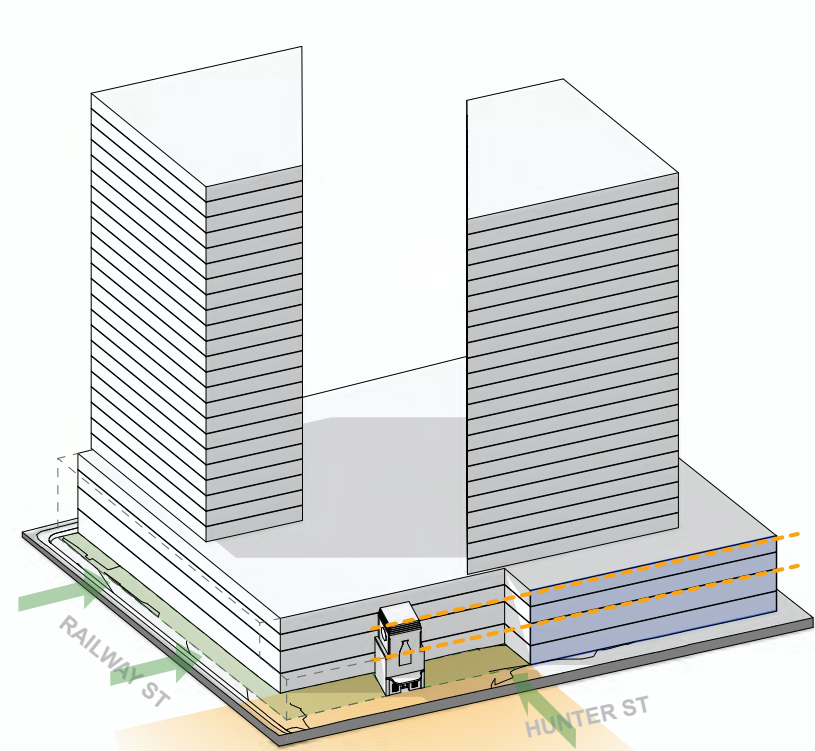
1. DCP Podium Envelope



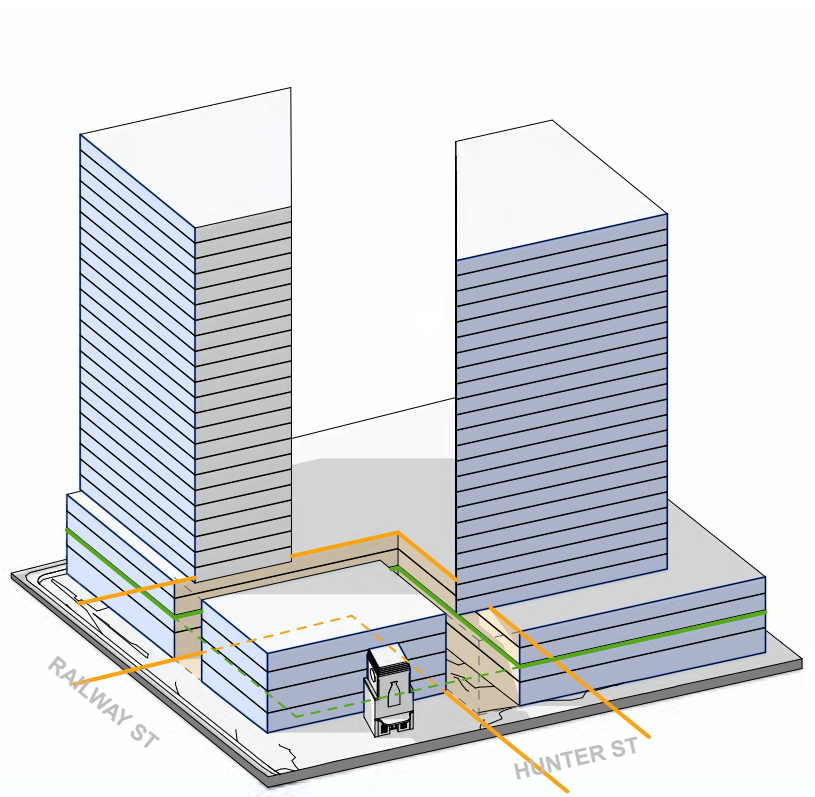
2. DCP Podium + Tower Envelope



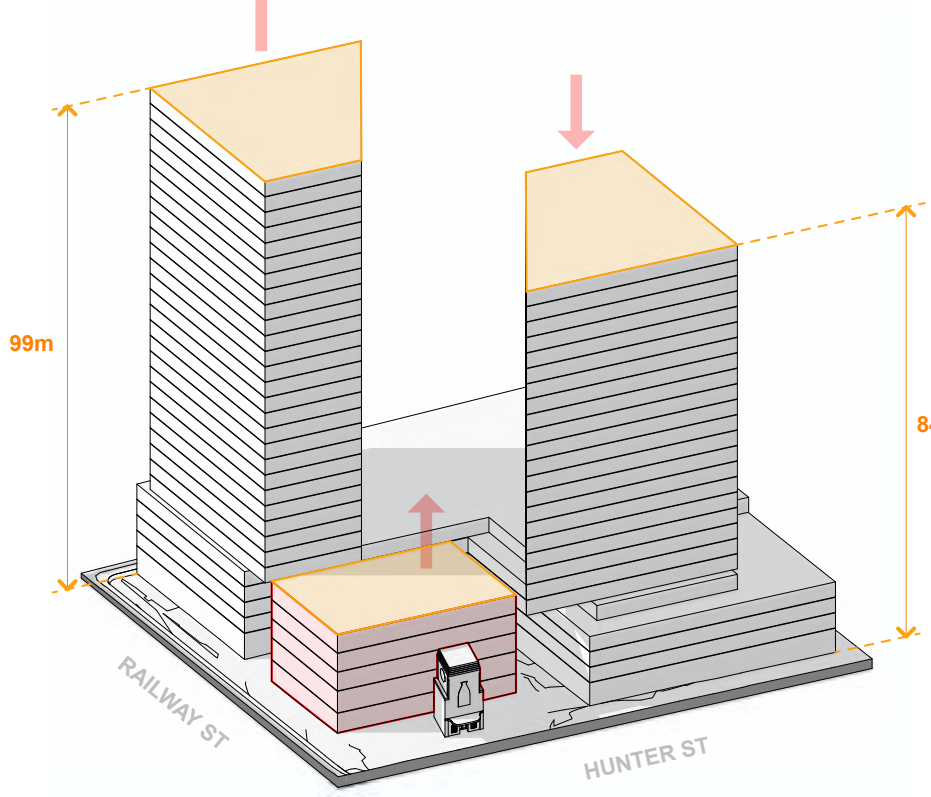
3. Tower Form



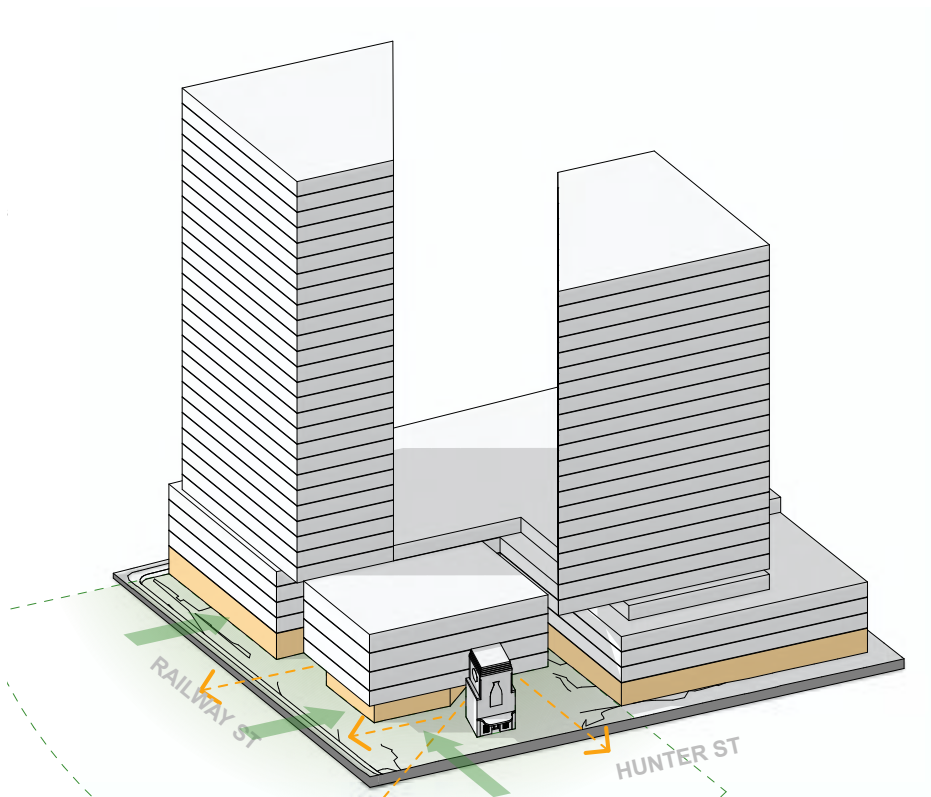
4. Public Domain & Podium



5. Public Domain & Podium



6. Urban Form



7. Public Domain & Podium

issue	description	date	verified
01	Issue for Pre-DA	16/9/21	01
02	Issue for DRAFT DA	9/10/21	02
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

client





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Bella Vista NSW 2500
P: 02 4321 0003

project

Dairy Farmers Corner

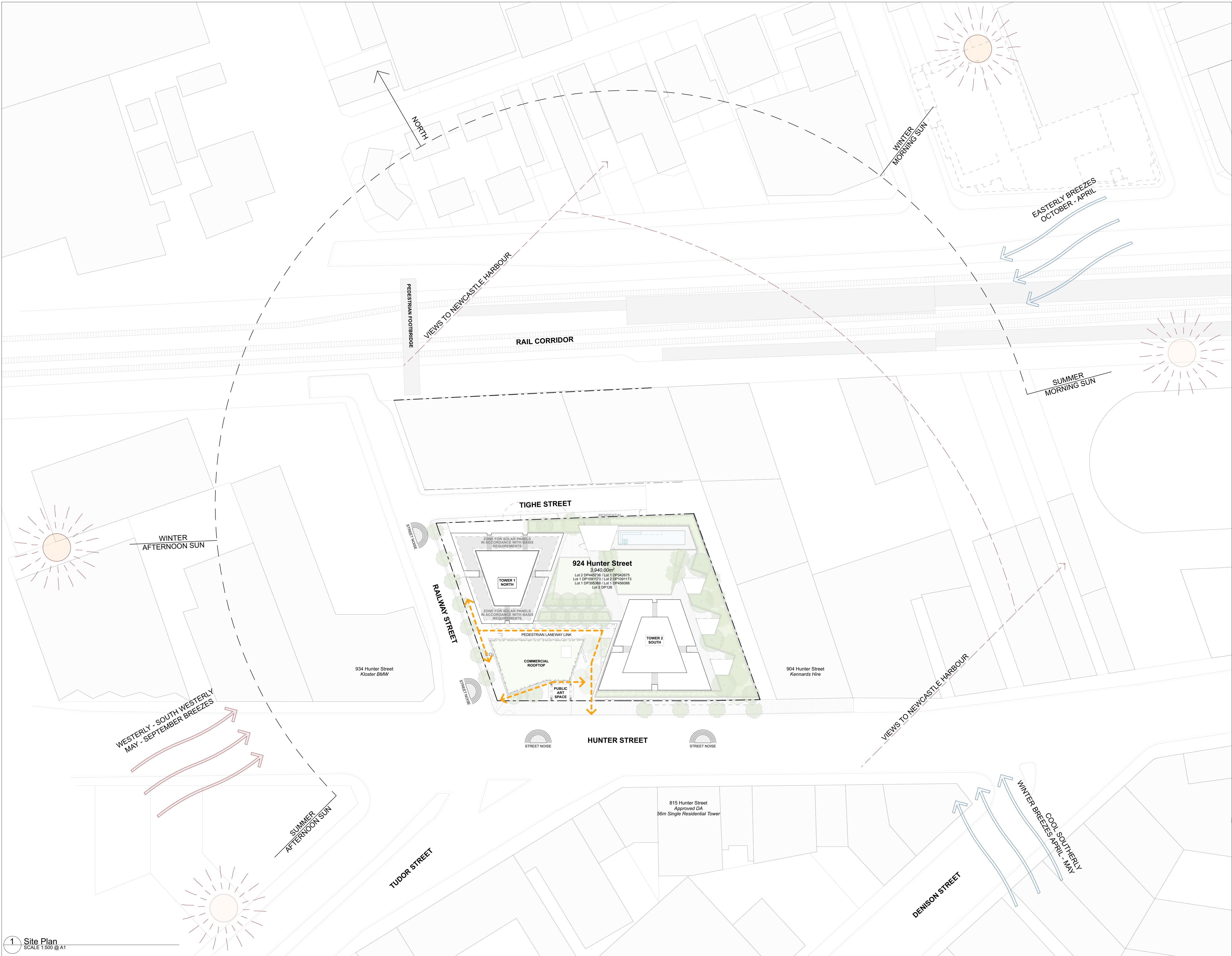
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

**Preliminary
Concept Development**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-0008	E	

Development Application



1 Site Plan
SCALE 1:500 @ A1

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issue	description	date	verified
01	Issue for Pre-DA	27/9/21	01
02	Issue for DRAFT DA	8/10/21	02
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

North Point

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 215 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
588 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer

EVC Consulting Engineers
Suite 101, 470 King St
Newcastle West, NSW, 2302

Hydraulic Engineer

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E: eding@ckds.com.au

project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Site Plans Site Plan

0 5m 10m 15m
Scale 1:500 @A1

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1001	E	

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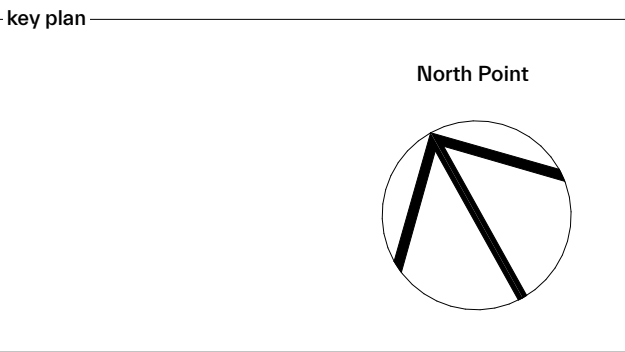
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1 Ground
SCALE 1:200 @ A1

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issue	description	date	verified
01	Issue for Review	20/7/21	01
02	Issue for Review	10/8/21	02
03	Issue for Coordination	7/9/21	03
04	Issue for Pre-DA	16/9/21	04
05	Issue for Pre-DA	27/9/21	05
06	Issue for Draft DA	11/10/21	06
07	Issue for DRAFT DA	8/10/21	07
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E



consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304
Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



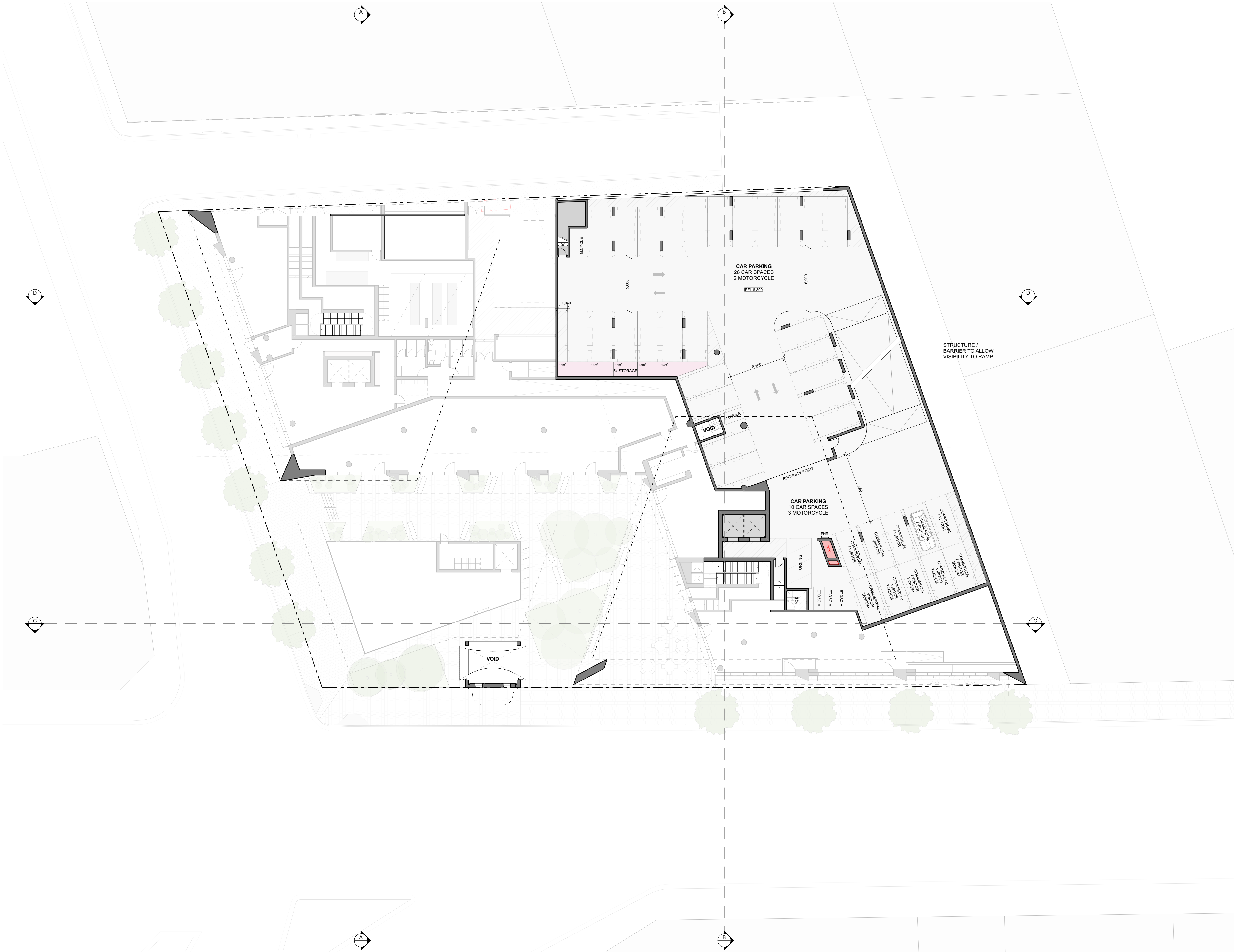
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**General
Arrangement Plans
Ground Floor Plan**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1101	E	

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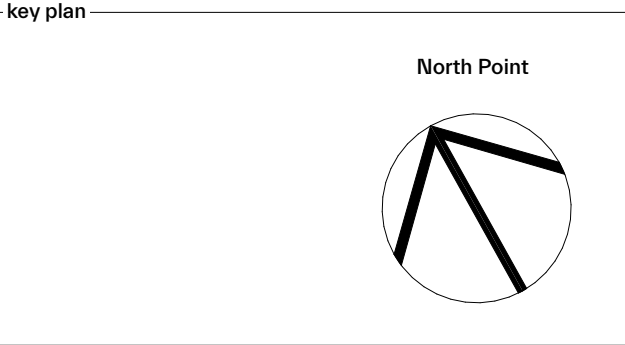
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1 Upper Ground
SCALE 1:200 @ A1

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issue	description	date	verified
01	Issue for Review	20/7/21	01
02	Issue for Review	10/8/21	02
03	Issue for Coordination	7/9/21	03
04	Issue for Pre-DA	16/9/21	04
05	Issue for Pre-DA	27/9/21	05
06	Issue for Draft DA	1/10/21	06
07	Issue for DRAFT DA	8/10/21	07
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E



consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**General
Arrangement Plans
Upper Ground Floor Plan**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1102	E	

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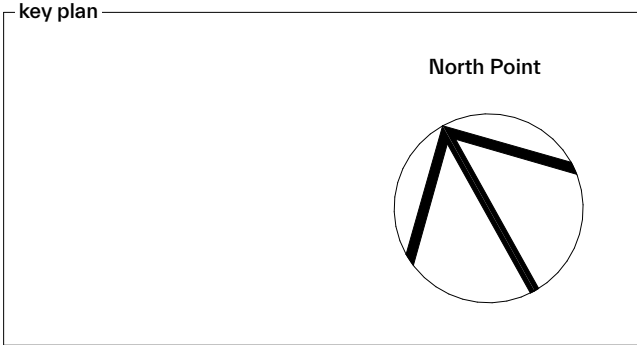
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1 Level 1
SCALE 1:200 @ A1

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issue	description	date	verified
01	Issue for Review	20/7/21	01
02	Issue for Review	10/8/21	02
03	Issue for Coordination	7/9/21	03
04	Issue for Pre-DA	16/9/21	04
05	Issue for Pre-DA	27/9/21	05
06	Issue for Draft DA	1/10/21	06
07	Issue for DRAFT DA	8/10/21	07
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E



consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project
Dairy Farmers Corner
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drawing title
**General
Arrangement Plans
Level 1**

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21014	A-1103	E	

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1 Level 2
SCALE 1:200 @ A1

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02	Issue for Review	10/8/21	02
03	Issue for Coordination	7/9/21	03
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05	Issue for Pre-DA	27/9/21	05
06	Issue for Draft DA	1/10/21	06
07	Issue for DRAFT DA	8/10/21	07
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

North Point

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 215 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
580 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer

EVC Consulting Engineers
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Hydraulic Engineer

Wallace Design Group
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project

Dairy Farmers Corner

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Newcastle West NSW 2302

drawing title

General
Arrangement Plans
Level 2

drawing scale	drawn	verified	date
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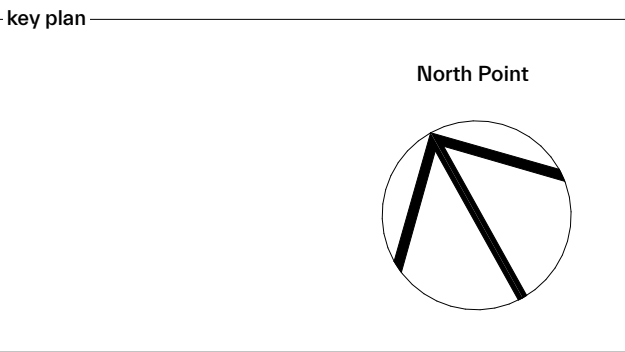
Development Application



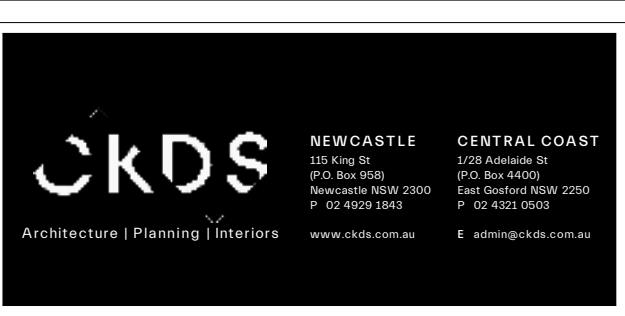
1 Level 3
SCALE 1:200 @ A1

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issue	description	date	verified
01	Issue for Review	20/7/21	01
02	Issue for Review	10/8/21	02
03	Issue for Coordination	7/9/21	03
04	Issue for Pre-DA	16/9/21	04
05	Issue for Pre-DA	27/9/21	05
06	Issue for Draft DA	1/10/21	06
07	Issue for DRAFT DA	8/10/21	07
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E



consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304
Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**General
Arrangement Plans
Level 3**

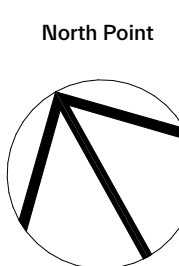
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AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1105	E	

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issue	description	date	verified
02	Issue for Review	10/8/21	02
03	Issue for Coordination	7/8/21	03
04	Issue for Pre-DA	16/9/21	04
05	Issue for Pre-DA	27/9/21	05
06	Issue for Draft DA	11/02/21	06
07	Issue for DRAFT DA	8/10/21	07
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
C	Issue for RFI Response	24/5/22	C
E	Issue for RFI Response	30/5/22	E

- key plan



- consultants

<u>Civil/Structural Engineers</u> Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	<u>Electrical Engineer</u> Electrical Projects Australia 390 Maitland Rd Mayfield, NSW, 2304
<u>Mechanical Engineer</u> EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	<u>Hydraulic Engineer</u> Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

- client



– project

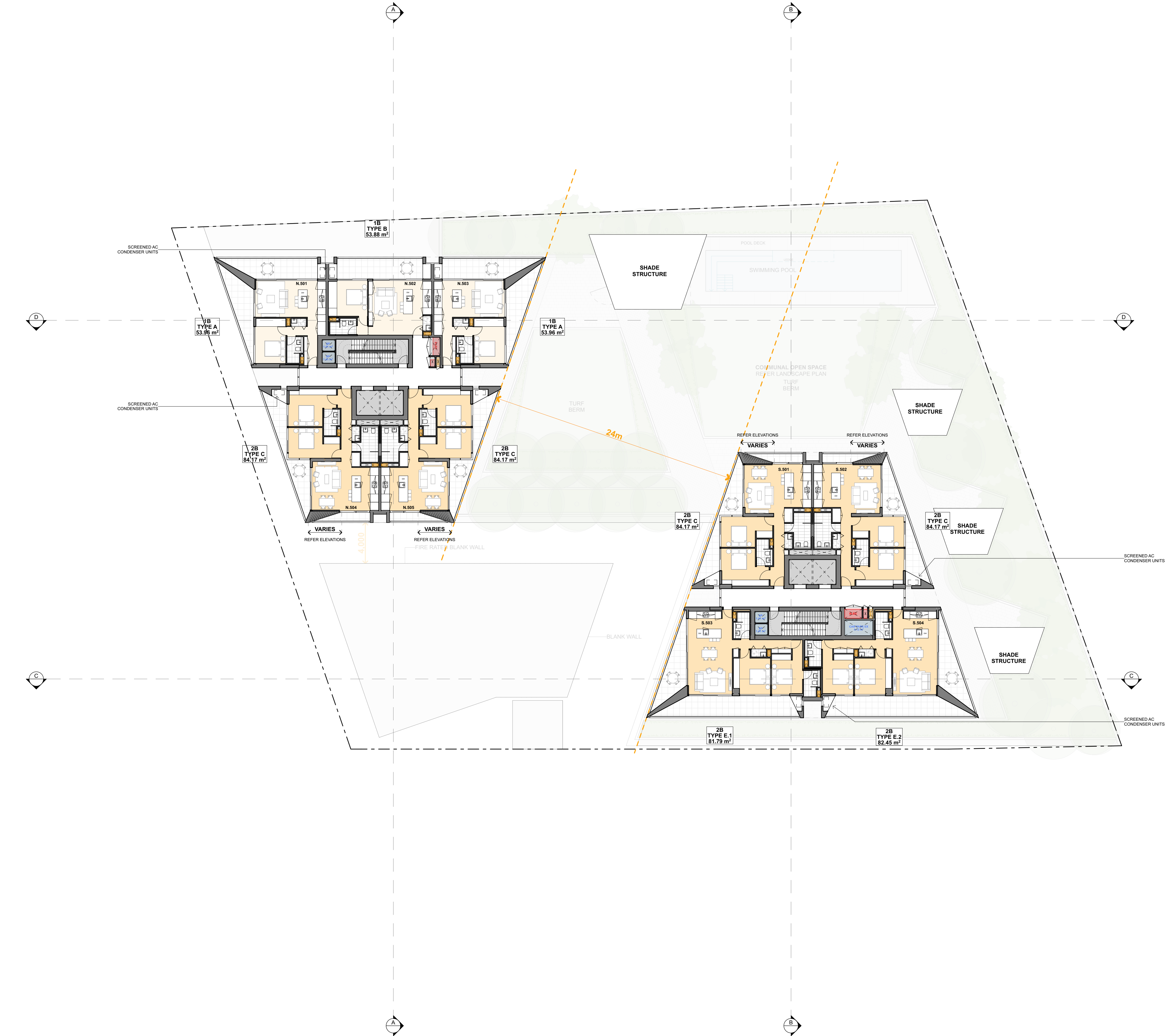
Dairy Farmers Corner
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Newcastle West NSW 2302

– drawing title

General Arrangement Plans Level 4

drawing scale	drawn	verified	date
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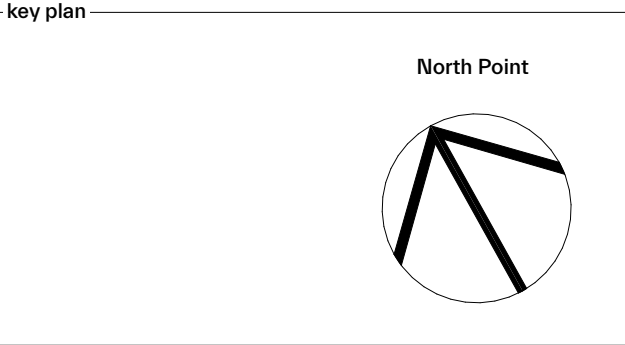


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issue	description	date	verified
05	Issue for Review	19/8/21	05
06	Issue for Comment	2/9/21	06
07	Issue for Coordination	10/9/21	07
08	Issue for Pre-DA	16/9/21	08
09	Issue for Pre-DA	27/9/21	09
10	Issue for Draft DA	1/10/21	10
11	Issue for DRAFT DA	8/10/21	11
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E



consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level L 225 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

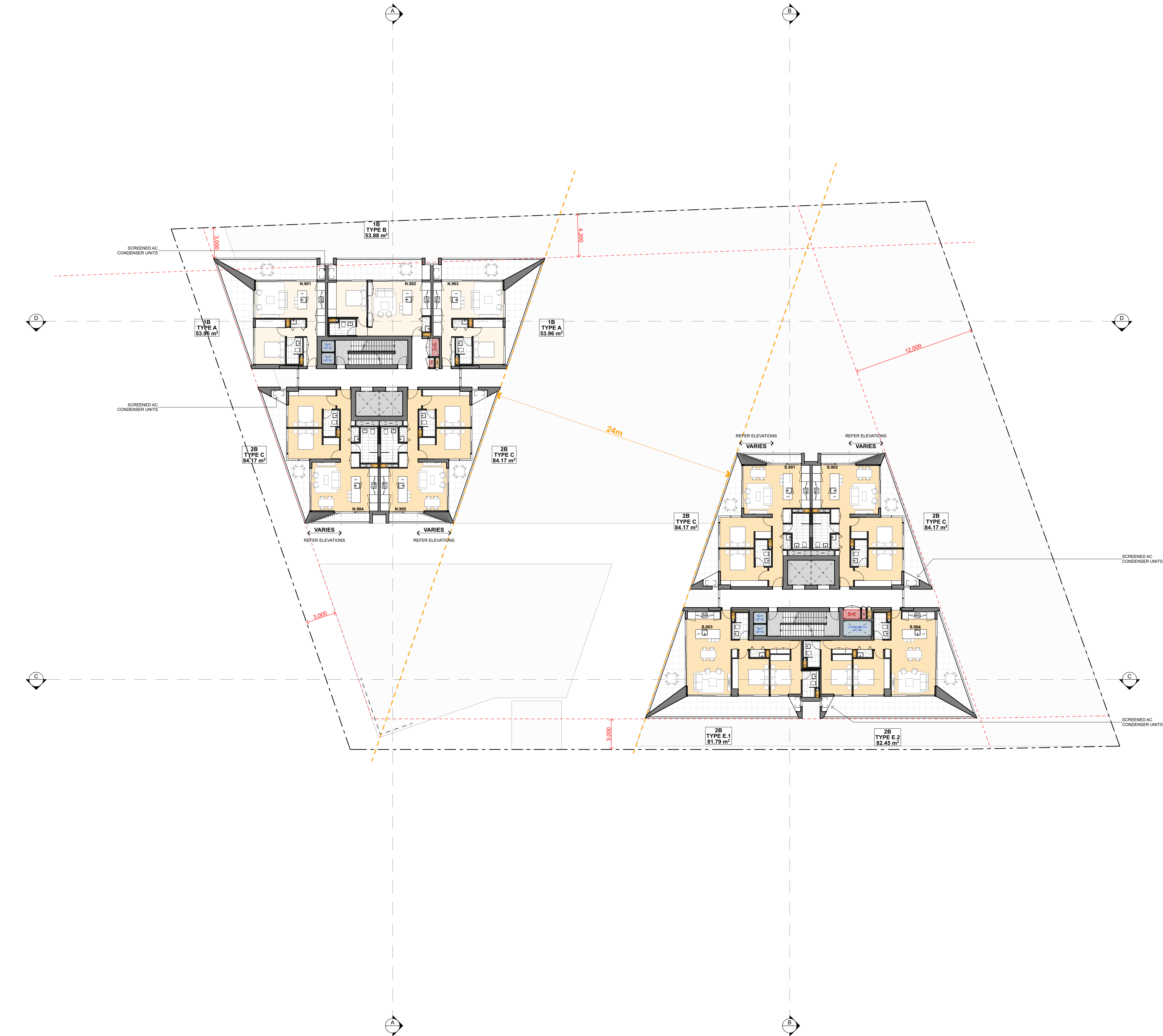
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

**General
Arrangement Plans
Tower Level 5**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1107	E	

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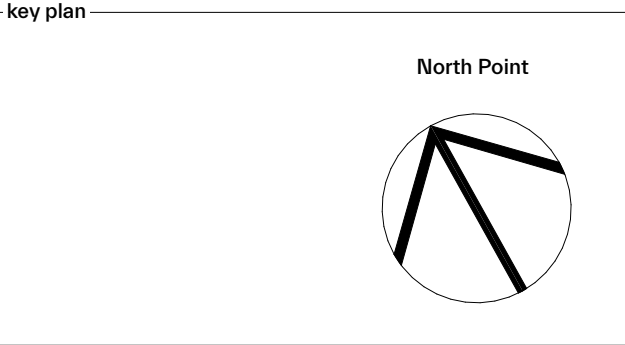


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Notified Architects: Cairne King NSW ARB 7574 / Stuart Campbell NSW ARB 7545

issue	description	date	verified
04	Issue for Review	10/8/21	04
05	Issue for Review	19/9/21	05
06	Issue for Comment	2/9/21	06
07	Issue for Coordination	10/9/21	07
08	Issue for Pre-DA	16/9/21	08
09	Issue for Pre-DA	27/9/21	09
10	Issue for Draft DA	1/10/21	10
11	Issue for DRAFT DA	8/10/21	11
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E



consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	Electrical Engineer Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

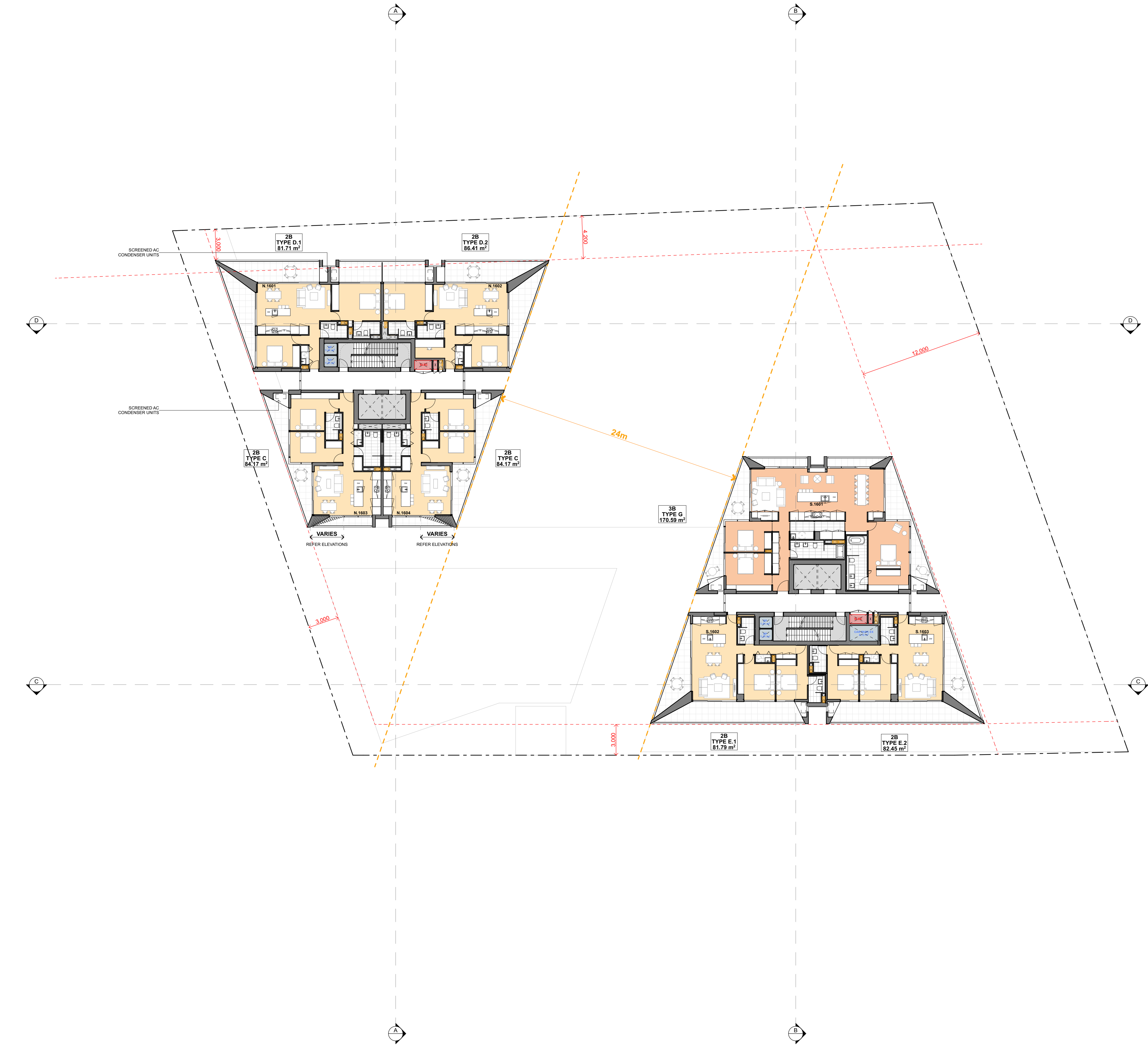
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

**General
Arrangement Plans
Tower Levels 6 - 14**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1108	E	

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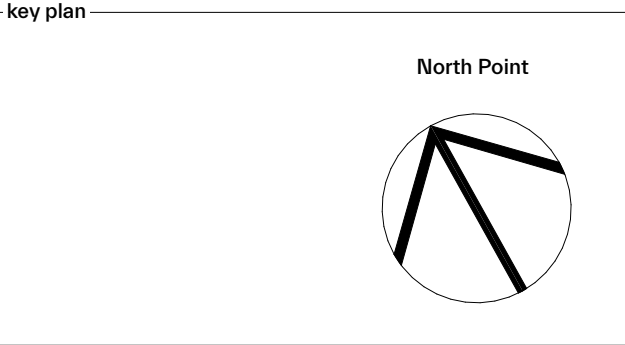


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issue	description	date	verified
04	Issue for Review	10/8/21	04
05	Issue for Review	19/9/21	05
06	Issue for Comment	2/9/21	06
07	Issue for Coordination	10/9/21	07
08	Issue for Pre-DA	16/9/21	08
09	Issue for Pre-DA	27/9/21	09
10	Issue for Draft DA	1/10/21	10
11	Issue for DRAFT DA	8/10/21	11
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E



consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Engineer Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

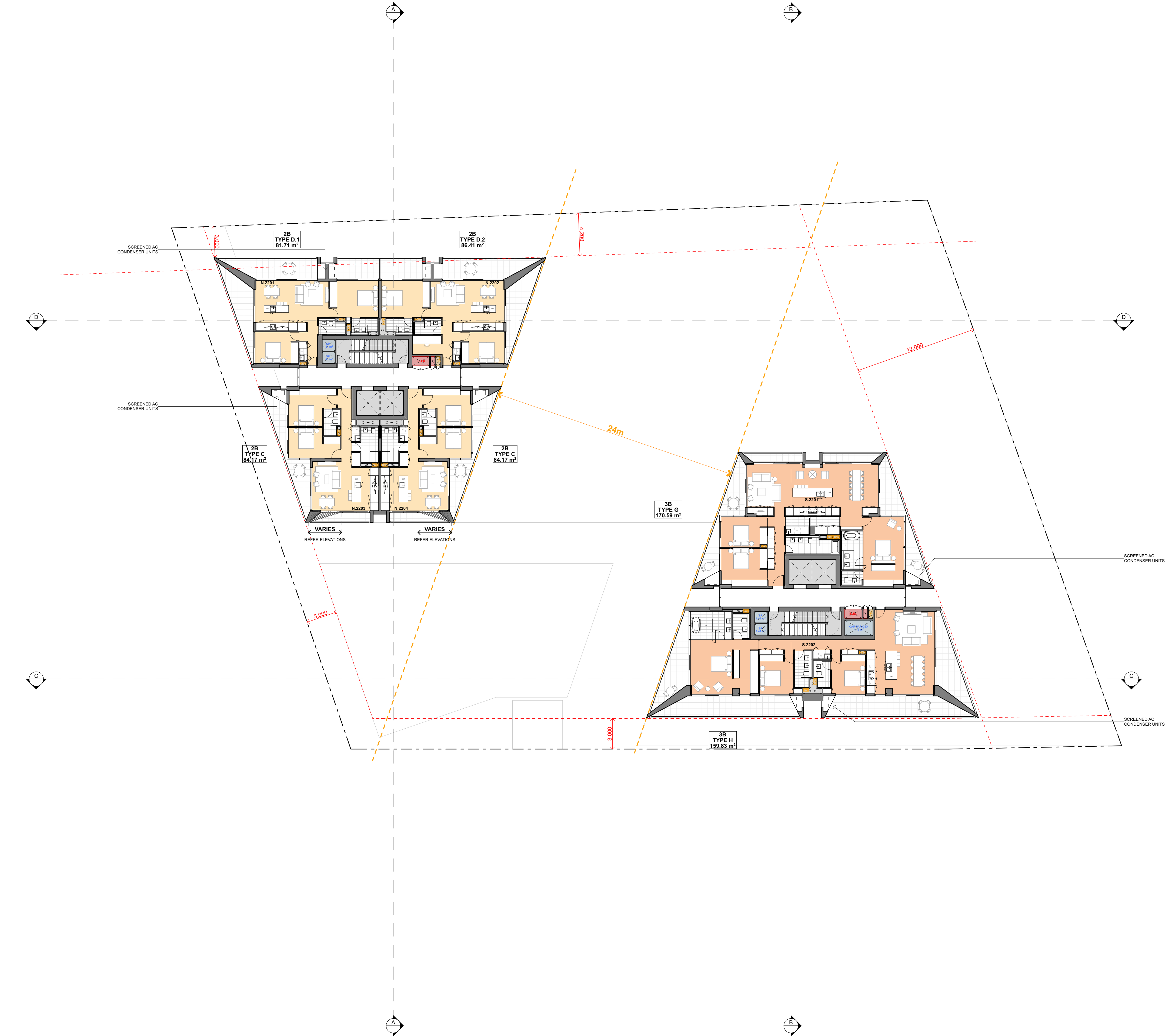
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

**General
Arrangement Plans
Tower Levels 15 - 21**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1109	E	

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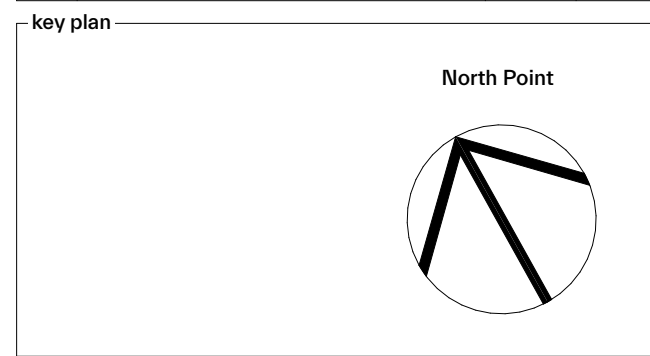
1 Tower Levels 22 - 24
SCALE 1:200 @ A1

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10	Issue for Pre-DA	27/9/21	10
11	Issue for Draft DA	1/10/21	11
12	Issue for DRAFT DA	8/10/21	12
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E



consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Engineer Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



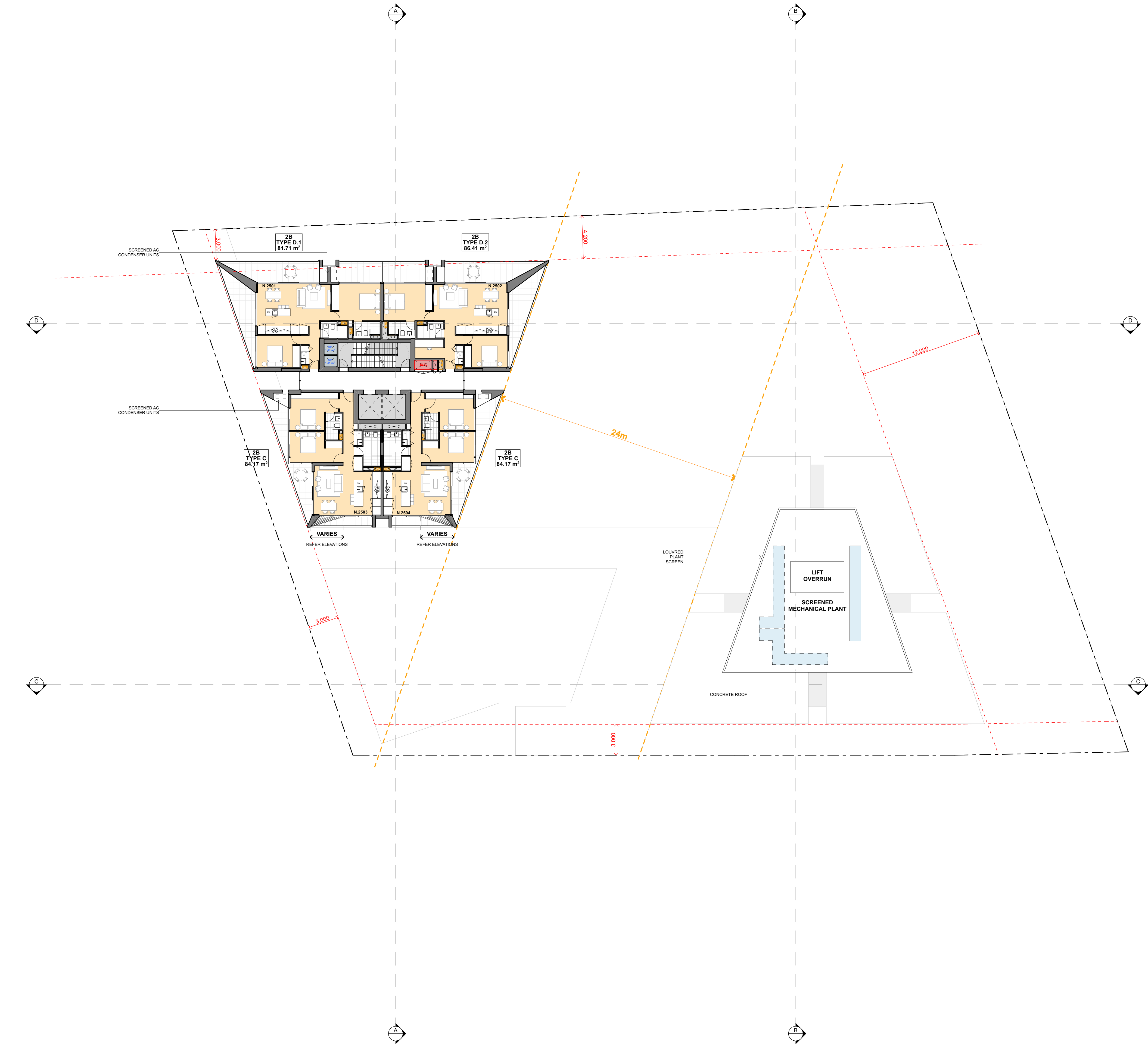
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**General
Arrangement Plans
Tower Levels 22 - 24**

drawing scale	drawn	verified	date
AS SHOWN	CH	SC	30/5/22
project #	drawing #	issue	
21014	A-1110	E	

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Development Application



1 Tower Levels 25 - 26
SCALE 1:200 @ A1

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10	Issue for Draft DA	1/10/21	10
11	Issue for DRAFT DA	8/10/21	11
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

North Point

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level L, 215 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
580 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer

EVC Consulting Engineers
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Hydraulic Engineer

Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client

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Bella Vista NSW 2300
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e edmund@ckds.com.au

project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

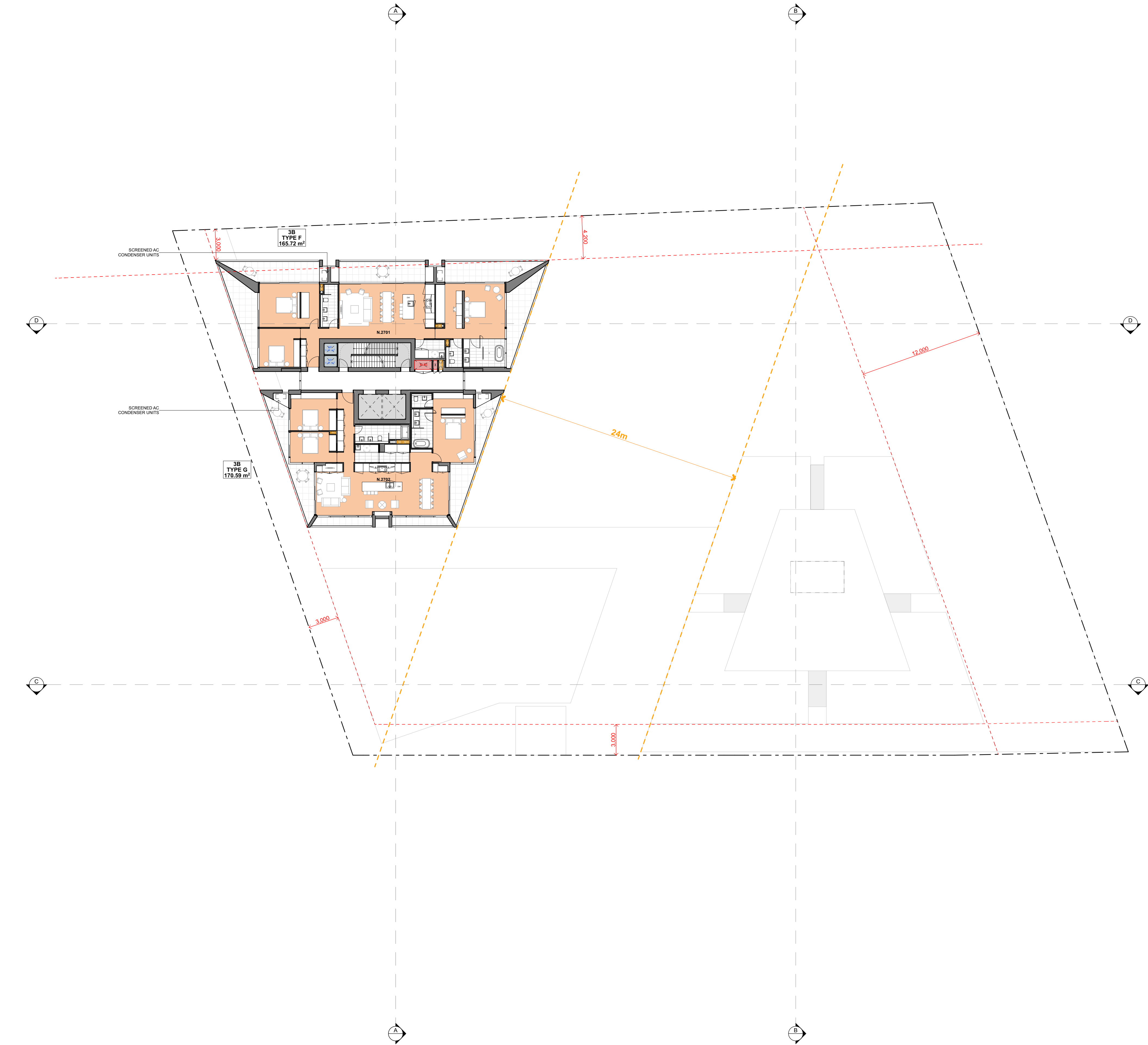
drawing title

General
Arrangement Plans
Tower Levels 25 - 26

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-1111	E	

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Tower Levels 25 - 26



1 Tower Levels 27 - 28
SCALE 1:200 @ A1

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10	Issue for Draft DA	1/10/21	10
11	Issue for DRAFT DA	8/10/21	11
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	24/5/22	B
E	Issue for RFI Response	30/5/22	E

key plan

North Point

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 225 Pacific Highway
Charlestown, NSW, 2290

Electrical Engineer

Electrical Projects Australia
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Mayfield, NSW, 2304

Mechanical Engineer

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Hydraulic Engineer

Wallace Design Group
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client

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P 02 4929 1883

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PO Box 408
Bella Vista NSW 2300
P 02 4321 0003

www.ckds.com.au E edmond@ckds.com.au

project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

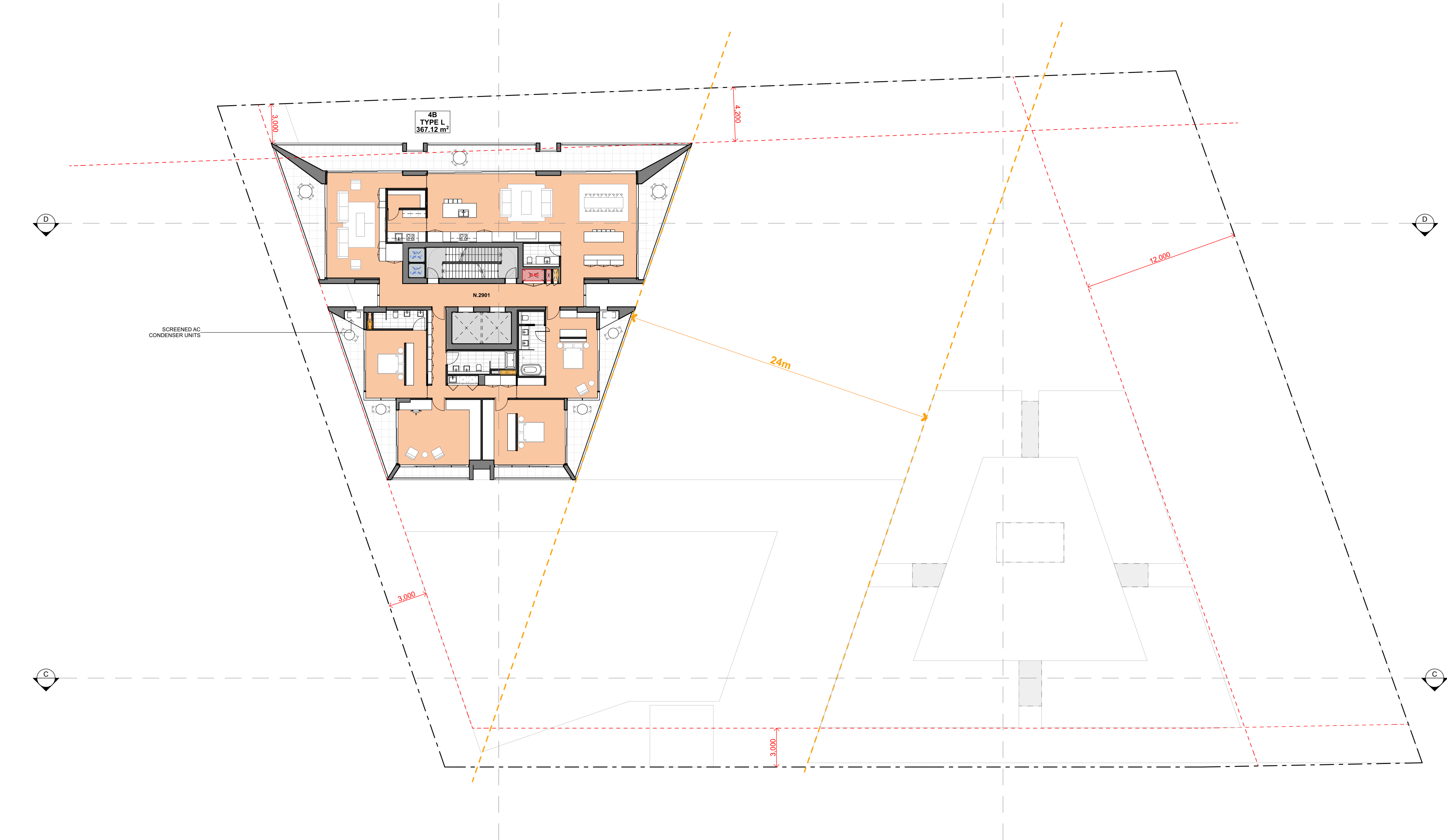
drawing title

General
Arrangement Plans
Tower Levels 27 - 28

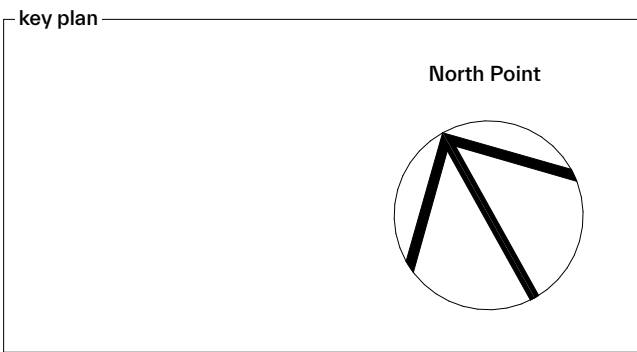
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AS SHOWN	CH	SC	30/5/22
project #	drawing #	issue	
21014	A-1112	E	

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Development Application



issue	description	date	verified
A	Issue for RFI Response	24/5/22	A
E	Issue for RFI Response	30/5/22	E



consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304

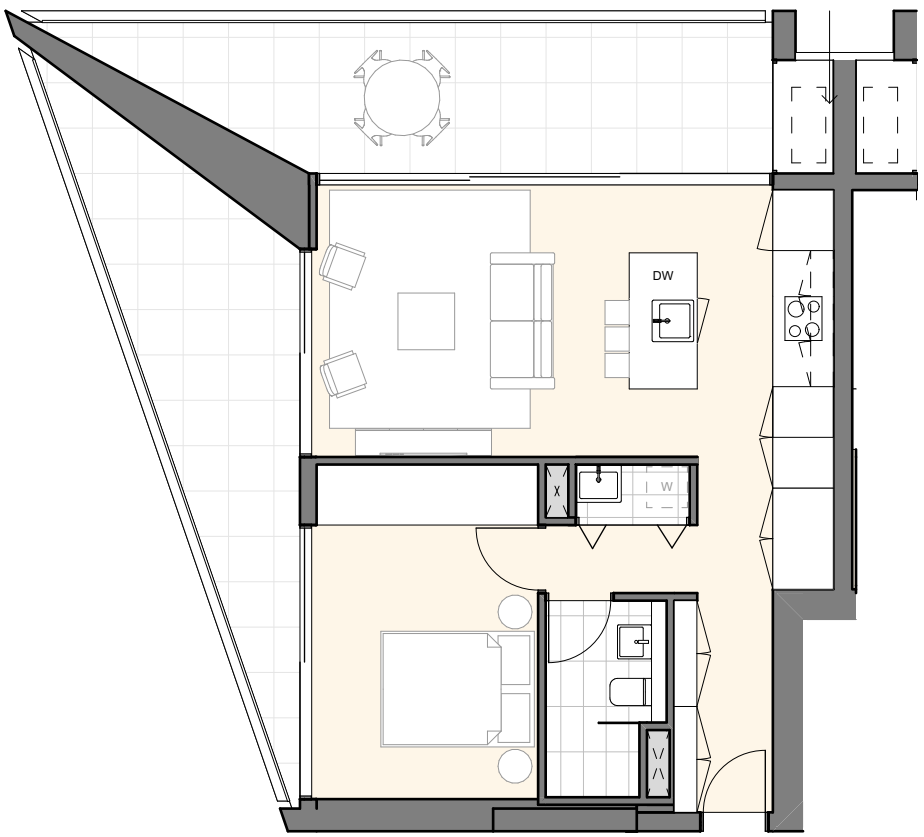
Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



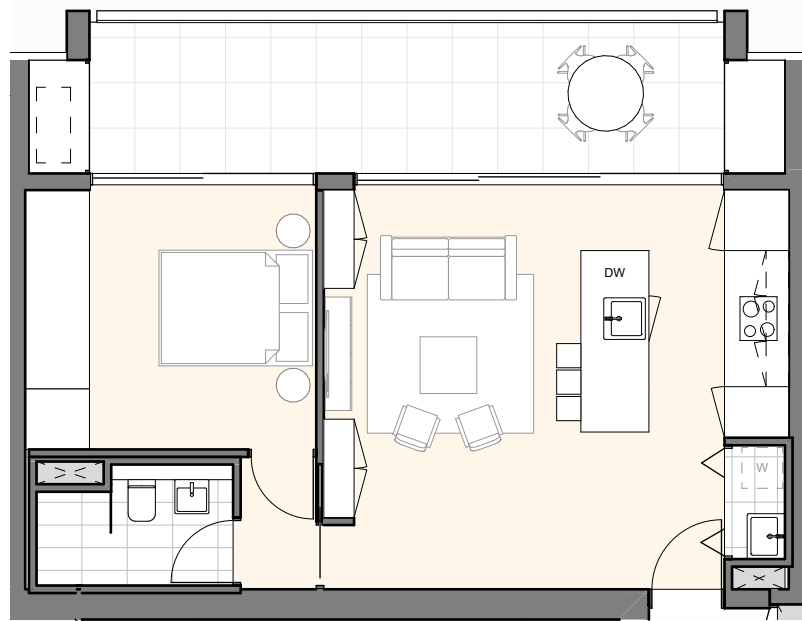
project
Dairy Farmers Corner 924 Hunter Street 2/DP445736 Newcastle West NSW 2302

drawing title
General Arrangement Plans Tower Levels 29

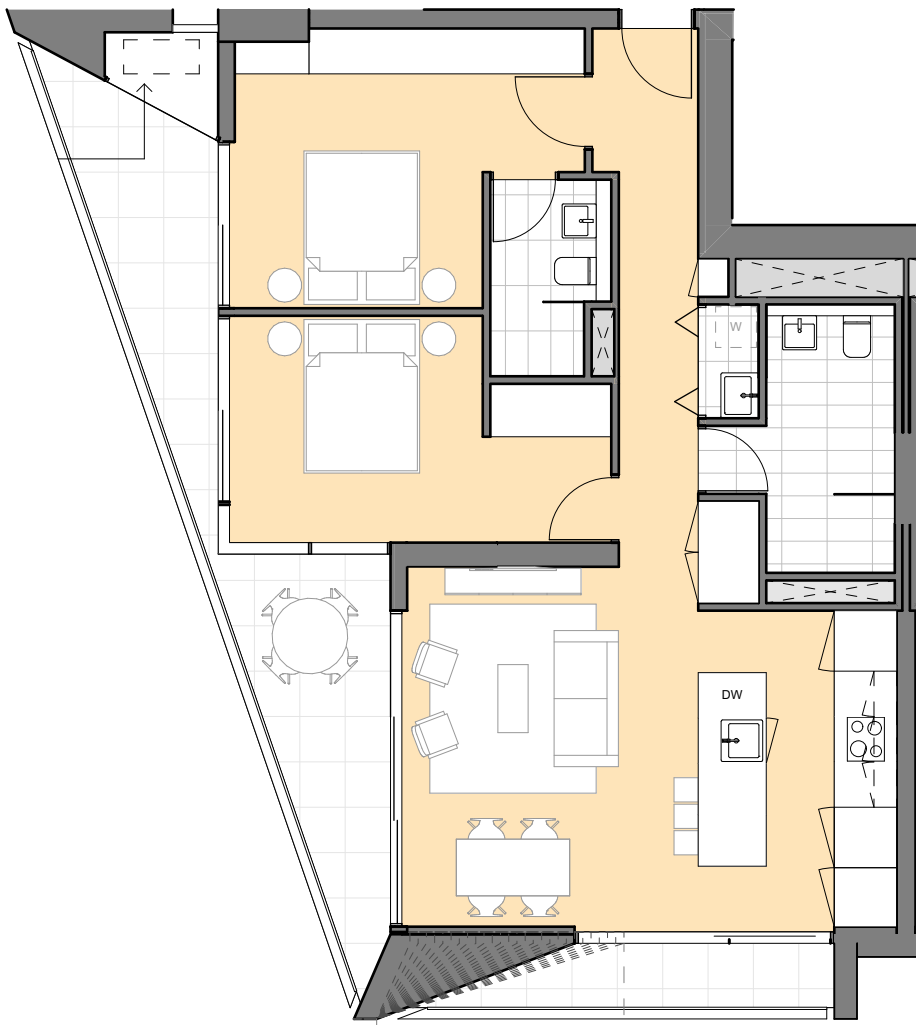
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AS SHOWN	CH	SC	30/5/22
project #	drawing #	issue	
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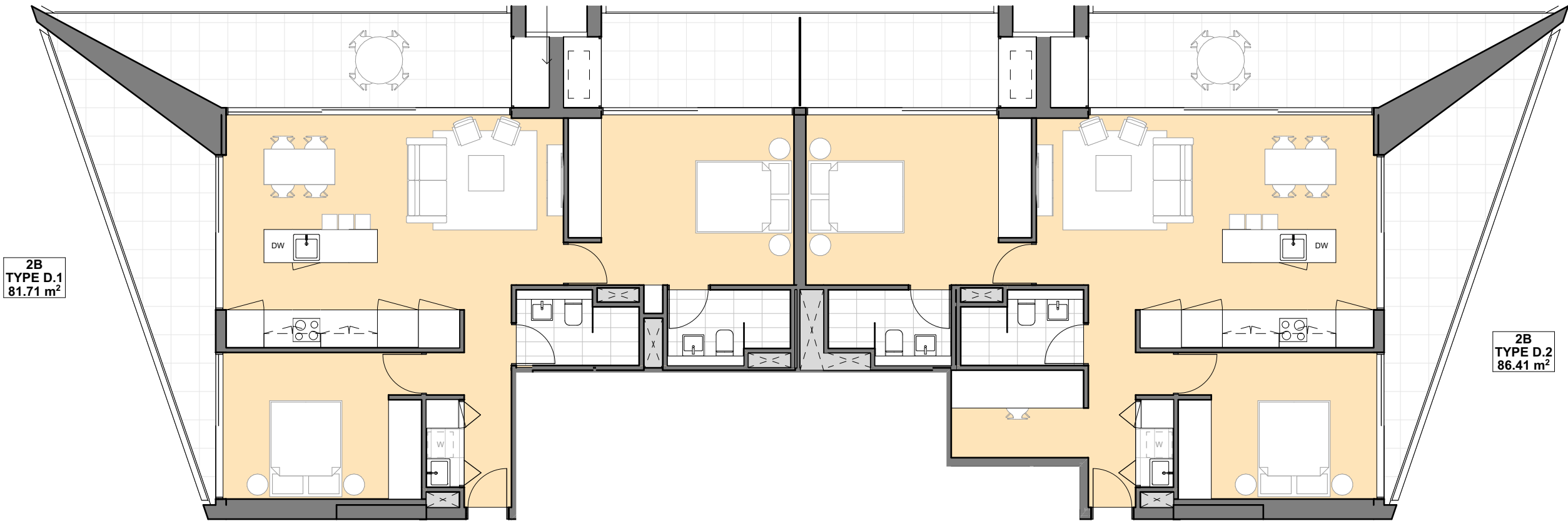
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SCALE 1:100 @ A1



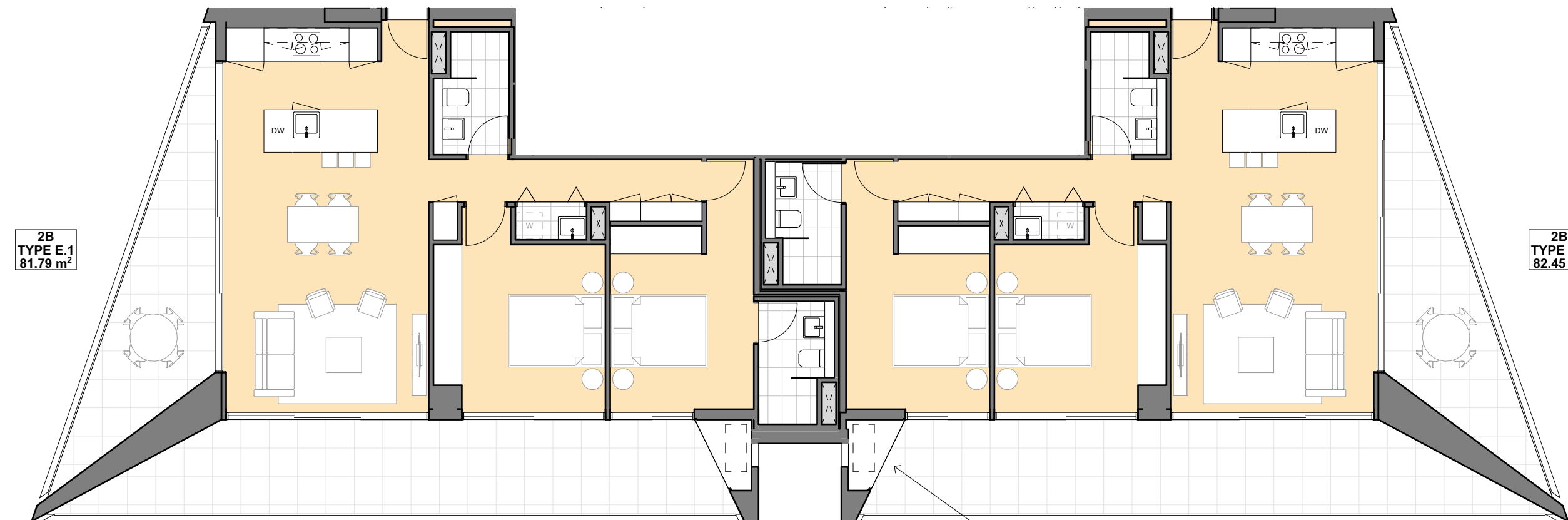
2 UNIT TYPE B - 1B TOWER
SCALE 1:100 @ A1



3 UNIT TYPE C - 2B TOWER
SCALE 1:100 @ A1
LHA SILVER LEVEL UNIT



4 UNIT TYPE D.1 & D.2 - 2B TOWER
SCALE 1:100 @ A1



5 UNIT TYPE E.1 & E.2 - 2B TOWER
SCALE 1:100 @ A1

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09	Issue for Pre-DA	27/9/21	09
10	Issue for Draft DA	1/10/21	10
11	Issue for DRAFT DA	8/10/21	11
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 2580 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

client



project

Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

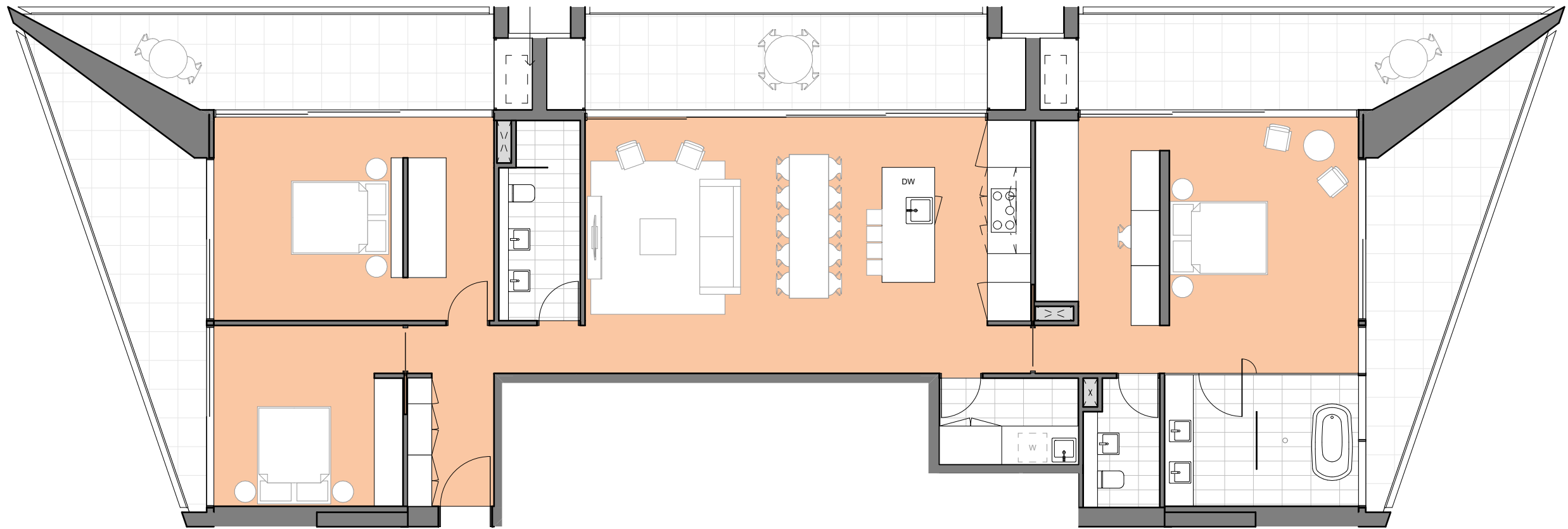
drawing title

Unit Plans
Unit Type A - E

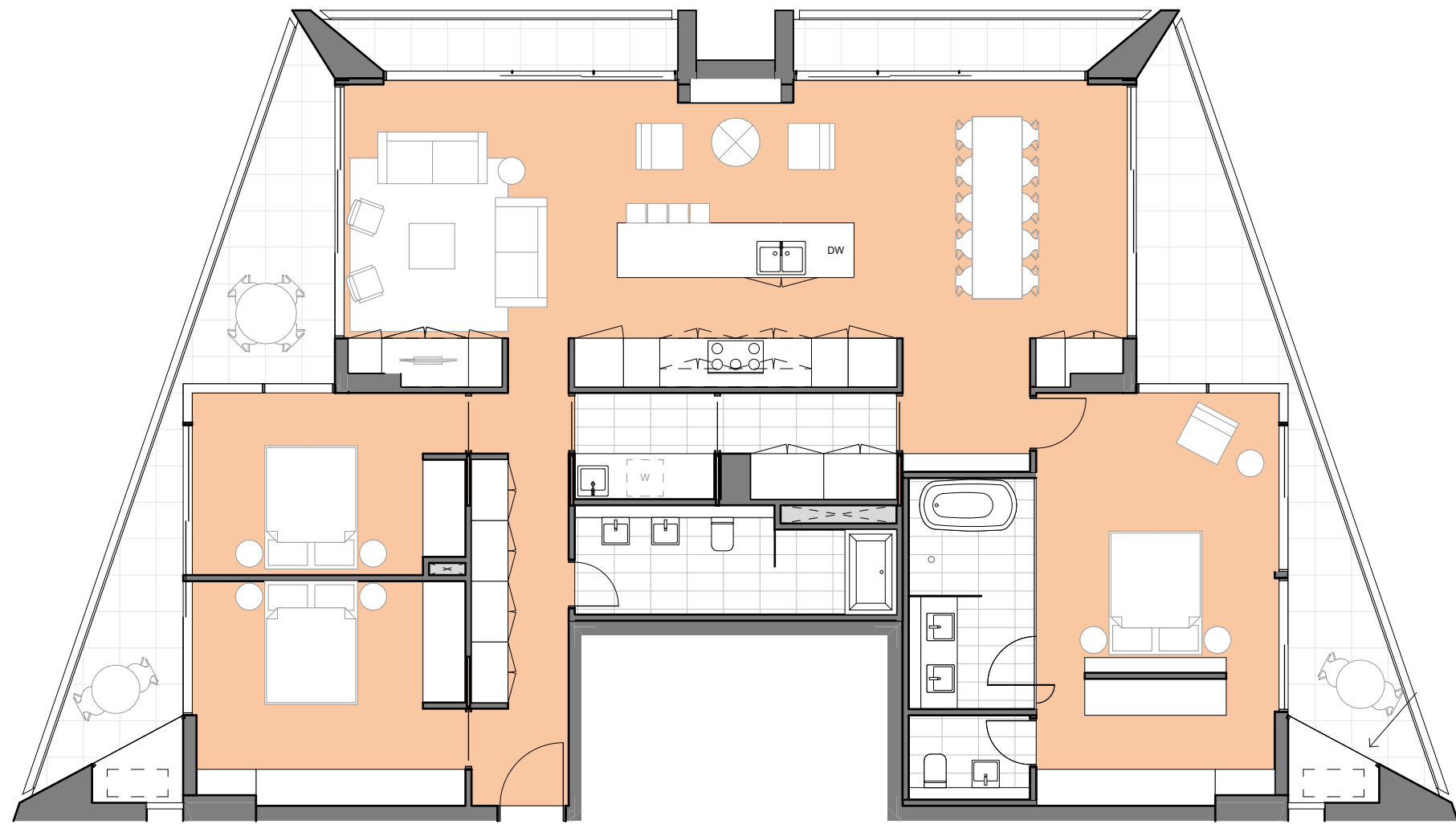
drawing scale	drawn	verified	date
AS SHOWN	CH	SC	30/5/22
project #	drawing #	issue	
21014	A-1201	E	

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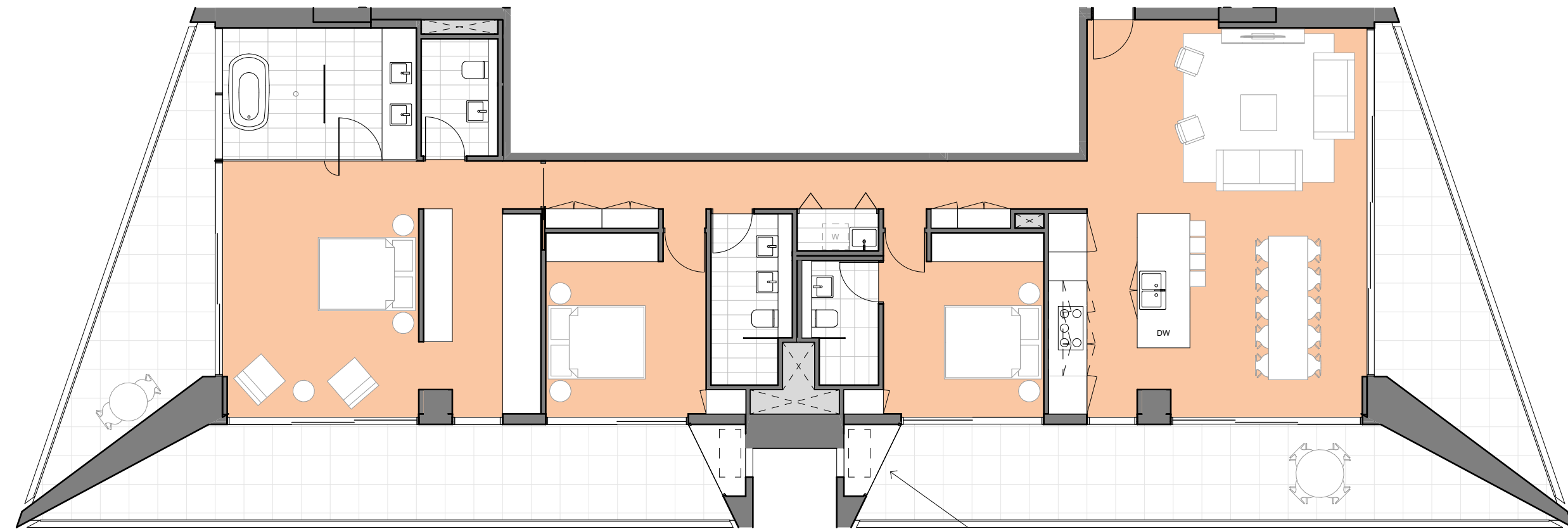
Development Application



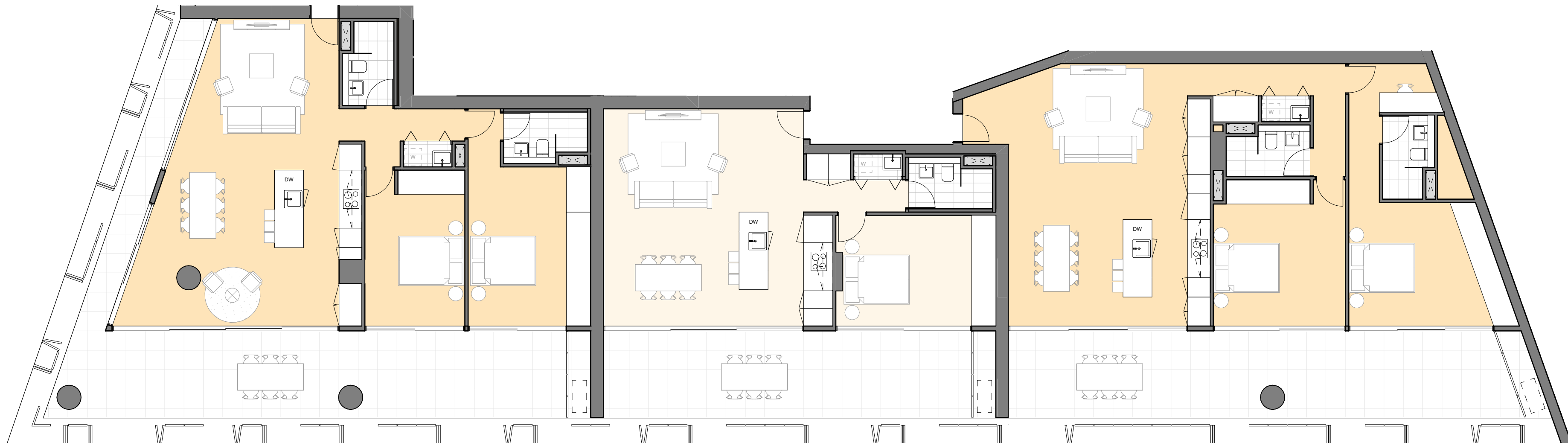
1 UNIT TYPE F - 3B PENTHOUSE
SCALE 1:100 @ A1



2 UNIT TYPE G - 3B PENTHOUSE
SCALE 1:100 @ A1



3 UNIT TYPE H - 3B PENTHOUSE
SCALE 1:100 @ A1



4 UNIT TYPE I - 2B PODIUM
SCALE 1:100 @ A1



5 UNIT TYPE J - 1B PODIUM
SCALE 1:100 @ A1



6 UNIT TYPE K - 2B PODIUM
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06	Issue for DRAFT DA	8/10/21	06
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants
Civil/Structural Engineers
Northrop Consulting Engineers
Level 1, 225 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer
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588 Mainland Rd
Mayfield, NSW, 2304

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Newcastle West, NSW, 2302

Hydraulic Engineer
Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client
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PO Box 4405
Newcastle West 2302
P: 02 4929 1883
e: ed@ckds.com.au

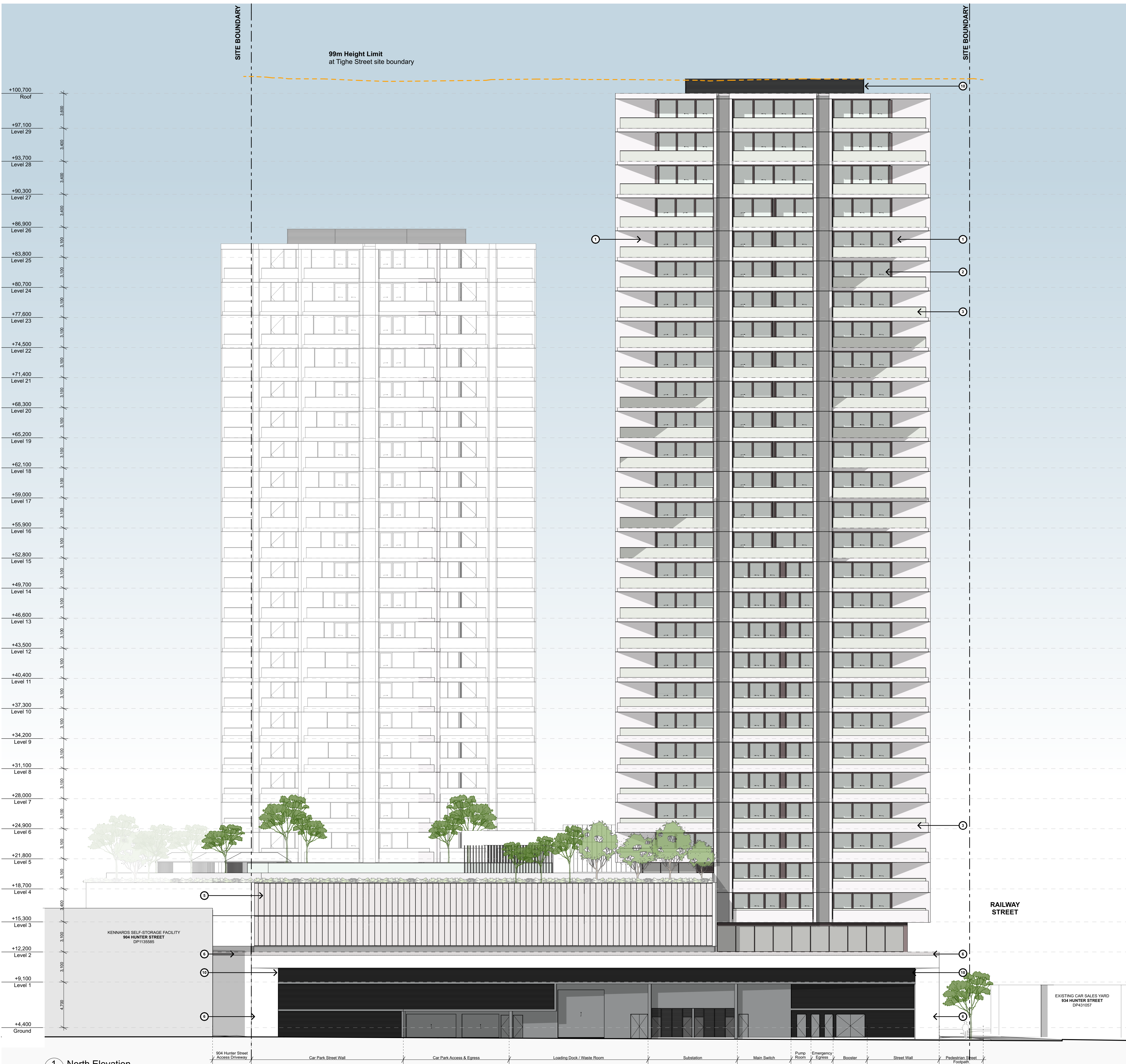
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Unit Plans
Unit Type F - K

drawing scale drawn verified date
AS SHOWN SC 30/5/22
project # drawing # issue
21014 A-1202 E

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1 North Elevation
SCALE 1:200 @ A1

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Notwithstanding Architects: Cairne King NSW ARB 7594 / Stuart Campbell NSW ARB 7545

MATERIALS / FINISHES

REFER TO A-5000 SERIES MATERIALITY

- 1 CONCRETE BLADES
- 2 FIXED & OPERABLE ALUMINIUM FRAMED GLAZING
PROVISION FOR EXTERNAL BLIND SUNSHADING
- 3 CONCRETE SLAB EDGE & FRAMELESS GLASS BALUSTRADE
DIMINISHING UPTURNS AT LOWER LEVELS
- 4 OPERABLE + FIXED PERFORATED
OR MESH METAL SCREENS
- 5 FIXED PERFORATED OR MESH METAL SCREENS
- 6 MASONRY SPANDREL & FEATURE COLUMNS
- 7 RETAIL & LOBBY GLAZING
- 8 CURVED & PERFORATED ALUMINIUM VEIL SCREEN
- 9 PERFORATED OR METAL MESH AC ENCLOSURE SCREENS
- 10 EXTRUDED LOUVRES / LIGHTWEIGHT CLADDING /
ROOF PLANT SCREENING

issue	description	date	verified
01	Issue for Review	10/8/21	01
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03	Issue for Pre-DA	27/9/21	03
04	Issue for Draft DA	11/10/21	04
05	Issue for DRAFT DA	8/10/21	05
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 215 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
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Mayfield, NSW, 2304

Mechanical Engineer

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Newcastle West, NSW, 2302

Hydraulic Engineer

Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Elevations North Elevation

drawing scale

AS SHOWN

drawn

SC

verified

30/5/22

date

project

21014

drawing

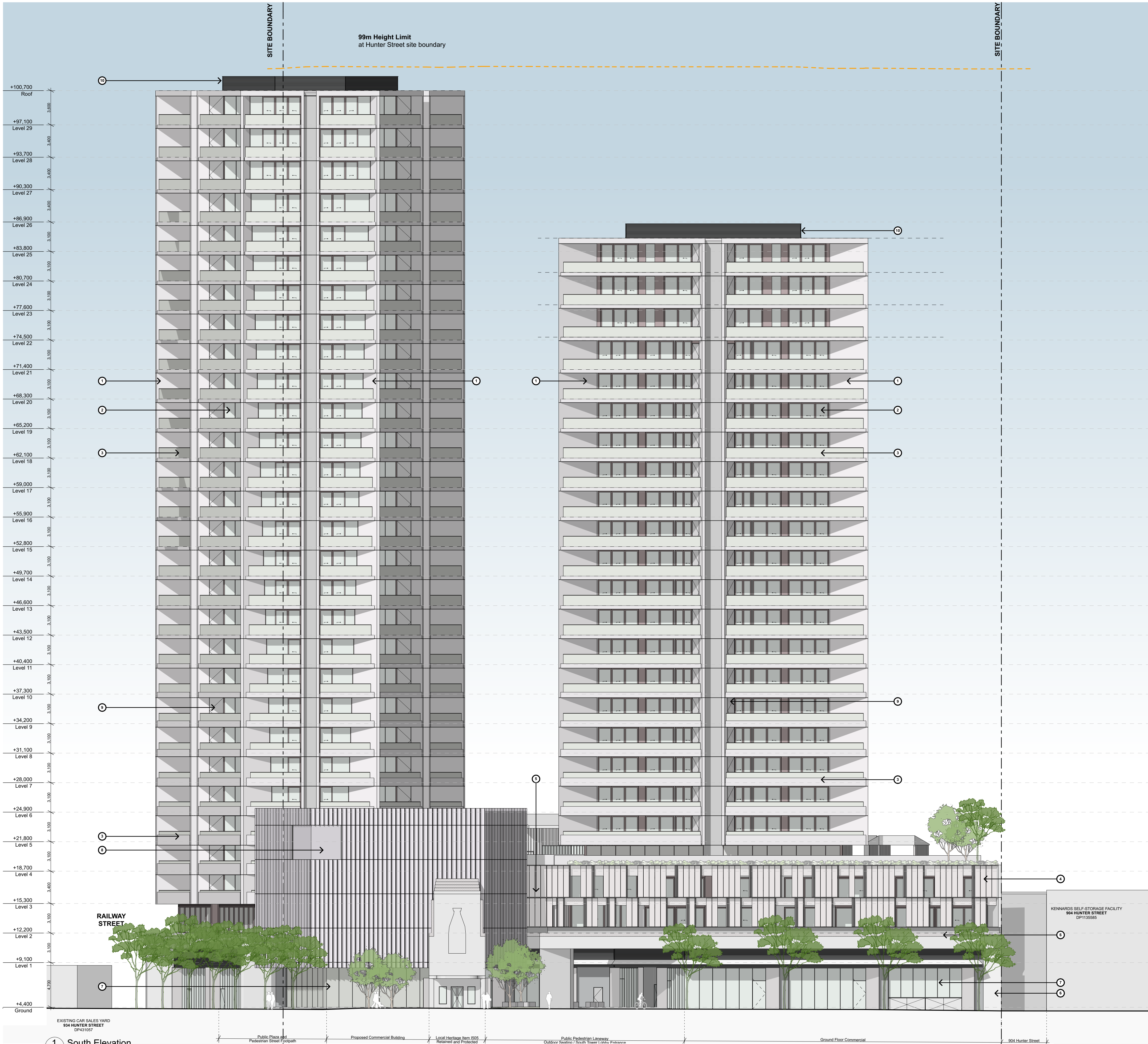
A-2001

issue

E

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Notwithstanding Architects: Carine King NSW ARB 7594 / Stuart Campbell NSW ARB 7545

- MATERIALS / FINISHES**
- REFER TO A-5000 SERIES MATERIALITY
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 - 2 FIXED & OPERABLE ALUMINIUM FRAMED GLAZING PROVISION FOR EXTERNAL BLIND SUNSHADING
 - 3 CONCRETE SLAB EDGE & FRAMELESS GLASS BALUSTRADE DIMINISHING UPTURNS AT LOWER LEVELS
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 - 5 FIXED PERFORATED OR MESH METAL SCREENS
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 - 7 RETAIL & LOBBY GLAZING
 - 8 CURVED & PERFORATED ALUMINIUM VEIL SCREEN
 - 9 PERFORATED OR METAL MESH AC ENCLOSURE SCREENS
 - 10 EXTRUDED LOUVRES / LIGHTWEIGHT CLADDING / ROOF PLANT SCREENING

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A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/10/21	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants
Civil/Structural Engineers
Northrop Consulting Engineers
Level 1, 225 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer
Electrical Projects Australia
580 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer
EVC Consulting Engineers
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Newcastle West, NSW, 2302

Hydraulic Engineer
Wallace Design Group
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Warners Bay, NSW, 2282

client

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project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Elevations
South Elevation

drawing scale drawn verified date
AS SHOWN SC 30/5/22
project # drawing # issue
21014 A-2002 E

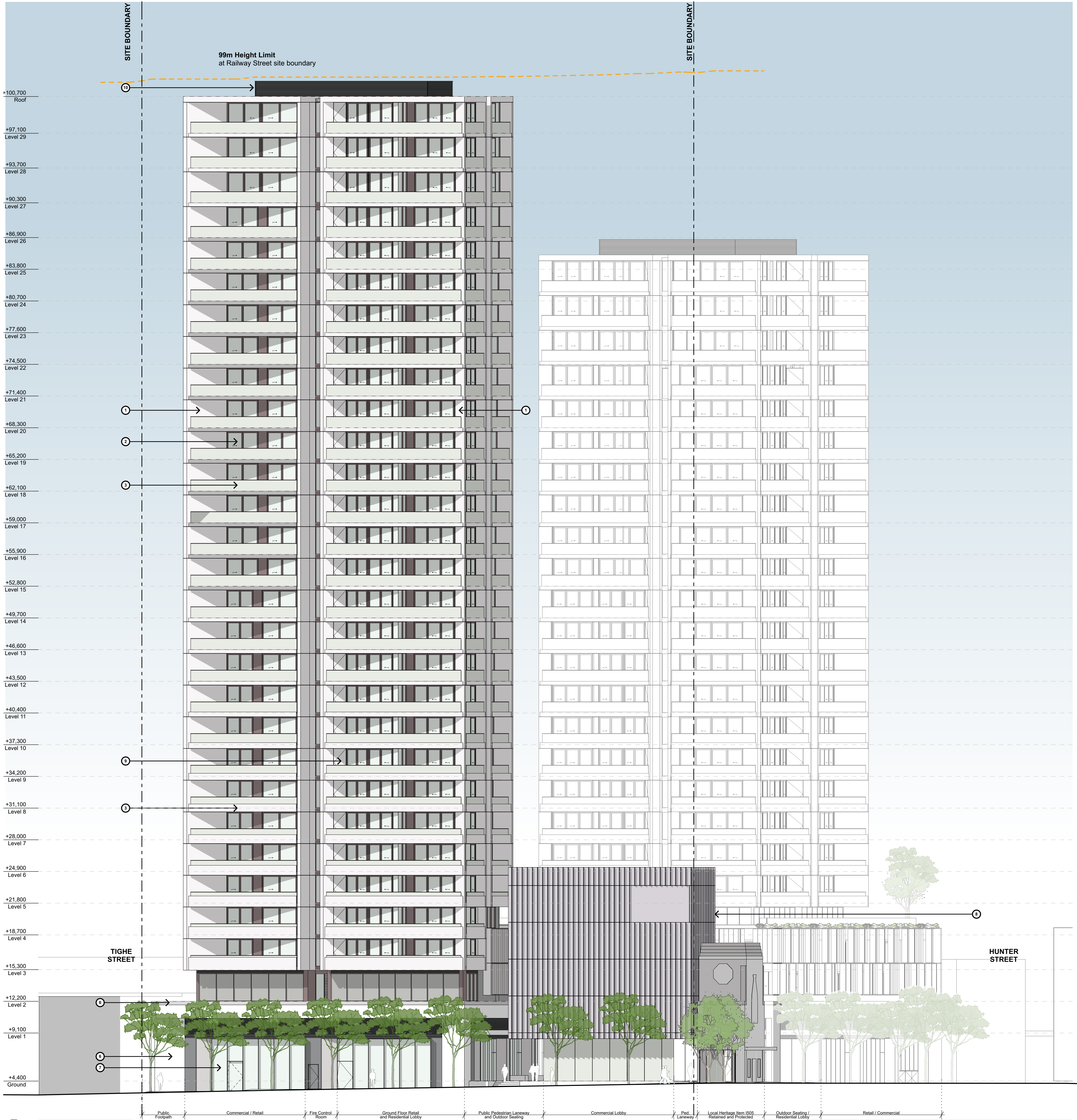
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Notwithstanding Architects: Cairne King NSW ARB 7594 / Stuart Campbell NSW ARB 7545

- MATERIALS / FINISHES**
- REFER TO A-5000 SERIES MATERIALITY
- 1 CONCRETE BLADES
 - 2 FIXED & OPERABLE ALUMINIUM FRAMED GLAZING PROVISION FOR EXTERNAL BLIND SUNSHADING
 - 3 CONCRETE SLAB EDGE & FRAMELESS GLASS BALUSTRADE DIMINISHING UPTURNS AT LOWER LEVELS
 - 4 OPERABLE + FIXED PERFORATED OR MESH METAL SCREENS
 - 5 FIXED PERFORATED OR MESH METAL SCREENS
 - 6 MASONRY SPANDREL & FEATURE COLUMNS
 - 7 RETAIL & LOBBY GLAZING
 - 8 CURVED & PERFORATED ALUMINIUM VEIL SCREEN
 - 9 PERFORATED OR METAL MESH AC ENCLOSURE SCREENS
 - 10 EXTRUDED LOUVRES / LIGHTWEIGHT CLADDING / ROOF PLANT SCREENING

issue	description	date	verified
01	Issue for Review	10/8/21	01
02	Issue for Pre-DA	16/9/21	02
03	Issue for Pre-DA	27/9/21	03
04	Issue for Draft DA	11/10/21	04
05	Issue for DRAFT DA	8/10/21	05
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/10/21	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 225 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
580 Maitland Rd
Mayfield, NSW, 2304

Mechanical Engineer

EVC Consulting Engineers
Suite 101, 470 King St
Newcastle West, NSW, 2302

Hydraulic Engineer

Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Elevations
West Elevation

drawing scale drawn verified date

AS SHOWN SC 30/5/22

project # drawing # issue

21014 A-2004 E

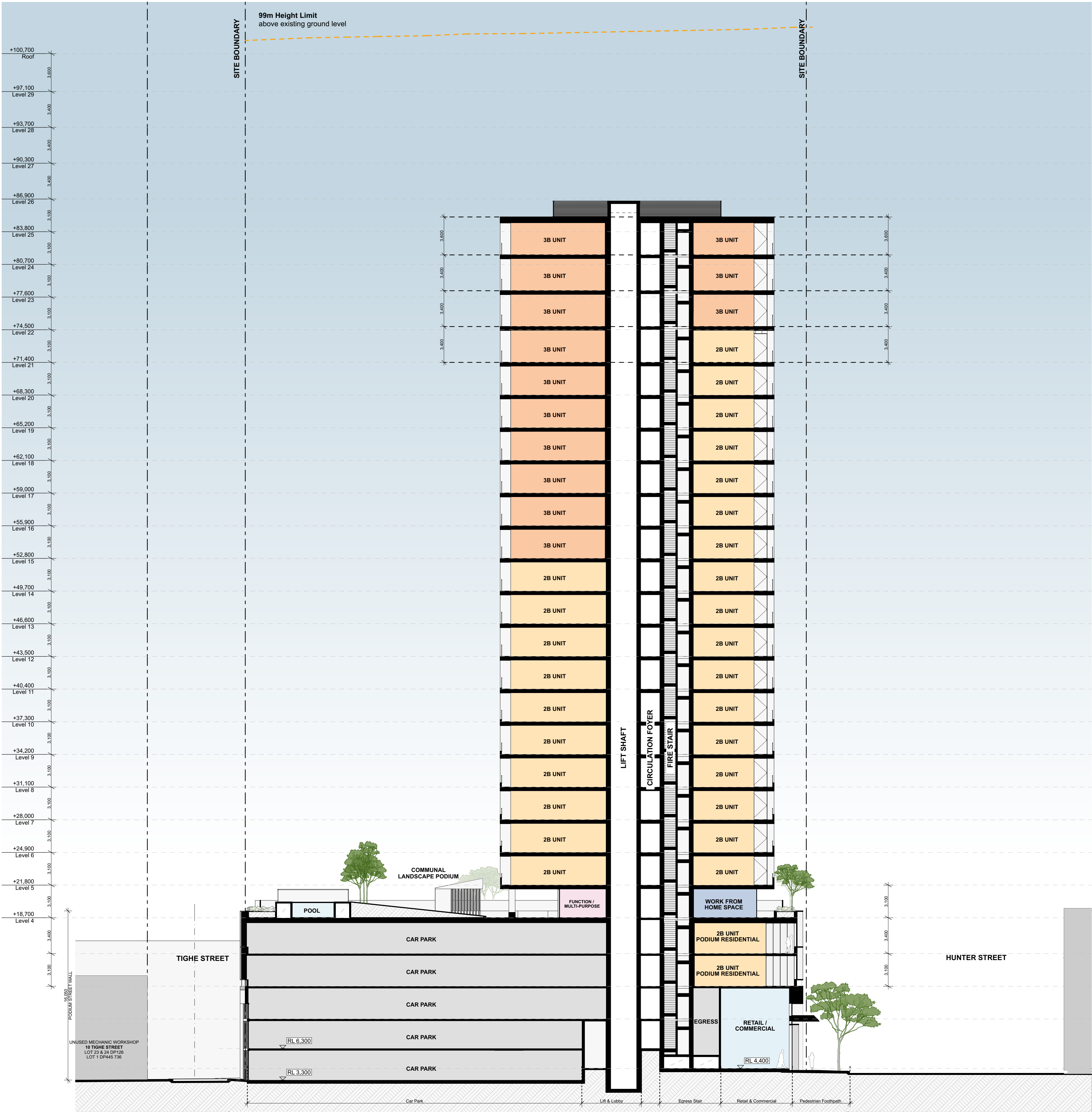
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Development Application



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Development Application



1 Section B
SCALE 1:200 @ A1

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01	Issue for Review	20/7/21	01
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E	Issue for RFI Response	30/5/22	E

key plan

consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



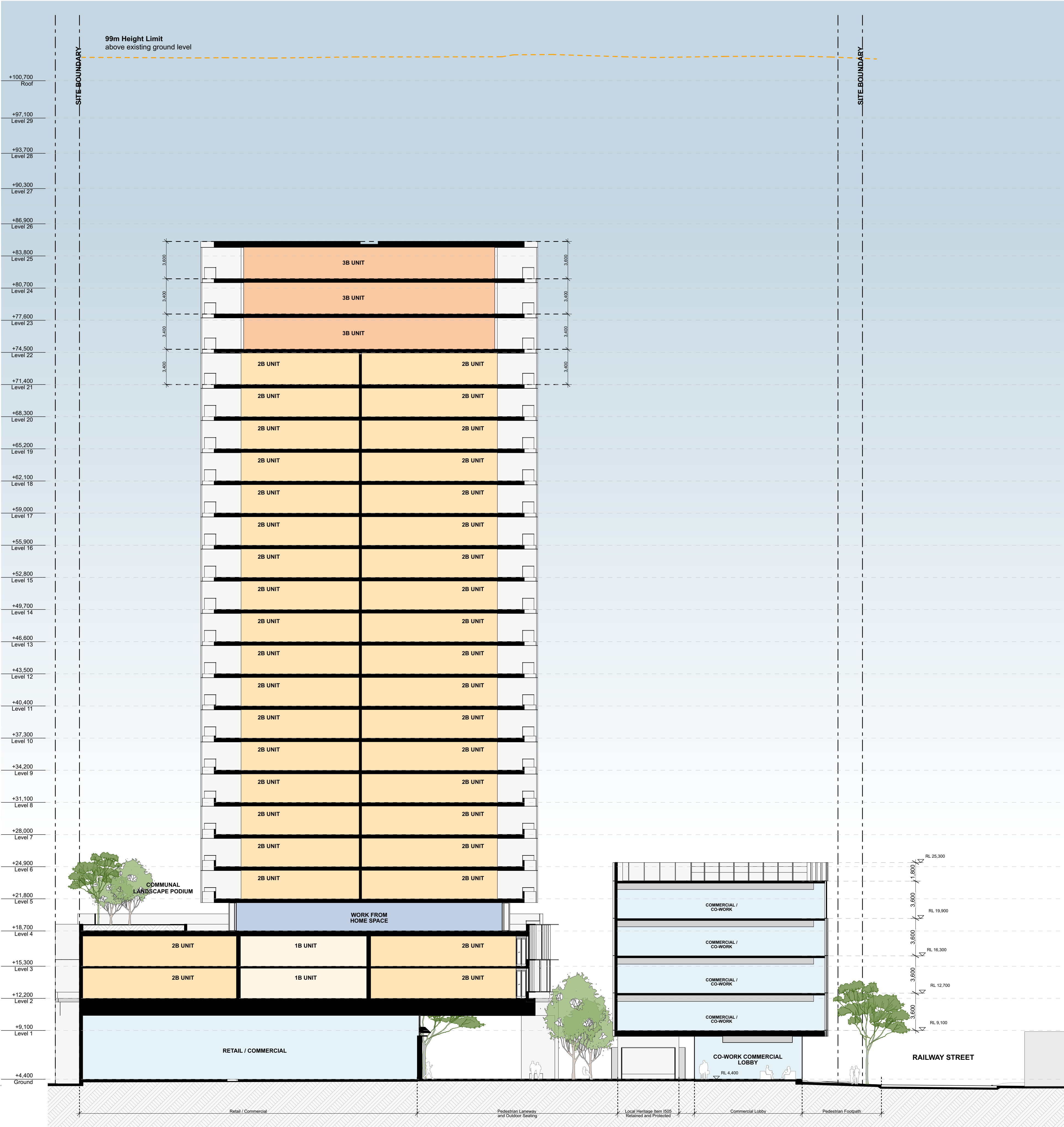
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Sections
Section B

drawing scale	drawn	verified	date
AS SHOWN	SC		30/5/22
project #	drawing #	issue	
21014	A-3002	E	

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E	Issue for RFI Response	30/5/22	E

key plan

consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVO Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

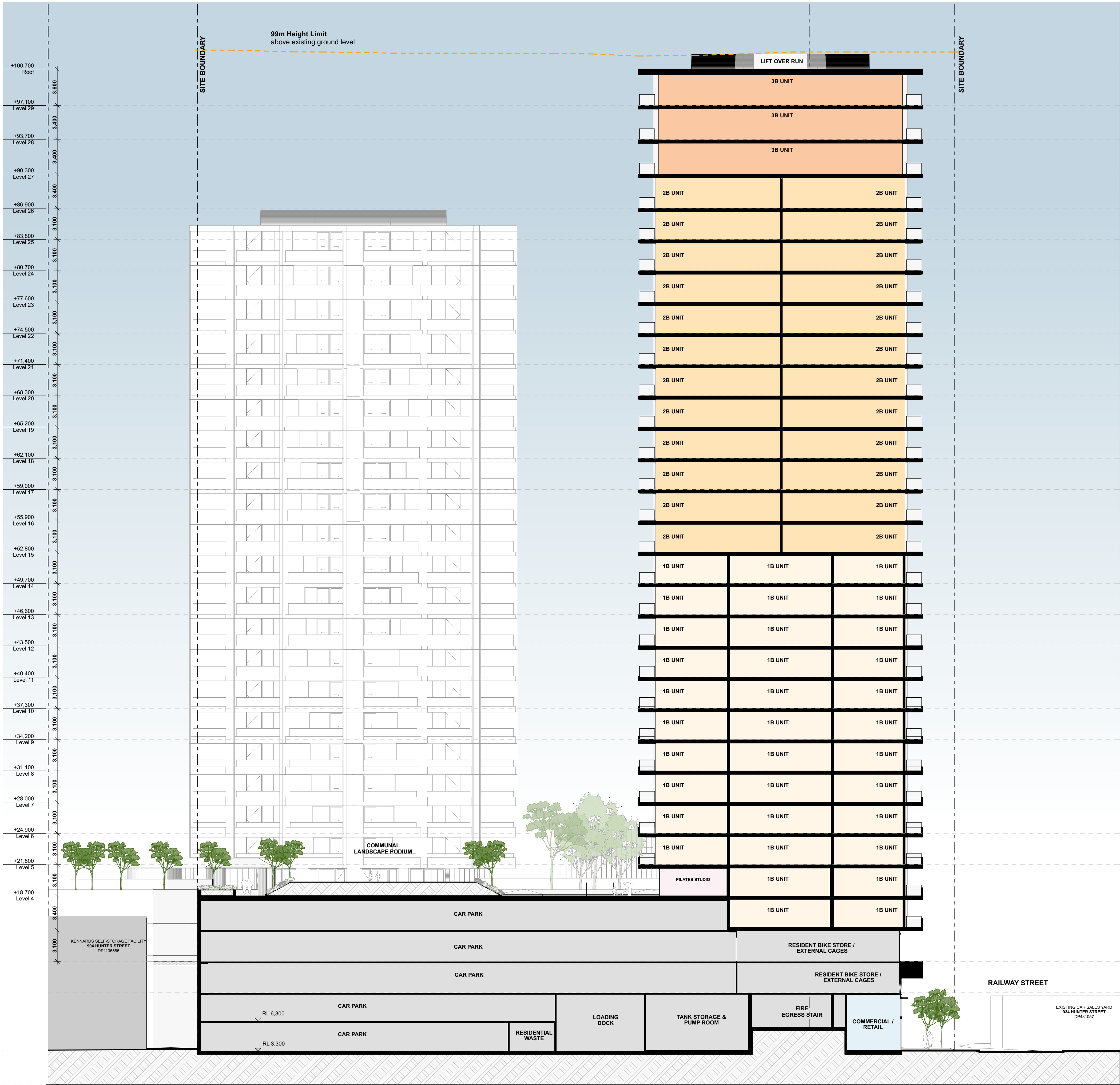
Sections

Section C

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-3003	E	

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Development Application



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E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Sections

Section D

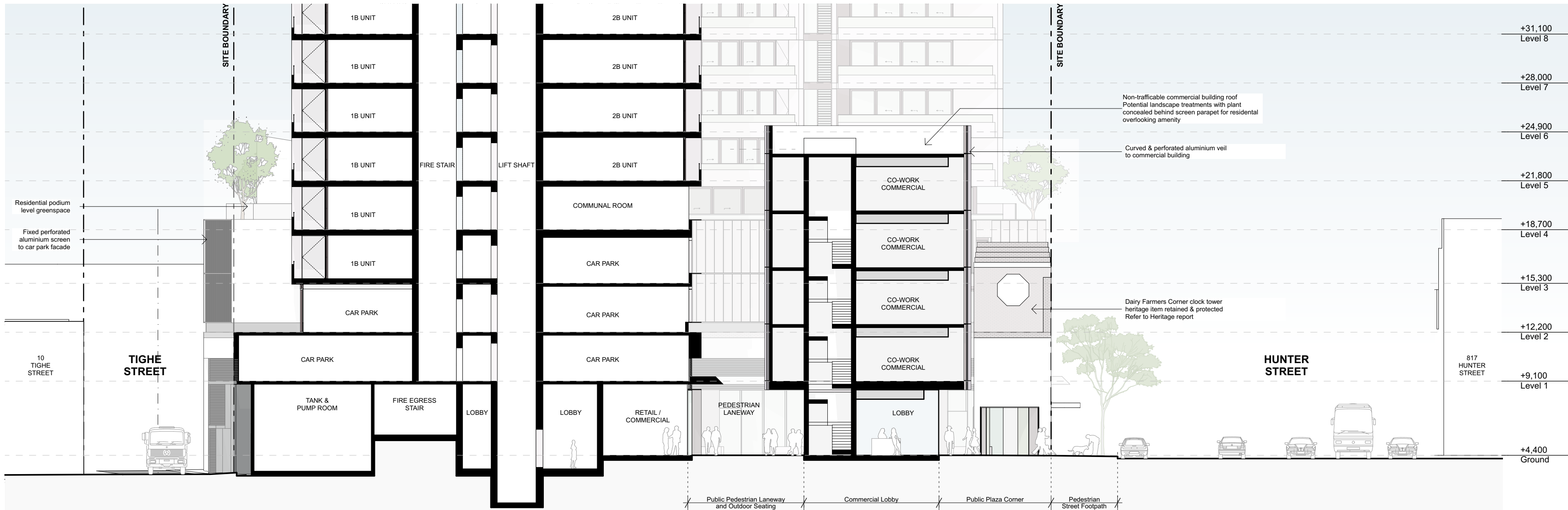
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-3004	E	

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Development Application



1 Laneway Section A
SCALE 1:200 @ A1



2 Laneway Section B
SCALE 1:200 @ A1

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E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 588 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

client



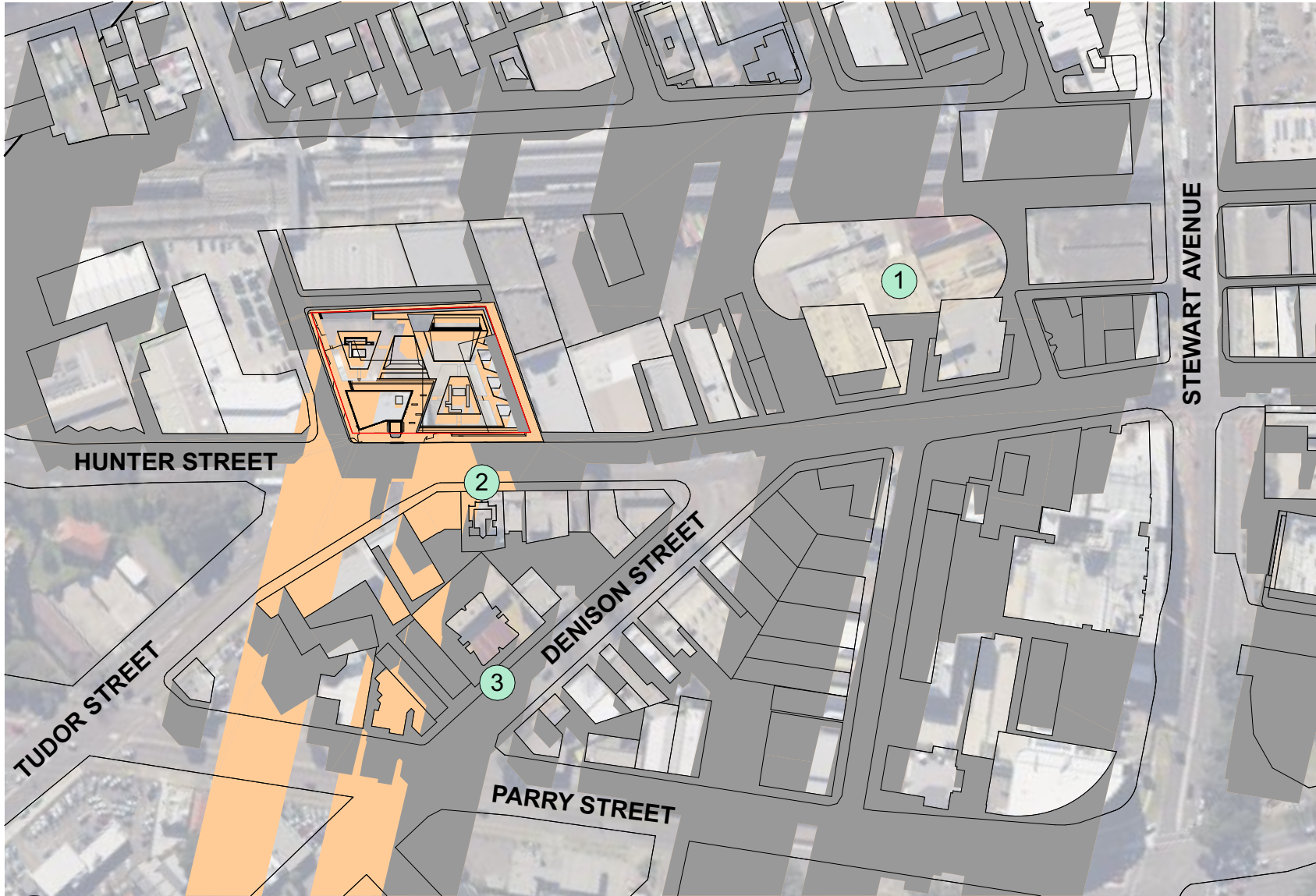
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Sections
Laneway Sections

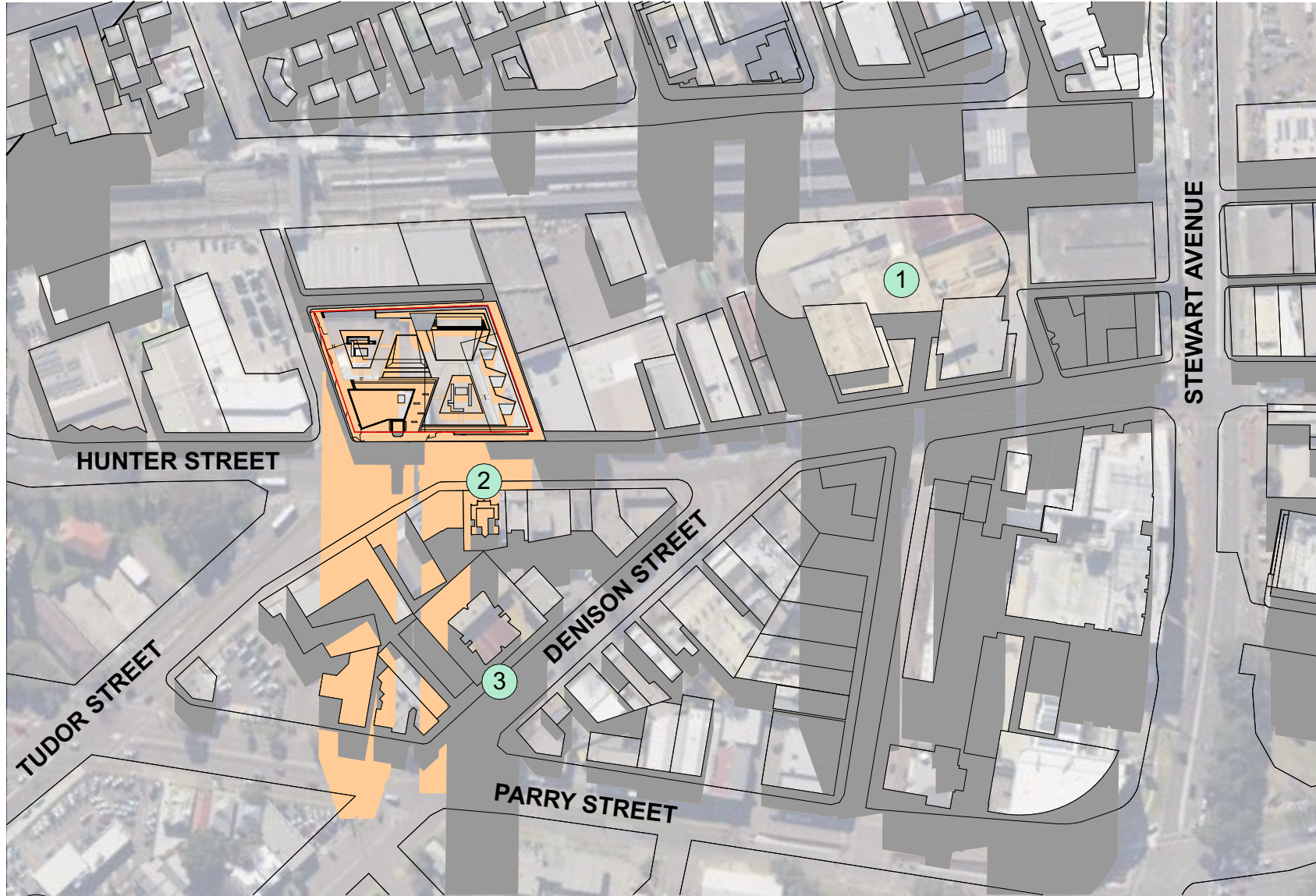
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-3005	E	

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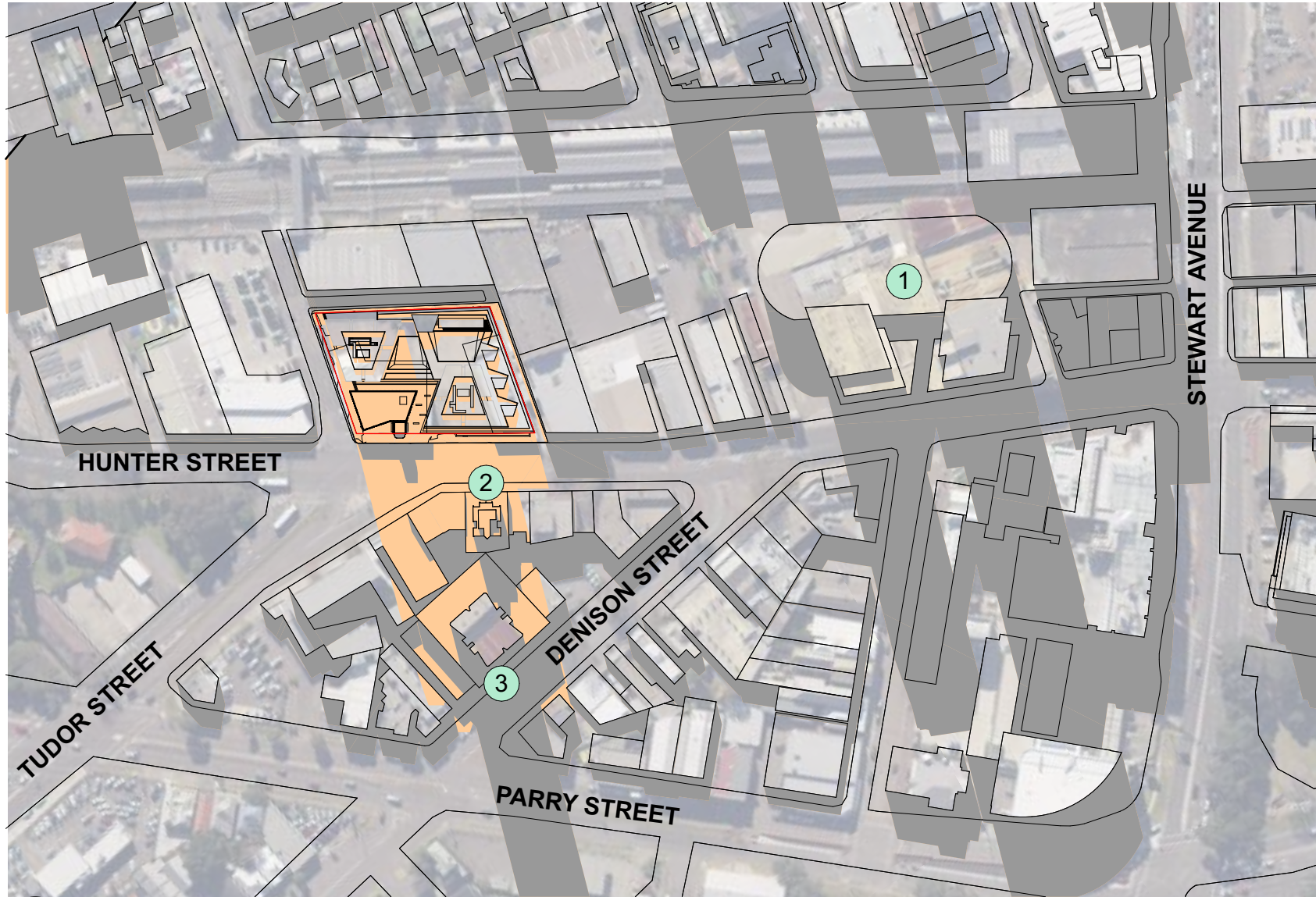
Development Application



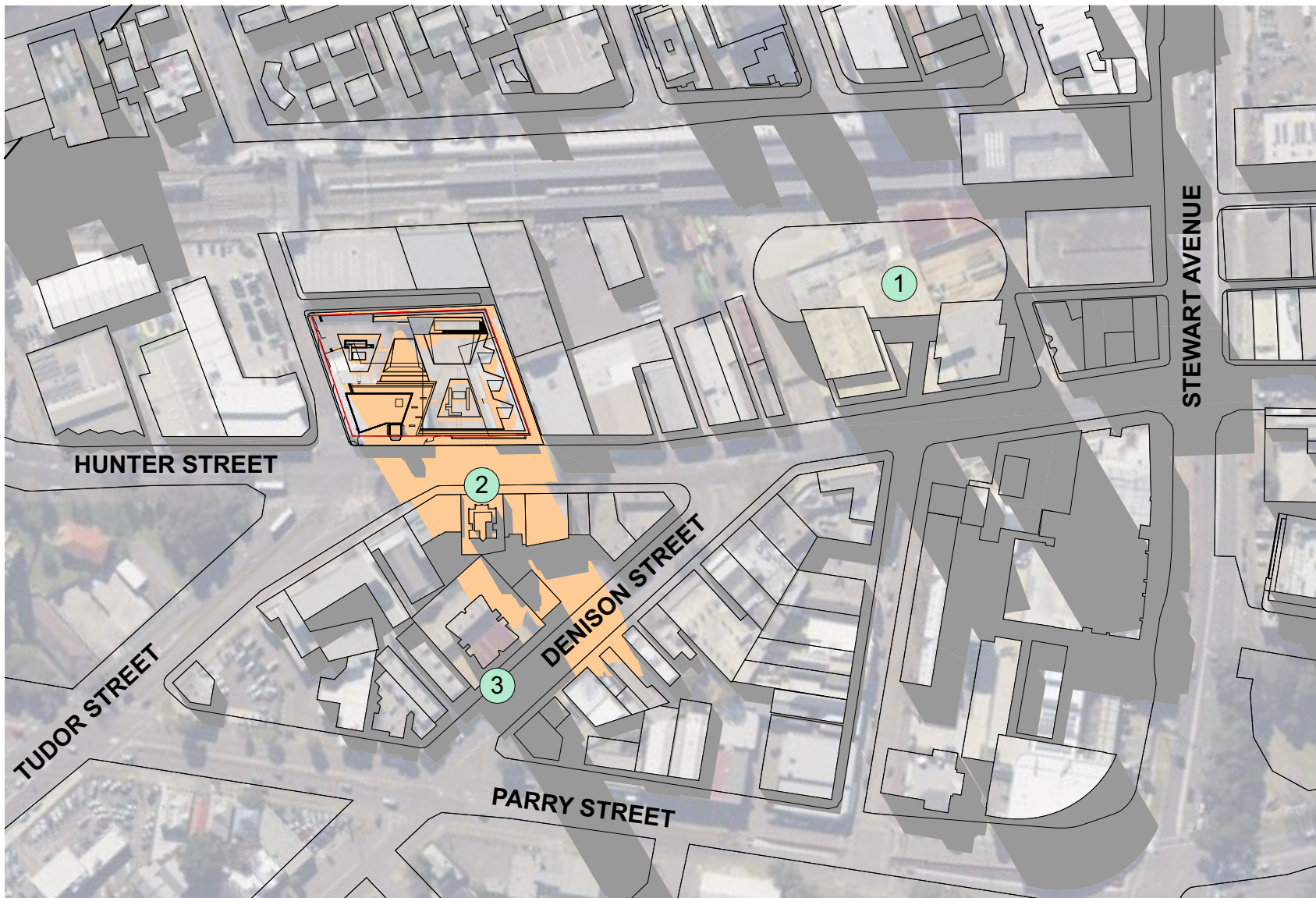
1 Proposed - June 21 9am
SCALE 1:2500 @ A1



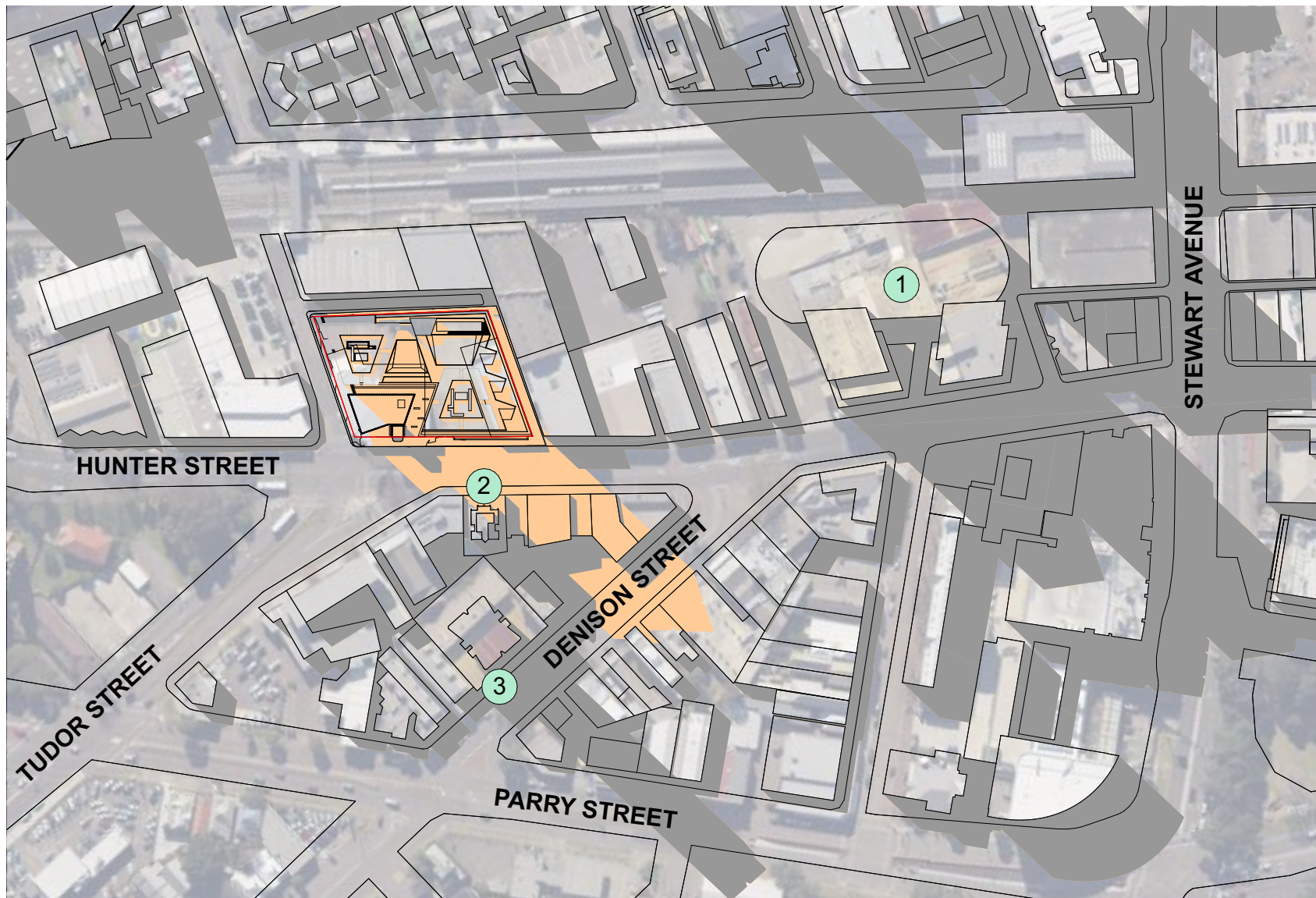
2 Proposed - June 21 10am
SCALE 1:2500 @ A1



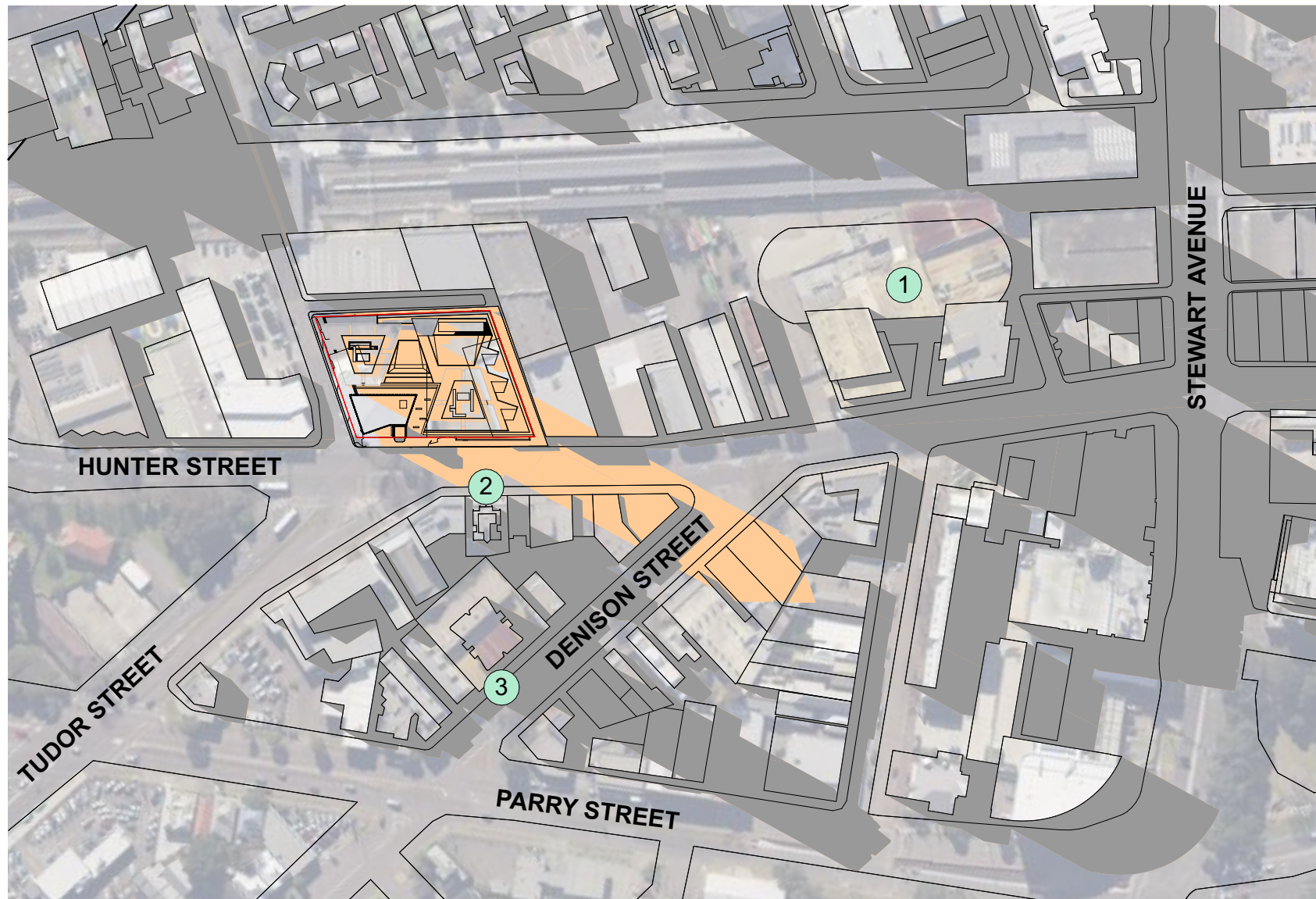
3 Proposed - June 21 11am
SCALE 1:2500 @ A1



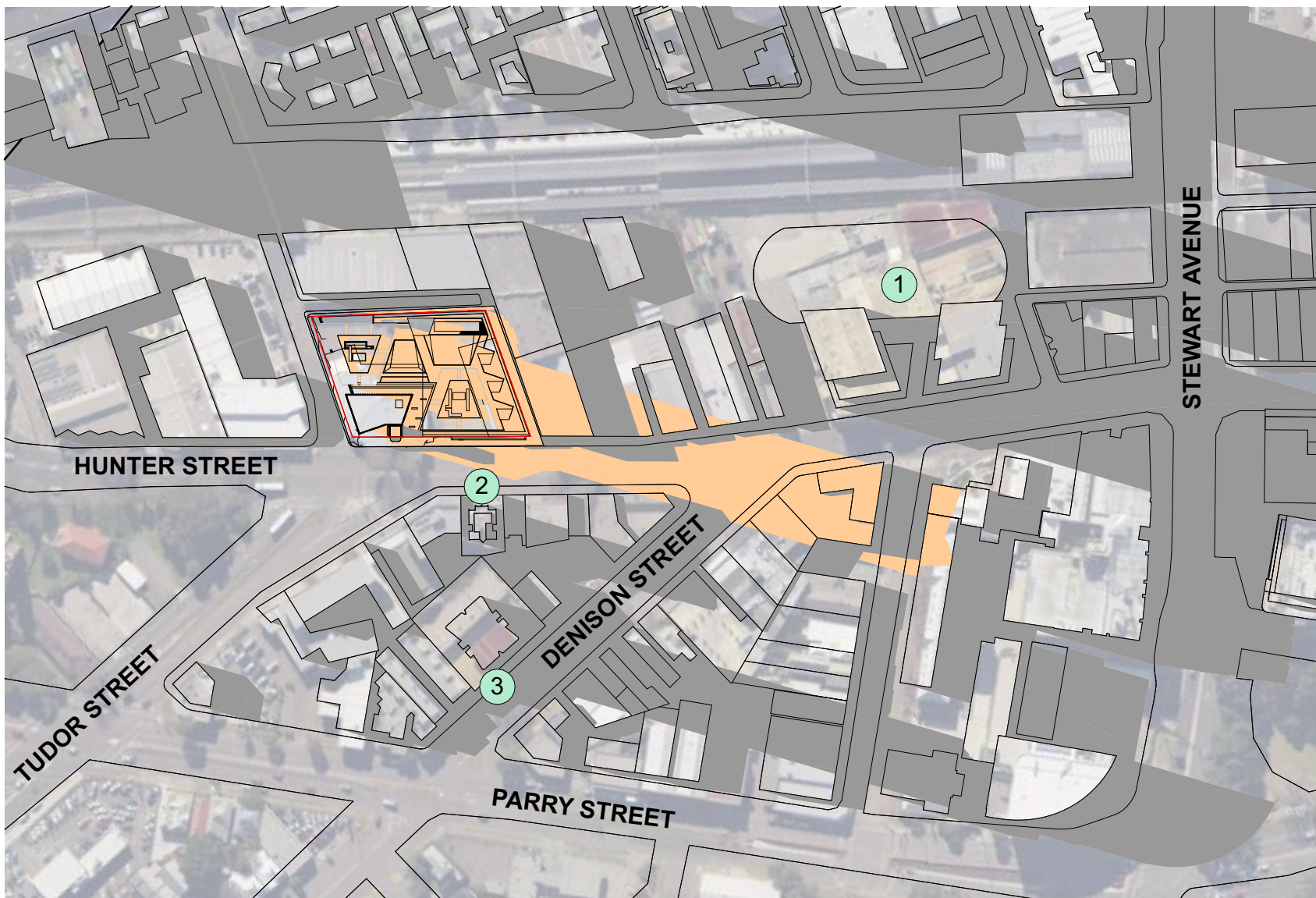
4 Proposed - June 21 12pm
SCALE 1:2500 @ A1



5 Proposed - June 21 1pm
SCALE 1:2500 @ A1



6 Proposed - June 21 2pm
SCALE 1:2500 @ A1



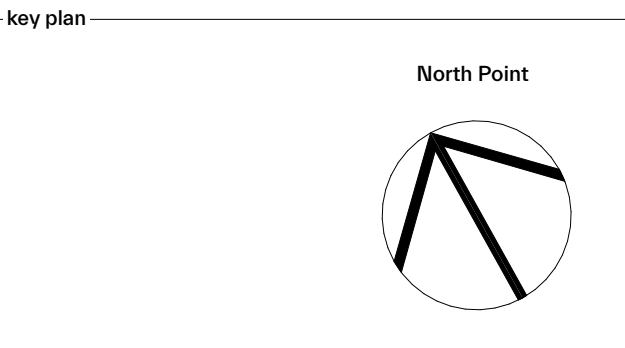
7 Proposed - June 21 3pm
SCALE 1:2500 @ A1

- 1 APPROVED DA - THE STORE - 90m
DUAL RESIDENTIAL APARTMENT TOWERS
- 2 APPROVED DA - 815 HUNTER STREET - 56m
SINGLE RESIDENTIAL APARTMENT TOWER
- 3 APPROVED DA - 20 DENISON STREET - 71m
SINGLE RESIDENTIAL APARTMENT TOWER

- SITE BOUNDARY
- APPROXIMATE EXISTING SHADOWS
- APPROXIMATE ADDITIONAL SHADOWS CAST BY PROPOSAL

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A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E



consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 5580 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

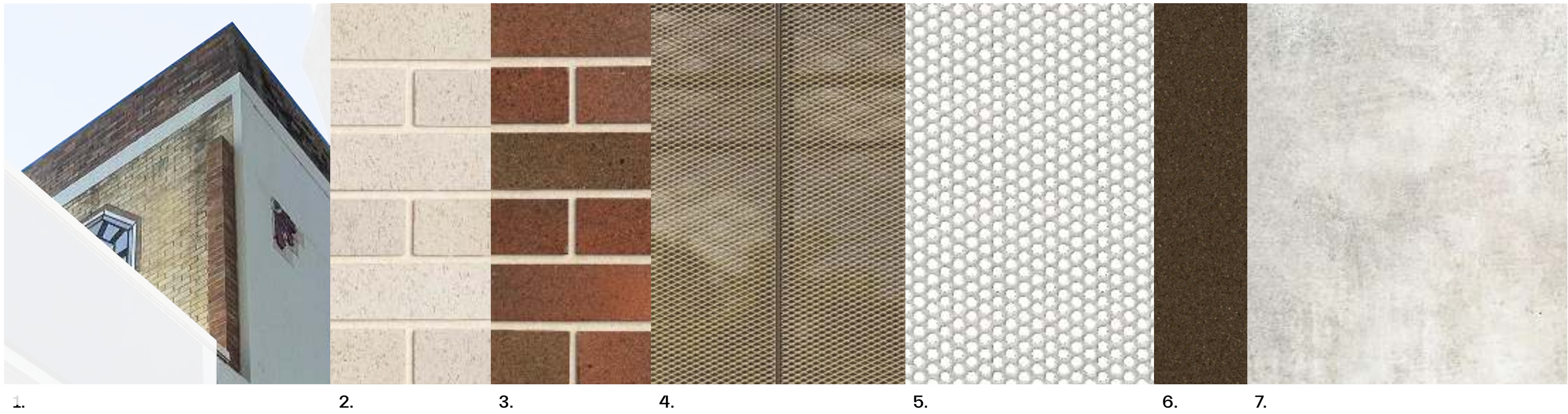
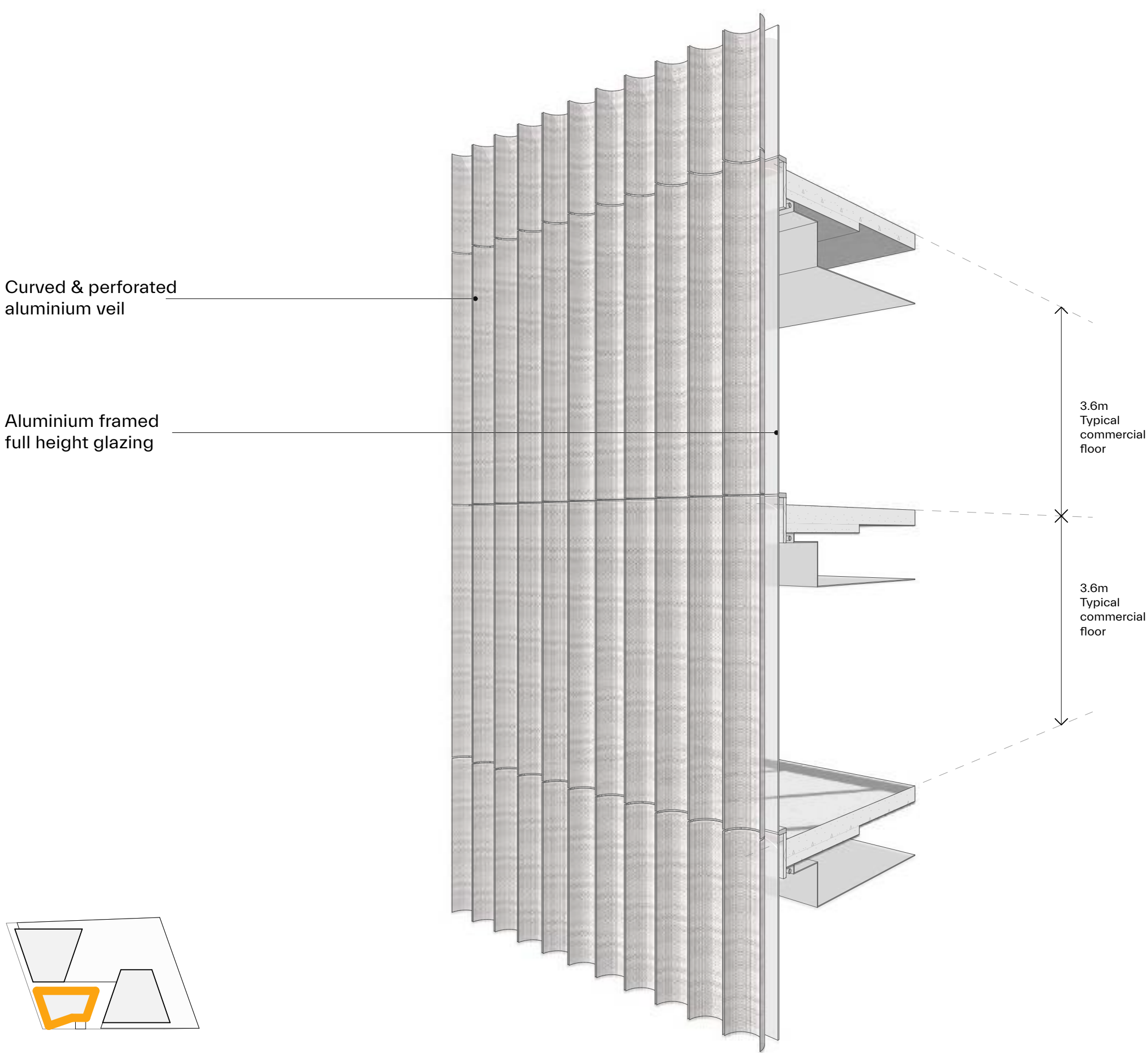
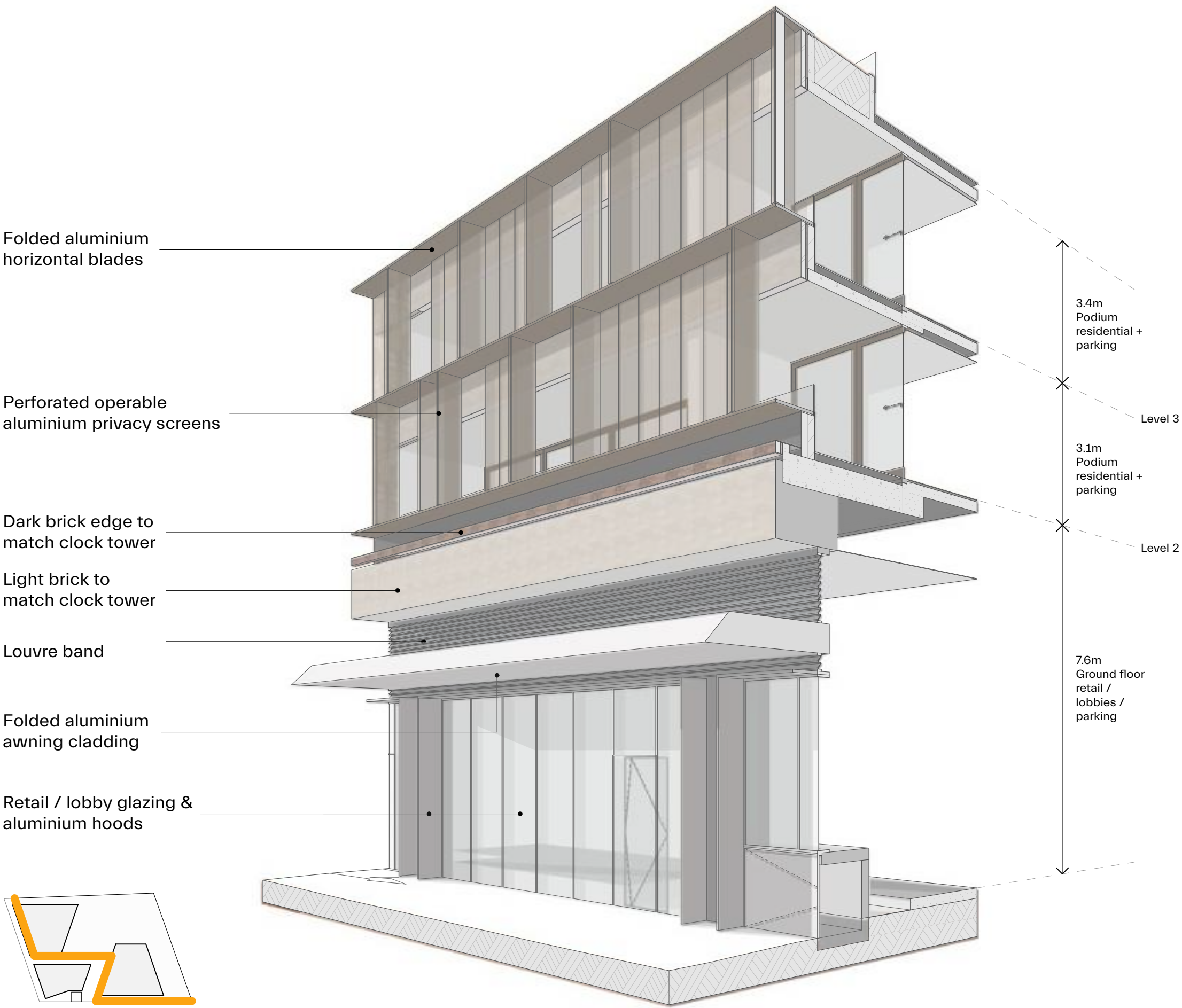
drawing title

Shadow Diagrams Shadow Diagrams

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-4001	E	

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Development Application



- Podium**
- Existing heritage clock tower
 - Light brick to match clock tower
 - Brown brick to match clock tower
 - Dark bronze perforated screen
- Commercial**
- Perforated curved screens
- Tower**
- Dark bronze frame & details
 - Concrete perimeter columns

issue	description	date	verified
01	Issue for Pre-DA	16/9/21	01
02	Issue for DRAFT DA	9/10/21	02
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Engineer Electrical Projects Australia 588 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

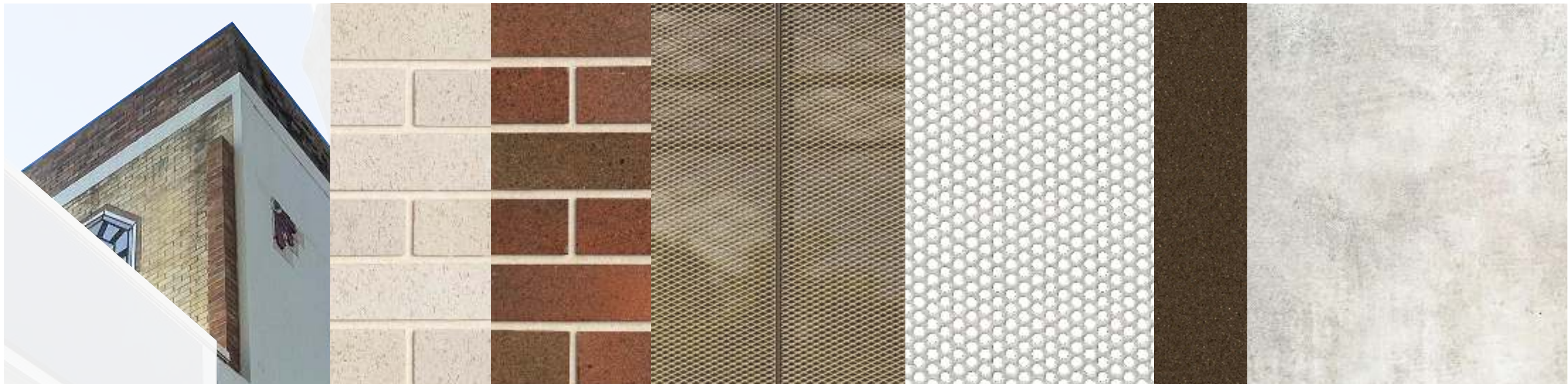
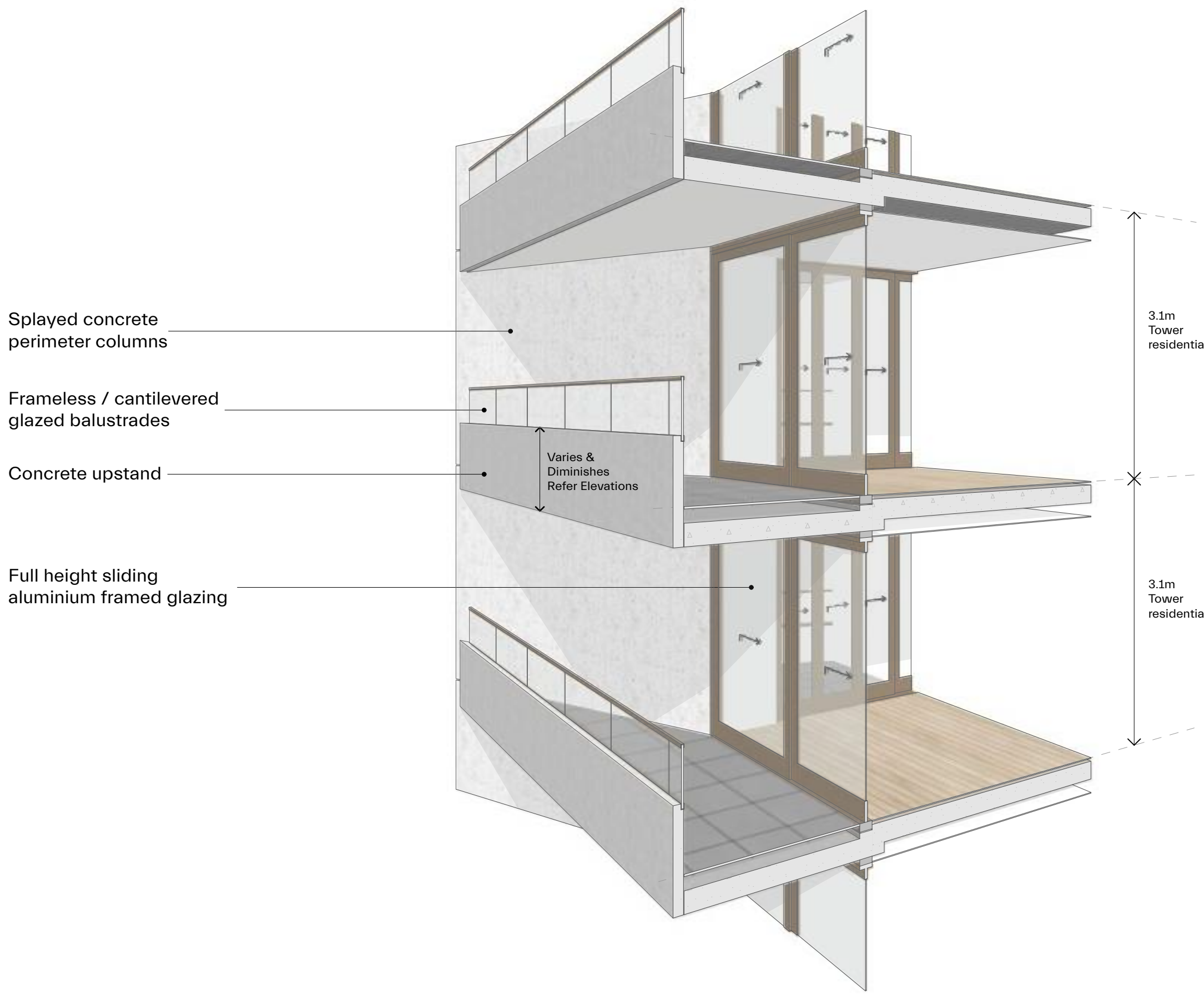
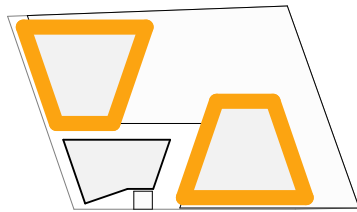
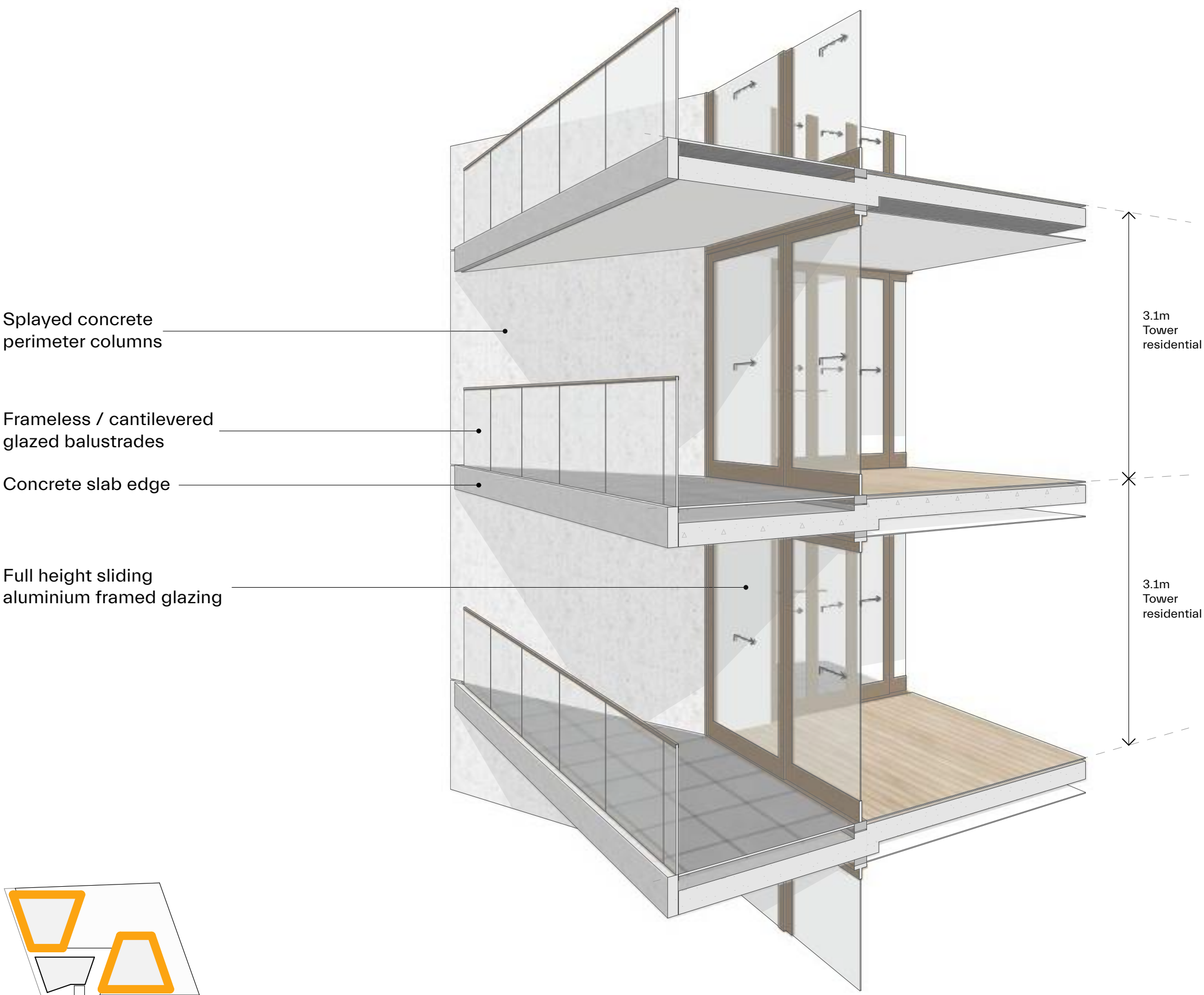
Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Materiality
Podium Materiality

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-5001	E	



- Podium**
- 1. Existing heritage clock tower
 - 2. Light brick to match clock tower
 - 3. Brown brick to match clock tower
 - 4. Dark bronze perforated screen
- Commercial**
- 5. Perforated curved screens
- Tower**
- 6. Dark bronze frame & details
 - 7. Concrete perimeter columns

issue	description	date	verified
01	Issue for Pre-DA	16/9/21	01
02	Issue for DRAFT DA	9/10/21	02
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants	Electrical Engineer
Civil/Structural Engineers	
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

**Materiality
Tower Materiality**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-5002	E	

	DCP / LEP	Proposed
FSR	5.5 :1	5.3 :1
GFA	21674 m ²	20960 m ²
1B		36 units
2B		128 units
3B		17 units
4B		1 units
Total Units		182 units

Car Parking	224.4 spaces	238 spaces
Bike Parking	209.0 spaces	211 spaces
Motorbike Parking	9.4 spaces	10 spaces

- BASE FSR 5:1 UNDER LEP CLAUSE 7.10
- FSR & HEIGHT ASSUME 10% DESIGN EXCELLENCE BONUS
- REFER TO TRAFFIC & PARKING ASSESSMENT REPORT FOR PARKING CALCULATIONS / ALLOCATIONS

Site Area	3940.74 m ²
-----------	------------------------

		RL (m)	Floor Height	1B	2B	3B	4B	Parking Spaces	Res GFA m² (1)	Comm GFA m² (1)	Lobby EOT GFA m² (1)
TOWER	Lift Overrun	101.10									
	Roof / Plant	100.10	1								
	Level 29	96.50	3.6				1		375		
	Level 28	93.10	3.4			2			375		
	Level 27	89.70	3.4			2			375		
	Level 26	86.60	3.1		4				380		
	Level 25	83.50	3.1		4				380		
	Level 24	80.40	3.1		4	2			760		
	Level 23	77.30	3.1		4	2			760		
	Level 22	74.20	3.1		4	2			760		
	Level 21	71.10	3.1		6	1			760		
	Level 20	68.00	3.1		6	1			760		
	Level 19	64.90	3.1		6	1			760		
	Level 18	61.80	3.1		6	1			760		
	Level 17	58.70	3.1		6	1			760		
	Level 16	55.60	3.1		6	1			760		
	Level 15	52.50	3.1		6	1			760		
	Level 14	49.40	3.1	3	6				760		
	Level 13	46.30	3.1	3	6				760		
	PODIUM	Level 12	43.20	3.1	3	6				760	
Level 11		40.10	3.1	3	6				760		
Level 10		37.00	3.1	3	6				760		
Level 09		33.90	3.1	3	6				760		
Level 08		30.80	3.1	3	6				760		
Level 07		27.70	3.1	3	6				760		
Level 06		24.60	3.1	3	6				760		
Level 05		21.50	3.1	3	6				760		
Level 04		18.40	3.1	2	1				690	240	
Level 03		15.30	3.1	3	3			55	755	240	
Level 02		12.20	3.1	1	2			56	390	240	
Level 01		9.10	3.1					61	50	240	
Upper Ground		6.3	2.80					36			
Ground		4.4	Varies					30	290	600	140
Totals				36	128	17	1	238	19260	1560	140

'No Sun'	Shade to living + POS	Solar Zntr to living + POS	Cross Vent
0	1	1	1
0	2	2	2
0	2	2	2
1	3	3	4
1	3	3	4
1	5	4	6
1	5	4	6
1	5	4	6
1	6	5	7
1	6	5	7
1	6	5	7
1	6	5	7
1	6	5	7
1	6	5	7
1	6	5	7
1	8	7	8
1	8	7	8
1	8	7	8
1	8	7	8
1	8	7	8
1	8	7	8
1	8	7	8
1	8	7	8
0	3	3	2
2	4	3	3
2			1
14.3%	85.2%	73.6%	91.2%

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Nominated Architects: Cane NSW ABN 7634 / Stuart Campbell NSW ABN 7545

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06	Issue for DRAFT DA	8/10/21	06
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
C	Issue for RFI Response	24/5/22	C
E	Issue for RFI Response	30/5/22	E

consultants <u>Civil/Structural Engineers</u> Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	<u>Electrical Engineer</u> Electrical Projects Australia 386 Maitland Rd Mayfield, NSW, 2304
---	--

<u>Mechanical Engineer</u> EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	<u>Hydraulic Engineer</u> Wallace Design Group PO Box 850 Warners Bay, NSW, 2282
--	--

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www.ckds.com.au	admin@ckds.com.au

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

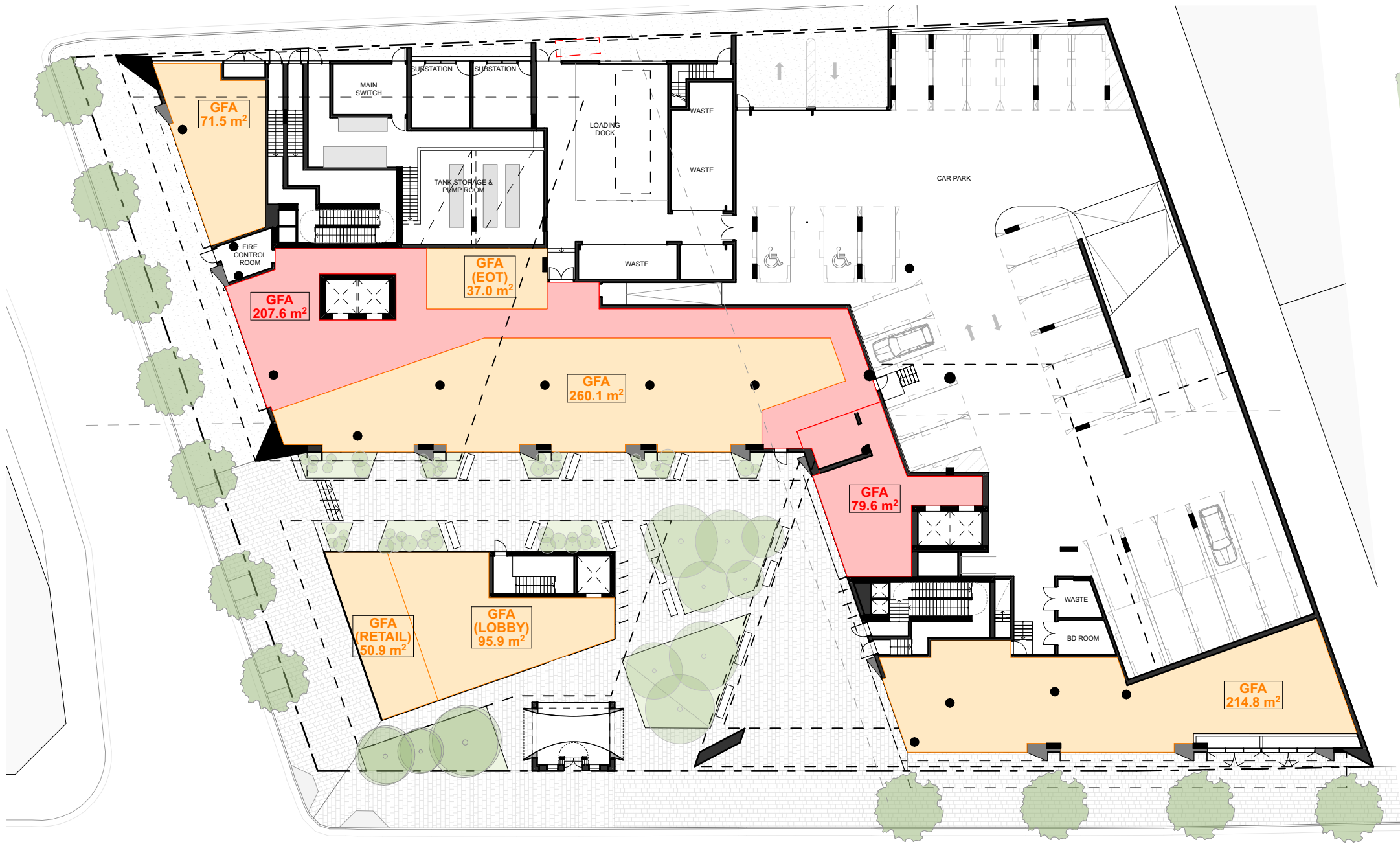
Schedules

Yield Schedule

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7001	E	

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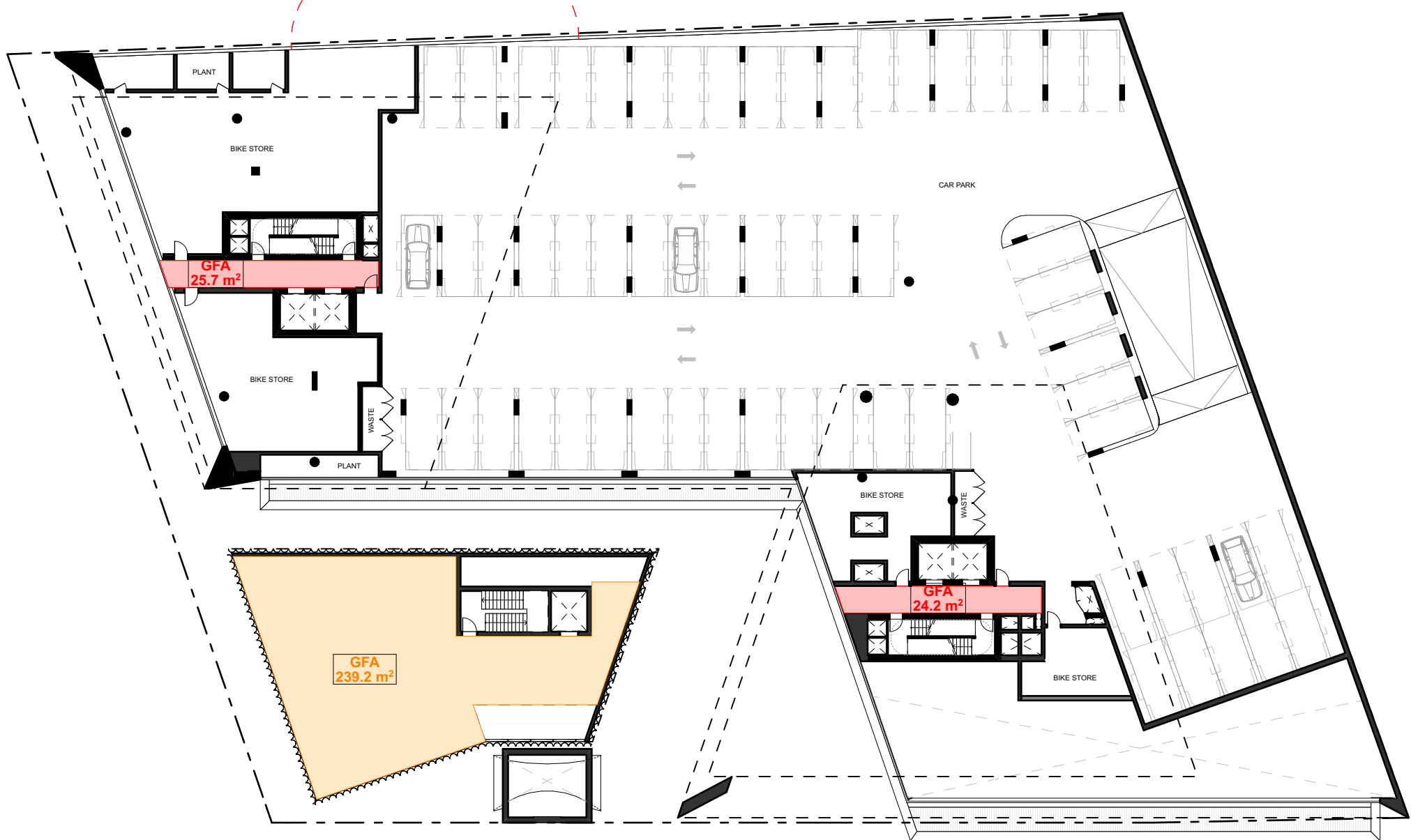
Development Application



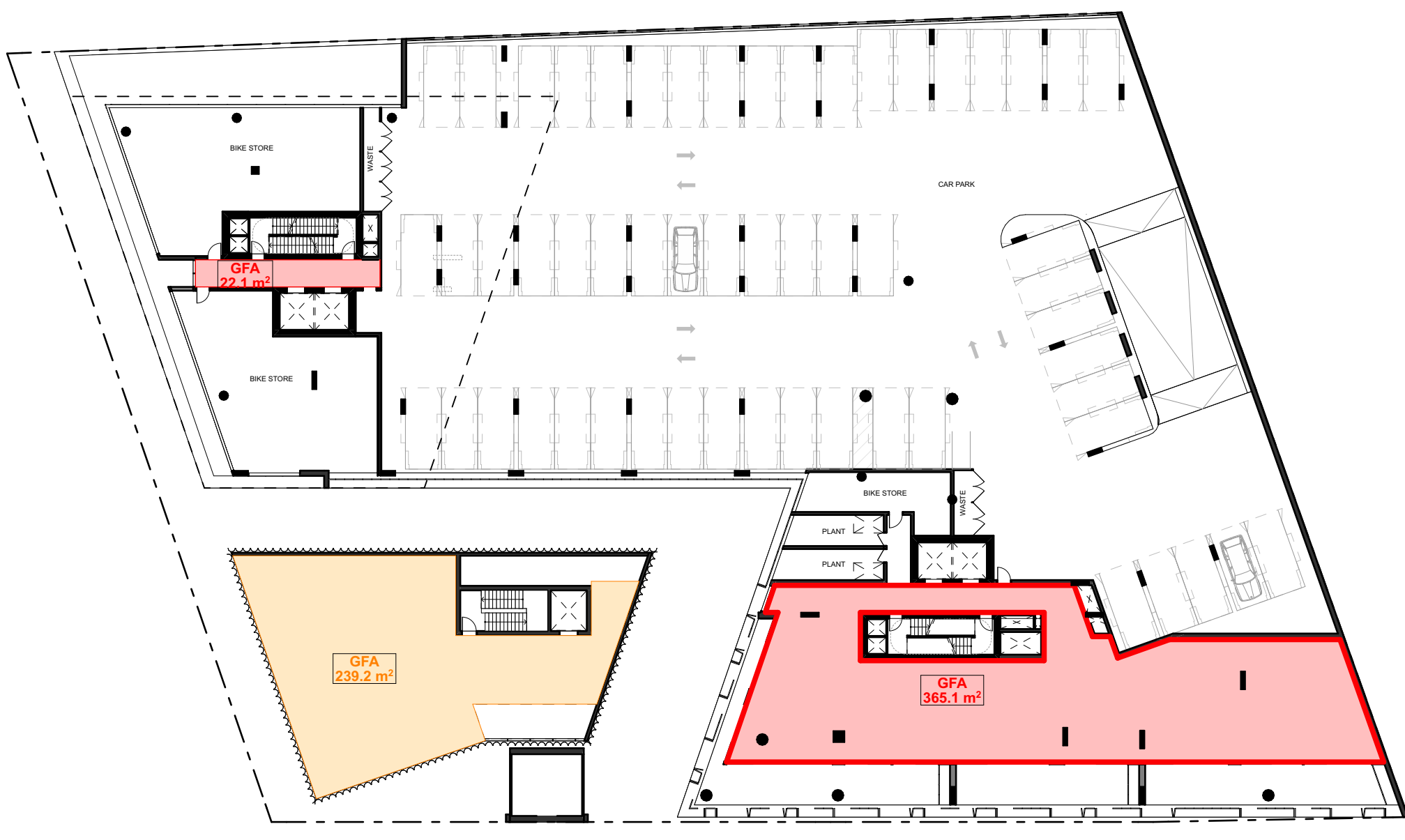
1 Ground
SCALE 1:350 @ A1



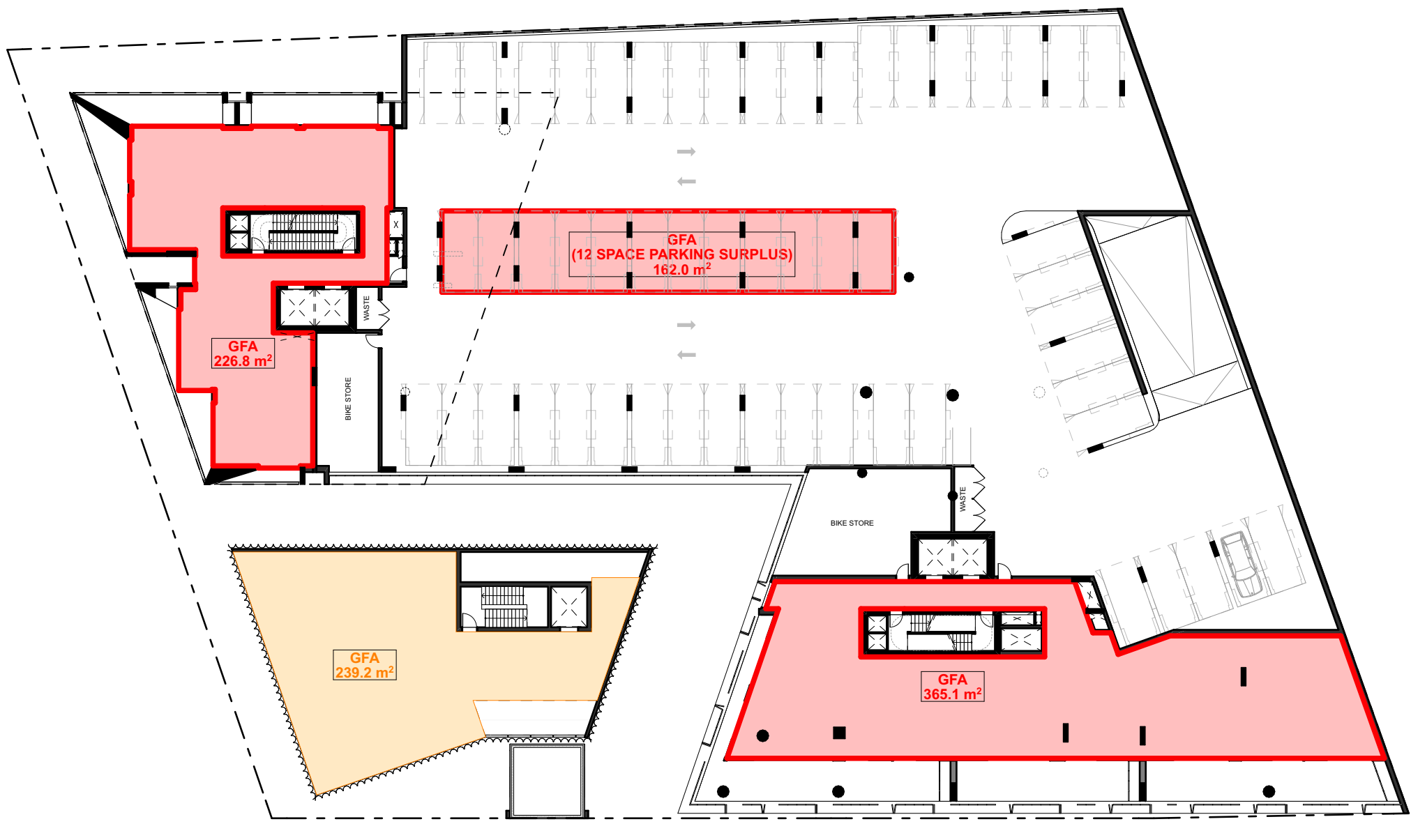
2 Upper Ground Car Park
SCALE 1:350 @ A1



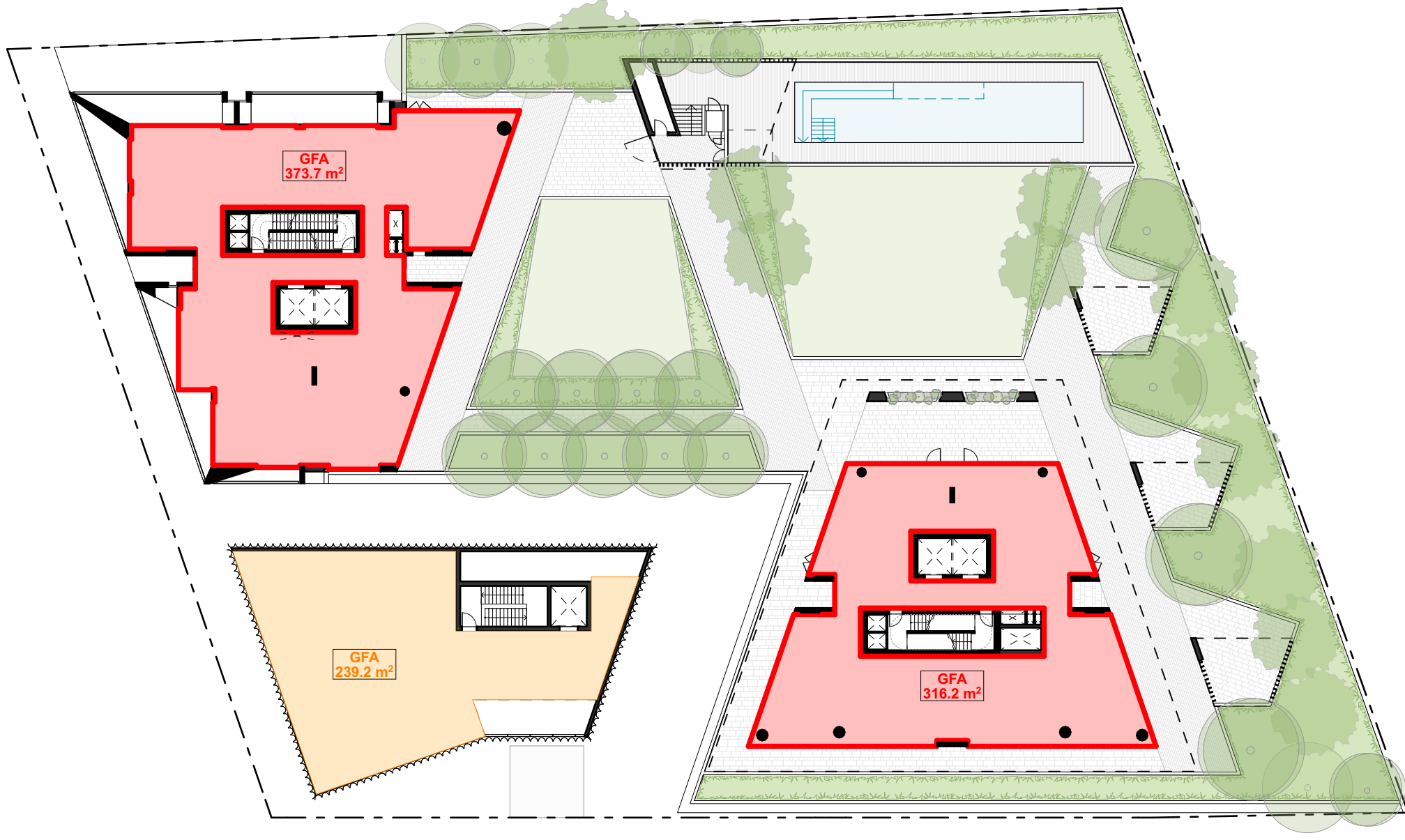
3 Level 1
SCALE 1:350 @ A1



4 Level 2
SCALE 1:350 @ A1



5 Level 3
SCALE 1:350 @ A1

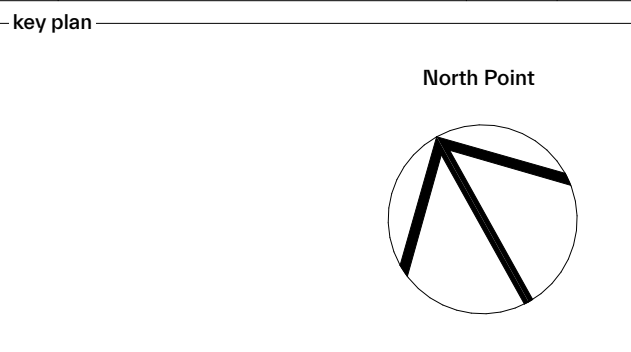


6 Level 4
SCALE 1:350 @ A1

REFER TO A-7001 FOR FSR
SUMMARY & AREA SCHEDULE

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Notwithstanding Architects: Cairne King NSW ABN 7914 / Stuart Campbell NSW ABN 7545

issue	description	date	verified
01	Issue for Review	13/8/21	01
02	Issue for Pre-DA	27/9/21	02
03	Issue for DRAFT DA	8/10/21	03
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/9/22	B
E	Issue for RFI Response	30/5/22	E



consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Engineer Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



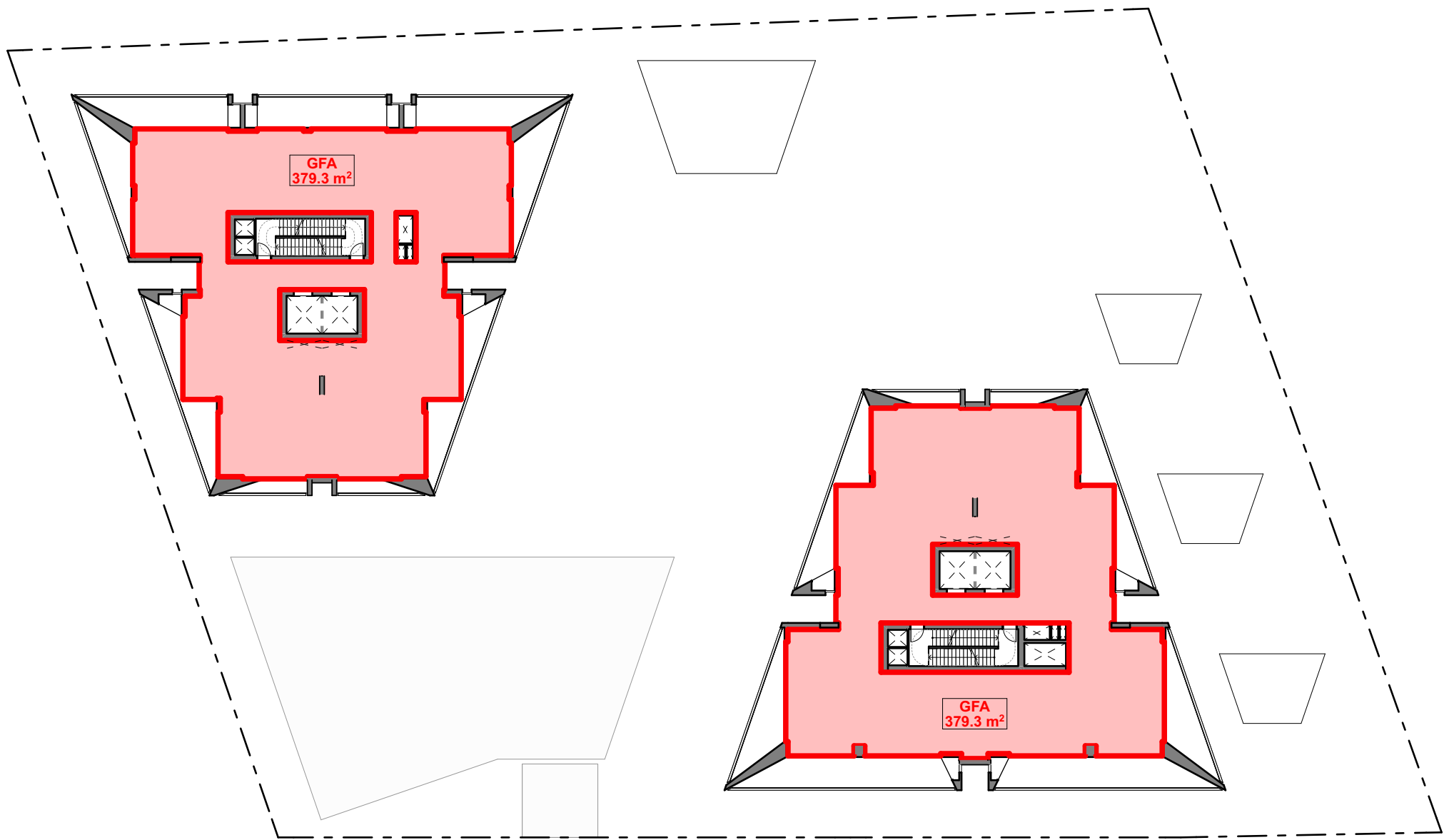
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Schedules
GFA Calculations

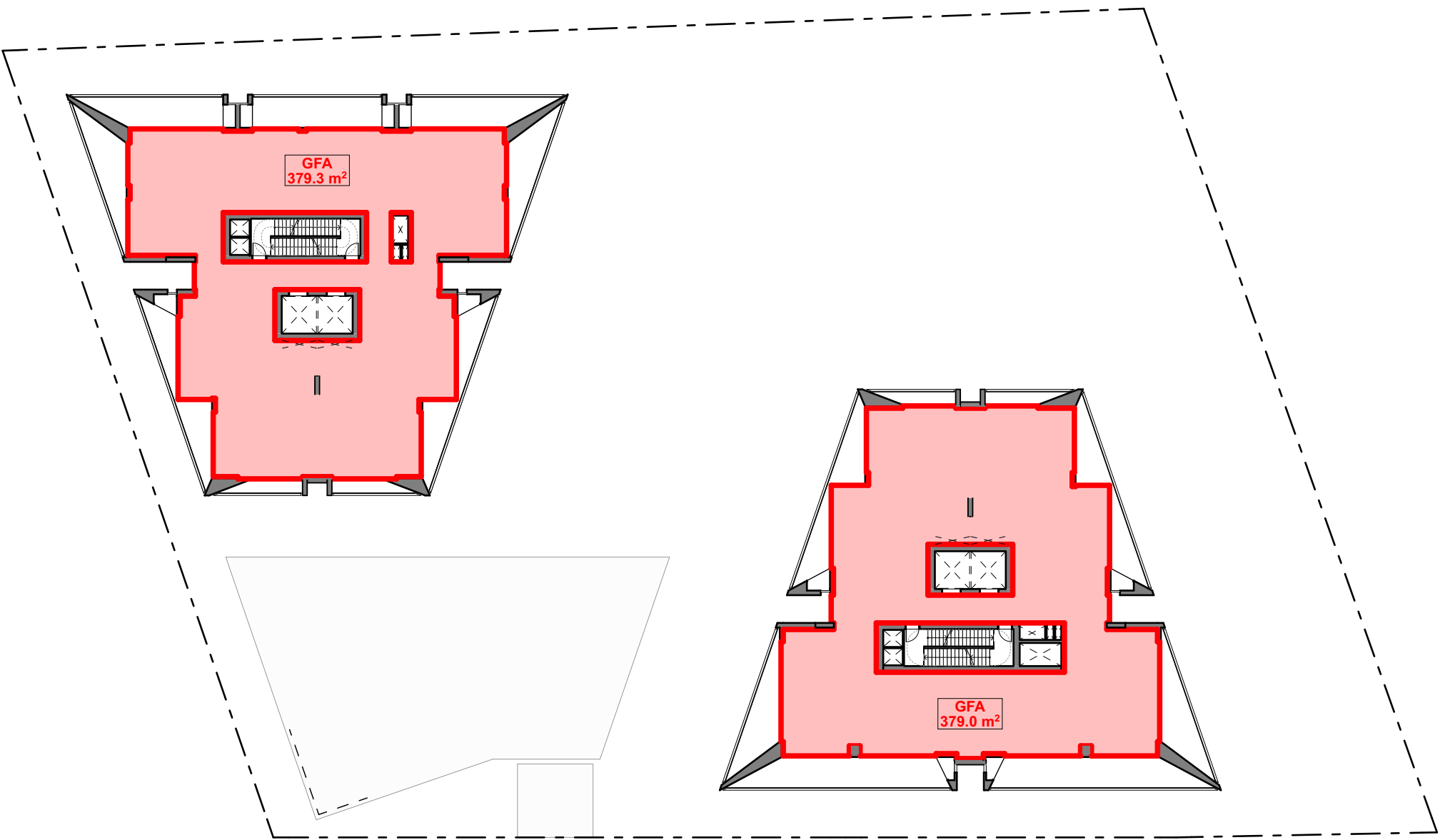
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7002	E	

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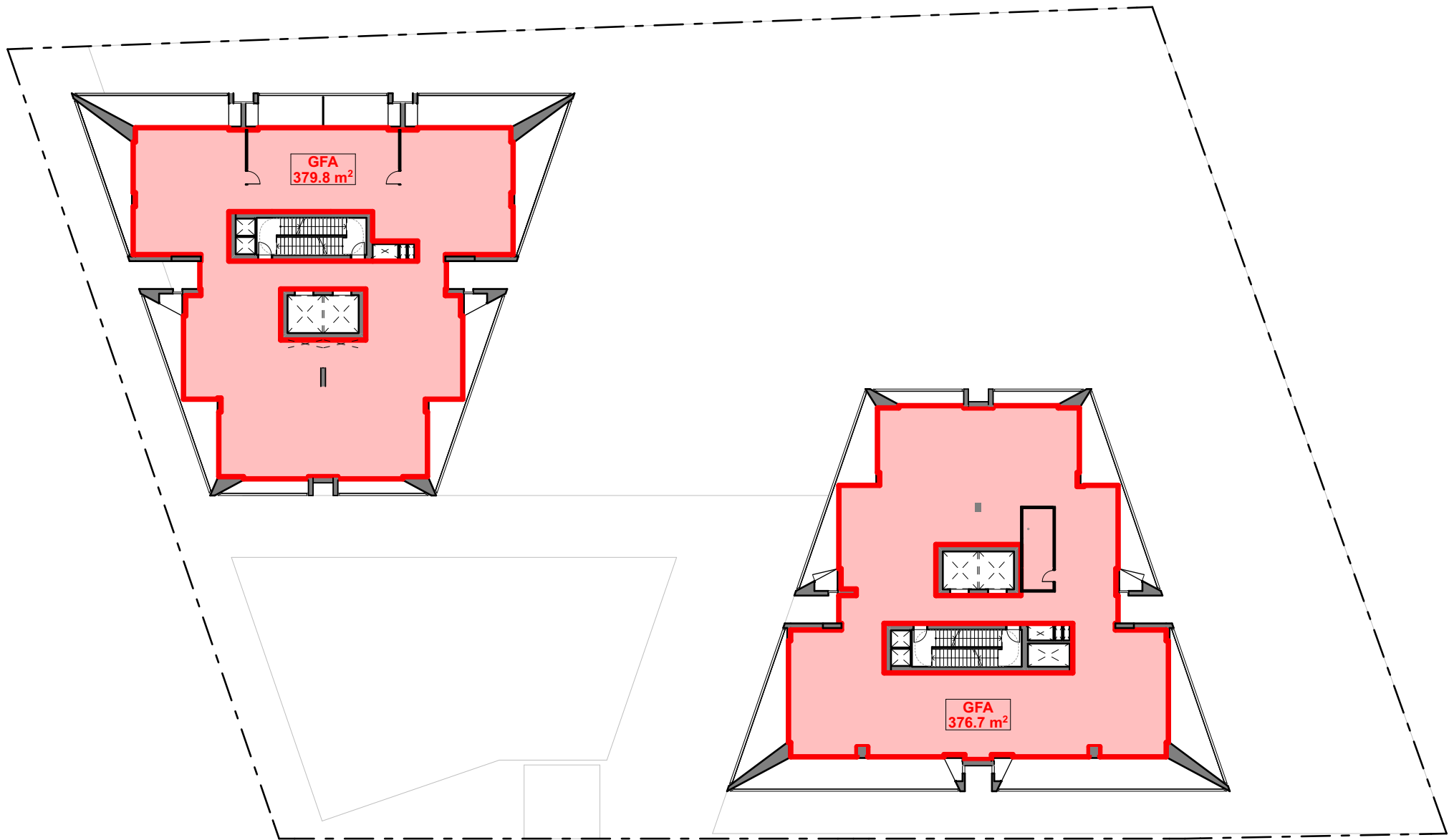
Development Application



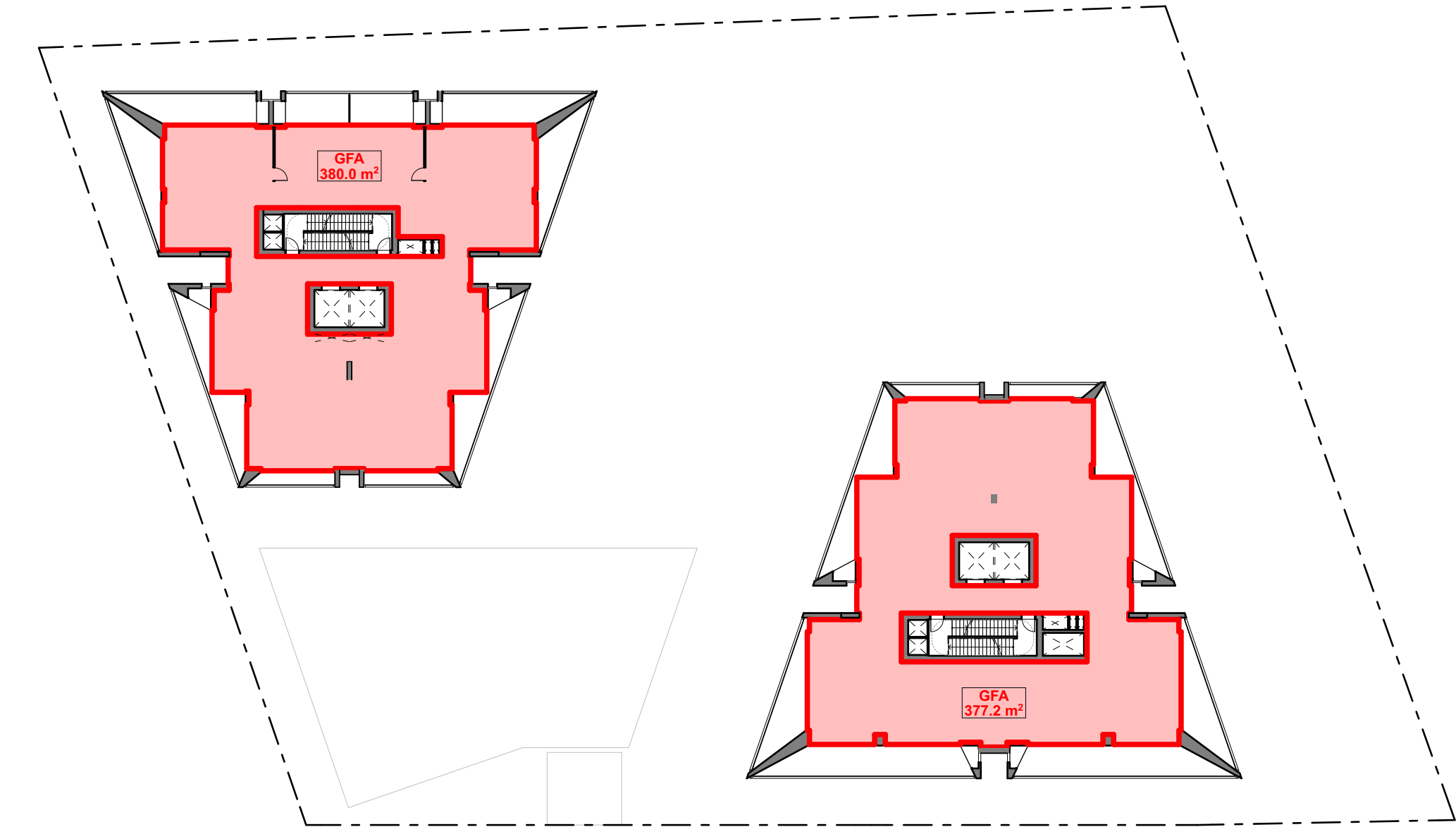
1 Level 5
SCALE 1:350 @ A1



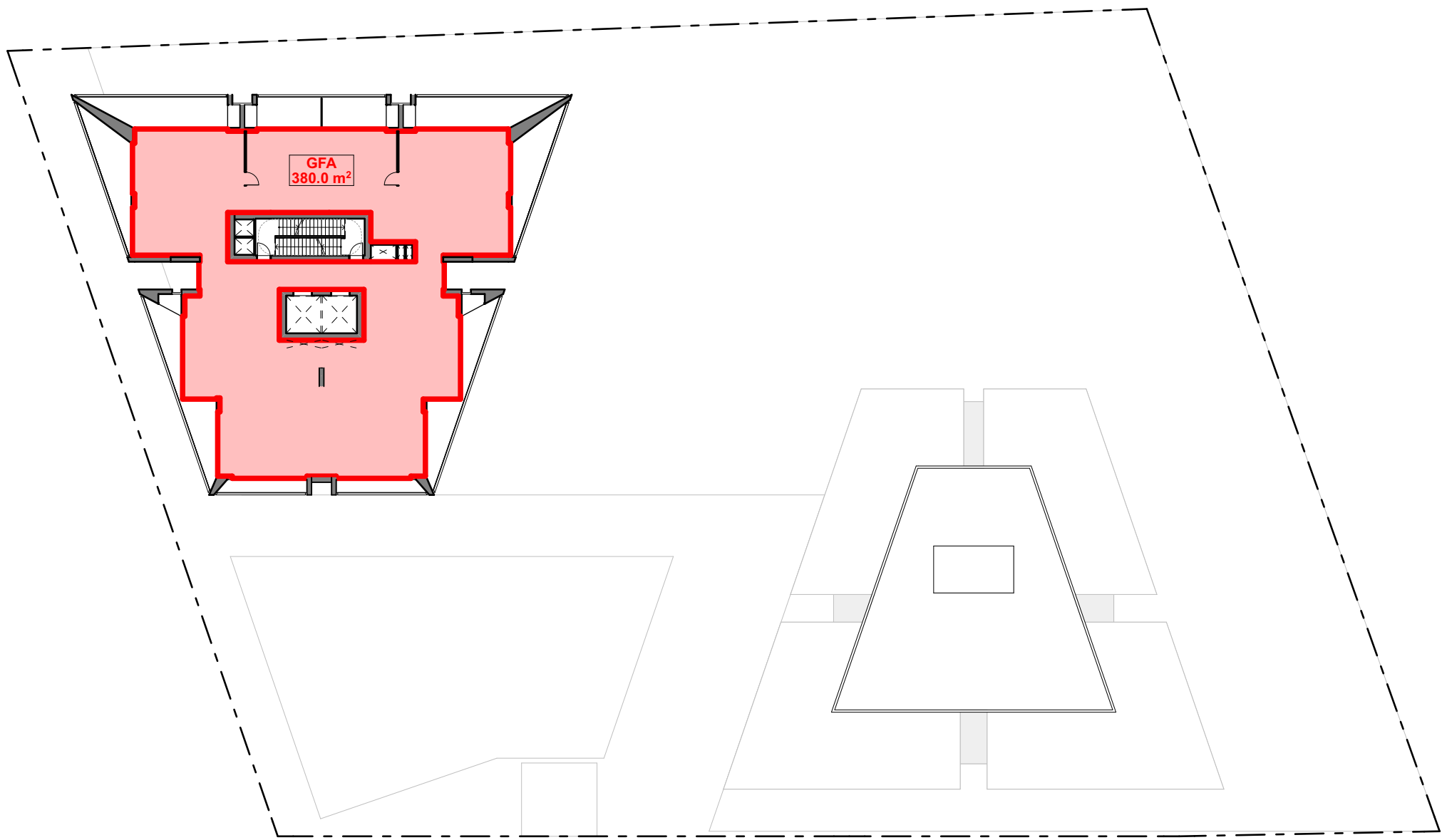
2 Level 6-14
SCALE 1:350 @ A1



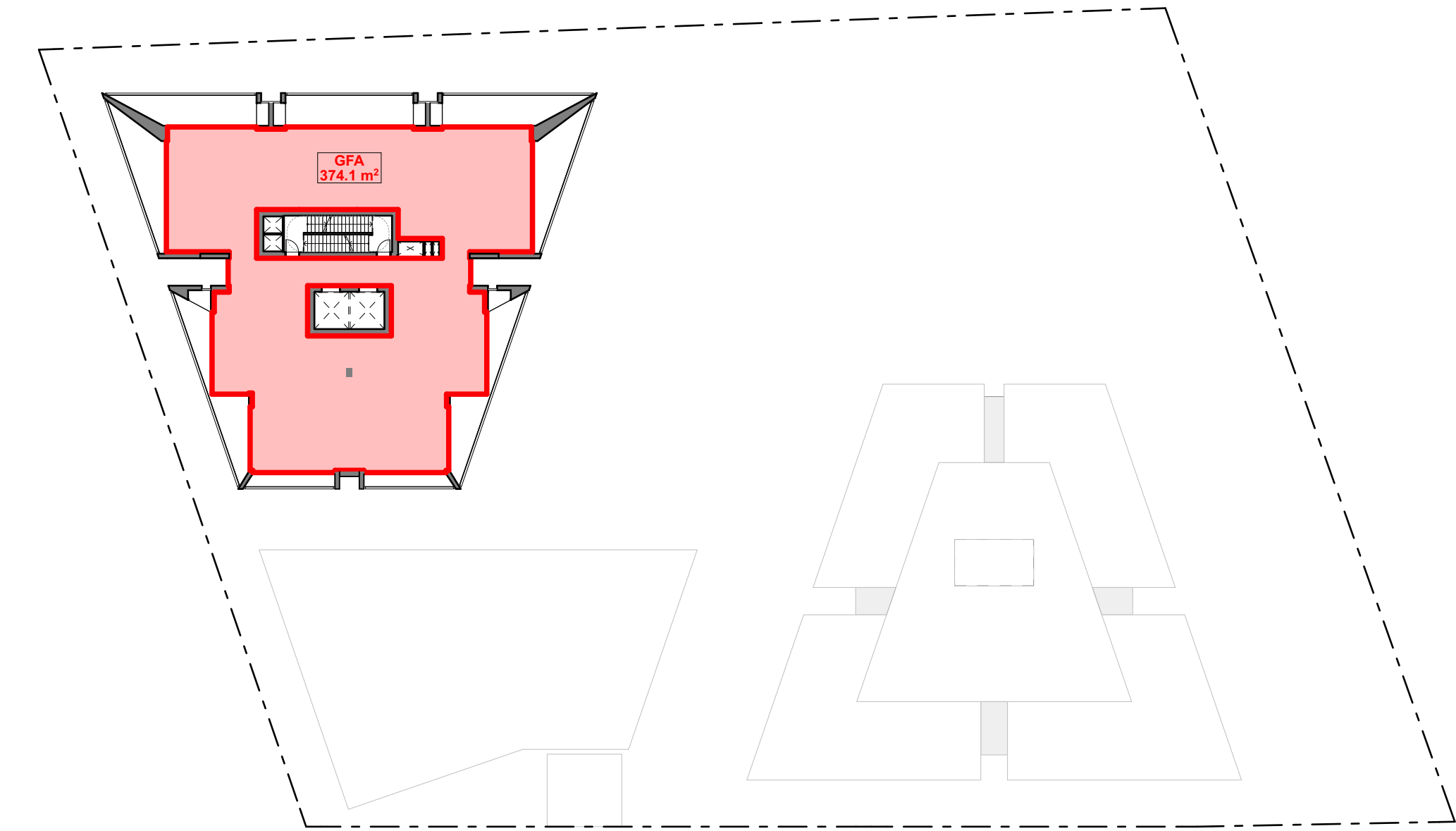
3 Level 15 - 21
SCALE 1:350 @ A1



4 Level 22 - 24
SCALE 1:350 @ A1



5 Level 25 - 26
SCALE 1:350 @ A1



6 Level 27 - 29
SCALE 1:350 @ A1

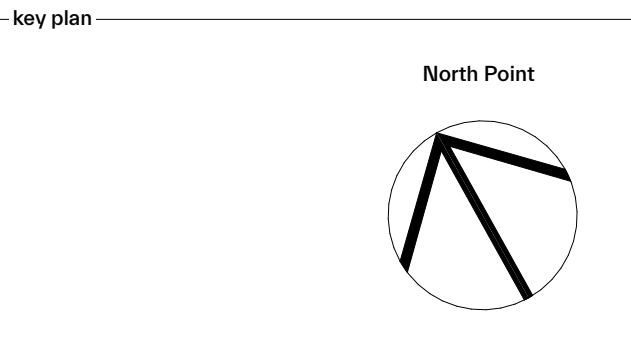
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Notified Architects: Cairne King NSW ARB 7574 / Stuart Campbell NSW ARB 7545

issue	description	date	verified
01	Issue for Pre-DA	27/9/21	01
02	Issue for DRAFT DA	8/10/21	02
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E



consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

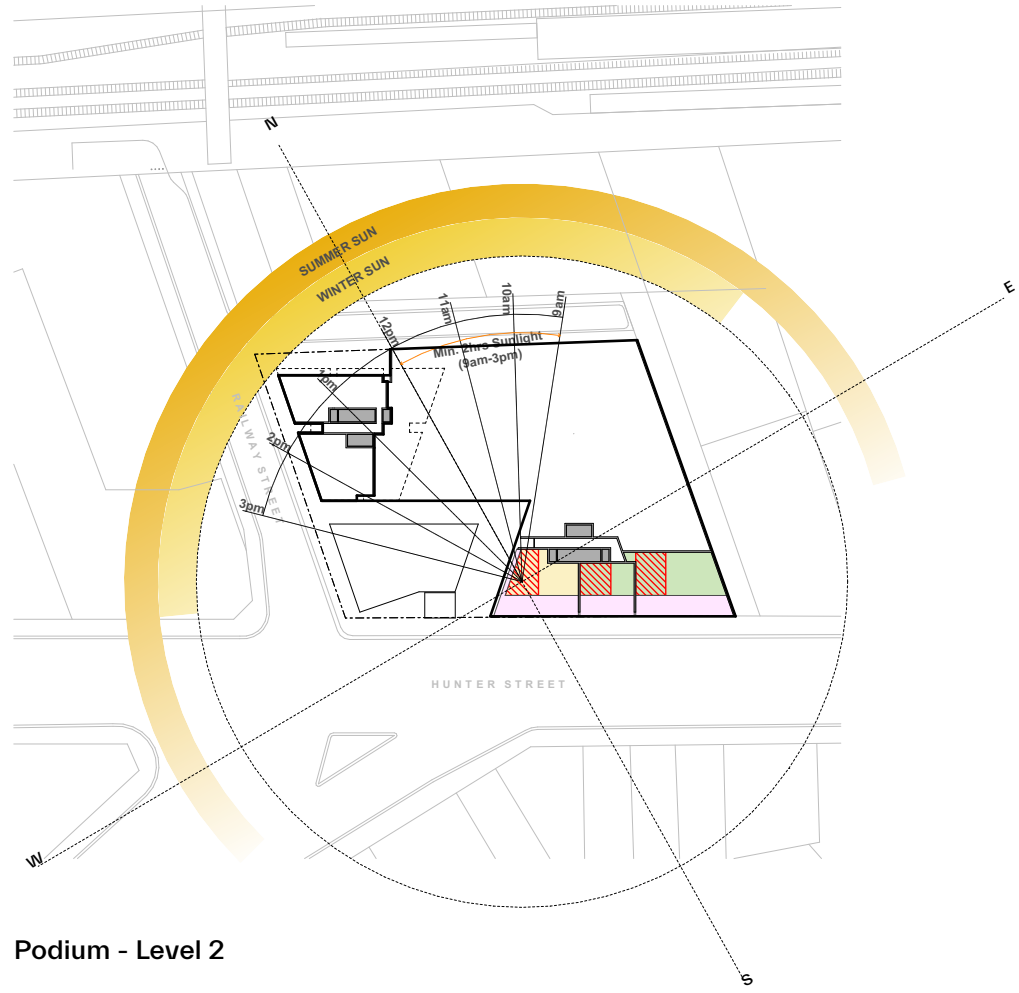
drawing title

**Schedules
GFA Calculations**

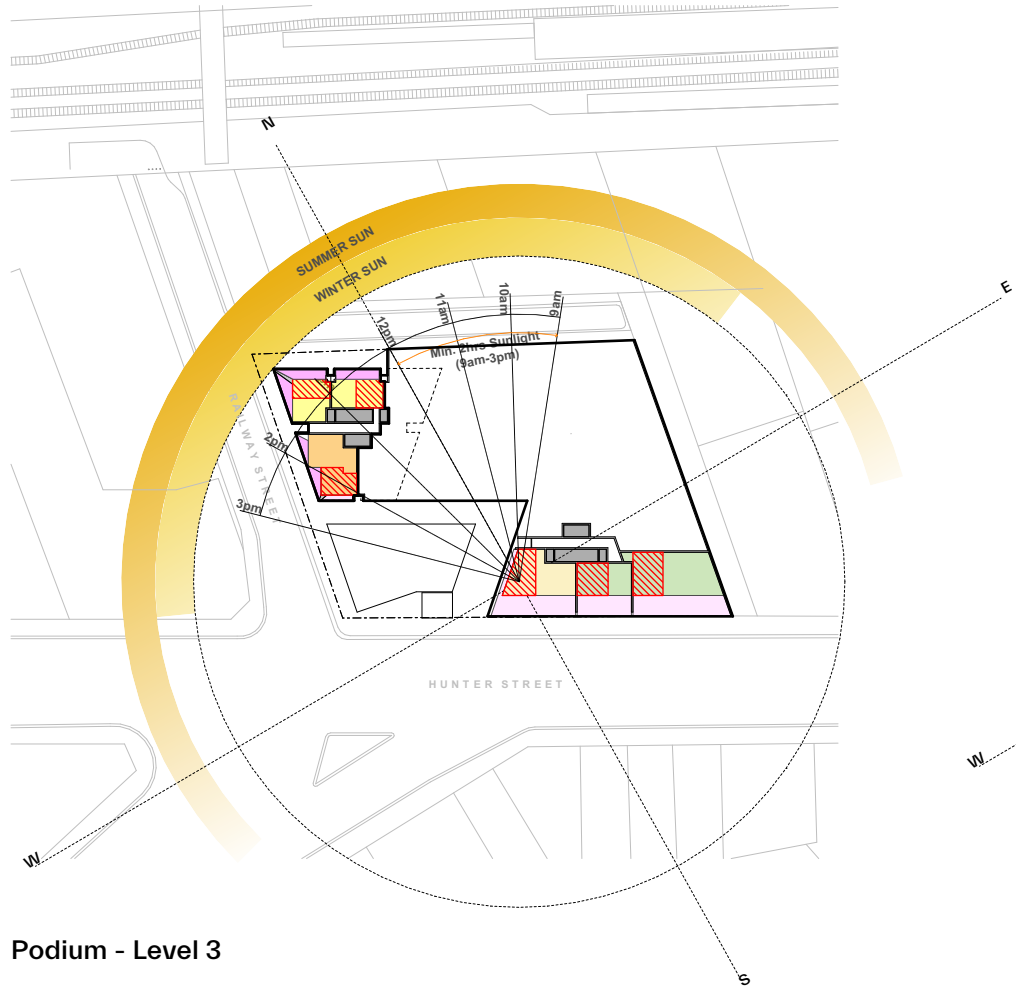
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7003	E	

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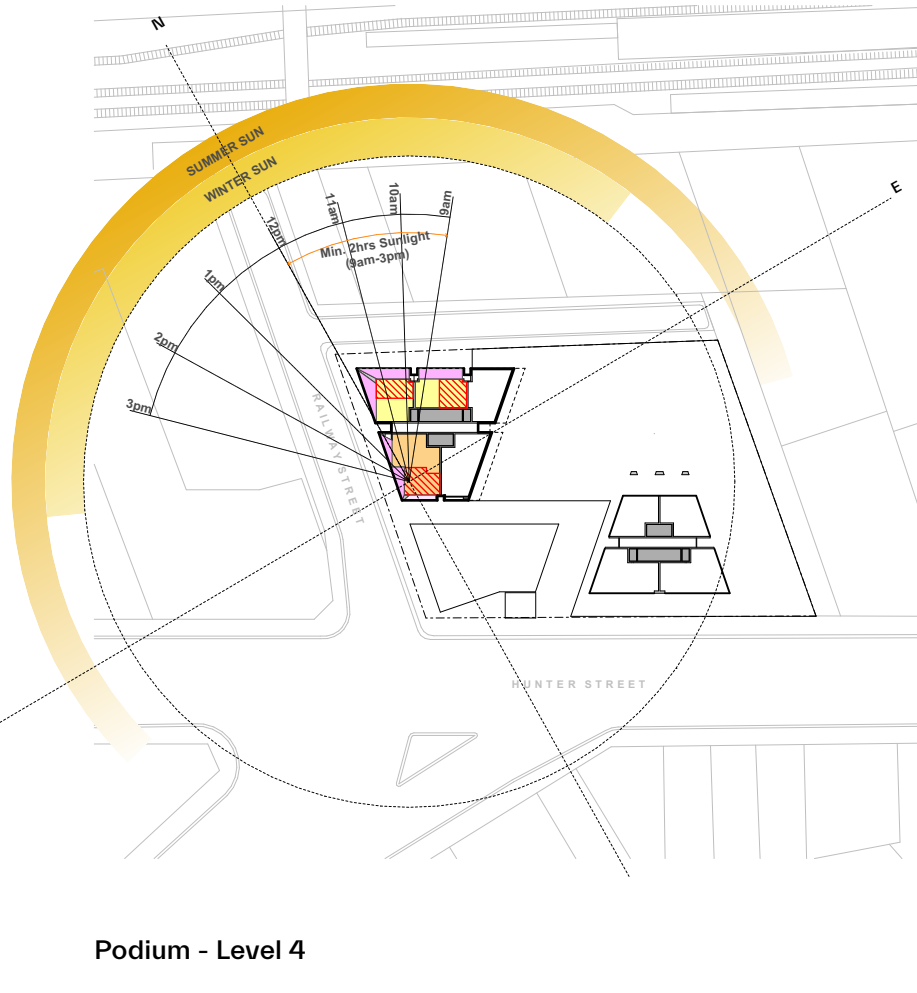
Development Application



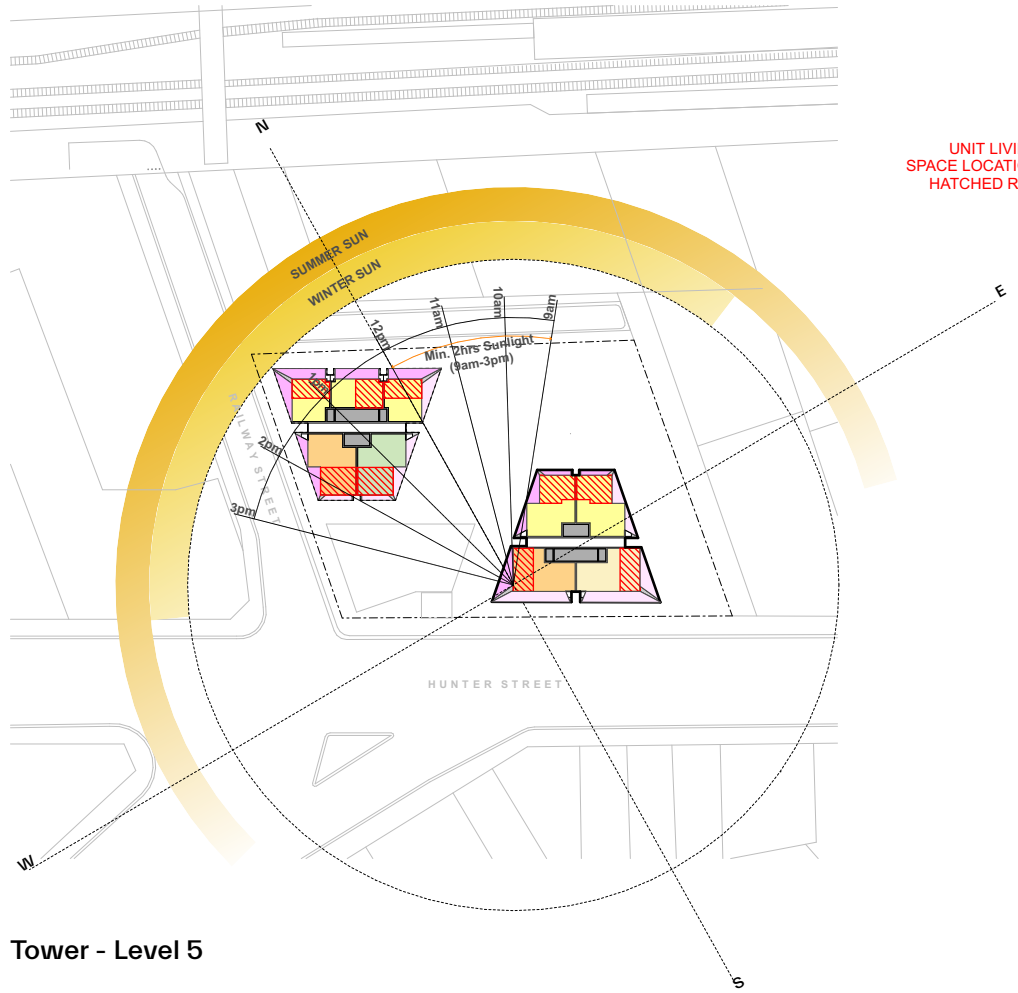
Podium - Level 2



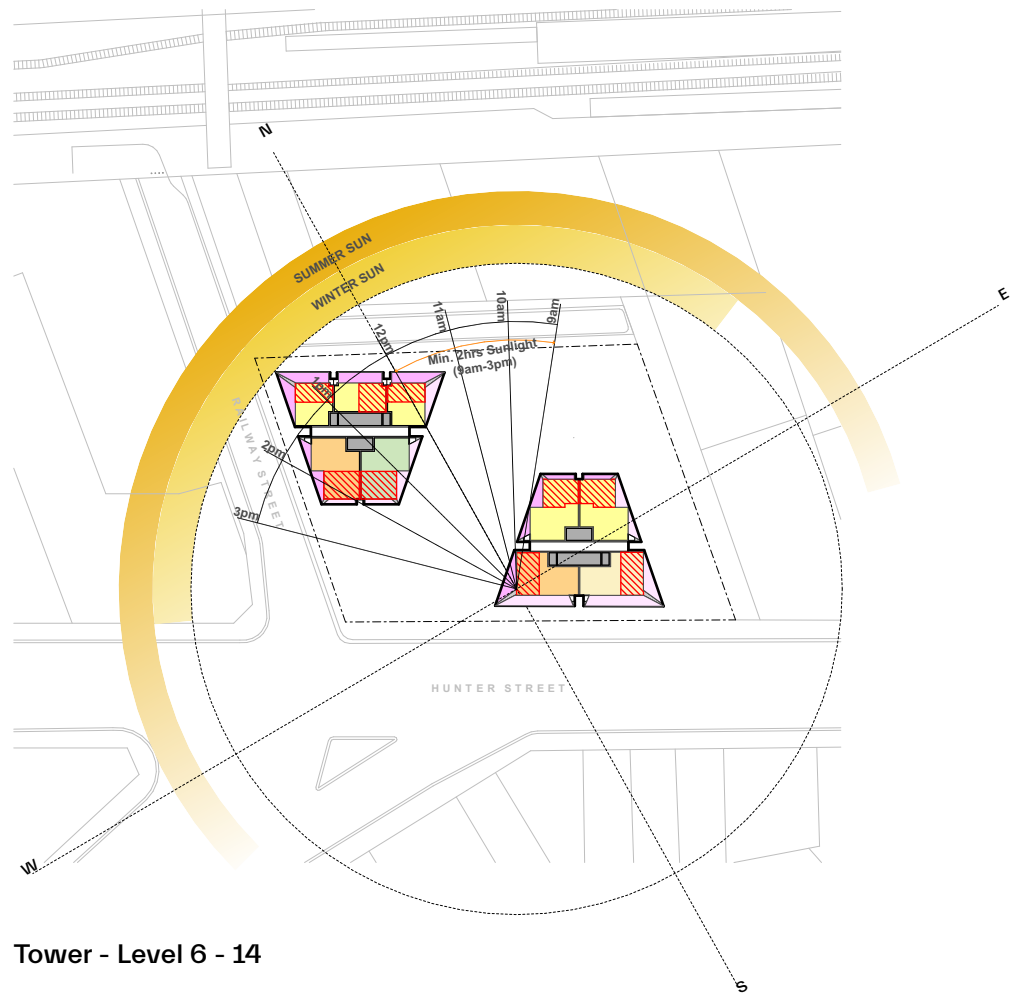
Podium - Level 3



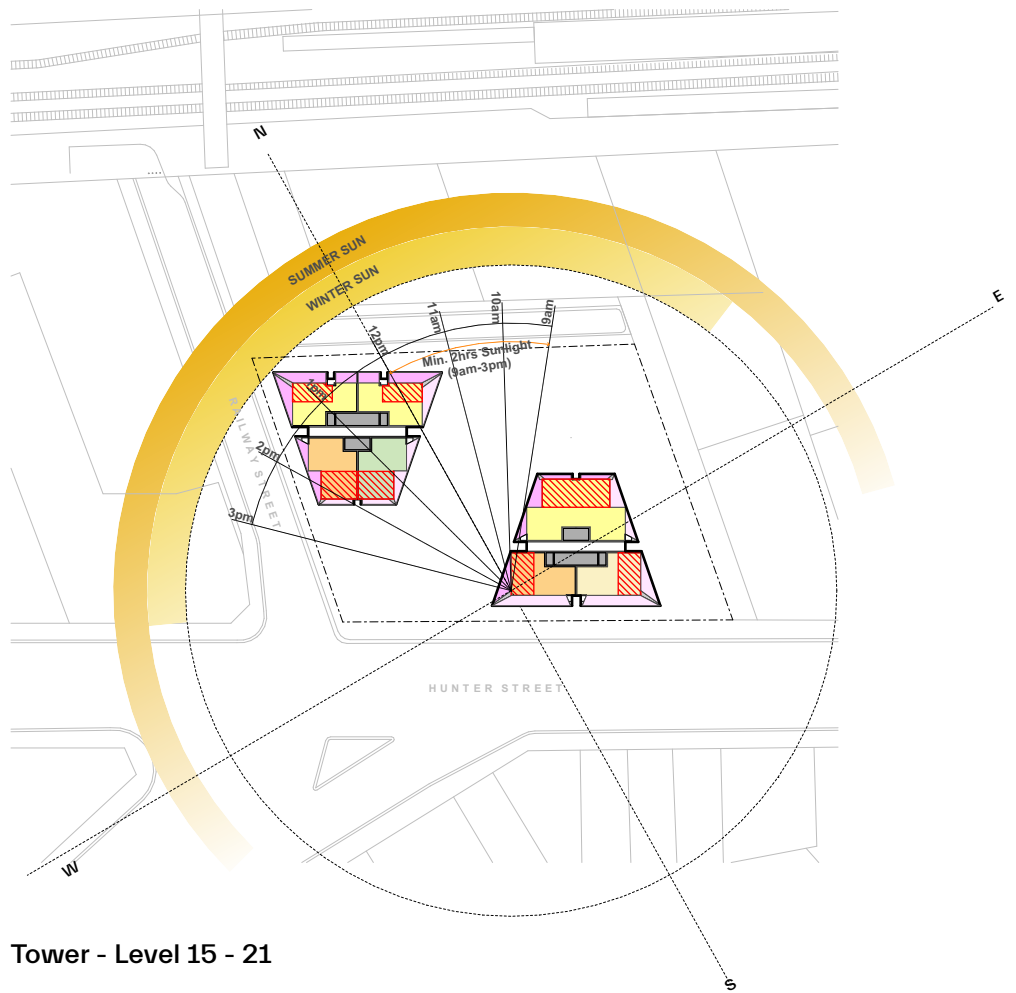
Podium - Level 4



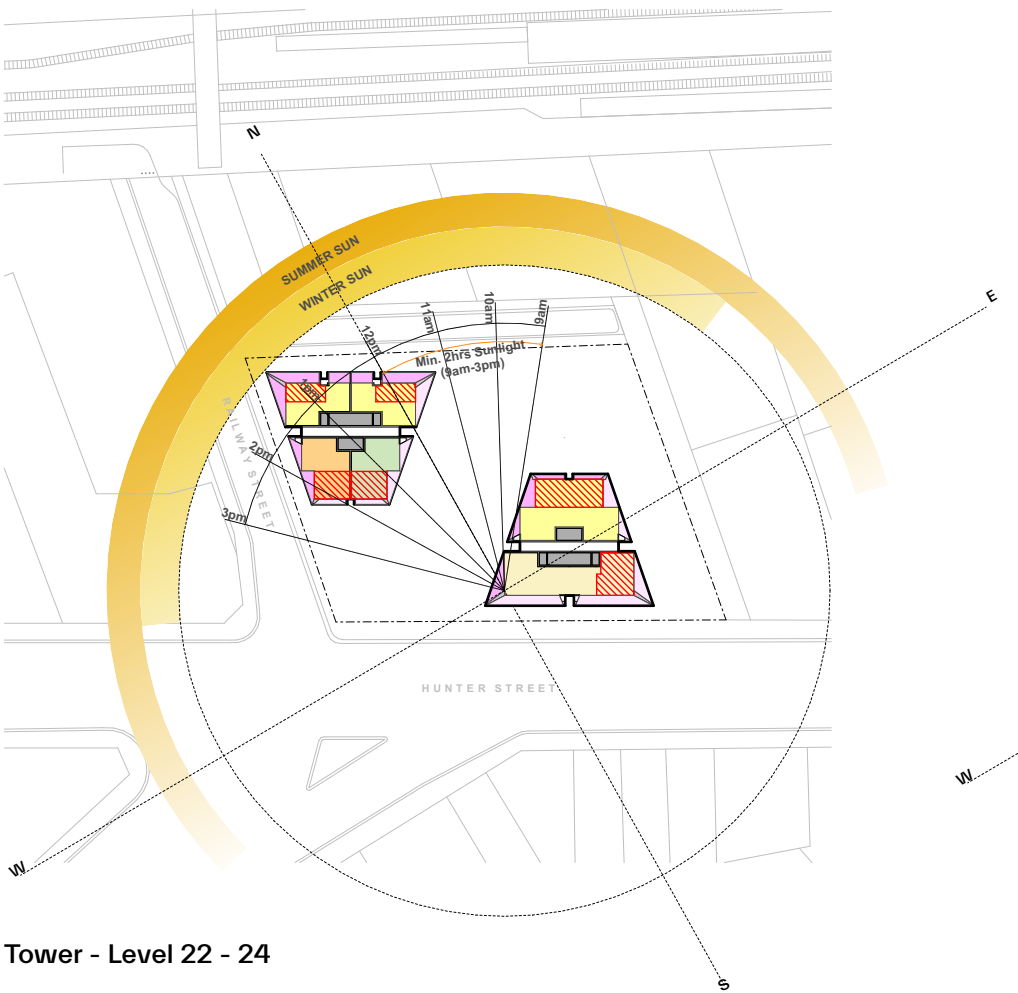
Tower - Level 5



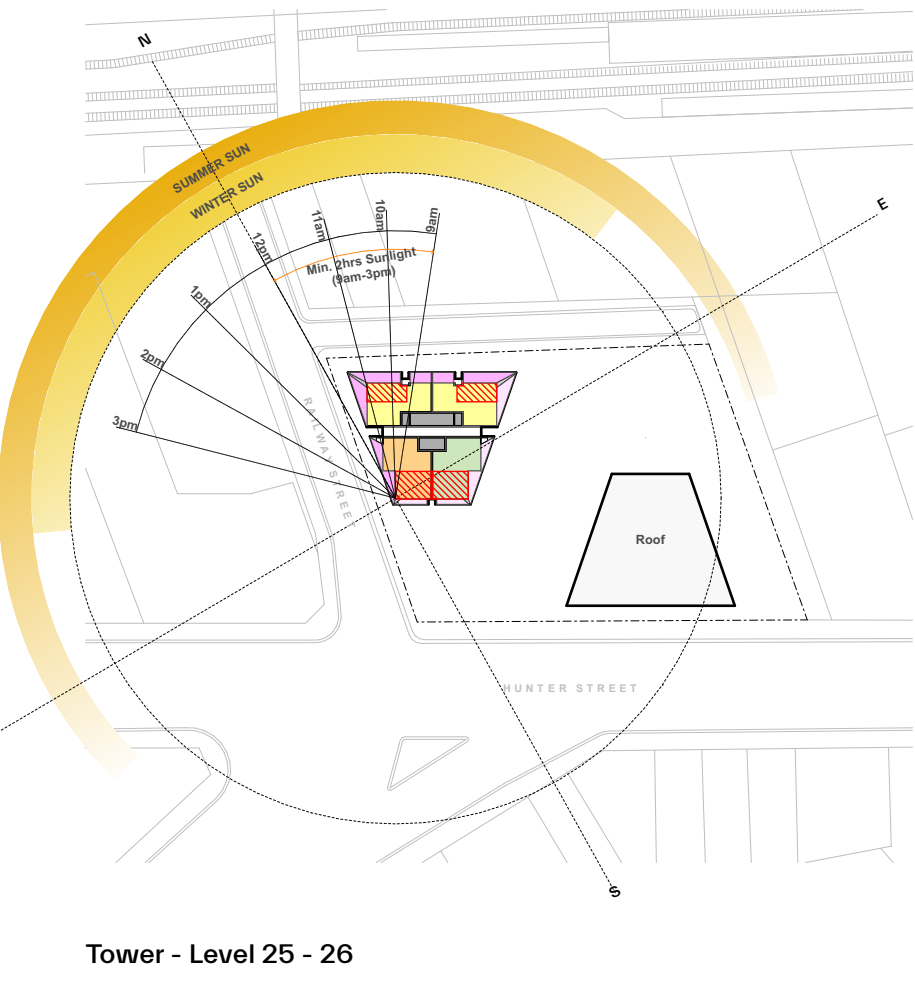
Tower - Level 6 - 14



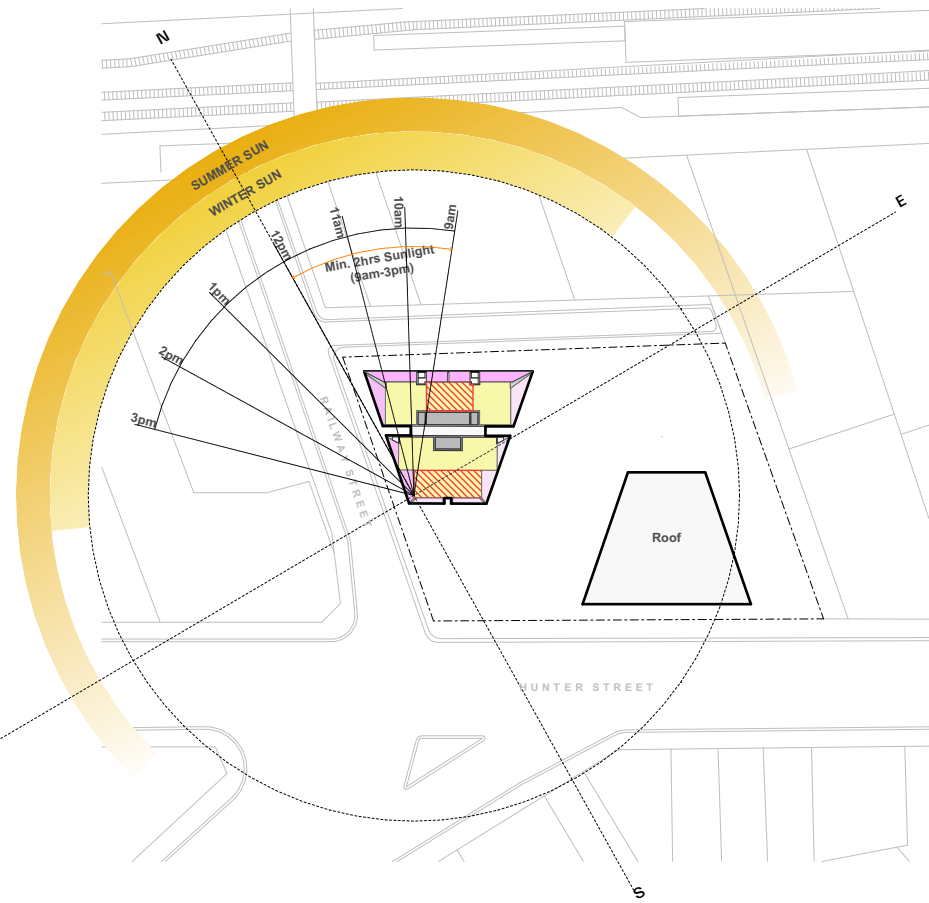
Tower - Level 15 - 21



Tower - Level 22 - 24



Tower - Level 25 - 26



Tower - Level 27 - 29

ADG Solar Analysis

Analysis indicates between 9am - 3pm mid winter;

- No direct sun
- 1+ hrs to unit living space
- 2+ hrs to unit living space
- 3+ hrs to unit living space
- <2 hrs to POS
- 2+ hrs to POS

	'No Sun'	Solar 1hr to living + POS	Solar 2hr to living + POS
Lift Overrun			
Roof / Plant			
Level 29	0	2	2
Level 28	0	2	2
Level 27	0	2	2
Level 26	1	3	3
Level 25	1	3	3
Level 24	1	5	4
Level 23	1	5	4
Level 22	1	5	4
Level 21	1	6	5
Level 20	1	6	5
Level 19	1	6	5
Level 18	1	6	5
Level 17	1	6	5
Level 16	1	6	5
Level 15	1	6	5
Level 14	1	8	7
Level 13	1	8	7
Level 12	1	8	7
Level 11	1	8	7
Level 10	1	8	7
Level 09	1	8	7
Level 08	1	8	7
Level 07	1	8	7
Level 06	1	8	7
Level 05	1	8	7
Level 04	0	3	3
Level 03	2	4	3
Level 02	2		
Level 01			
Upper Ground			
Ground			
Totals	14.2%	85.2%	73.8%

Totals;

	DCP / LEP	Proposed
Solar approx 1hr to living + POS	N/A	85.2%
Solar min 2hr to living + POS	70% total	73.8%
'No Sun'	15% total	14.2%
Cross Vent First 9 floors	60%	79.2%
Cross Vent Total	N/A	91.3%

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issue	description	date	verified
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02	Issue for DRAFT DA	8/10/21	02
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 5500 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

client



project

Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

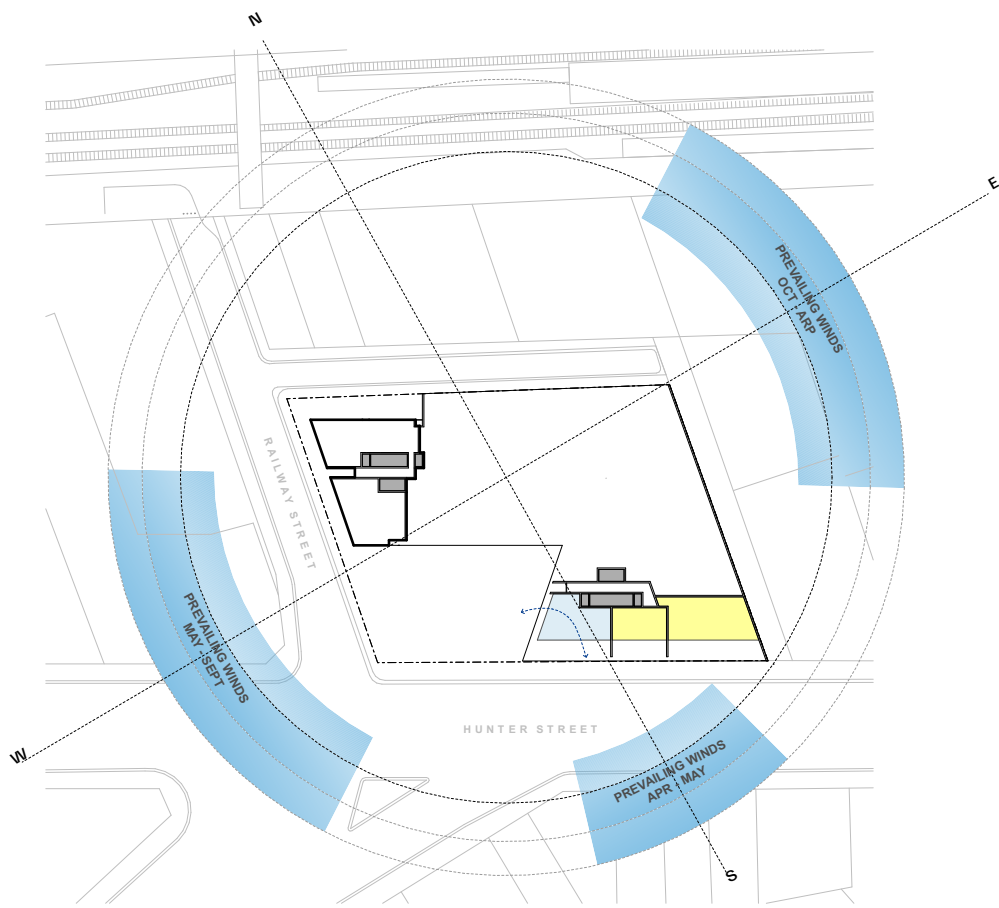
drawing title

Schedules ADG Solar Analysis

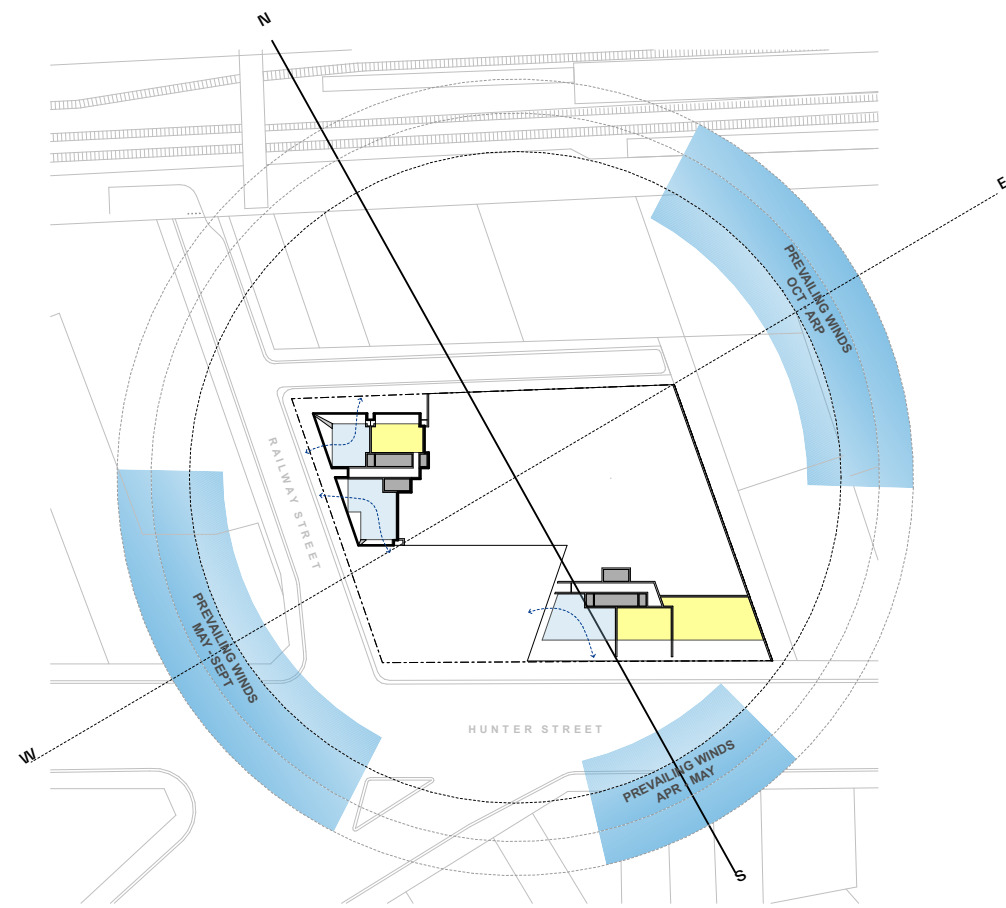
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7004	E	

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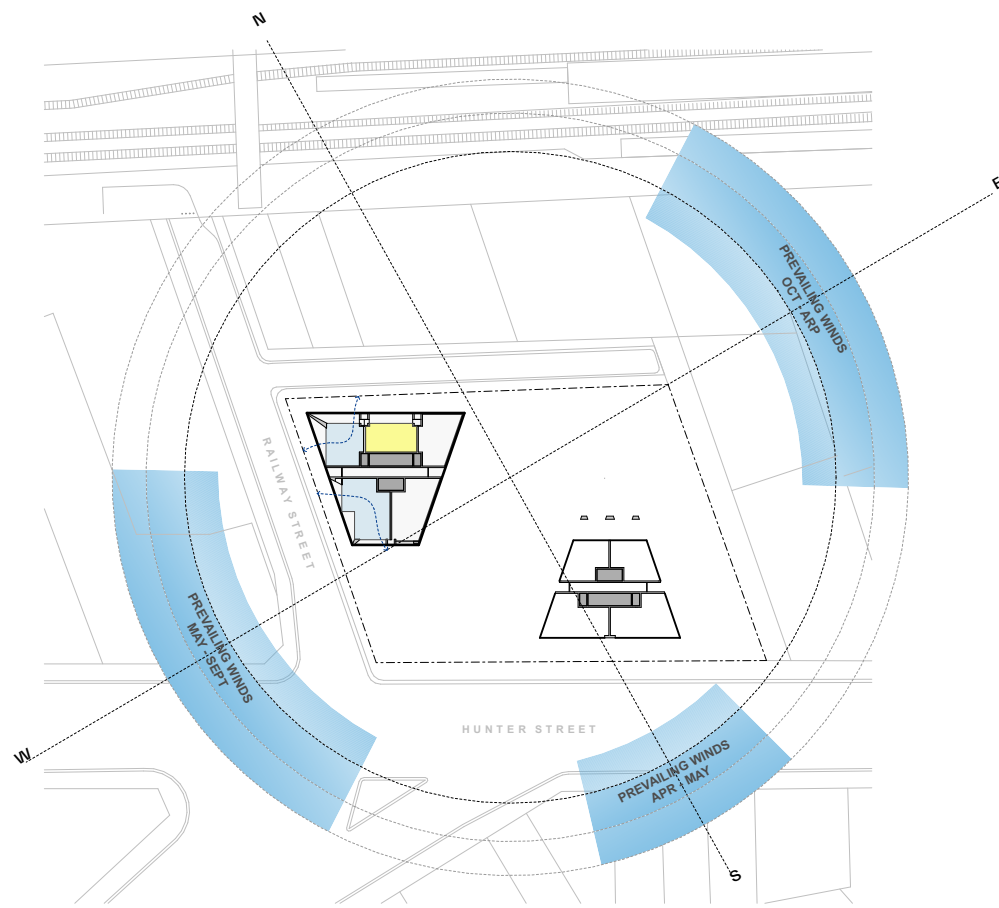
Development Application



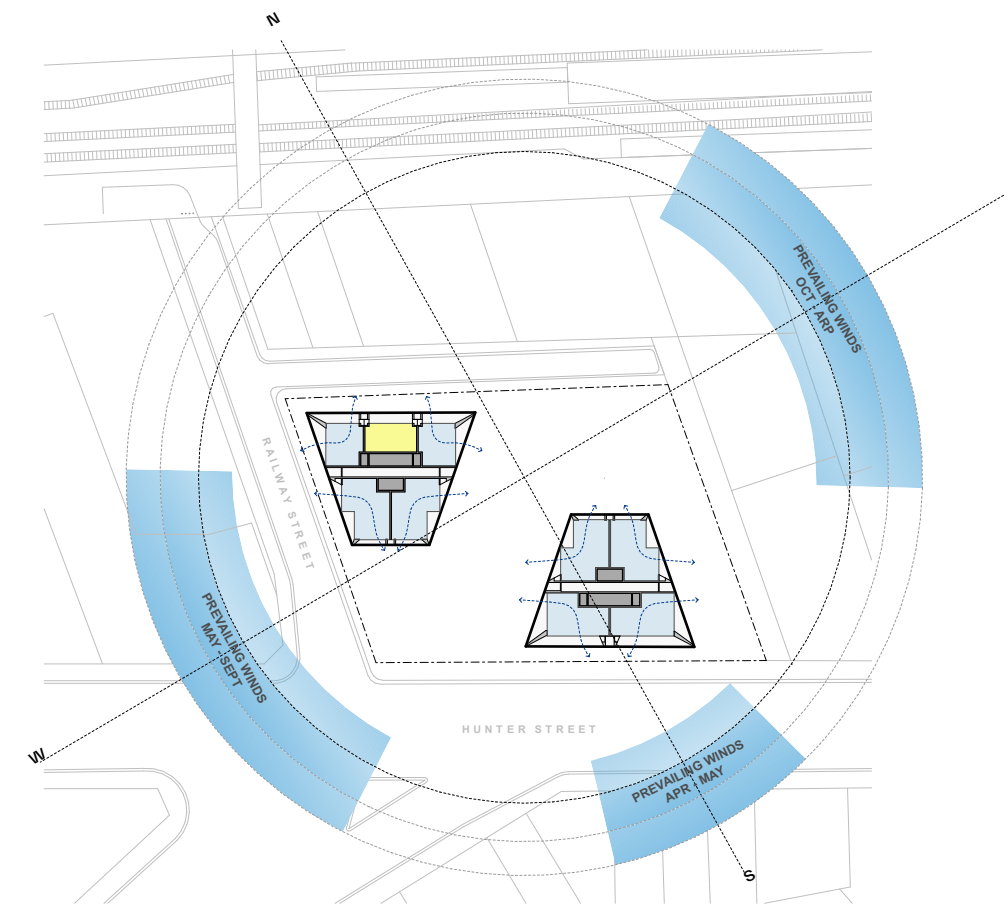
Podium - Level 2
Single Aspect (2 out of 3)
66.66%
Cross Vent (1 out of 3)
33.33%



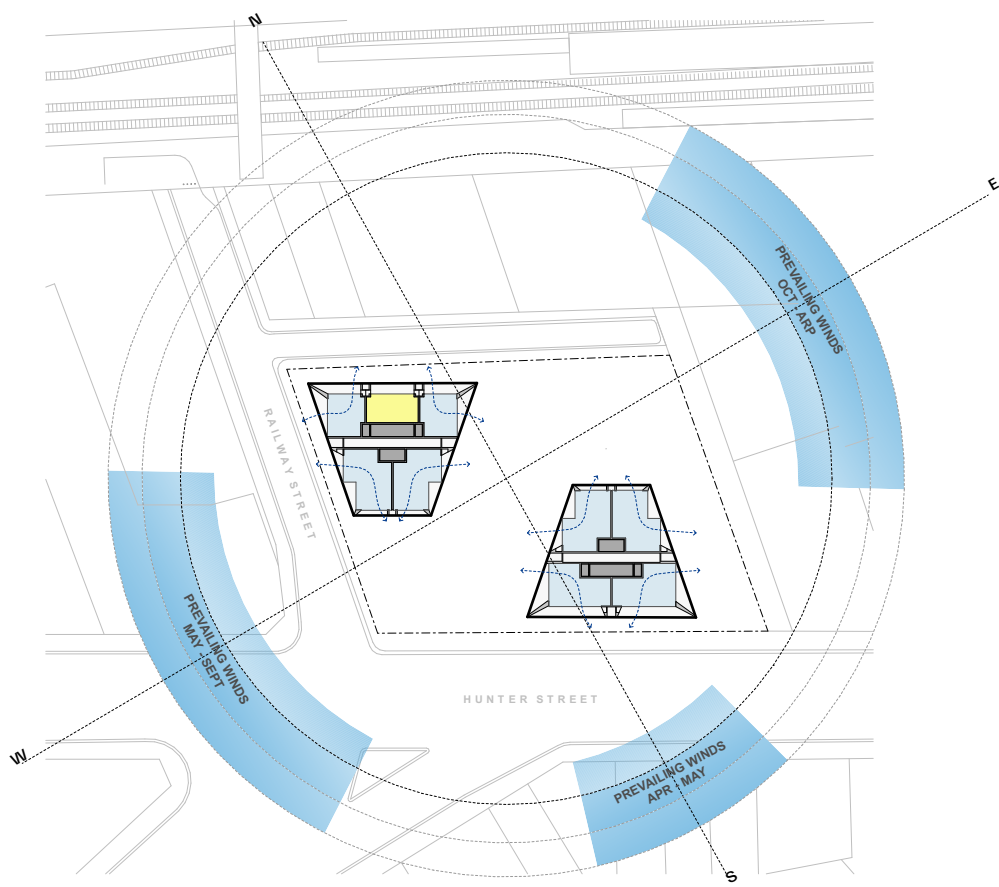
Podium - Level 3
Single Aspect (3 out of 6)
50.00%
Cross Vent (3 out of 6)
50.00%



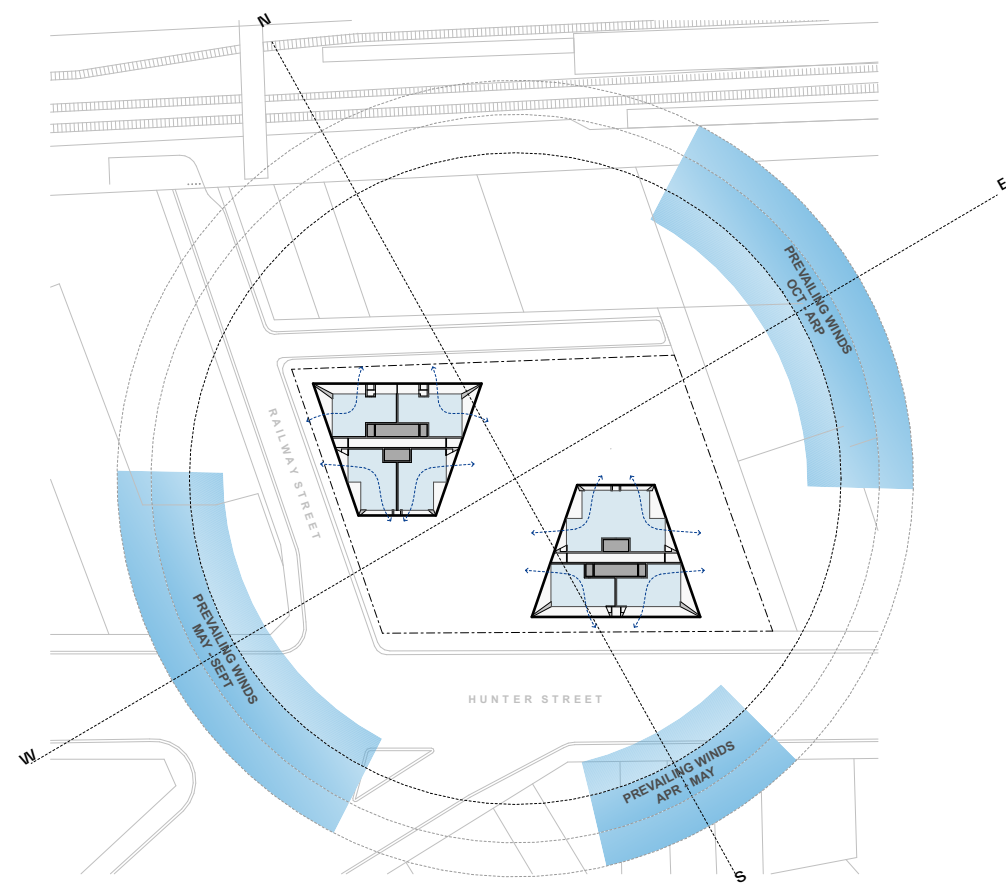
Podium - Level 4
Single Aspect (1 out of 3)
33.33%
Cross Vent (2 out of 3)
66.66%



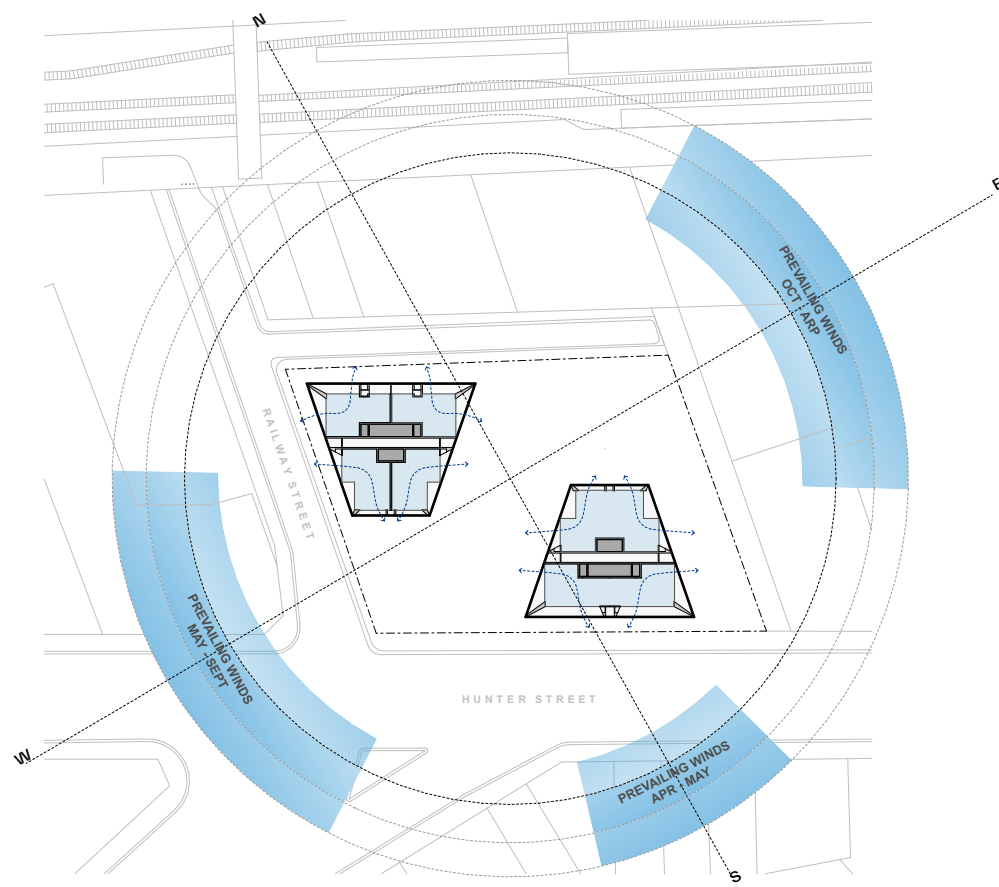
Tower - Level 5
Single Aspect (1 out of 9)
11.11%
Cross Vent (8 out of 9)
88.88%



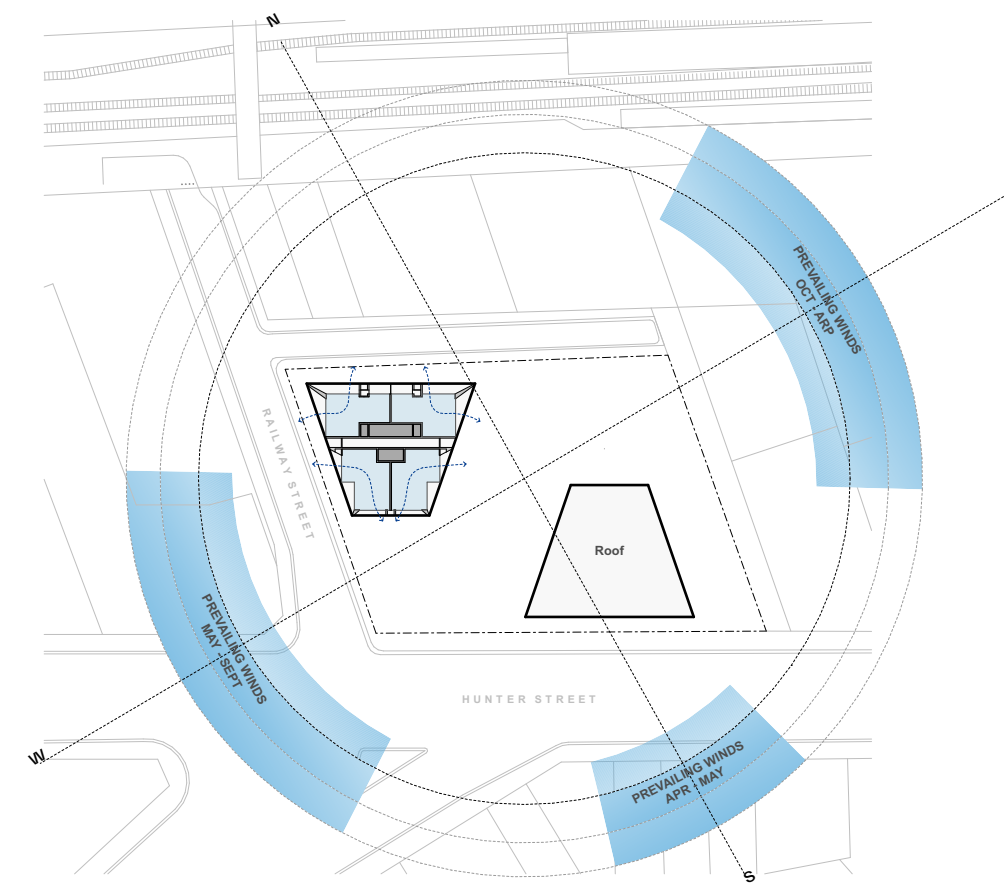
Tower - Level 6 - 14
Single Aspect (1 out of 9)
11.11%
Cross Vent (8 out of 9)
88.88%



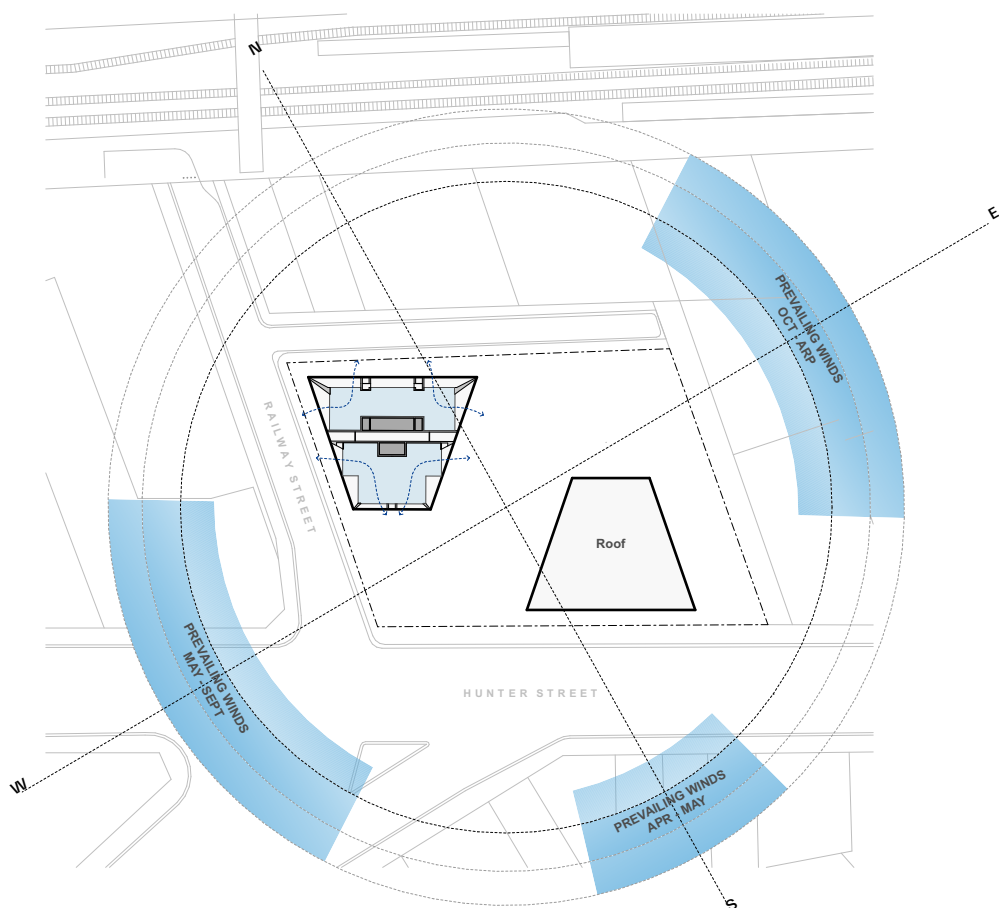
Tower - Level 15 - 21
Single Aspect (0 out of 6)
0.00%
Cross Vent (6 out of 6)
100.00%



Tower - Level 22 - 24
Single Aspect (0 out of 6)
0.00%
Cross Vent (6 out of 6)
100.00%



Tower - Level 25 - 26
Single Aspect (0 out of 4)
0.00%
Cross Vent (4 out of 4)
100.00%



Tower - Level 27 - 29
Single Aspect (0 out of 2)
0.00%
Cross Vent (2 out of 2)
100.00%

ADG Cross Ventilation Analysis

	Solar 2hr to living + POS	Cross Vent
Lift Overrun		
Roof / Plant		
Level 29	2	2
Level 28	2	2
Level 27	2	2
Level 26	3	4
Level 25	3	4
Level 24	4	6
Level 23	4	6
Level 22	4	6
Level 21	5	7
Level 20	5	7
Level 19	5	7
Level 18	5	7
Level 17	5	7
Level 16	5	7
Level 15	5	7
Level 14	7	8
Level 13	7	8
Level 12	7	8
Level 11	7	8
Level 10	7	8
Level 09	7	8
Level 08	7	8
Level 07	7	8
Level 06	7	8
Level 05	7	8
Level 04	3	2
Level 03	3	3
Level 02		1
Level 01		
Upper Ground		
Ground		
Totals	73.8%	91.3%

Totals;	DCP / LEP	Proposed
Cross Vent First 9 floors	60%	79.2%
Cross Vent Total	N/A	91.3%

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A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 215 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
5560 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer

EVC Consulting Engineers
Suite 101, 470 King St
Newcastle West, NSW, 2302

Hydraulic Engineer

Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client

THIRD GROUP

base Build PTY LTD

NEWCASTLE
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Newcastle West 2302
P: 02 4929 1883
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CENTRAL COAST
1/16-1/17, 2/17
PO Box 4405
Bella Vista 2505
P: 02 4321 0503
e: edmond@ckds.com.au

project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

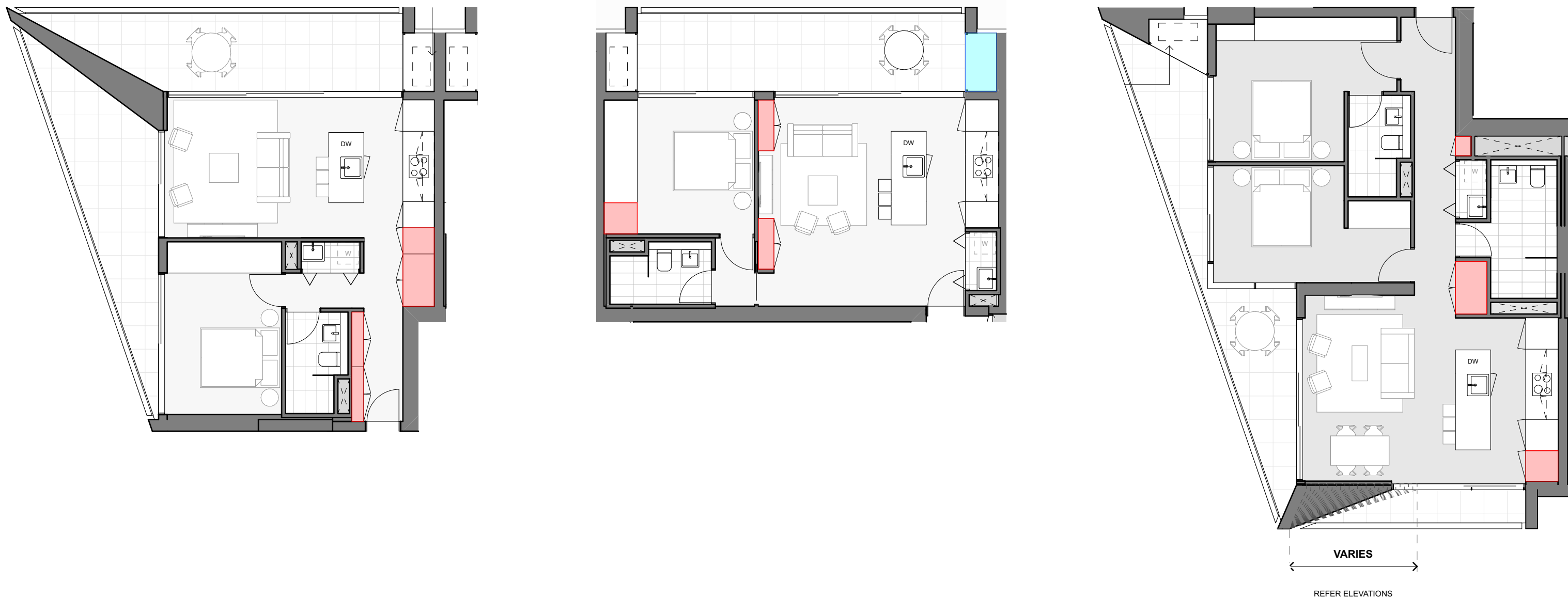
drawing title

Schedules ADG Cross Ventilation Analysis

drawing scale	drawn	verified	date
AS SHOWN	CH	SC	30/5/22
project #	drawing #	issue	
21014	A-7005	E	

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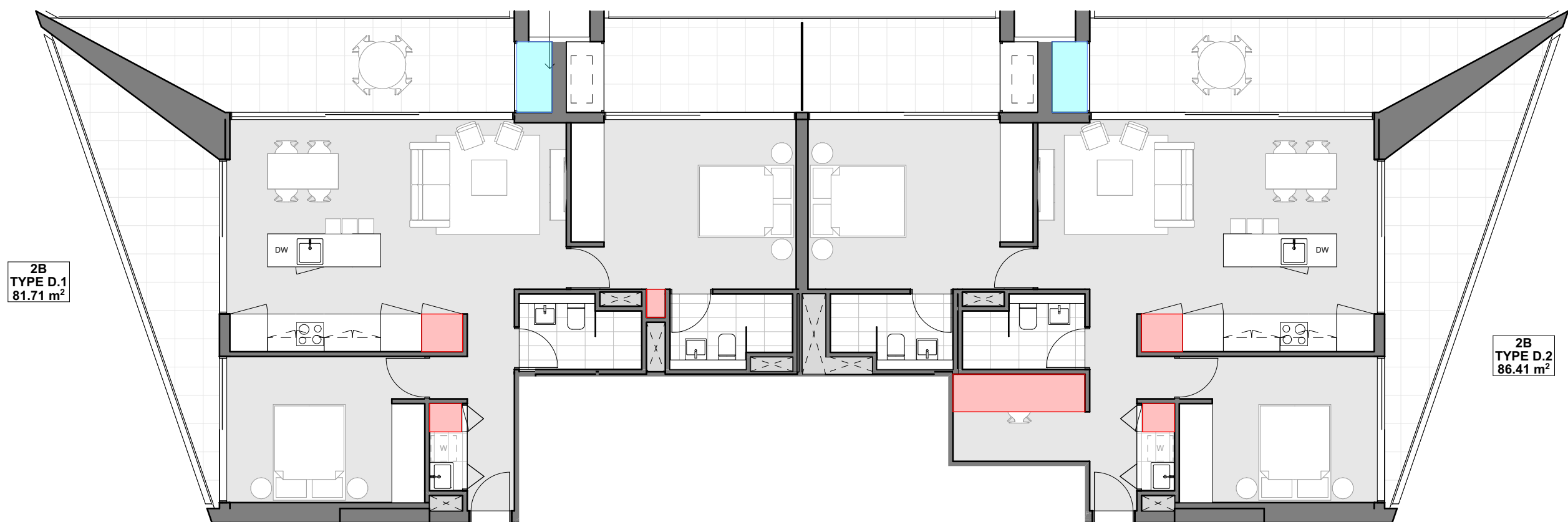
Development Application



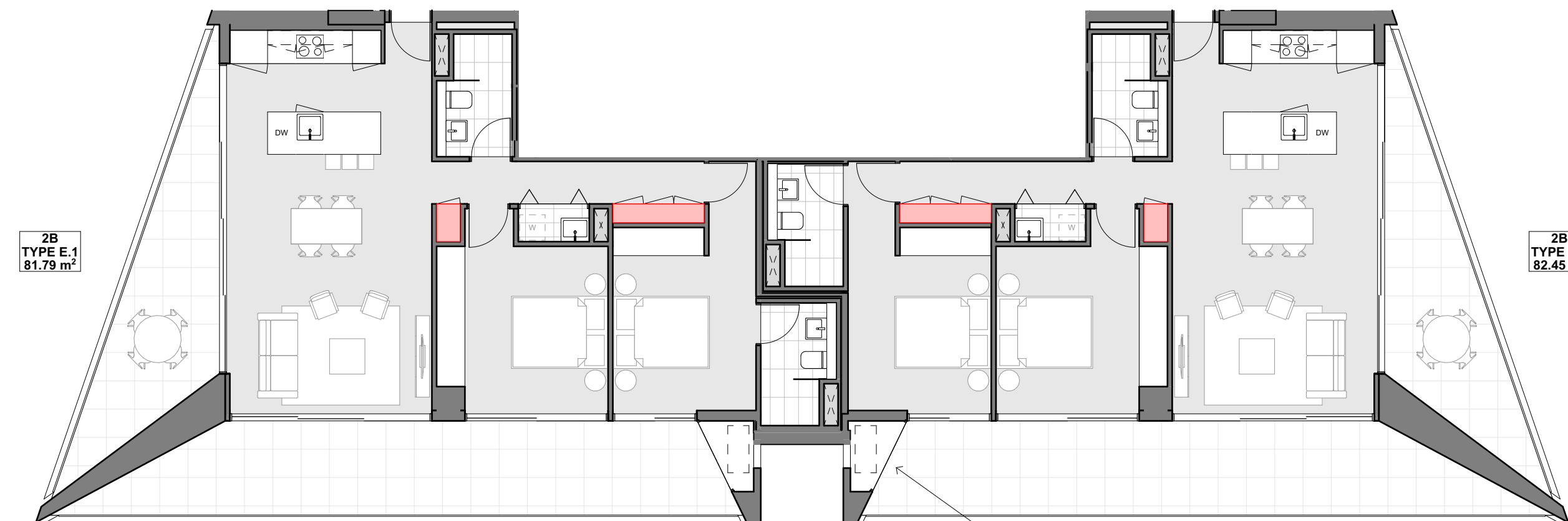
1 UNIT TYPE A - 1B TOWER
SCALE 1:100 @ A1

2 UNIT TYPE B - 1B TOWER
SCALE 1:100 @ A1

3 UNIT TYPE C - 2B TOWER
SCALE 1:100 @ A1



4 UNIT TYPE D.1 & D.2 - 2B TOWER
SCALE 1:100 @ A1



5 UNIT TYPE E.1 & E.2 - 2B TOWER
SCALE 1:100 @ A1

ADG Storage Review

Unit Type	Unit Number	Total Unit Type	Beds	Internal Storage m³	External Storage m³	External Storage m³	Total Storage Provided m³
				18 min 3m³ 25 min 4m³ 36 min 5m³	Balcony	Storage Cage Minimum Volume	
Type A	N.301 / N.401 / N.501 / N.503 N.601 / N.603 / N.701 / N.703 N.801 / N.803 / N.901 / N.903 N.1001 / N.1003 / N.1101 / N.1103 N.1201 / N.1203 / N.1301 / N.1303 N.1401 / N.1403	22	1B	6.17			6.17
Type B	N.302 / N.402 / N.502 / N.602 N.702 / N.802 / N.902 / N.1002 N.1102 / N.1202 / N.1302 / N.1402	12	1B	4.64	3.04		7.68
Type C	N.303 / N.403 / N.504 / N.505 N.604 / N.605 / N.704 / N.705 N.804 / N.805 / N.904 / N.905 N.1004 / N.1005 / N.1104 / N.1105 N.1204 / N.1205 / N.1304 / N.1305 N.1404 / N.1405 / N.1503 / N.1504 N.1603 / N.1604 / N.1703 / N.1704 N.1803 / N.1804 / N.1903 / N.1904 N.2003 / N.2004 / N.2103 / N.2104 N.2203 / N.2204 / N.2303 / N.2304 N.2403 / N.2404 / N.2503 / N.2504 N.2603 / N.2604	66	2B	5.00		3.00	8.00
Type D.1	S.501 / S.502 / S.601 / S.602 S.701 / S.702 / S.801 / S.802 S.901 / S.902 / S.1001 / S.1002 S.1101 / S.1102 / S.1201 / S.1202 S.1301 / S.1302 / S.1401 / S.1402	12	2B	3.62	2.83	1.55	8.00
Type D.2	N.1502 / N.1602 / N.1702 / N.1802 N.1902 / N.2002 / N.2102 / N.2202 N.2302 / N.2402 / N.2502 / N.2602	12	2B	9.02	2.83		11.85
Type E.1	S.503 / S.603 / S.703 / S.803 S.903 / S.1003 / S.1103 / S.1203 S.1303 / S.1403 / S.1502 / S.1602 S.1702 / S.1802 / S.1902 / S.2002 S.2102	17	2B	3.17		4.83	8.00
Type E.2	S.504 / S.604 / S.704 / S.804 S.904 / S.1004 / S.1104 / S.1204 S.1304 / S.1404 / S.1503 / S.1603 S.1703 / S.1803 / S.1903 / S.2003 S.2103	17	2B	3.17		4.83	8.00
Type F	N.2701 / N.2801 / N.2901 N.2702 / N.2802 / N.2902	3	3B	6.42	6.08		12.50
Type G	S.1501 / S.1601 / S.1701 / S.1801 S.1901 / S.2001 / S.2101 / S.2201 S.2301 / S.2401	13	3B	17.25			17.25
Type H	S.2202 / S.2302 / S.2402	3	3B	10.06			10.06
Type I	S.201 / S.301	2	2B	5.66	2.84		8.50
Type J	S.202 / S.302	2	1B	3.40	2.84		6.24
Type K	S.203 / S.303	2	2B	10.26	2.85		13.11

REFER TO GENERAL ARRANGEMENT PLANS FOR EXTERNAL STORAGE LOCATIONS:
• MINIMUM 78 CAGES 4-5 m³ AS REQUIRED FOR TYPES C & D.1
• MINIMUM 34 CAGES >5 m³ AS REQUIRED FOR TYPES E.1 & E.2

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Notified Architects: Carine King NSW ARB 7514 / Stuart Campbell NSW ARB 7545

INTERNAL STORAGE
EXTERNAL STORAGE

issue	description	date	verified
01	Issue for DRAFT DA	8/10/21	01
A	Issue for Development Application	20/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level L 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 588 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

client



project

Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

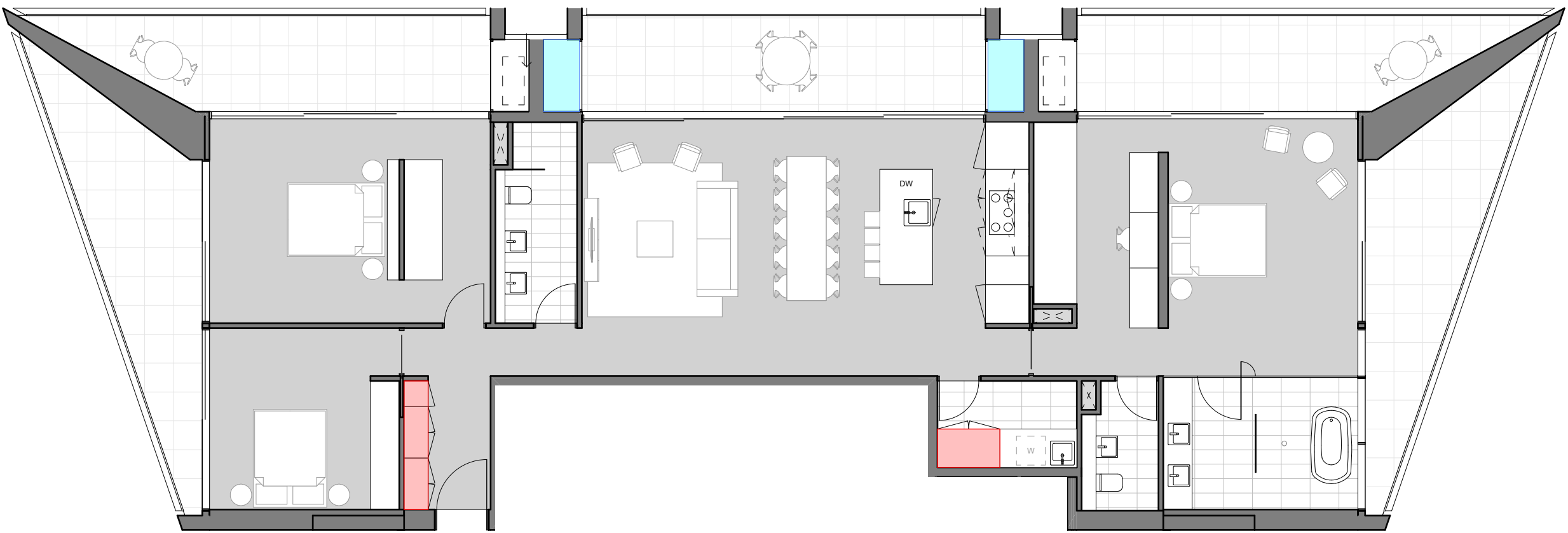
drawing title

Schedules
ADG Storage

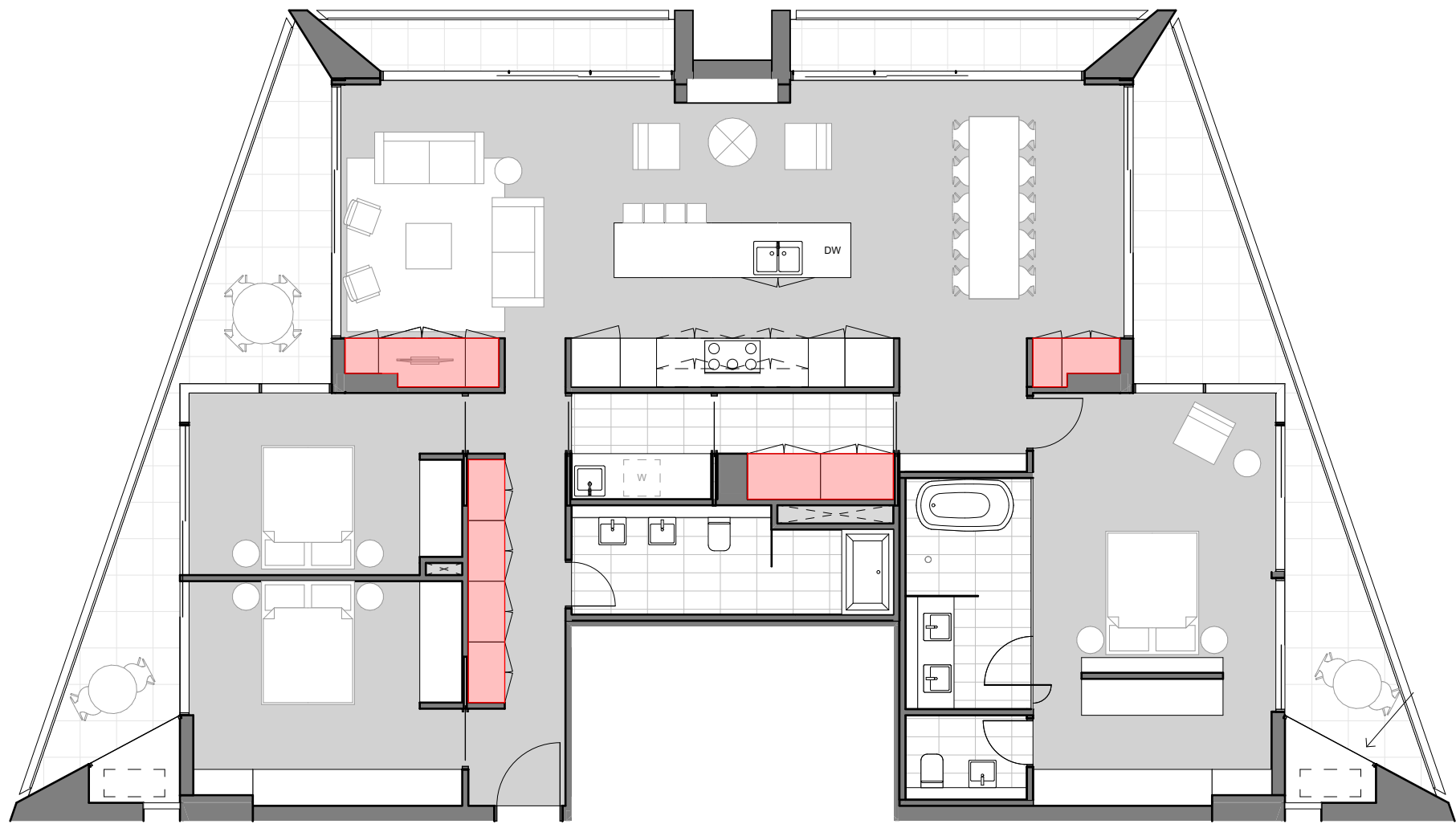
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7006	E	

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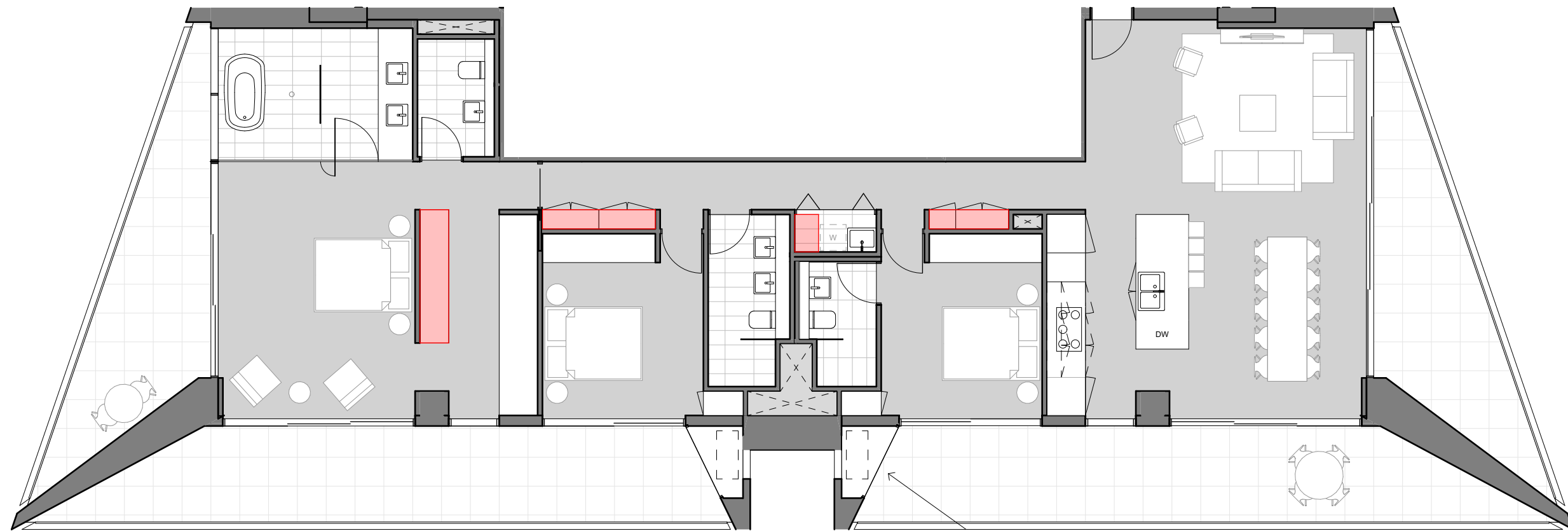
Development Application



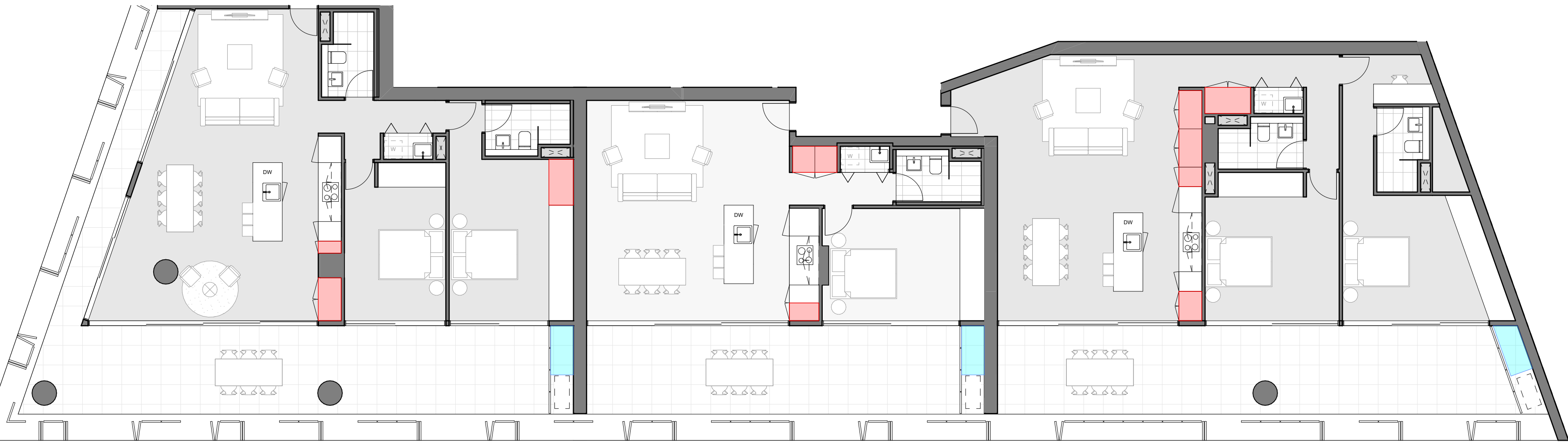
1 UNIT TYPE F - 3B PENTHOUSE
SCALE 1:100 @ A1



2 UNIT TYPE G - 3B PENTHOUSE
SCALE 1:100 @ A1



3 UNIT TYPE H - 3B PENTHOUSE
SCALE 1:100 @ A1



4 UNIT TYPE I - 2B PODIUM
SCALE 1:100 @ A1

5 UNIT TYPE J - 1B PODIUM
SCALE 1:100 @ A1

6 UNIT TYPE K - 2B PODIUM
SCALE 1:100 @ A1

ADG Storage Review

Unit Type	Unit Number	Total Unit Type	Beds	Internal Storage m³ 18 min 3m³ 28 min 4m³ 38 min 5m³	External Storage m³ Balcony	External Storage m³ Storage Cage Minimum Volume	Total Storage Provided m³
Type A	N.301 / N.401 / N.501 / N.503 N.601 / N.603 / N.701 / N.703 N.801 / N.803 / N.901 / N.903 N.1001 / N.1003 / N.1101 / N.1103 N.1201 / N.1203 / N.1301 / N.1303 N.1401 / N.1403	22	1B	6.17			6.17
Type B	N.302 / N.402 / N.502 / N.602 N.702 / N.802 / N.902 / N.1002 N.1102 / N.1202 / N.1302 / N.1402	12	1B	4.64	3.04		7.68
Type C	N.303 / N.403 / N.504 / N.505 N.604 / N.605 / N.704 / N.705 N.804 / N.805 / N.904 / N.905 N.1004 / N.1005 / N.1104 / N.1105 N.1204 / N.1205 / N.1304 / N.1305 N.1404 / N.1405 / N.1503 / N.1504 N.1603 / N.1604 / N.1703 / N.1704 N.1803 / N.1804 / N.1903 / N.1904 N.2003 / N.2004 / N.2103 / N.2104 N.2203 / N.2204 / N.2303 / N.2304 N.2403 / N.2404 / N.2503 / N.2504 N.2603 / N.2604	66	2B	5.00		3.00	8.00
Type D.1	S.501 / S.502 / S.601 / S.602 S.701 / S.702 / S.801 / S.802 S.901 / S.902 / S.1001 / S.1002 S.1101 / S.1102 / S.1201 / S.1202 S.1301 / S.1302 / S.1401 / S.1402	12	2B	3.62	2.83	1.55	8.00
Type D.2	N.1501 / N.1601 / N.1701 / N.1801 N.1901 / N.2001 / N.2101 / N.2201 N.2301 / N.2401 / N.2501 / N.2601	12	2B	9.02	2.83		11.85
Type E.1	S.503 / S.603 / S.703 / S.803 S.903 / S.1003 / S.1103 / S.1203 S.1303 / S.1403 / S.1502 / S.1602 S.1702 / S.1802 / S.1902 / S.2002 S.2102	17	2B	3.17		4.83	8.00
Type E.2	S.504 / S.604 / S.704 / S.804 S.904 / S.1004 / S.1104 / S.1204 S.1304 / S.1404 / S.1503 / S.1603 S.1703 / S.1803 / S.1903 / S.2003 S.2103	17	2B	3.17		4.83	8.00
Type F	N.2701 / N.2801 / N.2901 N.2702 / N.2802 / N.2902	3	3B	6.42	6.08		12.50
Type G	S.1501 / S.1601 / S.1701 / S.1801 S.1901 / S.2001 / S.2101 / S.2201 S.2301 / S.2401	13	3B	17.25			17.25
Type H	S.2202 / S.2302 / S.2402	3	3B	10.06			10.06
Type I	S.201 / S.301	2	2B	5.66	2.84		8.50
Type J	S.202 / S.302	2	1B	3.40	2.84		6.24
Type K	S.203 / S.303	2	2B	10.26	2.85		13.11

REFER TO GENERAL ARRANGEMENT PLANS FOR EXTERNAL STORAGE LOCATIONS:
• MINIMUM 78 CAGES 4-5 m³ AS REQUIRED FOR TYPES C & D.1
• MINIMUM 34 CAGES >5 m³ AS REQUIRED FOR TYPES E.1 & E.2

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Notified Architects: Cairne King NSW ARB 7514 / Stuart Campbell NSW ARB 7545

INTERNAL STORAGE

EXTERNAL STORAGE

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 215 Pacific Highway
Charlestown, NSW, 2280

Mechanical Engineer

EVC Consulting Engineers
Suite 101, 470 King St
Newcastle West, NSW, 2302

Electrical Engineer

Electrical Projects Australia
588 Mainland Rd
Mayfield, NSW, 2304

Hydraulic Engineer

Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client

THIRD GROUP

base Build PTY LTD

project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

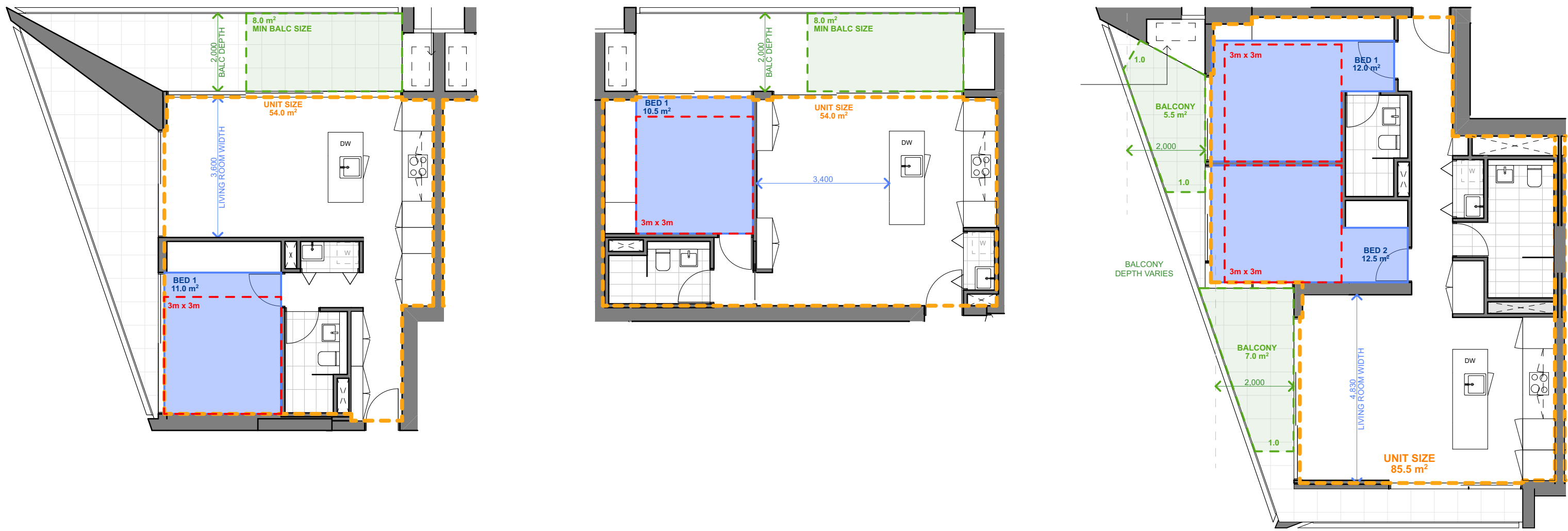
drawing title

Schedules ADG Storage

drawing scale	drawn	verified	date
AS SHOWN	CH	SC	30/5/22
project #	drawing #	issue	
21014	A-7007	E	

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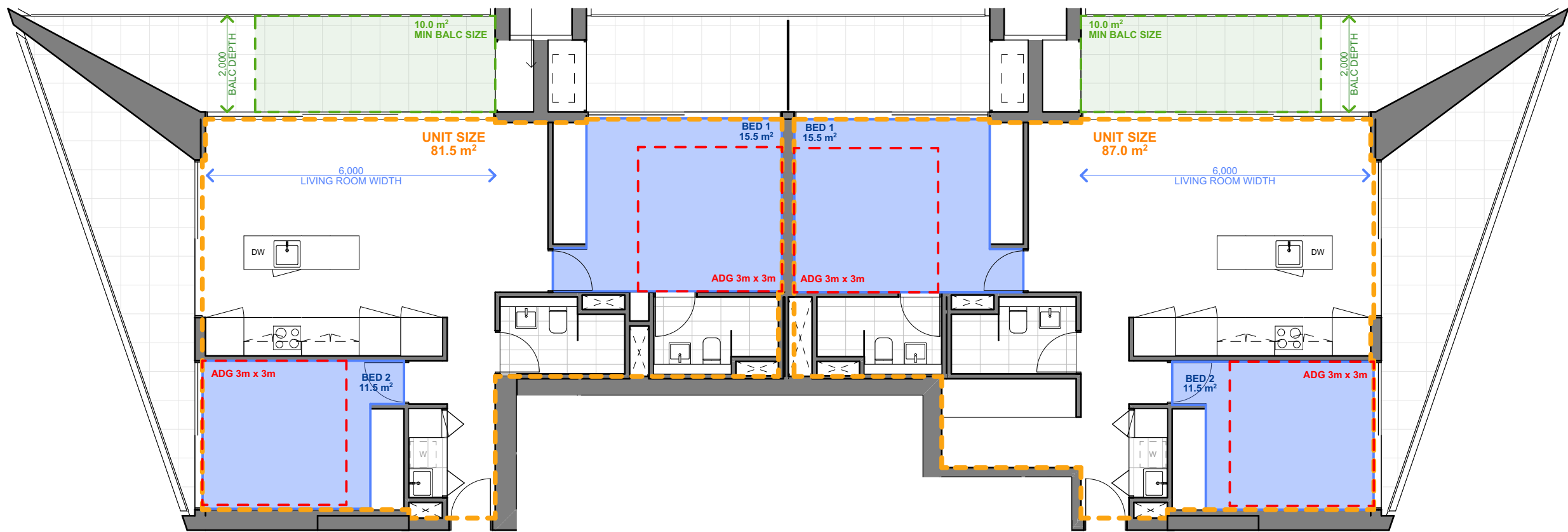
Development Application



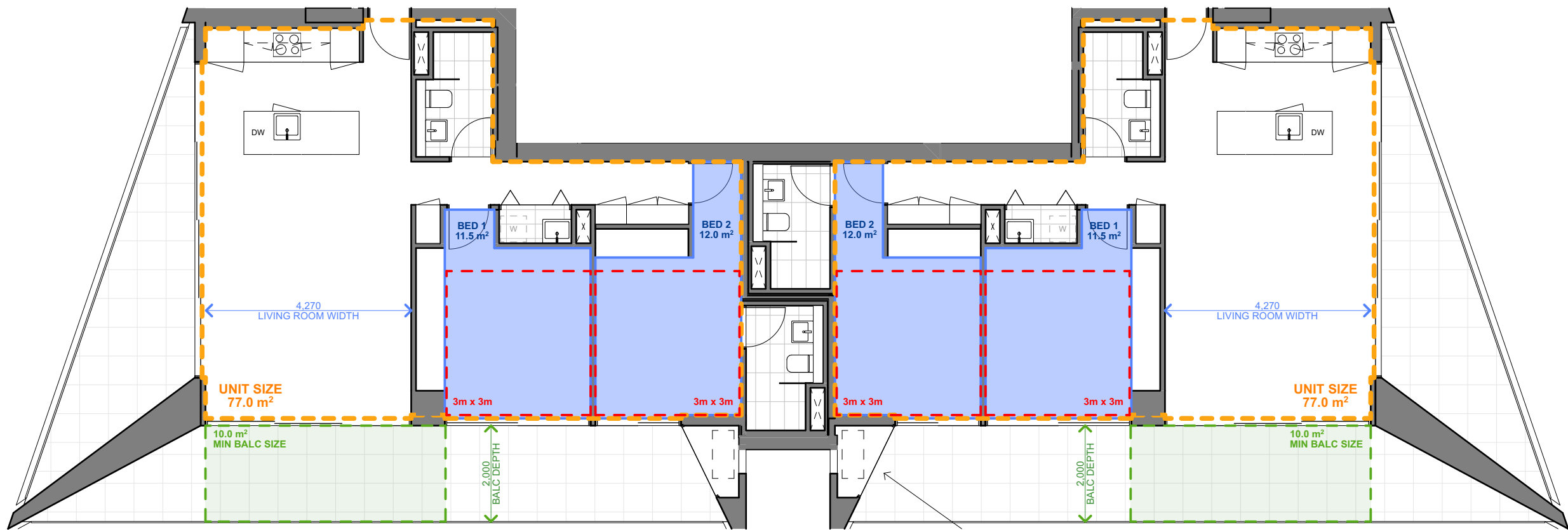
1 UNIT TYPE A - 1B TOWER
SCALE 1:100 @ A1

2 UNIT TYPE B - 1B+STUDY TOWER
SCALE 1:100 @ A1

3 UNIT TYPE C - 2B TOWER
SCALE 1:100 @ A1



4 UNIT TYPE D - 2B TOWER
SCALE 1:100 @ A1



5 UNIT TYPE E - 2B TOWER
SCALE 1:100 @ A1

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Notified Architects: Cairne King NSW ARB 7574 / Stuart Campbell NSW ARB 7545

- UNIT SIZE
- BEDROOM SIZE
- BEDROOM ADG MIN 3m DIMENSION
- LIVING ROOM WIDTH
- ADG MINIMUM BALCONY AREA
- BALCONY DEPTH

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2290	Electrical Engineer Electrical Projects Australia 2880 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

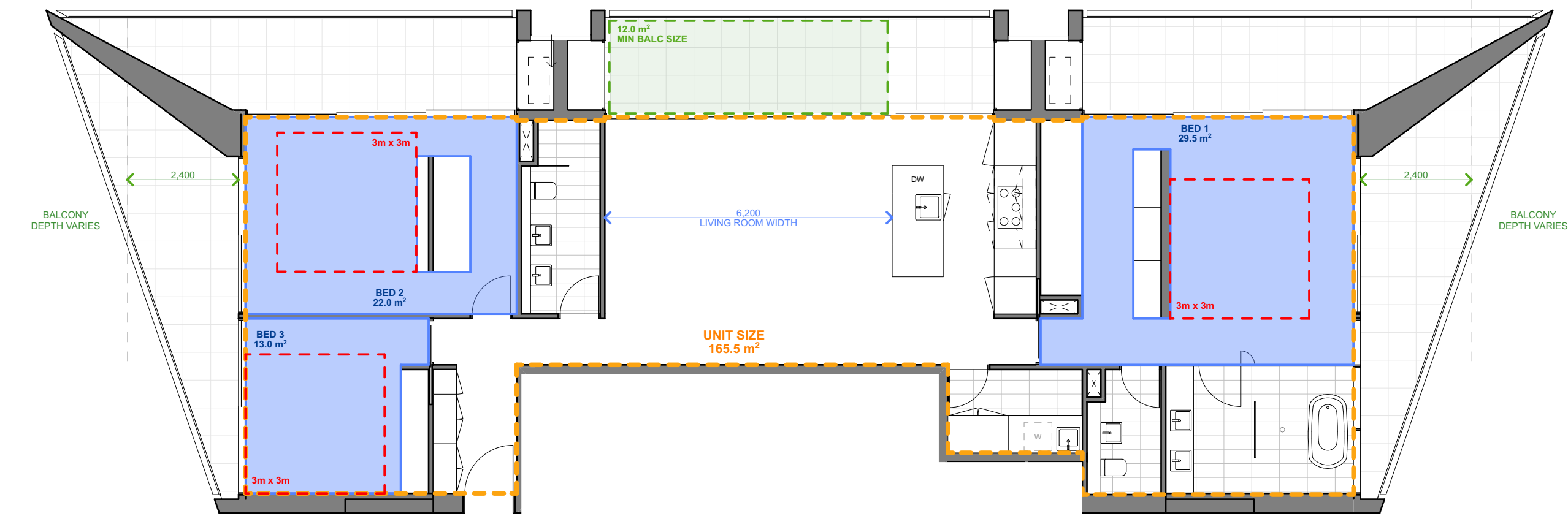
drawing title

Schedules ADG Compliance

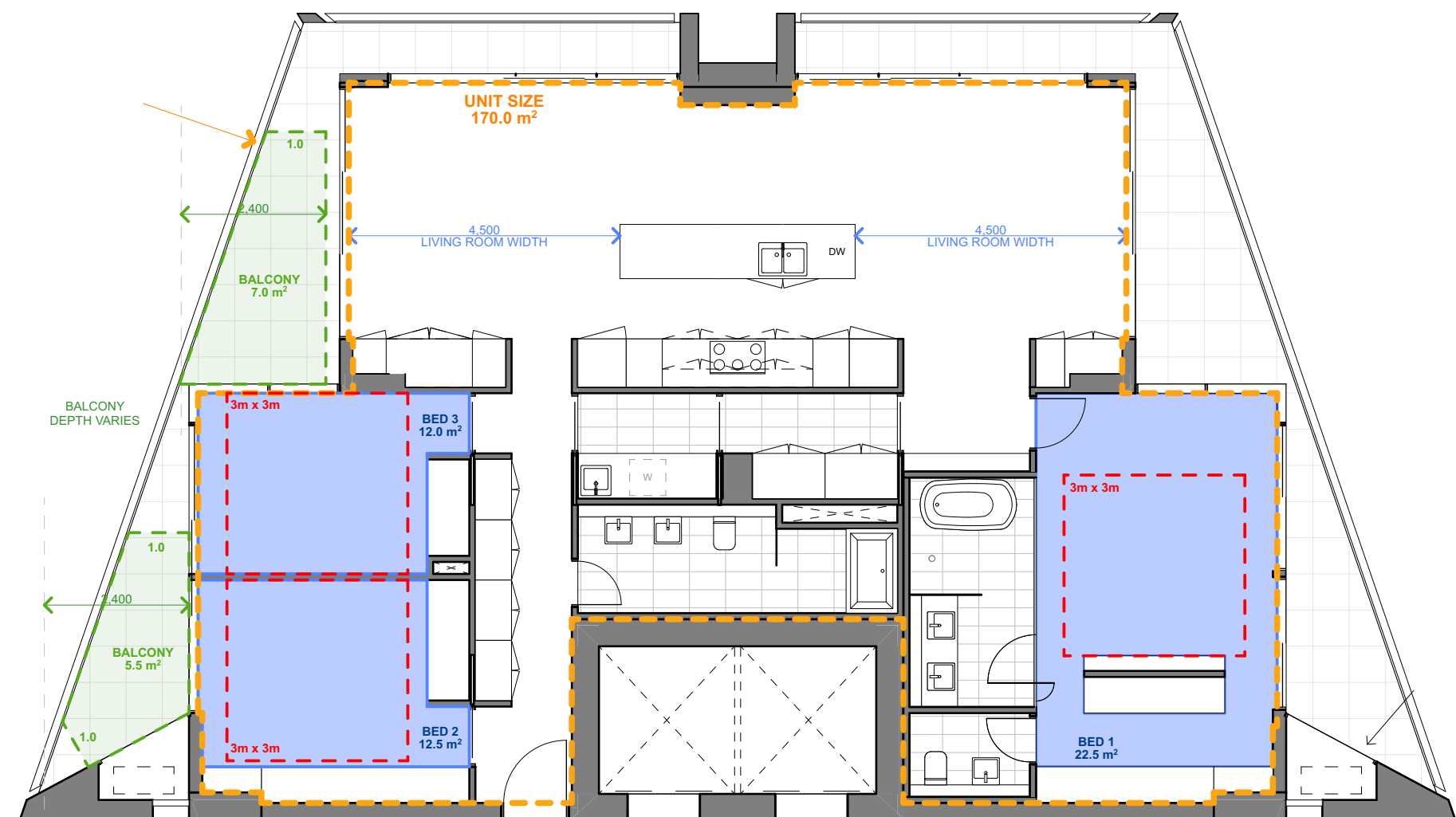
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7008	E	

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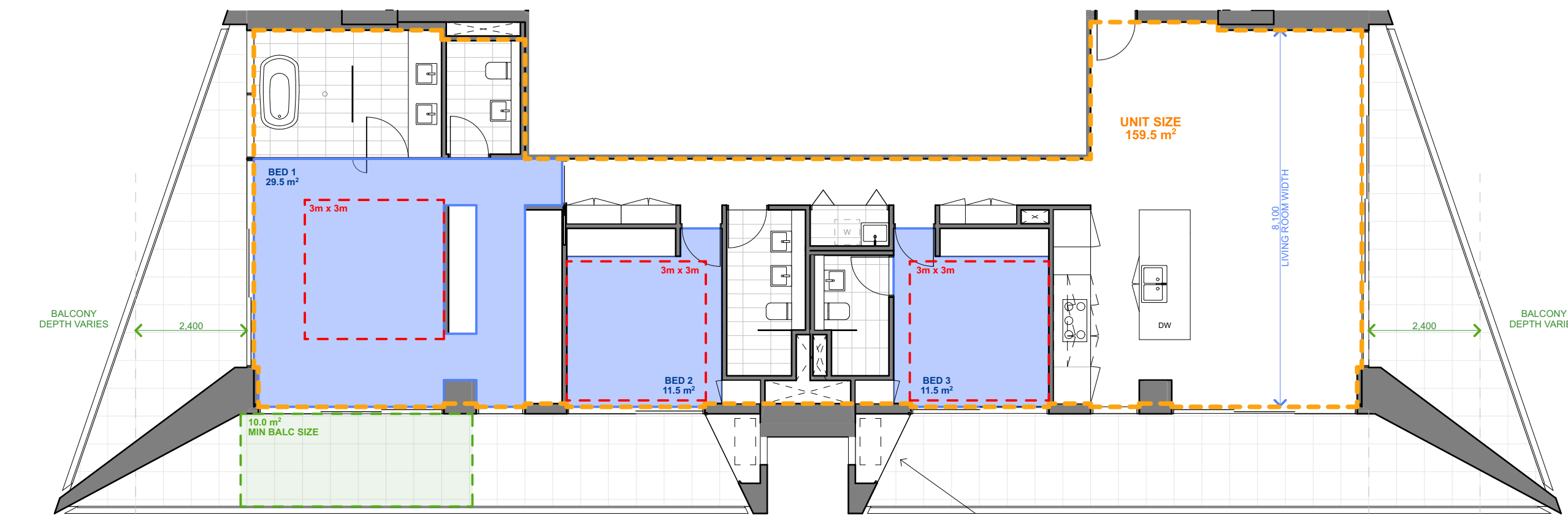
Development Application



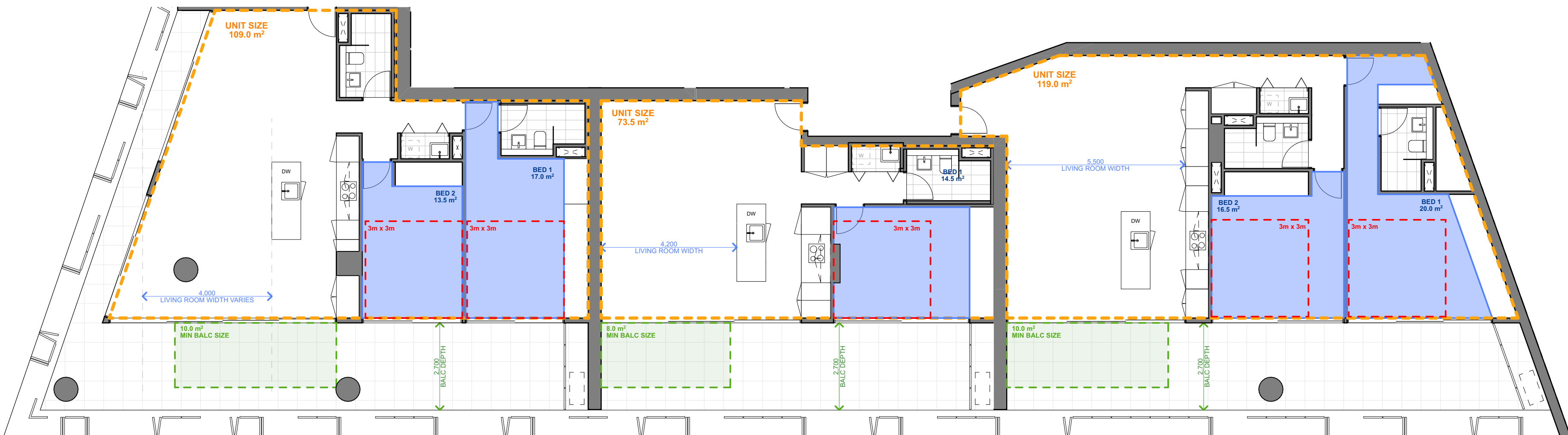
1 UNIT TYPE F - 3B PENTHOUSE
SCALE 1:100 @ A1



2 UNIT TYPE G - 3B PENTHOUSE
SCALE 1:100 @ A1



3 UNIT TYPE H - 3B PENTHOUSE
SCALE 1:100 @ A1



4 UNIT TYPE I - 2B PODIUM
SCALE 1:100 @ A1

5 UNIT TYPE J - 1B PODIUM
SCALE 1:100 @ A1

6 UNIT TYPE K - 2B PODIUM
SCALE 1:100 @ A1

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- UNIT SIZE
- BEDROOM SIZE
- BEDROOM ADG MIN 3m DIMENSION
- LIVING ROOM WIDTH
- ADG MINIMUM BALCONY AREA
- BALCONY DEPTH

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2290	Electrical Projects Australia 2880 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



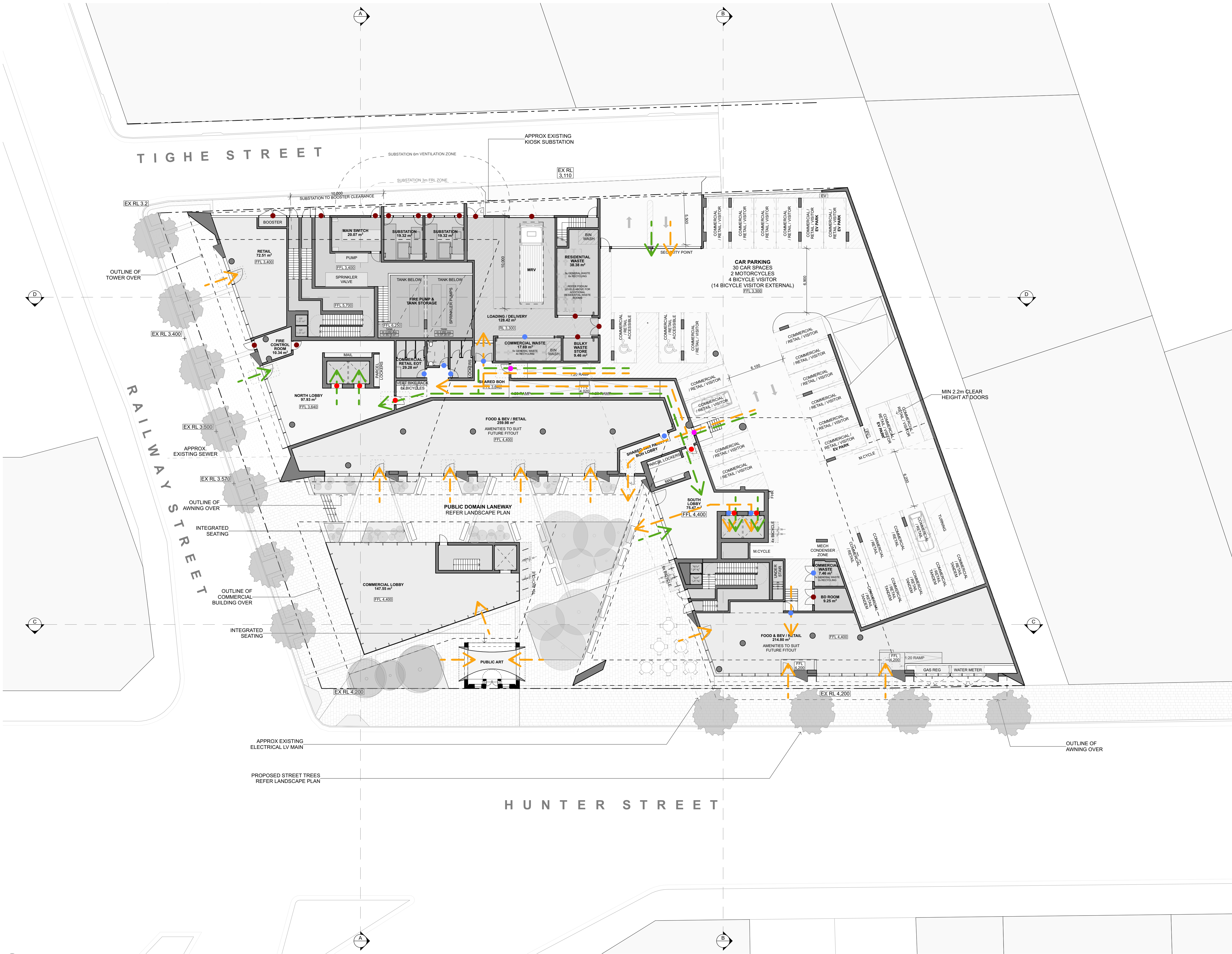
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Schedules
ADG Compliance

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7009	E	

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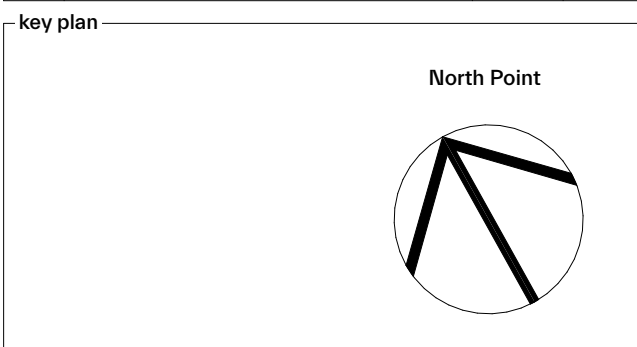
Development Application



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- PUBLIC & COMMERCIAL ACCESS
- RESIDENTIAL ACCESS
- RESTRICTED COMMERCIAL ACCESS
- RESTRICTED RESIDENT ACCESS
- RESTRICTED BUILDING MANAGEMENT / AUTHORISED PERSONS ACCESS
- UNRESTRICTED ACCESS

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E



consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 588 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



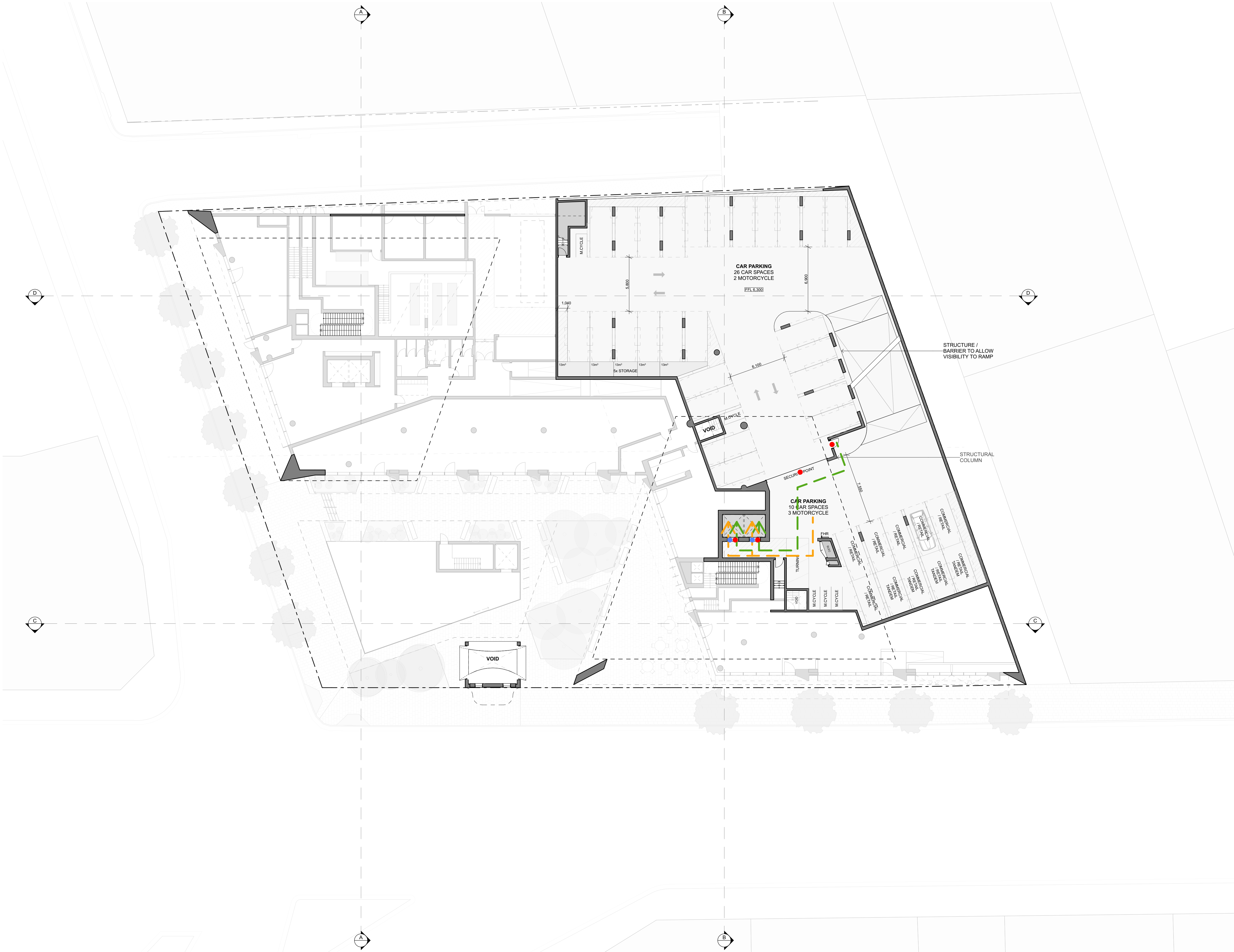
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**Schedules
Movement & Access
Plan - Ground**

drawing scale	drawn	verified	date
AS SHOWN	SC		30/5/22
project #	drawing #	issue	
21014	A-7010	E	

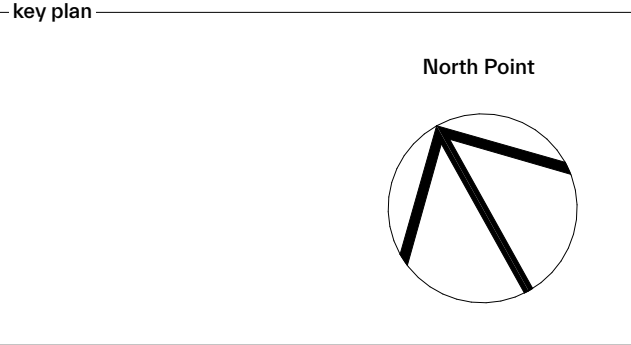
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Development Application



- PUBLIC & COMMERCIAL ACCESS
— RESIDENTIAL ACCESS
- RESTRICTED COMMERCIAL ACCESS
● RESTRICTED RESIDENT ACCESS
● RESTRICTED BUILDING MANAGEMENT / AUTHORISED PERSONS ACCESS
● UNRESTRICTED ACCESS

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E



consultants Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2290	Electrical Engineer Electrical Projects Australia 588 Mainland Rd Mayfield, NSW, 2304
Mechanical Engineer EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Hydraulic Engineer Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**Schedules
Movement & Access
Plan - Upper Ground**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-7011	E	

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Notwithstanding Architects: Cairne King NSW ABB 7514 / Stuart Campbell NSW ABB 7545

issue	description	date	verified
01	Issue for Pre-DA	16/9/21	01
02	Issue for Pre-DA	27/9/21	02
03	Issue for Draft DA	1/10/21	03
04	Issue for DRAFT DA	8/10/21	04
A	Issue for Development Application	21/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants	Electrical Engineer
Civil/Structural Engineers Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282

client





NEWCASTLE
1/14-1/15, 2/1
PO Box 4400
Newcastle NSW 2300
P: 02 4929 1883
www.ckds.com.au

CENTRAL COAST
1/14-1/15, 2/1
PO Box 4400
Newcastle NSW 2300
P: 02 4929 1883
www.ckds.com.au

project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**Visualisation
Perspective Views**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-8001	E	

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Development Application



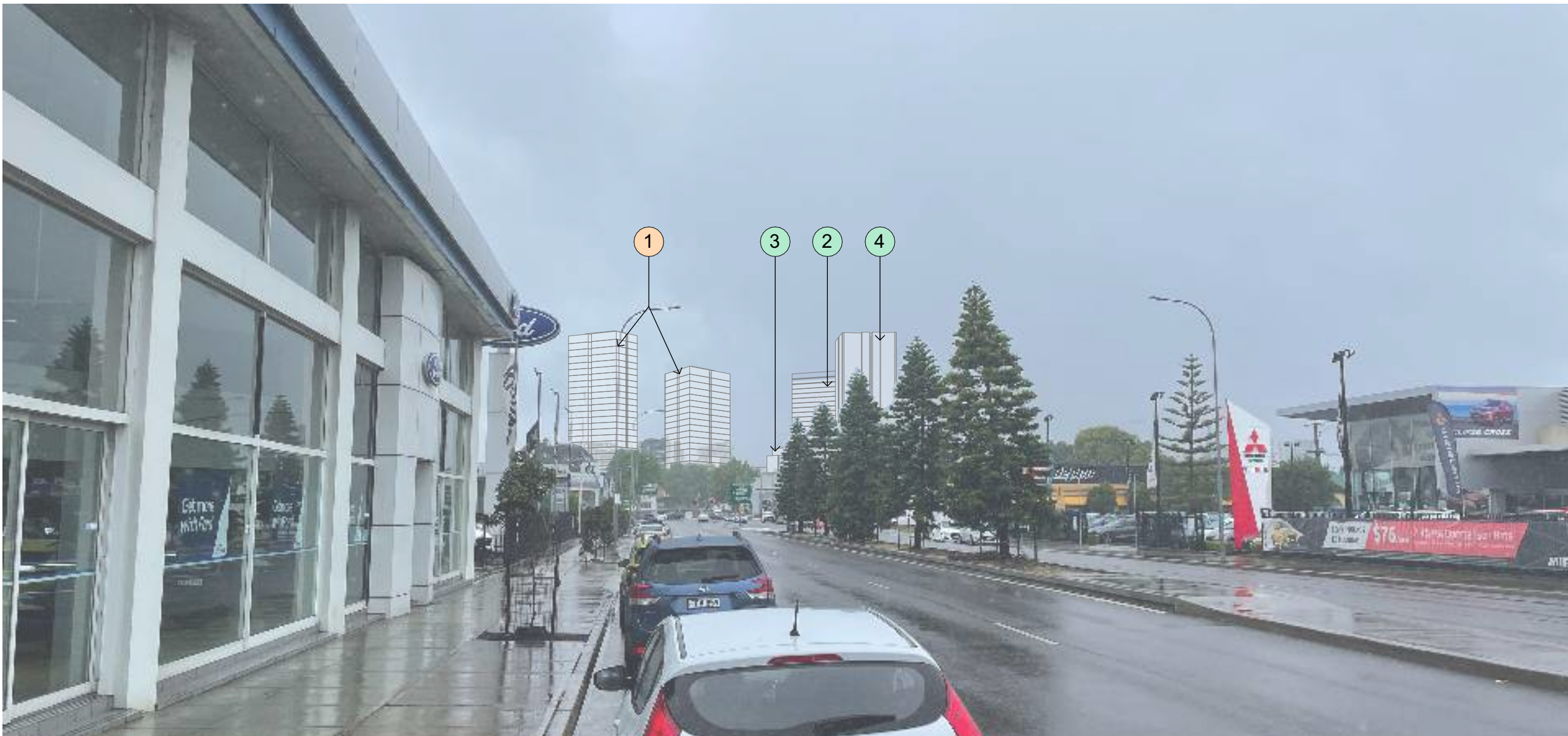
VIEW LOCATIONS



VIEW 2 Hunter Street Bridge



VIEW 4 Station St



VIEW 1 Tudor St Long View



VIEW 3 Hawkins Oval, Wickham Park



VIEW 5 Hannell Street Marina

- 1 PROPOSED DA - DAIRY FARMERS TOWERS - 99m DUAL RESIDENTIAL APARTMENT TOWERS
- 2 APPROVED DA - THE STORE - 90m DUAL RESIDENTIAL APARTMENT TOWERS
- 3 APPROVED DA - 815 HUNTER STREET - 56m SINGLE RESIDENTIAL APARTMENT TOWER
- 4 APPROVED DA - 20 DENISON STREET - 71m SINGLE RESIDENTIAL APARTMENT TOWER
- 5 APPROVED DA - 73 - 79 RAILWAY LANE - 44.9m DUAL RESIDENTIAL APARTMENT TOWERS

NOTE: APPROXIMATE HEIGHT AND SCALE FOR SKYLINE FORM STUDY ONLY
PHOTOGRAPHS NOT SURVEYED

issue	description	date	verified
01	Issue for DRAFT DA	15/10/21	01
A	Issue for Development Application	20/10/21	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 215 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 588 Mainland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



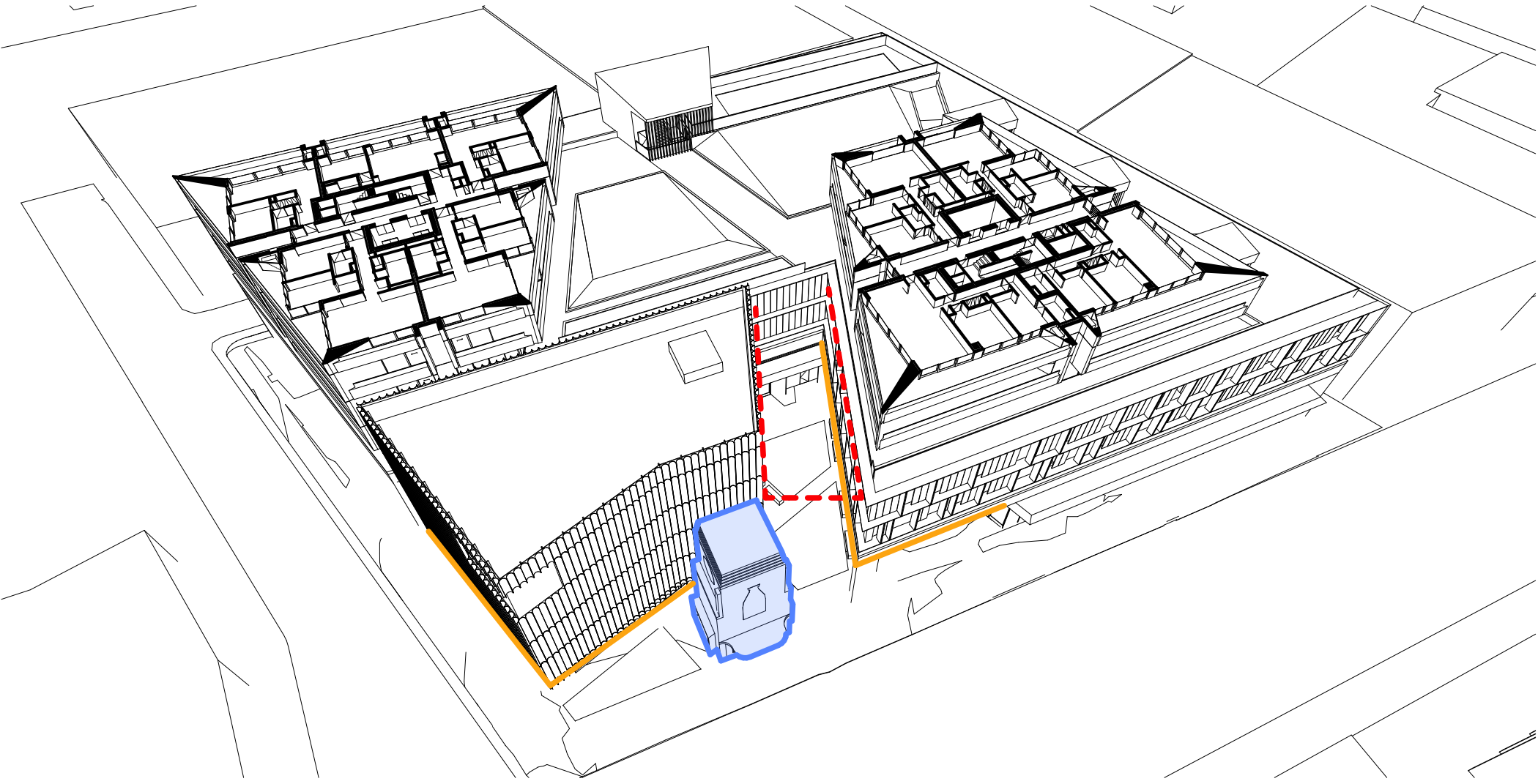
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**Visualisation
Long View Study**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-8002	E	

Development Application

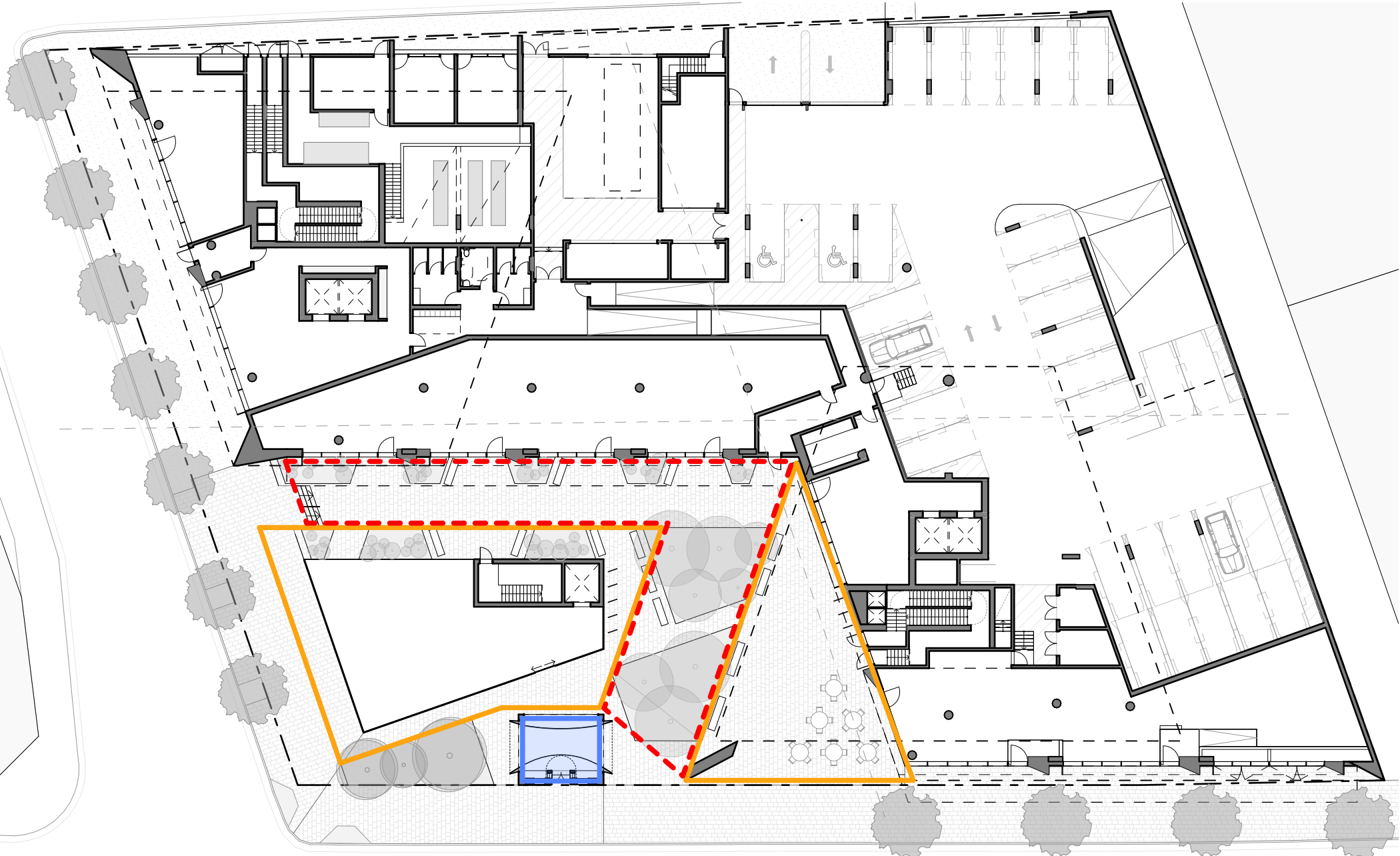
Public Art Opportunities



Permanent, publicly accessible art installation within heritage listed clock tower

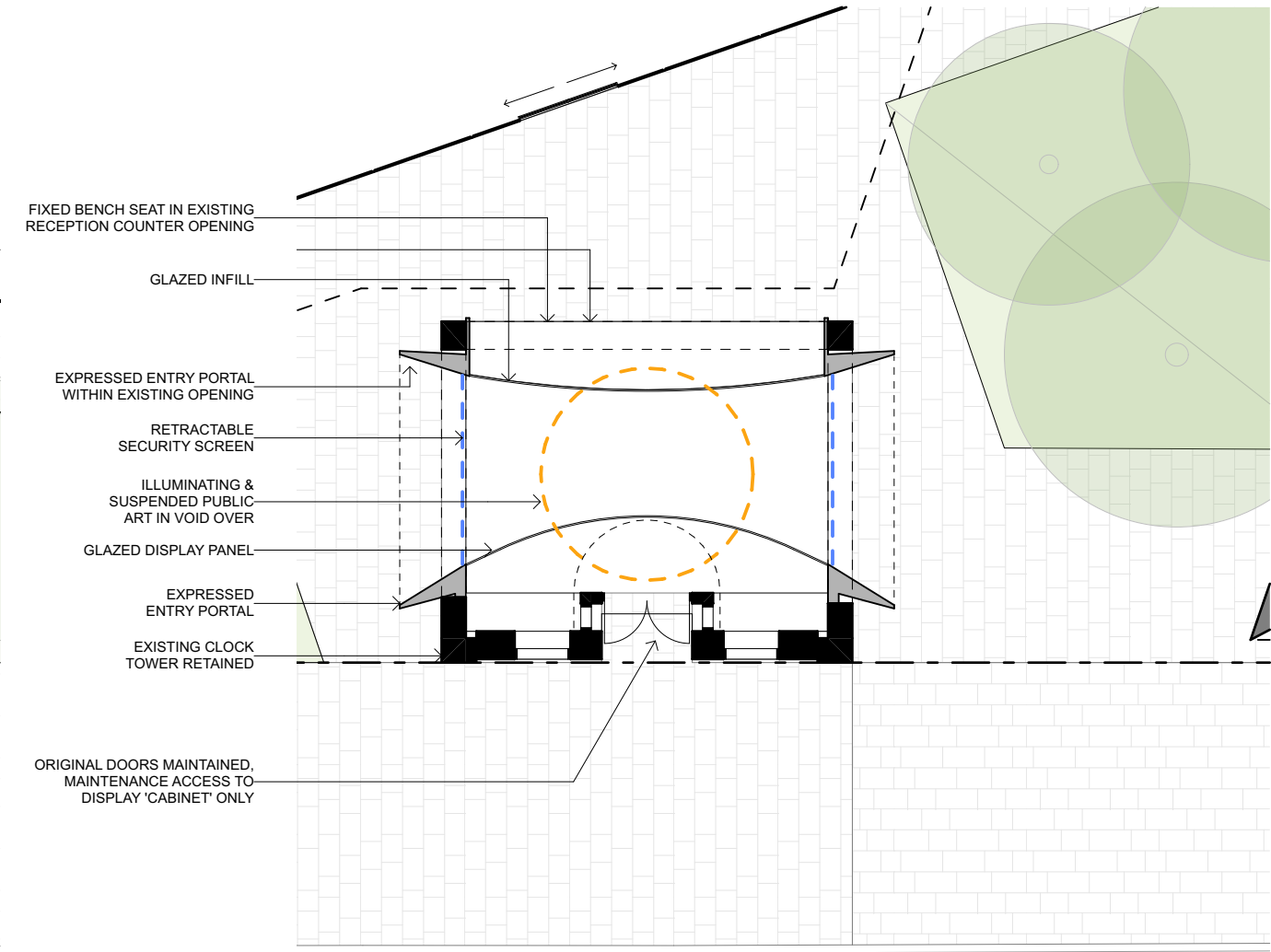
Soffit artwork opportunity

Suspended laneway art

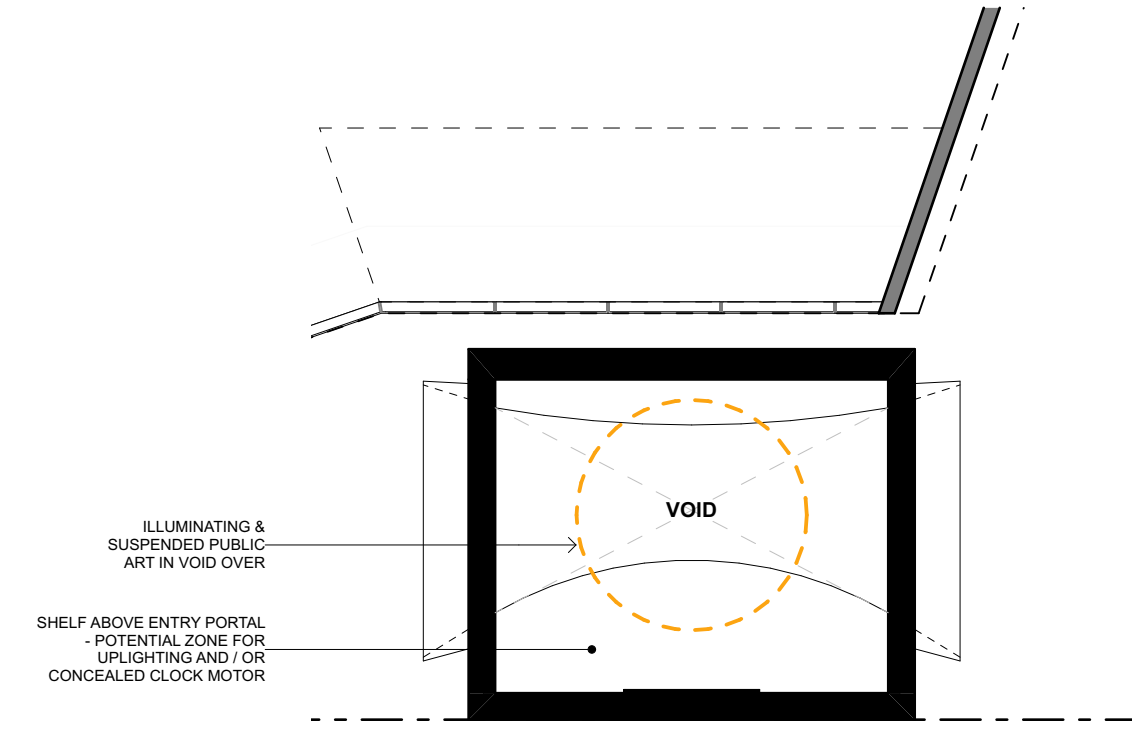


INDICATIVE PRECEDENT IMAGERY ONLY

Clock Tower Public Art Concept



1 Public Art Concept - Ground Floor Plan
SCALE 1:100 @ A1

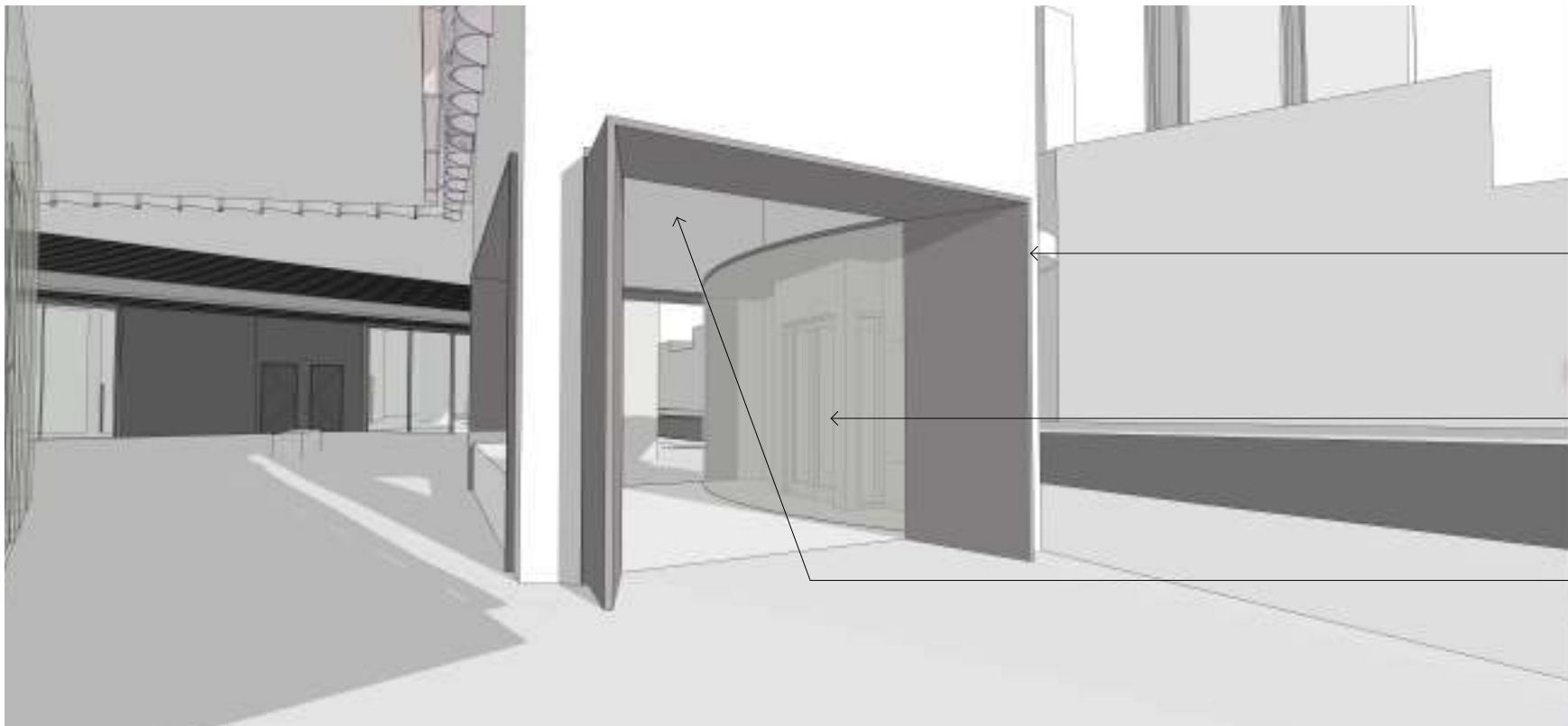


2 Public Art Concept - Plan Mid Tower
SCALE 1:100 @ A1



ENTRY PORTALS
ALIGNED TO AWNING

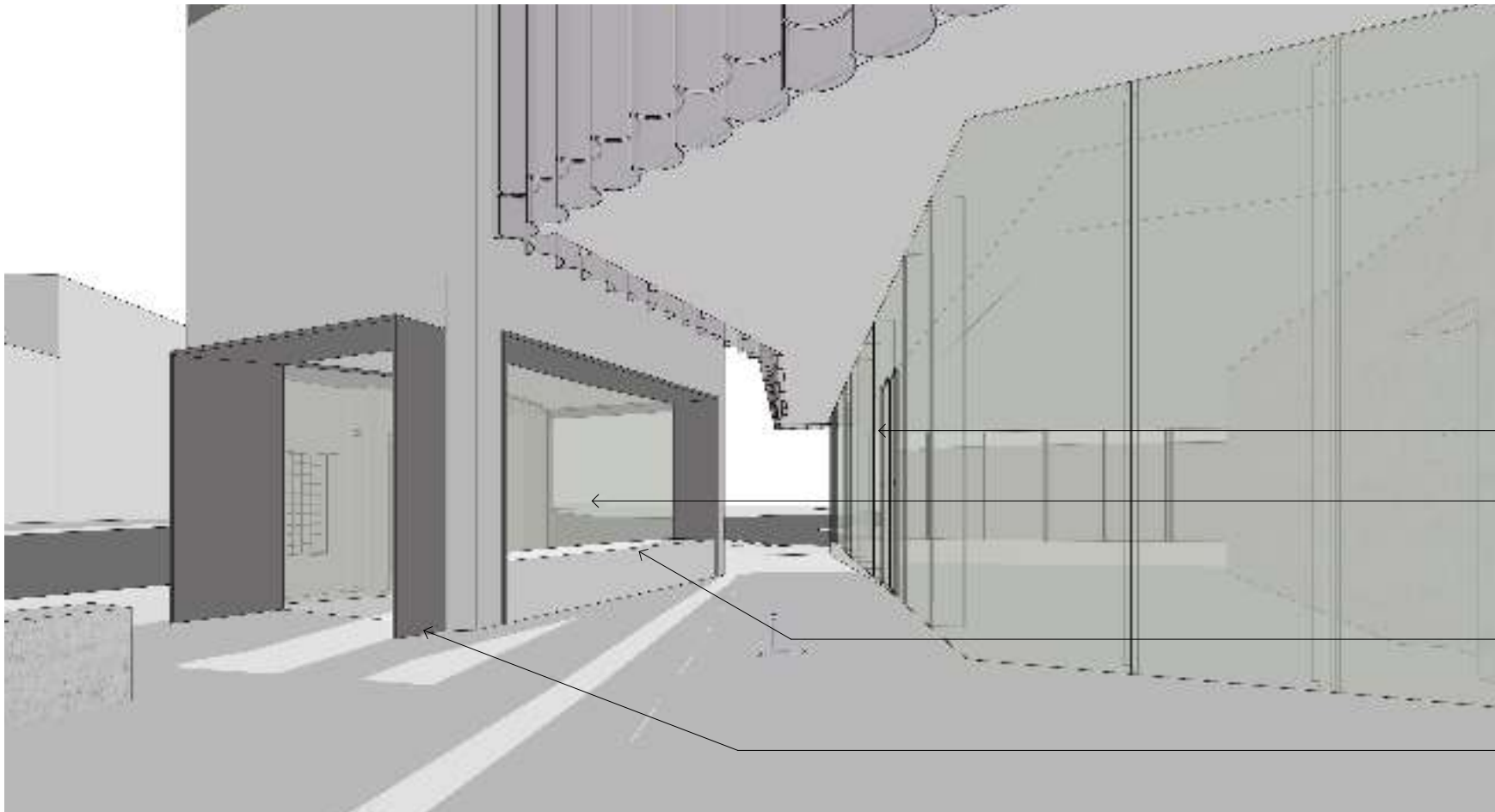
GLAZED DISPLAY SCREENS



ENTRY PORTALS
ALIGNED TO AWNING

GLAZED DISPLAY SCREENS
SIGNIFICANT ELEMENTS PROTECTED & DISPLAYED

VOID TO VIEW SUSPENDED ARTWORK ABOVE



LOBBY ENTRY

GLAZED DISPLAY SCREENS

FIXED SEAT

ENTRY PORTAL WITHIN EXISTING OPENINGS

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Notified Architects: Carve King NSW ARB 7974 / Stuart Campbell NSW ARB 7545

Note 01 Detailed public art installation to be developed in collaboration with Heritage consultant

issue	description	date	verified
A	Issue for Development Application	21/10/21	A
B	Issue for RFI Response	22/3/22	B
E	Issue for RFI Response	30/5/22	E

key plan

consultants

Civil/Structural Engineers

Northrop Consulting Engineers
Level 1, 215 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer

Electrical Projects Australia
588 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer

EVC Consulting Engineers
Suite 101, 470 King St
Newcastle West, NSW, 2302

Hydraulic Engineer

Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client

THIRD GROUP

base Build PTY LTD

NEWCASTLE

1/14 Mac St
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CENTRAL COAST

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project

Dairy Farmers Corner

924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title

Visualisation
Public Art Opportunities

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-8003	E	

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Development Application



1 Ground
SCALE 1:200 @ A1

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- SIGNAGE ZONE 1**
AS1428.1 Compliant Banding Zone
- SIGNAGE ZONE 2**
Residential Lobby Zone
- SIGNAGE ZONE 3**
Retail Wall Mounted Signage
- SIGNAGE ZONE 4**
Commercial & Residential Parking Access Zone
- SIGNAGE ZONE 5**
Commercial Sky Sign Zone
- SIGNAGE ZONE 6**
Statutory Regulation Signage Zone
- SIGNAGE ZONE 7**
Commercial Business / Residential Address Signage Zone
Silhouette / individual lettering only

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants	
Civil/Structural Engineers	Electrical Engineer
Northrop Consulting Engineers Level 1, 225 Pacific Highway Charlestown, NSW, 2280	Electrical Projects Australia 580 Maitland Rd Mayfield, NSW, 2304

Mechanical Engineer	Hydraulic Engineer
EVC Consulting Engineers Suite 101, 470 King St Newcastle West, NSW, 2302	Wallace Design Group PO Box 850 Warners Bay, NSW, 2282



project

Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

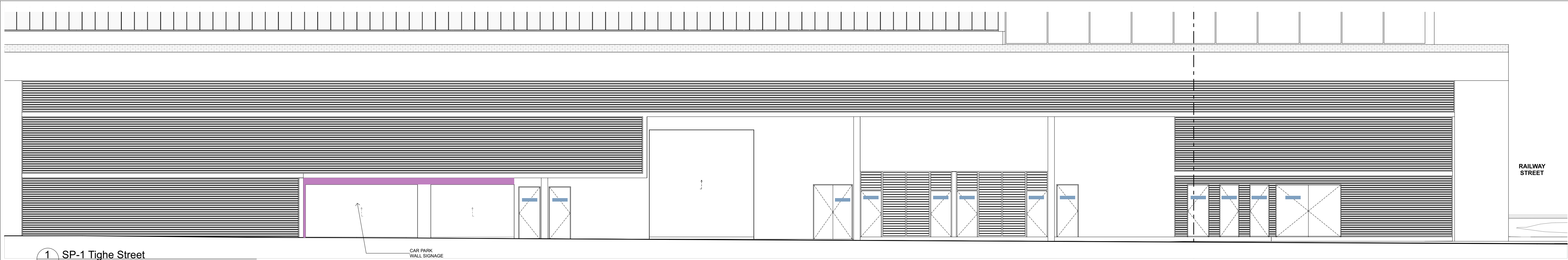
drawing title

**Visualisation
Signage Strategy Plan**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-8004	E	

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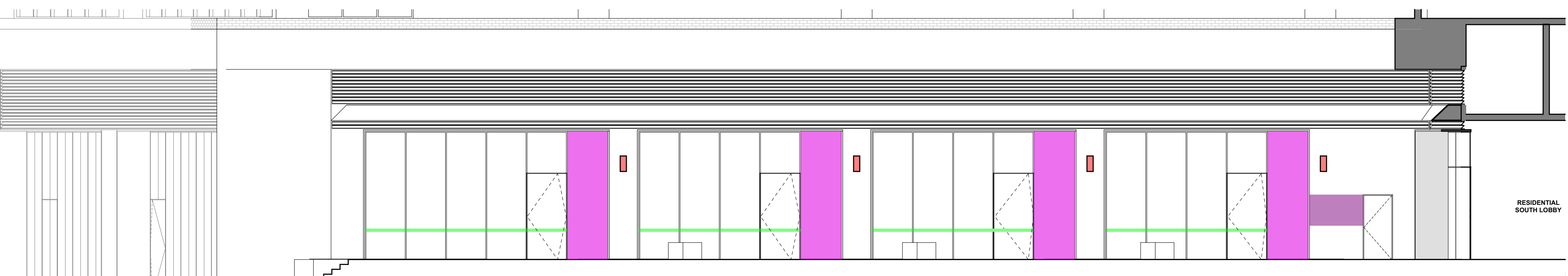
Development Application



1 SP-1 Tighe Street
SCALE 1:100 @ A1



2 SP-2 Railway Street
SCALE 1:100 @ A1



3 SP-3 Laneway 1
SCALE 1:100 @ A1

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Nominated Architects: Cairn King NSW ABN 7974 / Stuart Campbell NSW ABN 7545

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Residential Lobby Zone
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Retail Wall Mounted Signage
- SIGNAGE ZONE 4**
Commercial & Residential Parking Access Zone
- SIGNAGE ZONE 5**
Commercial Sky Sign Zone
- SIGNAGE ZONE 6**
Statutory Regulation Signage Zone
- SIGNAGE ZONE 7**
Commercial Business / Residential Address Signage Zone
Silhouette / individual lettering only

NOTE: APPROXIMATE HEIGHT AND SCALE FOR SKYLINE FORM STUDY ONLY
PHOTOGRAPHS NOT SUPPLIED

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants
Civil/Structural Engineers
Northrop Consulting Engineers
Level 1, 225 Pacific Highway
Charlestown, NSW, 2280

Electrical Engineer
Electrical Projects Australia
588 Mainland Rd
Mayfield, NSW, 2304

Mechanical Engineer
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Suite 101, 470 King St
Newcastle West, NSW, 2302

Hydraulic Engineer
Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client
THIRD GROUP
base Build PTY LTD

CKDS
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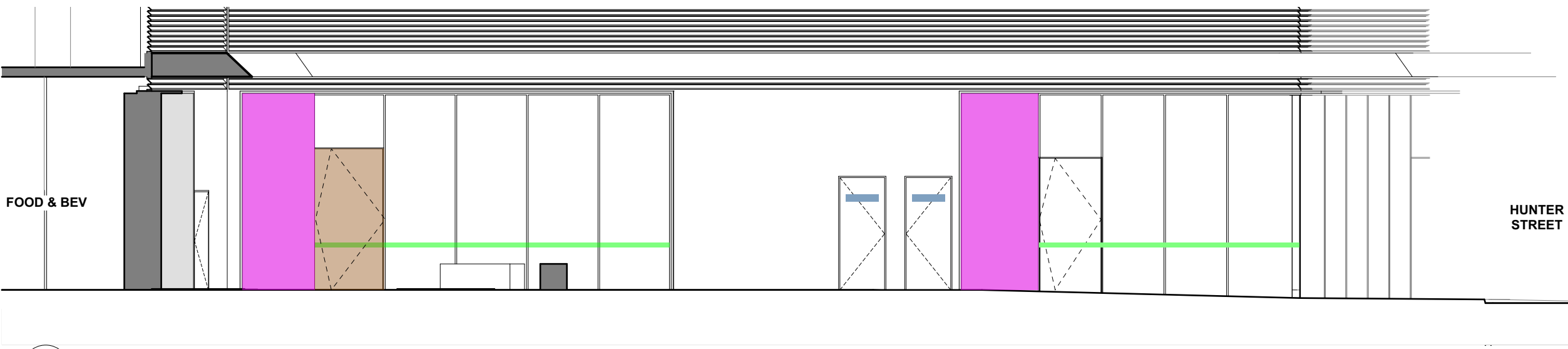
project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
Visualisation
Signage Strategy
Elevation

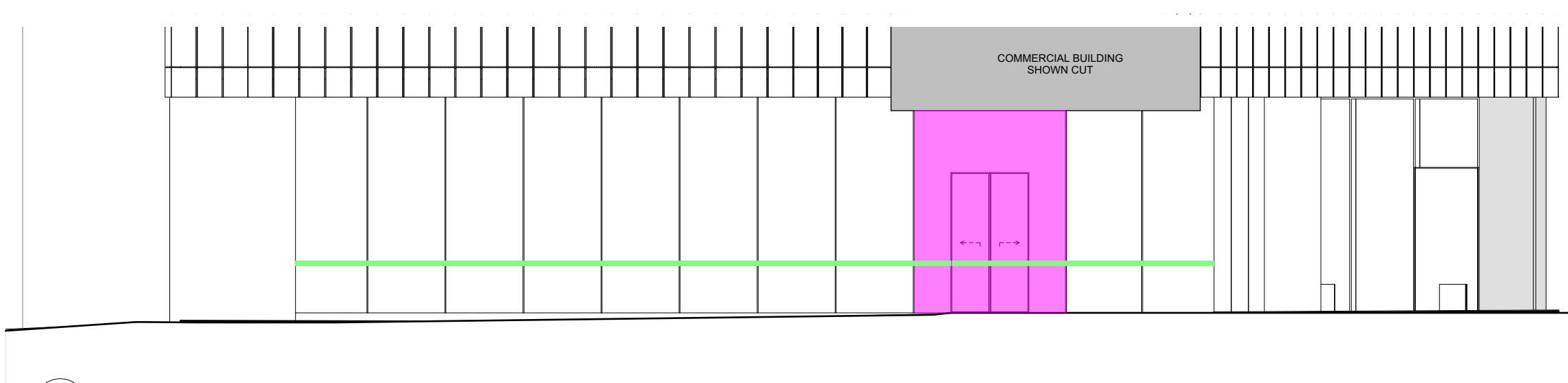
drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-8005	E	

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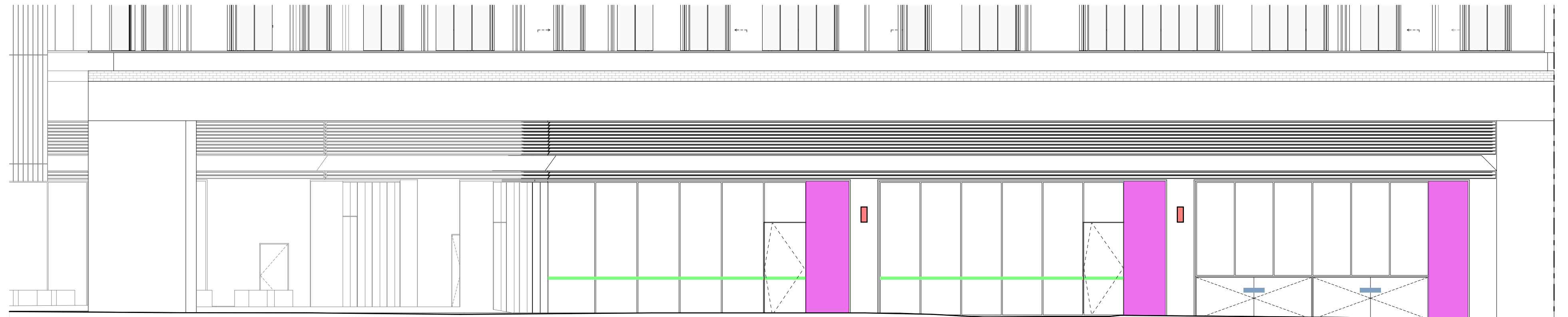
Development Application



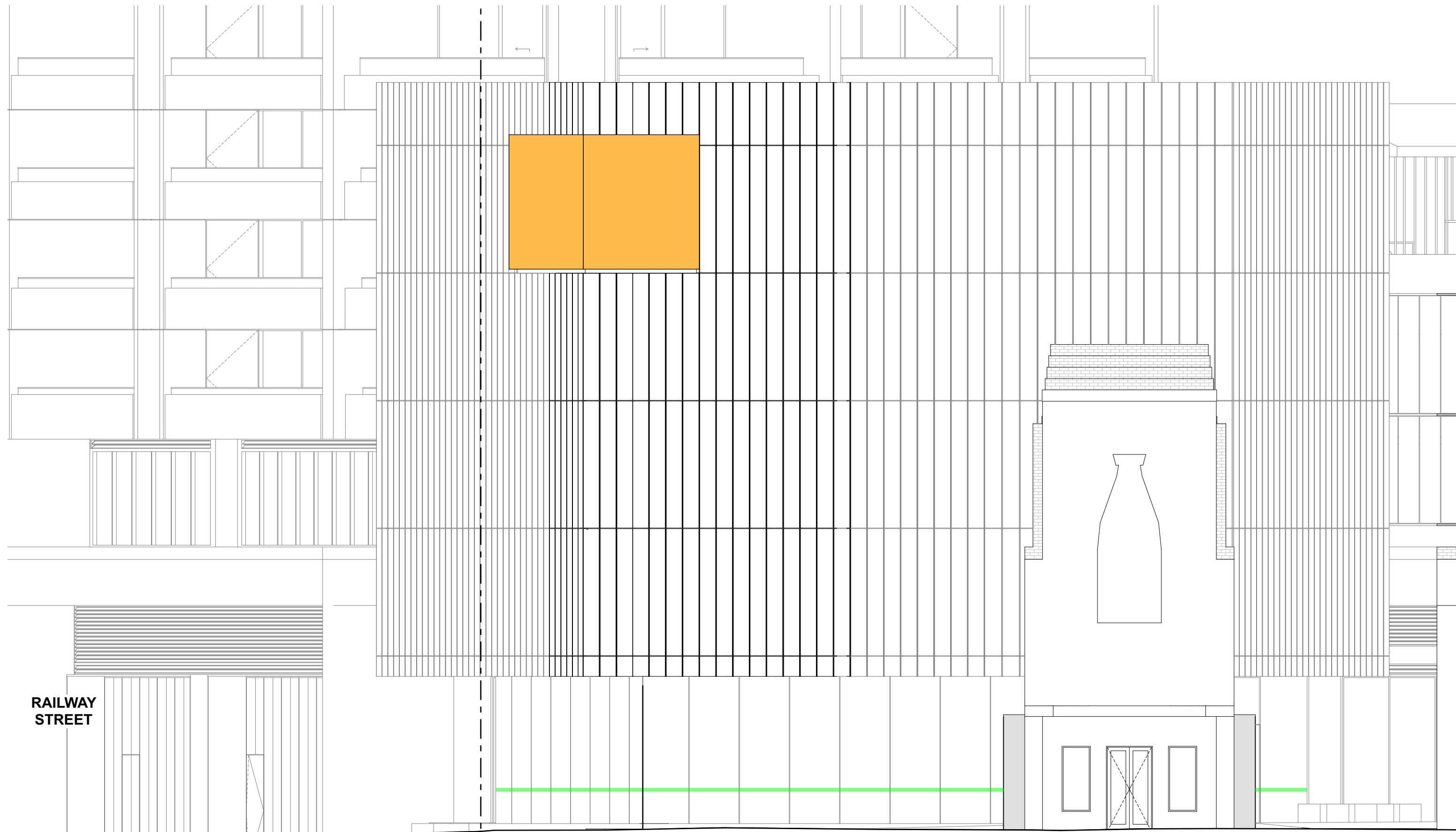
1 SP-4 Laneway 2
SCALE 1:100 @ A1



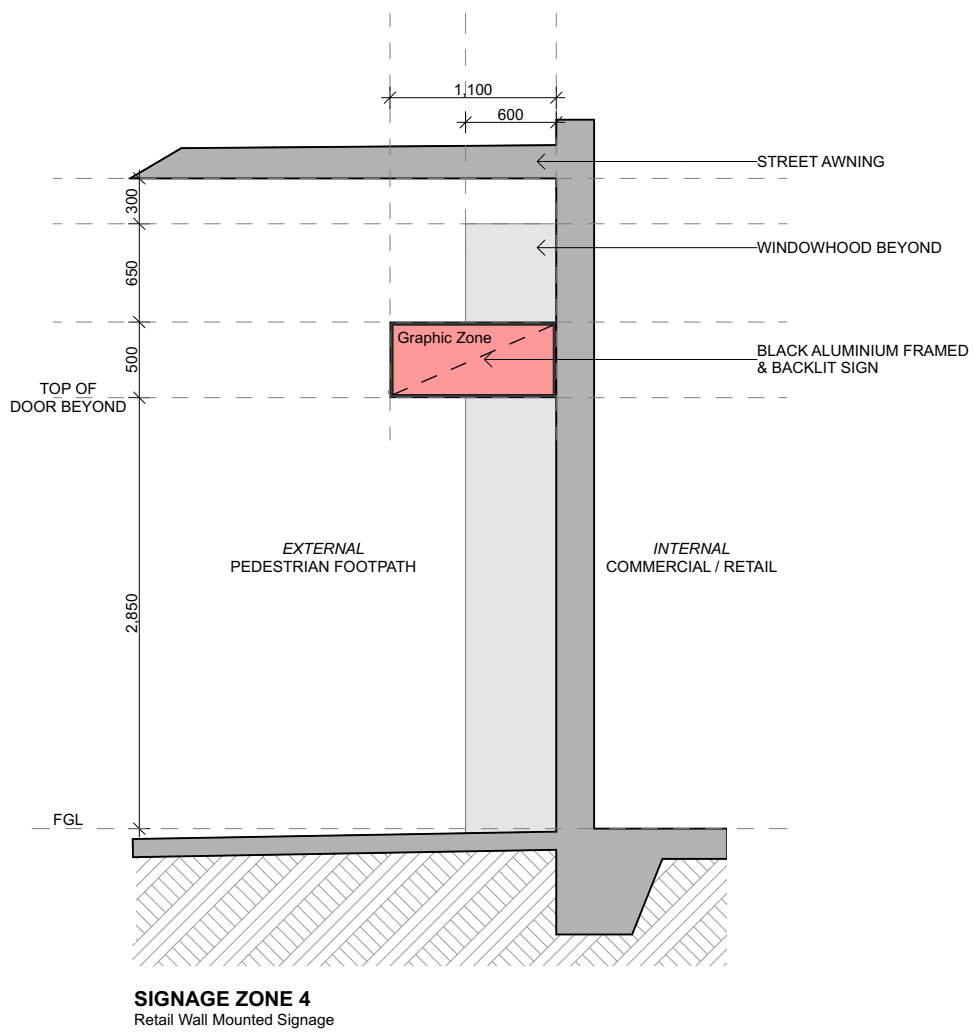
2 SP-5 Commercial 1
SCALE 1:100 @ A1



3 SP-6 Hunter Street
SCALE 1:100 @ A1



4 SP-6 Hunter Street
SCALE 1:100 @ A1



5 Signage Strategy Details
SCALE 1:50 @ A1

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- SIGNAGE ZONE 7**
Commercial Business / Residential Address Signage Zone
Silhouette / individual lettering only

NOTE: APPROXIMATE HEIGHT AND SCALE FOR SKYLINE FORM STUDY ONLY
PHOTOGRAPHS NOT SURVEYED

issue	description	date	verified
A	Issue for RFI Response	22/3/22	A
E	Issue for RFI Response	30/5/22	E

key plan

consultants
Civil/Structural Engineers
Northrop Consulting Engineers
Level 1, 225 Pacific Highway
Charlestown, NSW, 2280

Mechanical Engineer
EVC Consulting Engineers
Suite 101, 470 King St
Newcastle West, NSW, 2302

Electrical Engineer
Electrical Projects Australia
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Mayfield, NSW, 2304

Hydraulic Engineer
Wallace Design Group
PO Box 850
Warners Bay, NSW, 2282

client



project
Dairy Farmers Corner
924 Hunter Street 2/DP445736
Newcastle West NSW 2302

drawing title
**Visualisation
Signage Strategy
Elevation**

drawing scale	drawn	verified	date
AS SHOWN		SC	30/5/22
project #	drawing #	issue	
21014	A-8006	E	

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Development Application

924 HUNTER STREET, NEWCASTLE WEST, NSW, 2302
CIVIL ENGINEERING PACKAGE



LOCALITY PLAN

Sheet Number	Sheet Title
DA-C01.01	COVER SHEET, DRAWING LIST AND LOCALITY PLAN
DA-C02.01	EROSION AND SEDIMENT CONTROL PLAN
DA-C04.01	CIVIL WORKS PLAN
DA-C06.01	VEHICLE SWEEPED PATHS
DA-C09.01	CIVIL DETAILS & STORMWATER MANAGEMENT PLAN

DRAWN: R.HUTCHISON DESIGNED: J.CARROL JOB MANAGER: J.CARROL VERIFIER: C. PIPER

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1	ISSUED FOR APPROVAL	RH	CP	JC	08.10.21	THIRDI DAIRY FARMERS PTY LTD			DAIRY FARMERS CORNER	CIVIL ENGINEERING PACKAGE	NL200577	
2	ISSUED FOR DA APPROVAL	JS	CP	JC	23.03.22							
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD	Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	924 HUNTER STREET NEWCASTLE WEST NSW, 2302	COVER SHEET, DRAWING LIST AND LOCALITY PLAN	DRAWING NUMBER DA-C01.01	REVISION 2
DRAWING SHEET SIZE = A1												

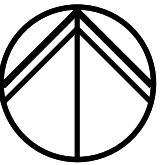
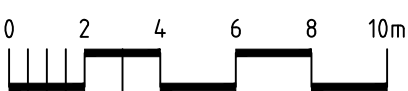
DRAWN: R HUTCHISON
DESIGNED: J CARROL
JOB MANAGER: J CARROL
VERIFIER: C PIPER

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1	ISSUED FOR APPROVAL	RH	CP	JC	08.10.21
2	ISSUED FOR DA APPROVAL	JS	CP	JC	23.03.22

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ARCHITECT

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PROJECT
DAIRY FARMERS CORNER
924 HUNTER STREET NEWCASTLE WEST NSW, 2302

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
EROSION AND SEDIMENT CONTROL PLAN

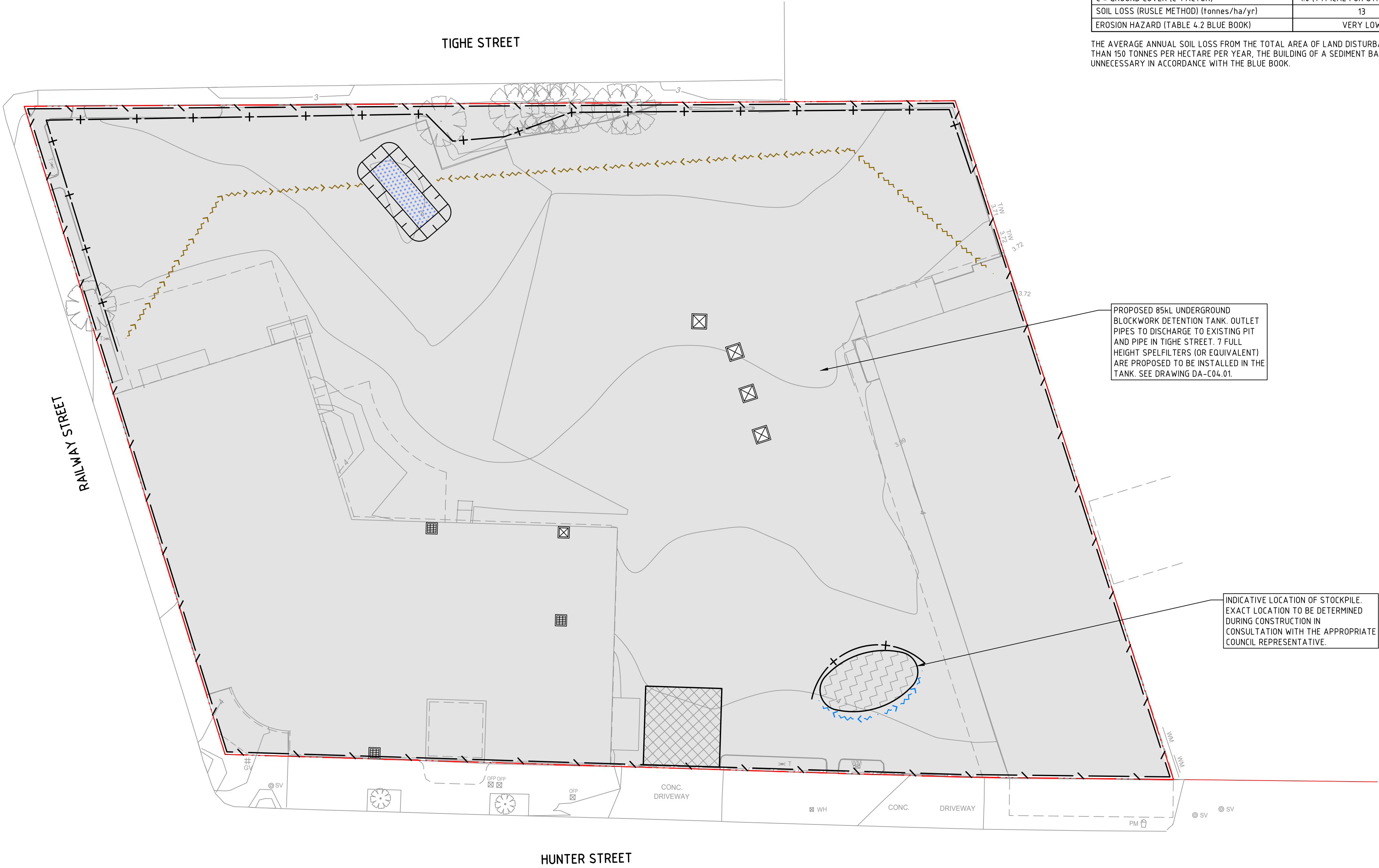
JOB NUMBER
NL200577
DRAWING NUMBER
DA-C02.01
REVISION
2
DRAWING SHEET SIZE = A1

SEDIMENT BASIN SIZING CALCULATION

THE SITE IS LOCATED WITHIN THE HAMILTON SOIL LANDSCAPE AND PRIMARILY CONSISTS OF LOAMY SANDS, WHICH HAS THE FOLLOWING PROPERTIES (IN ACCORDANCE WITH TABLE C13 OF THE "BLUE BOOK"):

SITE PARAMETERS	
CONSTRAINT	VALUE
SEDIMENT TYPE	F
SOIL HYDROLOGY GROUP	A
K = SOIL ERODIBILITY (K-FACTOR)	0.015
R = RAINFALL EROSIIVITY (R-FACTOR)	2115
S = 2 YEAR, 6 HOUR STORM INTENSITY	9.75 mm/hr (NEWCASTLE)
LS = SLOPE LENGTH/GRADIENT	0.315 (55m SLOPE @ 1.8% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	13
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW

THE AVERAGE ANNUAL SOIL LOSS FROM THE TOTAL AREA OF LAND DISTURBANCE IS LESS THAN 150 TONNES PER HECTARE PER YEAR, THE BUILDING OF A SEDIMENT BASIN IS UNNECESSARY IN ACCORDANCE WITH THE BLUE BOOK.



PROPOSED 85kL UNDERGROUND
BLOCKWORK DETENTION TANK. OUTLET
PIPES TO DISCHARGE TO EXISTING PIT
AND PIPE IN TIGHE STREET. 7 FULL
HEIGHT SPELFILTERS (OR EQUIVALENT)
ARE PROPOSED TO BE INSTALLED IN THE
TANK. SEE DRAWING DA-C04.01.

INDICATIVE LOCATION OF STOCKPILE.
EXACT LOCATION TO BE DETERMINED
DURING CONSTRUCTION IN
CONSULTATION WITH THE APPROPRIATE
COUNCIL REPRESENTATIVE.

GENERAL NOTES:

- THE CONTRACTOR SHALL PROVIDE BARRIER/PERSON PROOF FENCE TO THE SITE/THEIR COMPOUND TO ENSURE THE SITE IS MADE SAFE TO THE PUBLIC FOR THE DURATION OF CONSTRUCTION.
- THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN ON THIS PLAN ARE GENERAL SITE MEASURES. ADDITIONAL MEASURES MAY BE REQUIRED AROUND INDIVIDUAL BUILDING ZONES DEPENDENT ON THE SEQUENCE OF CONSTRUCTION.

LEGEND

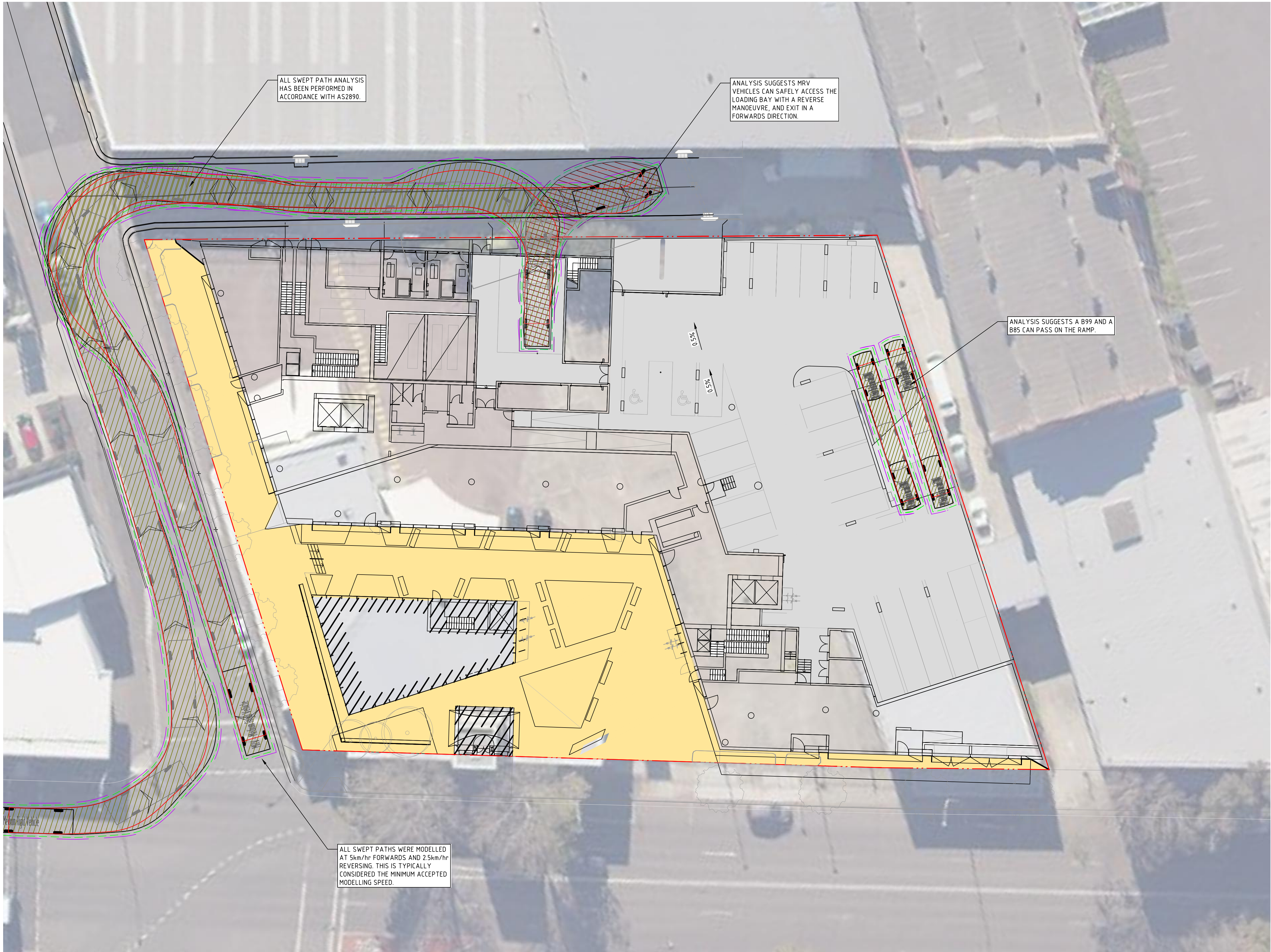
- PROPOSED BOUNDARY LINE
- EXISTING BOUNDARY LINE
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- SANDBAG SEDIMENT FILTER
- DIVERSION DRAIN (CLEAN)
- DIVERSION DRAIN (DIRTY)
- STABILISED SITE ACCESS
- STOCKPILE
- SEDIMENT BASIN
- AREA OF DISTURBANCE

EROSION AND SEDIMENTATION
CONTROL NOTES:

- ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ON-SITE, IN ACCORDANCE WITH THE 'BLUE BOOK' (MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION LANDCOM, 2004), OR OTHER CURRENT RECOGNISED INDUSTRY STANDARDS FOR EROSION AND SEDIMENT CONTROL FOR AUSTRALIAN CONDITIONS. THIS INCLUDES SEDIMENT TRAPS AND LINING OF CHANNELS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION AND SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS AND SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING AND BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
- INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
- ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- INSTALL SEDIMENT FENCING, OR OTHER SEDIMENT CONTROL DEVICES, AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT OR APPROPRIATE COUNCIL OFFICER.
- ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
- THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB AND GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION.
- ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON-SITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE SPREAD ON-SITE AS DIRECTED BY THE SUPERINTENDENT OR REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
- CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
- ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
- PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
- ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.

NOT FOR CONSTRUCTION

DRAWN: R.HUTCHISON
DESIGNED: J.CARROL
JOB MANAGER: J.CARROL
VERIFIER: C.PIPER



LEGEND

PROPOSED BOUNDARY LINE

EXISTING BOUNDARY LINE

B85 VEHICLE WITH CLEARANCE LINES

B99 VEHICLE WITH CLEARANCE LINES

MRV VEHICLE WITH CLEARANCE LINES

VEHICLE SIMULATION DISCLAIMER:

THE TURNING PATHS/TEMPLATES PROVIDED HAVE BEEN PRODUCED USING SIMULATION SOFTWARE AND ARE TO BE USED AS A GUIDE ONLY. THESE SIMULATIONS MAY NOT REFLECT ACTUAL DRIVER BEHAVIOUR AND/OR EXPERIENCE UNDER ACTUAL DRIVING CONDITIONS.

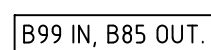
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IF THE USE OF SPECIFIC VEHICLES (NOT DETAILED UNDER AS2890) IS REQUESTED, IT IS TO BE NOTED THAT THEIR DIMENSIONS AND MANOEUVRING CHARACTERISTICS HAVE BEEN INTERPRETED INTO THE SIMULATION SOFTWARE FROM INFORMATION PROVIDED BY SERVICE PROVIDERS AND VEHICLE MANUFACTURERS. NORTHROP ACCEPTS NO RESPONSIBILITY OF THE ACCURACY THESE VEHICLE MOVEMENTS, AND ANY MANOEUVRES PROVIDED SHOULD ONLY BE USED AS A GUIDE WITH ACTUAL DESIGN BEING BASED AROUND ENGINEERING ADVICE AND AUSTRALIAN STANDARDS.

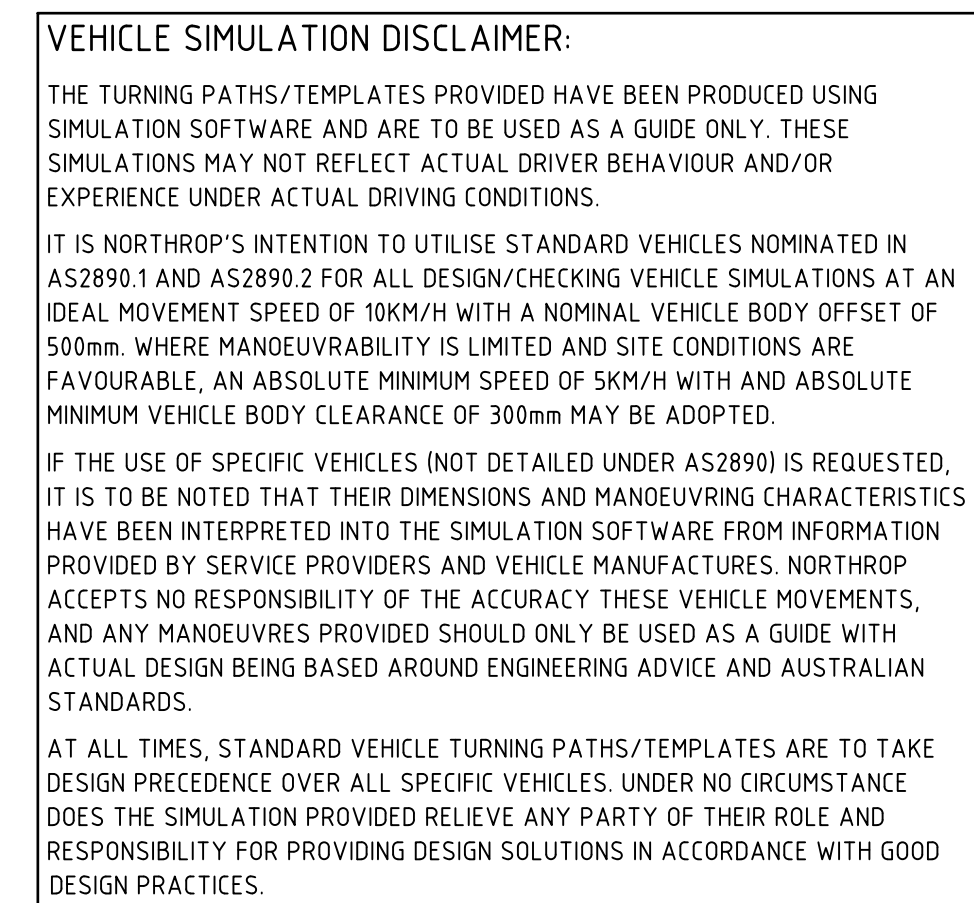
AT ALL TIMES, STANDARD VEHICLE TURNING PATHS/TEMPLATES ARE TO TAKE DESIGN PRECEDENCE OVER ALL SPECIFIC VEHICLES. UNDER NO CIRCUMSTANCE DOES THE SIMULATION PROVIDED RELIEVE ANY PARTY OF THEIR ROLE AND RESPONSIBILITY FOR PROVIDING DESIGN SOLUTIONS IN ACCORDANCE WITH GOOD DESIGN PRACTICES.

NOT FOR CONSTRUCTION

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1	ISSUED FOR APPROVAL		RH	CP	JC	08.10.21	THIRDI DAIRY FARMERS PTY LTD			Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	DAIRY FARMERS CORNER	CIVIL ENGINEERING PACKAGE	NL200577			
2	ISSUED FOR DA APPROVAL		JS	CP	JC	23.03.22							DRAWING NUMBER	REVISION		
3	ISSUED FOR DA APPROVAL		JS	CP	JK	23.05.22							DA-C06.01	3		
							DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD		924 HUNTER STREET NEWCASTLE WEST NSW, 2302		VEHICLE SWEEP PATHS		DRAWING SHEET SIZE = A1		



ALL SWEEP PATH ANALYSIS
HAS BEEN PERFORMED IN
ACCORDANCE WITH AS2890.



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DRAWN: R.HUTCHISON

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	 ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.	PROJECT	DRAWING TITLE	JOB NUMBER	
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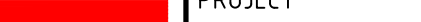
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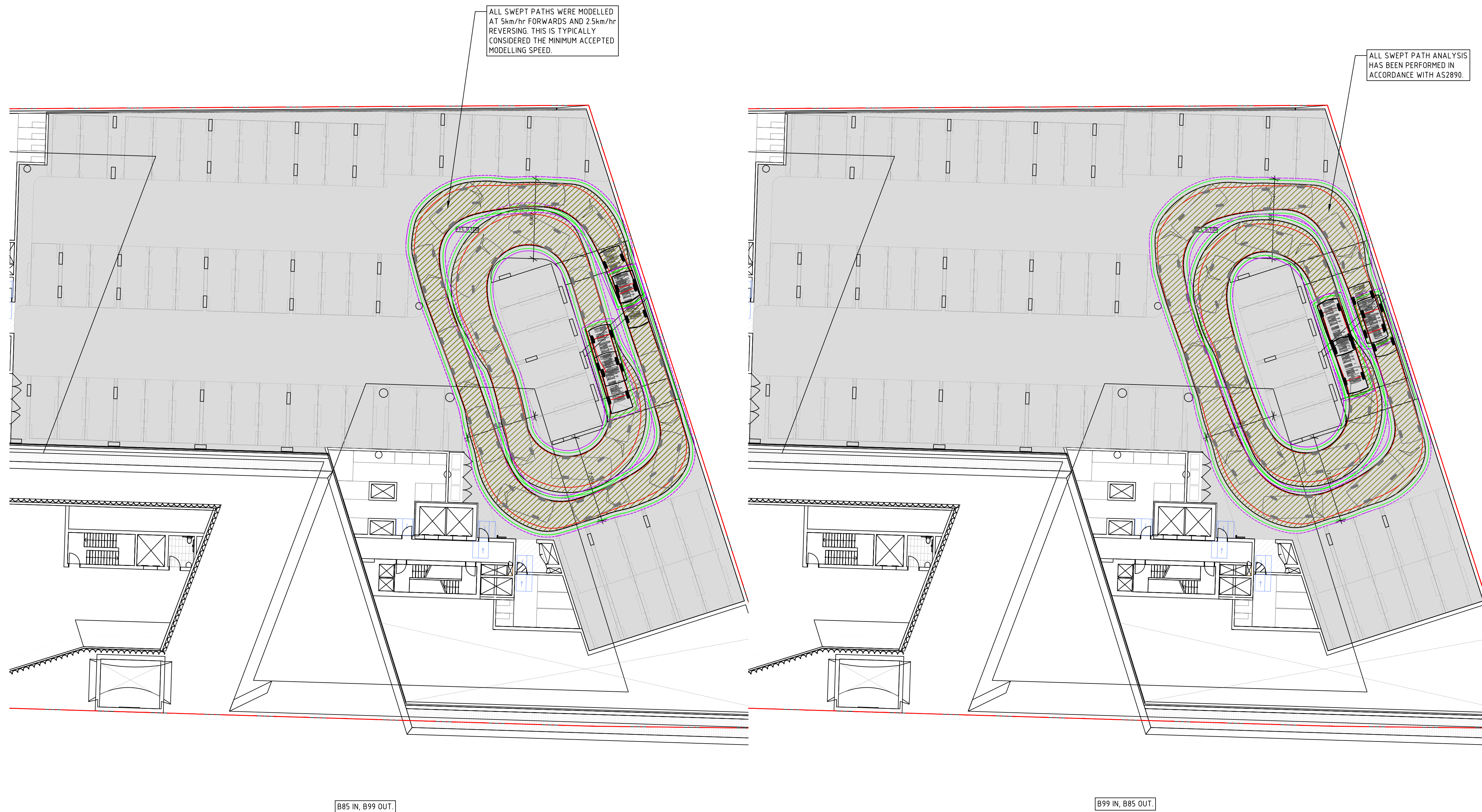
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B99 IN, B85 OUT.

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1		ISSUED FOR DA APPROVAL	GC	CP	JK	23.05.22	THIRDI DAIRY FARMERS PTY LTD			ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.  SCALE 1:200@A1	DAIRY FARMERS CORNER	CIVIL ENGINEERING PACKAGE	NL200577					
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DRAWN: R.HUTCHISON DESIGNED: J.CARROL JOB MANAGER: J.CARROL VERIFIER: C. PIPER



LEGEND

The diagram illustrates the clearance requirements for two vehicle types, B85 and B99, relative to an existing boundary line and a proposed boundary line.

- Legend:**
 - PROPOSED BOUNDARY LINE:** Indicated by a red dashed line.
 - EXISTING BOUNDARY LINE:** Indicated by a black dashed line.
- B85 VEHICLE WITH CLEARANCE LINES:** A side-view diagram of a B85 vehicle. The vehicle is shown with a yellow body and black wheels. A green dashed line represents the clearance boundary, which is wider than the existing boundary line (black dashed line). The proposed boundary line (red dashed line) is shown above the vehicle.
- B99 VEHICLE WITH CLEARANCE LINES:** A side-view diagram of a B99 vehicle. The vehicle is shown with a yellow body and black wheels. A green dashed line represents the clearance boundary, which is wider than the existing boundary line (black dashed line). The proposed boundary line (red dashed line) is shown above the vehicle.

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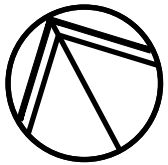
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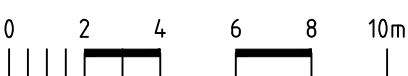
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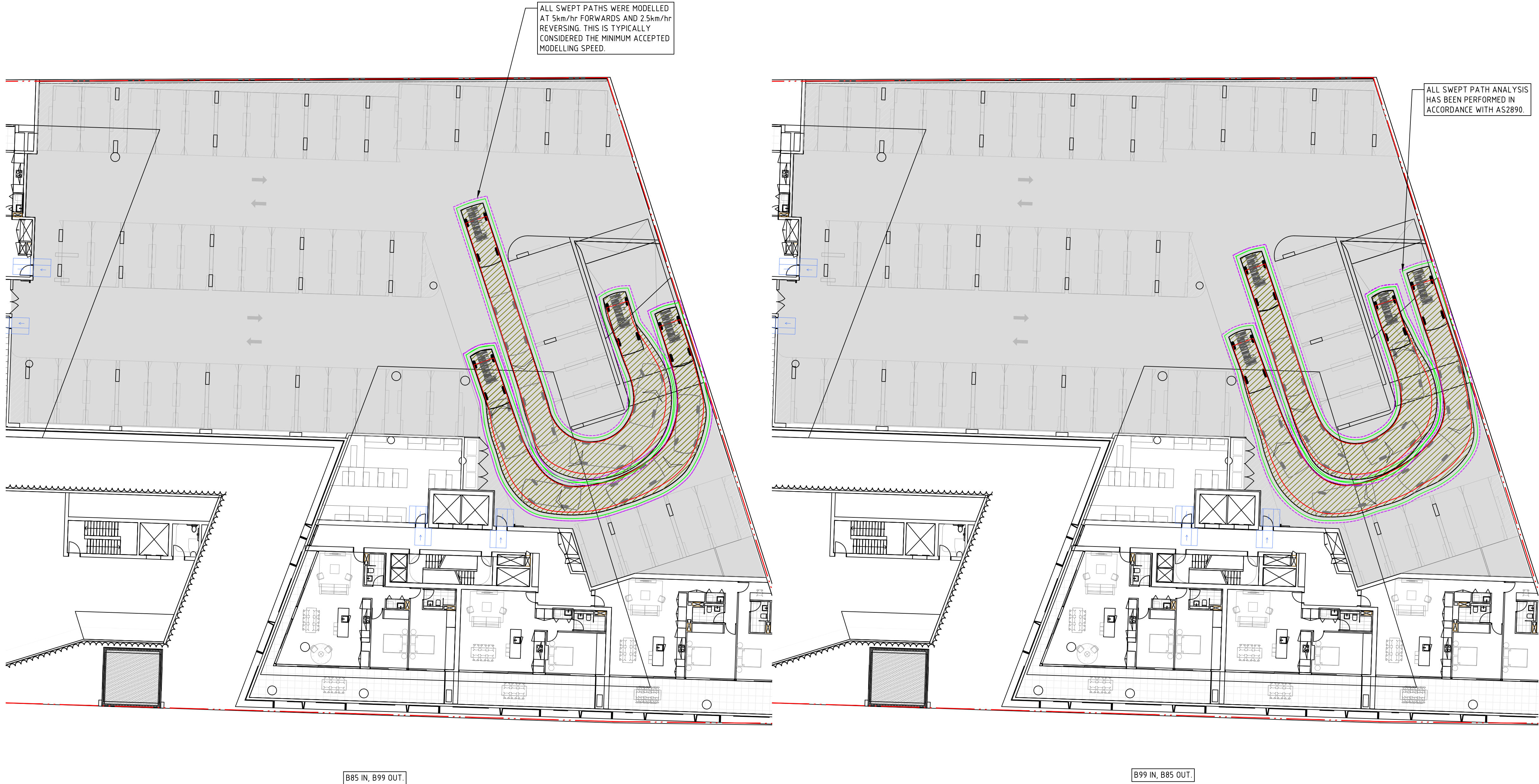
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ABN 81 094 433 100

PROJECT
DAIRY FARMERS CORNER
924 HUNTER STREET NEWCASTLE WEST NSW, 2302

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
VEHICLE SWEEP PATHS - LEVEL 3

DRAWING NUMBER	REVISION
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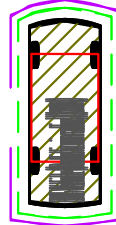
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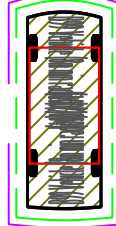
PROPOSED BOUNDARY LINE



EXISTING BOUNDARY LINE



B85 VEHICLE WITH CLEARANCE LINES



B99 VEHICLE WITH CLEARANCE LINES

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VERIFIER: C PIPER
JOB MANAGER: J CARROL
DESIGNED: J CARROL
DRAWN: R HUTCHISON

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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2	ISSUED FOR APPROVAL	RH	CP	JC	13.10.21
3	ISSUED FOR DA APPROVAL	JS	CP	JC	23.03.22
4	ISSUED FOR DA APPROVAL	JS	CP	JC	27.05.22

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PROJECT	DAIRY FARMERS CORNER
	924 HUNTER STREET NEWCASTLE WEST NSW, 2302

DRAWING TITLE	CIVIL ENGINEERING PACKAGE
	CIVIL DETAILS & STORMWATER MANAGEMENT PLAN

JOB NUMBER	
NL200577	
DRAWING NUMBER	REVISION
DA-C09.01	4
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STORMWATER MANAGEMENT PLAN

STORMWATER SUMMARY

NORTHROP CONSULTING ENGINEERS HAVE PREPARED A CONCEPT STORMWATER MANAGEMENT PLAN FOR THE PROPOSED DEVELOPMENT ON LOT 1 DP1091173, 924 HUNTER STREET, NEWCASTLE. THE PLAN HAS BEEN DEVELOPED IN ACCORDANCE WITH NC'S 2012 DEVELOPMENT CONTROL PLAN SECTION 7.06 AND CN'S STORMWATER AND WATER EFFICIENCY FOR DEVELOPMENT TECHNICAL MANUAL.

THE SITE HAS AN AREA OF APPROXIMATELY 3,941m². THE PROPERTY FALLS TO THE NORTH-WEST WITH AN AVERAGE GRADE OF 1.8%. THE SITE CURRENTLY CONSISTS OF COMMERCIAL BUILDINGS AND A CARPARK. THE DEVELOPMENT PROPOSES THE CONSTRUCTION OF TWO RESIDENTIAL TOWERS AND ONE COMMERCIAL TOWER, WITH A COMMUNAL LANDSCAPED PODIUM LEVEL AND GROUND LEVEL RETAIL.

THE PROPOSED STORMWATER MANAGEMENT PHILOSOPHY CAN BE SUMMARISED AS FOLLOWS:

- ALL ROOF WATER IS TO BE CONNECTED TO AN UNDERGROUND RAINWATER HARVESTING SYSTEM. A MINIMUM REUSE VOLUME OF 15kL IS TO BE PROVIDED FOR LANDSCAPE IRRIGATION AND WASHING TAP POINTS IN WASTE ROOM, COMMON PROPERTY CARPARK LEVELS, STORAGE CAGE ROOM, GROUND FLOOR AND LEVEL 4 COMMUNAL TOILETS.
- OVERFLOW FROM THE REUSE TANKS AND PODIUM LEVEL RUNOFF IS TO BE DIRECTED TO A 91kL DETENTION TANK TO MITIGATE STORMWATER FLOWS OFF SITE. CAPTURED WATER FROM THE SOUTH-WESTERN HARDSTAND AREA WILL ALSO BE DIRECTED TO THE DETENTION TANK.
- OVERFLOW FROM THE DETENTION TANK WILL BE CONNECTED TO THE COUNCIL STORMWATER NETWORK VIA AN EXISTING STORMWATER PIT IN TIGHE STREET.
- 7 SPELFILTERS (OR EQUIVALENT) ARE PROPOSED TO BE INSTALLED WITHIN THE DETENTION TANK TO REMOVE SEDIMENT, GROSS POLLUTANTS AND CHEMICALS SUCH AS PHOSPHOROUS AND NITROGEN FROM THE STORMWATER PRIOR TO DISCHARGING FROM SITE.
- APPROXIMATELY 165m² (~4%) OF EXTERNAL PATHWAY SURROUNDING THE BUILDING IS PROPOSED TO BYPASS THE TREATMENT NETWORK AND ENTER COUNCILS STORMWATER SYSTEM IN RAILWAY STREET VIA SHEET FLOW.

AREA SUMMARY

- TOTAL AREA = 3,941m²
- TOTAL IMPERVIOUS AREA = 3,941m²(100%)
 - o TOTAL ROOF AREA = 1,708m²
 - o TOTAL HARDSTAND AREA = 2,233m²
- TOTAL PERVIOUS AREA = 0m² (DOES NOT INCLUDE ABOVE-GROUND LANDSCAPED AREAS)

ONSITE DETENTION

TO MITIGATE THE EFFECTS OF STORMWATER RUNOFF ON DOWNSTREAM AREAS OF THE LOCAL CATCHMENT, ONSITE DETENTION HAS BEEN PROPOSED. THE FOLLOWING CALCULATIONS WERE USED TO DETERMINE TOTAL REQUIRED VOLUME (BASED ON CoN'S DCP 2014):

- TOTAL IMPERVIOUS AREA = 100% OF TOTAL SITE AREA
- TOTAL MITIGATION DEPTH = 25mm
- TOTAL MITIGATION VOLUME = 3941m² x 25mm = 98.5m³

AS SUCH, A MINIMUM OF 98.5kL IS TO BE PROVIDED. THIS VOLUME HAS BEEN DIVIDED BETWEEN A PROPOSED REUSE TANK AND THE PROPOSED DETENTION TANK (FURTHER DISCUSSED BELOW).

TO SIZE THE OSD TANK, THE POST-DEVELOPED SCENARIO WAS COMPARED TO THE PRE-DEVELOPED SCENARIO USING MODELLING SOFTWARE DRAINS. THE PRE-DEVELOPED SCENARIO WAS MODELLED AS A GREENFIELD SITE AS PER THE NCC DCP. THE MODEL SUGGESTED A TOTAL VOLUME OF 91kL WAS REQUIRED, WITH RESULTS AS PER THE FOLLOWING TABLE:

PRE-DEVELOPED TO POST-DEVELOPED STORMWATER FLOWS			
AEP EVENT	PRE-DEVELOPED SCENARIO (L/s)	POST-DEVELOPED SCENARIO - NO DETENTION (L/s)	POST-DEVELOPED SCENARIO - 91kL DETENTION (L/s)
20%	105	168	96
10%	135	205	114
5%	172	243	131
2%	237	297	152
1%	278	340	170

CONSIDERING THE ABOVE, 91kL OF DETENTION VOLUME WAS DEEMED NECESSARY IN ACCORDANCE WITH THE NCC DCP.

THE DRAINS MODEL ALSO EXAMINED THE EFFECT OF TAILWATER ON THE SYSTEM DURING MAJOR STORM EVENTS. IN THE 1% EVENT, THE EXPECTED FLOOD LEVEL IN TIGHE STREET IS EXPECTED TO PEAK AT 3.30m AHD (AS PER FLOOD CERTIFICATE FL2019/00248). WITH TAILWATER AT 3.30m AHD, STORMWATER IS EXPECTED TO SURCHARGE FROM THE ACCESS PITS ABOVE THE OSD TANK. GRADES OF THE CARPARK HAVE BEEN DESIGNED TO DIRECT WATER TO TIGHE STREET IN THE EVENT OF SURCHARGE FROM THE OSD TANK.

SITE SPECIFIC FLOOD INFORMATION

THE FLOOD CERTIFICATE (FL2019/00248) OBTAINED FROM NCC INDICATES THAT THE SITE IS LOCATED IN A FLOOD PRONE AREA, AND MAY BE IMPACTED BY LOCAL CATCHMENT FLOODING AND OCEAN FLOODING. THE BELOW SUMMARY SHOULD BE READ IN CONJUNCTION WITH THE FLOOD CERTIFICATE, WHICH IS PROVIDED WITH THESE DRAWINGS. THE FLOOD CERTIFICATE WAS DERIVED AS PART OF A NEWCASTLE CITY WIDE FLOODPLAIN MANAGEMENT PLAN, AND NOTED THE FOLLOWING REGARDING FLOODING AT THE SITE.

FLOOD CERTIFICATE INFORMATION	
IS ANY PART OF THE SITE AFFECTED BY A FLOODWAY?	NO
IS ANY PART OF THE SITE AFFECTED BY A FLOOD STORAGE AREA?	NO
ESTIMATED 1% ANNUAL EXCEEDANCE PROBABILITY EVENT LEVEL:	4.3m AHD (HUNTER STREET FRONTAGE) 3.3m AHD (NORTHERN FRONTAGE)
ESTIMATED MAXIMUM FLOW VELOCITY OF FLOODWATERS	0.7m/s
HIGHEST PROPERTY HAZARD CATEGORY	P2
ESTIMATED PROBABLE MAXIMUM FLOOD LEVEL (LOCAL CATCHMENT FLOODING)	4.4m AHD (HUNTER STREET FRONTAGE) 3.4m AHD (NORTHERN FRONTAGE) (VELOCITY 1.1m/s)
ESTIMATED PROBABLE MAXIMUM FLOOD LEVEL (OCEAN FLOODING)	3.4m AHD
HIGHEST LIFE HAZARD CATEGORY	L2 (H2)
MINIMUM FLOOR LEVEL FOR OCCUPIABLE ROOMS:	4.6m AHD (HUNTER STREET FRONTAGE) 3.4m AHD (NORTHERN FRONTAGE)
IS ONSITE REFUGE REQUIRED?	NO

PLEASE NOTE THAT THE DEVELOPMENT IS NOT AFFECTED BY THE 1% AEP OCEAN FLOODING EVENT.

THE MINIMUM FLOOR LEVELS DEFINED ABOVE PROVIDE A 300mm FREEBOARD ABOVE THE 1% AEP STORM EVENT. DURING MAXIMUM FLOOD EVENTS, THE SITE IS EXPECTED TO REMAIN ABOVE 4.4m AHD AT THE HUNTER STREET FRONTAGE AND 3.4m AHD ALONG THE NORTHERN FRONTAGE, WHICH ARE THE PROBABLE MAXIMUM FLOOD LEVELS DEFINED IN THE FLOOD CERTIFICATE.

PLEASE NOTE THAT THE MINIMUM FLOOR LEVELS SPECIFIED ARE FOR OCCUPIABLE ROOMS. NC'S DCP (CLAUSE 4.0103) SPECIFIES THAT GARAGE LEVELS CAN BE LOWERED BELOW THE 1% AEP EVENT IF THERE ARE VEHICULAR ACCESS CONSTRAINTS. TO COMPLY WITH THE MAXIMUM DRIVEWAY GRADES SPECIFIED IN THE DCP AND TO ENSURE A MAXIMUM 4% GRADE WITHIN THE LOADING DOCK, THE FINISHED FLOOR LEVEL IN THE LOADING DOCK AND CARPARK HAS BEEN LOWERED TO 3.3m AHD (100mm BELOW THE FLOOD HAZARD LEVEL). AS SUCH, DURING THE 1% AEP EVENT, THE CARPARK AND LOADING DOCK AREAS WOULD HAVE NO FREEBOARD ABOVE THE PEAK FLOOD LEVEL.

THE PROPERTY HAZARD AND LIFE HAZARD DEFINED IN THE TABLE SUGGEST THE LOT IS HYDRAULICALLY SUITABLE FOR PARKED OR MOVING HEAVY VEHICLES AND WADING BY ABLE-BODIED ADULTS DURING FLOOD EVENTS (AS PER THE NC DCP 2012).

BASED ON THE INFORMATION PROVIDED BY THE FLOOD CERTIFICATE AND AS OUTLINED ABOVE, THE LOT MEETS THE "DEVELOPMENT STANDARD FOR FLOOD CONTROL LOTS," TO THE EXTENT SPECIFIED WITHIN THE RELEVANT SUBCLAUSE 3.5(1) OR 3A.38(1) OF THE STATE ENVIRONMENTAL PLANNING POLICY (EXEMPT AND COMPLYING DEVELOPMENT CODES) 2008.

ON SITE REUSE

AN ON-SITE STORMWATER HARVESTING AND REUSE SCHEME HAS BEEN DEVELOPED TO PROVIDE IRRIGATION TO THE SITE'S LANDSCAPING AND PROVIDE INTERNAL REUSE IN COMMERCIAL AREAS (VIA WASHOUT TAPS IN STORAGE/WASTE ROOMS, COMMON AREAS AND CARPARKS). REUSE DEMANDS WERE CALCULATED BASED ON TABLE 4.1 IN NCC'S "STORMWATER AND WATER EFFICIENCY FOR DEVELOPMENT TECHNICAL MANUAL", AND WERE MODELLED IN "MUSIC" TO DETERMINE THE TANK SIZE.

A MINIMUM 70% TANK EFFICIENCY IS REQUIRED BASED ON NCC'S MUSICLINK. MUSIC MODELLING SUGGESTED A MINIMUM 15kL OF REUSE VOLUME WAS REQUIRED TO REACH 72% EFFICIENCY BASED THE CALCULATED REUSE DEMANDS. THIS IS ABOVE THE MINIMUM 5kL REUSE VOLUME SPECIFIED IN THE DEVELOPMENT'S BASIX REPORT. AS SUCH, 15kL WAS DEEMED ACCEPTABLE.

WATER QUALITY

IN ORDER TO MINIMISE ANY ADVERSE IMPACTS UPON THE ECOLOGY OF THE DOWNSTREAM WATERCOURSES, STORMWATER TREATMENT DEVICES HAVE BEEN INCORPORATED INTO THE DESIGN OF THE DEVELOPMENT. THE STORMWATER QUALITY REDUCTION TARGETS FOR CITY OF NEWCASTLE LGA HAVE BEEN SUMMARISED IN TABLE 2.

THE PERFORMANCE OF THE PROPOSED WATER QUALITY CONTROL MEASURES WAS ASSESSED AGAINST THESE TARGETS USING THE CONCEPTUAL SOFTWARE MUSIC V6.3.0. THE MODEL WAS DEVELOPED USING RECOMMENDED PARAMETERS PRESENTED IN THE 2015 NSW MUSIC GUIDELINES AND CoN'S MUSIC LINK. A SCHEMATIC OF THE MUSIC MODEL CAN BE SEEN IN FIGURE 1. NORTHROP ENGINEERS CAN PROVIDE THE MUSIC MODEL IF REQUIRED,

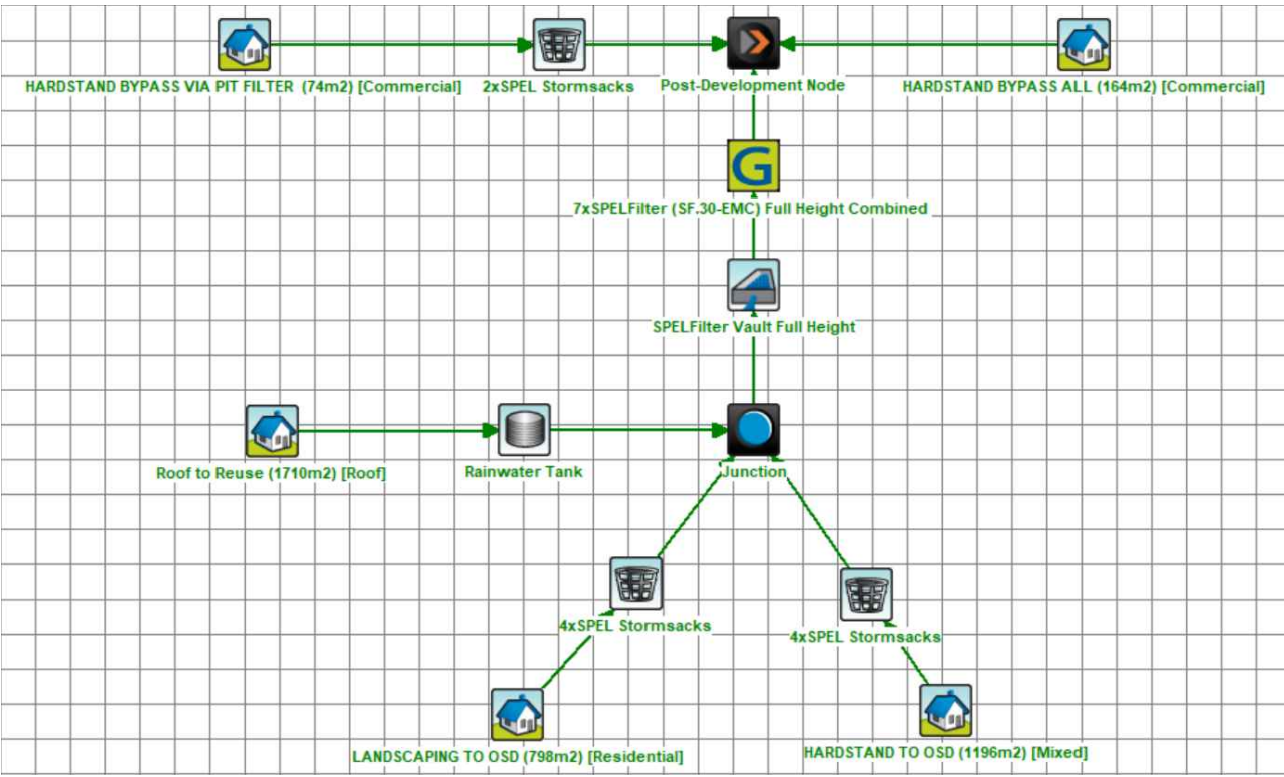


FIGURE 1 – SCHEMATIC OF MUSIC MODEL

THE FOLLOWING IS A SUMMARY OF THE WATER QUALITY TREATMENT DEVICES THAT HAVE BEEN UTILISED WITHIN THE DESIGN:

RAINWATER REUSE TANK - RUNOFF FROM THE PROPOSED ROOF AREAS IS TO BE DIRECTED TO A 15kL REUSE TANK WHICH IS TO BE FITTED WITH A PROPRIETARY FIRST FLUSH DEVICE. CAPTURING THE FIRST PORTION OF RUNOFF FROM THE ROOF, THE FIRST FLUSH DEVICE WILL EFFECTIVELY REMOVE SEDIMENT AND ATTACHED POLLUTANTS. RUNOFF COLLECTED IN THE TANKS IS TO BE REUSED EXTERNALLY FOR LANDSCAPE IRRIGATION, WASHING TAP POINTS IN WASTE ROOM, COMMON PROPERTY, CARPARK LEVELS, STORAGE CAGE ROOM, GROUND FLOOR AND LEVEL 4 COMMUNAL TOILETS. OVERFLOW FROM THE TANKS WILL BE CONNECTED TO THE PROPOSED DETENTION TANK.

- PIT FILTER BASKET - IT IS PROPOSED THAT ONE SPEL STORMSACK PIT FILTER BASKETS (OR APPROVED EQUIVALENT) WILL BE FITTED TO INLET PITS WITHIN HARDSTAND AREAS TO PROVIDE PRIMARY TREATMENT THROUGH THE REMOVAL OF GROSS POLLUTANTS AND ATTACHED NUTRIENTS FROM RUNOFF.
- PROPRIETARY FILTRATION DEVICE - RUNOFF FROM THE PODIUM AND BALCONYS IS TO BE DIRECTED TO THE WATER QUALITY TREATMENT DEVICE. LOW FLOWS WILL BE DIRECTED TO A PRECAST VAULT HOUSING SEVEN SPELFILTER CARTRIDGES (OR APPROVED EQUIVALENT). SEVEN FULL-HEIGHT CARTRIDGES HAVE BEEN DEEMED NECESSARY TO ADEQUATELY REMOVE FINE SEDIMENT AND SUSPENDED NUTRIENTS PRIOR TO DISCHARGE FROM SITE.

TABLE 2 SHOWS THAT THE PROPOSED STORMWATER MANAGEMENT STRATEGY IS PREDICTED TO ACHIEVE THE CN'S LOAD REDUCTION TARGETS, AS ESTIMATED BY MUSIC. A MUSIC-LINK REPORT AND MUSIC MODEL CAN BE PROVIDED ON REQUEST.

POLLUTANT CRITERIA	REDUCTION TARGET (%)	SOURCES (kg/yr)	LOAD (kg/yr)	REDUCTION ACHIEVED (%)
TOTAL SUSPENDED SOLIDS (TSS)	85	353	50.7	85.6
TOTAL PHOSPHOROUS (TP)	65	0.888	0.203	77.1
TOTAL NITROGEN (TN)	45	8.17	3.27	60
TOTAL GROSS POLLUTANTS (GP)	90	85.4	4.37	94.9

TABLE 2 - POLLUTANT LOAD REDUCTIONS

NOT FOR CONSTRUCTION

25 May 2022

NL200577

Catalyst Project Consulting Pty Ltd
Anthony Darcy
5/91 Hannell Street
Wickham NSW 2293

Dear Anthony,

**Re: Dairy Farmers Corner – 918-922 Hunter Street Newcastle – Respond to Council RFI
DA2021/01459 dated 13 May 2022**

Northrop Consulting Engineers have been engaged by Thirdi Dairy Farmers Pty Ltd to undertake concept stormwater management plan suitable for Development Approval submission for the proposed multi-storey development, located at 924 Hunter Street, Newcastle West.

The purpose of this letter is to provide response to Council's RFI dated 13 May 2022, in particular summarised below:

FLOOD MANAGEMENT

- A. *The proposed development will form an obstruction to this current overland flow and flood waters will be diverted elsewhere. The direction of flow arrows are more clearly visible on the PMF extract but you will also note that the 1%AEP flows would seem to not breach a small crest in Hunter St near the eastern site boundary with the potential that all of that part of the 1% AEP flows currently pass to the north through the development site.*

The submitted Flooding Impact Assessment does not adequately assess or demonstrate where these diverted flood water will go or the impact this may have on 'other properties and infrastructure'.

It is noted that this concern was relayed to the Applicant under separate cover also on 3 May 2022. Subsequent telephone discussions on 6 May 2022 with Chris Piper (Northrop) and Luke Mahaffey (LMJA) have resulted in agreement that Northrop will obtain a copy of CN's flood modelling data in order to assist Northrop with preparation of localised flood modelling impacts associated with the proposed works and direct comparisons with existing modelled flood behaviour.

While it is noted that the amended plans submitted have been revised to adopt Finished Floor Levels (FFL) to comply with Flood Certificate (FL2019/00248 issued 04 Dec 2019) and CN's email to the Applicant regarding engineering matters dated 03 Feb 2022, the abovementioned flood modelling will be used to confirm if the existing flood conditions pertinent to the development site are altered, and by what extent, and whether or not further amendments are also required to the FFL's and flood impact mitigation. Final confirmation of FFL's will be provided after review of the flood modelling.

Northrop Response:

Northrop have undertaken a 2D flood assessment utilising Council's flood modelling in this area and will be submitted under a separate cover.

		Date
Prepared by	GC	25/05/2022
Checked by	CP	25/05/2022
Admin	LB	25/05/2022

STORMWATER MANAGEMENT

- B. *It is considered appropriate that this water re-use scheme be extended to includes all toilets and hot water systems (end of trip showers only) on the Ground Floor. In regards to toilet facilities, it is noted that there is only one (1) toilet currently proposed on the Ground Floor, in association with the end-of-trip facilities (it is assumed the other cubicles shown are showers). The plans note that the two proposed Food and Beverage Retail tenancies will be provided with 'amenities to suit future fitout'. Consistent with how pre-provision for sewer will be made for these tenancies at the time of building construction, it is considered appropriate that pre-provisioning for stormwater re-use also be made available. Appropriate conditions of consent could be imposed to this end.*

It is also considered appropriate that the re-use scheme be implemented to the communal spaces on Level 4. Level 4 contains, the proposed Gym, Pilates Studio, Swimming Pool, BBQ Facilities., two Function/Multipurpose rooms and Residence Work From Home space. The only toilet facility on this level (other than within the private dwellings) is a single toilet inside of the Gym room. It is anticipated that additional toilets would be necessary to support the range of uses proposed for Level 4 in order to negate the need for users (other than the gym) to return to their respective dwelling. The Applicant is requested to confirm the number of toilets required to support the range of uses on Level 4 and also demonstrate that;

- a) It is feasible to pump water from the storage tank in the Ground Floor Carpark to Level 4 for use in toilets, landscape irrigation and external cleaning, in which case the proposed 15 kL storage tank may need to be upsized; or*
- b) A separate suitably sized storage tank (possibly an above ground tank) with appropriate stormwater harvesting connections and overflow disposal can be provided to Level 4.*

Northrop Response:

Consideration was given to toilet facility requirements for the communal spaces on level 4. 2 additional unisex toilets are proposed, which will utilise reuse from the ground floor tank.

Advice from the hydraulic engineer is that pumping from the ground floor tank is feasible and is preferred over provided an additional tank on level 4.

The additional toilets were added to the MUSIC model and determined that a 15kL reuse tank is still sufficient to meet the reuse demand in line with Council's Stormwater and Water Efficiency for Development Technical Manual. Detailed calculations and reuse tank sizing will be undertaken as part of detailed design to ensure sufficient tank sizing is provided to meet the reuse demand.

		Date
Prepared by	GC	25/05/2022
Checked by	CP	25/05/2022
Admin	LB	25/05/2022

VEHICULAR ACCESS, CARPARK DESIGN AND DELIVERIES/SERVICING

- b) *As was requested in the Pre-DA letter and the request for Further Information email sent 03 Feb 2022, swept path analysis is required demonstrating that Heavy Rigid Vehicle (HRV) movements associate with the intersection of Tighe St and Railway St and the proposed on-site Loading/Delivery Bay can be satisfactorily accommodated. The amended Civil Engineering Plan (Northrop DA-C06.01 Rev 2) only show swept path analysis for Medium Rigid Vehicles (MRV). Plans are again requested that show the swept path analysis for HRV for the movements previously assessed for MRV. For clarity, such plans are also to show the relevant existing lane and centreline road markings on Hunter St and Railway St and any proposed adjustments to these lane configurations and/or signal detector loops associated with the traffic control signals.*

Northrop Response:

The additional assessment has been undertaken and is included in drawing C06.06. As shown, an HRV is not able to access Tighe St, and it is therefore proposed to limit access to the development to MRV only, as originally nominated. Please refer to traffic engineer responses for further clarification.

- b) *In response to recommendations that the development be modified to integrate facilities to support the trending preference for on-line shopping and food delivery services for the residential component, the amended plans have included a small locker room on the Ground Level. This Locker Room is accessed from the basement carpark and the TPA Report Addendum states that such deliveries can be accommodated in the Commercial/Visitor carparking spaces. It is noted that this approach will preclude deliveries by Small Rigid Vehicles (used predominantly by grocery home delivery providers (Coles, Woolworths etc) as the required height clearance (min. 3.5 m) is not available.*

Northrop Response:

Small Rigid Vehicles will have access to the loading/delivery dock located off Tighe Street. The height of the loading/delivery dock encompasses both the ground and upper ground level carparks and therefore will provide a clearance height of 5.6 m, which is above the required minimum height clearance of 3.5 m. This dock will also provide direct access to the locker room located on the Ground Level. Other delivery vehicles will still be accommodated in the commercial/visitor carparking spaces in the ground floor car park.

- c) *As previously identified, Clause 2.5.2(c) of AS2890.1 requires that areas within a carpark where it may be necessary for two vehicles to pass on a ramp structure, the design is to prove that a B85 vehicle can safely pass a B99 vehicle with relevant clearances. The vehicle turning paths provided on previous Engineering Plan (DA-C06.01 Rev 1) showed an assessment for two B85 vehicles to pass when turning. The amended Civil Engineering Plan (Northrop DA-C06.01 Rev 2) now only shows the B85 and B99 vehicles passing on the straight ramp sections. Additional swept path templates are to be provided proving that these vehicles can pass, with relevant clearances, when turning at the top and bottom of the ramps.*

Northrop Response:

Swept path plans have been included that show a B85 and B99 passing each other at the top and bottom of the ramp for each level, enclosed. As is shown C06.02, sufficient clearances are generally provided in accordance with B3.2 of AS2890.1. Drawing C06.03 and C06.04 shows generally sufficient clearance is provided except for a conflict on the northern corner of each level. Drawing C06.05 shows generally sufficient clearance is provided except for a conflict on the southern corner. Please refer to traffic engineer responses for further clarification.

We trust that the above responses adequately address Council's concerns, however please do not hesitate to contact the undersigned should any further clarification be required.

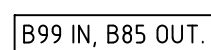
Yours faithfully,



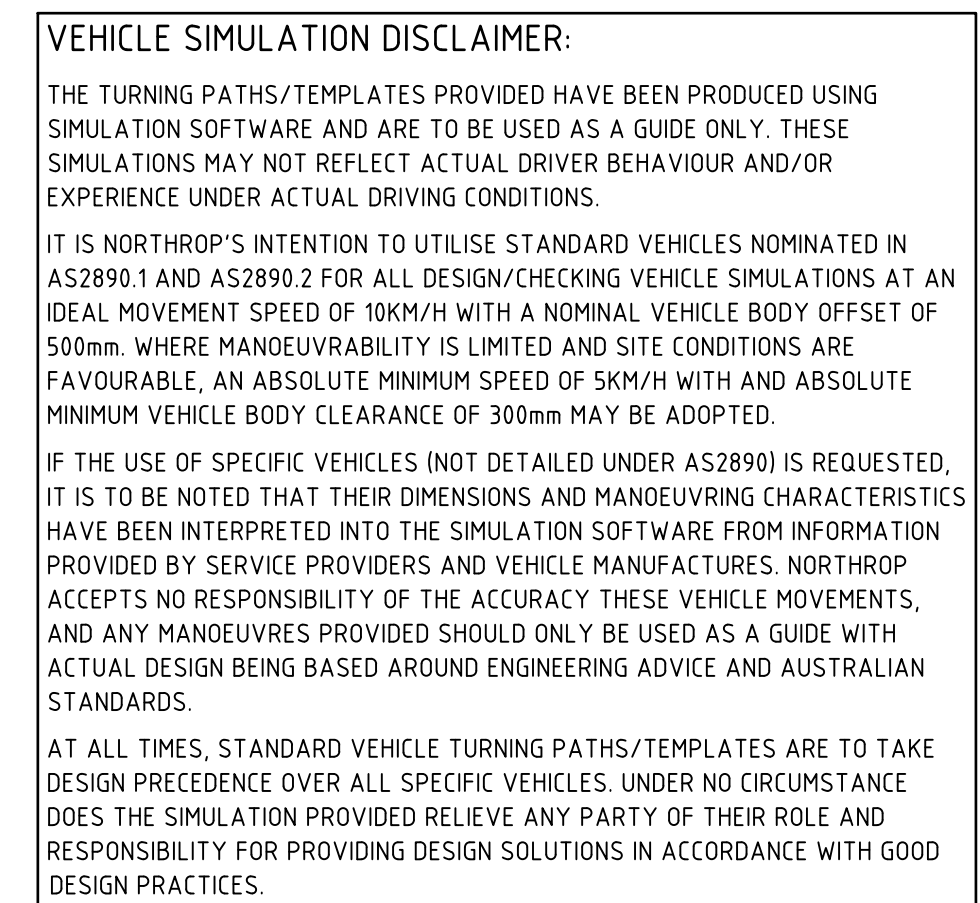
Chris Piper

Principal | Civil Engineer

BEng (Civil) (Hons) MIEAust CPEng NER (Civil)



ALL SWEEP PATH ANALYSIS
HAS BEEN PERFORMED IN
ACCORDANCE WITH AS2890.



THE TURNING PATHS/TEMPLATES PROVIDED HAVE BEEN PRODUCED USING SIMULATION SOFTWARE AND ARE TO BE USED AS A GUIDE ONLY. THESE SIMULATIONS MAY NOT REFLECT ACTUAL DRIVER BEHAVIOUR AND/OR EXPERIENCE UNDER ACTUAL DRIVING CONDITIONS.

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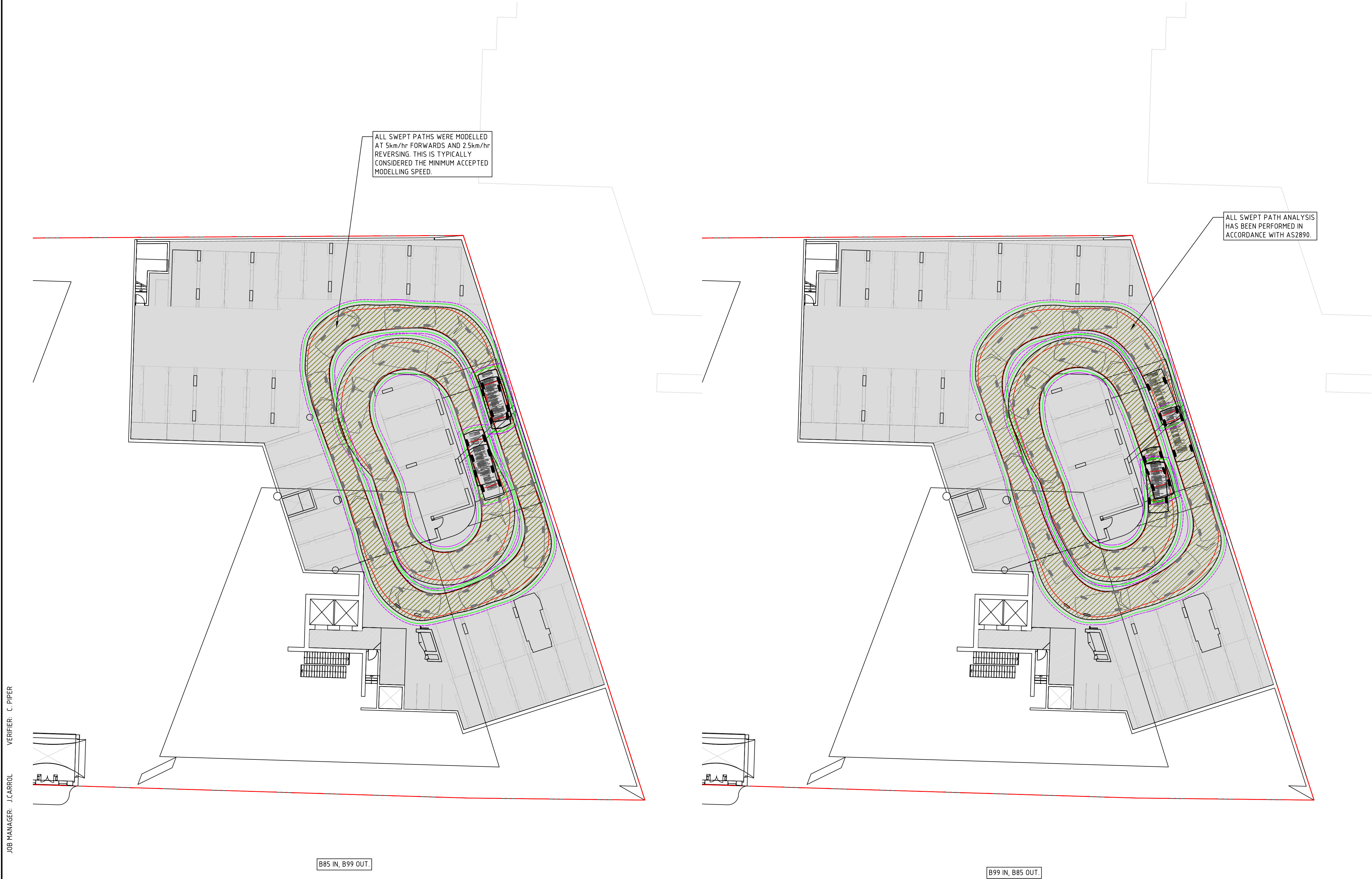
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DRAWN: R.HUTCHISON

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER
1	ISSUED FOR DA APPROVAL	GC	CP	JK	23.05.22	THIRDI DAIRY FARMERS PTY LTD		 ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	DAIRY FARMERS CORNER	CIVIL ENGINEERING PACKAGE	NL200577
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											DRAWING SHEET SIZE = A1

DRAWN: R HUTCHISON
DESIGNED: J CARROL
JOB MANAGER: J CARROL
VERIFIER: C PIPER



LEGEND

PROPOSED BOUNDARY LINE

EXISTING BOUNDARY LINE

B85 VEHICLE WITH CLEARANCE LINES

B99 VEHICLE WITH CLEARANCE LINES

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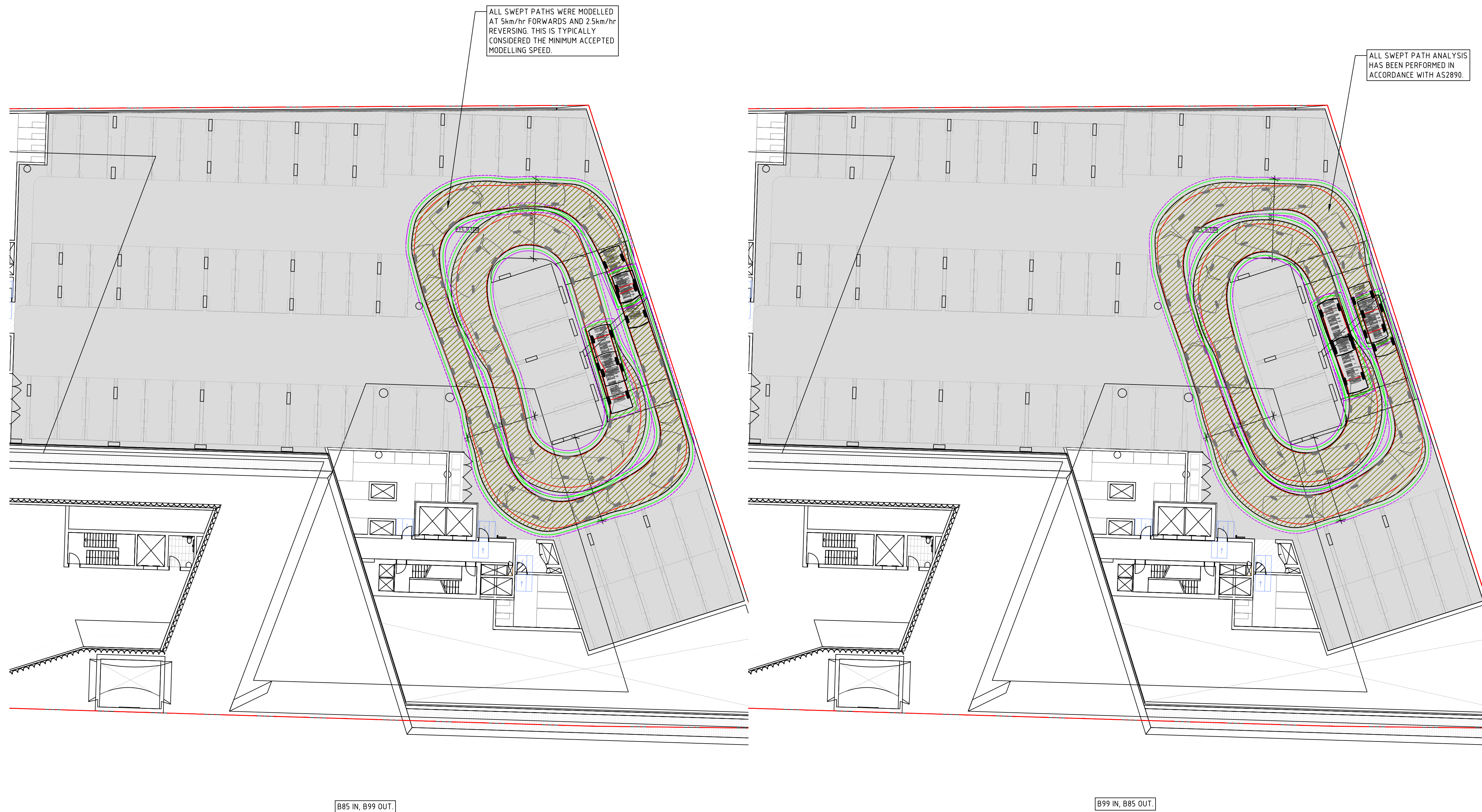
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									Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100							

DRAWN: R.HUTCHISON DESIGNED: J.CARROL JOB MANAGER: J.CARROL VERIFIER: C. PIPER



LEGEND

Diagram illustrating the proposed and existing boundary lines for vehicle clearance. The diagram shows two vehicle outlines, labeled B85 and B99, with their respective clearance lines. The proposed boundary line is shown in red, and the existing boundary line is shown in black. The clearance lines are indicated by dashed lines.

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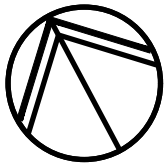
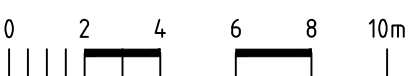
DRAWN: R.HUTCHISON
DESIGNED: J.CARROL
JOB MANAGER: J.CARROL
VERIFIER: C.PIPER

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR DA APPROVAL	GC	CP	JK	23.05.22

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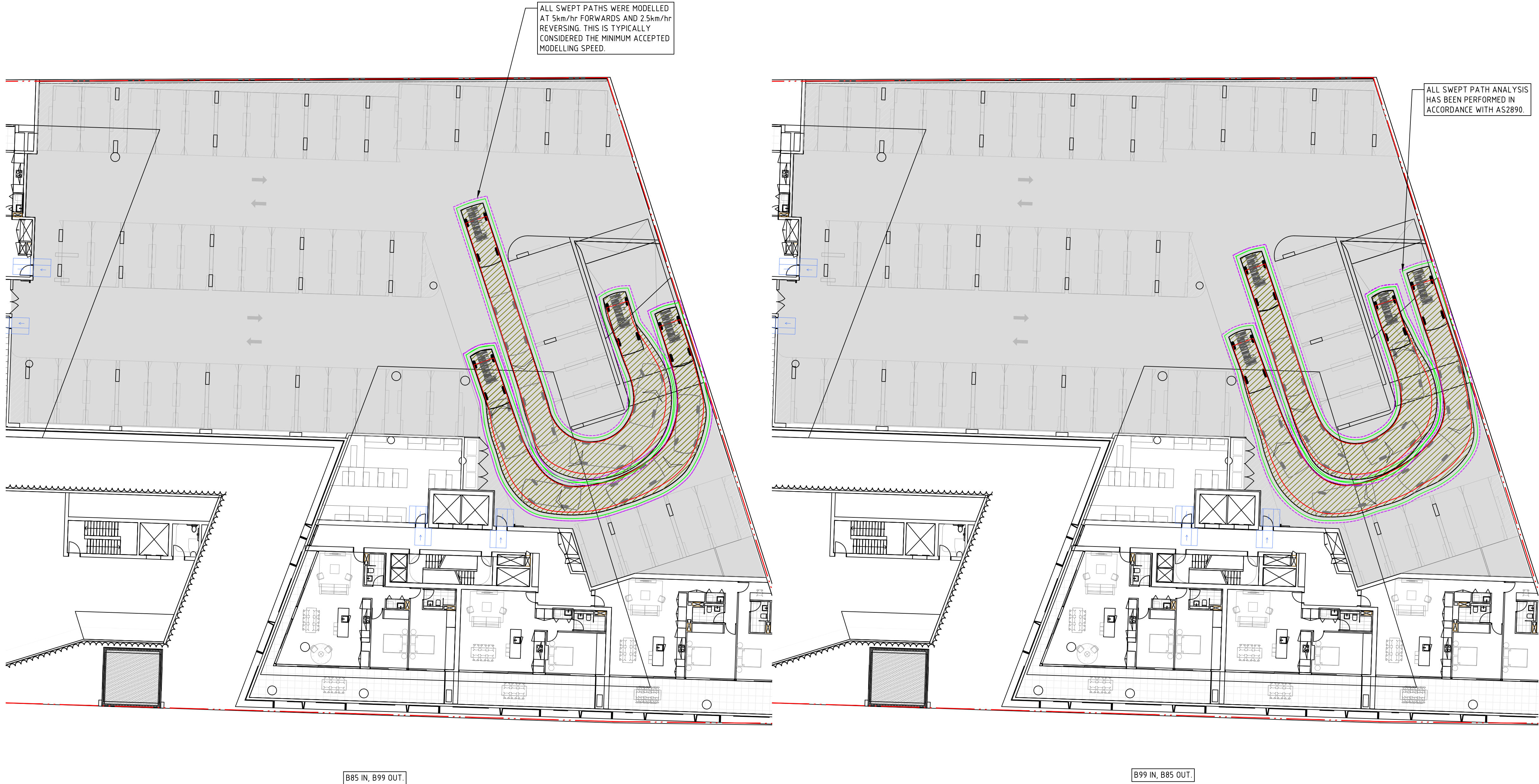
	NORTHROP Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100
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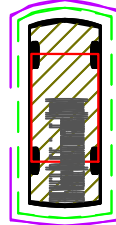
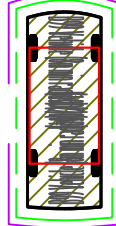
PROJECT
DAIRY FARMERS CORNER 924 HUNTER STREET NEWCASTLE WEST NSW, 2302

DRAWING TITLE
CIVIL ENGINEERING PACKAGE VEHICLE SWEEP PATHS - LEVEL 3

JOB NUMBER	
NL200577	
DRAWING NUMBER	REVISION
DA-C06.05	1
DRAWING SHEET SIZE = A1	

NOT FOR CONSTRUCTION



LEGEND	
	PROPOSED BOUNDARY LINE
	EXISTING BOUNDARY LINE
	B85 VEHICLE WITH CLEARANCE LINES
	B99 VEHICLE WITH CLEARANCE LINES

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1 March 2022

NL200577

Catalyst Project Consulting Pty Ltd
Luke Griffiths
5/91 Hannell Street
Wickham NSW 2293

Dear Luke,

Re: Dairy Farmers Corner – 918-922 Hunter Street Newcastle - Podium Level Structural Design Coordination with Landscape Architect and Hydraulic Engineer

We, Northrop Consulting Engineers Pty Ltd, being professional engineers, can confirm that the structural design sketches completed for Development Application submission included an allowance in the level 4 podium slab for landscaped area loading as well as an allowance for falls to hydraulic floor wastes. In particular, the podium slab at level 4 has allowed for the following:

- In landscaped areas, a loading from soil mixes of up to 1.6kg/L. The proposed soil mix for the project as nominated by the landscape architect is 1.02kg/L.
- In areas that are not landscaped, additional loading for finishes nominated on the architectural documentation have been considered.
- We have allowed for concrete toppings of up to 100mm with rainwater / planter drain outlets being located at maximum 8m centres to maintain a minimum 1:80 fall which aligns with Wallace Design Group's requirements (Ref: 21221-L1)

Yours sincerely,



Gregory Laver
Group Manager | Structural Engineer
BEng (Civil) MIEAust

		Date
Prepared by	GL	01/03/2022
Checked by	MA	01/03/2022
Admin	LB	01/03/2022



CIVIL

Flood Impact Assessment

for

924 Hunter Street, Newcastle West, NSW 2302

for Thirdi Dairy Farmers Pty Ltd

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Discussion	49
Conclusion	50
Appendix A - Correspondence	

Report details

Project: Flood Impact Assessment
924 Hunter Street, Newcastle West, NSW 2302

Project Ref: NL200577_E01

File Location: Y:\YEAR 2020 Jobs\NL200577 - 924 Hunter Street, Newcastle West\E - Reports\NL200577_E01_Flood_Impact_Assessment.docx

Revision History

Revision	Report Status	Prepared	Reviewed	Issue Date
A	Approval	DN	GB	30 May 2022

Limitation Statement

Northrop Consulting Engineers Pty Ltd (Northrop) has been retained to prepare this report based on specific instructions, scope of work and purpose pursuant to a contract with its client. It has been prepared in accordance with the usual care and thoroughness of the consulting profession for the use by Thirdi Dairy Farmers Pty Ltd.

The report is based on generally accepted practices and standards applicable to the scope of work at the time it was prepared. No other warranty, express or implied, is made as to the professional advice included in this report.

Except where expressly permitted in writing or required by law, no third party may use or rely on this report unless otherwise agreed in writing by Northrop.

Where this report indicates that information has been provided to Northrop by third parties, Northrop has made no independent verification of this information except as expressly stated in the report. Northrop is not liable for any inaccuracies in or omissions to that information.

The report was prepared on the dates shown and is based on the conditions and information received at the time of preparation. It makes no comment or assertions on the structures or their ability to withstand flooding or flood forces.

This report should be read in full, with reference made to all sources. No responsibility is accepted for use of any part of this report in any other context or for any other purpose. Northrop does not purport to give legal advice or financial advice. Appropriate specialist advice should be obtained where required.

To the extent permitted by law, Northrop expressly excludes any liability for any loss, damage, cost, or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this report.

		Date
Prepared by	DN	30/05/2022
Checked by	GB	30/05/2022
Admin	LC	30/05/2022

NL200577 / 30 May 2022 / Revision A
Y:\YEAR 2020 Jobs\NL200577 - 924 Hunter Street, Newcastle West\E - Reports\NL200577_E01_Flood_Impact_Assessment_[A]_220530.docx

Introduction

Northrop Consulting Engineers have prepared a Flood Impact Assessment for the proposed development located at 924 Hunter Street, Newcastle West, NSW 2302 - herein referred to as “the subject site”.

This study has been prepared to support the Development Application DA2021/01459 being assessed by the City of Newcastle. The purpose of the assessment was to assess the flood impacts of the proposed development per a request for information (RFI) dated 13 May 2022. Consideration has also been given to flooding requirements outlined in the Newcastle LEP 2012 and Newcastle DCP 2012 Section 4.01 Flood Management.

To address these requirements, a review of the guideline documents, flood studies affecting the development, and the site-specific Flood Information Certificate was undertaken. Documents which have been reviewed include:

- Flood Information Certificate FL2019/00248 and the amendments to the Northern Frontage levels provided by City of Newcastle on 3 February 2022.
- Newcastle DCP 2012 Section 4.01 Flood Management.
- Newcastle LEP 2012 Section 5.21 Flood Planning.
- The NSW Floodplain Development Manual (2005).
- Throsby, Cottage, and CBD Flood Study (BMT WBM, 2008).
- Newcastle City-wide Floodplain Risk Management Study and Plan (BMT WBM, 2012).
- Honeysuckle Redevelopment Area Flood Study (BMT WBM, 2018).

Contained herein is a description of the upstream catchment and subject site, a summary of the available information used to inform the development of the study, an outline of the methodology used in undertaking this assessment, and a discussion of the results.

Locality Description

The subject site is located within the Cottage Creek Catchment in Newcastle West. The topography of the local catchment is low lying and flat with elevations ranging from approximately 0m AHD to 15m AHD. The catchment consists primarily of urban residential and commercial developments.

The stormwater trunk drainage network runs to the north of the subject site parallel with the railway line and discharges towards the Cottage Creek channel to the east.

Existing Site

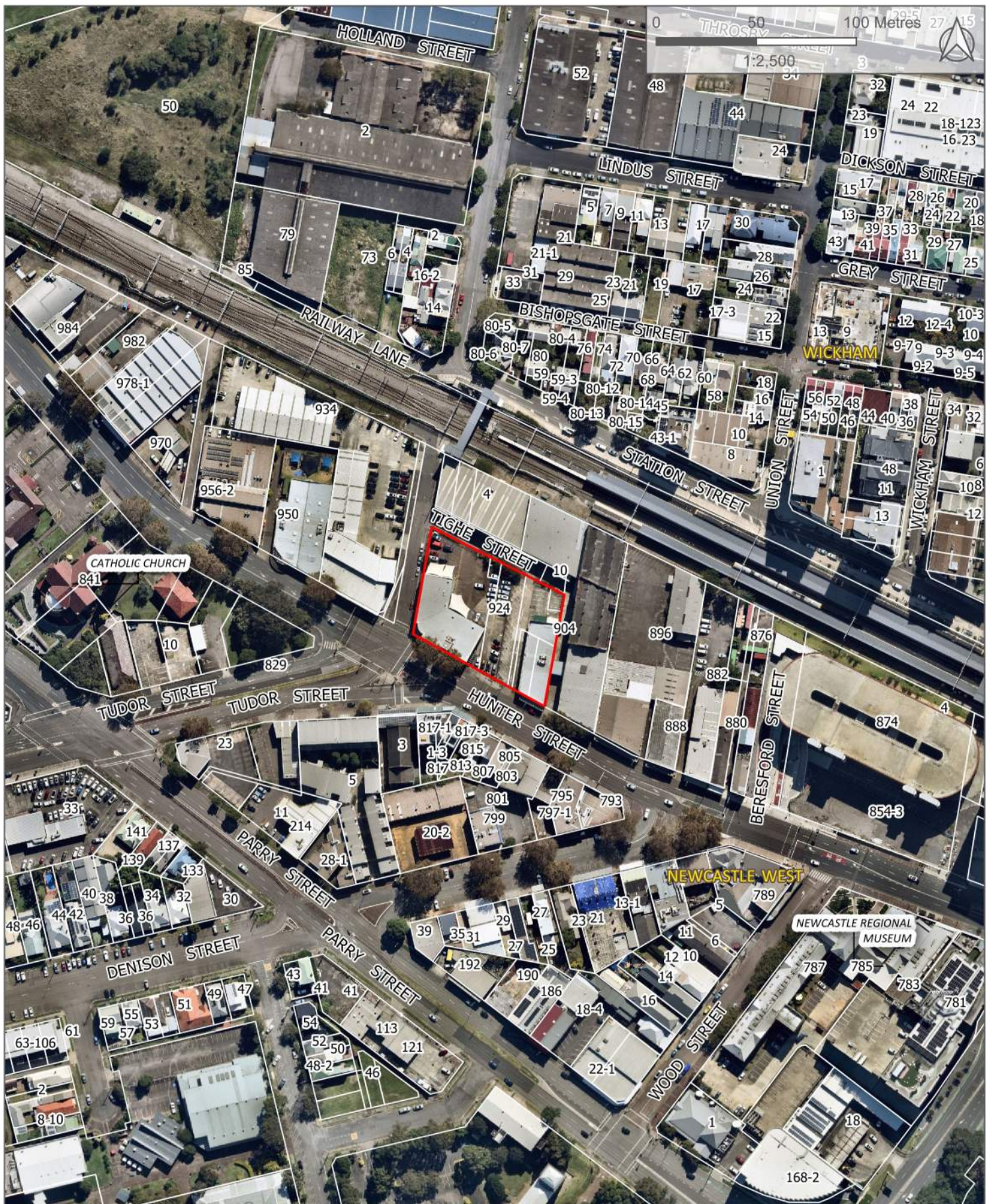
The site currently consists of two commercial buildings with the remainder of the site covered in an open hardstand area. The site fronts Hunter Street to the south, Railway Street to the west, Tighe Street to the north and existing development to the east. The existing site is approximately 3945m² in area and generally falls to the north, towards Tighe Street. The locality is presented in Figure A1 overleaf.

Survey of the existing surface levels on the site ranging from 3.0m AHD in the northern end of the site to 4.3m AHD in the southern end. Stormwater runoff from the site falls towards the existing stormwater network on Tighe Street.

Proposed Development

The proposed development consists of two residential buildings, with an additional arts building located at the Hunter Street frontage. The ground floor will contain retail and commercial facilities as well as the substations, fire control room, waste rooms, fire control room, fire pump and tank storage. A carpark will also be located on the ground floor and will extend over Level 1, Level 2, and Level 3 of the buildings, with residential dwellings commencing from Level 2.

Figure A2 overleaf provides an overview of the proposed development. This is included within the Architectural and Civil Plans provided as part of this Development Application.



Legend

Subject Site

Figure A1

Locality

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

Subject Site

Figure A2

Proposed Development

924 Hunter Street
Newcastle West NSW 2302
NL200577



Methodology

This assessment has been undertaken through the following methodology:

- Desktop review of previous investigations including the Throsby, Cottage, and CBD Flood Study (BMT WBM, 2008), Newcastle City-wide Floodplain Risk Management Study and Plan (BMT, 2012) and the Flood Information Certificate (Newcastle City Council, 2018).
- Desktop review of the available information including LiDAR elevation and aerial photography.
- Delineate the contributing catchments to the outlet of the proposed development, from the west and south.
- Site visit to review the existing topography, the local hydraulic controls and features, land-use, and surface roughness.
- Construction of a DRAINS model to estimate the local catchment peak flows surrounding the subject site. Flood hydrographs were generated for the 10% AEP, 1% AEP, 1 in 200 AEP (Annual Exceedance Probability) and PMF (Probable Maximum Flood) events.
- Preparation of an existing case two-dimensional TUFLOW hydraulic model to represent the flow behaviour through the subject site. Flood hydrographs for the DRAINS model have been included in the TUFLOW model, as well as the downstream tailwater levels from the Honeysuckle Redevelopment Area Flood Study.
- Modification of the TUFLOW model to include the proposed development.
- Preparation of figures showing flood depth, elevation, velocity, and hazard for each of the events considered. Additionally, a comparison of the 1% AEP flood depths to review the effects of the proposed development on the flood behaviour within the subject site and in the adjacent properties.

A description of the hydrological and hydraulic modelling, including parameters and assumptions used in the development of this study are contained herein. Also included is a discussion around flood risk and compliance with The City of Newcastle Council's DCP.

Existing Flood Studies

2008 Throsby, Cottage, and CBD Flood Study

The Throsby Cottage and CBD Flood Study was conducted in 2008 to develop a better understanding of the Newcastle flood behaviours, following the July 2007 Pasha Bulka storm, and determine a risk management plan.

As part of the study, local 1D inflows were applied across the 2D model grid, with the main pipe trunkline and channels included. Any local stormwater infrastructure with a diameter less than 900mm was excluded from the model. Additionally, the tailwater conditions were set to 0.0m AHD, allowing flows capture in the 1D network to flow freely.

The results from this study indicated a maximum water level of 4.3m AHD across the subject site in the 1% AEP and 4.4m AHD in the PMF. Drawing 6-100 indicates the PMF maximum depths and shows a maximum depth of 200mm across the subject site.

2012 City Wide Floodplain Risk Management Study and Plan

This study largely relied on the flood modelling conducted in the 2008 Throsby, Cottage and CBD Flood Study and described above. The following image has been extracted from the study data and presents the 1% AEP flood behaviour over the subject site and surrounding extent – note the lack of building representation and lack of continuity of flow on the westbound travel lane in Hunter Street.

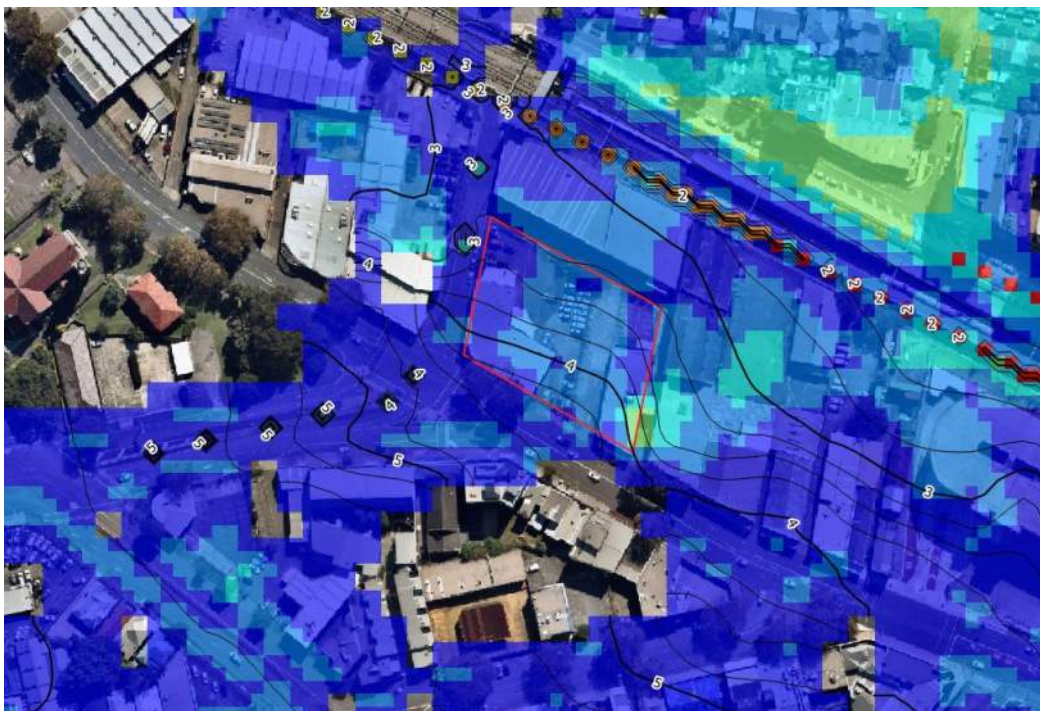


Image 1: 1% AEP Flood Behaviour on Subject Site

Honeysuckle Redevelopment Area Flood Study 2018

The study is focused on the Waterfront and Cottage Creek catchment. Following the introduction of the ARR 2016 update, modifications to the existing Throsby, Cottage and CBD flood model were made. In addition to the rainfall and temporal patterns, the study looks at the blockage potential of the catchment and applied this to the main Cottage Creek Channel.

The study proposed two scenarios, the existing case and the developed case containing the properties along Honeysuckle Drive. The 1% AEP flood level at the western end of the redevelopment near Station Street (downstream of the railway line to the west of Cottage Creek) sits at 2.47m AHD, with the PMF at 3.21m AHD in the existing case. For the post developed case, the flood levels sit at 2.47m AHD and 3.48m AHD for the 1% AEP and PMF, respectively.

Newcastle City Council Flood Information Certificate FL2019/00248

The flood information certificate was received on 4th December 2019 and outlines the flood behaviours which are expected across the subject site. Within the certificate, it is stated that the subject site is outside the floodway and flood storage areas, as derived from the Newcastle City Wide Floodplain Management Plan.

From the information provided in the flood certificate, the 1% AEP and PMF flood levels are 4.3m AHD and 4.4m AHD, respectively, along Hunter Street. This falls to 3.1m AHD and 3.2m AHD, respectively, along Tighe Street. These values are used to determine the minimum finished floor levels and therefore, will be used to as a comparison to flood modelling conducted.

In February 2022, a revision of FL2019/00248 was provided, with a correction made to the flood levels experienced along Tighe Street. The resulting parameters for the proposed development are 4.3m to the south and 3.3m AHD to the north of the subject site for the 1% AEP, and the PMF level ranged from 4.4m AHD on Hunter Street and 3.4m AHD on Tighe Street.

As the 1% AEP plus freeboard was higher than the PMF flood level, the adopted Floor Hazard Level is set at the PMF level and informed the minimum Finished Floor Level for occupiable rooms in the submitted documents.

DRAINS Model Parameters

Stormwater runoff inflows for the existing catchment conditions has been modelled using the DRAINS software package. The DRAINS model included 5 sub-catchments which have been mapped based on 1m LiDAR survey across the subject site and surrounding vicinity. The model was used to create the inflow boundary conditions for the two-dimensional TUFLOW model. Parameters which were adopted in the DRAINS model are discussed below.

It is noted that the latest Australian Rainfall and Runoff Guidelines (2019) have been used in the preparation of the study.

Catchment Data

Sub-catchments have been determined using a combination of detailed survey, LiDAR, aerial imagery, onsite observations, and cadastral data. The sub-catchments used in the DRAINS model are shown in Figure A3 overleaf. The time of concentration was estimated for each of the catchments, and the impervious percentage was assigned based on aerial imagery.

Storm Losses

Storm losses provided by the ARR Data Hub are intended for rural catchments. As the proposed development is in an urbanised area, additional reductions to the pervious initial losses have been applied as shown in **Table 1**.

The pervious losses have been reduced by a factor of 0.7, as recommended in the latest ARR 2019 guidelines. Similarly, modelled continuing losses have been reduced by a factor of 0.4 in accordance with the advice provided in the latest Department of Primary Industry and Environment (DPIE) guidelines.

Table 1: Adopted DRAINS Rainfall Loss Rates

Land-Use	Initial Loss (mm)	Continuing Loss (mm/hr)
Rural Pervious (ARR Data Hub)	21.0	2.2
Urban Pervious (Modelled)	14.7	0.88
Urban Impervious (Modelled)	1.0	0.0

The DRAINS model uses a Probability Neutral Burst Initial Loss for the pervious catchments. This requires the NSW Specific Transformational pre-burst depths, downloaded from the 2016 ARR Data Hub. The pre-burst rainfall is applied in the first timestep, further reducing the initial loss.

Burst Rainfall Data

Rainfall Intensity-Frequency–Duration (IFD) depths for the ARR 2019 have been obtained from the Bureau of Meteorology (BOM) for a location over the catchment centroid.

The “East-Coast South” temporal patterns have been adopted for the ARR 2019 hydrology. These temporal patterns were applied to 10% AEP, 1% AEP and 1 in 200 AEP design storm depths. The Generalised Short Duration Method (GSDM) and procedures outlined in the Publication “*The Estimation of Probable Maximum Precipitation in Australia: Generalised Short Duration Method*” (BOM, 2003) were used to develop design storm depths and patterns for the Probable Maximum Flood (PMF).

TUFLOW Model Parameters

The following provides a summary of the parameters used in the development of the two-dimensional TUFLOW flood model.

Two-Dimensional Model Grid Extents and Timestep

Each of the events were modelled with a coarse grid size of 3m x 3m to estimate the critical duration and temporal pattern. Selected patterns were then passed to a 1m x 1m model to represent flows around buildings, as well as more accurately depict the road profiles. The grid extends over an area of 61.8ha, branching from Hunter Street in the west, the railway track to the north, Denison Street in the south and existing buildings immediately to the east.

The latest TUFLOW HPC Solver (version 2020-01-AA) was used for the analysis with an initial timestep of 0.1 seconds.

Terrain

A combination of detailed survey and LiDAR elevation data has been used to generate the model terrain. Manual changes were added into the model to better represent the kerb and gutter in the vicinity of the site and allow the flow paths through the catchment to be represented.

Boundary Conditions

Both 1D and 2D outlet conditions have been modelled within TUFLOW for the 1% AEP, 1 in 200 AEP and PMF events. A free outfall has been adopted for the 10% AEP. The data presented in Table 5-1 the 2018 Honeysuckle Redevelopment Area Flood Study was used to estimate the 1D tailwater conditions in the other events.

The 2D outlet head boundaries have been entered downstream of the site across each of the streets, with varying tailwater conditions set. These have been set at the top of kerb elevation and assumes the road profile is at full capacity. Checks have been undertaken to determine whether downstream tailwater governs and an additional water level was set at 0.8m AHD in conjunction with the Honeysuckle Redevelopment model.

Catchment Roughness and Building Representation

The modelled catchment surface roughness is presented in Table 2 below. Buildings located within the local catchment have been modelled as inactive areas, effectively assuming 100% blockage. This forces flows around them. Spatial representation is presented in Figure A4, overleaf.

Table 2 - Manning's Roughness

Land Use	Manning's n Roughness
Residential	0.150
Road and Hardstand	0.015
Gravel	0.022
Road Reserve	0.025
Grassed Area	0.045

Pit and Pipe Network

The pit and pipe network in the 2D model consists of a variety of stormwater inlet pits, pipes, and culverts. The information used in the model is a combination of detailed survey data, visual observations, and Council model data.

The council flood model data included the main trunk drainage network which is contained within the local catchment. A site visit allowed additional stormwater infrastructure to be included in the model, to demonstrate the local network and reduce the surface flows which are approaching the site in the existing and developed case scenarios.

Results

The following is a summary of the flood results for existing and developed scenarios, along with the pre to post comparison in the flood behaviour.

Peak Flows

A summary of the peak flows during each of the flood events has been provided in **Table 3**. The locations flow has been calculated have been included in Figure A5.

Table 3: Peak Flows surrounding Subject Site (m³/s)

Location	10% AEP	1% AEP	1 in 200 AEP	PMF
1 - Hunter Street west of Railway Street (flowing east)	0.13	0.13	0.18	1.73
2 - Tudor Street eastbound lane (flowing east)	0.27	1.57	2.12	8.57
3 - Tudor Street westbound lane (flowing east)	0.14	1.47	2.00	10.76
4 - Spill over Hunter Street crest (flowing north)	0.02	0.04	0.30	8.71
5 - Railway Street towards railway line (flowing north)	0.48	1.11	1.56	6.97
6 - Hunter Street at site eastbound lane (flowing east)	0	0.03	0.18	2.52
7 - Hunter Street at site westbound lane (flowing east)	0.32	1.57	2.14	11.27
8 - Spill from Hunter Street through site	0	0	0.06	6.16

Existing Flood Behaviour

Existing case flood depth and elevation contours during the 10% AEP, 1% AEP, 1 in 200 AEP and PMF are presented in Figures B1, B4, B7 and B10. Figure B2, B5, B8 and B11 presents the velocity, and Figures B3, B6, B9 and B12 represent the Council flood hazard categories across the subject site and vicinity.

Development Flood Behaviour

Developed case flood depth and elevation contours during the 10% AEP, 1% AEP, 1 in 200 AEP and PMF are presented in Figures C1, C4, C7 and C10. Figure C2, C5, C8 and C11 presents the velocity of the developed case, and Figures C3, C6, C9 and C12 represent the Council flood hazard categories across the subject site and vicinity.

Table 4: Developed Case Flood Elevation for the Subject Site (m AHD)

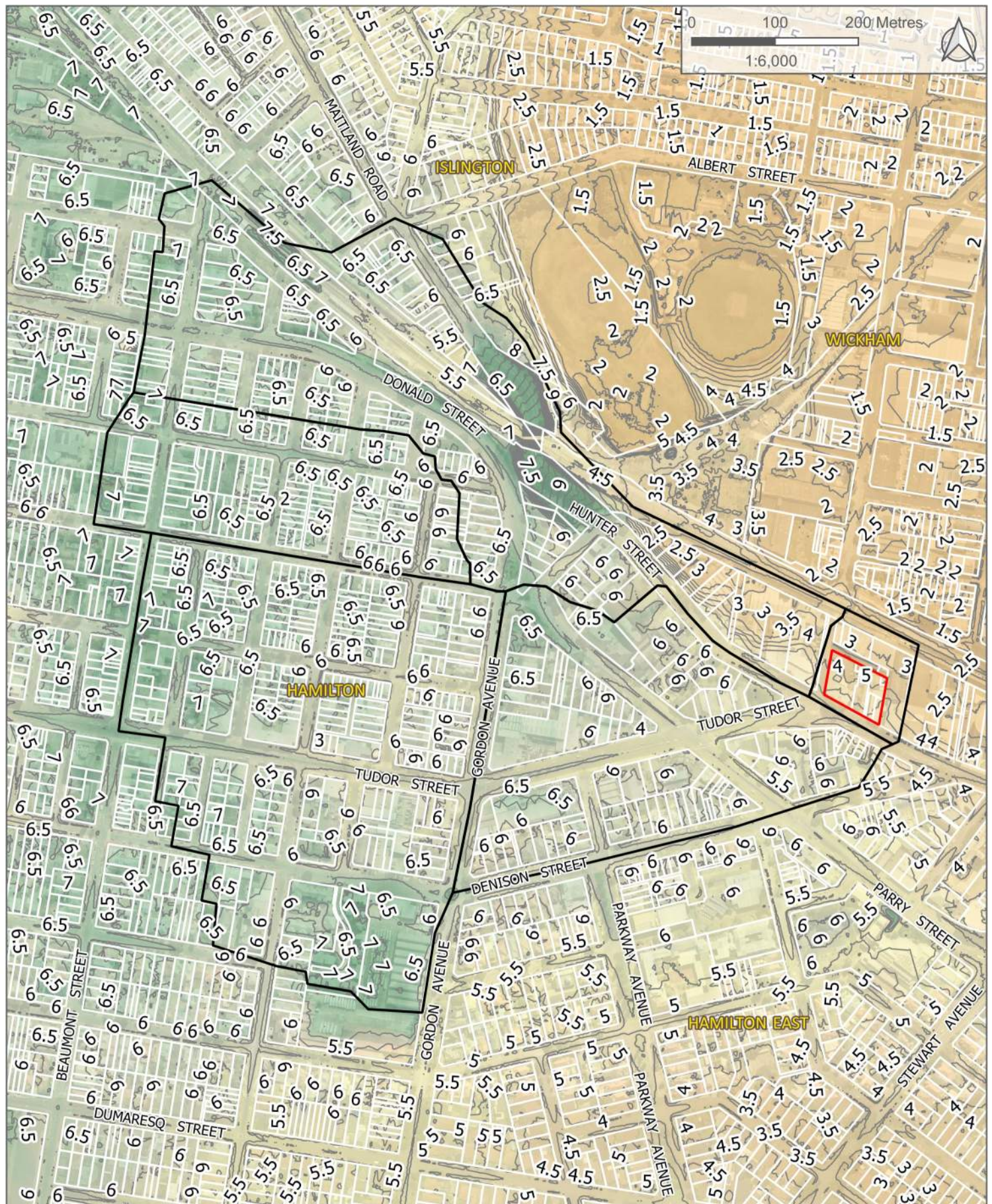
Location	10% AEP	1% AEP	1 in 200 AEP	PMF
1 – Hunter St	-	4.09	4.16	4.50
2 – Hunter St	-	-	4.20	4.59
3 – Hunter St	-	4.13	4.21	4.64
4 – Hunter St	4.05	4.11	4.22	4.68
5 – Hunter St	4.12	4.12	4.26	4.68
6 – Hunter St	4.30	4.30	4.30	4.68
7 - Railway St	4.01	4.08	4.14	4.60
8 - Railway St	3.85	3.94	3.98	4.31
9 - Railway St	3.73	3.81	3.83	4.07
10 - Railway St	3.57	3.61	3.63	3.79
11 – Railway St	3.32	3.34	3.36	3.64
12 – Tighe St	3.33	3.37	3.38	3.66
13 – Tighe St	3.33	3.37	3.38	3.66
14 – Tighe St	3.33	3.37	3.38	3.66
15 – Tighe St	3.33	3.37	3.38	3.66
16 – Tighe St	3.33	3.37	3.38	3.65
17 – Tighe St	3.33	3.37	3.38	3.65
18 - Podium	-	-	-	4.68

Pre to Post Flood Behaviour

A comparison between the 1% AEP existing and developed case scenarios using the site-specific TUFLOW model is presented in Figure D1. From the comparison, there is a maximum of 30mm increase which is shown through Railway Street. These increases are isolated, in between decreases, and unlikely to impact the proposed development, or adjacent properties. This is likely due to small terrain amendments along the western interface.

Climate Change Differences

The 1 in 200 AEP was run as a proxy for climate change and increases in the vicinity of the subject site are generally less than 100mm. The maximum level adjacent to the development remained at 4.30m AHD despite an approximate 30 percent increase in approach flows.



Legend

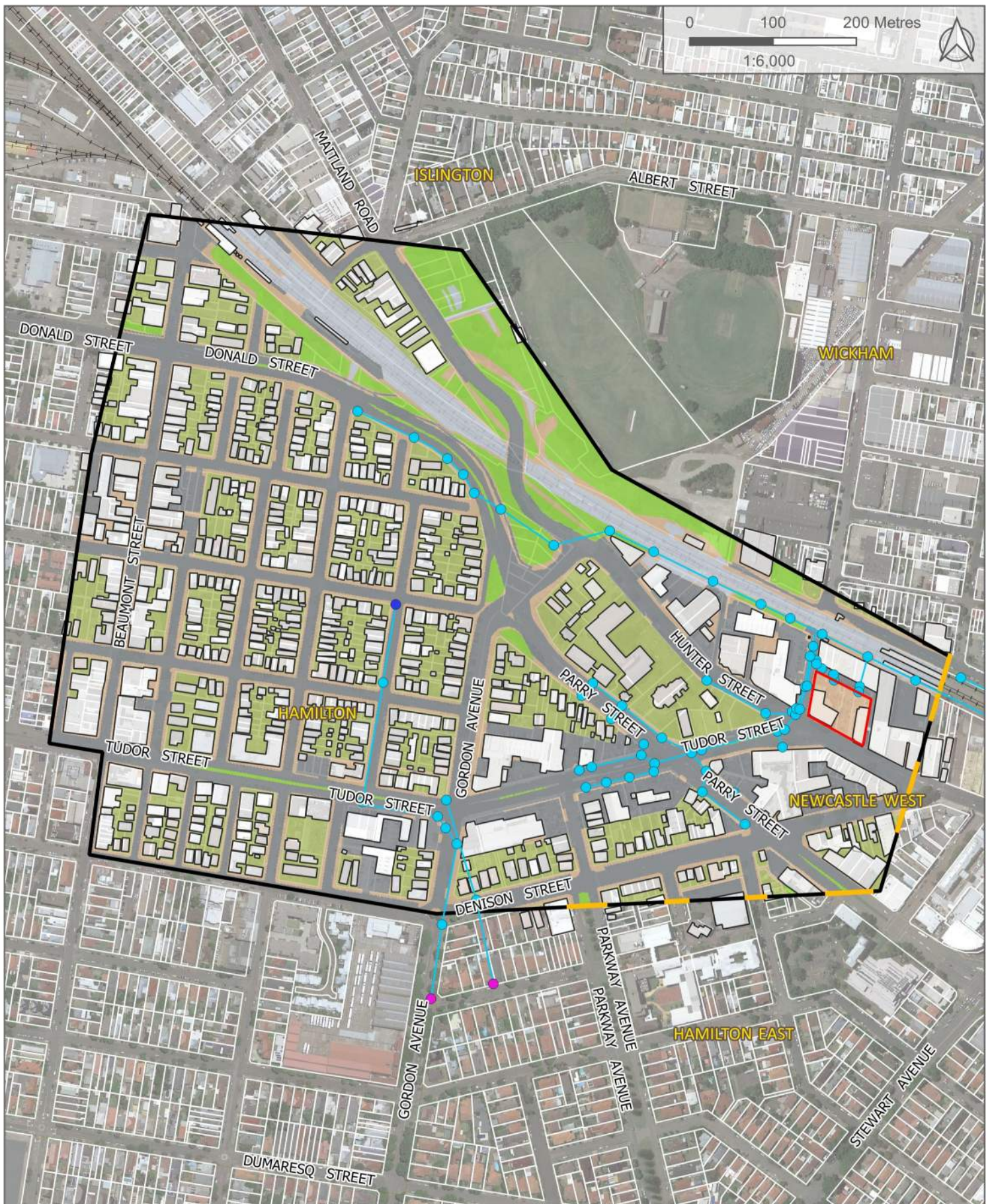
- Subject Site
- DRAINS Catchments
- Topography (0.5m Contours)

Figure A3

DRAINS Model
Catchment Layout

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

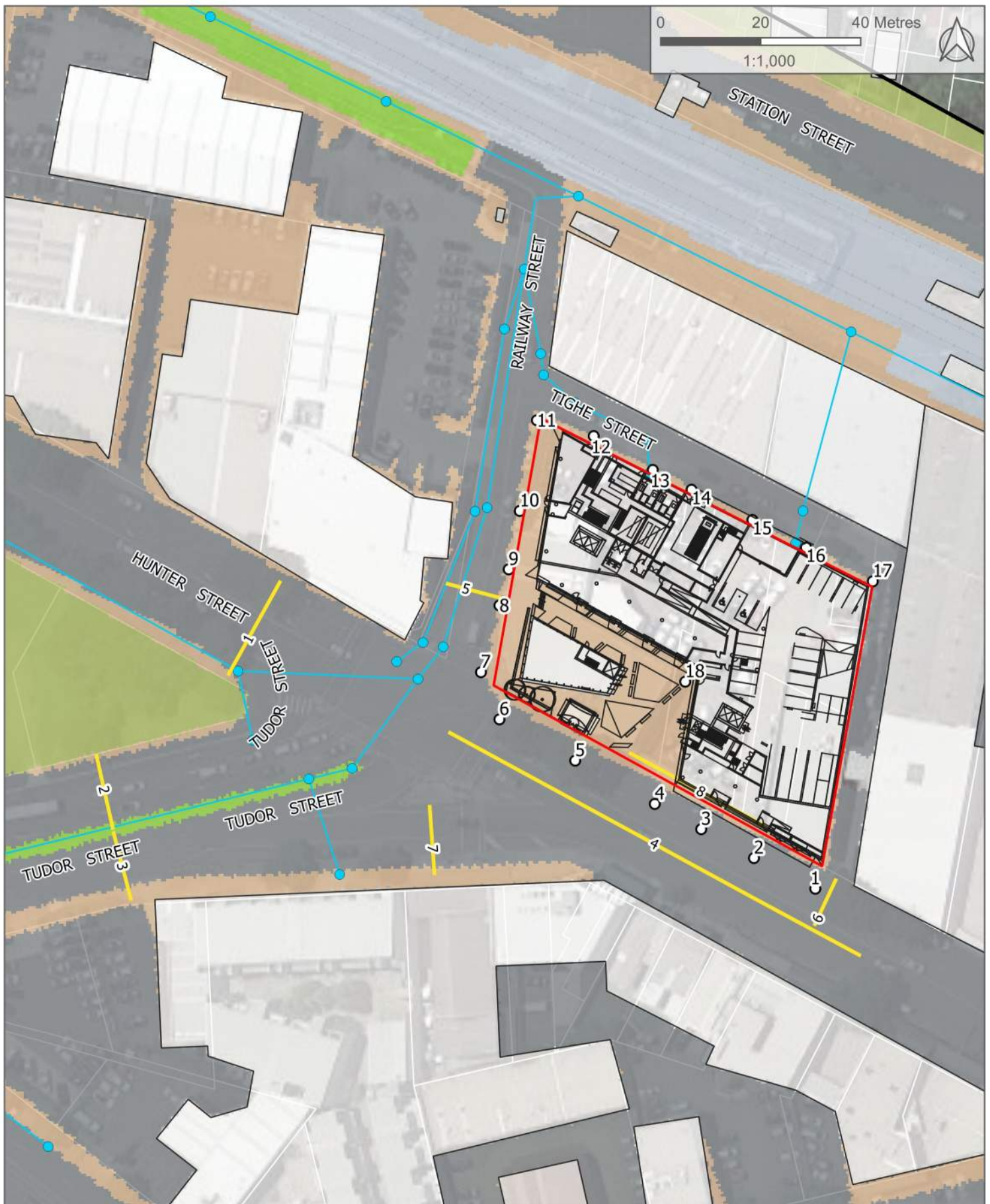
 Subject Site	Mannings 'n'	● 1D Stormwater Pits
 Grid Extent	 Roads/Hardstand (0.015)	— 1D Stormwater Pipes
 Proposed Development	 Grassed Area (0.045)	● 1D Inflows
	 Residential (0.150)	● 1D Outlet
	 Gravel (0.022)	— 2D Outlet
	 Road Reserve (0.025)	

Figure A4

Existing Case
TUFLOW Model Setup

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

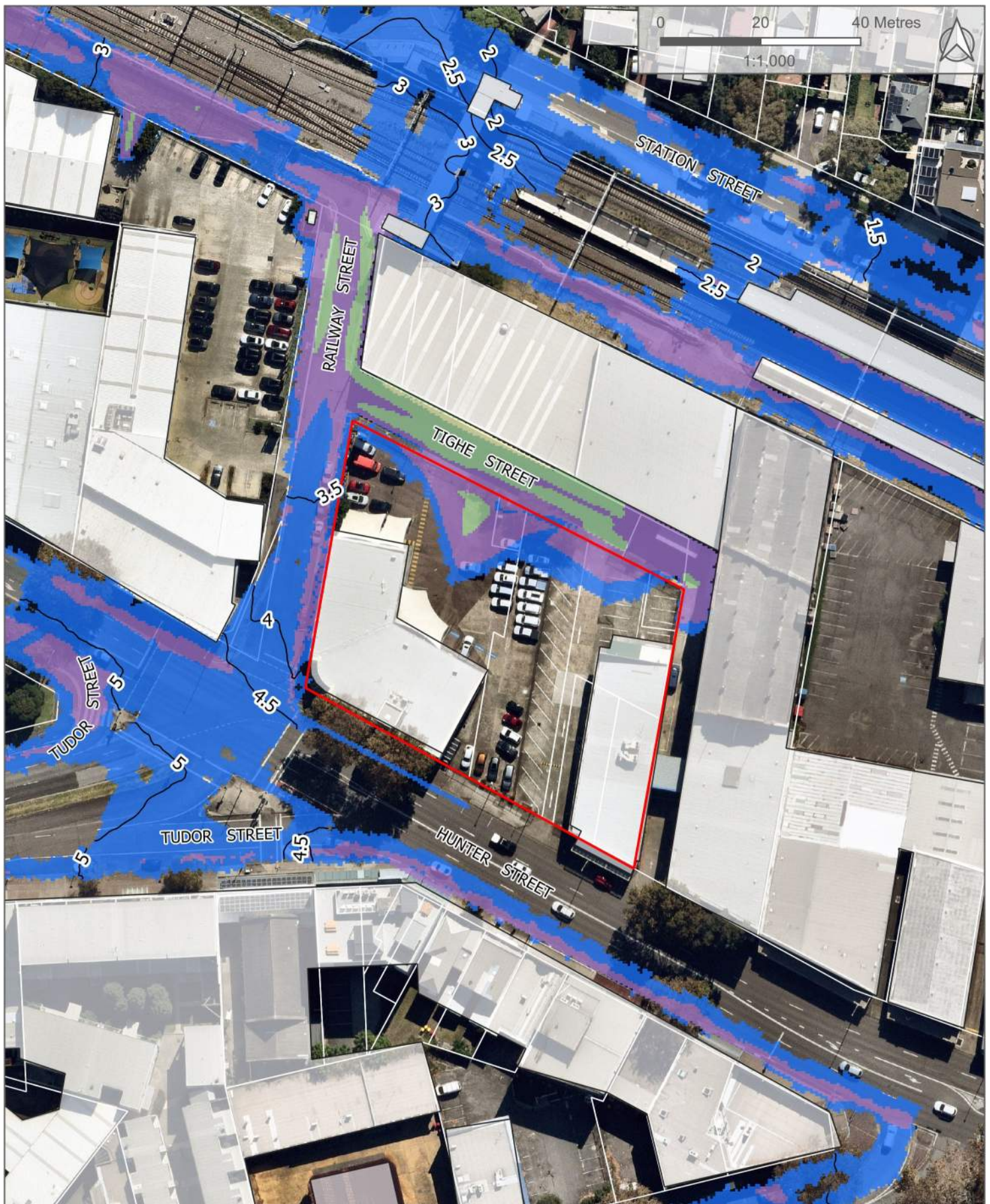
- | | | |
|---|---|---|
| Subject Site | Mannings 'n' | ● 1D Stormwater Pits |
| Grid Extent | Roads/Hardstand (0.015) | — 1D Stormwater Pipes |
| Proposed Development | Grassed Area (0.045) | ● 1D Inflows |
| ● Reporting Locations | Residential (0.150) | ● 1D Outlet |
| — 2D Outlet | Gravel (0.022) | — PO Lines |
| | Road Reserve (0.025) | |

Figure A5

Developed Case
TUFLOW Model Setup

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	Flood Depth (m)	 0.5 - 0.8
 Existing Buildings	 0.0 - 0.1	 0.8 - 1.2
 Flood Elevation (m AHD)	 0.1 - 0.3	 1.2 - 2.0
	 0.3 - 0.5	 >2

Figure B1

Existing Case
10% AEP Flood Depth and Elevation

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

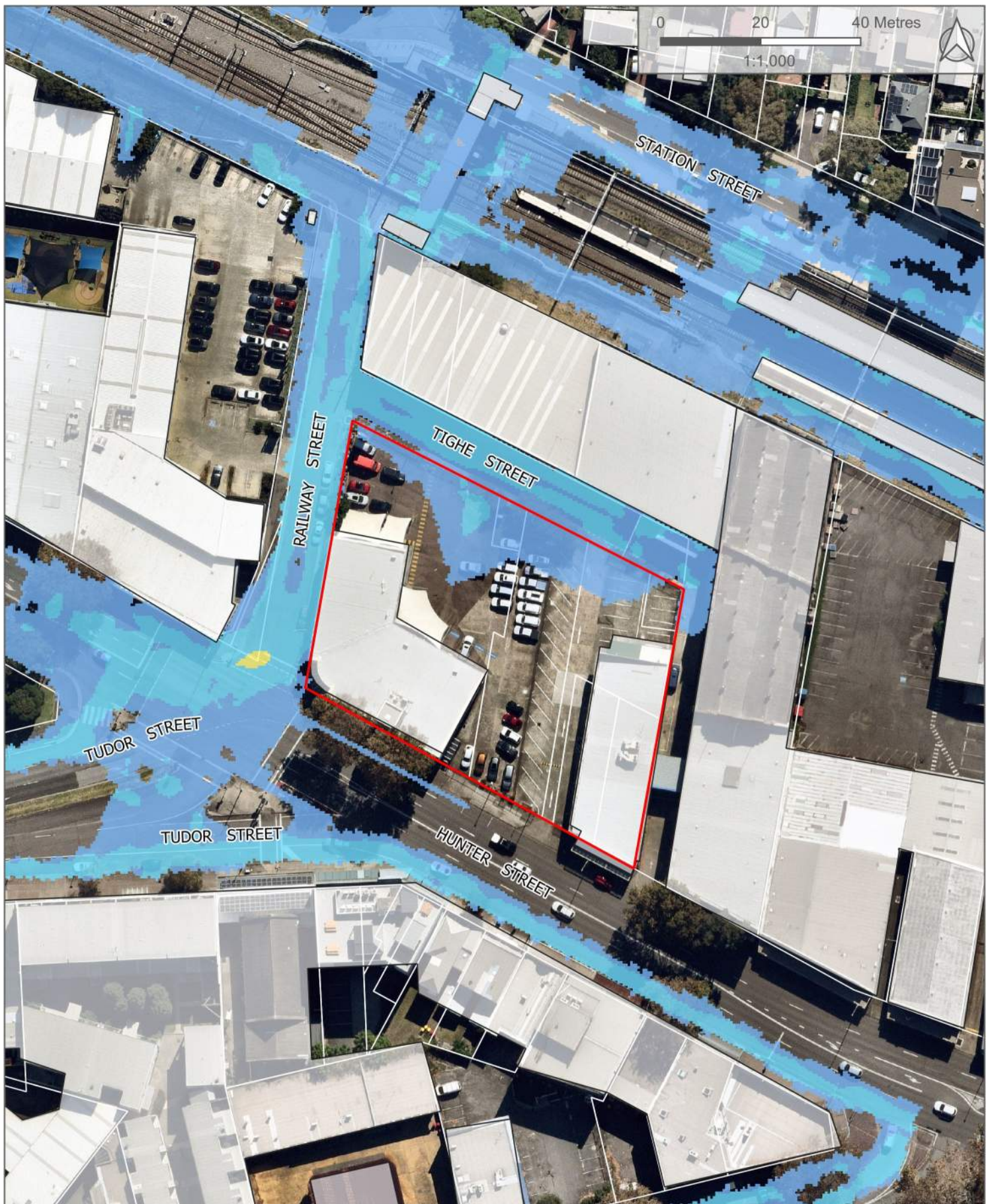
 Subject Site	Flood Velocity (m/s)	 1.5 - 2.0
 Existing Buildings	 0.0 - 0.5	 2.0 - 2.5
 Velocity Vectors	 0.5 - 1.0	 2.5 - 3.0
	 1.0 - 1.5	 3.0 - 5.0

Figure B2

Existing Case
10% AEP Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

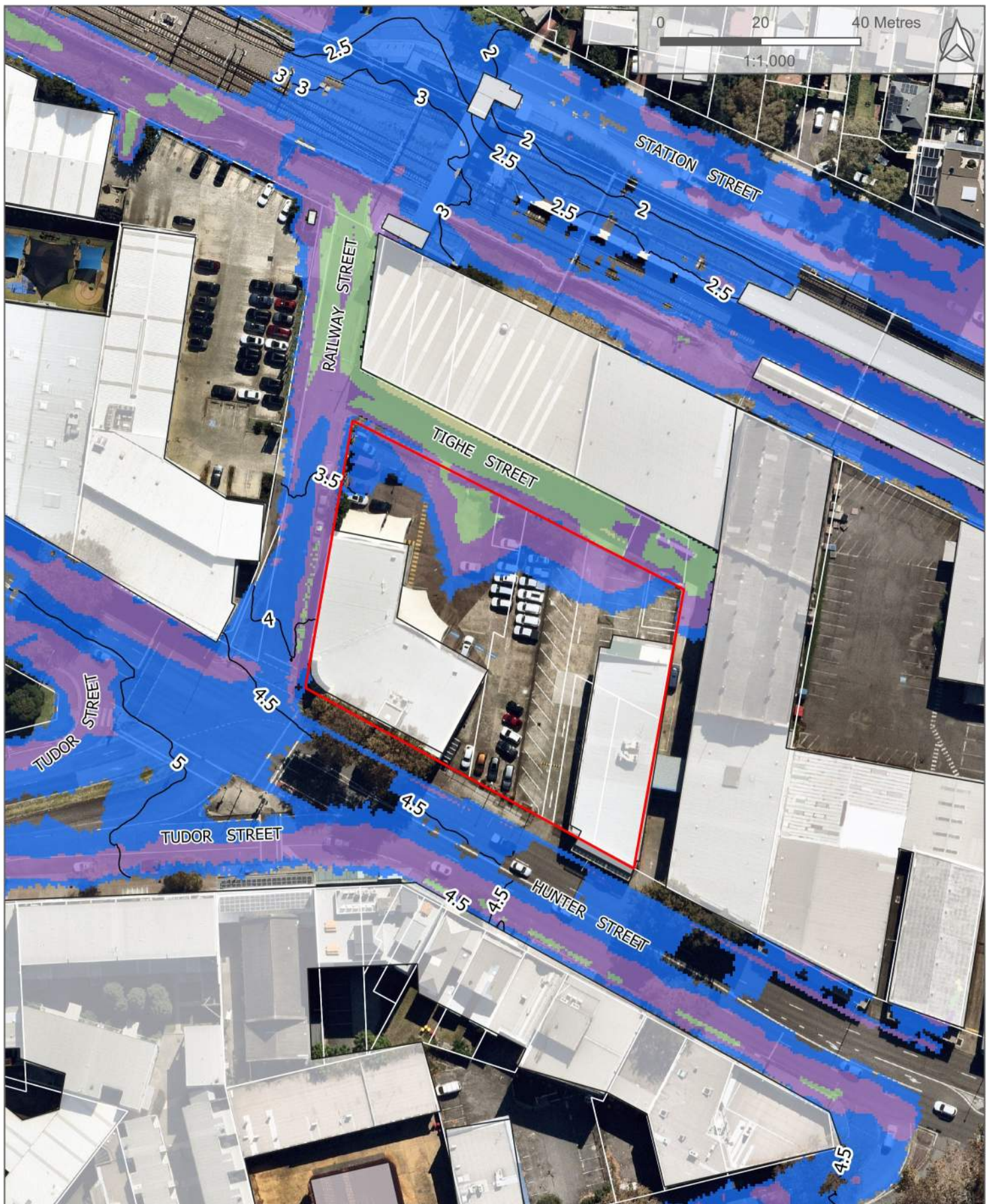
 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure B3

Existing Case
10% AEP Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	Flood Depth (m)	 0.5 - 0.8
 Existing Buildings	 0.0 - 0.1	 0.8 - 1.2
 Flood Elevation (m AHD)	 0.1 - 0.3	 1.2 - 2.0
	 0.3 - 0.5	 >2

Figure B4

Existing Case
1% AEP Flood Depth and Elevation

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

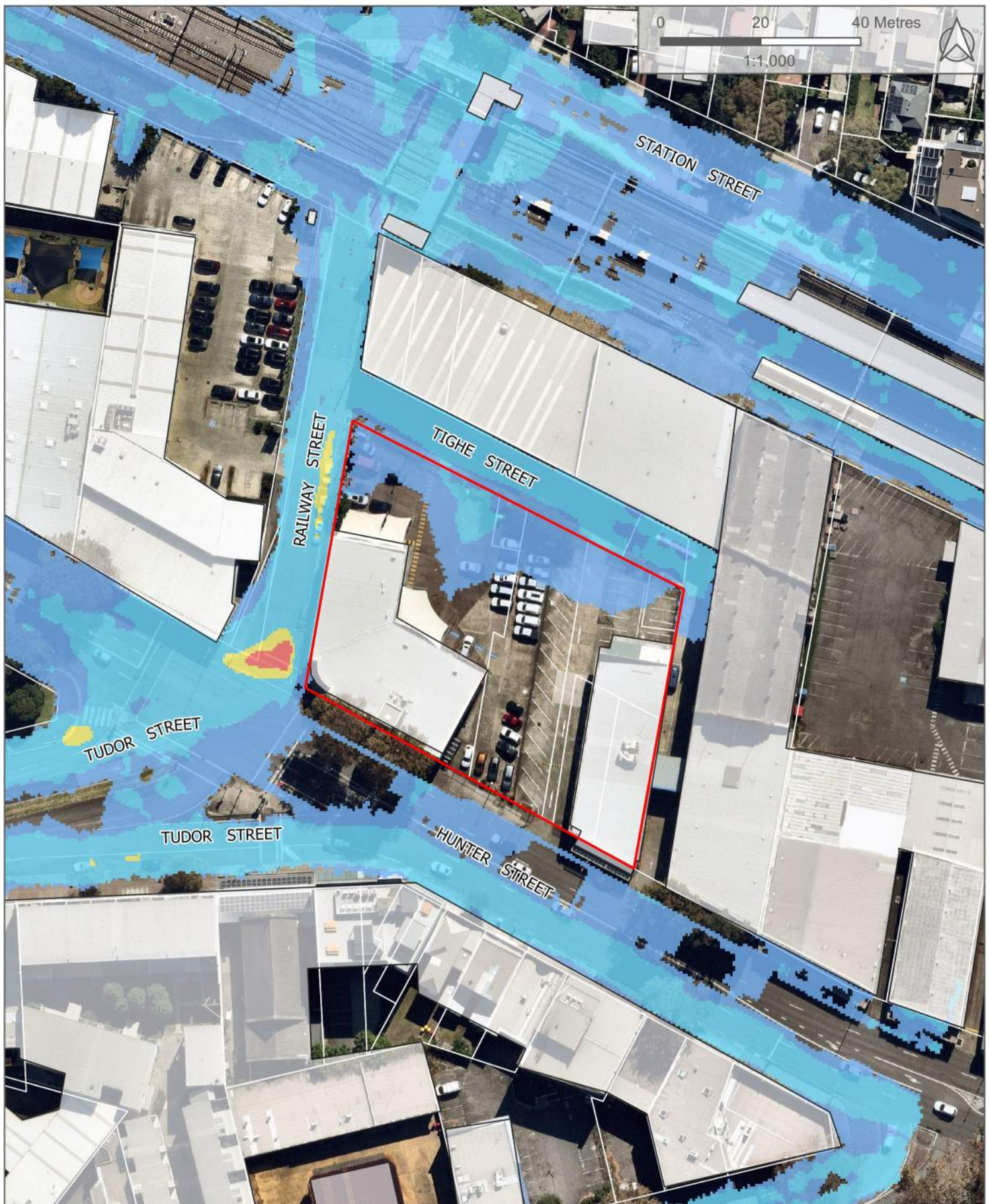
 Subject Site	Flood Velocity (m/s)	 1.5 - 2.0
 Existing Buildings	 0.0 - 0.5	 2.0 - 2.5
 Velocity Vectors	 0.5 - 1.0	 2.5 - 3.0
	 1.0 - 1.5	 3.0 - 5.0

Figure B5

Existing Case
1% AEP Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

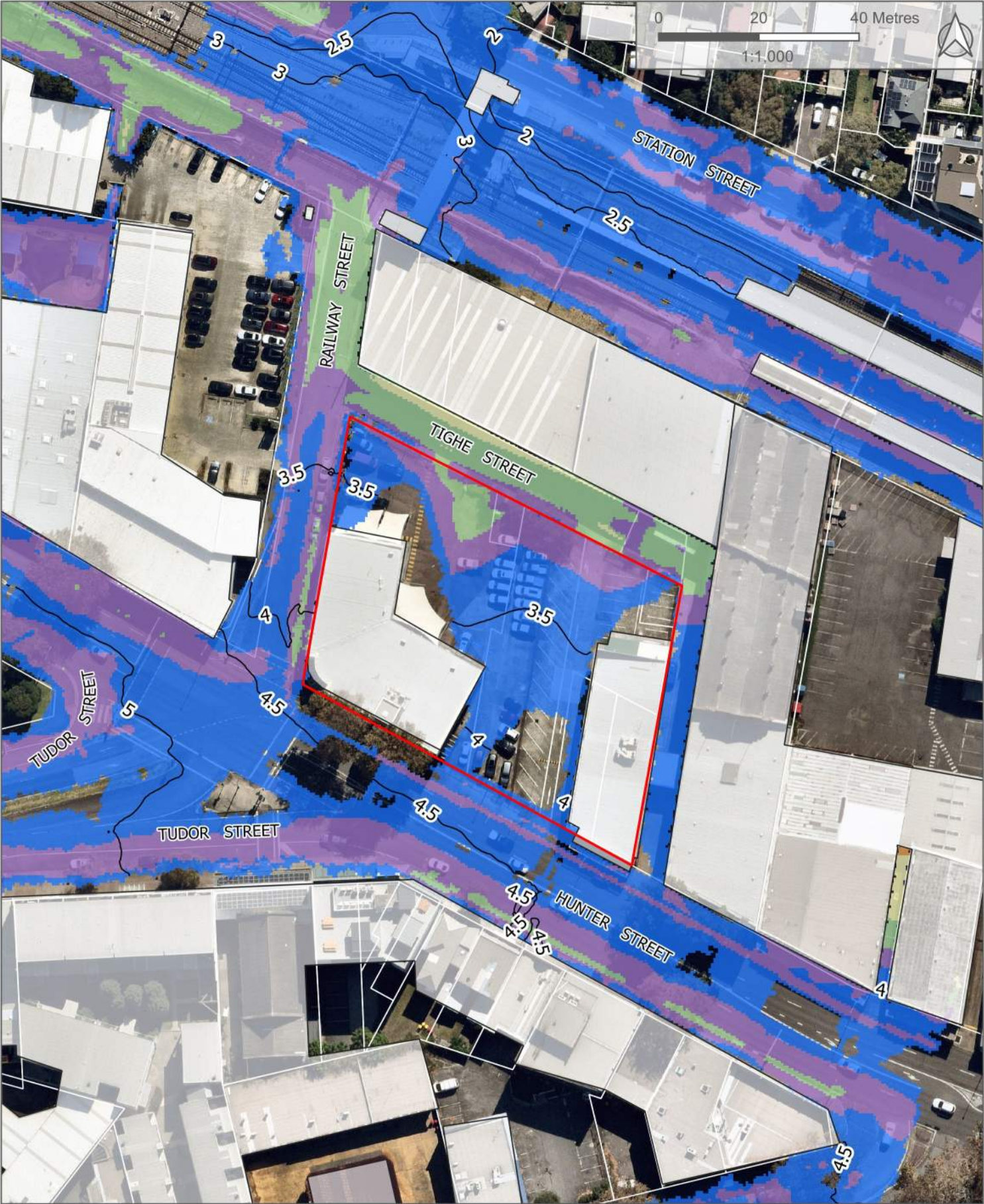
 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure B6

Existing Case
1% AEP Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

- Subject Site
 - Existing Buildings
 - Flood Elevation (m AHD)
- | Flood Depth (m) | |
|---|---|
| 0.0 - 0.1 | 0.5 - 0.8 |
| 0.1 - 0.3 | 0.8 - 1.2 |
| 0.3 - 0.5 | 1.2 - 2.0 |
| >2 | |

Figure B7

Existing Case
1 in 200 AEP Flood Depth and Elevation

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

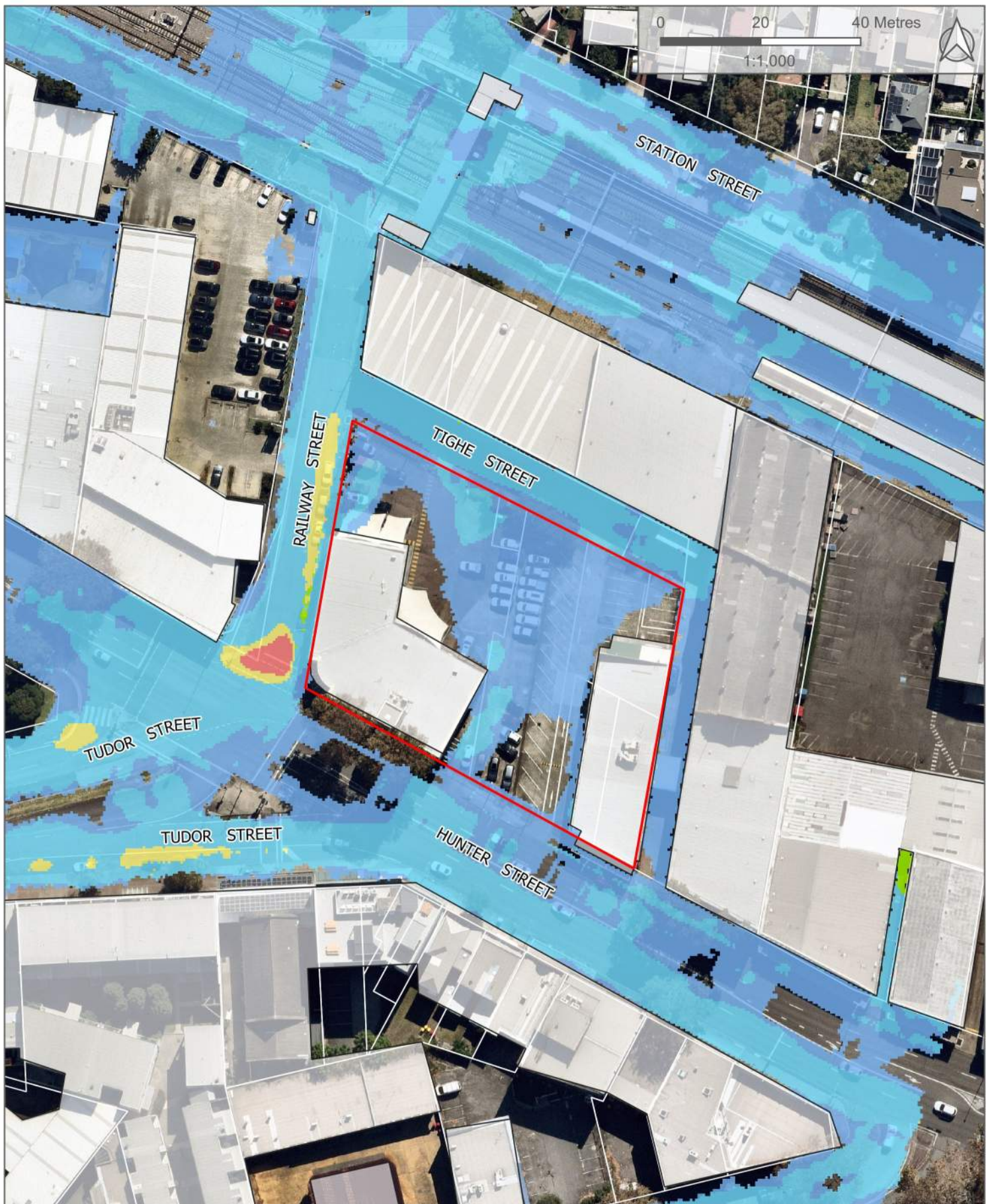
 Subject Site	Flood Velocity (m/s)	 1.5 - 2.0
 Existing Buildings	 0.0 - 0.5	 2.0 - 2.5
 Velocity Vectors	 0.5 - 1.0	 2.5 - 3.0
	 1.0 - 1.5	 3.0 - 5.0

Figure B8

Existing Case
1 in 200 AEP Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

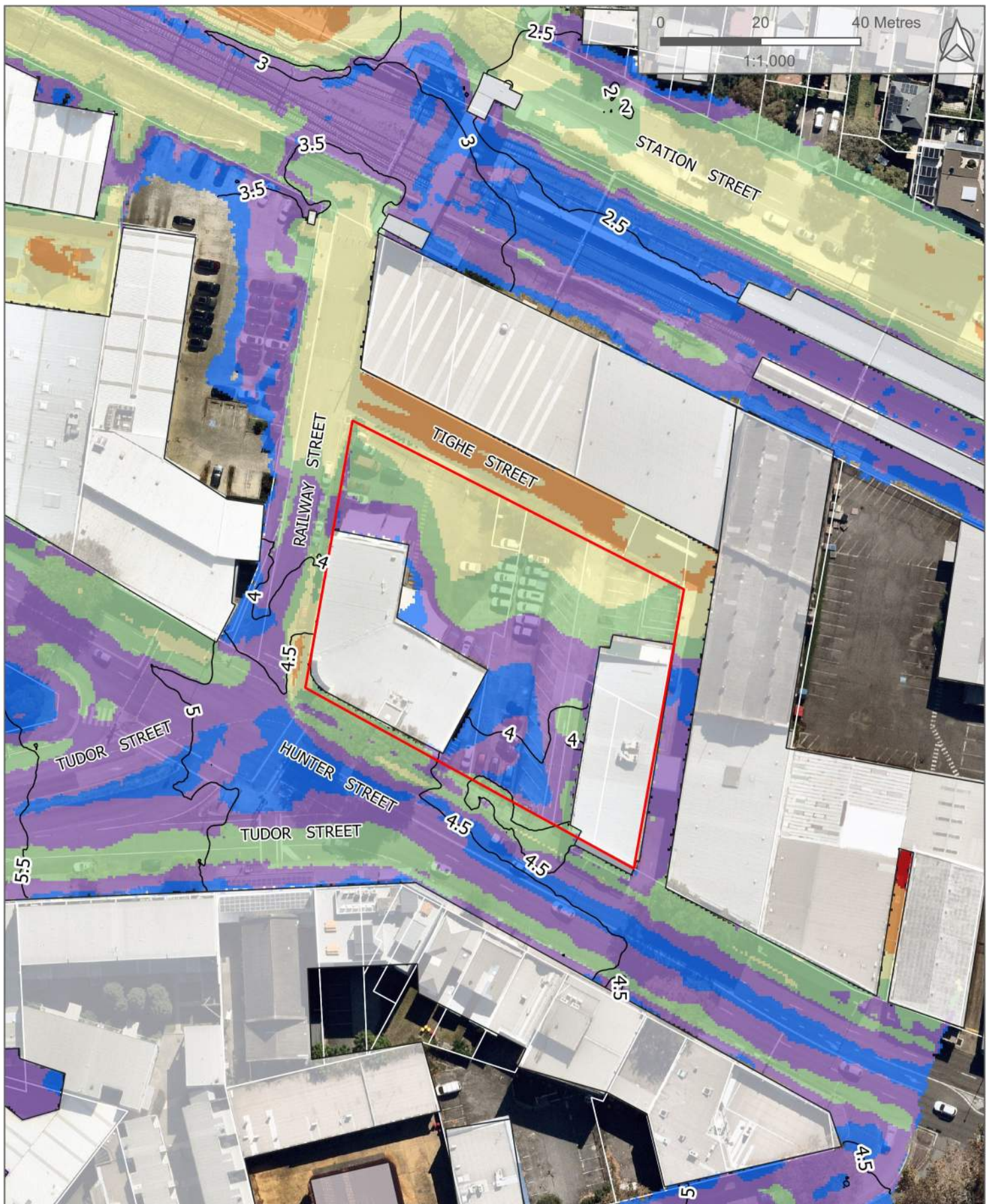
 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure B9

Existing Case
1 in 200 AEP Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

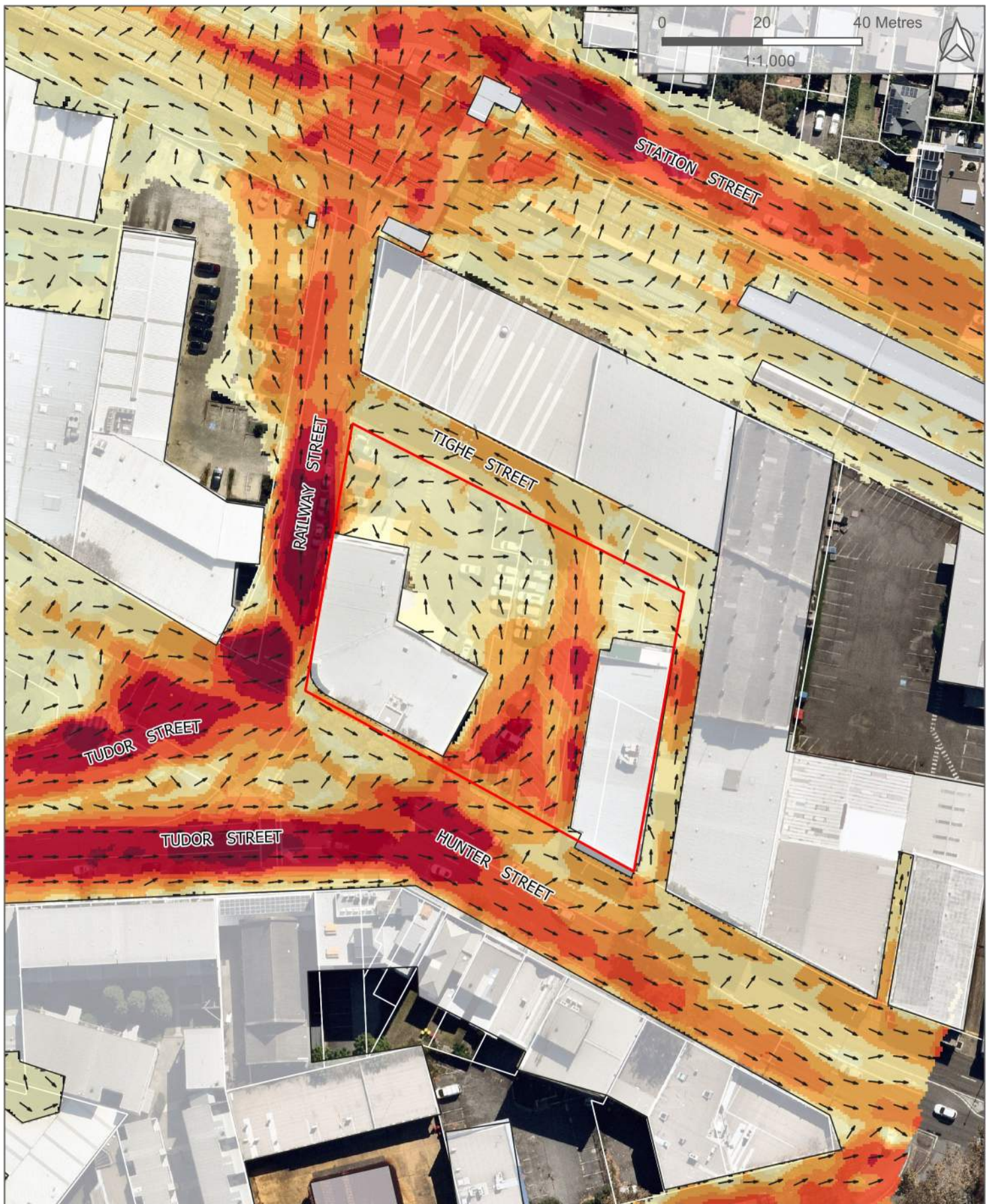
 Subject Site	Flood Depth (m)	 0.5 - 0.8
 Existing Buildings	 0.0 - 0.1	 0.8 - 1.2
 Flood Elevation (m AHD)	 0.1 - 0.3	 1.2 - 2.0
	 0.3 - 0.5	 >2

Figure B10

Existing Case
PMF Flood Depth and Elevation

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

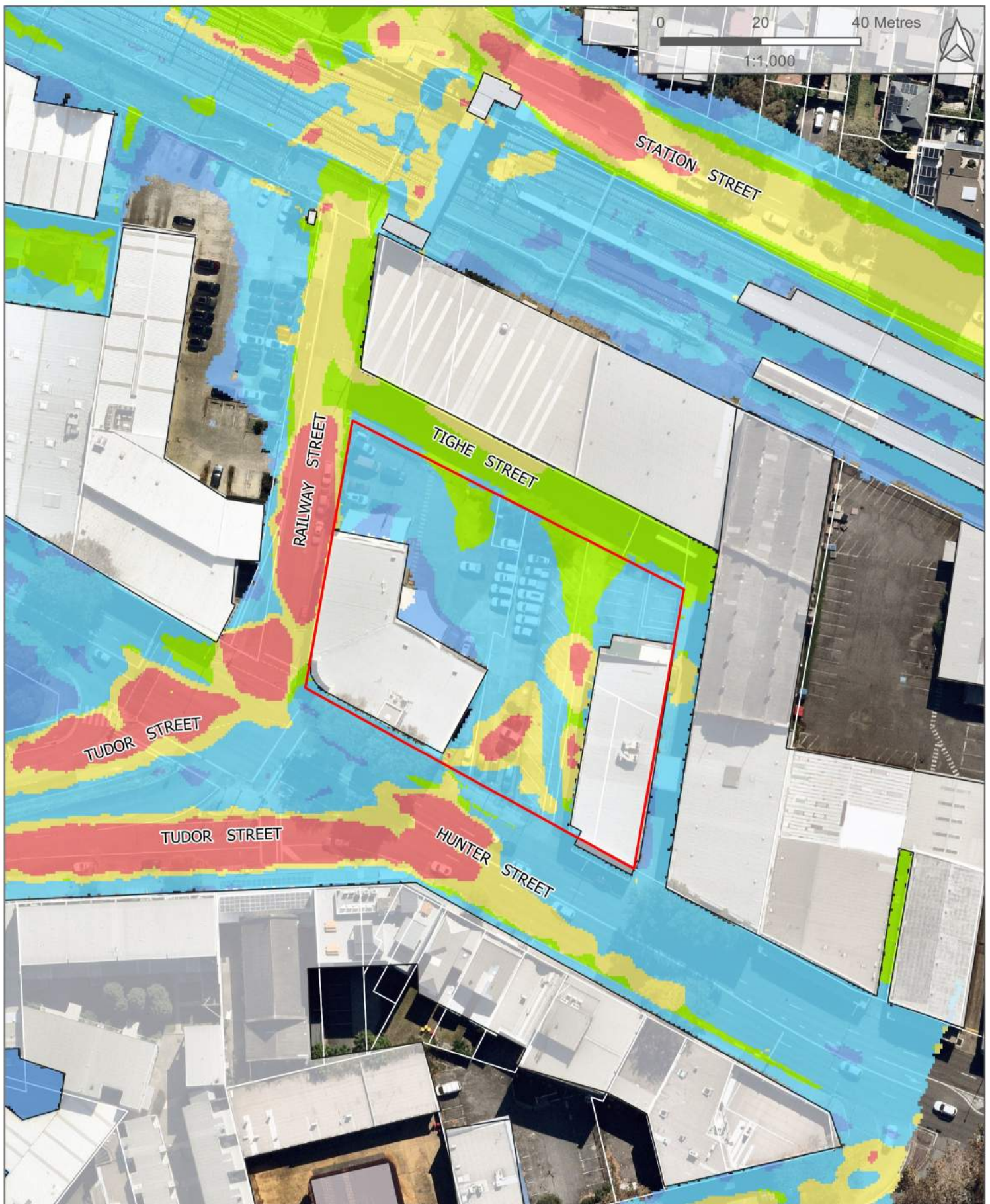
 Subject Site	Flood Velocity (m/s)	 1.5 - 2.0
 Existing Buildings	 0.0 - 0.5	 2.0 - 2.5
 Velocity Vectors	 0.5 - 1.0	 2.5 - 3.0
	 1.0 - 1.5	 3.0 - 5.0

Figure B11

Existing Case
PMF Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

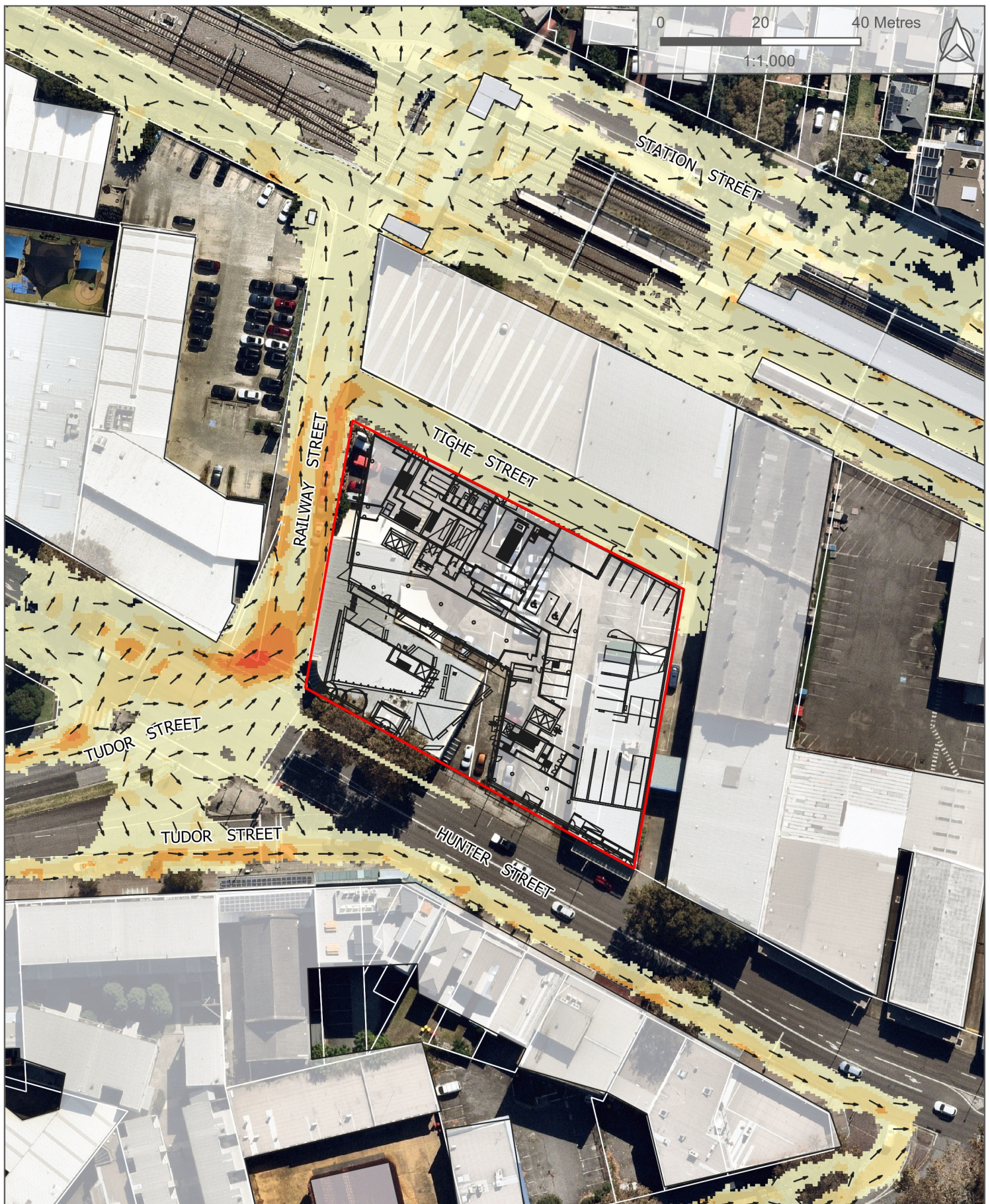
 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure B12

Existing Case
PMF Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	Flood Velocity (m/s)	 1.5 - 2.0
 Existing Buildings	 0.0 - 0.5	 2.0 - 2.5
 Velocity Vectors	 0.5 - 1.0	 2.5 - 3.0
	 1.0 - 1.5	 3.0 - 5.0

Figure C2

Developed Case
10% AEP Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

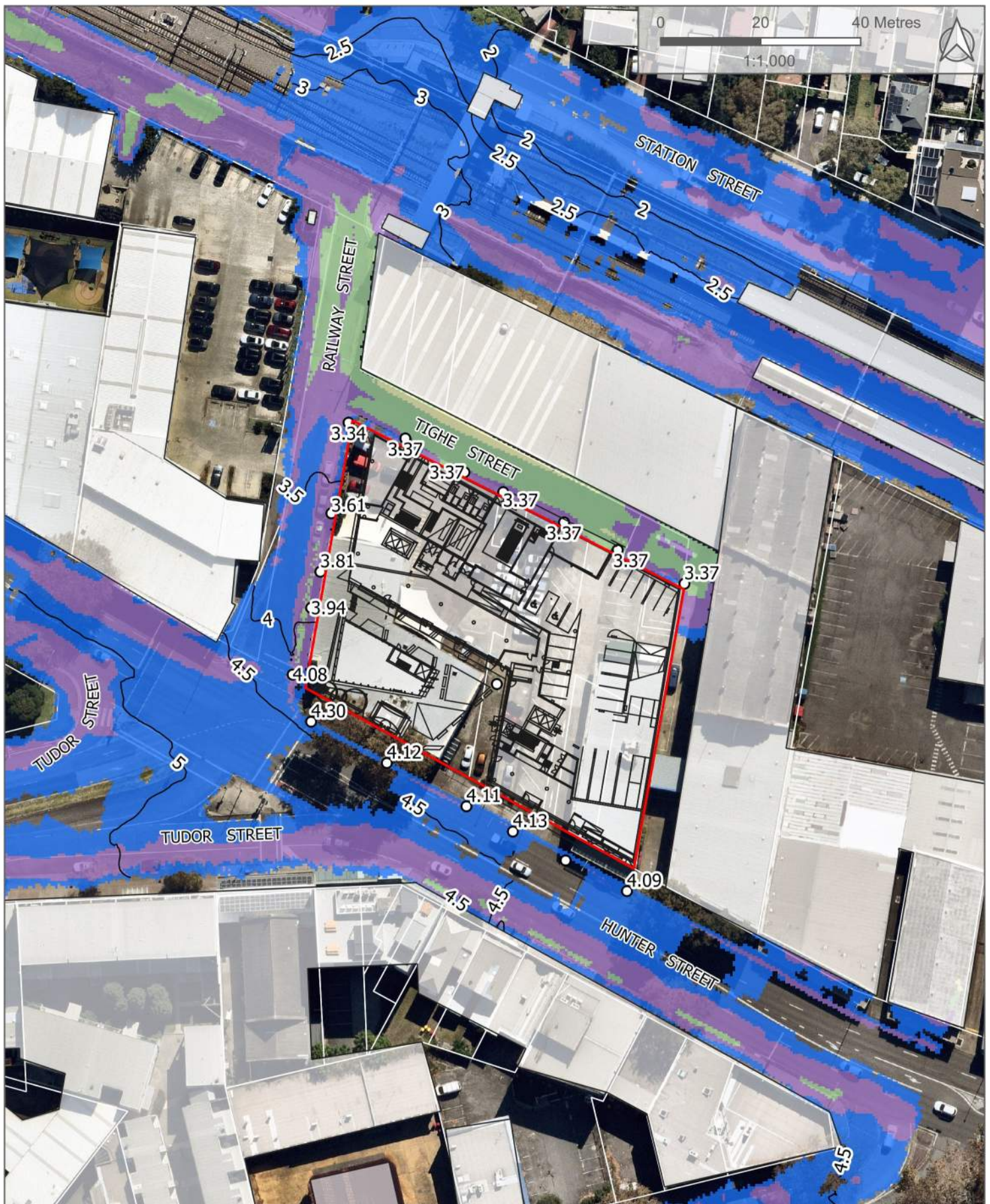
 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure C3

Developed Case
10% AEP Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	Flood Depth (m)	 0.5 - 0.8
 Existing Buildings	 0.0 - 0.1	 0.8 - 1.2
 Flood Elevation Points	 0.1 - 0.3	 1.2 - 2.0
 Flood Elevation (m AHD)	 0.3 - 0.5	 >2

Figure C4

Developed Case
1% AEP Flood Depth and Elevation

924 Hunter Street
Newcastle West NSW 2302
NL200577



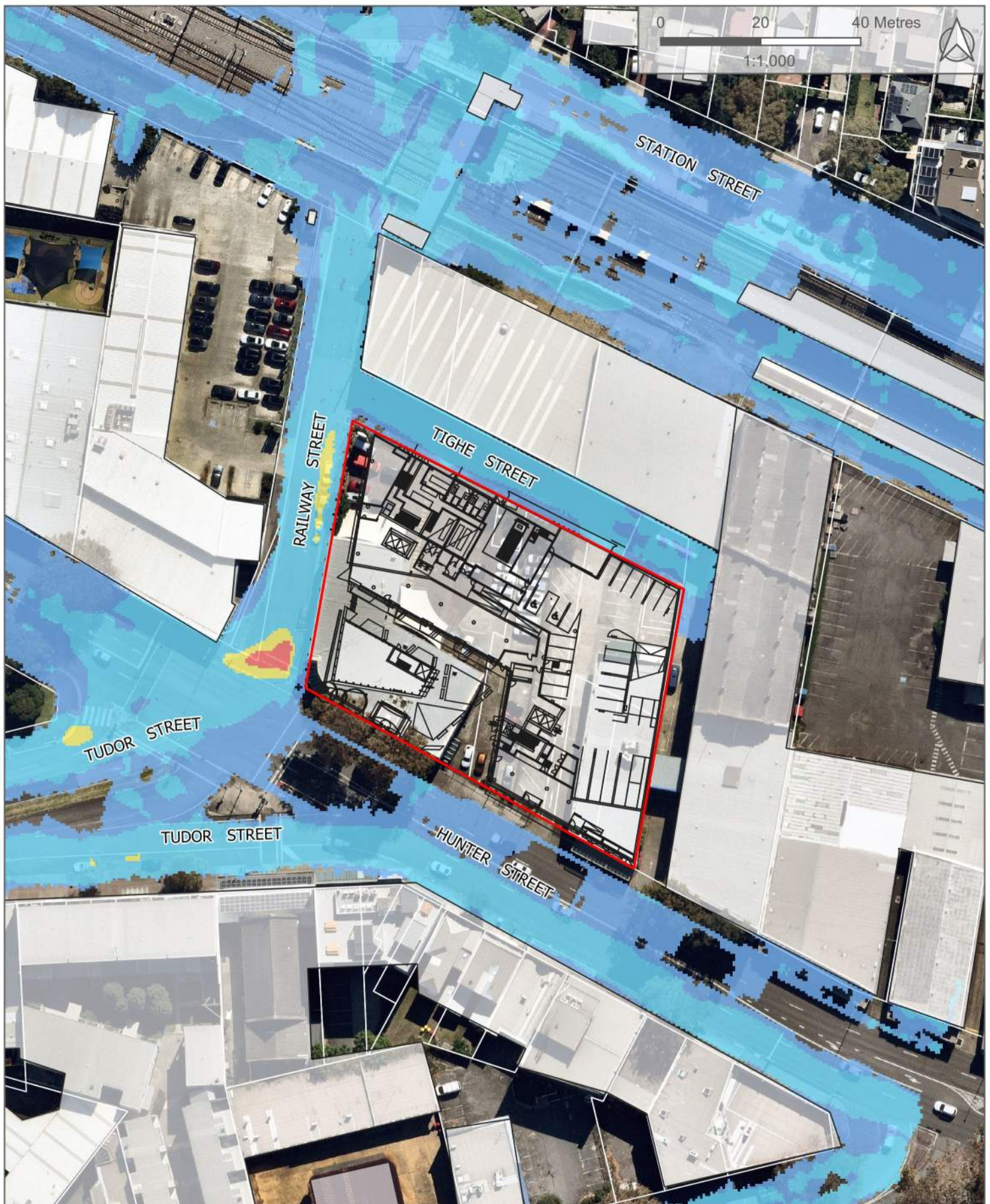


Legend		
	Subject Site	
	Existing Buildings	
	Velocity Vectors	
	Flood Velocity (m/s)	
		0.0 - 0.5
		0.5 - 1.0
		1.0 - 1.5
		1.5 - 2.0
		2.0 - 2.5
		2.5 - 3.0
		3.0 - 5.0

Figure C5
Developed Case
1% AEP Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

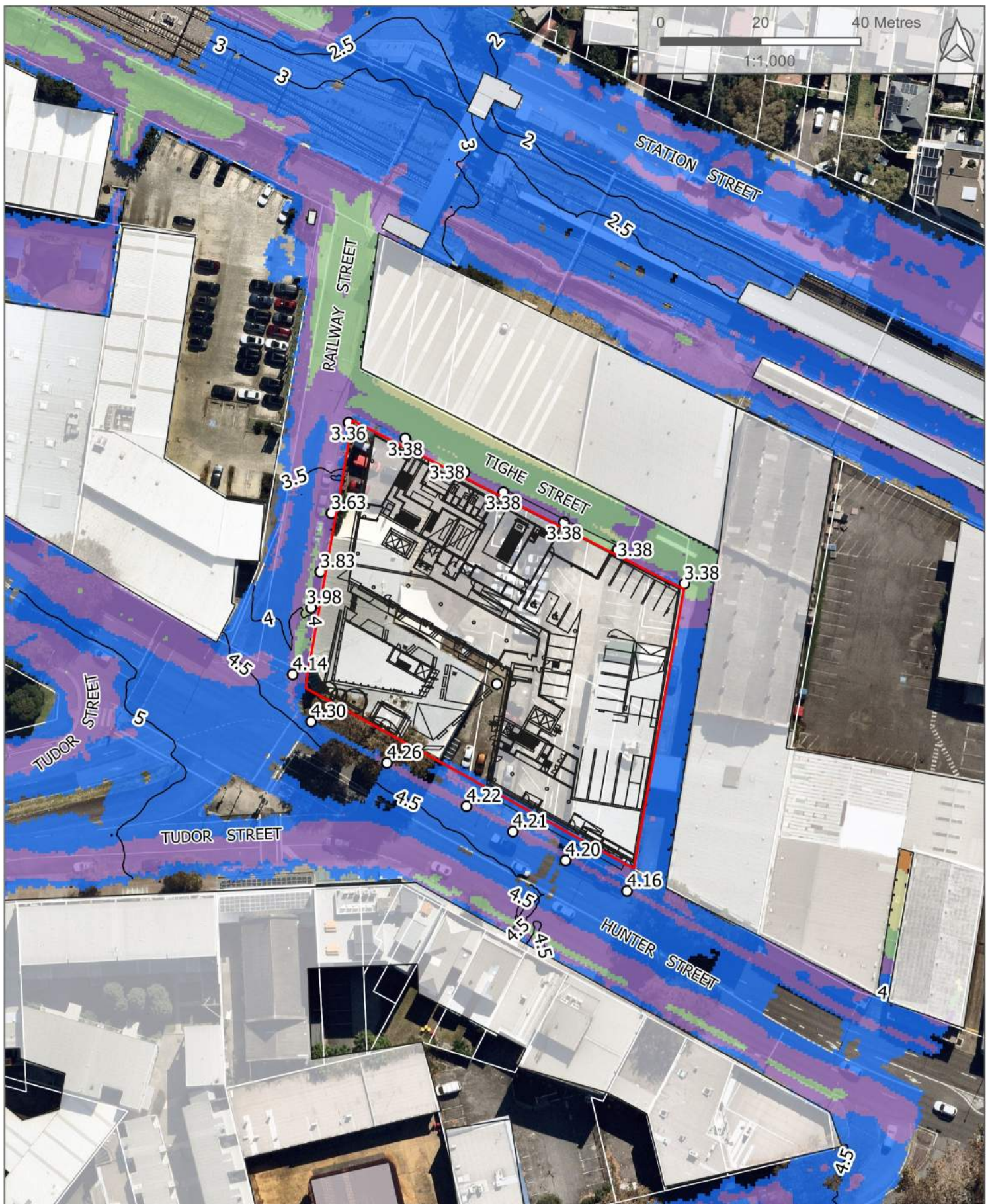
 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure C6

Developed Case
1% AEP Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	Flood Depth (m)	 0.5 - 0.8
 Existing Buildings	 0.0 - 0.1	 0.8 - 1.2
 Flood Elevation Points	 0.1 - 0.3	 1.2 - 2.0
 Flood Elevation (m AHD)	 0.3 - 0.5	 >2

Figure C7

Developed Case
1 in 200 AEP Flood Depth and Elevation

924 Hunter Street
Newcastle West NSW 2302
NL200577





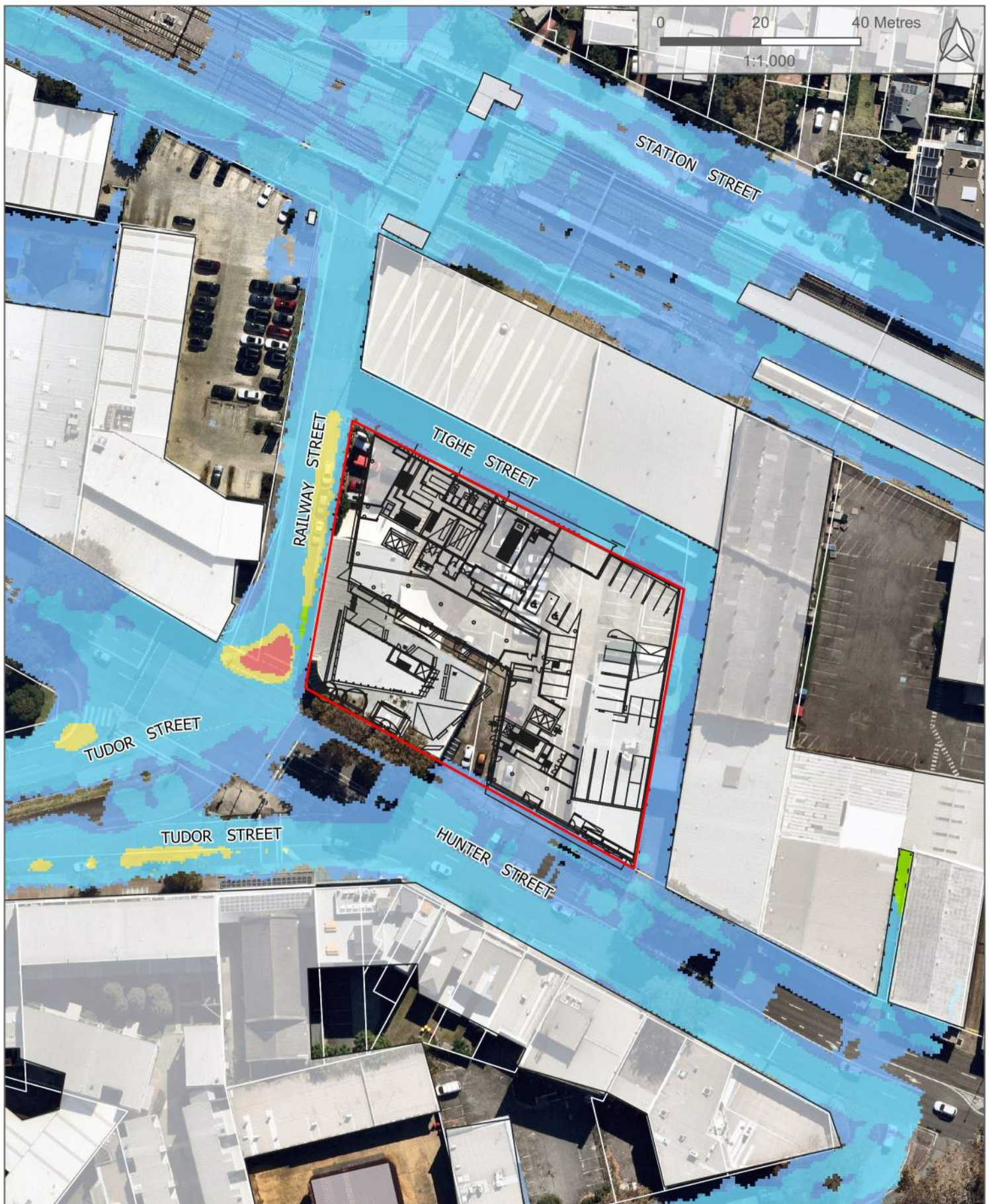
Legend		
	Subject Site	
	Existing Buildings	
	Velocity Vectors	
	Flood Velocity (m/s)	
	0.0 - 0.5	 1.5 - 2.0
	0.5 - 1.0	 2.0 - 2.5
	1.0 - 1.5	 2.5 - 3.0
		 3.0 - 5.0

Figure C8

Developed Case
1 in 200 AEP Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure C9

Developed Case
1 in 200 AEP Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577



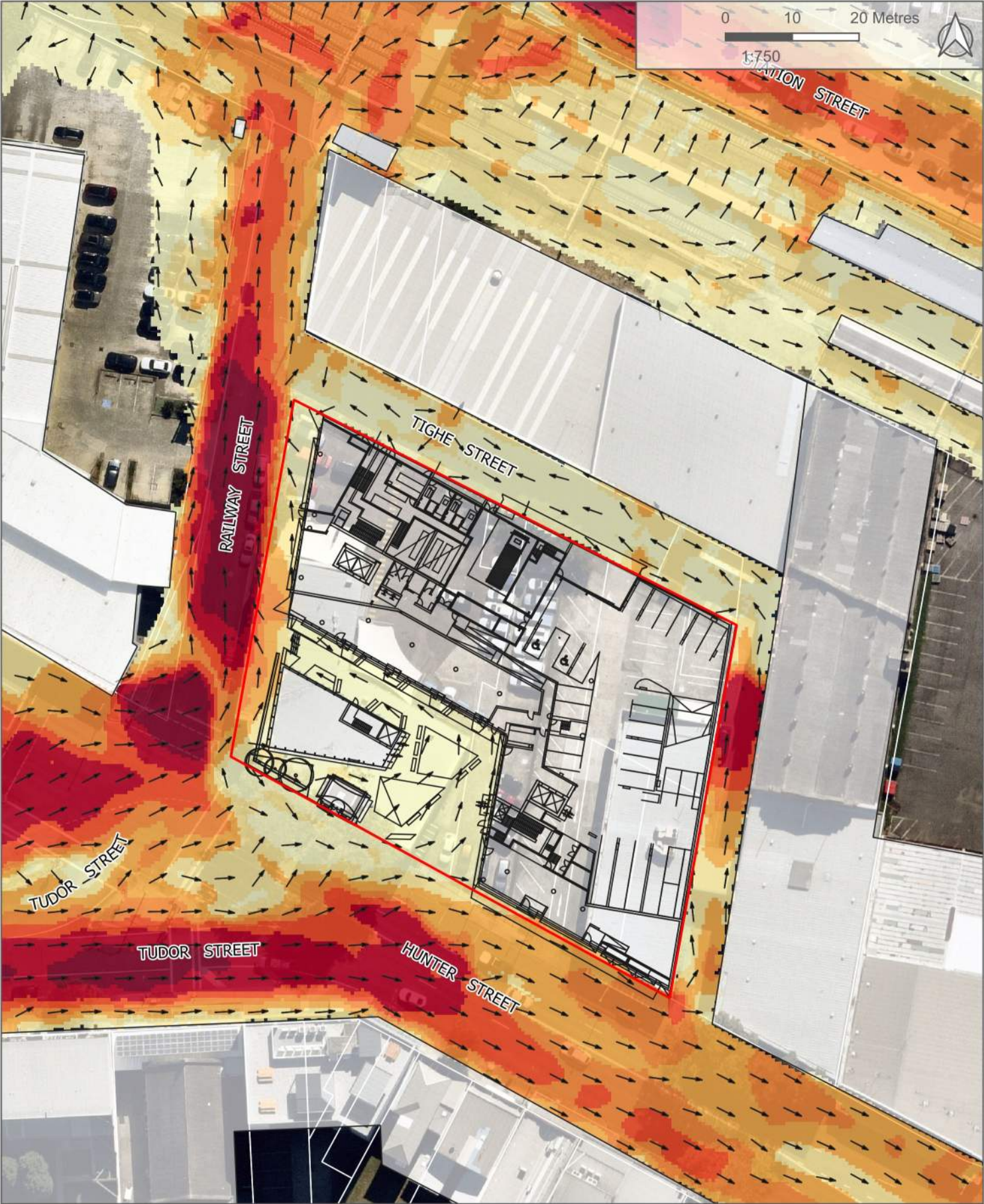


Figure C10

924 Hunter Street
Newcastle West NSW 2302
NL200577



NORTHROP

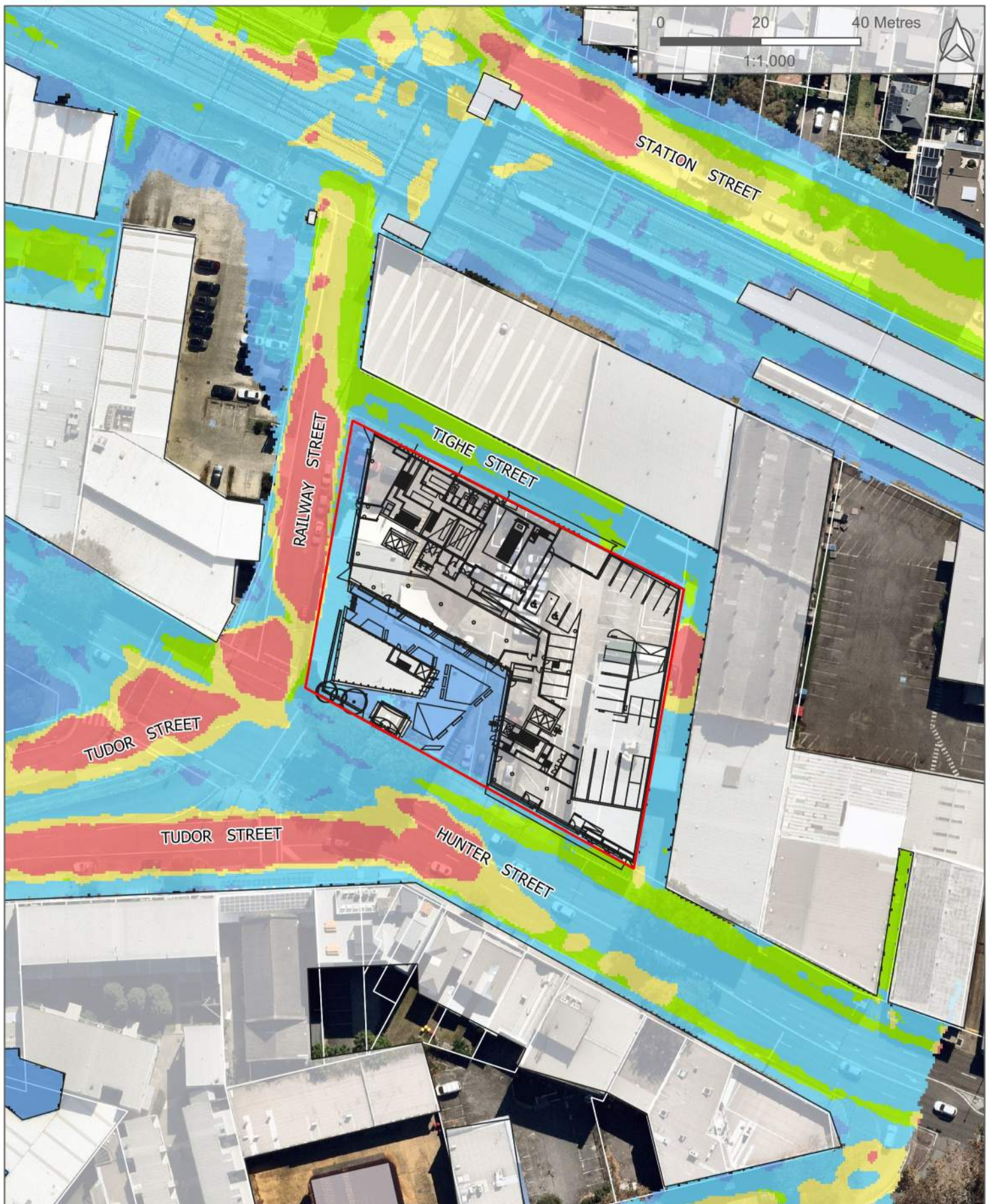


Legend		
	Subject Site	Flood Velocity (m/s)  1.5 - 2.0
	Existing Buildings	 0.0 - 0.5  2.0 - 2.5
	Velocity Vectors	 0.5 - 1.0  2.5 - 3.0
		 1.0 - 1.5  3.0 - 5.0

Figure C11
Developed Case
PMF Flood Velocity and Vectors

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	NCC Flood Hazard Classification
 Existing Buildings	 H1
	 H2
	 H3
	 H4
	 H5

Figure C12

Developed Case
PMF Flood Hazard

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 	Subject Site	Depth Difference	 -0.01 - 0.01
 	Proposed Development	 ≤ -0.10	 0.01 - 0.05
		 -0.10 - -0.05	 0.05 - 0.10
		 -0.05 - -0.01	 > 0.10

Figure D1

Pre to Post Comparison
1% AEP Flood Depth

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

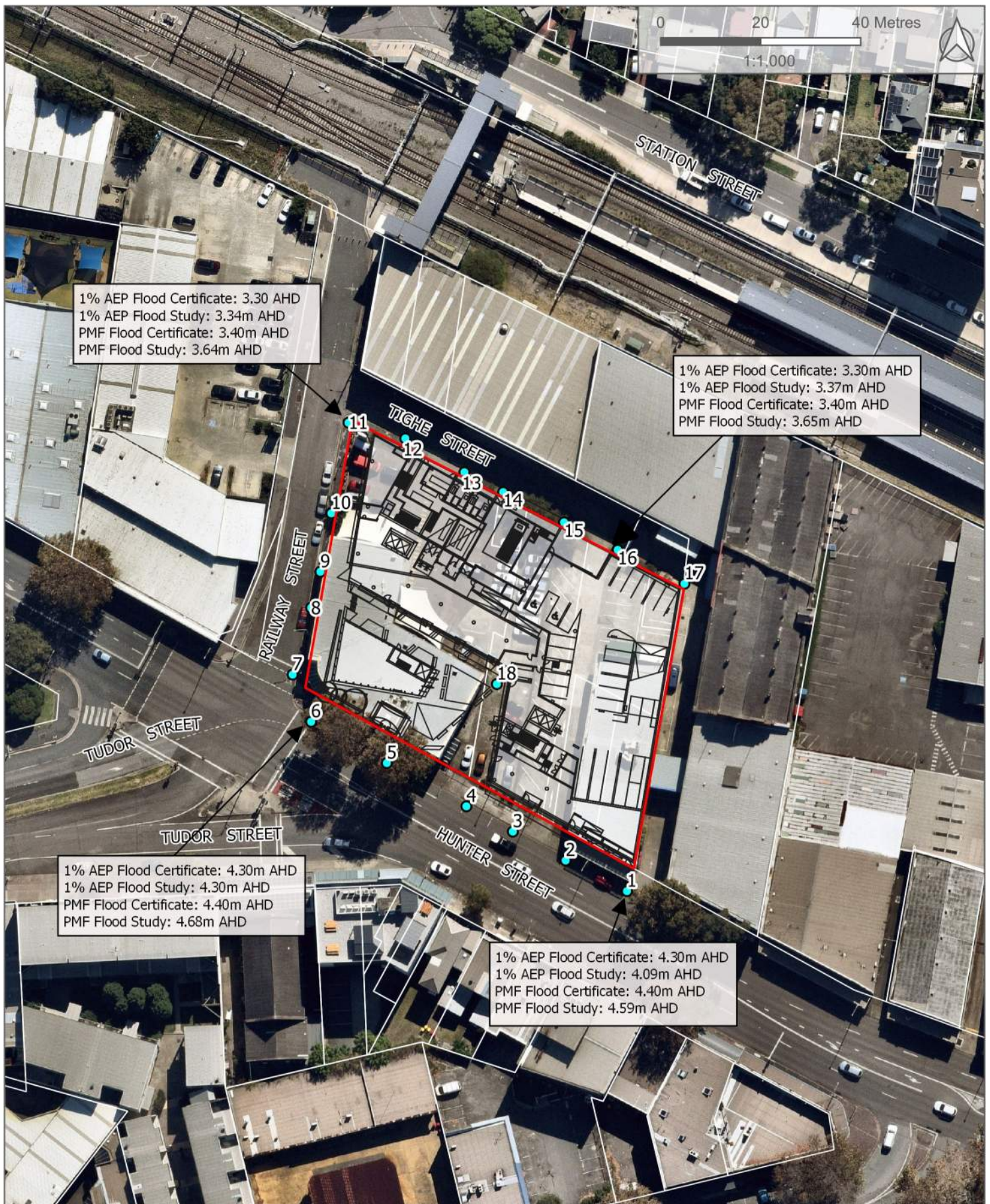
 Subject Site	Velocity Difference	 0.01 - 0.05
	 <= -0.10	 0.05 - 0.10
	 -0.10 - -0.05	 0.10 - 0.50
	 -0.05 - -0.01	 0.50 - 1.00
	 -0.01 - 0.01	

Figure D2

Pre to Post Comparison
1% AEP Flood Velocity

924 Hunter Street
Newcastle West NSW 2302
NL200577





Legend

 Subject Site	Velocity Difference	 0.01 - 0.05
	 <= -0.10	 0.05 - 0.10
	 -0.10 - -0.05	 0.10 - 0.50
	 -0.05 - -0.01	 0.50 - 1.00
	 -0.01 - 0.01	

Figure D3

Flood Certificate Comparison

924 Hunter Street
 Newcastle West NSW 2302
 NL200577



Flood Risk

Existing Flood Risk

In accordance with Section 4.01 *Flood Management* from the NCC DCP divides property hazard into five different categories, H1 to H5. Table 5 below presents these categories with respect to the 1% AEP design flood event.

Table 5 - Property Hazard extracted from the NCC DCP

H ₁	hydraulically suitable for parked or moving cars $V < 0.5\text{m/sec}$ and $d < 0.3\text{m}$
H ₂	hydraulically suitable for parked or moving heavy vehicles and wading by able-bodied adults $V < 2\text{m/sec}$, $d < 0.8\text{m}$ and $v < 3.2 - 4*d$
H ₃	hydraulically suitable for light construction (<i>eg. timber frame and brick veneer</i>) $v < 2\text{m/sec}$, $d < 2\text{m}$, $v*d < 1$
H ₄	hydraulically suitable for heavy construction (<i>eg. steel frame and reinforced concrete</i>) $v < 2.5\text{m/sec}$, $d < 2.5\text{m}$ and $v*d < 2.5$
H ₅	generally unsuitable

Figure B6 presents the existing hazard categories during the 1% AEP event and shows that an H1 hazard is present over the majority of the site with H2 hazard along the northern boundary. Table 5 indicates that most of the site is suitable for parked or moving vehicles.

The floor level of the existing building is approximately 4.4m AHD which is in the order of 100mm above the 1% AEP flood level. NCC's DCP states that "floor levels of all occupiable rooms of all buildings are not set lower than the flood planning level (FPL)" which is typically taken as the 1% AEP plus 500mm freeboard. Therefore, the floor level of the current building does not comply with this section of the DCP.

Section 4.01 *Flood Management* from the NCC DCP divides life hazard into five different categories, L1 to L5 which are presented below in Table 6. Council's flood certificate places the site in an L2 hazard category which occurs during the PMF event for the existing scenario. This indicates the site experiences flash flooding with H1 or H2 hydraulic hazard. Revised modelling, presented in Figure B12 shows isolated areas of H3, H4 and H5 through the hardstand area. This results in a L5 life hazard category and would require on-site refuge to be included in the development proposal.

Developed Flood Risk

The proposed development will change the risk to property and life onsite and consideration has been given to minimising and managing any increases. The below provides a summary of the flood risk expected for the proposed development and the expected change in risk.

Figure C6 shows that the proposed development has been categorised mostly as H1 hazard, with a small section having H2 hazard which is largely unchanged from the existing scenario. The development seeks to maintain the same flood risk to vehicles and the ground floor carpark has been set at 3.30m AHD, which results in less than 100mm depth in the 1% AEP.

Revised modelling indicates a higher life hazard (up to L5) in isolated areas across the site. On this basis, the proposed developed provides space on the first floor and above levels for occupants from the ground level to seek refuge on-site during a flood emergency. The structure will be designed to withstand all loads from all flood events up to and including the PMF event to facilitate on-site refuge. The revised PMF hydraulic hazards are presented in Figure C12. This shows a reduction to H2, or L2 life hazard category across the subject site.

A Flood Emergency Response plan is recommended at occupation certificate stage to outline the emergency evacuation procedures and considerations for the site. This will outline the use of refuge and access areas before, during and after a flood event. It will consider onsite refuge and early evacuation response options. These are examples of behaviour modification measures that are likely to assist in reducing the risk to life in all flood events.

Table 6 - Life Hazard as extracted from the NCC DCP

				Hydraulic Behaviour Threshold				
				H1	H2	H3	H4	H5
Catchment Response Time	Riverine			L1				
	Flash	Escape Route to flood free land	available	L2		L4		L5
			not available	L3				

L1	Riverine flooding where there is sufficient time to remove people from the risk to their lives by means of formal community evacuation plans. Not relevant to flash flooding scenarios such as the Wallsend Catchment.
L2	Short duration flash flooding with no warning time in circumstances where there is an obvious escape route to flood free land with enclosing waters during the PMF which are suitable for wading or heavy vehicles ie. hydraulic threshold does not exceed H2. On site flood refuge not necessary and normal light frame residential building are appropriate.
L3	Short duration flash flooding with no warning time and no obvious escape route to flood free land with enclosing waters during the PMF which are suitable for wading or heavy vehicles ie. hydraulic threshold does not exceed H2. On site flood refuge not necessary and normal light frame residential buildings and appropriate.
L4	Short duration flash flooding with no warning time and enclosing waters during the PMF not suitable for wading or heavy vehicles ie. hydraulic threshold exceeds H2. On site refuge is necessary and if hydraulic threshold exceeds H3, heavy frame construction or suitable structural reinforcement required.
L5	Short duration flash flooding with no warning time and enclosing waters during the PMF have too much energy for normal heavy building construction and therefore it is generally not possible to construct a flood refuge ie. hydraulic threshold is H5. The risk to life is considered extreme and the site is unsuitable for habitation, either residential or short stay.

Council Requirements

The Council LEP requirements have been addressed in **Table 7** below. The Council DCP requirements have been addressed in **Table 8** overleaf.

Table 7 – LEP Requirements

Requirement	Response
(1) The objectives of this clause are as follows	
(a) to minimise the flood risk to life and property associated with the use of land,	The proposal has been set at the floor levels above the existing with respect to risk to property. Risk to life mitigation measures are discussed further in Items 2(c) and 2(d) below.
(b) to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,	This is discussed in Item 2(a) below.
(c) to avoid adverse or cumulative impacts on flood behaviour and the environment,	The proposal is not expected to significantly impact other properties within the surrounding environment. The impacts in the 1% AEP are presented in Figure D1.
(d) to enable the safe occupation and efficient evacuation of people in the event of a flood.	This is addressed in Item 2(c) below.
(2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development	
(a) is compatible with the flood function and behaviour on the land, and	The site is not affected by a floodway and is not a flood storage area, as noted in Flood Information Certificate FL2019/00248. The development is considered compatible with the flood function and behaviour expected at the subject site on this basis.
(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and	The proposal will remove the potential overland flow path through the site. This arrangement is not expected to significantly impact other properties in the 1% AEP as the overland flow path is unlikely to be activated in this event. The impacts in the 1% AEP flood event are presented in Figure D1.
(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and	The proposed development itself acts as a refuge in the PMF event. It is expected this vertical evacuation will not influence the capacity of existing evacuation routes.
(d) incorporates appropriate measures to manage risk to life in the event of a flood, and	The ability for onsite flood refuge is consistent with Newcastle DCP and adopted City-wide Floodplain Risk Management Study and Plan. Furthermore, it is considered feasible to implement a Flood Emergency Response Plan as part of the development to increase the awareness of flood risks, identify persons responsible for emergency response, and recommend actions to prepare and respond to a flood emergency.

Requirement	Response
(c) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses.	Limited impacts are expected from the pre to post conditions due to the similar extents of disturbance. As such, it is not expected that proposed development will cause any increases in erosion or siltation downstream, destruction of riparian vegetation, or reduction in the stability of riverbanks or watercourses.
(3) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters	
(a) the impact of the development on projected changes to flood behaviour as a result of climate change,	The 1 in 200 AEP was considered as a proxy for climate change. The flood levels are presented in Figure C7.
(b) the intended design and scale of buildings resulting from the development,	The scale of the buildings is commensurate with those in the vicinity.
(c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,	Onsite flood refuge is an appropriate measure to manage the risk to life. Furthermore, it is considered feasible to implement a Flood Emergency Response Plan as part of the development to increase the awareness of flood risks, identify persons responsible for emergency response, and recommend actions to prepare and respond to a flood emergency.
(d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.	Given the context of the site it is unlikely to be significantly impacted by coastal erosion.

Table 8 – DCP requirements

Requirement	Response
4.01.01 Floodways 1. No building or structure erected and no land filled by way of the deposition of any material within any area identified as a floodway except for minor alterations to ground levels which do not significantly alter the fundamental flow patterns for: a) roads, b) parking, c) below ground structures, d) landscaping. 2. Where dividing fences across floodways are unavoidable, they are constructed only of open type fencing that does not restrict the flow of flood waters and are resistant to blockage. New development shall be designed to avoid fences in floodways.	Not applicable as subject site is not affected by a floodway.

Requirement	Response
4.01.02 Flood Storage 1. Not more than 20% of the area of any development site in a flood storage area is filled. The remaining 80% is generally developed allowing for underfloor storage of floodwater by the use of suspended floor techniques such as pier and beam construction. 2. Where it is proposed to fill development sites, the fill does not impede the flow of ordinary drainage from neighbouring properties, including overland flow.	The subject site is not deemed as flood storage, as outlined in FL2019/00248. Therefore, this DCP control is not applicable.
4.01.03 Management of risk to property 1. Floor levels of all occupiable rooms of all buildings are not set lower than the FPL. 2. Garage floor levels are no lower than the 1% Annual Exceedance Probability Event. However, it is recognised that in some circumstances this may be impractical due to vehicular access constraints. In these cases, garage floor levels are as high as practicable. 3. Basement garages may be acceptable where all potential water entry points are at or above the probable maximum flood (PMF), excepting that vehicular entry points can be at the FPL. In these cases, explicit points of refuge are accessible from the carpark in accordance with the provisions for risk to life set out below. 4. Electrical fixtures such as power points, light fittings and switches are sited above the FPL unless they are on a separate circuit (with earth leakage protection) to the rest of the building. 5. Where parts of the building are proposed below the flood planning level, they are constructed of water-resistant materials. 6. Areas where cars, vans and trailers are parked, displayed, or stored are not located in areas subject to property hazard of P2 or higher. Containers, bins, hoppers, and other large floatable objects also are not stored in these areas. Heavy vehicle parking areas are not located in areas subject to property hazard P3 or higher. 7. Timber framed, light steel construction, cavity brickwork and other conventional domestic building materials are generally not suitable forms of construction where the property hazard is P4 or higher. Where property hazard is P4, the structure is certified by a practising structural engineer to withstand the hydraulic loads (including debris) induced by the flood waters.	Council has already accepted a variation to item 4.01.03(1) by allowing finished floor levels at 4.4m AHD (or the PMF level on the flood certificate). The PMF has increased in the site-specific model to 4.7m AHD due to representation of the buildings and cell size used. A floor level of 4.4m AHD will maximise street activation and consideration should be given to measures to minimise risk to property such as selection of flood compatible materials below 4.7m AHD and protection to lift shafts and electrical infrastructure. The carpark level has been adopted at 3.3m AHD which represents the 1% AEP from the flood certificate, with access to Tighe Street. The site-specific model has a small increase (in the order of 70mm). This is likely to result in H1 hazard through the carpark. No basement garages are proposed as part of the design. At detailed design stage, consideration should be given to the electrical fixtures within the development to be positioned above 4.7m AHD. At detailed design stage, consideration should be given by a suitably qualified structural engineer that the additional building loads do not affect the ability of the building to withstand the forces due to flood water.

Requirement	Response
8. Property hazards of P5 are generally unsuitable for any type of building construction and building is discouraged from these areas. Where building is necessary, the structure is certified by a practising structural engineer to withstand the hydraulic loads (including debris) induced by the flood waters.	
4.01.04 Management of potential risk to life <u>Risk to life category L5</u> 1. Risk to life hazards of L5 are generally unsuitable for any type of building construction and building is discouraged from these areas. Reliable safe escape to high ground is likely not possible and normal building construction would likely suffer structural failure from the force of floodwaters, so that any people seeking refuge in the building would likely perish. Where building is necessary, the structure is certified by a practising structural engineer to withstand the hydraulic loads (including debris) induced by the flood waters. <u>Islands</u> 2. The formation of islands in the floodplain during a flood is a potentially dangerous situation, especially when floods larger than the FPL totally inundate the island for an extended period. Development of such land is considered with great care. <u>On-site refuge</u> 3. On-site refuge is to be provided for all development where the life hazard category is L4 unless the proposed development is less than 40m from the perimeter of the PMF extent and the higher ground is accessible. <u>Standards for on-site refuge</u> 4. Where on-site refuge is required for a development, it should comply with the following minimum standards: (a) The minimum on-site refuge level is the level of the PMF. On-site refuges are designed to cater for the number of people reasonably expected on the development site and are provided with emergency lighting. (b) On-site refuges are of a construction type able to withstand the effects of flooding. Design certification by a practising structural engineer that the building is able to withstand the hydraulic loading due to flooding (at the PMF).	The flood certificate notes L2 life hazard category. Revised flood modelling in the PMF resulted in a higher category of L5, therefore on-site refuge is proposed. It is considered feasible to provide onsite within the higher levels of the proposed development. At detailed design stage, consideration should be given by a suitably qualified structural engineer that the additional building loads do not affect the ability of the building to withstand the forces due to flood water.

Discussion

Comparison with Previous Modelling

Previous flood studies showed an overland flow path through the subject site in the 1% AEP. Interrogating these studies indicated the terrain did not represent the gutter section in Hunter Street resulting in flows from Tudor Street discharging across the Hunter Street crest and through the subject site. The results of this assessment indicate flows largely are conveyed through the slip lane from Tudor Street into Hunter Street, with the majority of crest overtopping occurring to the west and being conveyed down Railway Street. Flow depths adjacent to the development on the northern side of Hunter Street are generally less than 100mm.

In the PMF, the flood certificate notes a level of 4.4m AHD in Hunter Street. Review of the result files indicate a level of 4.7m AHD within Hunter Street in the adjacent reporting cells. It appears as though there was no representation of the existing building on-site in the PMF which has allowed the terrain, and water surface profile, to drop away more rapidly at this boundary. A value of 4.68m AHD has been calculated in this assessment which accounts for the representation of the building and matches the previous study results in other areas of Hunter Street.

A figure showing a comparison of levels is presented in Figure D3.

Variation to DCP Floor Level Requirements

An email from Council dated 3 February 2022 notes a variation to the typical DCP requirements of 300 – 500mm above the 1% AEP is acceptable in this instance based on the level of the PMF. The level of the PMF referred to in the email is 4.4m AHD, which represents the previous flood modelling. As described above this did not take into consideration the existing buildings on the subject site and potentially underestimated this level.

Furthermore, it is noted the PMF is an extremely unlikely event with an annual exceedance probability of 1×10^{-7} nominally (1 in 10 million).

Consideration has been given to a 1 in 200 AEP in this assessment which notes increases generally less than 100mm and a level no more than the 1% AEP, or 4.3m AHD.

Other jurisdictions such as the City of Sydney permit retail tenancies at the 1% AEP subject to a merit-based assessment. We believe this is appropriate in this case on the basis.

- Street activation is maximised.
- The 1 in 200 AEP shows very little change and is unlikely to inundate the proposed floor levels.
- Use of flood compatible materials at the base of fit outs, locating electrical fixtures above the PMF level, and providing protection to lift shafts minimises the risk to property.

Conclusion

A flood impact assessment has been undertaken for the proposed development at Dairy Corner, 924 Hunter Street, Newcastle West, NSW.

This study has reviewed the existing flood extents across the subject site, the flood impact of the proposed development as well as the compliance with respect to Council's flood related Development Controls and LEP requirements. The model parameters and assumptions made during the development this study have also been discussed.

It was concluded.

- the subject site is marginally affected by flooding in the 1% AEP from Tighe Street.
- the proposed development is not expected to result in a significant adverse impact in adjacent properties in the 1% AEP.
- risks to property can be minimised through selection of finished surface and floor levels, flood compatible materials and fixtures.
- risk to life can be minimised through the available evacuation and refuge opportunities onsite.

We commend our findings to Council for their review. Should you have any queries regarding this correspondence, please feel free to contact the undersigned on (02) 4943 1777.

Prepared by:



Danielle Nicol
Environmental Engineer

Checked by:



Angus Brien
Principal | Flood Engineer

Appendix A - Correspondence

REQUEST FOR INFORMATION REGARDING COMPLYING DEVELOPMENT CRITERIA



04 December 2019

Mccloy Newcastle West Pty Limited
2/317 Hunter Street
Newcastle NSW 2300

Dear Sir/Madam

Flood Information Certificate No: FL2019/00248

Land: Lot 1 DP 395367
Lot 2 DP 445736
Lot 2 DP 126
Lot 1 DP 456088
Lot 1 DP 342675
Lot 1 DP 445736
Lot 23 DP 126
Lot 24 DP 126
Lot 1 DP 1091173
Lot 2 DP 1091173

Property Address: 924 Hunter Street Newcastle West NSW 2302

Thank you for your recent enquiry regarding flood behaviour at the above property. This letter confirms the property is located in a flood prone area.

The pertinent features of the flood behaviour are estimated as follows:

Ocean Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "Defined Flood Level" in the Building Code of Australia)	Not Affected
Estimated Maximum Flow Velocity of floodwaters (in the "Defined Flood Event" as per the Building Code of Australia)	NA
Highest Property Hazard Category	NA
Estimated Probable Maximum Flood Level	3.4m AHD (velocity 0.1m/s)
Highest Life Hazard Category	L1 (H2)

Local Catchment Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "Defined Flood Level" in the Building Code of Australia)	4.3m AHD (Hunter Street frontage) 3.1m AHD (Northern frontage)
Estimated Maximum Flow Velocity of floodwaters (in the "Defined Flood Event" as per the Building Code of Australia)	0.7m/s
Highest Property Hazard Category	P2
Estimated Probable Maximum Flood Level	4.4m AHD (Hunter Street frontage) 3.2m AHD (Northern frontage) (velocity 1.1m/s)
Highest Life Hazard Category	L2 (H2)

The flood study from which the above information is derived is part of a Newcastle City Wide Floodplain Management Plan. The above advice may change in the future, however the advice is based on the best information held by Council at the time of issue of this certificate.

The above ocean flood level estimates include a sea level rise relative to 1990 mean sea levels of 90cm by 2100, as used in the Newcastle City-wide Floodplain Risk Management Study and Plan (June 2012).

The Newcastle Development Control Plan 2012 addresses the issues of flood management for new development. You can view the development control plan at www.newcastle.nsw.gov.au. In summary, the following requirements apply for all future development applications on the site.

Development in a floodway is not generally allowable due to likely redistribution of flood water.	Not Applicable
Filling of a flood storage area by more than 20% is not generally allowable due to redistribution of flood water.	Not Applicable
Minimum floor level for occupiable rooms in a new development on this site is: (equivalent to the "Flood Hazard Level" in the Building Code of Australia)	4.6m AHD (Hunter Street frontage) 3.4 m AHD (Northern frontage)
Is onsite flood refuge required?	No

Council holds no information concerning floor levels of existing structures on the site. Site levels and floor levels should be verified by survey based on the Australian Height Datum.

Complying Development Criteria

1.	Is the land identified as a Flood Control Lot?	Yes
2.	Is any part of the land identified as being:	
a)	a flood storage area, or	No
b)	a floodway area, or	No
c)	a flow path, or	No
d)	a high hazard area, or	No
e)	a high risk area	No

Based on the information contained within the above table the lot meets the “*development standards for flood control lots*”, to the extent specified within the relevant subclause 3.5(1) or 3A.38(1) of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Please note that the information contained in this certificate may alter in the future. The applicant should at all times ensure the currency of this information.

Should you require any further clarification please contact Alastair Peddie on 4974 2788.

Yours faithfully

Alastair Peddie

SENIOR DEVELOPMENT OFFICER (Engineering)

From: Damian Jaeger <djaeger@ncc.nsw.gov.au>
Sent: Thursday, 3 February 2022 8:39 PM
To: Anthony Darcy
Cc: Luke Mahaffey
Subject: DA2021-01459 - Request for Information - 924 Hunter Street Newcastle West

Hi Anthony/Luke

Further to my conversation with Luke day, I've detailed below a request for further information.

I'd note that assessment is on-going and further issues may arise, these will be provided where applicable.

Engineering

Flood Management

The site is subject to flooding. The development is to comply with the relevant requirements of Section 4.01- Flood Management of the NDCP 2012.

The site is not identified as being affected by a floodway or within a flood storage area.

The most significant flood affectation of the subject property is as a result of Local Catchment Flooding, however the site may also be affected to a lesser degree by Ocean Flooding (including assumptions for future sea level rise to year 2100).

The application has relied on Flood Information Certificate FL2019/00248 issued by the City of Newcastle (CN) on 04 December 2019. Having reviewed the available flood mapping data on CN's 'WaterRide' software, it is concluded that the flood levels identified in FL2019/00248 for the northern part of the site might have been incorrectly derived from data associated with the northern side of Tighe Street and not adjacent the northern property boundary of the subject site. This is discussed below in greater detail.

The Defined Flood Level (DFL) in the 1% AEP flood event ranges between 4.3 m AHD (correctly identified in FL2019/00248) in the southern part of the site adjacent Hunter Street and 3.3 m AHD (erroneously cited as 3.1 m AHD in FL2019/00248) adjacent to the northern boundary of the site where vehicular access points are proposed to car parking and loading/unloading areas.

The estimated Probable Maximum Flood (PMF) level also ranges between 4.4 m AHD (correctly identified in FL2019/00248) in the southern part of the site and 3.4 m AHD (erroneously cited as 3.2 m AHD in FL2019/00248) adjacent to the northern boundary of the site.

When it is determined that the DFL plus freeboard (0.3 m to 0.5 m is typically applied dependent on specific site circumstances) is higher than the estimated PMF it is permissible to adopt the PMF level when establishing the Flood Hazard Level for occupiable rooms. Accordingly, FL2019/00248 correctly identifies that the minimum Finished Floor Level (FFL) (or Flood Hazard Level (FHL)) for habitable rooms for the site is set at 4.4 m AHD, representing the highest PMF level determined for the entire site.

FL2019/00248 also correctly identifies that the maximum estimated flow velocity of floodwaters is 0.7 m/s which, when combined with the estimated flood depth, categorises the Highest Property Hazard Category as 'P2' and the Highest Life Hazard Category as 'L2/H2'.

Based on the above, the following revised pertinent features of the flood behaviour are estimated as follows and have been adopted for the purpose of the further assessment below. Amended values are shown in bold/underlined text.

Ocean Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the “ <i>Defined Flood Level</i> ” in the Building Code of Australia)	Not Affected
Estimated Maximum Flow Velocity of floodwaters (in the “ <i>Defined Flood Event</i> ” as per the Building Code of Australia)	NA
Highest Property Hazard Category	NA
Estimated Probable Maximum Flood Level	3.4m AHD (velocity 0.1m/s)
Highest Life Hazard Category	L1 (H2)

Local Catchment Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the “ <i>Defined Flood Level</i> ” in the Building Code of Australia)	4.3m AHD (Hunter Street frontage) <u>3.3m AHD</u> <u>(Northern frontage)</u>
Estimated Maximum Flow Velocity of floodwaters (in the “ <i>Defined Flood Event</i> ” as per the Building Code of Australia)	0.7m/s
Highest Property Hazard Category	P2
Estimated Probable Maximum Flood Level	4.4m AHD (Hunter Street frontage) <u>3.4m AHD</u> <u>(Northern frontage)</u> (velocity 1.1m/s)
Highest Life Hazard Category	L2 (H2)

In summary, the following requirements are to apply to the proposed development.

Development in a floodway is not generally allowable due to likely redistribution of flood water.	Not Applicable
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Filling of a flood storage area by more than 20% is not generally allowable due to redistribution of flood water.	Not Applicable
Minimum floor level for occupiable rooms in a new development on this site is: (equivalent to the " <i>Flood Hazard Level</i> " in the Building Code of Australia)	4.6m AHD (Hunter Street frontage) 3.4m AHD (Northern frontage)
Is onsite flood refuge required?	No

The submitted plans indicate that at the Ground Floor level in the northern part of the site and associated with retail tenancy, substations, switch and pump rooms is proposed to have an FFL=3.4m AHD which is at the estimated FHL for that part of the site and, therefore, acceptable.

The Ground Floor carpark and delivery area with entrances off Tighe St are proposed at FFL=3.3 m AHD which is 100mm below the estimated FHL=3.4 m AHD. The submitted document titled 'Site Specific Flood Information' has relied on FL2019/00248 and identifies that clause 4.01.03 – Control 1 of Section 4.01- Flood Management of the NDCP 2012 allows the garage floor levels to be set no lower than the estimated 1% AEP flood level (3.3 m AHD) but does also note that the adopted FFL "*would have an expected freeboard of 200mm to the peak flood level*" in the 1% AEP flood event. Based on the revised flood level information above a FFL=3.3 m AHD for the carpark and loading/unloading area will comply with clause 4.01.03 but will also result in there being no freeboard to the peak flood level. If it is the intention of the applicant to provide freeboard to these service areas then they are encouraged to raise the floor level by 100mm to FFL=3.4m AHD (which is also the estimated PMF (FHL) level at the respective entry points). This could be achieved by the addition of entry ramp/weir structures set at not lower than the FHL=3.4 m AHD. Other personnel entry/exit doors (eg fire exits) would also need be set at this level and the lower part of the proposed slatted wall (refer Section B on Architectural Plan A-3002) would need to be replaced with a solid barrier wall to prevent flood water from entering the carpark.

The Ground Floor North Lobby with an entrance of Railway St has a proposed FFL=3.55m AHD. It is assumed that the applicant has done a simple interpolation between the flood levels at the northern and southern site boundaries using the values in FL2019/00248. In this location the available flood data indicates an estimated PMF level of approximately 3.64m AHD. This lobby gives access to the lift wells, Fire Control Room, the shared Back of House area which also connects to the abovementioned carpark. This FFL is to be raised to be at or above the estimated FHL=3.64 m AHD determined for this entry point.

The other ground floor retail/office/lobby spaces located toward the southern part of the site are shown to have an FFL=4.6 m AHD which is above the FHL=4.4 m AHD and is acceptable.

Notwithstanding the controls above which are to be applied directly to this development, a flood risk assessment is to be prepared, and submitted for CN's review, having regard to DCP2012 Section 4.01 - 'Flood Management' that demonstrates that the proposed development is suitable and that it will not have an adverse flood impact on other properties or infrastructure.

Stormwater Management

The applicant has correctly calculated minimum total stormwater runoff storage (98.5 kL) requirements using CN's deemed to satisfy provisions in Section 7.06 – Stormwater of DCP2012. However, the submitted design does not reflect or consider that the proposed 300 mm discharge pipe from the storage tank connects to an existing 225 mm pipe in the kerb inlet pit on Tighe St. When the tank is storing water to a level above the outlet pipe this will cause the pipe to flow full and will likely result in undesirable surcharging in Tighe St.

CN's flood data also suggests that Tighe St may be subject to inundation in all storm events down to (and possibly below) a 1 in 10 year rainfall event. Concern is expressed that the top water level in the storage tank and the associated discharge pipe are proposed at levels below the estimated the surface levels in Tighe St. and, therefore, may not function effectively or might be subject to 'back-flow' from Tighe St.

As was indicated in the pre-DA letter issued on 29 October 2021 The applicant will need to demonstrate that the existing public stormwater system has sufficient capacity and is in adequate condition (including CCTV – refer to CN's specification in Stormwater and Water Efficiency for Development Technical Manual) to cater for anticipated discharge flows.

It is also noted that the proposed 15 kL 'Reuse Tank' is intended to only be used for irrigation of landscaped areas. As was also indicated in the pre-DA the development is to incorporate stormwater harvesting and reuse schemes that minimise the volume of water for which discharge controls are required and to reduce the demand on potable water by drawing down on the harvested water for other uses such as toilet flushing, garbage store washouts, laundries and hot water systems.

The applicant is requested to submit amended plans and additional modelling to address the above matters.

Vehicular Access, Carpark Design and Deliveries/Servicing

It is noted that references to carparking levels in the TPA differs from the references in the Architectural Drawings (ie Level 1 in TPA is Upper Ground in Architectural Plans and Level 2 in TPA is Level 1 in Architectural Plans etc) and this does cause some confusion when considering the allocation of parking. References made in this advice to carparking Levels are a reference to the Levels as nominated in the Architectural Plans. To avoid future confusion, any amended TPA submitted to CN is to use references consistent with the Architectural Plans.

a) Vehicular Access and Crossing Location

The submitted Traffic and Parking Assessment (TPA) includes an argument that the roller door (the access control) associated with the carpark entry of Tighe St does not need to be setback from the northern site boundary given the low traffic uses currently associated with Tighe St. Table 3.3 of AS2890.1:2004 – 'Off-street Car Parking' suggests that car parks catering for more than 100 vehicles, as is the case, should have a minimum queue length of three cars (or 18 m) for the single entry lane before the access control structure. Having regard to the proposed increase in use of Tighe St as a result of this proposal and noting that DA2021/01679 has also been lodged for a 7-storey commercial carpark and retail uses on the land on the northern side of Tighe St as well as potential for future redevelopment of the adjoining land currently occupied by Kennards Storage it is considered appropriate that the roller door to the undercover parking area is setback a minimum 5.5m from the street frontage in accordance with clause 7.03.04 of Section 7.03 – Traffic Parking and Access of DCP2012.

b) On-site deliveries and servicing

It is understood that advice is being sought from Council's Waste Services team regarding on-site removal of waste and that such advice may recommend the development make appropriate provision for access by Heavy Rigid Vehicles (HRV) utilising 'forward in/forward out' manoeuvring, including consideration of an on-site vehicle turntable (similar to the IRIS East End Stage 1 development).

The applicant is requested to also provide additional information and/or amended plans that discuss and demonstrate how larger deliveries and removalist activities, again up to HRV size, associated with the residential units is being accommodated within the site. The applicant is encouraged to investigate potential to consolidate all HRV waste and other servicing provisions into one location with appropriate use and management controls detailed in a draft Building Management Statement.

Vehicle swept paths are to be provided for all HRV manoeuvres to and from the development and are to include all turn movements to and from Railway St/Hunter St and Railway St/Tighe St. Such turning movements are also to demonstrate the relationship with any future Newcastle light rail corridor that might result in the event Transport of NSW (TfNSW) was to adopt a future alignment that impacts on this vicinity. The applicant is to consult with TfNSW to determine any such requirements.

It is noted that the submitted TPA incorrectly states that Tighe Street has a carriageway width of 7.5 m when the actual width is approximately 6.75 m. Further, the extents of the submitted survey plan by Positive Survey Solutions do not include all of the existing Tighe St and Railway St infrastructure in the vicinity of the development site and, therefore, a proper assessment of the impacts of vehicle swept paths cannot be completed at this time.

As a result of the COVID19 pandemic and the subsequent restrictions on the community, a greater reliance on online shopping has resulted which, in turn, has resulted in a heightened reliance on delivery of retail and grocery shopping via courier delivery services to residential addresses.

While the true impacts of this shift toward a greater reliance on the on-line shopping and home delivery model is yet to be fully understood by planning authorities and any associated planning guidelines established, the proposed development is strongly encouraged to integrate measures into the development to support this shopping method.

It is recommended that the design be amended to accommodate dedicated short duration delivery vehicle (minimum Small Rigid Vehicle (SRV)) parking spaces and an integrated parcel locker system for use by future residents. In this regard, the applicant is encouraged to consult the [Freight and Servicing 'Last Mile Toolkit'](#) prepared by TfNSW.

c) Carpark Design

Clause 2.5.2(c) of AS2890.1 requires that where potential exists for two vehicles to pass on a ramp structure, the design is to prove that a B85 vehicle can safely pass a B99 vehicle with relevant clearances. The vehicle turning paths provided on Engineering Plan DA-C06.01 shows that an assessment has been made only for two B85 vehicles to pass. Additional information confirming compliance with AS2890.1 is required to be submitted.

'Blind' parking aisles are present on all levels of parking. Assuming carparking on the residential levels of the parking structure is going to be allocated parking (ie assigned to particular units) then these aisle lengths conform with the maximum permissible aisle length as per AS2890.1. If these residential spaces are not proposed to be allocated, then the carparking design for Levels 2 to 4 will need to be modified to provide circulation or turning bays.

Parking Demand

Section 11.4 of the TPA calculates the required number of car, visitor, motorbike and bicycle parking requirements in accordance with DCP2012. These are;

TABLE 1

Proposed Use	Calculation	No. required as per DCP	No. proposed
Resident carparking	$(36 \times 0.6) + (128 \times 0.9) + (19 \times 1.4)$	163.4	171 ¹
Residential visitor carparking	$1 (1^{\text{st}} 3 \text{ units}) + (180 \text{ units} / 5)$	37	See note 4.
Commercial carparking	$1944 \text{ m}^2 \text{ (GFA)} / 60 \text{ (City Centre)}$	32.4 (say 33)	See note 4,
	Total Carparking	232.8 (say 233)	237
Resident bicycle parking	$183 \text{ units} / 1$	183	110 ¹
Visitor bicycle parking	$183 \text{ units} / 10$	18.3	20 ²
Commercial bicycle parking	$40 \text{ staff} / 20$	2	2 ³
Motorbike parking	$233 \text{ car spaces} / 20$	11.65	16

2. Total counted on Ground Floor and Upper Ground Floor

3. Assumed total in designated end of trip room for Commercial / Retail lot on Ground Floor

4. A combined total of 66 car spaces are proposed on Ground and Upper Ground levels however, as proposed, only 38 of these spaces are proposed to be assigned (some co-shared) for residential visitor or commercial parking. (8am-6pm = 28 commercial plus 10 residential visitors; 6pm-8am = 20 residential visitors). See further discussion below in a).

a) Car Parking

The TPA indicates that the residential car parking levels 2, 3 and 4 will be secured by way of an additional security gate located at the bottom of the ramp leading from Upper Ground Level to Level 1. A total of 171 car parking spaces are proposed on levels 2, 3 and 4 which represents a small (7 space)

oversupply of parking for the residential component. There are no designated disabled parking spaces proposed on secured Levels 2 to 4 and it is recommended that this oversupply be used to reconfigure the carparks to provide disabled parking for use by any future residents who require such spaces.

Further, the residential parking on Level 1 includes 8 stacked spaces (4 x tandem). The TPA is silent on the intended allocation or use of these spaces and further clarification is sought.

This inclusion of the additional gate restricting access to Levels 2, 3 and 4 means that all of the Ground Level (30 car spaces) and Upper Ground Level (36 car spaces), totalling 66 spaces, are accessible by visitors and staff of the residential and commercial or retail components, between the hours of 8 am to 6 pm only, and outside of these hours access to these car parks will require security access via the proposed gate at the Tighe St entrance. The TPA is not clear on how visitors (patrons) of the retail / food and drink premises will be able to access these spaces after 6 pm noting these venues might operate well into the evening/night.

The TPA states that "*The visitor car parking and commercial / retail parking is to be provided on the ground level and the 8 stacked spaces on level 1 (Upper Ground Level)*". This only totals 38 car spaces and it is not clear why the assessment excludes the other 28 spaces found across Upper Ground Level or what these are intended to be used for because, as determined above, adequate supply for residential parking to meet the DCP requirements is provided on Levels 2, 3 and 4. It is understood that if the abovementioned 28 spaces are intended to be allocated as resident parking this may have implications for the calculation of Gross Floor Area.

The TPA states that the 8 stacked spaces on Upper Ground Level (referred to as Level 1) will be allocated to a single commercial tenancy. The TPA does not address the stacked parking also found on the Ground Level and it is recommended a similar approach be applied to these spaces as they will not function effectively as visitor spaces. As such, a total of 16 (stacked) of the required 33 commercial spaces are accounted for, leaving a residual demand for 17 commercial spaces within the remaining 50 spaces found across the Ground Level and Upper Ground Level. Noting that 37 residential visitor spaces are required, in addition to the remaining 17 commercial spaces, this represents an overall deficiency of visitor/commercial parking of 4 spaces. The TPA makes an argument that there will be less demand for residential visitors during the day when commercial parking is more prevalent and this argument is accepted on the basis that the combined deficiency is only 4 spaces (5.7% of the combined total) below the numbers required to comply with the DCP.

On the basis of the above assessment, the applicant's arguments around co-sharing and timed allocation of carparking is not considered to be warranted nor is it supported. Further, the applicant's other suggestion that any additional required car parking can be found off-site in the multi-deck carpark proposed on the adjoining site (DA2021/01679) is also not supported.

In summary, and in regard to car parking, it is considered appropriate that;

- Levels 2, 3 and 4 contain all required secure residential occupant parking to satisfy the DCP;
- Ground Level and Upper Ground Level contain a total of 16 stacked spaces assigned to specific commercial tenancies;
- The 5.7% variation in total required staff/visitor car parking is acceptable and the remaining 50 spaces on Ground Level and Upper Ground Level is to be allocated solely to staff and visitor parking associated with the development and the applicant is requested to provide updated plans for these levels showing the proposed breakdown of carparking allocation; and
- No credit is to be given for any on-street carparking or parking in other off-site locations.

b) Motorbike and Bicycle Parking

The Architectural Plans show 1,341 m² of shared office space, possibly across multiple tenancies, and a further 579 m² of Retail / Food and Drink. The TPA is silent on how the assumed number of staff (40) has been derived from the Gross Floor Area (GFA). Concern is expressed that this staff number may be significantly underestimated given the significant GFA being afforded to office space and further information is requested showing how this number was derived. This concern extends to the minimal 'end of trip' facility located behind the North Lobby which is intended to be shared by staff occupying the entire commercial GFA.

Table 1 above shows a deficiency of 73 resident bicycle spaces, on secured residential parking Levels 2 to 3, which is to be addressed. It is also noted that the other 20 bicycle parking spaces intended to be used by visitors to the development are located within storage cages on the Ground Floor and Upper Ground Floor and, therefore, are considered inaccessible by visitors and are not supported. Additional bicycle parking facilities are also to be provided in the publicly accessible pedestrian thoroughfare on the Ground Floor.

Subject to a review of the requested HRV turning movements, it appears they may be no, or very limited, kerb side parking remaining in the vicinity of the site and, therefore, no credit has been given to any such parking in this assessment.

c) **Plugin Electric Vehicle Charging**

The draft *Environmental Planning and Assessment Amendment (Design and Place) Regulation 2021*, relating to the draft *State Environmental Planning Policy (Design and Place) 2021* proposes new clause 99 (see below) regarding the provision of charging facilities for electric vehicles. The developer is requested to incorporate these facilities into the development.

99 Condition relating to charging facilities for electric vehicles

- (1) It is a condition of a development consent for development that includes a car park that—
 - (a) an electricity supply distribution board is installed on each storey of the car park, and
 - (b) the electricity supply distribution board is capable of being used to charge electric vehicles, and
 - (c) the electricity supply board is clearly marked as capable of being used to charge electric vehicles.
- (2) Subclause (1) does not apply to development involving—
 - (a) a class 1, 4, 7a or 10 building, or
 - (b) a class 3 building that is not hotel or motel accommodation.
- (3) It is a condition of the development consent for development involving a class 2 or 9c building that—
 - (a) all car parking spaces provided for residents, visitors and staff are capable of supplying 12 kilowatt hours of electricity to charge electric cars for each car parking space between 11pm and 7am every day, and
 - (b) a facility to charge electric vehicles is installed in at least 10% of all car parking spaces provided for visitors, or in 1 car parking space if there are fewer than 10 car parking spaces provided for visitors, and
 - (c) storage for electrical cables must be capable of being installed within 5 metres of each car parking space provided for residents, visitors and staff.
- (4) It is a condition of the development consent for development involving a class 3 building that is hotel or motel accommodation that at least 25% of all car parking spaces are capable of supplying 48 kilowatt hours of electricity to charge electric cars for each car parking space between 11pm and 7am every day.
- (5) It is a condition of the development consent for development involving a class 5 or 6 building that at least 10% of all car parking spaces are capable of supplying 12 kilowatt hours of electricity to charge electric cars for each car parking space between 9am and 5pm every day.
- (6) It is a condition of the development consent for development involving a class 7b, 8, 9a or 9b building that at least 20% of all car parking spaces are capable of supplying 12 kilowatt hours of electricity to charge electric cars for each car parking space between 9am and 5pm every day.
- (7) It is a condition of the development consent for development involving a 2, 5, 6, 7b, 8, 9a, 9b or 9c building that the development must provide—
 - (a) facilities for charging electric vehicles other than cars, such as scooters, electric bicycles and heavy vehicles, and
 - (b) at least one 10A outlet for every 4 bicycle parking spaces.

Traffic Impacts

The proposed development was referred to TfNSW in accordance with clause 104 of SEPP (Infrastructure) 2007. The response from TfNSW dated 8 December 2021 identifies that Hunter St (MR464) and Tudor St (MR604) are classified Regional roads and Railway St and Tighe St are local roads with Council as the Road Authority for each of these roads.

The advice also identifies that TfNSW are investigating options for the possible westward extension of the Newcastle light rail and that some of the potential alignments being considered may interact with this development site. It is understood that some of these alignments potentially bisect the site and would have significant ramifications for the design of any development on the site. Accordingly, this assessment does not attempt to consider such a scenario.

However, one of the other possible alignments being considered by TfNSW might not impact directly on the development site but could rely heavily on the adjacent Railway St road reserve as it passes this site, crosses Hunter St and continues along Tudor St. If this alignment is preferred by TfNSW the future existence of light rail will almost certainly have impacts on the function and capacity of the Hunter St and Tudor St intersection and on Railway St and Tighe St and their associated intersection.

The letter from TfNSW also states that TfNSW have "*commenced discussions with the developer to further explore the extent of these possible interactions.*" It is recommended that a determination granting consent to his application is not made until such time as TfNSW have confirmed their acceptance of the proposed development.

Notwithstanding the above, TfNSW have also identified that the proposed development is expected to increase traffic and pedestrian movements on the broader transport network. In this regard, it is noted that TfNSW have requested that the developer to "*extend the current traffic model to include the bus interchange and Stewart Avenue intersections. These three (3) signalised intersections are in the same SCATS loop and there may be network benefits that can be achieved by understanding coordinated performance.*"

It is recommended that when the developer is undertaking the 'broader transport network' analysis that the modelling take into consideration the two following recently lodged development applications.

- DA2021/01679 - 924 Hunter St, Newcastle West – Proposed 7 storey commercial carpark and ground floor retail; and
- DA2021/01530 – 854 Hunter St, Newcastle West - Mixed use development, including shop top housing with 365 dwellings, ground floor retail premises, commercial premises and a basement.

It is also recommended that the developer provide a revised TPA that includes additional traffic generation resulting from freight and servicing associated with the residential component of the proposed development (refer to the Last Mile Toolkit) and which represents the anticipated impacts of the proposed development with and without an extension of the Newcastle light rail along Railway St.

Public Domain

It is noted the application proposes to setback the buildings from the existing Railway St in order to provide a wider paved area for pedestrians using Railway St and the installation of street trees. This approach is generally supported and it is considered that any other requirements of City of Newcastle for public domain works/improvements commensurate with the scale and impact of the development can be addressed by way of appropriate conditions of consent (to be provided at a later date).

Contamination land and potential acid sulfate soils (PASS)

A PSI prepared by Douglas Partners Pty Ltd has been submitted with the application. The PSI included limited sampling in accessible locations. In these limited locations, the testing confirmed the site is filled to a depth varying between 1.0 - 2.3m. Some samples exceeded the residential (high density) criteria for Benzo(a)pyrene and asbestos.

In relation to asbestos the PSI states:

"The presence of asbestos materials in fill, together with observed building rubble in fill across the majority of the site and the historical demolition activities at the site indicate a high risk of further asbestos materials to be present within upper fill materials. Detailed asbestos investigation would be required to confirm the extent and concentration of asbestos across the site." p.33

In relation to ASS the PSI noted a general absence of ASS conditions in natural sands above the water table (ie about about 2.6m depth), and the presence of PASS below about 2.6m. It was noted that only limited detailed ASS testing has been conducted and further testing is recommended to confirm these conditions.

With these limited results, the PSI recommended:

"the proposed disturbance of soils below the water table, if any, are undertaken with reference to a site-specific acid sulfate soil management plan (ASSMP)." p.35

Investigations in the vicinity of the redundant underground storage tank (UST) were also limited due to known underground infrastructure and safe set back distances. The PSI notes that residual impacts to soil and groundwater may be present in the vicinity of the UST. p.37

In conclusion the PSI states:

"Based on the PSI findings, remediation/management would be required to render the site suitable for the proposed development from a contamination perspective, due to the bonded and friable ACM impacts in fill materials and potentially as a result of the presence of PAH and TRH impacts in fill or residual impacts in the vicinity of the underground fuel infrastructure. Remediation should be detailed in a site-specific RAP for the development." p.38

"In summary, the site is considered to be suitable for the proposed mixed use multi-storey development, subject to appropriate remediation / management of contamination and regulatory approvals. The assessment has considered generic residential (minimal access to soils) and commercial / industrial (ground floor) land use scenarios on the basis of the proposed development." p.39

The PSI then provides a series of recommendations for additional investigation and testing of ASS, asbestos, waste classification of soils for disposal and additional USTs followed by the preparation of a site specific RAP.

These additional investigations are recommended in the PSI to occur following demolition of the existing buildings on site.

Consideration by Council and the RPP needs to be given to what information\investigation and associated reporting is required prior to determination.

The applicant is to provide sufficient information with an application to:

- Confirm the nature and extent of contamination
 - The remediation required and the plan for that remediation to occur (ie a RAP);
- prior to making a recommendation regarding the granting of consent for the application.

The consultant has made a conclusion regarding the suitability of the site for the proposed development without the further recommended investigations being undertaken or a RAP being prepared, however, Council needs to consider if the information provided is adequate for the determination.

As much of the additional testing as possible be undertaken (sufficient to prepare a detailed contamination assessment and a RAP) and these reports be submitted prior to determination of the application.

SEPP 65/ADG

The following information is required to with respect to SEPP65 and the provisions of the Apartment Design Guide. The following matters should be addressed;

1. Visual privacy

The separation distances between all buildings on the site need to be shown clearly on all floor plans, elevations and sections (for example on Level 2 Floor Plan, the minimum separation distance between the western edge of apartment S.201 balcony and the east façade of the 'shared office' building). Whilst it appears the proposal is compliant in this regard, suitable details (in this case, dimensions) need to be shown on the architectural documentation to demonstrate/ confirm compliance.

2. Solar access

It is noted that the submitted architectural documentation contains a few diagrams and calculations regarding solar access to apartments. However, further detail is required which confirms exactly which apartments have been included in the calculations provided and if these calculations are correct. Furthermore, CN is required to confirm that the proposal complies with the two separate calculations for compliance within *Part 4A Solar and daylight access* of the Apartment Design Guide, the first being the apartments with living rooms which achieve 2hr solar access, and the second being apartments with private open space which achieve 2hr solar access.

It is unclear from the solar access analysis diagrams on drawing A-7004 '*ADG Solar and Cross Ventilation*' if 'self-shadowing' within the proposal has been accounted for in the solar access calculations. CN will require that amended plans are provided which detail the solar access floor plans for each proposed level containing residential apartments. The floor plan views should show the solar access to all apartment living rooms AND private open space at mid-winter between 9am and 3pm. For clarity, please note that the two calculations need to be clearly demonstrated.

3. Apartment size and layout

It appears all apartments comfortably achieve the minimum internal areas described in part *4D Apartment size and layout* of the Apartment Design Guide. For clarity purposes, each typical 'unit type' layout provided on drawings A-7005 and A-7006 should have the internal area labelled.

Furthermore, the minimum room area and dimensions described under Objective 4D-3 of the Apartment Design Guide should also be clearly demonstrated by including dimensions on the typical 'unit type' layouts. In this regard, whilst it appears that all bedrooms will achieve the minimum area and dimensions (10sqm for master bedrooms, 9sqm for all other bedrooms, and a minimum dimension of 3m excluding wardrobes), scaling of the submitted plans indicates that the minimum room widths for combined living/dining rooms are not achieved in a number of 'unit types'. Please consider that any variation is sought to the minimum Design Criteria requirements under the Apartment Design Guide, should be supported with a detailed written justification for such variations. A detailed justification is required to enable CN and the HCCPP to undertake a merit based assessment. The justification is required to identify the extent of the variation, and then demonstrate the proposed development still achieves the relevant objective under the Apartment Design Guide.

4. Private open space and balconies

It appears all apartments comfortably achieve the minimum balcony areas and depths described in part *4E Private open space and balconies* of the Apartment Design Guide. For clarity purposes, each typical 'unit type' layout provided on drawings A-7005 and A-7006 should have the balcony areas labelled and balcony depths dimensioned.

5. Common Circulation and Spaces

Part 4F Common Circulation and Spaces of the Apartment Design Guide limits the number of apartments sharing a single lift to 40. The proposal does not comply in this regard and appears to be proposing variations;

- 'residential tower N' – two lifts servicing a total of 110 apartments means on average a single lift will service 55 apartments.
- 'residential tower S' – two lifts servicing a total of 73 apartments means on average a single lift will service 36.5 apartments.

Please consider that any variation is sought to the minimum Design Criteria requirements under the Apartment Design Guide, should be supported with a detailed written justification for such

variations. A detailed justification is required to enable CN and the HCCPP to undertake a merit based assessment. The justification is required to identify the extent of the variation, and then demonstrate the proposed development still achieves the relevant objective under the Apartment Design Guide.

6. Storage

The ADG Storage Review tables provided on drawings A-7005 and A-7006 shows that four 'unit types' (Type C, Type D.1, Type E.1, and Type E.2), comprising 112 apartments in total, will require the provision of additional storage space external to the apartment in order to achieve the minimum storage volumes described in *Part 4G Storage* of the Apartment Design Guide.

Where storage volume accessed from a common area (i.e. - a secure storage cage) is to be relied upon to achieve the minimum storage volumes required, this needs to be clearly nominated/ allocated on the plans (to ensure storage cages are associated to the apartments which do not achieve the minimum storage volumes within the apartment alone.)

7. UDRP Report

The development application was review by the Urban Design Review Panel at the meeting held Tuesday 23 November 2021 and written advise provided (UDRP Report)

A written response and design amendments in response to the issues and recommendations contained in the UDRP Report needs to be provided.

In particular the Panel recommended;

- Additional informal fixed seating be integrated in the open spaces of the ground plane;
- Practical considerations in respect to the proposed interpretive heritage treatment and public art work; including structural fixing points for lighting and other components of the work(s), cleaning and maintenance.
- Carparking security points should be designated. Allocated and visitor car parks should be identified, and workable operational procedures set out to guide visitors to residential lobby spaces.
- Potential light spill impact from the proposed interpretive heritage treatment and public art work upon adjacent residential apartments should be addressed
- Further consideration of how access between the residential visitor car park and the residential lobby spaces would work.
- Provision of performance glass and double-glazing, as well as thermally broken window and (glazed) door frames, in some locations at least, to address the solar loads on glazing which have the potentially to be considerable.
- A suitable standard of interior blind system options be offered for the building – selected to block glare and to provide some assistance with thermal insulation. This would also be of assistance to the aesthetic presentation of the building - to achieve some consistency and provide a reasonably uniform aesthetic as viewed from the exterior.
- Additional informal fixed seating be integrated in the open spaces of the ground plane. Defining the movement corridors to allow seating and garden areas to occupy the interface between the building and the ground plane. Opportunities for capitalising on deep soil areas facing Hunter Street should also be considered, in the context of the significance of the view towards Dairy Farmers Corner from Tudor Street. Narrowing the stairway on Railway Street would assist in freeing up areas on the building edge.
- The opportunity exists to better integrate the commercial ground floor foyer with the external landscape areas and minimise hard, dead areas between the foyer and the clocktower.
- Reducing the extent of hard surface at the ground plane
- Coordination between the landscape design and structural and hydraulic design be considered and demonstrated as part of the submitted DA to ensure that nominated soil volumes can be adequately supported by the structures below and that required penetrations in the slabs for rooftop drainage are included in calculations.
- Further consideration of a reasonable level of presentation will be achieved in respect to the public views to balconies and any items stored or located there, given the extent of clear glazed balustrades on balconies.
- Identifying the locations for signage, including retail, commercial and residential signage (i.e. a site signage strategy should be prepared) Likewise, all infrastructure locations and connections, including services, HVAC, fire booster pumps, tanks and related pipework,

electrical substations and metering should be documented, so as not to detract from the appearance of the completed development.

If you have any questions please email or contact myself on 4974 2768 or alternatively Amy Ryan (Team Coordinator) on 4974 2492.

Thanks

Damian Jaeger | Principal Development Officer (Planning)

City of Newcastle | Governance

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Cooperation | Respect | Excellence | Wellbeing*



REQUEST FOR ADDITIONAL INFORMATION

13 May 2022

Mr Darcy
Catalyst Project Consulting
Unit 5/91 Hannell Street
WICKHAM NSW 2293

Email: anthony.darcy@catalystpc.com.au

Dear Mr Darcy

Development Application No:	DA2021/01459
Land:	• Lot 2 DP 126 • Lot 1 DP 342675 • Lot 1 DP 395367 • Lot 2 DP 445736 • Lot 1 DP 456088 • Lot 1 & 2 DP 1091173.
Property Address:	924 Hunter Street Newcastle West
Proposed Development:	Partial demolition of existing buildings, erection of mixed use development comprising commercial premises (retail premises & business premises), two residential towers (30 storey & 24 storey) containing a 183 dwellings and 237 associated car parking spaces

An assessment of the above application has been undertaken. It found that the following information is required to be submitted to enable the assessment of your application to continue. It is advised that the comprehensive matters below are inclusive of the issues raised within the emails sent 3, 4, 10 & 11 May 2022 plus the final engineering assessment.

It is advised that assessment of the additional information is ongoing and further issues may be raised. To facilitate the assessment of the application the currently available issues are provided below.

1. Engineering

A. Flood Management

As advised in the email sent 3 May 2022, a review of the submitted Flooding Impact Assessment by Northrop (NL200347, Ver. A dated 23/04/2022) identified that, for the most part, it only repeats the information contained within the Flood Certificate, Pre-DA letter and

RFI letter issued by CN. For example pg 4 of the report, regarding existing flood behaviour, simply states *"The flood certificate notes that the site is not identified as being within a floodway or flood storage area"*, and, regarding impacts of the development on flooding states *"it is not anticipated that the proposed development will impede the flow of ordinary drainage from neighbouring properties"* and *"flood water will be able to enter the development site at localised locations, most notably the pedestrian paths and vehicle access ramp into the carpark"*.

As was identified in our Pre-DA letter and subsequent RFI letter we require information that *"demonstrates that the proposed development is suitable and that it will not have an adverse flood impact on other properties or infrastructure"* (emphasis added). While not meeting the requisites to be defined as a flood way, the below extracts from Council's flood data clearly shows that some of the flood water coming down Tudor St from the southwest turns east onto Hunter St and then some flow leaves Hunter St and passes through the development site between the two existing buildings. The proposed development will form an obstruction to this current overland flow and flood waters will be diverted elsewhere. The direction of flow arrows are more clearly visible on the PMF extract but you will also note that the 1%AEP flows would seem to not breach a small crest in Hunter St near the eastern site boundary with the potential that all of that part of the 1% AEP flows currently pass to the north through the development site.

The submitted Flooding Impact Assessment does not adequately assess or demonstrate where these diverted flood water will go or the impact this may have on 'other properties and infrastructure'.

It is noted that this concern was relayed to the Applicant under separate cover also on 3 May 2022. Subsequent telephone discussions on 6 May 2022 with Chris Piper (Northrop) and Luke Mahaffey (LMJA) have resulted in agreement that Northrop will obtain a copy of CN's flood modelling data in order to assist Northrop with preparation of localised flood modelling impacts associated with the proposed works and direct comparisons with existing modelled flood behaviour.

While it is noted that the amended plans submitted have been revised to adopt Finished Floor Levels (FFL) to comply with Flood Certificate (FL2019/00248 issued 04 Dec 2019) and CN's email to the Applicant regarding engineering matters dated 03 Feb 2022, the abovementioned flood modelling will be used to confirm if the existing flood conditions pertinent to the development site are altered, and by what extent, and whether or not further amendments are also required to the FFL's and flood impact mitigation. Final confirmation of FFL's will be provided after review of the flood modelling.

B. Stormwater Management

Concerns were previously expressed over the ability of the receiving pipe network in Tighe Street to accommodate discharge flows from the development without increasing surcharging water or backflow of water from Tighe Street into the developments proposed storage tanks. The Northrop letter dated 23 Mar 2022 confirms that the existing pipes crossing under Tighe Street are 2 x 225 mm pipes (previously thought to be 1 x 300mm pipe) and states that backflow prevention devices will be installed to the storage tank outlet. This concern is resolved.

However, with regard to stormwater harvesting and re-use on site, the Applicant has amended the application to include re-use in the lower parts of the building via *"irrigation to the site's landscaping"* and *"washout taps in storage/waste rooms, common areas, and carparks"*.

It is considered appropriate that this water re-use scheme be extended to include all toilets and hot water systems (end of trip showers only) on the Ground Floor. In regards to toilet facilities, it is noted that there is only one (1) toilet currently proposed on the Ground Floor, in association with the end-of-trip facilities (it is assumed the other cubicles shown are showers). The plans note that the two proposed Food and Beverage Retail tenancies will be provided

with 'amenities to suit future fitout'. Consistent with how pre-provision for sewer will be made for these tenancies at the time of building construction, it is considered appropriate that pre-provisioning for stormwater re-use also be made available. Appropriate conditions of consent could be imposed to this end.

It is also considered appropriate that the re-use scheme be implemented to the communal spaces on Level 4. Level 4 contains, the proposed Gym, Pilates Studio, Swimming Pool, BBQ Facilities., two Function/Multipurpose rooms and Residence Work From Home space. The only toilet facility on this level (other than within the private dwellings) is a single toilet inside of the Gym room. It is anticipated that additional toilets would be necessary to support the range of uses proposed for Level 4 in order to negate the need for users (other than the gym) to return to their respective dwelling. The Applicant is requested to confirm the number of toilets required to support the range of uses on Level 4 and also demonstrate that;

- a) It is feasible to pump water from the storage tank in the Ground Floor Carpark to Level 4 for use in toilets landscape irrigation and external cleaning, in which case the proposed 15 kL storage tank may need to be upsized; or
- b) A separate suitably sized storage tank (possibly an above ground tank) with appropriate stormwater harvesting connections and overflow disposal can be provided to Level 4.

C Vehicular Access, Carpark Design and Deliveries/Servicing

a) Vehicular Access and Crossing Location

As was previously recommended, the roller door to the undercover parking area is now setback a minimum 5.5m from the street frontage in accordance with clause 7.03.04 of Section 7.03 – Traffic Parking and Access of DCP2012 and is, therefore, satisfactory.

b) On-site deliveries and servicing

As was requested in the Pre-DA letter and the Request for Further Information email sent 03 Feb 2022, swept path analysis is required demonstrating that Heavy Rigid Vehicle (HRV) movements associate with the intersection of Tighe St and Railway St and the proposed on-site Loading/Delivery Bay can be satisfactorily accommodated. The amended Civil Engineering Plan (Northrop DA-C06.01 Rev 2) only show swept path analysis for Medium Rigid Vehicles (MRV). Plans are again requested that show the swept path analysis for HRV for the movements previously assessed for MRV. For clarity, such plans are also to show the relevant existing lane and centreline road markings on Hunter St and Railway St and any proposed adjustments to these lane configurations and/or signal detector loops associated with the traffic control signals.

In response to recommendations that the development be modified to integrate facilities to support the trending preference for on-line shopping and food delivery services for the residential component, the amended plans have included a small locker room on the Ground Level. This Locker Room is accessed from the basement carpark and the TPA Report Addendum states that such deliveries can be accommodated in the Commercial/Visitor carparking spaces. It is noted that this approach will preclude deliveries by Small Rigid Vehicles (used predominantly by grocery home delivery providers (Coles, Woolworths etc) as the required height clearance (min. 3.5 m) is not available.

c) Carpark Design

As previously identified, Clause 2.5.2(c) of AS2890.1 requires that areas within a carpark where it may be necessary for two vehicles to pass on a ramp structure, the design is to prove that a B85 vehicle can safely pass a B99 vehicle with relevant clearances. The vehicle turning paths provided on previous Engineering Plan (DA-C06.01 Rev 1) showed an assessment for two B85 vehicles to pass when turning. The amended Civil Engineering Plan (Northrop DA-C06.01 Rev 2) now only shows the B85 and B99 vehicles passing on the straight ramp sections. Additional swept path templates are to

be provided proving that these vehicles can pass, with relevant clearances, when turning at the top and bottom of the ramps

The TPA Report Addendum confirms that all residential carparking spaces will be fully allocated. Subject to the below comments on parking demand and apportionment this might alleviate previous concerns over the 'blind aisles' in the car park design.

D Parking Demand

The following assessment has been made having regard to CN's adopted DCP2012 – 7.03 (Traffic, Parking and Access). It is noted that CN has recently resolved to exhibit amendments to this element of DCP and such amendments may result in a different parking requirement, but as are just possible/proposed amendments, they have not been relied upon.

a) Car Parking

It is noted that the Gross Floor Area of the Commercial/Retail/Office spaces has reduced from 1,944 m² to 1,649 m² as a result of minor changes to tenancy areas for the Retail and two Food/Beverage tenancies on the Ground Floor as well as the deletion of the previous Level 5 Office Space. No changes appear to have been made to the residential unit numbers or number of bedrooms.

The required number of car, visitor, motorbike and bicycle parking associated with the amended design has been assessed in accordance with DCP2012 – 7.03 (Traffic, Parking and Access) and are calculated as per Table 1 below. Numbers shown in bold italic text are the Applicant's previous proposed values. It is noted there is a minor discrepancy in the total number of car parks required as calculated by Table 1 (228) compared to the number (226) suggested in TPA Report Addendum (refer Table 2 below). Notwithstanding, the total number of carpark spaces proposed is 238.

TABLE 1

Proposed Use	Calculation	No. required as per DCP	No. proposed
Resident carparking	$(36 \times 0.6) + (128 \times 0.9) + (19 \times 1.4)$	163.4	198 ¹ (171)
Residential visitor carparking	1 (1 st 3 units) + (180 units / 5)	37	See comments
Commercial carparking	1,649 m ² (GFA) / 60 (City Centre)	27.5 (say 28)	See comments
	Total Carparking	227.9 (say 228)	238
Resident bicycle parking	183 units / 1	183	148 ¹ (110)
Visitor bicycle parking	183 units / 10	18.3	20 ² (20)
Commercial bicycle parking	40 staff / 20	2	8 ³ (2)
Motorbike parking	233 car spaces / 20	11.65	10 (16)

1. Total counted on Upper Ground and Levels 1, 2 & 3
2. Total counted on Ground Floor (Plaza and Carpark)
3. Adjacent the designated end of trip room for Commercial / Retail lot on Ground Floor

Based on the assessment made of the original proposal, CN was previously accepting of the overall parking numbers noting that sufficient secured carparking (171 in total, including a small oversupply of 7 spaces) was provided on Levels 2 to 4 for all residential dwellings. On Ground and Upper Ground levels there was also sufficient spaces to accommodate the majority of the required car parks associated with the Residential Visitor and Commercial component. The previous proposal included 28 spaces on Upper Ground level that had not been identified for any particular allocation. A small 4 space deficiency (5.7%) of the total number required by the DCP for Residential Visitors and Commercial parking was considered acceptable.

However, it is noted that the amended design has now assigned the majority of the previously unassigned 28 spaces to the residential dwellings (proposed increased from 171 to 198 spaces). This has resulted in reducing the total number of spaces available for Residential Visitor and Commercial use to 40. The combined deficiency for Residential Visitor and Commercial has therefore increased to 25 spaces (or 38.5%) of the 65 spaces needed to satisfy the DCP. This approach is not supported.

Table 2 below is extracted from the TPA Report Addendum and shows the proposed revised carparking allocations on each level.

Table 2

	COMMERCIAL / VISITOR	COMMERCIAL	RESIDENTIAL
LEVEL 3	-	-	55
LEVEL 2	-	-	56
LEVEL 1	-	-	61
UPPER GROUND	-	10	26
GROUND	21	9	-
SUB TOTAL	21	19	198
TOTAL	238		

The 26 spaces on Upper Ground generally represent the 28 unassigned spaces previously identified and are those which the Applicant now seeks to assign to residential dwellings. These same 26 spaces also represent almost the exact number of spaces deficient from the combined Residential Visitor and Commercial parking requirements. The combined total of all spaces on Ground and Upper Ground levels is 66 which would satisfy the combined minimum requirements for both Residential Visitor and Commercial parking, and includes a 1 space oversupply compared to the DCP.

As can also be seen in Table 2, there is a total of 172 spaces proposed across Levels 2 to 4 and this number is sufficient to accommodate all spaces (with a small oversupply of 8 spaces) associated with Residential dwellings necessary to comply with the DCP.

From the vehicle swept paths provided so far, it is expected that most, if not all, kerbside car parking across the sites Railway St and Tighe St frontages will be removed. It is considered that the oversupply of parking within the development site will adequately offset this loss.

The TPA Report Addendum also again makes a claim that *"The site has a 24-hour secure parking located within extremely close proximity"*. It is not clear which parking facility is being referred to as the only identifiable carpark in the locality are associated with "The Store" development at 874 Hunter St (atop the Bus Interchange) which is to be fully allocated to the residential, office and commercial uses approved on that site or the multi-deck carpark proposed on the adjoining site (DA2021/01679) which remains undetermined and is currently the subject of a Class 1 Appeal in the Land and Environment Court.

Therefore, and generally consistent with advice previously given, the amended carparking proposal is not supported and it is considered appropriate that;

- Levels 2, 3 and 4 contain 172 spaces representing all required secure residential occupant parking to satisfy the DCP;
- Ground Level and Upper Ground Level contain a total of 19 stacked spaces assigned to specific commercial tenancies;
- The other 47 spaces on Ground Level and Upper Ground Level are to be allocated solely to Residential Visitor parking (minimum 37 spaces) and Commercial parking (minimum 9 spaces) associated with the development and future tenants.

It is recommended that the applicant be advised of this position and offered the opportunity to submit amended plans, otherwise, it is considered reasonable that appropriate conditions of consent be included in any consent issued requiring the details to be provided with documentation accompanying an application for Construction Certificate.

b) Motorbike and Bicycle Parking

Table 2 shows that the provision for motorbike parking been reduced from 16 to 10 spaces and this has results in a 2-space deficiency. This is considered acceptable.

The amended proposal has increased nominated bicycle storage cages from 110 to 148, a deficiency of 35 spaces (or 19.1%). A further 14 storage cages not specifically identified for bicycle storage are shown, notwithstanding they are of adequate size. Taking these into account reduces the deficit to 21 (or 11.5%) which is considered acceptable.

A further 8 bicycle parking locations are associated with the End of Trip Facilities on Ground Level and a further 16 spaces are shown within the public plaza area and 4 within the Ground Floor carpark area. This is considered acceptable.

c) Plugin Electric Vehicle Charging

It appears that the draft *Environmental Planning and Assessment Amendment (Design and Place) Regulation 2021*, relating to the draft *State Environmental Planning Policy (Design and Place) 2021* may not be proceeding at this time. Notwithstanding, it is considered appropriate that a condition of consent be included in any consent granted requiring the provision of charging facilities for electric vehicles in accordance with the proposed new clause 99 (refer to original advice for wording) to cater for drivers of electric vehicles and to 'future proof' the building.

E Traffic Impacts

a) Light Rail Extension

The proposed development was referred to TfNSW in accordance with clause 104 of SEPP (Infrastructure) 2007. The response from TfNSW dated 8 December 2021 identifies that Hunter St (MR464) and Tudor St (MR604) are classified Regional roads and Railway St and Tighe St are local roads with Council as the Road Authority for each of these roads.

The advice also identified that TfNSW are investigating options for the possible westward extension of the Newcastle light rail and that some of the potential alignments being considered may interact with this development site. It is understood that some of these alignments potentially bisect the site and would have significant ramifications for the design of any development on the site.

A further letter was received from TfNSW dated 1 April 2022 regarding their considerations of the alignments for light rail extension and advised that;

"There is no statutory requirement for TfNSW to provide concurrence to the proposal, however City of Newcastle (CoN) has requested confirmation that TfNSW raise no objections to DA 2021/01459 with respect to rendering the Newcastle Light Rail Extension Strategic Business Case unviable.

The following comments are therefore provided to assist the consent authority in progressing the application to determination:

- *A future light rail extension is not funded to progress to final business case. The current study to assess future corridor options is in early stages of development. Transport is unable to provide advice with respect to a preferred corridor alignment.*

- *Design criteria specific to a future light rail extension cannot be provided and therefore the application should be considered on its merits noting any potential transport impacts on the existing network.*
- *Should the extension of light rail progress in the future, development undertaken by a public authority would be subject to relevant environmental planning processes and approvals.*

Based on the above comments, TfNSW does not object to the proposed development proceeding."

Based on the TfNSW advice, no further consideration of the potential impacts associated with light rail alignment regarding building setbacks or impact on footway areas, parking, pedestrian or traffic function and safety can or has been completed. Any of the above potential impacts will need to be considered by TfNSW in the future should the preferred route passes through or adjacent to the development site.

b) Traffic and pedestrian impacts

Notwithstanding the above, TfNSW have also re-affirmed their original advice that the proposed development is expected to increase traffic and pedestrian movements on the broader transport network. In this regard, it is noted that TfNSW have requested that the developer to *"extend the current traffic model to include the bus interchange and Stewart Avenue intersections. These three (3) signalised intersections are in the same SCATS loop and there may be network benefits that can be achieved by understanding coordinated performance."* This additional modelling was requested by CN on 03 February 2022 but is yet to be received from the Applicant.

Accordingly, no further assessment or comments can be made at this time.

Public Domain

As previously noted, the application proposes to setback the buildings from the existing Railway St in order to provide a wider paved area for pedestrians using Railway St and the installation of street trees. This approach is generally supported and it is considered that any other requirements of City of Newcastle for public domain works/improvements commensurate with the scale and impact of the development can be addressed by way of appropriate conditions of consent (to be provided at a later date).

Requirements

The development application is required to submit the additional or amending information that addresses the following matters raised above in;

- Section A – Flood Management
- Section B – Stormwater Management
- Section C b) and c) – Vehicle turning templates
- Section D a) – Re-allocation of parking (unless addressing by conditions is supported)
- Section E b) – Broader traffic modelling as requested by TfNSW

2. Contamination land and potential acid sulfate soils (PASS)

An updated PSI and RAP prepared by Douglas Partners Pty Ltd have been submitted in response to the RFI.

These documents confirm that an Acid Sulphate Soils Management Plan (ASSMP) will be required for the development. Clause 6.1 of the NLEP describes the circumstances within which any required ASSMP must be submitted to the consent authority prior to the granting of consent which apply in this instance.

No ASSMP has not been submitted and the applicant is required to prepare and submit the plan.

The RAP confirms the remediation proposed involves some onsite bioremediation for hydrocarbon contamination if found, with offsite disposal of soils exceeding the land use criteria.

Onsite bioremediation in an inner-city location can create odour impacts beyond the site boundaries. With the proximity of the site to a large and increasing population in both residential and commercial land uses, there is potential for any impacts beyond the boundary of the site to affect the local community. To address these concerns, the RAP could be amended to remove this part of the plan (i.e. no onsite bioremediation) or a condition could be applied to any consent granted to prohibit this activity from occurring.

If you have any specific environmental questions, please contact Paul McMurray (Environmental health Co-ordinator) on 4974 2533.

You are required to address the above matters by **5pm 27 May 2022** to enable Council to complete the assessment of your application. Submissions of details sooner than this will help facilitate determination of the application.

Should you be unable to submit the additional information within this timeframe, please request an extension of time which outlines an intended submission date. Any request for an extension of time must be made and confirmed by the assessing officer prior to the due date.

Submission of information:

All documentation is to be re-notated and re-dated and plans updated where necessary. Please attach a covering letter itemising the documentation being submitted and a response to the matters raised by City of Newcastle (CN). Documents submitted are to be in a pdf format and returned via the NSW Planning Portal (if lodged in the Portal).

Any information received in support of your application will be publicly available on the City's website. Third parties access any information under the Government Information (Public Access) Act 2009. City of Newcastle may also reproduce information in Council reports or in Court proceedings.

It is further advised that:

- Amendments or variations to the development, must include the particulars sufficient to indicate the nature of the changed development and may incur additional assessment and notification fees.
- New Development Contributions Plans were endorsed on 26 October 2021. The Plans commenced on 1 January 2022 and replaced the previous Section 7.12 Contributions Plan, noting that there are no changes to the Western Corridor Section 7.11 Contributions Plan. Please refer to new [Section 7.11 Development Contributions Plan](#) and new [Section 7.12 Development Contributions Plan](#) and the [fact sheet](#), which includes responses to frequently asked questions, to understand what this means for development.

Should you have any further inquiries in relation to this matter please email djaeger@ncc.nsw.gov.au or contact me on 4974 2768 during normal business hours.

Yours sincerely

Damian Jaeger
Principal Development Officer (Planning)



28 March 2022
Our Ref: 211537

Catalyst Project Consulting
5/91 Hannell Street
WICKHAM NSW 2293
Attn: Anthony Darcy
by email: anthony.darcy@catalystpc.com.au

Dear Anthony

Dairy Farmers Corner, Newcastle West | DA2021/01459 RFI 14 March 2022

With reference to the above Request for Additional Information, please see our response to Section 6, following. We have assumed that point 6iv will be addressed by your consultant for indigenous history.

- 6i. *It is considered that the form and massing of the podium building and co-work building directly adjoining the heritage item have the potential to overwhelm the relatively small scale of the clocktower and impact on existing views to features such as the clock faces. Concern is raised that the proximity to the co-work space, the upper levels of which butt up to the clock tower and wrap around to the west of the clock tower, may obscure existing views and detract from its landmark qualities. It is recommended that this is addressed through further refinement of the co-work space and podium by maintaining greater setbacks/alterations to building form to maintain these existing views and maximise the prominence of the heritage item as much as possible within the scheme. This will also enhance future interpretation opportunities at the site through reinstatement of neon signage, restoration of the clock faces, etc. as recommended in the submitted HIS.*

In recognition of the cultural heritage significance of the former Dairy Farmers site, it has always been the intention of Third.i to conserve the clock tower as part of the redevelopment proposal.

Following guidance from the UDRP, the conceptual design was amended to provide more integration between the clock tower and the co-work building. The UDRP confirmed in minutes (25 August 2021) that "Design development of the integration of the heritage item - the former Dairy Farmers clock tower - into the ground floor of the proposal has progressed well, with the resultant relationships between the Clock Tower and its surrounding spaces considered successful, and an opportunity has been created thereby, to celebrate it by way of an interpretive artwork that would continue into the pedestrian laneway adjacent to it. The subtle changes to the massing of the adjacent office building to 'cradle' the Clock Tower, that avoids connecting into it, are considered particularly successful, and the Panel is now supportive of having the Clock Tower standing alone on site, as proposed."

Resisting the option of a hard connection, and the option of a distanced offset with stories then cantilevering above the clock tower (evidenced in recent heritage solutions at other sites), the developed design sought to figuratively cradle the tower into the development – a hybrid solution of offset versus integration. This concept is successful on front-approach from Tudor Street by providing relief between the tower and the new structures. The concern of the view from the west is mitigated by the design of the co-work building having its south-west point set back from the Hunter Street boundary. This point is noted as being further north than the existing building and further north than the BMW showroom, immediately to the west. From this south-west point, the co-work building distinctly angles back to reveal, and cradle, the clock tower. The 'wrap around' to the west of the tower is intentionally commenced behind the tower (to the north) and graduated back to Hunter Street,

concluding at the western end of the site. The overall result, including the conservation of the tower and its detailing will significantly enhance the landmark qualities of the clock tower.

Guidance from the UDRP was also followed in the articulation of the eastern podium as it provides a masonry datum set at the height of the original administrative wings of the 1938 building, with a solid masonry frame below and finer detailed screening above.

The co-work and podium structures themselves are deliberately neutral in colour and repetitive in materiality to intentionally create a neutral backdrop for the clock tower. There is a concern that the further distancing of the tower from the podium and co-work buildings will create a more marked distinction of scale.

It should also be noted that the tower is currently largely obscured on approach from the east and west, by trees and by the street layout, until the viewer is almost directly upon the building.

The north face of the tower has been highly altered by previous works at the site and was not ever intended to be a public face.

Further, and in response to council's concerns, the co-work building has been reduced in height. This will further highlight the clock tower.

- 6ii. *A schedule of finishes is to be developed in consultation with the project heritage consultant to resolve the proposed conservation of the clocktower, including faiënce tiles, terracotta details, clock faces, internal fabric of significance, etc.*

A schedule of finishes related to the clock tower conservation requires investigative works beyond the scope of the DA process. The existence, and possible extent, of the remaining original faiënce tiles is unconfirmed at this stage. The specific conservation of the clock faces will require input from a specialist conservator horologist. Consideration and possible reconstruction of the signage above and below the clock faces will be developed in conjunction with the interpretation strategy, which in turn needs to align against liaison with Council's Public Art Reference Group Committee.

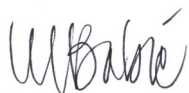
The developer has recognised the significance of the clock tower and that it is a key element of the overall development. We understand that the intention is to conserve the tower to a level commensurate with its significance.

- 6iii. *An interpretation strategy is required that identifies opportunities for historical interpretation at the site, including the heritage building and throughout the site as a whole. The Interpretation Strategy is to identify historical themes present at the site for future interpretive media. It is encouraged to explore creative methods of interpretation including reconstruction of clock tower signage. Please refer to the NSW Heritage Office guidelines document Interpreting Heritage Places and Items.*

The project will go before Council's Public Art Reference Group Committee therefore, the interpretation strategy will be developed with their consultation. It is agreed and recommended that the final strategy should incorporate not only the clock tower, but the greater site.

We welcome any queries in direct discussion.

Sincerely



Linda Babic

Reg Arch NSW ARB 6869, AIA, M.ICOMOS, APT
B.A., B.Arch., M.Herit.Cons.
AIA Heritage Committee, NSW Chapter



Date: 01/03/2022



KONE Elevators Pty Ltd

A.B.N. 47 000 142 423

Attention: Matthew Boyle

www.kone.com

Re: Dairy Farmers Corner Newcastle

Dear Matthew,

Please see attached PFA report for Dairy Farmer's Corner in relation to the latest architectural set for project 21014 – 21.10.2021

We have run the report at 2mps which meets the performance requirements for residential apartment buildings.

At 7.5% handling capacity the waiting times were approximately, 45 seconds respectively – anything under 60 seconds is good for residential.

These studies are made on assumptions of 1.5 people per bedroom and 100% building occupancy at this rate. Additionally, the entry percentages have been assumed, also.

From our perspective 2x lifts per tower at 2.0mps will be sufficient and still meet the performance requirements for residential.

If you need clarification on anything please let me know,

Regards
Dylan Shepherd
Senior Business Consultant
New Equipment Solutions

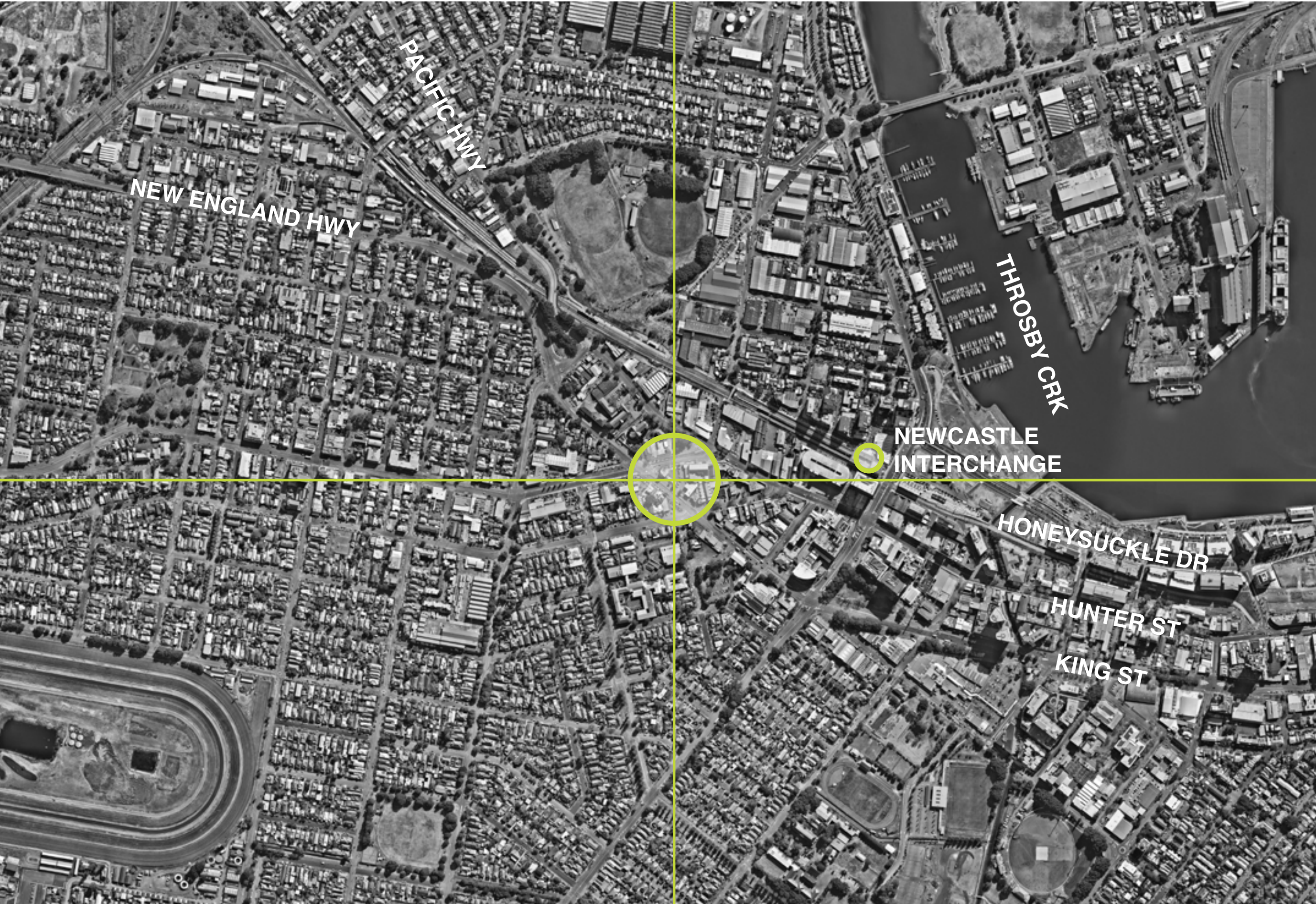
KONE Elevators Pty Ltd
Mobile +61 405 358 023
Email Dylan.Shepherd@kone.com

24 Hour Customer Service: 1-300-362-022
www.kone.com.au

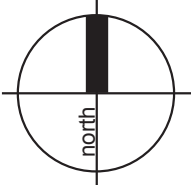


DAIRY FARMERS CORNER NEWCASTLE

MAY 2022



LOCATION MAP



Drawing Schedule			Site Calculations		
Name	Drawing #	Revision	Item	Area	Percentage
Cover Sheet	L000	D	Total Site	3940m ²	
Ground Level Landscape Plan	L101	D			
Level 4 (Podium) Landscape Plan	L102	D	Total Public Domain Area (Gr. Floor)	1038m²	26%
Landscape Sections	L103	D	Total Soft Landscape Areas	30m ²	0.8%
Precedent Images	L104	D	Total Hard Landscape Areas	983m ²	25.2%
Indicative Plant Schedule	L105	D			
Statutory & Regulatory Guidelines			Total Common Open Space Area (L4)	1932m²	49%
<i>The City of Newcastle</i>			Total Soft Landscape Areas	919m ²	23%
• Newcastle Street Tree Masterplan 2011			Total Hard Landscape Areas	1013m ²	26%
• Newcastle City Council DCP 2012: Part 7.02; Landscape, Open Space and Visual Amenity					
• Newcastle City Council Technical Manual Landscape 2015					
• Newcastle City Council Street Tree Selection Manual 2016 -					
• Newcastle Urban Forest Technical Manual Part B Public Trees 2018					
<i>NSW Government Planning & Infrastructure</i>					
• Apartment Design Guide; Part 4O – Landscape Design					
• Apartment Design Guide; Part 4P – Planting on Structures					

Site Description:

The subject site is located at 924 Hunter Street Newcastle West and is historically known as the Dairy Farmers Corner as it was a former milk bottling facility which produced fresh milk for home delivery to residents of Newcastle and surrounding suburbs. This corner site is bounded by Hunter Street, Railway Street and Tighe Lane and in more recent times was a former commercial car sales premises. The site consists of several lots which are Lot 2 (DP445736), Lot 1 (DP342675), Lots 1 & 2 (DP1091173), Lot 1 (DP395367), Lot 2 (DP126) & Lot 1 (DP395367).

Currently the site is occupied by a two-storey rendered commercial building, a single storey commercial building and the heritage brick clock tower. With the exception of the heritage brick clock tower (to be retained) the commercial buildings will be demolished as part of this development. The site was a former commercial car sales premises so there are large expanses of asphalt paving & concrete paving with very little existing vegetation within the site boundary.

The limited existing vegetation around and within the subject site consists of the following:

Hunter Street:	2 no. existing street trees; Platanus x acerifolia
(London Plane)Railway Street:	1 no. Cupaniopsis anacardioides (Tuckeroo)
Tighe Lane:	Mass Planted Hedge Murraya paniculata (Orange Blossom)

All this existing vegetation will be removed as part of the proposed development.

The site is generally relatively flat with the high point being on the south-east corner (Hunter St) with an existing level of RL 4.11 and the low point of the site being on the north-west corner (corner of Railway St & Tighe Lane) with an existing level of RL 3.20.

Local Context/Character:

The existing street character consists of predominantly commercial buildings of varying heights and scale and would be best described as being highly 'urban' with lots of hard paved surfaces with very little green infrastructure such as open space parks and street tree planting. The site is located within close proximity to the Newcastle Rail Interchange, Newcastle West Market-town Shopping Centre and the Gateway mix-use development (Pacific Hwy) and the recently constructed Honeysuckle foreshore developments. The closest open space recreational spaces include the Honeysuckle foreshore and Hawkins Oval.

Proposed Development:

The proposed development will include a commercial food & beverage (ground level), a small commercial office building (5 levels) and 2 no. residential towers (24 levels & 29 levels). The landscape design will include a public domain area located on the ground floor with access from Hunter & Railways streets. This proposed development will include a large common open space area for residents located on the podium level (Level 4).

Ground Floor Public Domain:

The public domain areas have been designed to provide street activation for the proposed food & beverage, small retail & commercial tenancies located on the ground floor. The design intent is to provide a public lane way (or thru site link) from Railway & Hunter Streets that provide generous forecourt spaces whilst being respectful to the retained heritage brick clock tower. It is intended that a public art installation will be implemented within this clock tower (TBC).

Although this site is located outside the parameters as identified in the City of Newcastle CBD Public Domain Technical Manual some of the principles in this manual have been referred to in the landscape design. These principles include proposed street tree planting, planting in pavements, implementation of feature stone paving, banded unit paving, external lighting and street furniture such as seating, bike racks and bins.

Off-form concrete benches have been strategically placed though the lane way to provide a sculptural seating element and to also act as a 'bollard' against possible ram-raiding or terrorist threats.

The widening of the public footpaths on Hunter & Railway Streets will allow space for new street tree planting which will in accordance with the City of Newcastle 'Urban Forest Technical Manual for Public Trees' and the 'Street Tree Selection Manual'. Feature trees within paving using a strata-vault system will define the laneway, provide shade and will assist in softening the extent of hard-paved areas.

Where new tree planting is not practical within pavements, large GRC planters with mass planted shrubs and groundcovers have been proposed within this area to provide visual amenity.

Common Open Space Areas:

The common open space areas of this development will be located on the level 4 podium (above car park areas located on levels 1-3). This north facing, podium level, open space will receive lots of sunlight as well as taking advantage of the views.

The landscape design intent for this level was to create a podium level small 'urban' park that can be used and enjoyed by all the residents.

Extensive tree planting in raised planters that are intended to provide seasonal colour, shade & amenity.

Mown turf areas will be on a slight incline or berm are intended for passive recreation activities such as individual meditation, outdoor Yoga or Tai-chi.

A communal swimming pool with equitable access on an elevated pool deck will take advantage of the uninhibited views.

Paved break-out spaces for near the work-from-home hub, function rooms and the gym can be used for smaller group activities or private functions.

External fixed shade structures with communal table & bench settings & BBQs have been located so as to provide some privacy and separation. Other external fixtures will include bench seats, external lighting, outdoor fitness equipment and games activities such as outdoor table tennis.

Raised garden beds around the periphery of this podium level will ensure that there are adequate soil depths required for different sizes of planting on structure as well as reducing potential structural load on the building. These raised garden beds will also provide a physical separation between spaces, so a level of privacy, screening and intimacy of these smaller spaces is maintained.

Common open space areas to include raised planters on structure. All raised planters to include minimum suitable soil media in relation to trees, shrubs & groundcovers to promote optimum plant growth and in accordance with NSW Planning & Environment; Apartment Design Guide; Part 4P, Planting on Structures.

Planting Design Strategy:

The planting design strategy for this residential flat building development to include the following:

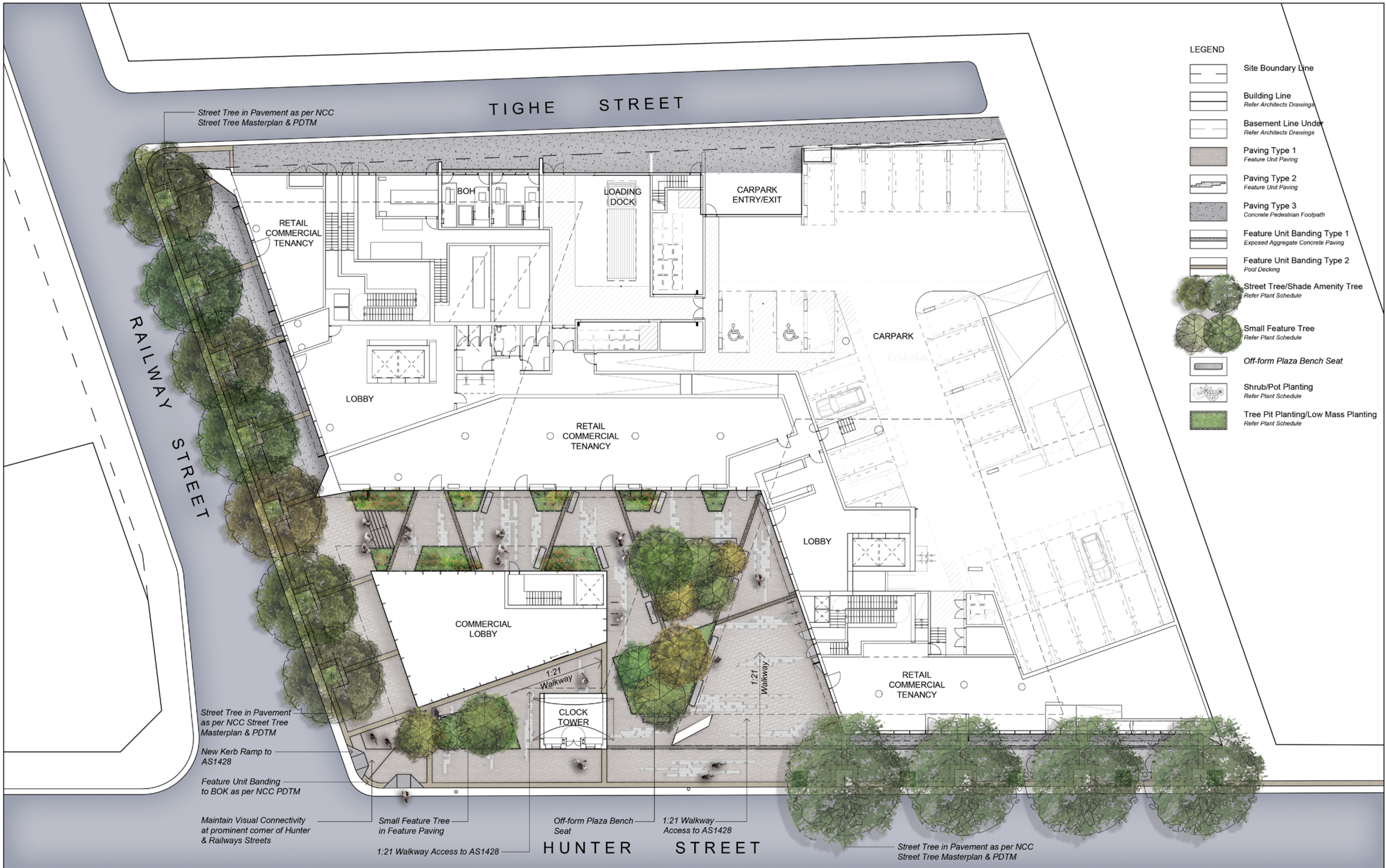
- Street Tree planting at ground level to assist in reducing within appropriate deep soil zones to reduce bulk & scale of the development
- Evergreen tree planting to provide shade & amenity
- Deciduous tree planting to allow for solar access & seasonal change
- A broad planting palette to include a variety native species & exotic species to provide colour, texture, aroma & form
- Implementation of some indigenous species to encourage canopy corridor links and bio-diversity

With the proposed landscape design for this development we would implement the following safety planting initiatives:

- Avoid planting tree species that are prone to potential limb drop
- Avoid planting species close to paths and hard paved areas that are known for excessive flower, foliage & fruit drop that may cause potential slip hazards
- Avoid planting species that are known for invasive root structure that may cause damage to existing infrastructure and damage paths & hard paved areas and which may cause potential trip hazards
- Avoid planting species that are known to be toxic or may cause respiratory, allergy and/or skin irritations

All proposed plant species selection has been considered in terms of soil types, species hardness and on-going watering maintenance requirements. Predominantly low water use species (both native & exotic) have been grouped in regard to watering requirements and to reduce reliance on use of potable water.

All raised planters to include minimum suitable soil media in relation to trees, shrubs & groundcovers to promote optimum plant growth and in accordance with NSW Planning & Environment; Apartment Design Guide; Part 4P, Planting on Structures.



xeriscapes

1/28 Adelaide Street East Gosford NSW 2250
115 King Street Newcastle NSW 2300
P: 02 4302 0477 • ABN 12 129 231 269

PROJECT

DAIRY FARMERS CORNER
924 HUNTER STREET NEWCASTLE WEST NSW 2302

DRAWING NAME

**GROUND LEVEL
LANDSCAPE PLAN**



CLIENT THIRD GROUP

PROJECT NO 21097

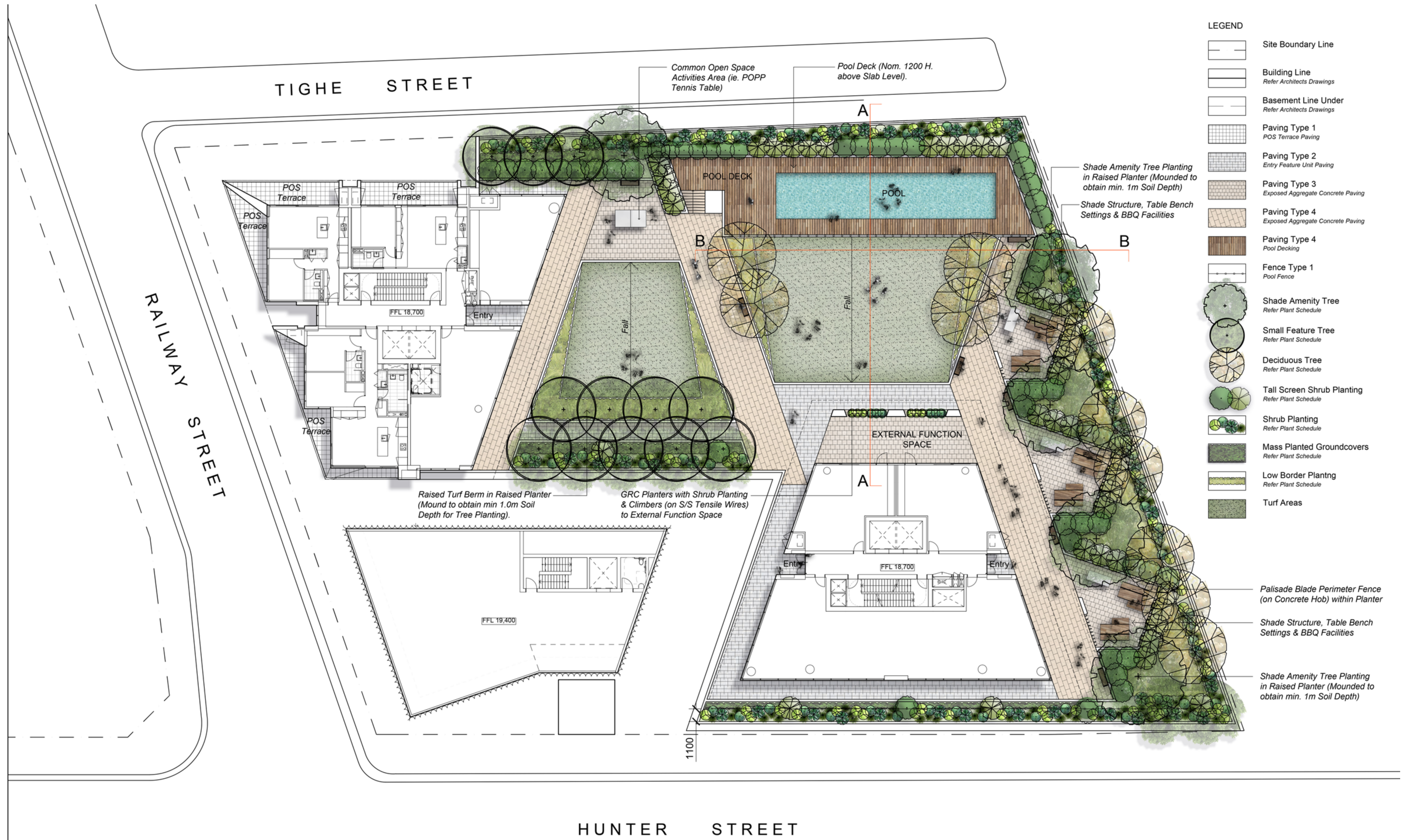
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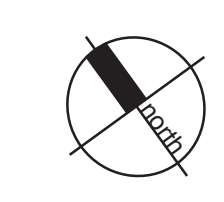
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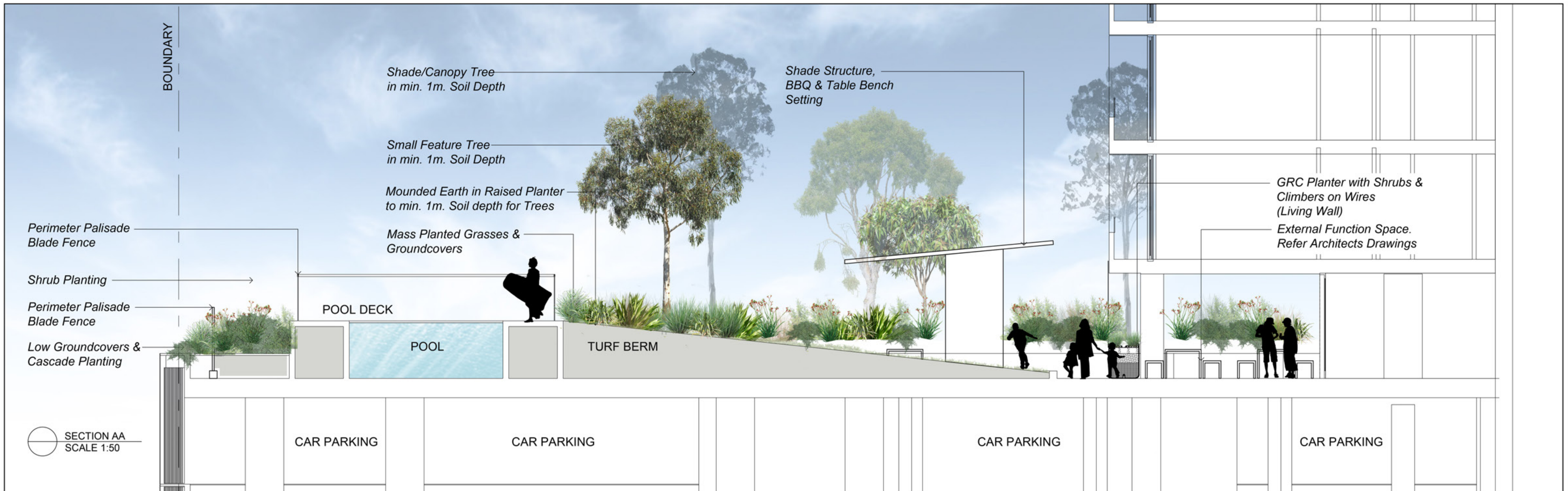
DATE 30.05.2022





- LEGEND**
- Site Boundary Line
 - Building Line
Refer Architects Drawings
 - Basement Line Under
Refer Architects Drawings
 - Paving Type 1
POS Terrace Paving
 - Paving Type 2
Entry Feature Unit Paving
 - Paving Type 3
Exposed Aggregate Concrete Paving
 - Paving Type 4
Exposed Aggregate Concrete Paving
 - Paving Type 4
Pool Decking
 - Fence Type 1
Pool Fence
 - Shade Amenity Tree
Refer Plant Schedule
 - Small Feature Tree
Refer Plant Schedule
 - Deciduous Tree
Refer Plant Schedule
 - Tall Screen Shrub Planting
Refer Plant Schedule
 - Shrub Planting
Refer Plant Schedule
 - Mass Planted Groundcovers
Refer Plant Schedule
 - Low Border Planting
Refer Plant Schedule
 - Turf Areas
 - Palisade Blade Perimeter Fence
(on Concrete Hob) within Planter
 - Shade Structure, Table Bench
Settings & BBQ Facilities
 - Shade Amenity Tree Planting
in Raised Planter (Mounded to
obtain min. 1m Soil Depth)





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PROJECT

DAIRY FARMERS CORNER

924 HUNTER STREET NEWCASTLE WEST NSW 2302

DRAWING NAME

LANDSCAPE SECTIONS



CLIENT THIRD GROUP

PROJECT NO 21097

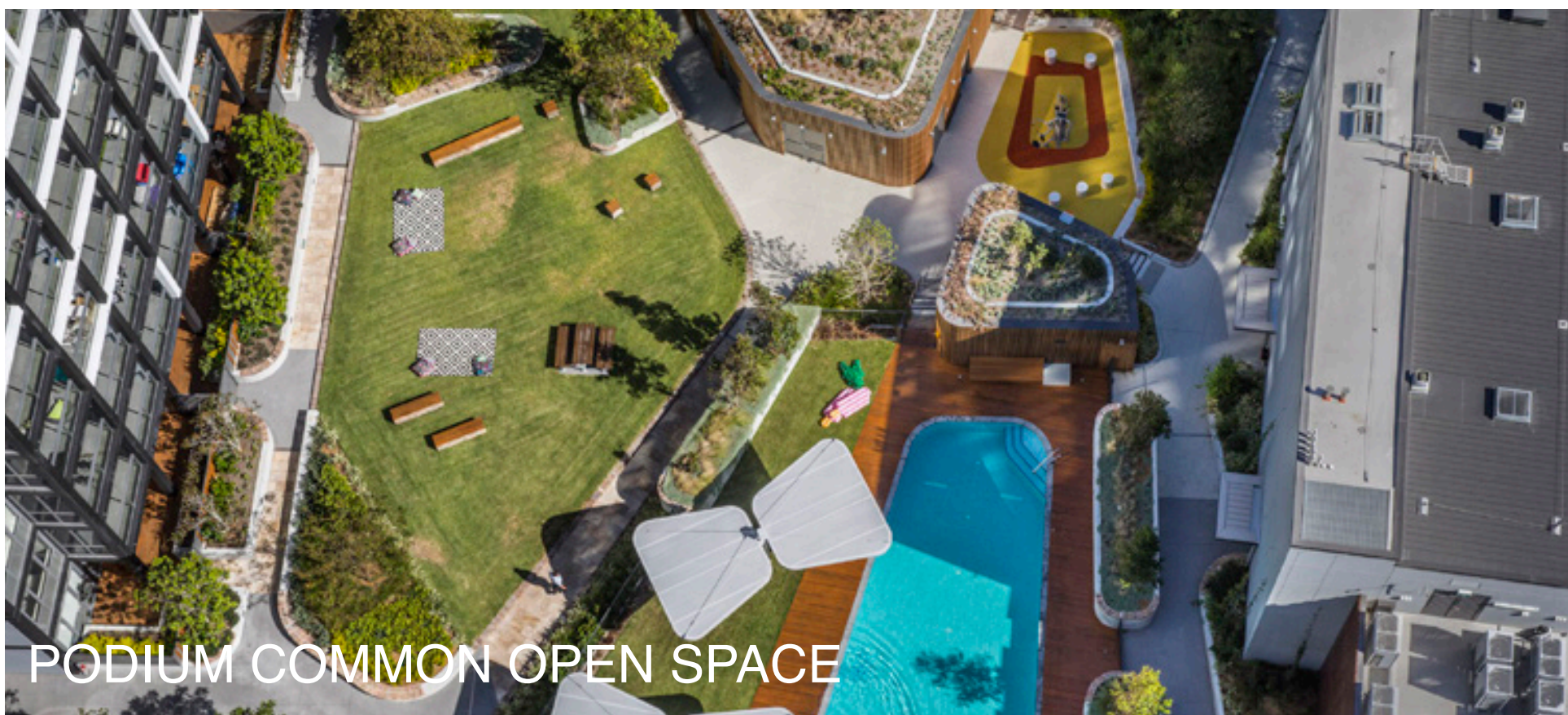
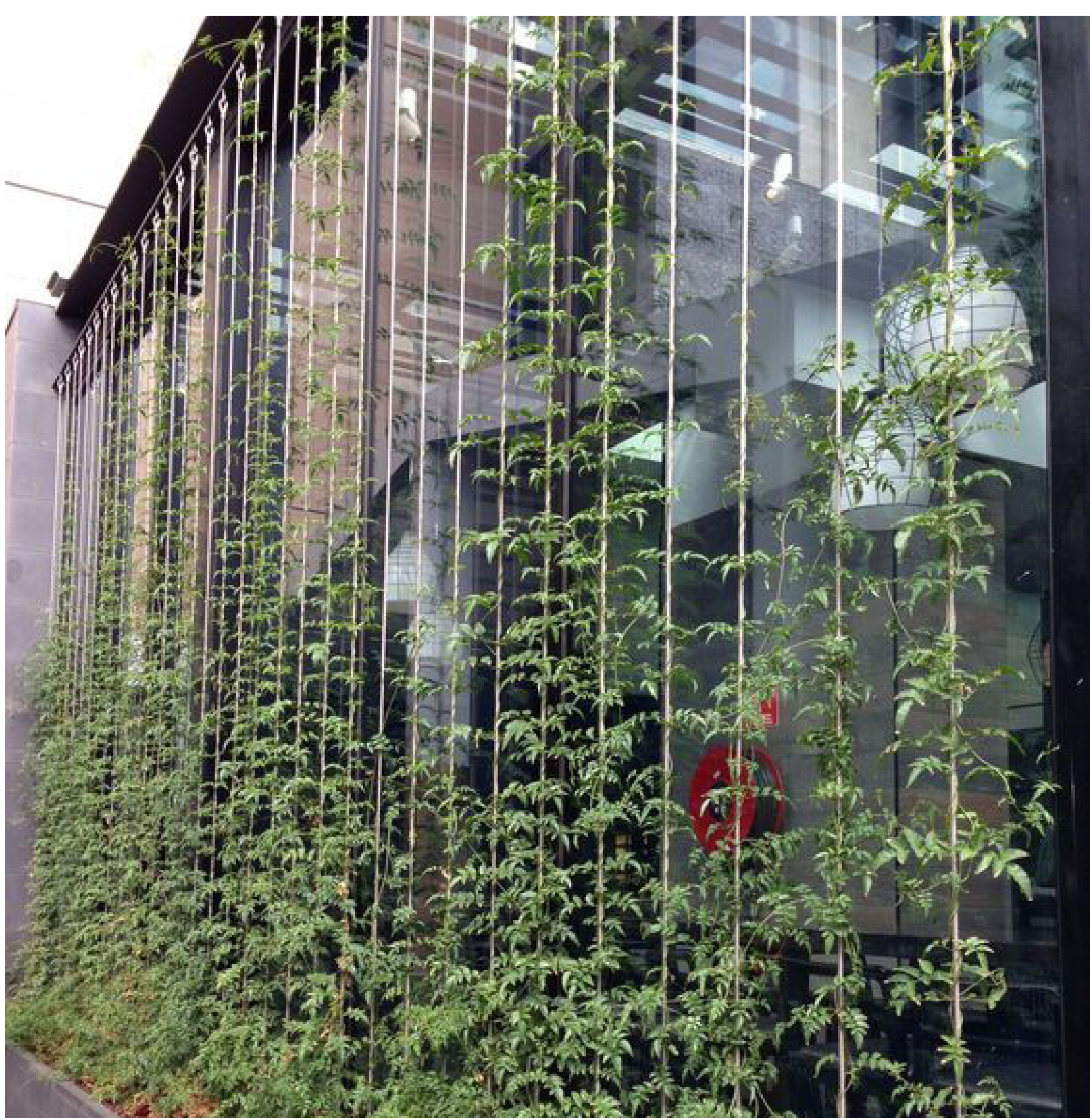
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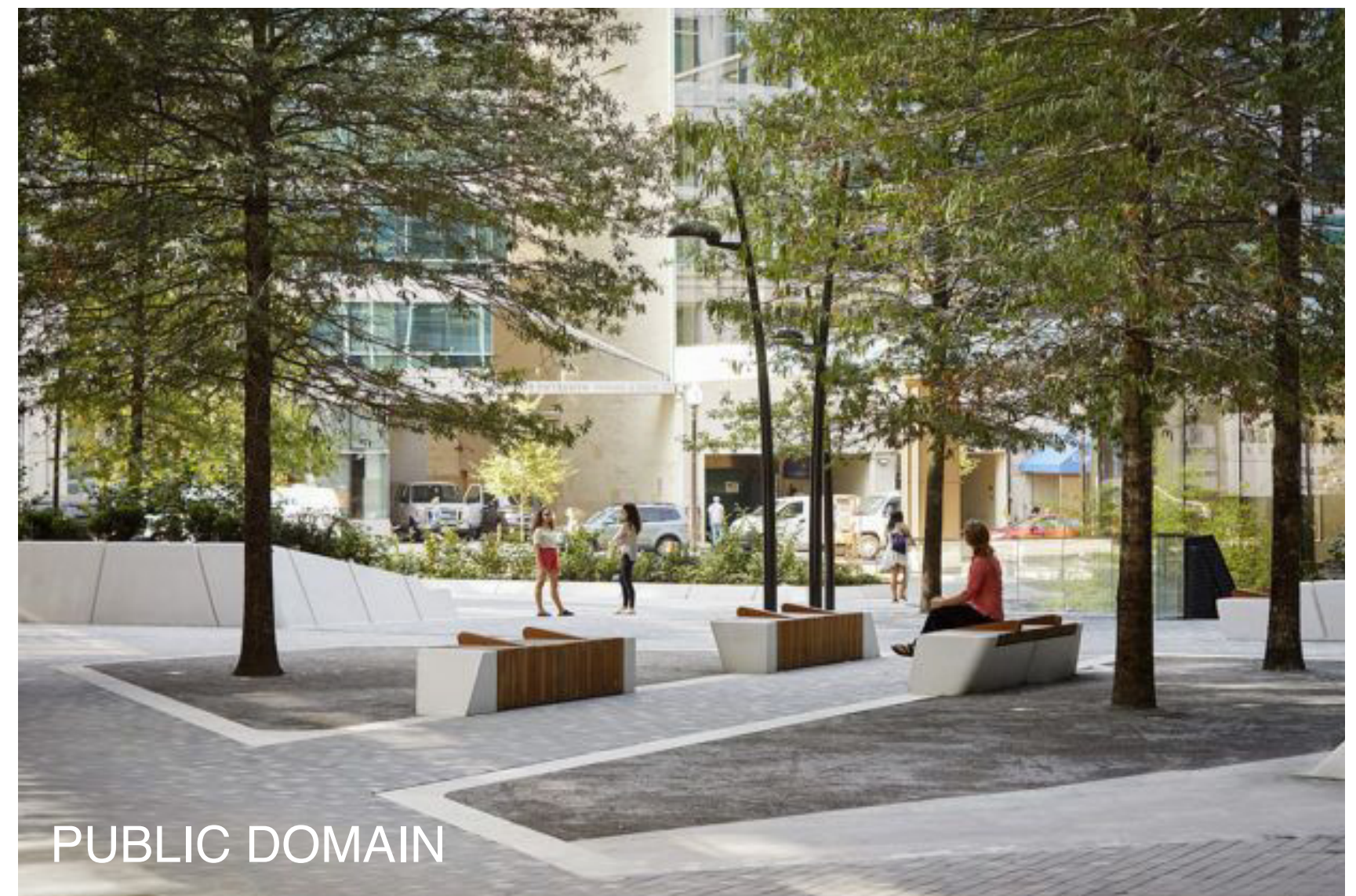
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PODIUM COMMON OPEN SPACE



PUBLIC DOMAIN

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PROJECT

DAIRY FARMERS CORNER
924 HUNTER STREET NEWCASTLE WEST NSW 2302

DRAWING NAME

PRECEDENT IMAGES

CLIENT THIRD GROUP

PROJECT NO 21097

DRAWING NO L104

SCALE NA

REVISION D

DATE 30.05.2022

Image	Botanical Name	Common Name	Mature Height (m.)	Mature Spread (m.)	Pot Size	Comments
Street Trees/Shade Amenity Tree						
01	<i>Alloxylon flammeum</i>	Tree Waratah	15	6-8	75L	Stakes and ties
	<i>Backhousia citriodora</i>	Lemon Myrtle	5-10	2-5	75L	Stakes and ties
	<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	15	5	75L	Stakes and ties
02	<i>Waterhousia floribunda</i> 'Sweeper'	Weeping Lilly Pilly	10	7	75L	Stakes and ties
Small Feature Trees						
03	<i>Ficus longifolia</i>	Narrow Leaf Fig	6	4	45L	Stakes and ties
	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	10	5-8	45L	Stakes and ties
	<i>Cupaniopsis anacardioides</i>	Tuckeroo	8	7	75L	Stakes and ties
04	<i>Tristaniopsis</i> 'Luscious'	Luscious Water Gum	8	5	75L	Stakes and ties
Deciduous Trees						
05	<i>Ginkgo biloba</i>	Maidenhair Tree	6	4	45L	Stakes and ties
06	<i>Lagerstroemia indica</i> 'Natchez'	Crepe Myrtle	7	4	45L	Stakes and ties
	<i>Nyssa Sylvatica</i>	Black Tupelo	8	9	45L	Stakes and ties
Feature/Tall Screen Shrubs > 1.5m						
07	<i>Alpinia zerumbet</i>	Shell Ginger	2	1	200mm	
	<i>Banksia robur</i>	Swamp Banksia	2	2	300mm	
	<i>Cordyline stricta</i>	Broad-leaved Palm Lily	3	1.5	140mm	
08	<i>Doryanthes excelsa</i>	Gynea Lily	2	2	200mm	
09	<i>Dracaena marginata</i>	Madagascar Dragon Tree	4	2	200mm	
	<i>Grevillea</i> 'Honey Gem'	Spider Flower Grevillea	4	3	300mm	
	<i>Philodendron</i> 'Rojo Congo'	Rojo Congo	1.5	0.8	300mm	
10	<i>Rhapis humilis</i>	Slander Lady Palm	2	2.5	300mm	
	<i>Strelizia nicolai</i>	Giant Bird Paradise	3	2	300mm	
	<i>Syzigium australe</i> 'Straight & Narrow'	Narrow Lilly Pilly	5-8	1-1.5	300mm	
	<i>Viburnum odoratissimum</i>	Dense Fence	2.5	2	300mm	
Shrubs < 1.5m						
11	<i>Callistemon</i> 'Better John'	Better John Bottlebrush	1.2	0.9	200mm	
	<i>Canna tropicanna</i>	Cana Lily	0.7	0.7	200mm	
	<i>Crassula ovata</i> 'Blue Bird'	Blue Jade Tree	0.3	0.4	140mm	
12	<i>Macrozamia communis</i>	Burrawang	0.8	0.8	200mm	
	<i>Raphiolepis</i> 'Snow Maiden'	Indian Hawthorn	0.75	0.5	200mm	
13	<i>Westringia fruticosa</i> 'Zena'	Coastal Rosemary	1.2	1.2	200mm	
	<i>Zamia furfuracea</i>	Cardboard Palm	1	1.5	200mm	
Mass Planted Groundcovers						
14	<i>Dianella caerulea</i> 'Little Jess'	Little Jess Flax Lily	0.4	0.4	140mm	
	<i>Dichondra repens</i>	Kidney Weed	0.1	1.5	140mm	
	<i>Hardenbergia violacea</i>	False Sarsaparilla	1	2.5	140mm	
15	<i>Kalanchoe bracteata</i>	Silver Teaspoons	0.5	0.4	140mm	
	<i>Leucophyta brownii</i> 'Moonshine'	Cushion Bush	0.5	0.5	200mm	
	<i>Liriope muscari</i> 'Evergreen Giant'	Evergreen Giant Liriope	0.45	0.45	140mm	
16	<i>Liriope muscari</i> 'Isabella'	Isabella Fine Leaf Liriope	0.4	0.5	140mm	
17	<i>Lomandra</i> 'Tanika'	Fine Leaf Lomandra	0.5	0.6	140mm	
	<i>Myoporum parvifolium</i> 'Yareena'	Yareena Creeping Boobialla	0.1	1	140mm	
	<i>Neomarica gracilis</i>	Walking Iris	0.5	0.5	140mm	
18	<i>Poa labillardieri</i> 'Kingsdale'	Blue Tussock Grass	0.45	0.45	140mm	
	<i>Santolina chamaecyparissus</i>	Lavender Cotton	0.6	0.4	200mm	
	<i>Senecio serpens</i>	Blue Chalksticks	0.7	0.8	140mm	
19	<i>Westringia</i> 'Mundi'	Westringia 'Mundi'	0.6	1.5	140mm	
Low Border Planting						
20	<i>Carex albula</i> 'Frosted Curls'	New Zealand Hair Sedge	0.6	0.6	140mm	
21	<i>Chrysocephalum apiculatum</i> 'Desert Flame'	Yellow Buttons	0.5	0.3	140mm	
22	<i>Lomandra labill</i>	Evergreen Baby	0.45	0.45	140mm	
	<i>Stachys byzantina</i>	Lambs Ears	0.5	0.5	140mm	
	<i>Viola hederacea</i>	Native Violet	0.1	0.3	140mm	
Cascading Planting						
23	<i>Casuarina glauca</i> 'Cousin It'	Cousin It	0.3	1	140mm	
24	<i>Dichondra argentea</i> 'Silver Falls'	Silver Falls	0.2	1	140mm	
	<i>Hardenbergia violacea</i> 'Meema'	Meema Snake Vine	0.5	2	140mm	
	<i>Russelia equisetiformis</i>	Fountainbrush	1	2	140mm	
25	<i>Rosmarinus officinalis</i> 'Blue Lagoon'	Blue Lagoon Rosemary	0.3	1	140mm	

