CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

1 LEVEL 12
1:125

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 22 July 2020 12:08 pm

Drawing is NOT VALID or issued for use, unless checked.

CLIENT

Landmark

Landmark Group Australia Pty Ltd

GENERAL NOTES

Figured dimensions shall be taken in preference to scaling. Drawing to be read in conjunction with information on first page. Check all dimensions and levels on site before commencing work or ordering materials. All existing ground lines & trees location are approximate, therefore to be verified on-site by the builder. Any discrepancies to be verified back to Zhinar Architects before proceeding. All workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufacturer's instructions. Unless noted 'Issued for Construction', drawing not to be used for construction.

NORTH

TN MN

PROJECT STATUS

DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE

Level 12 Plan

DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

Zhinar Architects Pty Ltd
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+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT NAME

The Mills | Buildings 3&4

Residential Flat Building

20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689

DRAWING No. DA:001

ISSUE B

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

1 LEVEL 13 & 14 TYPICAL
1:125

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 22 July 2020 12:09 pm

Drawing is NOT VALID or issued for use, unless checked.

CLIENT
Landmark
Landmark Group Australia Pty Ltd

GENERAL NOTES

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NORTH
TN
MN

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
Levels 13-14 Plan
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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28 495 869 790 / abn

PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689
DRAWING No: DA:002
ISSUE B

DA A-401 BB

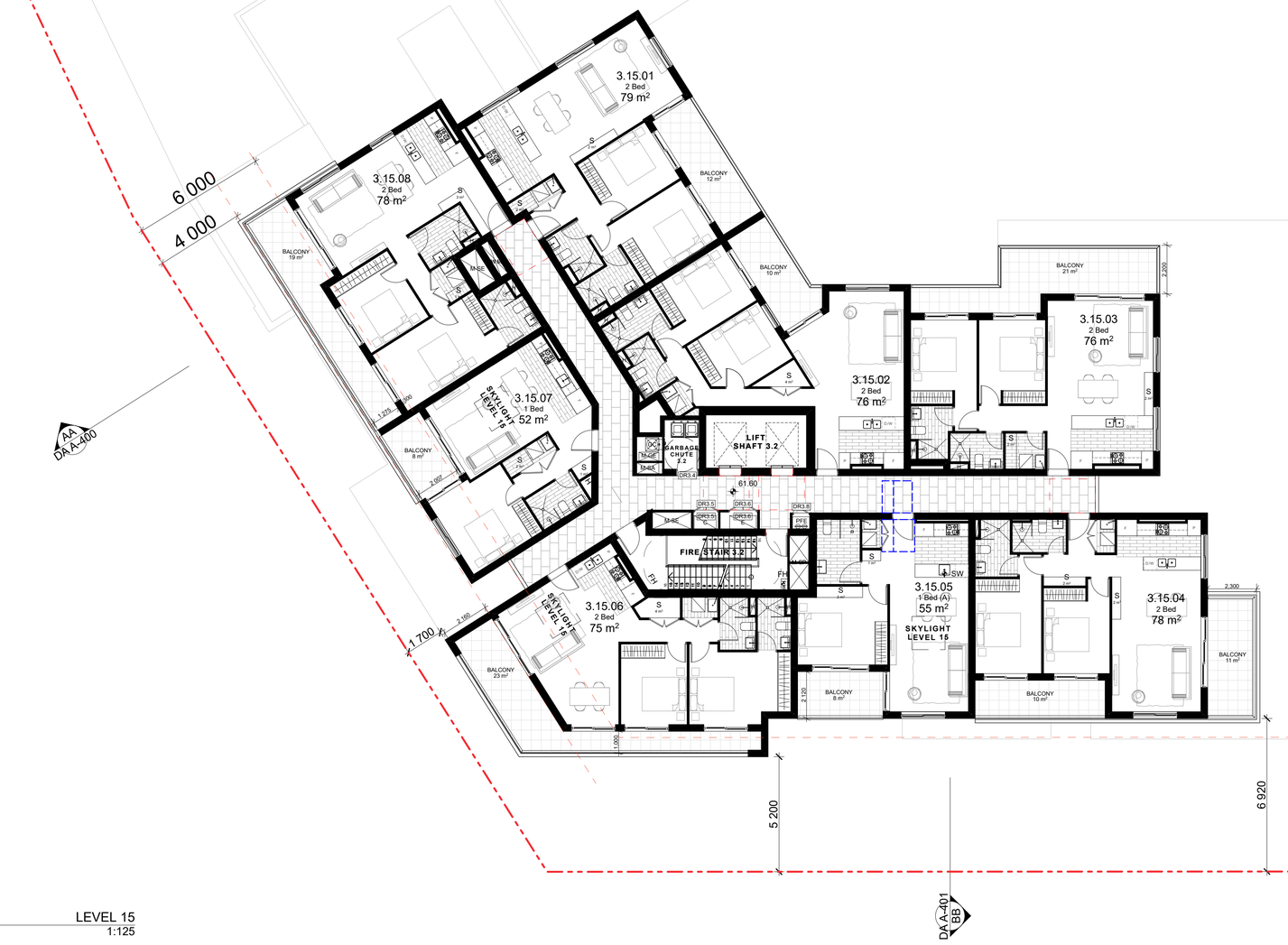
AA DA A-400

SITE BOUNDARY

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021



AA DA A-400

DA A-401 BB

1 LEVEL 15
1:125

0 5 1:100 @ A1

DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB
ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

Print Date: Wednesday, 22 July 2020 12:09 pm

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CLIENT

Landmark

Landmark Group Australia Pty Ltd

GENERAL NOTES

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NORTH

TN MN

PROJECT STATUS

DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE

Level 15 Plan

DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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PROJECT NAME

The Mills | Buildings 3&4

Residential Flat Building

20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689

DRAWING No. DA:003

ISSUE B

zhinar architects

50m HOB ZONE PERIMETER

SITE BOUNDARY

SITE BOUNDARY

SETBACK

27 262

ROOF
BELOW

LINE OF WALL BELOW

LINE OF WALL BELOW

CUMBERLAND
CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

50m HOB ZONE PERIMETER

34.85

LIFT
OVERRUN
34.40

LINE OF WALL BELOW

PARAPET T.O.W. RL.65.1

6 000

4000

LINE OF WALL BELOW

LINE OF WALL BELOW

50m HOB ZONE PERIMETER

PLANT AREA

1.4M FENCE

RL 64.80

52.80

LIFT
OVERRUN

LIFT
OVERRUN
BELOW

FIXED SKYLIGHT

HW PLANT

RL 64.80

PLANT AREA

ROOF OF
BELOW LEVELS
CONCRETE ROOF WITH
MEMBRANE INSULATION

PARAPET T.O.W. RL.65.1

RL 64.80

RL 64.90

MAINTENANCE
ACCESS

18 011

1 700

FIXED SKYLIGHT

FIXED SKYLIGHT

LINE OF WALL BELOW

PARAPET T.O.W. RL.65.1

SETBACK

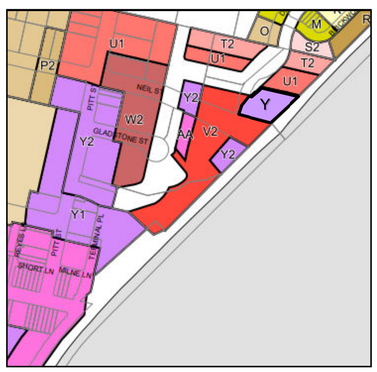
PARAPET T.O.W. RL.65.35

5 200

6 920

SITE BOUNDARY

50m HOB ZONE PERIMETER



2 Planning Extract - 50M HOB - Area Y

1 ROOF PLAN
1:125

SHADOW CAST BY ROOF ELEMENTS
9:00 am - 21 JUNE

SHADOW CAST BY ROOF ELEMENTS
12:00 pm - 21 JUNE

SHADOW CAST BY ROOF ELEMENTS
3:00 pm - 21 JUNE

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-E	50m HOB ZONE PERIMETER (AREA 'Y') ADDED TO ROOF PLAN	16/09/2020	MM	VB
DA-D	AMENDED STORAGE CAGE ALLOCATION	14/09/2020	MM	VB
DA-C	AMENDED FLOOR R.L.'s FOR STRUCTURAL ENGINEERING COMPLIANCE	1/09/2020	MM	VB
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Thursday, 17 September 2020 5:33 pm

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CLIENT
Landmark
Landmark Group Australia Pty Ltd

GENERAL NOTES

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NORTH
TN
MN

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
Roof Plan
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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+61 2 8893 8833 / f
www.zhinar.com.au / w
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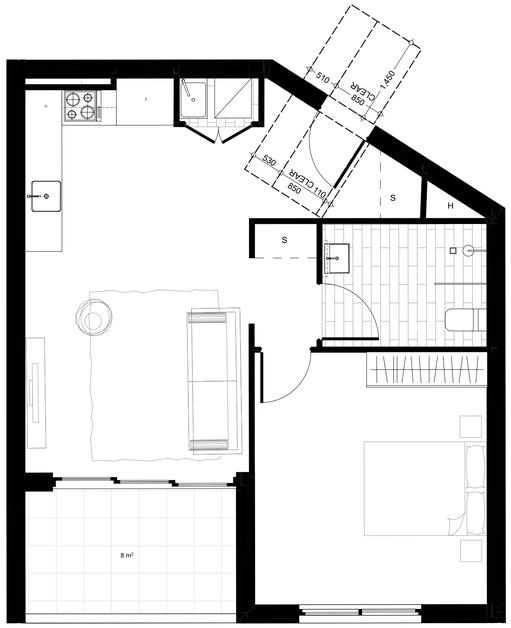
PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689

DRAWING No. DA:004

ISSUE E



2 Typical Unit Plan
1:50

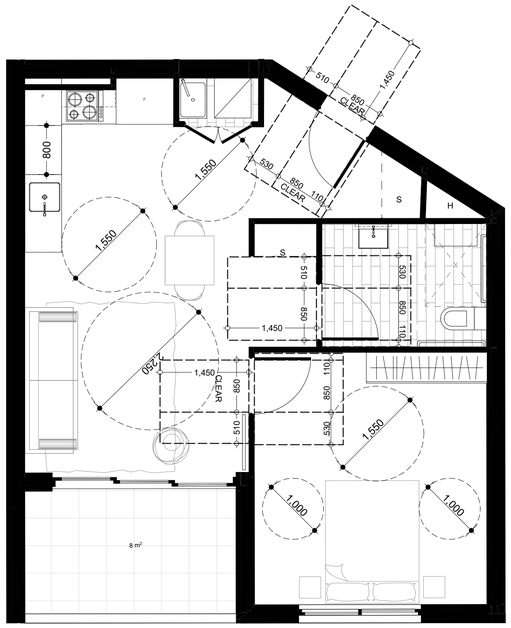
CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

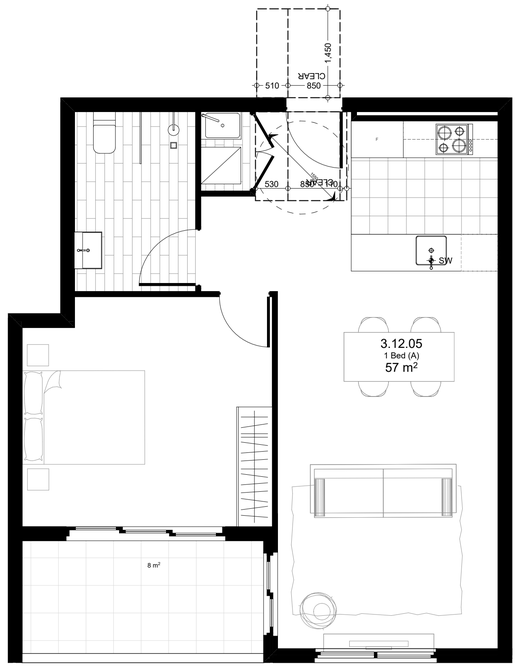
1 BEDROOM APARTMENT 53 M SQ
PRE-ADAPTION

TOTAL OF 3 UNITS:
3.12.07, 3.13.07, 3.14.05, 3.15.07



1 BEDROOM APARTMENT 53 M SQ
PRE-ADAPTION

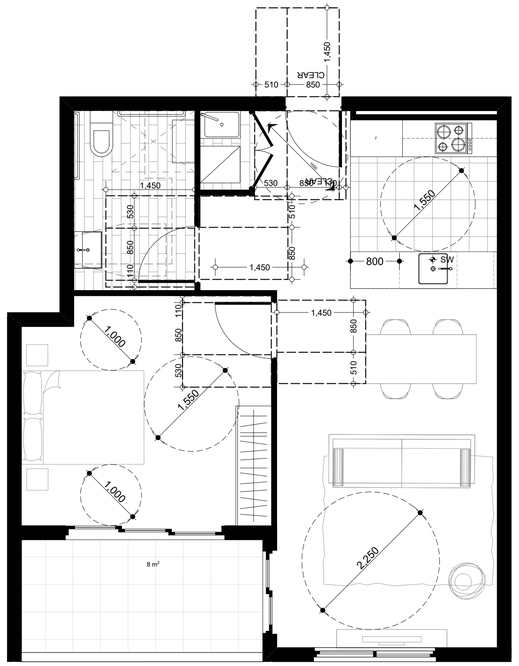
TOTAL OF 3 UNITS:
3.12.07, 3.13.07, 3.14.05, 3.15.07



1 Typical Unit Plan
1:50

1 BEDROOM APARTMENT 56 M SQ
PRE-ADAPTION

TOTAL OF 4 UNITS:
3.12.05, 3.13.05, 3.14.05, 3.15.05



1 BEDROOM APARTMENT 56 M SQ
POST-ADAPTION

TOTAL OF 4 UNITS:
3.12.05, 3.13.05, 3.14.05, 3.15.05

0 5 1:100 @ A1

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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 22 July 2020 12:09 pm

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CLIENT
Landmark
Landmark Group Australia Pty Ltd

GENERAL NOTES
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NORTH

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
Accessible Plans
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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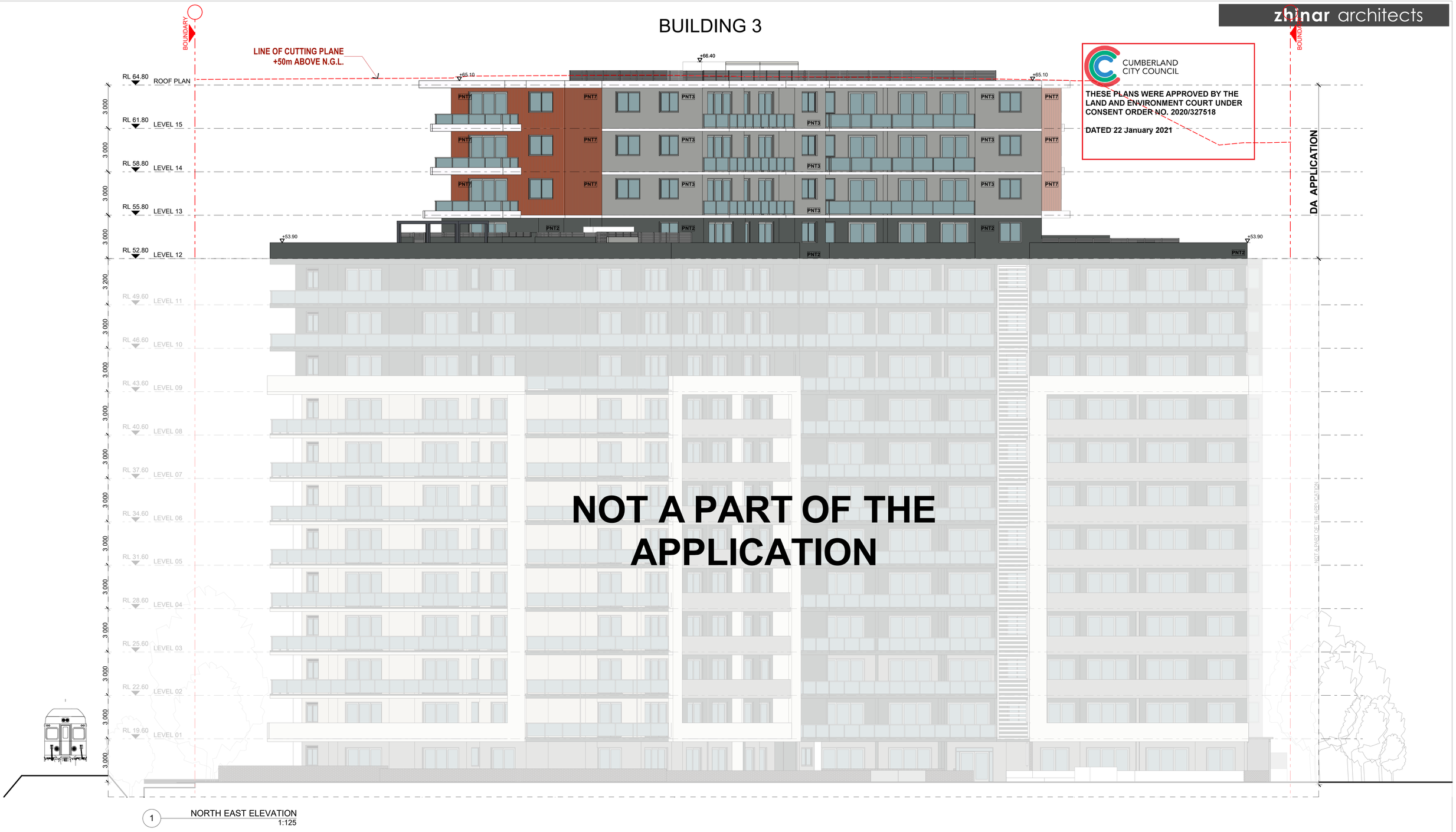
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689
DRAWING No. DA:005
ISSUE B

zhinar architects

BUILDING 3



CUMBERLAND CITY COUNCIL

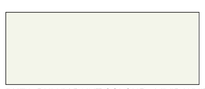
THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

NOT A PART OF THE APPLICATION

1 NORTH EAST ELEVATION
1:125

EXTERNAL FINISHES SCHEDULE



PNT1. DULUX PAINT COLOUR - VIVID WHITE EXTERIOR WALLS (PN2E1)
LRV: 94

PNT2. DULUX PAINT COLOUR -JUVENILE EXTERIOR WALLS, BALCONY BALUSTRADES (SG5E7)
LRV: 73

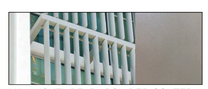
PNT3. DULUX PAINT COLOUR -STEEL COPY EXTERIOR WALLS, BALCONY BALUSTRADES (SN4B8)
LRV:38

PNT4. DULUX PAINT COLOUR -NICKEL PEARL BALCONY DIVIDING WALLS (S13D7)
LRV: 20.6

PNT5. POWDER COATED ALUMINIUM DULUX COLOUR - SILVER PEARL WINDOW FRAMES (9007024Q)
LRV: 48%

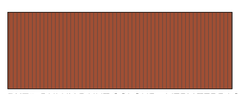
PNT6. DULUX PAINT COLOUR - POLISHED OPAL EXTERIOR WALLS (SN3D1)
LRV: 73

BWF. BRICK - PGH APOLLO OR SIMIALR GROUND LEVEL PODIUM WALLS
LIGHT ABSORBANCE RATING: DARK



LV1. NICKEL PEARL POWDER COATED ALUMINIUM AEROFOIL LOUVRES
LRV: 48%

GLZ. GLAZING SINGLE CLEAR



PNT7. DULUX PAINT COLOUR - VERY TERRACOTTA FEATURE EXTERIOR WALLS, HEBEL LINEAL '150' POWERPATTERN PANEL (VERTICAL)

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-D	ADDED HEIGHT CUTTING PLANE TO +50m ABOVE NGL TO RFI REQUEST 9/09/2020	9/09/2020	MM	VB
DA-C	AMENDED FLOOR R.L.'s FOR STRUCTURAL ENGINEERING COMPLIANCE	1/09/2020	MM	VB
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 9 September 2020 4:38 pm

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CLIENT
Landmark
Landmark Group Australia Pty Ltd

GENERAL NOTES

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NORTH

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
North Elevation
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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+61 2 8893 8833 / f
www.zhinar.com.au / w
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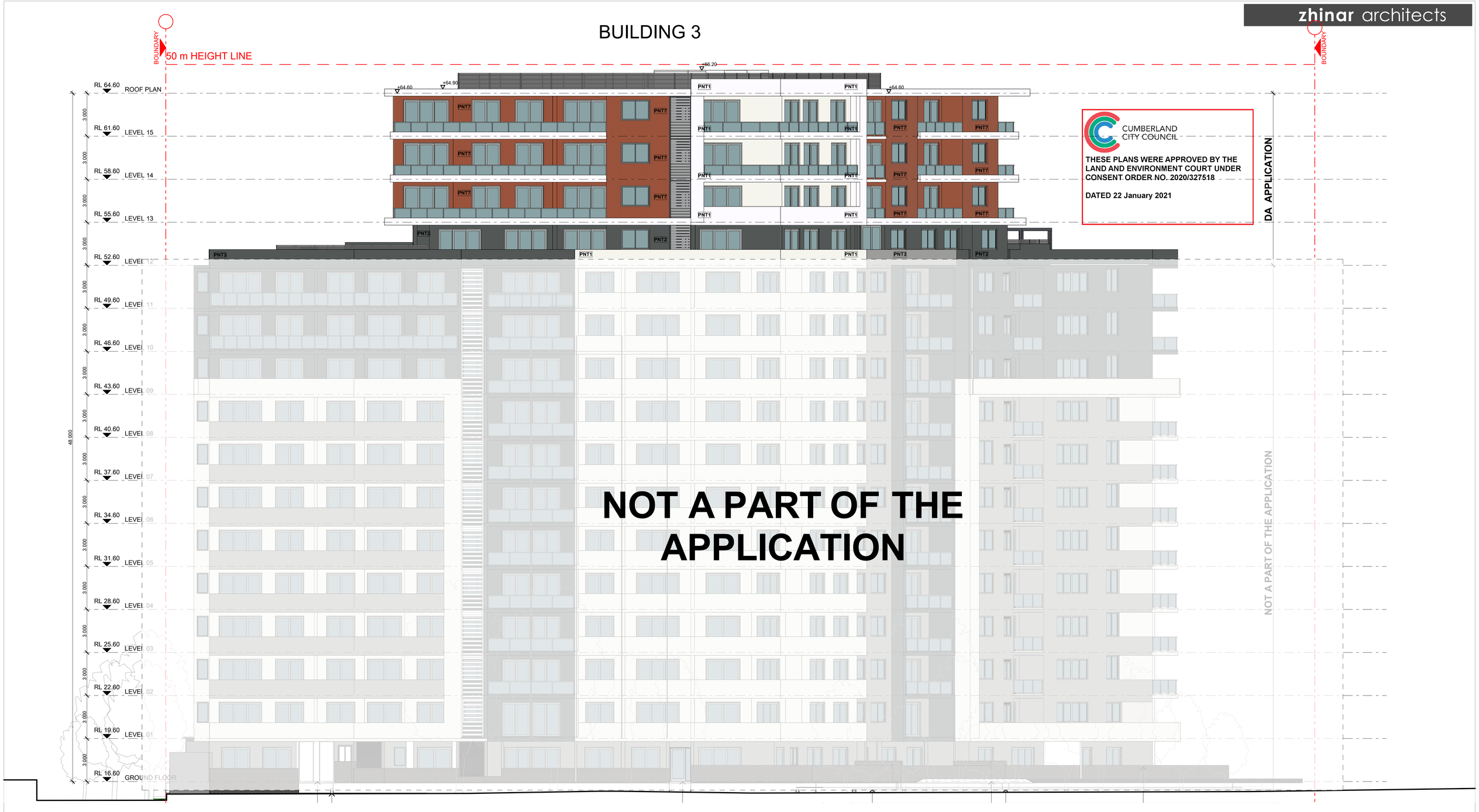
PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689

DRAWING No. DA:006

ISSUE D

BUILDING 3



CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

NOT A PART OF THE APPLICATION

1 SOUTH WEST ELEVATION
1:125

EXTERNAL FINISHES SCHEDULE

PNT1. DULUX PAINT COLOUR - VIVID WHITE EXTERIOR WALLS (PN2E1)
LRV: 94

PNT2. DULUX PAINT COLOUR -JUVENILE EXTERIOR WALLS, BALCONY BALUSTRADES (SG5E7)
LRV: 73

PNT3. DULUX PAINT COLOUR -STEEL COPY EXTERIOR WALLS, BALCONY BALUSTRADES (SN4B8)
LRV:38

PNT4. DULUX PAINT COLOUR -NICKEL PEARL BALCONY DIVIDING WALLS (S13D7)
LRV: 20.6

PNT5. POWDER COATED ALUMINIUM DULUX COLOUR - SILVER PEARL WINDOW FRAMES (9007024Q)
LRV: 48%

PNT6. DULUX PAINT COLOUR - POLISHED OPAL EXTERIOR WALLS (SN3D1)
LRV: 73

BWF. BRICK - PGH APOLLO OR SIMIALR GROUND LEVEL PODIUM WALLS
LIGHT ABSORBANCE RATING: DARK

LV1. NICKEL PEARL POWDER COATED ALUMINIUM AEROFOIL LOUVRES
LRV: 48%

GLZ. GLAZING SINGLE CLEAR

PNT7. DULUX PAINT COLOUR - VERY TERRACOTTA FEATURE EXTERIOR WALLS, HEBEL LINEAL '150' POWERPATTERN PANEL (VERTICAL)

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 22 July 2020 12:09 pm

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CLIENT
Landmark
Landmark Group Australia Pty Ltd

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NORTH

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
South Elevation
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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+61 2 8893 8833 / f
www.zhinar.com.au / w
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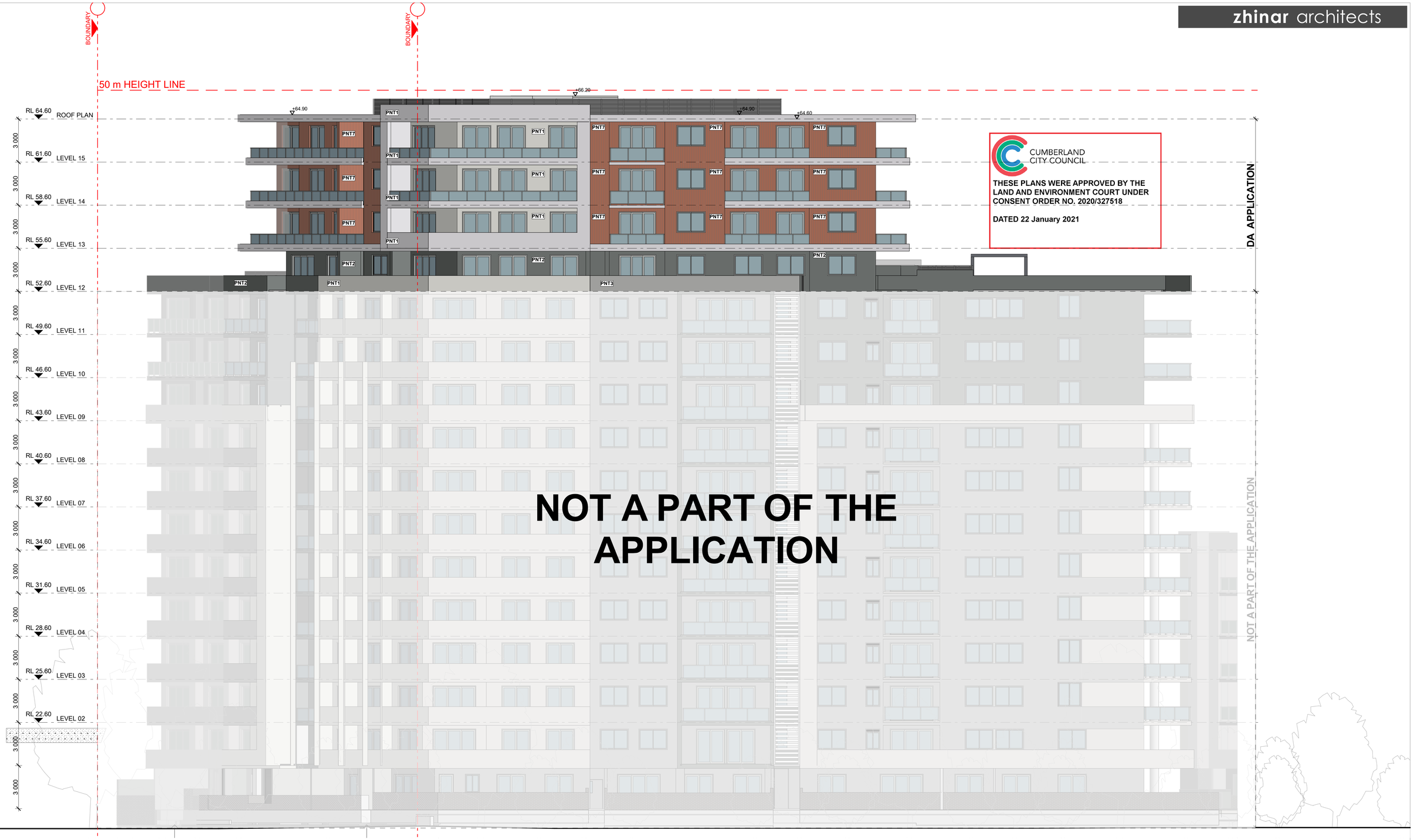
PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689
DRAWING No. DA:007
ISSUE B



CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

NOT A PART OF THE APPLICATION

1 SOUTH EAST ELEVATION
1:125

EXTERNAL FINISHES SCHEDULE

PNT1. DULUX PAINT COLOUR - VIVID WHITE EXTERIOR WALLS (PN2E1)
LRV: 94

PNT2. DULUX PAINT COLOUR -JUVENILE EXTERIOR WALLS, BALCONY BALUSTRADES (SG5E7)
LRV: 73

PNT3. DULUX PAINT COLOUR -STEEL COPY EXTERIOR WALLS, BALCONY BALUSTRADES (SN4B8)
LRV:38

PNT4. DULUX PAINT COLOUR -NICKEL PEARL BALCONY DIVIDING WALLS (S13D7)
LRV: 20.6

PNT5. POWDER COATED ALUMINIUM DULUX COLOUR - SILVER PEARL WINDOW FRAMES (9007024Q)
LRV: 48%

PNT6. DULUX PAINT COLOUR - POLISHED OPAL EXTERIOR WALLS (SN3D1)
LRV: 73

BWF. BRICK - PGH APOLLO OR SIMIALR GROUND LEVEL PODIUM WALLS
LIGHT ABSORBANCE RATING: DARK

LV1. NICKEL PEARL POWDER COATED ALUMINIUM AEROFOIL LOUVRES
LRV: 48%

GLZ. GLAZING SINGLE CLEAR

PNT7. DULUX PAINT COLOUR - VERY TERRACOTTA FEATURE EXTERIOR WALLS, HEBEL LINEAL '150' POWERPATTERN PANEL (VERTICAL)

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 22 July 2020 12:09 pm

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CLIENT
Landmark Group Australia Pty Ltd

GENERAL NOTES

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NORTH

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
East Elevation
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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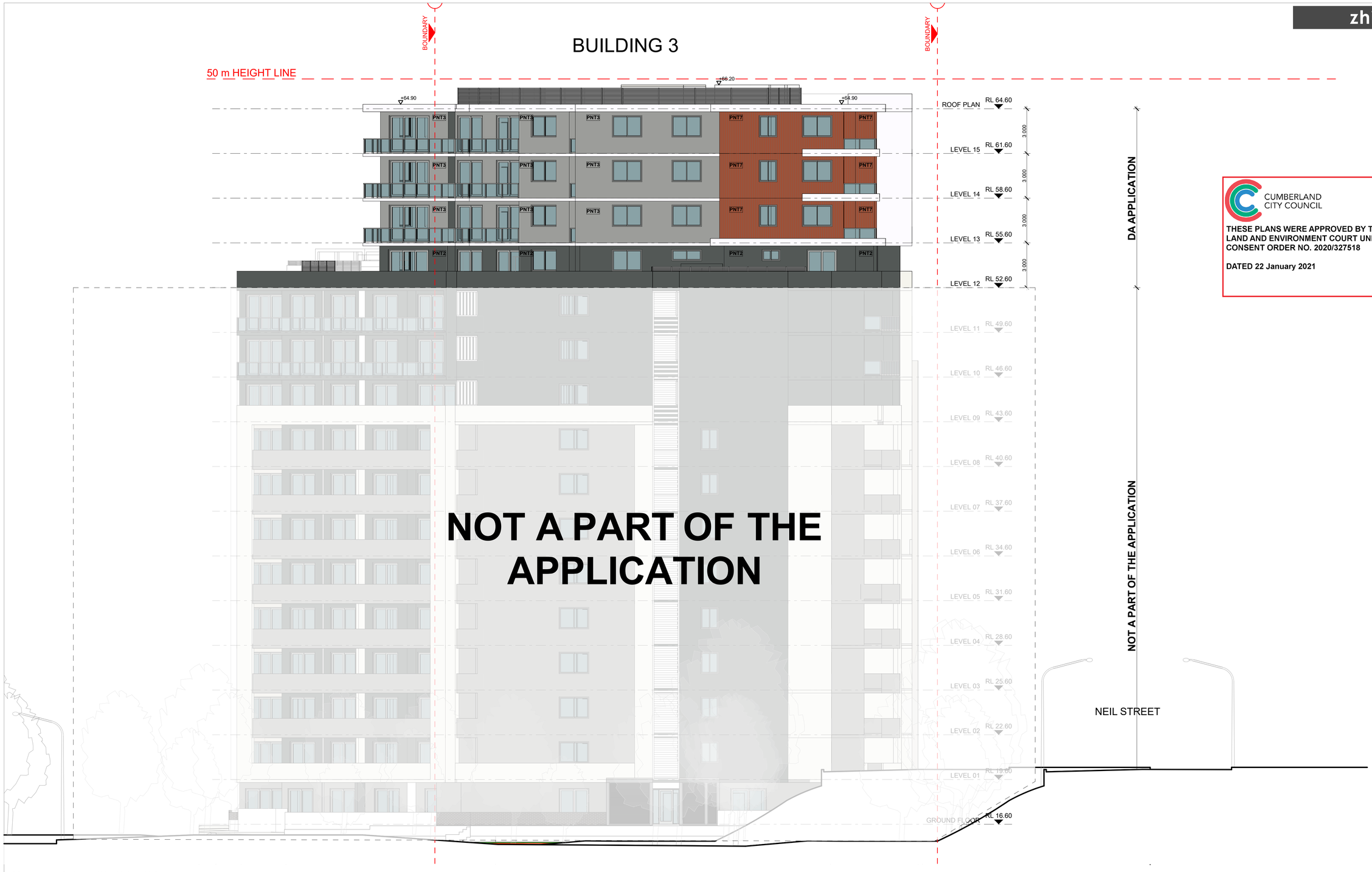
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689
DRAWING No. DA:008
ISSUE B

BUILDING 3



NOT A PART OF THE APPLICATION

DA APPLICATION

NOT A PART OF THE APPLICATION

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

1 NORTH WEST ELEVATION
1:125

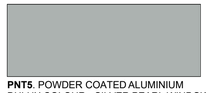
EXTERNAL FINISHES SCHEDULE

PNT1. DULUX PAINT COLOUR - VIVID WHITE EXTERIOR WALLS (PN2E1)
LRV: 94

PNT2. DULUX PAINT COLOUR -JUVENILE EXTERIOR WALLS, BALCONY BALUSTRADES (SQ5E7)
LRV: 73

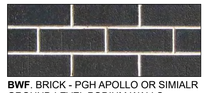
PNT3. DULUX PAINT COLOUR -STEEL COPY EXTERIOR WALLS, BALCONY BALUSTRADES (SN4B8)
LRV:38

PNT4. DULUX PAINT COLOUR -NICKEL PEARL BALCONY DIVIDING WALLS (S13D7)
LRV: 20.6



PNT5. POWDER COATED ALUMINIUM DULUX COLOUR - SILVER PEARL WINDOW FRAMES (90070240)
LRV: 48%

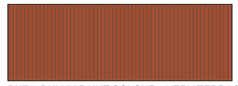
PNT6. DULUX PAINT COLOUR - POLISHED OPAL EXTERIOR WALLS (SN3D1)
LRV: 73



BWF. BRICK - PGH APOLLO OR SIMIALR GROUND LEVEL PODIUM WALLS
LIGHT ABSORBANCE RATING: DARK

LV1. NICKEL PEARL POWDER COATED ALUMINIUM AEROFOIL LOUVRES
LRV: 48%

GLZ. GLAZING SINGLE CLEAR



PNT7. DULUX PAINT COLOUR - VERY TERRACOTTA FEATURE EXTERIOR WALLS, HEBEL LINEAL '150' POWERPATTERN PANEL (VERTICAL)

0 5 1:100 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED
DA-B	AMENDED AS PER COUNCIL RFI LETTER - 09 July 2020	22/07/2020	MM	VB

Print Date: Wednesday, 22 July 2020 12:09 pm

Drawing is NOT VALID or issued for use, unless checked.

CLIENT
Landmark
Landmark Group Australia Pty Ltd

GENERAL NOTES
Figured dimensions shall be taken in preference to scaling. Drawing to be read in conjunction with information on first page. Check all dimensions and levels on site before commencing work or ordering materials. All existing ground lines & trees location are approximate, therefore to be verified on-site by the builder. Any discrepancies to be verified back to Zhinar Architects before proceeding. All workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufacturer's instructions. Unless noted 'Issued for Construction', drawing not to be used for construction.

NORTH

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
West Elevation
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

Zhinar Architects Pty Ltd
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2 Rowe Street
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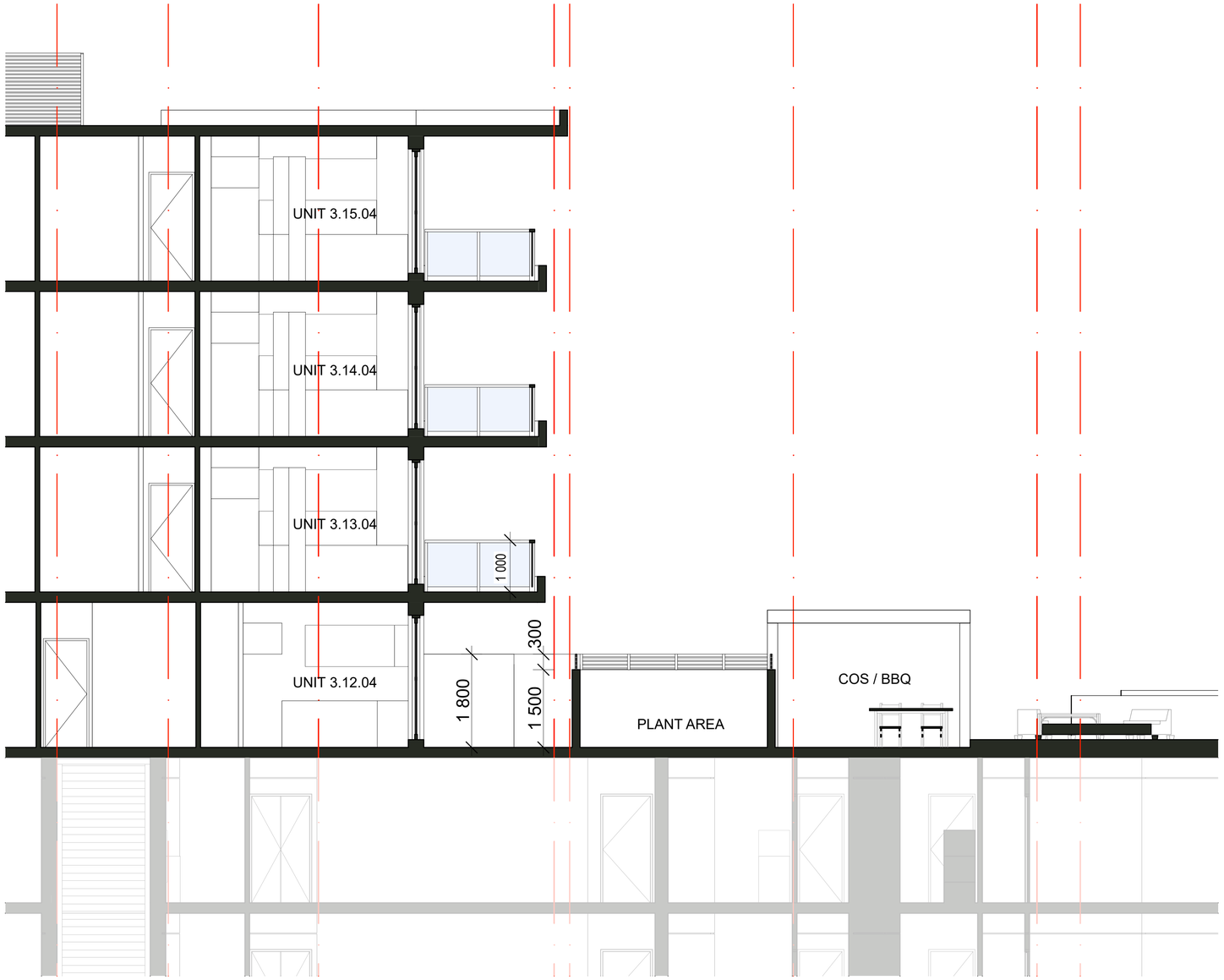
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689
DRAWING No. DA:009
ISSUE B

1 Unit 3.12.04 Cut-away Section

2 Lvl 12 (East) COS + Plant area



3 Detail Section (Level 12)
1:50

CUMBERLAND CITY COUNCIL

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DATED 22 January 2021

0 1 1:100 @ A1

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NORTH

PROJECT STATUS
DA Alterations & Additions

Original DA:
Ghazi Al Ali Architect

SHEET TITLE
Detail Section
DA Alts & Adds Application

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
GAA	MM	July 2020	AS NOTED	A1 SHEET

L.G.A : Cumberland City Council

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Eastwood NSW 2122
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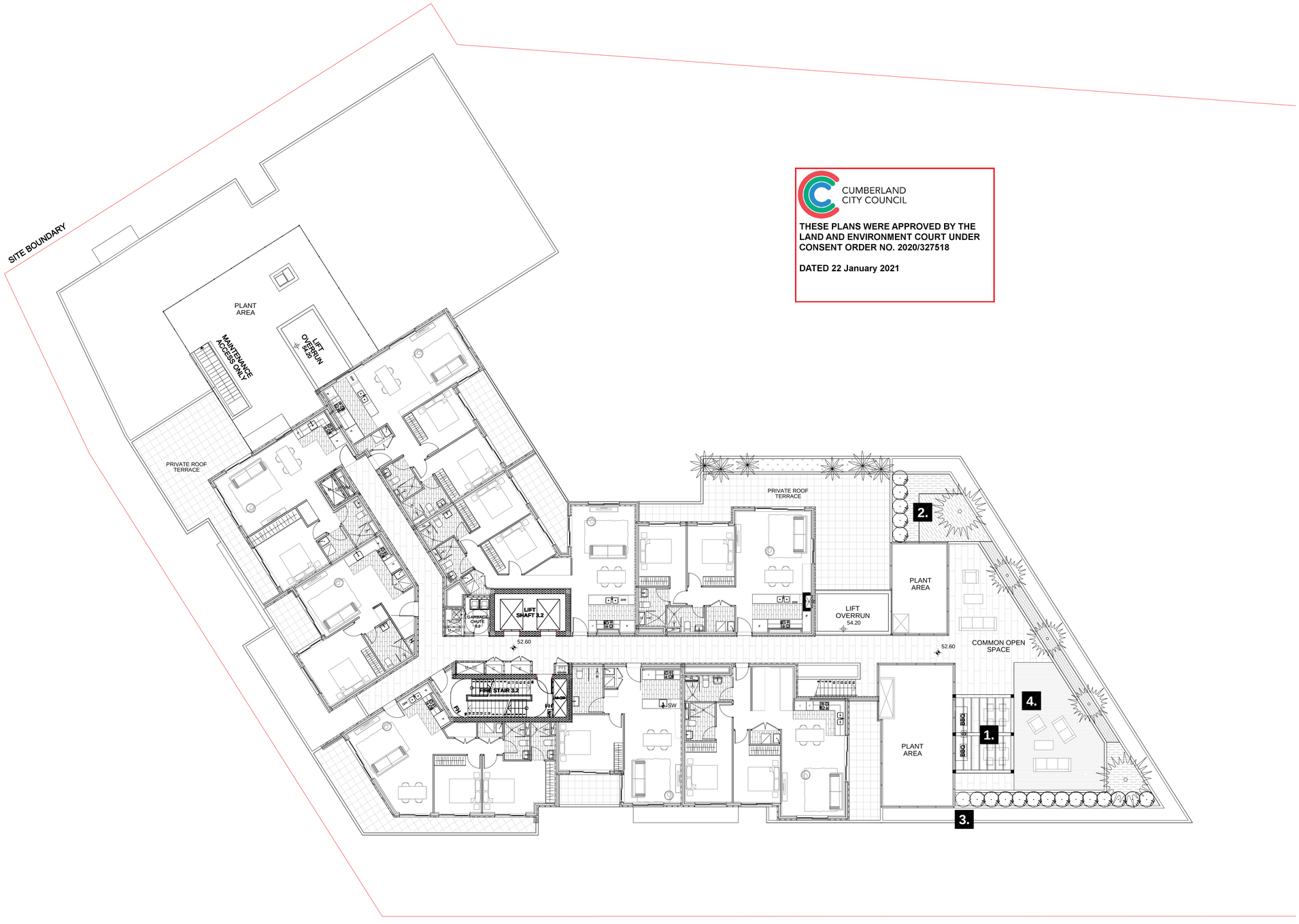
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT NAME
The Mills | Buildings 3&4
Residential Flat Building
20-22 Dressler Court, Merrylands NSW 2160

JOB No. 08689

DRAWING No. DA:010

ISSUE B



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DATED 22 January 2021

LEGEND

- BENCHMARK SSM133012 RL 14.820 (A.H.D.)
- EXISTING/PROPOSED SPOT LEVELS (13.67 / + 13.40)
- PARK BENCH SEATING (TO FUTURE SPEC.)
- MASONRY WALLING (REFER ARCHITECT'S DRAWINGS)
- PAVING TYPE 1 - UNIT (REFER ARCHITECT'S DRAWINGS)
- PAVING TYPE 2 - TIMBER (REFER ARCHITECT'S DRAWINGS)
- PAVING TYPE 3 - UNIT (REFER ARCHITECT'S DRAWINGS)
- PAVING TYPE 4 - CONCRETE (REFER ARCHITECT'S DRAWINGS)
- SYNTHETIC LAWN AREA
- FEATURE SHRUB PLANTING (REFER PLANT SCHEDULE)
- SCREEN PLANTING (REFER PLANT SCHEDULE)
- GROUND COVER PLANTING (REFER PLANT SCHEDULE)

DESIGN NOTES

1. Covered BBQ Area
Covered contemporary fully equipped BBQ area. Fixed tables and bench seating, overhead lighting and heating.

Wind protection to the BBQ area will be addressed through its location adjacent to the building lifts.

Dark coloured floor tiles to be provided throughout this zone to assist in minimising glare reflection.

2. Raised Garden Beds
Harden native and exotic perimeter planting provided within 1000mm deep raised garden beds that surround the communal area. Wind breaks in the form of 1500mm high screen planting will assist in providing shelter from seasonal winds.

3. Safety Landscape Maintenance Access
For improved safety, access for landscape and building maintenance teams is via a path to the outside edge of the garden bed which is through a locked gate.

4. Seating Zone
The communal area is broken up into a series of zones. The casual seating zone is ideally located behind a row of potted plants and raised garden bed. Fixed furniture will be provided in this location along with synthetic grass to reduce glare.

greenplan
GPO Box 769, Mascot NSW 2020
P: 1800 464 207 M: 0407 061 386
E: landscape@greenplan.net.au
W: www.greenplan.net.au

DRAWING NOTES

1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK.
4. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND DRAWINGS.
5. THE LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED ON SURVEY BY STRATA SURV, DATED AUGUST 2014.

THIS DRAWING IS AN UNCONTROLLED COPY. UNLESS NOTED OTHERWISE.

REV	DESCRIPTION	DATE
D	FOR DEVELOPMENT APPLICATION	29/01/20
C	FOR DEVELOPMENT APPLICATION	20/12/19
B	FOR DEVELOPMENT APPLICATION	25/10/16
A	FOR INFORMATION	12/10/16

NORTH

MAGNETIC NORTH

PLANNER
Chapman Planning
Suite8, 88 Mountain Street Ultimo NSW 2007
Tel 02 9560 1718 *Contact Garry Chapman*

ENGINEER
sgconsultants
Suite 113, Level 1, Building A
20 Lexington Drive Bella Vista NSW 2153
Tel 02 8883 4239

CLIENT
LANDMARK GROUP
Level 25, 88Phillip Street
Sydney NSW 2000

ARCHITECT
GHAZI AL ALI
Suite 2, Level 2 Railway Parade Burwood NSW 2134
Tel 02 9744 7035 *Contact Jo Van De Ven*

PROJECT
THE MILLS
BUILDINGS B3 & B4
1-11 NEIL STREET MERRYLANDS

DRAWING TITLE
LANDSCAPE PLAN
BUILDING 3 LEVEL TWELVE

SCALE	1:150 @ A1 / 1:300 @ A3
STATUS	FOR DEVELOPMENT APPLICATION
DESIGNED/DRAWN	HG/CD
VERIFIED	KS
DATE	29/01/2020
JOB NUMBER	16713

DRAWING NUMBER **LS-304**

ISSUE **D**

DATE PLOTTED: 13 February 2020 3:22 PM BY : SGCE-IMAC4

A1

PROPOSED RESIDENTIAL DEVELOPMENT
THE MILLS - 1-11 NEIL STREET, MERRYLANDS NSW
BUILDING 3 & 4
STORMWATER CONCEPT DESIGN FOR DA

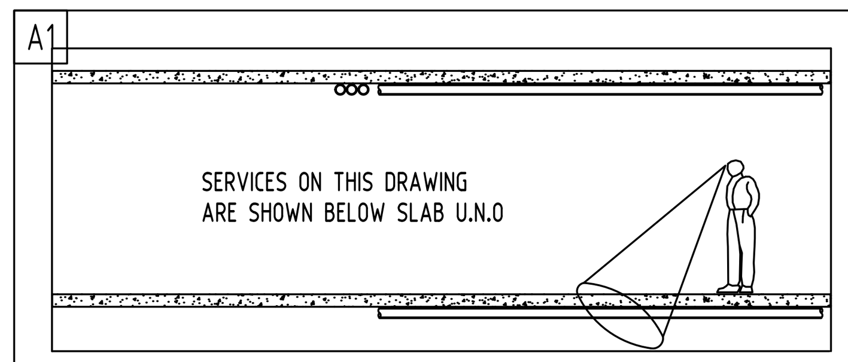
SGC
Engineering Value

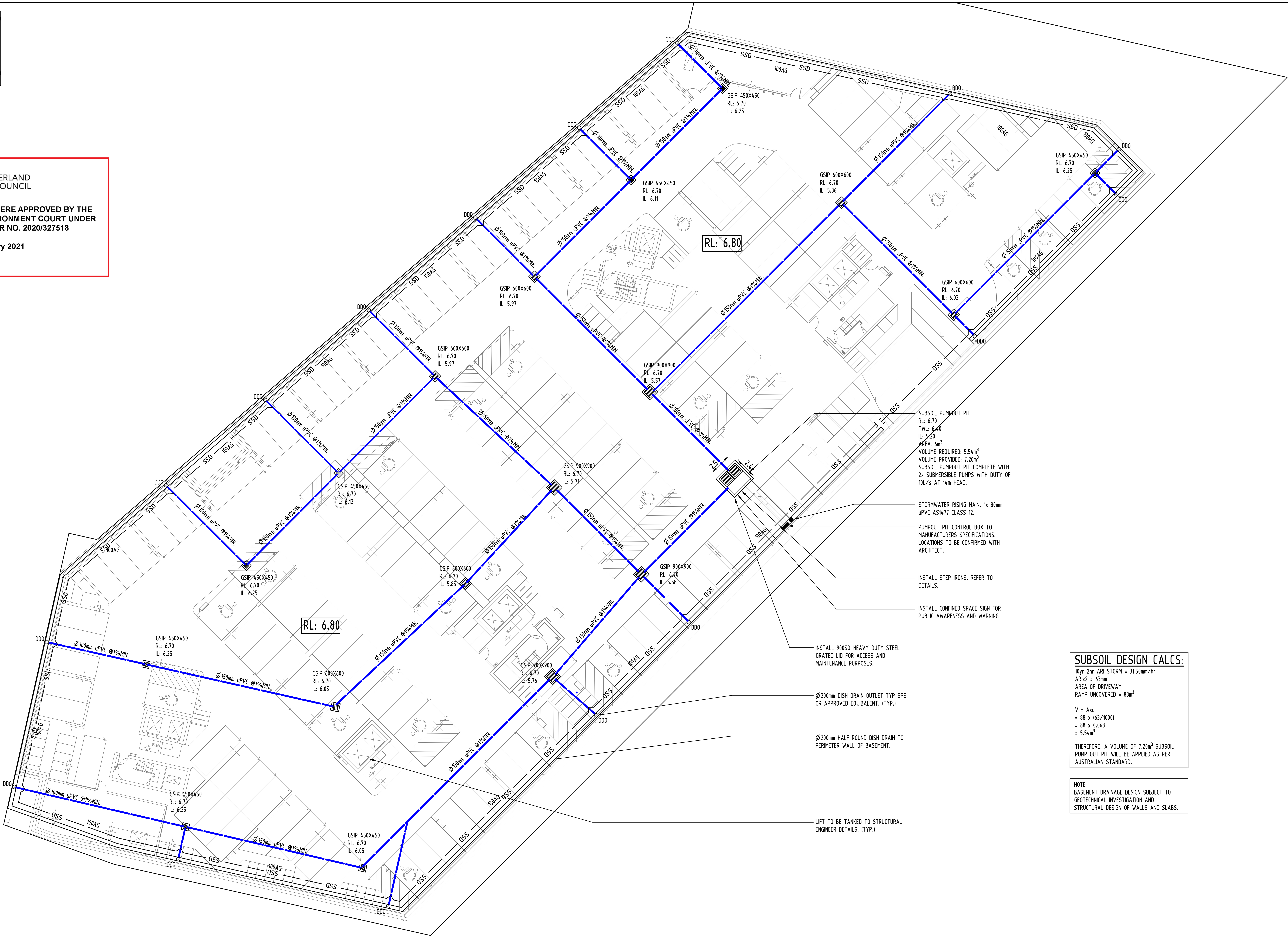
LOCALITY PLAN

DRAWING REGISTER		
No.	TITLE	REV
SW500	COVER SHEET	D
SW501	STORMWATER CONCEPT DESIGN - BASEMENT 3 PLAN	D
SW502	STORMWATER CONCEPT DESIGN - GROUND FLOOR PLAN - SHEET 1 OF 2	D
SW503	STORMWATER CONCEPT DESIGN - GROUND FLOOR PLAN - SHEET 2 OF 2	D
SW504	STORMWATER CONCEPT DESIGN - BUILDING 3 ROOF PLAN	D
SW505	STORMWATER CONCEPT DESIGN - BUILDING 4 ROOF PLAN	D
SW506	STORMWATER CONCEPT DESIGN - DETAILS SHEET	D
SW507	EROSION AND SEDIMENT CONTROL - PLAN AND DETAILS	D

XREF's: $?
CAD FILE: C:\Users\SGCE-imac4\AppData\Local\Temp\BricsCAD\bp_0\SW500.dwg

Drawing Title		
COVER SHEET		
Project Number	Drawing Number	Revision Number
20140028	SW500	D
Sheet 1 of 8	Issue	FOR APPROVAL





SUBSOIL DESIGN CALCS:

10yr 2hr ARI STORM = 31.50mm/hr
ARIx2 = 63mm
AREA OF DRIVEWAY
RAMP UNCOVERED = $88m^2$

V = Axd
= 88 x (63/1000)
= 88 x 0.063
= $5.54m^3$

THEREFORE, A VOLUME OF $7.20m^3$ SUBSOIL PUMP OUT PIT WILL BE APPLIED AS PER AUSTRALIAN STANDARD.

NOTE:
BASEMENT DRAINAGE DESIGN SUBJECT TO GEOTECHNICAL INVESTIGATION AND STRUCTURAL DESIGN OF WALLS AND SLABS.

Issue	Last revision title	by	Date	Status
D	ISSUE FOR DA	SH	13.02.2020	2
C	ISSUE FOR DA	SH	23.01.2020	2
B	ISSUE FOR S4.55	JH	05.11.2019	2
A	SUBMISSION TO COUNCIL	CZ	02.11.2016	2
P1	SUBMISSION TO COUNCIL	RX	11.10.2016	1

Issuer internal sequence and revision history
1-preliminary 2-development application 3-construction certificate
4-tender 5-construction 6-other

Reference Coordination Drawing

Discipline	Drawing Title and Number	Date	Rev.
ARCH	12.01 BASEMENT 3 FLOOR PLAN	30.10.19	
ARCH			
STRUCT			
MECH			
ELEC			
HYD			
FIRE			
LANDS			
CIVIL			
SURVEY			

ENGINEERS AUSTRALIA Chartered Professional Engineer MEMBER

DIMENSIONS NOT SHOWN TO BE CHECKED ON SITE. DO NOT SCALE OF THIS DRAWING. POSITIONS OF AUTHORITIES MAINS AND/OR EXISTING SERVICES ARE TO BE CHECKED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER FOR DECISION/CLARIFICATION BEFORE PROCEEDING WITH THE WORK. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND OTHER CONSULTANTS' DRAWINGS.

QUALITY CONTROL

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CHECKED	SH	DATE	13.02.20
DESIGNED	SH	DATE	13.02.20
VERIFIED	SH	DATE	13.02.20
APPROVED	SH	DATE	13.02.20

Scales
0m 2 4 6 8 10
SCALE 1:200 ON ORIGINAL SIZE

CLIENT
LANDMARK group

ARCHITECT
GHAZI AL ALI ARCHITECT PTY LTD NSW reg. no. 7542

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Web: www.sgce.com.au
A.B.N. 21 118 222 530

PROJECT
BUILDING 3 & 4
NEIL ST RESIDENTIAL PRECINCT
1-11 NEIL STREET, MERRYLANDS NSW
LOT 1 DP 203553 & LOT 11 DP 228782

Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	2 of 8	1:200 @ A1

Drawing Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

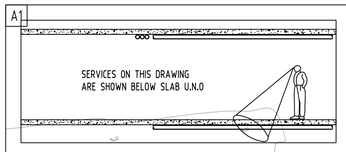
Drawing Title
STORMWATER CONCEPT DESIGN
BASEMENT 3 PLAN
BUILDING 3 & 4

Project No	Drawing No	Revision No
20140028	SW501	D

DATE PLOTTED: 13 February 2020 3:22 PM BY : SGCE-iMAC4
XREF's: $?
CAD FILE: C:\Users\SGCE-imac4\AppData\Local\Temp\BricsCAD\bp_0\SW501.dwg
A1

DATE PLOTTED: 13 February 2020 3:22 PM BY: SGCE-MAC4

A1



FOR CONTINUATION REFERRING TO SW503

ROOF WATER ONLY.

OUTLINE DENOTES BASEMENT WALL BELOW

STORMWATER PIPE TO BE STRAPPED TO BASEMENT WALL

BASEMENT OUTLINE

Ø225mm uPVC @0.5%MIN.

RL: 16.60

Ø150mm uPVC @0.5%MIN.

Ø100mm uPVC

DP

RWO

PROPOSED ROAD

GTD
200x200
RL:16.35
IL:16.15
HEAVY DUTY GRATE
& FRAME CLASS C.

STORMWATER PIPE STRAPPED TO BASEMENT WALL.

GSIP
600X600
RL: 15.40
IL: 14.55

GSIP
600X600
RL: 15.40
IL: 14.60

GSIP
600X600
RL: 15.40
IL: 14.65

SURFACE WATER ENTERING BASEMENT VIA UNCOVERED BASEMENT RAMP. AREA: 38m^3

GSIP
600X600
RL: 15.40
IL: 14.70

GSIP
600X600
RL: 15.40
IL: 14.75

GSIP
600X600
RL: 15.40
IL: 14.80

GSIP
450X450
RL: 15.40
IL: 14.85

GSIP
450X450
RL: 15.40
IL: 14.90

GSIP
450X450
RL: 15.40
IL: 14.95

GSIP
450X450
RL: 15.40
IL: 15.00

ABOVE GROUND OSD BASIN
TWL: 15.95
RL: 15.45
CL: 14.40
IL: 14.25
VOLUME REQUIRED: 238.27m^3
VOLUME PROVIDED: 285.60m^3
(20% ADDITIONAL STORAGE FOR FUTURE UNINTENTIONAL REDUCTION IN VOLUME)
AREA: 544m^2
AVERAGE DEPTH: 0.525m
MAX DEPTH: 0.55m
TAILWATER LEVEL: 14.89 AHD

FOR FUTURE UNINTENTIONAL REDUCTION IN VOLUME)
AREA: 544m^2
AVERAGE DEPTH: 0.525m
MAX DEPTH: 0.55m
TAILWATER LEVEL: 14.89 AHD

RL: 15.45

CUMBERLAND CITY COUNCIL

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DATED 22 January 2021

D	ISSUE FOR DA	SH	13.02.2020	2	
C	ISSUE FOR DA	SH	23.01.2020	2	
B	ISSUE FOR S4.55	JH	05.11.2019	2	
A	SUBMISSION TO COUNCIL	CZ	02.11.2016	2	
P2	PRELIMINARY ISSUE FOR REVIEW - OSD AMENDMENTS	RX	14.10.2016	1	
P1	SUBMISSION TO COUNCIL	RX	11.10.2016	1	
Issue	Last revision title	by	Date	Status	

Issuer internal sequence and revision history

1-preliminary 2-development application 3-construction certificate
4-tender 5-construction 6-other

Reference Coordination Drawing

Discipline	Drawing Title and Number	Date	Rev.
ARCH	12.04 GROUND FLOOR PLAN	30.10.19	
ARCH			
STRUCT			
MECH			
ELEC			
HYD			
FIRE			
LANDS			
CIVIL			
SURVEY			

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DRAWN	SH	DATE	13.02.20
CHECKED	SH	DATE	13.02.20
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VERIFIED	SH	DATE	13.02.20
APPROVED	SH	DATE	13.02.20

Scales

0m 2 4 6 8 10

SCALE 1:200 ON ORIGINAL SIZE

CLIENT

LANDMARK group

ARCHITECT

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PROJECT

BUILDING 3 & 4
NEIL ST RESIDENTIAL PRECINCT
1-11 NEIL STREET, MERRYLANDS NSW
LOT 1 DP 203553 & LOT 11 DP 228782

Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	3 of 8	1:200 @ A1

Drawing Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Drawing Title: STORMWATER CONCEPT DESIGN
GROUND FLOOR PLAN
SHEET 1 OF 2

Project No	Drawing No	Revision No
20140028	SW502	D

PLOT BY: C:\Users\SGCE-mac4\AppData\Local\Temp\BricsCAD\ac_8\SW502.dwg

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Discipline	Drawing Title and Number	Date	Rev.
ARCH	12.04 GROUND FLOOR PLAN	30.10.19	
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SURVEY			

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0m 2 4 6 8 10
SCALE 1:200 ON ORIGINAL SIZE

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Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	4 of 8	1:200 @ A1

Drawing Status: FOR APPROVAL
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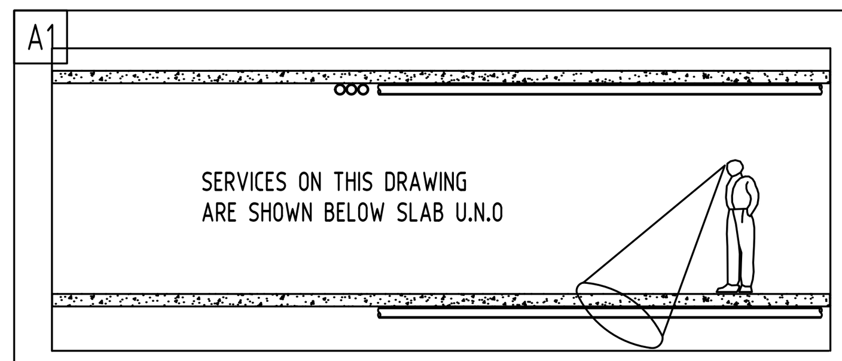
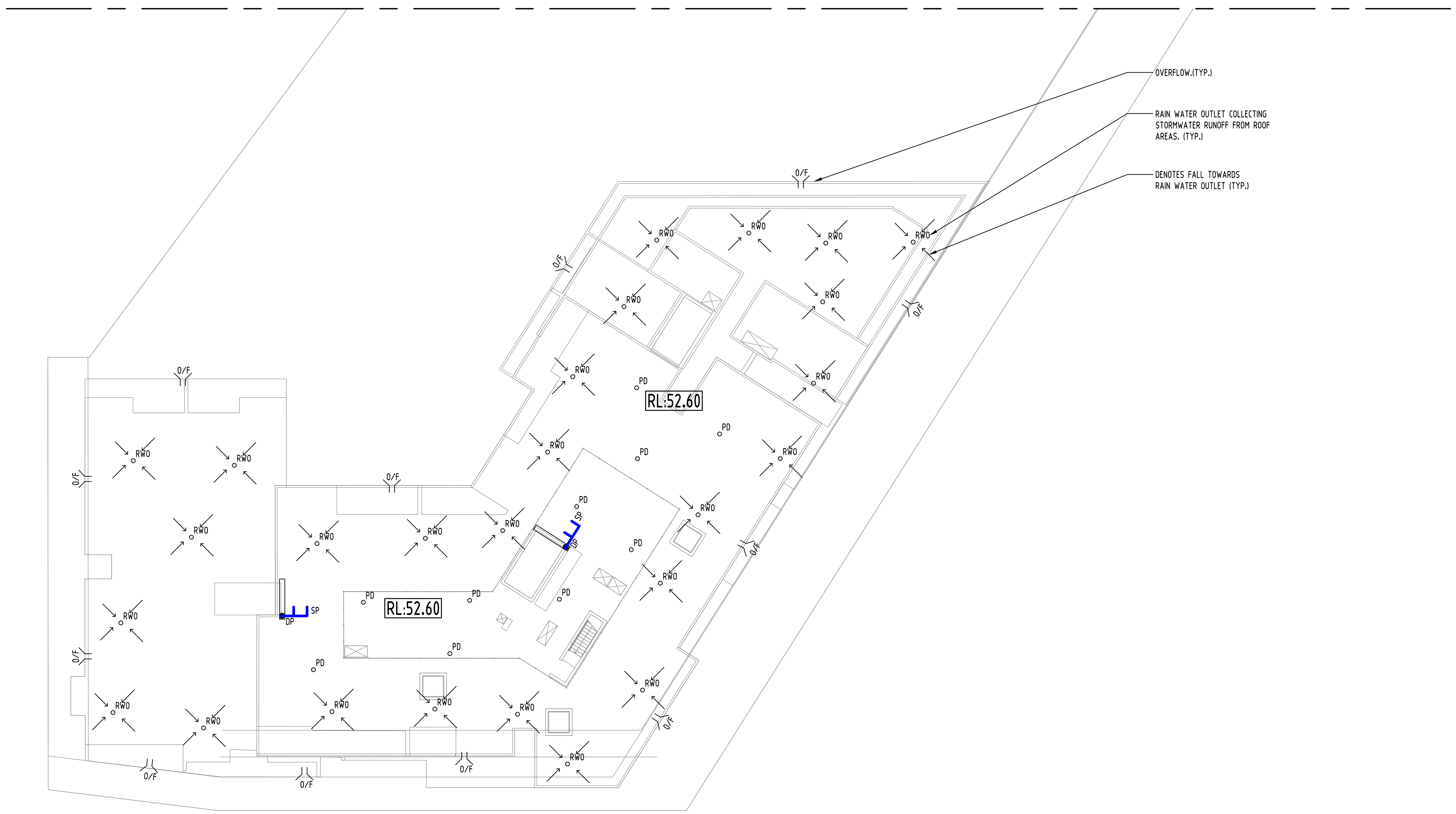
Drawing Title
STORMWATER CONCEPT DESIGN
GROUND FLOOR PLAN
SHEET 2 OF 2

Project No	Drawing No	Revision No
20140028	SW503	D

A1



FOR CONTINUATION REFERRING TO SW505



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SURVEY			

ENGINEERS AUSTRALIA Chartered Professional Engineer MEMBER

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QUALITY CONTROL

DRAWN	SH	DATE	13.02.20
CHECKED	SH	DATE	13.02.20
DESIGNED	SH	DATE	13.02.20
VERIFIED	SH	DATE	13.02.20
APPROVED	SH	DATE	13.02.20

Scales
0m 2 4 6 8 10
SCALE 1:200 ON ORIGINAL SIZE

CLIENT
LANDMARK group

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A.B.N. 21 118 222 530

PROJECT
BUILDING 3 & 4
NEIL ST RESIDENTIAL PRECINCT
1-11 NEIL STREET, MERRYLANDS NSW
LOT 1 DP 203553 & LOT 11 DP 228782

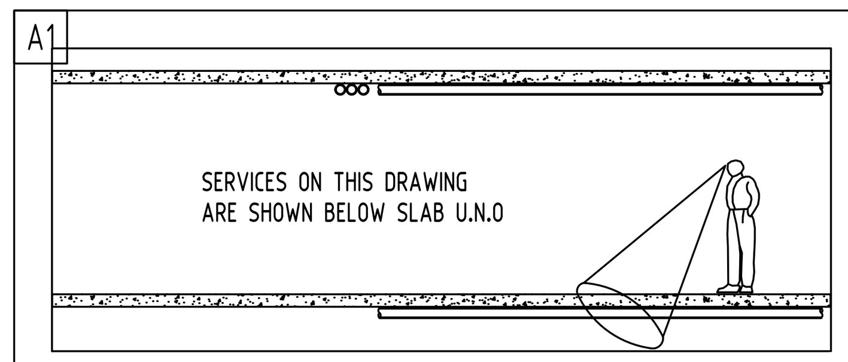
Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	5 of 8	1:200 @ A1

Drawing Status FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Drawing Title
STORMWATER CONCEPT DESIGN
BUILDING 3 ROOF PLAN

Project No	Drawing No	Revision No
20140028	SW504	D

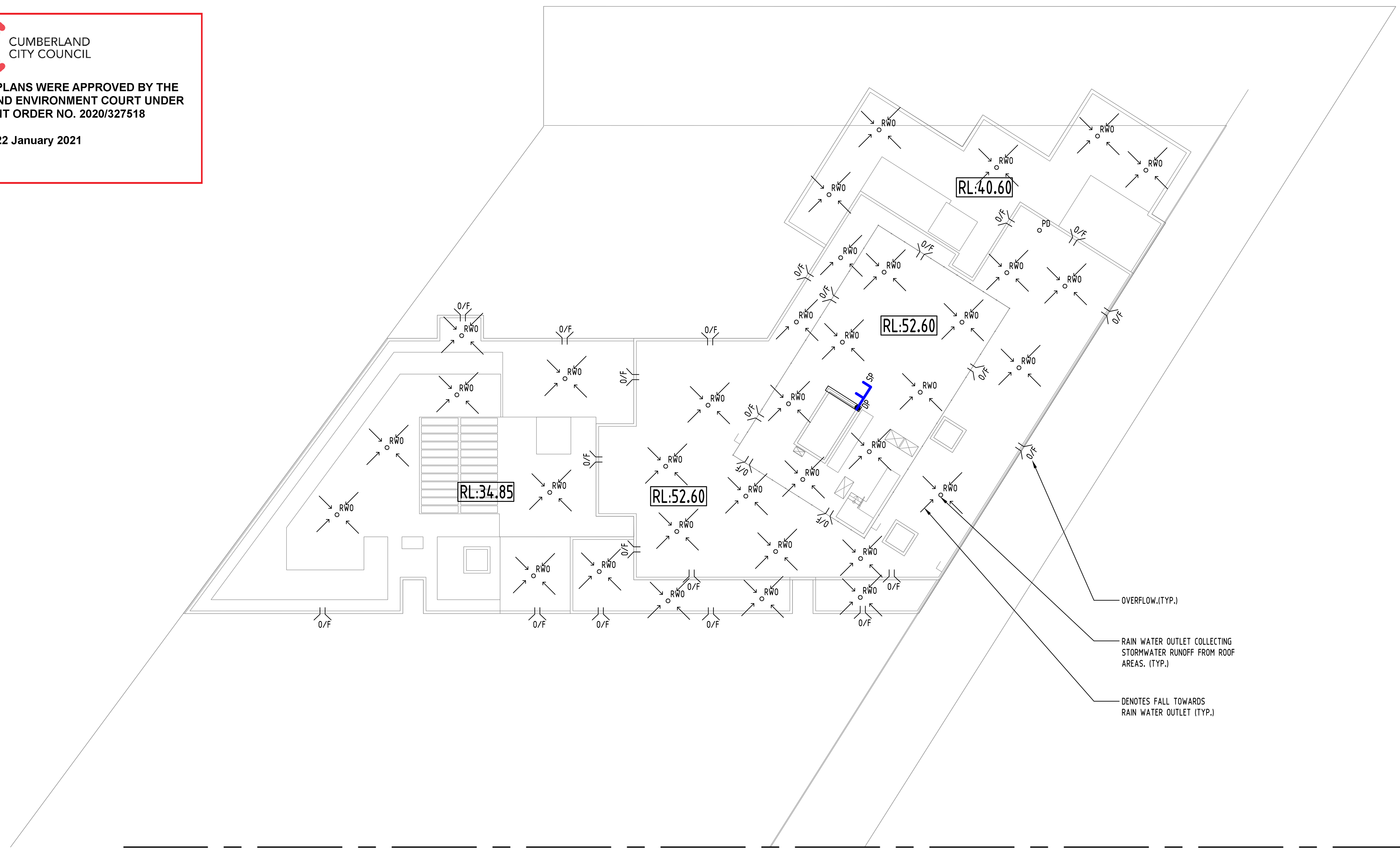
A1



CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021



FOR CONTINUATION REFERRING TO SW504

DATE PLOTTED: 13 February 2020 3:22 PM BY : SGCE-IMAC4

XREF's: $?
CAD FILE: C:\Users\SGCE-imac4\AppData\Local\Temp\BricsCAD\bp_0\SW505.dwg

Issue	Last revision title	by	Date	Status
D	ISSUE FOR DA	SH	13.02.2020	2
C	ISSUE FOR DA	SH	23.01.2020	2
B	ISSUE FOR S4.55	JH	05.11.2019	2
A	SUBMISSION TO COUNCIL	CZ	02.11.2016	2
P2	PRELIMINARY ISSUE FOR REVIEW - OSD AMENDMENTS	RX	14.10.2016	1
P1	SUBMISSION TO COUNCIL	RX	11.10.2016	1

Issuer internal sequence and revision history
1-preliminary 2-development application 3-construction certificate
4-tender 5-construction 6-other

Reference Coordination Drawing

Discipline	Drawing Title and Number	Date	Rev.
ARCH	12.09 ROOF PLAN	30.10.19	
ARCH			
STRUCT			
MECH			
ELEC			
HYD			
FIRE			
LANDS			
CIVIL			
SURVEY			

ENGINEERS AUSTRALIA
Chartered Professional Engineer
MEMBER

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Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	6 of 8	1:200 @ A1

Drawing Status: FOR APPROVAL
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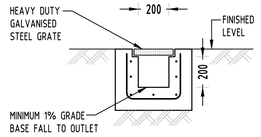
Drawing Title

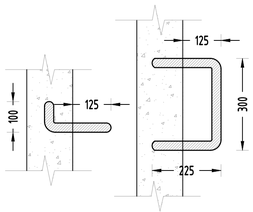
STORMWATER CONCEPT DESIGN
BUILDING 4 ROOF PLAN

Project No	Drawing No	Revision No
20140028	SW505	D

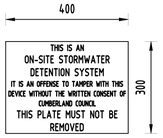
A1



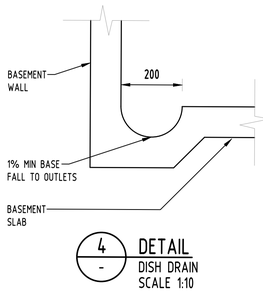
1 / - DETAIL
GRATED TRENCH DRAIN
NOT TO SCALE



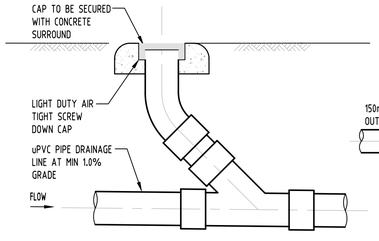
2 / - DETAIL
STEP IRONS
SCALE 1:10



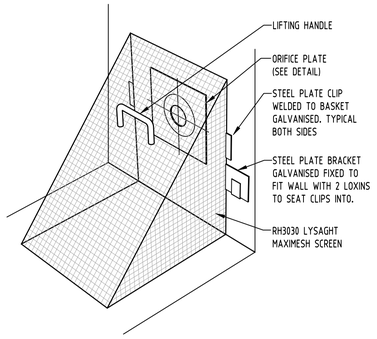
3 / - DETAIL
OSD SIGN
SCALE 1:10



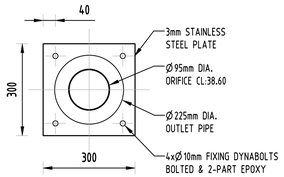
4 / - DETAIL
DISH DRAIN
SCALE 1:10



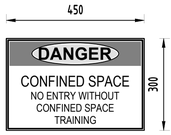
5 / - DETAIL
CLEANING EYE
SCALE 1:10



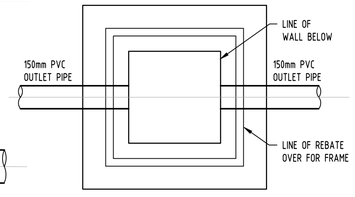
15 / - DETAIL
DEBRIS SCREEN
NOT TO SCALE



7 / - DETAIL
ORIFICE PLATE
SCALE 1:10

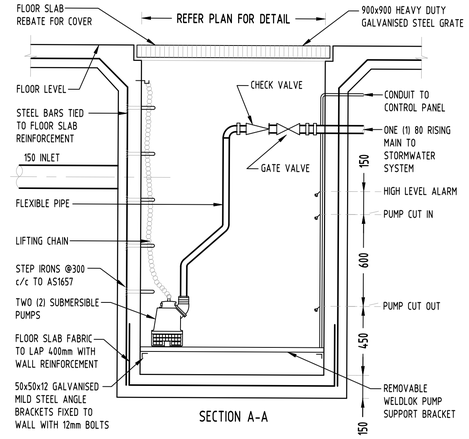


8 / - DETAIL
CONFINED SPACE SIGN
SCALE 1:10

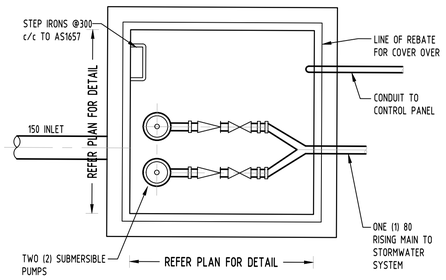


PLAN WITHOUT GRATE

10 / - DETAIL
STORMWATER PIT
SCALE 1:20

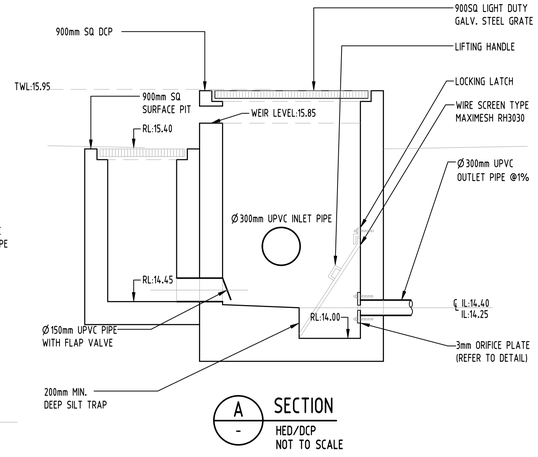


SECTION A-A



PLAN VIEW (WITHOUT COVER)

9 / - DETAIL
SUBSOIL PUMP OUT PIT
SCALE 1:20



A / - SECTION
HED/DCP
NOT TO SCALE

DRAINAGE NOTES:

ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED

100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE

MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm

ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS

BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL

HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS

PIT GRATE TO BE TYPE WELDLOK OR APPROVED EQUIVALENT

ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP

ALL PITS SHALL BE MAINTAINED REGULARLY

TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER

Ø100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES

COMPRESSIVE STRENGTH f'c FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS

ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS

ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm

STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

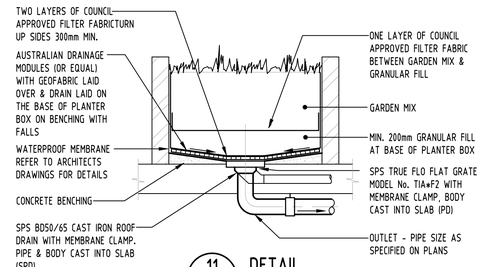
DESIGN NOTES:

THE SITE IS LOCATED IN CUMBERLAND COUNCIL LGA.

SITE AREA: 6762m^2
AREA BYPASS OSD: 355m^2
AREA INTO OSD: 6407m^2

ON-SITE DETENTION IS REQUIRED AS ADVISED BY COUNCIL DCP. THE OSD STORAGE SYSTEM WILL BE ABOVE GROUND.

THE OSD IS SIZED USING CUMBERLAND CALCULATION SHEET. WSUD IS NOT REQUIRED BY COUNCIL DCP.



11 / - DETAIL
PLANTER DRAIN
SCALE 1:20

LEGEND:

- STORMWATER LINE
- SSD — SUBSOIL LINE
- SWRM — SWRM — STORMWATER RISING MAIN
- e — EXISTING STORMWATER LINE
- SW — SW — AUTHORITY STORMWATER LINE
- S — AUTHORITY SEWER LINE
- W — AUTHORITY WATER LINE
- G — G — AUTHORITY GAS LINE
- E — AUTHORITY ELECTRICITY LINE
- UE — AUTHORITY UNDERGROUND ELECTRICITY LINE
- FO — FO — FO — AUTHORITY FIBRE OPTIC LINE
- TEL — AUTHORITY COMMS LINE
- / — / — FENCE LINE
- GRATED SURFACE INLET PIT
- GRATED SURFACE INLET PIT WITH ENVIROPOD INSERT
- JUNCTION PIT
- KERB INLET PIT
- EXISTING KERB INLET PIT
- OFP — OVERLAND FLOW PATH
- RWO — RAINWATER OUTLET
- DDO — DISH DRAIN OUTLET
- PD — PLANTER DRAIN
- CAP
- DP — DOWNPIPE
- WALL PENETRATION

KERB INLET PIT NOTES:

1. KERB INLET PITS TO BE CONSTRUCTED TO CUMBERLAND COUNCIL STANDARDS.
2. ALL KERB INLET PITS TO BE CAST IN-SITU.
3. ALL CONCRETE SHALL BE 25MPa STRENGTH AT 28 DAYS WITH F82 MESH CENTRALLY PLACED.

AUTHORITY STORMWATER NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL SET OUT AND LEVELS PRIOR TO COMMENCEMENT OF WORKS AND TO REPORT ANY DISCREPANCIES FOUND TO THE SUPERINTENDANT.
2. ALL SET OUT DIMENSIONS ARE TO FACE OF KERB, CENTERLINE OF FENCE/BOLARD/PIPE.
3. SMOOTH ALL TRANSITIONS BETWEEN NEW AND EXISTING WORK IN BOTH LEVEL AND ALIGNMENT.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL SAFETY FENCES, WARNING SIGNS, TRAFFIC DIVERSIONS AND THE LIKE DURING CONSTRUCTION. ALL WORKS TO COMPLY WITH OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS AND OTHER RELEVANT AUTHORITY SAFETY REQUIREMENTS.
5. NO TREES SHALL BE REMOVED, CUTBACK OR RELOCATED WITHOUT THE WRITTEN INSTRUCTION FROM THE SUPERINTENDENT.
6. THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION AND PAVEMENT THICKNESS FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS

PIPE BACKFILL	DENSITY INDEX 75
SELECT FILL	95% STANDARD
SELECT FILL (LESS THAN 300mm BELOW BASE COURSE)	98% MODIFIED
BASE COURSE	100% MODIFIED

7. THE AUSPEC SPECIFICATION SHALL BE THE SPECIFICATION FOR THESE WORKS.

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

On-Site Detention Calculation Sheet

Project:	20140028.00			Lot No.	
Location:	1-11 NEIL STREET, MERRYLANDS			DP No.	
Designer:	CZ			D.A. No.	
Phone:					
OSD Area:	544	HCC		HCC Drowned	
Site Area		0.676		0.676	
Basic Storage Volume		202.86		202.86	
Basic Discharge		94.67		94.67	
Area of Site to Storage		0.637	94%	0.637	94%
Percentage of Site		94.20		94.20	
Storage per ha of contributing area		318.46		318.46	
Volume/PSD Adjustment		136.65		136.65	
PSD for site		87.02		87.02	
Maximum Head to Orifice Centre		1.550		1.060	
Calculated Orifice Diameter		0.180		0.180	
Maximum discharge		87.023		72.009	
Head for high early discharge		1.450		0.960	
High Early Discharge		84.169	97%	68.528	79%
Mean Discharge		85.596		70.269	
Average Discharge per Hectare		134.373		110.312	
Final Site Storage Ratio		324		374	
Site Storage Volume		206.27		238.27	
Volume Provided		285.60	138%	285.600	120%
Date Checked:	02-Nov-16				

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

Issue	Last revision title	by	Date	Status
D	ISSUE FOR DA	SH	13.02.2020	2
C	ISSUE FOR DA	SH	23.01.2020	2

Issuer internal sequence and revision history
1-preliminary 2-development application 3-construction certificate 4-tender 5-construction 6-other

Reference Coordination Drawing

Discipline	Drawing Title and Number	Date	Rev.
ARCH			
ARCH			
STRUCT			
MECH			
ELEC			
HYD			
FIRE			
LANDS			
CIVIL			
SURVEY			

ENGINEERS AUSTRALIA Chartered Professional Engineer MEMBER

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Scales
0m 0.1 0.2 0.3 0.4 0.5
SCALE 1:10 ON ORIGINAL SIZE
0m 0.2 0.4 0.6 0.8 1.0
SCALE 1:20 ON ORIGINAL SIZE

CLIENT
LANDMARK group

ARCHITECT
GHAZI AL ALI ARCHITECT PTY LTD
NSW reg. no. 7542

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Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	7 of 8	AS SHOWN

Drawing Status: FOR APPROVAL
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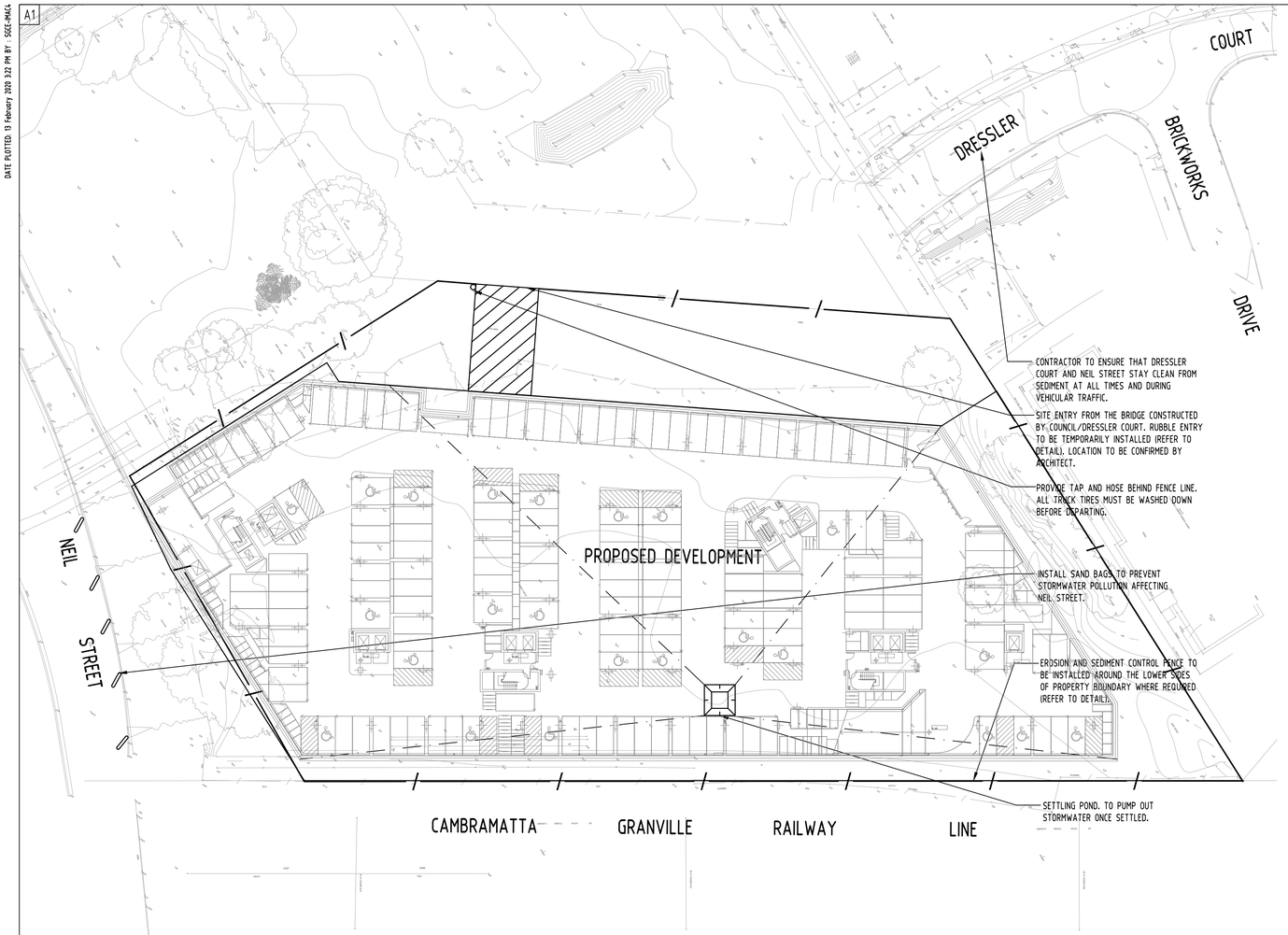
Drawing Title
STORMWATER CONCEPT DESIGN
DETAILS SHEET

Project No	Drawing No	Revision No
20140028	SW506	D



EROSION & SEDIMENTATION CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE OF THE WORKS. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.
2. EXISTING DRAINS LOCATED WITHIN THE SITE SHALL ALSO BE ISOLATED BY SEDIMENT FENCING MATERIAL.
3. NO PARKING OR STOCKPILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.
4. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
5. CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING & LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

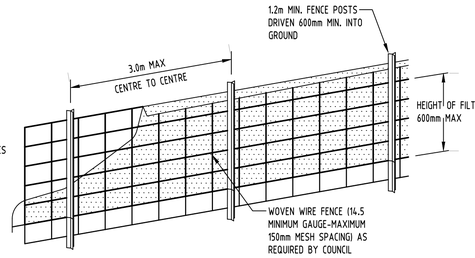
GENERAL NOTES

1. THIS PLAN IS A CONCEPT PLAN ONLY FOR STORMWATER DISPOSAL & EROSION CONTROL. IT IS NOT SUITABLE FOR CONSTRUCTION. THIS PLAN SHOULD BE ADAPTED BY THE BUILDER DURING DEMOLITION, EXCAVATION & CONSTRUCTION PHASES TO ENSURE ADEQUATE PERFORMANCE.
2. ALL DRAINAGE LAYOUT & DETAILS ARE DIAGRAMMATIC & INDICATIVE ONLY. ACTUAL LOCATION, SIZES, LEVELS & GRADES MAY ALTER WHEN DETAIL DESIGN WORKS ARE DOCUMENTED.

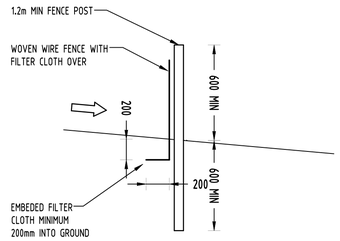
CLAY SOILS

A SYSTEM SHALL BE INSTALLED TO EITHER:

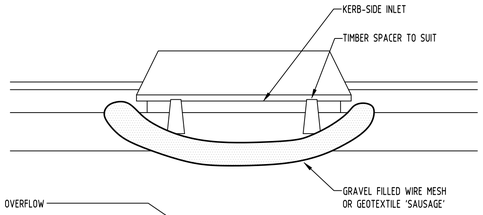
1. TRANSPORT STORMWATER RUNOFF WITH SUSPENDED SOLIDS FROM SITE VIA PUMP TRUCKS.
2. TREAT THE STORMWATER RUNOFF WITH SUSPENDED SOLIDS SO THE DISCHARGE WATER QUALITY TO COUNCIL STORMWATER DRAINAGE SYSTEM HAS A MAXIMUM CONCENTRATION OF SUSPENDED SOLIDS THAT DOES NOT EXCEED 50 MILLIGRAMS PER LITRE IN ACCORDANCE WITH THE PROTECTION OF THE ENVIRONMENT OPERATION ACT (POEO 1997) AND SHALL BE APPROVED BY LOCAL COUNCIL

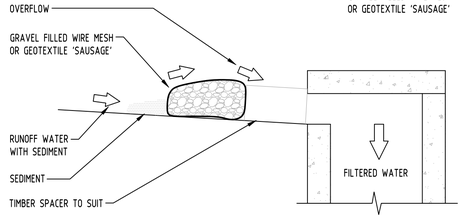


DIAGRAMMATIC VIEW



TYPICAL SECTION





CONSTRUCTION NOTES:

FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAT THE LENGTH OF THE INLET PIT

FILL THE SLEEVE WITH 25mm TO 50mm GRAVEL

FORM AN ELLIPTICAL CROSS-SECTION OF THE KERB INLET LEAVING A 100mm GAP AT THE TOP TO ACT AS AN EMERGENCY SPILLWAY

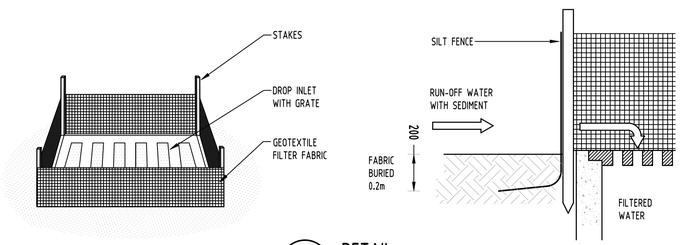
MAINTAIN THE OPENING WITH SPACER BLOCKS

FORM A SEAL WITH THE KERBING AND PREVENT SEDIMENT BYPASSING THE FILTER

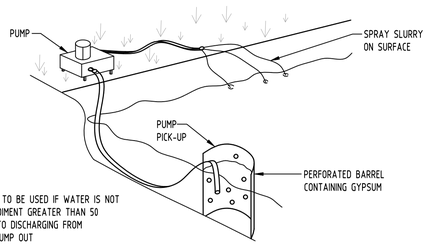
FIT TO ALL KERB INLETS AT SAG POINTS

4 - DETAIL
SEDIMENT FENCE
NOT TO SCALE

3 - DETAIL
GRAVEL INLET FILTER (SAUSAGE)
NOT TO SCALE

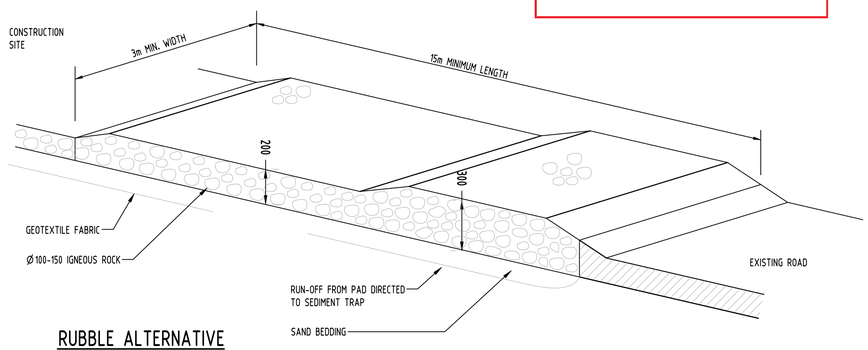


1 - DETAIL
SUMP SEDIMENT TRAP
NOT TO SCALE



NOTE:
1. FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (ie. SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT
2. FOR RATES & AGENTS SEE APPENDIX E OF NEW SOUTH WALES DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION".

2 - DETAIL
FLOCCULATION DETAIL
NOT TO SCALE



RUBBLE ALTERNATIVE

5 - DETAIL
TEMPORARY CONSTRUCTION EXIT
NOT TO SCALE

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

Issue	Last revision title	by	Date	Status
D	ISSUE FOR DA	SH	13.02.2020	2
C	ISSUE FOR DA	SH	23.01.2020	2
B	ISSUE FOR S4.55	JH	05.11.2019	2
A	SUBMISSION TO COUNCIL	CZ	02.11.2016	2
P1	SUBMISSION TO COUNCIL	RX	11.10.2016	1

Issuer internal sequence and revision history
1-preliminary 2-development application 3-construction certificate 4-tender 5-construction 6-other

Reference Coordination Drawing

Discipline	Drawing Title and Number	Date	Rev.
ARCH	DA 2.01	02.11.16	#
ARCH			
STRUCT			
MECH			
ELEC			
HYD			
FIRE			
LANDS			
CIVIL			
SURVEY			

ENGINEERS AUSTRALIA Chartered Professional Engineer MEMBER

DIMENSIONS NOT SHOWN TO BE CHECKED ON SITE. DO NOT SCALE OF THIS DRAWING. POSITIONS OF AUTHORITIES MAINS AND/OR EXISTING SERVICES ARE TO BE CHECKED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER FOR DECISION/CLARIFICATION BEFORE PROCEEDING WITH THE WORK. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND OTHER CONSULTANTS' DRAWINGS.

QUALITY CONTROL

DRAWN	SH	DATE	13.02.20
CHECKED	SH	DATE	13.02.20
DESIGNED	SH	DATE	13.02.20
VERIFIED	SH	DATE	13.02.20
APPROVED	SH	DATE	13.02.20

Scales

CLIENT
LANDMARK group

ARCHITECT
GHAZI AL ALI ARCHITECT NSW reg. no. 7542

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Email: office@sgce.com.au
Web: www.sgce.com.au
A.B.N. 21 118 222 530

PROJECT
BUILDING 3 & 4
NEIL ST RESIDENTIAL PRECINCT
1-11 NEIL STREET, MERRYLANDS NSW
LOT 1 DP 203553 & LOT 11 DP 228782

Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	8 of 8	AS SHOWN

Drawing Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Drawing Title
EROSION AND SEDIMENT CONTROL
PLAN AND DETAILS

Project No	Drawing No	Revision No
20140028	SW507	D

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 773454M_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 773454M lodged with the consent authority or certifier on 02 November 2016 with application DA2016/0496.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Secretary
Date of issue: Friday, 20 December 2019
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT | Planning, Industry & Environment

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

Project summary	
Project name	1-11 Neil Street MERRYLANDS - Additi_02
Street address	1-11 Neil Street MERRYLANDS 2160
Local Government Area	Holroyd City Council
Plan type and plan number	deposited 228782
Lot no.	11
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	32
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 30	Target 20

Certificate Prepared by
Name / Company Name: Senica Consultancy Group Pty Ltd
ABN (if applicable): 48612864249

Description of project

Project address	
Project name	1-11 Neil Street MERRYLANDS - Additi_02
Street address	1-11 Neil Street MERRYLANDS 2160
Local Government Area	Holroyd City Council
Plan type and plan number	deposited 228782
Lot no.	11
Section no.	-
Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	32
No. of multi-dwelling houses	0
No. of single dwelling houses	0
Site details	
Site area (m²)	8625
Roof area (m²)	2000
Non-residential floor area (m²)	0.0
Residential car spaces	370
Non-residential car spaces	0

Common area landscape	
Common area lawn (m²)	0.0
Common area garden (m²)	122.0
Area of indigenous or low water use species (m²)	0.0
Assessor details	
Assessor number	BDAV/14/1658
Certificate number	09W0TCS4R8
Climate zone	56

Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 30	Target 20

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - Building 3, 32 dwellings, 16 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
12.01	2	72.4	3.7	0.0	0.0
12.05	1	47.6	6.4	0.0	0.0
13.01	2	72.4	3.7	0.0	0.0
13.05	1	47.6	6.4	0.0	0.0
14.01	2	72.4	3.7	0.0	0.0
14.05	1	47.6	6.4	0.0	0.0
15.01	2	72.4	3.7	0.0	0.0
15.05	1	47.6	6.4	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
12.02	2	69.4	4.0	0.0	0.0
12.06	2	67.6	3.7	0.0	0.0
13.02	2	69.4	4.0	0.0	0.0
13.06	2	67.6	3.7	0.0	0.0
14.02	2	69.4	4.0	0.0	0.0
14.06	2	67.6	3.7	0.0	0.0
15.02	2	69.4	4.0	0.0	0.0
15.06	2	67.6	3.7	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
12.03	2	69.8	3.8	0.0	0.0
12.07	1	45.7	5.2	0.0	0.0
13.03	2	69.8	3.8	0.0	0.0
13.07	1	45.7	5.2	0.0	0.0
14.03	2	69.8	3.8	0.0	0.0
14.07	1	45.7	5.2	0.0	0.0
15.03	2	69.8	3.8	0.0	0.0
15.07	1	45.7	5.2	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
12.04	2	66.9	11.7	0.0	0.0
12.08	1	51.8	2.5	0.0	0.0
13.04	2	65.6	3.4	0.0	0.0
13.08	2	67.2	4.7	0.0	0.0
14.04	2	65.6	3.4	0.0	0.0
14.08	2	67.2	4.7	0.0	0.0
15.04	2	65.6	3.4	0.0	0.0
15.08	2	67.2	4.7	0.0	0.0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building 3

Common area	Floor area (m²)
Lift car (No.1)	-
Plant Area 1	19.76

Common area	Floor area (m²)
Lift car (No.2)	-
Plant Area 2	26.2

Common area	Floor area (m²)
Lift motor room (No. 6)	14.0

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building 3
    (a) Dwellings
        (i) Water
        (ii) Energy
        (iii) Thermal Comfort
    (b) Common areas and central systems/facilities
        (i) Water
        (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

4. Commitments for common areas and central systems/facilities for the development (non-building specific)
        (i) Water
        (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - Building 3

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 4.5 but <= 6 L/min)	4 star	5 star	5 star	no	-	4.5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	gas instantaneous 5 star	individual fan, not ducted	manual switch on/off	no mechanical ventilation (ie. natural)	-	natural ventilation only, or no laundry	-

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
12.05, 12.07, 12.08, 13.05, 13.07, 14.05, 14.07, 15.05, 15.07	1-phase airconditioning 4.5 Star (old label) (zoned)	1-phase airconditioning 4.5 Star (old label) (zoned)	1-phase airconditioning 4.5 Star (old label) (zoned)	1-phase airconditioning 4.5 Star (old label) (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
All other dwellings	1-phase airconditioning 4.5 Star (old label) (zoned)	1-phase airconditioning 4.5 Star (old label) (zoned)	1-phase airconditioning 4.5 Star (old label) (zoned)	1-phase airconditioning 4.5 Star (old label) (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 star	-	-	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
12.01	21.9	15.8
12.03	22.2	16.6
12.04	31.6	22.9
12.05	39.9	10.3
12.08	37.0	18.9
13.01	22.2	15.9
13.04	26.0	15.4
14.01	22.3	15.8
14.02	16.6	9.9

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
14.04	26.1	15.4
14.06	38.3	13.5
14.07	23.2	11.1
15.01	36.1	13.7
15.02	30.9	10.2
15.03	22.7	16.5
15.04	36.4	14.8
15.05	43.6	11.0
15.06	53.2	14.0
15.07	37.4	11.7
15.08	49.0	16.7
12.02, 13.02	16.3	9.8
12.06, 13.06	37.8	13.4
12.07, 13.07	22.8	11.4
13.03, 14.03	22.5	16.6
13.05, 14.05	40.2	10.3
All other dwellings	33.6	16.0

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No.1)	-	-	compact fluorescent	connected to lift call button	No
Lift car (No.2)	-	-	compact fluorescent	connected to lift call button	No
Lift motor room (No. 6)	no mechanical ventilation	-	compact fluorescent	manual on / manual off	No
Plant Area 1	ventilation exhaust only	interlocked to light	compact fluorescent	manual on / manual off	No
Plant Area 2	ventilation exhaust only	interlocked to light	compact fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 19
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 19

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

Site Waste Management Plan

Proposal to construct an additional four storeys to Building 3

Prepared for The Landmark Group Pty. Ltd.

1 – 11 Neil Street
MERRYLANDS NSW

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

Report 2016/0902

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Synopsis:	This document presents a waste management plan arising from additions to Buildings 3 of a proposed multi-unit residential development at 1 – 11 Neil Street, Merrylands NSW

Client Details	
Client:	Landmark Group
Primary Contact:	--

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Disclaimer

This report was prepared for the purposes and exclusive use of the stated client to accompany an application to the City of Holroyd Council for the specified development application and is not to be used for any other purpose or by any other person or corporation.

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Contents

1 Introduction

This Site Waste Minimisation and Management Plan (SWMMP) Report has been prepared on behalf of the Landmark Group Propriety Limited and should be read in conjunction with the plans encompassing Job number 01.18 prepared by Ghazia Al Ali Architect.

The report summarises the waste minimisation and management practices intended to be implemented as part of the construction of additions to a multi-storey unit residential development and its operational use.

1.1 Summary

The proponent proposes to construct additions to Building Three with associated basement car parking on up to three levels, a garbage room, residential units, related earthworks and landscaping.

This report is an outline of the waste minimisation and management policies and procedures to be implemented by contractors during the construction phase of the development and the property manager/owners corporation during the post construction (operational phase) of the development.

These policies and procedures will set a framework for all parties to minimise generation of residual (non-recyclable) waste, and to take advantage of the opportunities for re-use of waste materials by ensuring that efficient recovery and segregation measures for all waste materials are provided.

2 Building Characteristics

2.1 Proposed building description

The proposed development comprises additions to an existing building. The resultant building will consist of three basement levels, primarily of car parking, garbage storage room and storage and one building tower of up to sixteen levels of residential units.

The building footprint for building 3 is 1,133.00 m^2, located on a site of 8,625.00 m^2 . A summary of the proposed development is as follows:

- Lift motor, plant, service and garbage room;
- Additions to Building three consisting of thirty-two (32) units over four upper levels, to a total of sixteen levels consisting of a total of 210 units.

3 Purpose of the SWMMP

3.1 Aims

The aim of the SWMMP is to outline measures to minimise and manage waste and resource recovery during the construction phase and the post construction (operational) phase

The SWMMP will describe;

- Volume and type of waste and recyclables to be generated
- Storage and treatment of waste and recyclables on the development site
- Disposal of residual wastes and reprocessing options for recyclables
- Procedures for post construction (operational) management after handover of the development

3.2 Objectives

The objective of the SWMMP is to provide a planning system to effectively manage waste and resource recovery associated with this development, including;

- Promote improved project management
- Minimise waste generation
- Maximise reuse and resource recovery
- Minimise the environmental impacts associated with residual waste generated by this development
- Ensure the appropriate storage and collection of residual waste
- To ensure ongoing waste management systems are compatible with collection services offered by commercial waste transporters and the City of Holroyd Council.

3.3 Legislative drivers

Table 1 Environmental Legislation specific to waste management

Legislation/Guidelines	Description
Protection of the Environment Operations Act 1997	This Act is the primary NSW environment protection legislation covering air, noise, water, land and waste management
Waste Avoidance and Resource Recovery Act 2001	Sets NSW framework for waste hierarchy and allows the preparation of waste strategies addressing specific waste streams and setting landfill diversion and resource recovery targets
Waste Avoidance and Resource Recovery Strategy 2007	Proposes priority areas for waste management and resource recovery. Details current targets
Holroyd Development Control Plan Part A - *General Controls*	Aims to facilitate sustainable waste management within the Holroyd City LGA in a manner consistent with ESD principles. Based on the DECC Model DCP
Model Waste Not DCP Chapter 2008 (DECC)	Provides a framework chapter for NSW LGA's to address Waste Not DCP
Better Practice Guide for Waste Management in Multi Unit Dwellings 2002 (Resource NSW)	Provides guideline for addressing waste management in medium or high density residential developments

4 Construction Phase

4.1 General Outline

The management of the site will be the responsibility of the project manager, who will administer waste handling systems, as specified by City of Holroyd Council, Work Cover and as detailed in this report.

The construction phase of this development is to comply with the aims and objectives outlined in Section 3 of this report.

The construction phase will involve constructing an additional four upper levels to an existing building. The resultant final Building Three will consist of 210 units.

4.2 Waste Avoidance, Minimisation & Control Strategies

To reduce the amount of waste on site during construction of the development the following control strategies will be required of all contractors and/or personnel:

- Order materials to size
- Avoid over-ordering
- Order pre-cut or pre-fabricated materials
- Reduce packaging at source or products with minimal packaging
- Where possible materials to be re-used on site or shipped to recycler
- All salvaged material will be removed manually; hydraulic excavators will remove the remainder;
- Allocation of an assigned area within the development site to be identified for stockpiling of segregated recyclable materials (for materials to be re-used on-site) and for staging areas for transport to off-site re-processing facilities;
- All skip and bulk bins will be located within the assigned area, clearly identified for each material, and not impeding on the footpath or road reserve;
- Project manager to retain all weighbridge or re-processing facility dockets to ensure responsible disposal and recycling options are being employed by contractors;
- All waste generated is to be documented and handled in accordance with Table 2 Construction Volumes and Reuse/Recycling Potential

Table 2 Construction Volumes and Reuse/Recycling Potential

Materials	Document Volume (m^3)	On-Site	Off-Site	Disposal
Hardwood	2	Separated	Sold for re-use	Second hand supplier
Other Timber	3	Separated	Chipping for mulch/fuel	Green waste re-processing facility
Doors, Windows	2	Separated	Sold for re-use	Second hand supplier
Steel	2	Nil	To metal recyclers	Metal recycling
Downpipes, Gutters	1	Nil	To metal recyclers	Metal recycling
Ceramic Tiles	2	Cleaned and separated	Sold for re-use	Recycling facility/second hand supplier
Green Waste	1	Composted or mulched	Nil	Green waste re-processing facility
Concrete	2	Re-used as sub-base / fill	Concrete crushing	Quarry or landfill licenced to crush concrete
Bricks	2	Broken brick for fill. Whole bricks to be cleaned and salvaged	Recycling company	Quarry or landfill licenced to crush bricks/masonry. Or Second hand supplier
Plasterboard	4	Separated	Recycling company	Licenced re-processing facility. Or return to supplier
General Waste	2	Nil	Nil	Licenced waste facility
Other Wastes	1	Separated	Nil	Licenced waste Facility

Note: During construction, all waste materials will be separated and temporarily stored on-site. It is proposed all such materials will either be recycled or disposed of as per Table 2 Construction Volumes and Reuse/Recycling Potential.

5 Post Construction (operational) Phase

The following assessment of waste volumes is an estimate only and will be influenced by building management, cleaning arrangements, individual tenant's attitude and obligation regarding waste disposal and recycling.

5.1 Waste and recycling generation rates

Waste and recycling generation rates are taken from Holroyd Development Control 2013 – Appendix B *Waste/Recycling Generation* Rates. They are prescribed as;

- Garbage 80L/unit/week
- Recyclables 40L/unit/week

For this development this equates to the following:

Building	Number of Units	Waste Generation (L per week)	Recyclable Generation (L per week)
3	210	16,800	8,400
Total	**210**	**16,800**	**8,400**

As defined in the City of Holroyd Council DCP multi unit developments are provided with;

Dwelling Type	Garbage Bins Required	Recycling Bins Required
1 – 20 Units	1 x 240L bin per 2 units plus 1 additional bin per 10 units	1 x 240L bin per 2 units
20+ Units	1 x 1,100L bin per 8 units	1 x bin per 3 units

Council's Waste Officers have advised that due to the size of the development, it would accept waste and recycling to be collected in 1,100L MGB's. The calculation rate for this is to be the estimated total waste or recycling amount divided amongst 1,100L MGB.

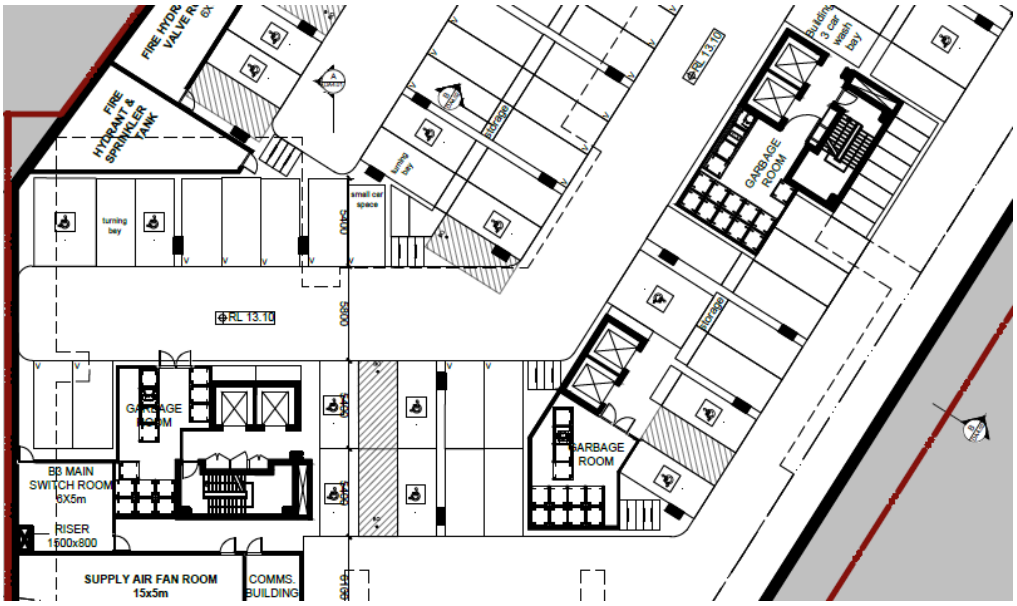
In recognition to the guidelines and Holroyd City Council DCP Appendix C it is recommended the development is provided with the following:

Building	Number of Units	Garbage Bins Required	Recycling Bins Required
3	210	16 x 1,100L MGBs collected weekly	8 x 1,100L MGBs collected weekly
Total		**16 x 1,100L MGBs collected weekly**	**8 x 1,100L MGBs collected weekly**

It is noted that additional 240 L bins have been provided to allow for logistical issues with the transport of the bins from the waste rooms on the relevant levels to the garbage rooms in the basement 1 level.

5.2 Storage

The storage of residential waste will be within several garbage and recycling rooms (waste rooms) located on the Basement Level 1 as shown in the submitted plans and the below image.



This room shall be constructed in accordance with the provisions of Appendix D of City of Holroyd Council DCP, and at a minimum be of approved solid impervious material and shall be cement rendered internally to a smooth even smooth even surface coved at all intersections.

The ceiling of the waste room will be finished with a rigid smooth faced non-absorbent material capable of being cleaned. The walls, floor and ceilings of the garbage room shall be finished with a light colour.

A tap and drainage with connection to the sewer are to be provided within the garbage storage area. Hose cocks shall be protected or located so that they cannot be damaged. A hose of adequate length and fitted with a nozzle is to be connected to the hose cock to allow for adequate cleaning of the waste room and receptacles.

The room will be adequately ventilated, well lit, and appropriately signposted to distinguish paper/cardboards recycling bins from container recycling bins and residual waste (garbage) bins.

The size of the waste room will be sufficient to house the recommended number of mobile garbage bins for the development, as well as incorporating adequate clearance between each mobile garbage bin. The minimum sizes for the proposed bins are identified in Appendix B.

A close fitting and self-closing door openable from within the room must be fitted to the waste room. The waste room will be constructed so as to prevent the entry of vermin.

The waste room must be ventilated in accordance with the provisions of the Building Code of Australia (as in force at the time of construction) by either:

- Permanent unobstructed natural ventilation openings direct to the external air, not less than 5% of the floor area,
- Mechanical exhaust ventilation system exhausting at a rate of 5L/s.m^2 floor area, with a minimum rate of 100L/s min

The waste room will be provided with artificial light controlled by switches located both outside and inside the room.

Where storage and drainage racks are provided, they will be constructed of galvanised metal or other approved materials which are durable, impervious and no-corrosive.

Racks should be installed at least 50mm clear of walls with the lowest racks installed at least 300mm above the floor. Racks should be designed to prevent receptacles/containers placed thereon from coming in to contact with the walls.

Clear and easy to read "NO STANDING" and "DANGER" signs must be fixed to the external face of each waste and recycling room as appropriate. Clear and easy to read signs designating the storage of recyclables and general waste must be fixed to the internal walls as appropriate.

The location of the garbage room has been designed to be easily accessible to the residents of the proposed buildings.

The garbage room will not affect the amenity of any adjacent properties and has been designed as an integrated part of the overall design.

5.3 Servicing (collection)

The property manager/owners corporation will ensure that all bins are prepared and presented within an allocated service area (as shown below), before 6:00am on service day.

Wider access to the proposed development will be provided via New Road 2 – being a new road connecting Dressler Court in the north and Neil Street (via New Road 1) in the South. This road is to be constructed by Council in accordance with the relevant DCP and Section 94 plan.

Off this road the development application seeks to construct an access road for Buildings Three4. As part of this road a large turning circle and collection area will be nominated. This is shown on the submitted plans.

Waste collection for the development is proposed to be undertaken on-street within the access road. It is proposed that all bins be brought to the kerb by the body corporate in accordance with Council's DCP 2013, Part A – Section 11.3 "Residential Land Use Waste Management".

Control C8 of the above identified document states "*At appropriate times, transport waste form the rooms to this area for collection. In each case the onus is upon the body corporate to ensure on-street placement".*

Consultation with Council's Waste Management team has been undertaken and they have advised that Council's preference is for on-street collection of waste.

Accordingly, a garbage collection area and dedicated loading/garbage space is provided and identified on the submitted plans. The space has been designed to accommodate Council's waste collection vehicle being an 8.0m rigid truck as outlined in Council's DCP 2013 – Part A, Appendix E.

Building Management is responsible for ensuring that the waste collection area is easily accessible on collection days.

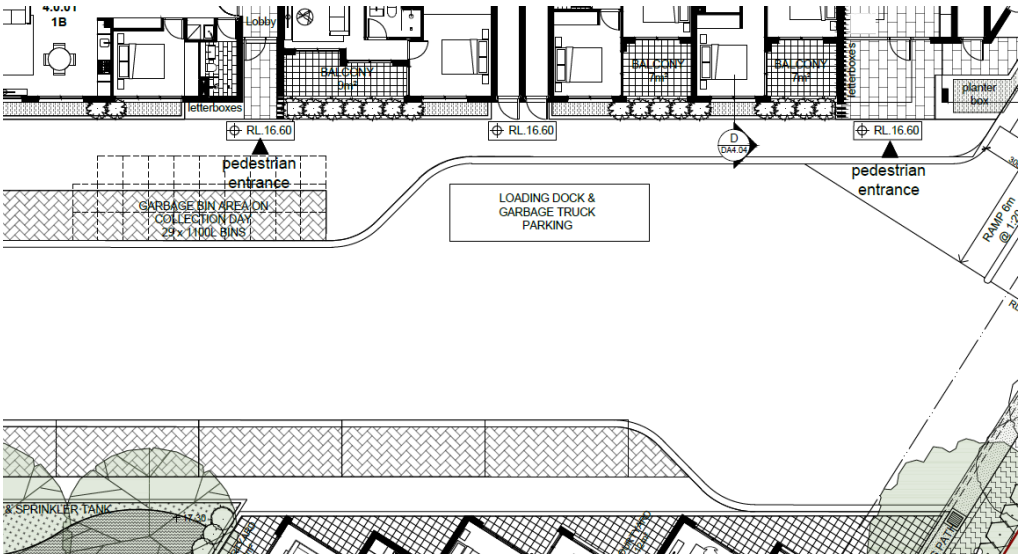


Figure 1 - Loading Area

The design of the development allows for the garbage and recyclables to be transported to Waste collection point identified in the submitted plans, to allow for the Holroyd Council and/or their contractor for pick-up.

Due to the grades involved in travel path, it is recommended that a motorised trolley be purchased by the Body Corporate/Building Management and be utilised for the 1,100 L bins.

The development has been designed so as, to allow the City of Holroyd's waste management contractor to collect the garbage from the loading space without impacting on local traffic flow.

Bins will be returned to the garbage rooms by custodial staff or body corporate as soon as practicable following servicing.

5.4 Garbage transport

Garbage chutes will be employed by the development, as there are residential units greater than three storeys above the garbage storage room.

All residents will be provided with a collection area in each unit to deposit waste and recyclable materials. Once this has been filled the resident will then transport the waste to the waste room on their level.

All residential waste generated by residents will be transported to a small refuse room on each level. In each of these refuse cupboards there will be two recycling bins (one paper/cardboard bin and one container bin) and a garbage chute which is connected to the garbage room via garbage chutes. Residents will sort their refuse in to general waste and recycling materials and dispose of them accordingly.

Each individual residential dwelling shall be no more than 75 metres from the nearest waste refuse room. This distance should be shortened to 50 metres for aged or disabled residents.

The garbage chute is to have a diameter greater than 500mm, insulated to minimise noise, and be constructed in accordance with the Building Code of Australia (BCA).

The garbage chute is to be clearly labelled to ensure that only residual waste is deposited into the chute. Each chute will have a self closing hopper (opening) for residents to dispose of residual waste.

This waste room/housing will comply with the relevant accessibility requirements.

The garbage chute will terminate at the garbage storage room. The chute will have a shut off mechanism to allow the property manager/owners corporation to replace the full 1,100 Litre bin with an empty 1,100 Litre bin when each bin is full.

A waste caretaker, appointed by building management, shall be responsible for the transport of recycling from the individual waste rooms to the main waste room. No residents are to be allowed to transport waste from the individual waste rooms to the main waste room.

A tipper device or similar is to be employed to allow for the safe handling and transfer of recycling material from the 240L MGB to the 1,100L MGB.

All equipment movements in the garbage room and from the garbage room to the loading space are to be managed by the building manager or custodial staff.

The waste caretaker shall be responsible for ensuring the waste rooms and related equipment are kept in a clean and working order.

The waste caretaker shall also ensure that the waste and recycling bins are provided in the waste collection point area on the relevant servicing days by the required

times. Once serviced the bins are to be moved back to the main Waste room by the building manager or custodial staff.

Occupational health and safety of bin transfers must be considered for larger bins (e.g. ability to safely move a bin that may weigh more than the person trying to move it).

Equipment such as motorised trolleys may be required depending on the gradient and transfer distances required. If a motorised trolley is required, allowance must be made for storage of the device.

5.5 Bulky waste

The development will employ a dedicated caged area for residents to temporarily store unwanted bulky items until suitable disposal/transport options can be arranged. The bulky waste storage area is to be located adjacent to the garbage storage room.

5.6 Green waste

The property manager/owners corporation may wish to purchase green waste mobile garbage bins to participate in this program. Alternatively the development will employ a garden contractor to manage green waste generated from the development.

Additionally Green waste can be added to the communal compost located on the site.

Appendix A

Signage for Garbage Rooms


FRUT
Drink Bottles,
Cans and Cartons


CHIPS
Garbage

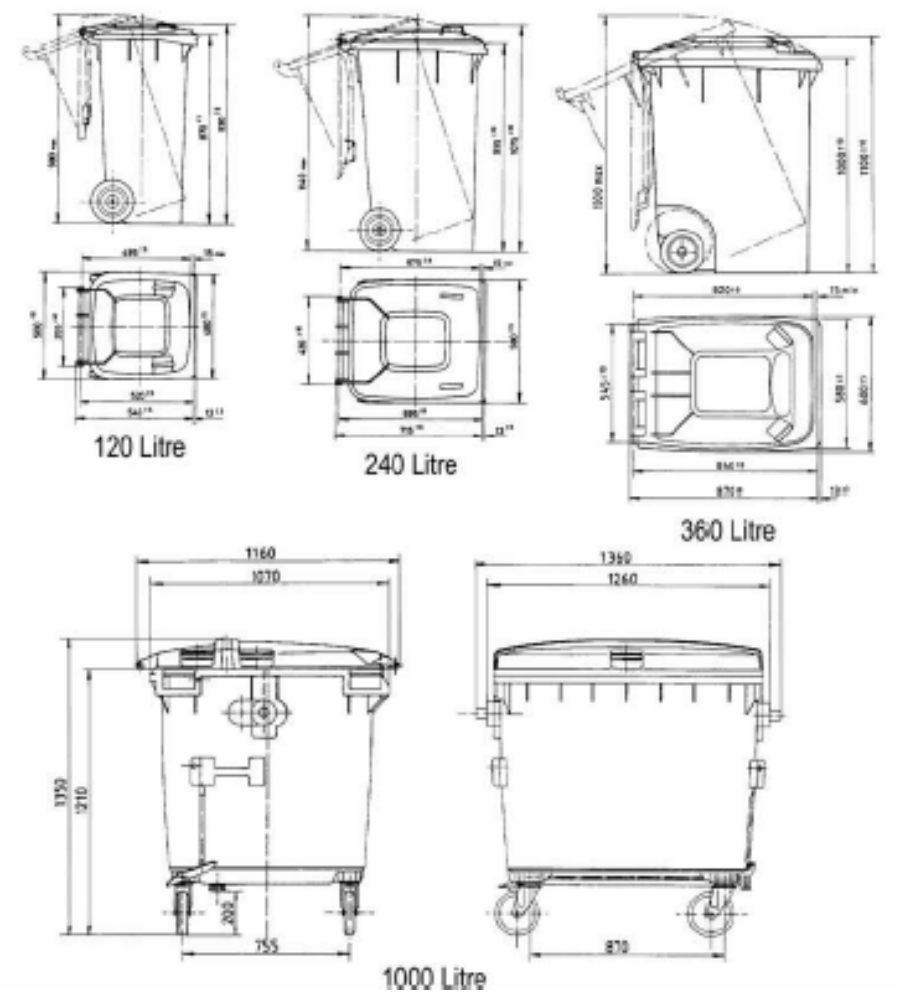

Compostables


MEMO
The Daily
Brochure
MAG
Paper & Cardboard

Appendix B

Waste Management Equipment

Bin Type	120L MGB	140L MGB	240L MGB	1100L MGB
Height	940 mm	1065 mm	1080 mm	1350 mm
Length	560 mm	540 mm	735 mm	1160 mm
Width	485 mm	500 mm	580 mm	1360 mm



RODNEY STEVENS ACOUSTICS
Acoustic Consultants
Member Australian Acoustical Society

Proposed Residential Development

Building 3 & 4 / 1-11 Neil Street, Merrylands NSW

Noise Impact Assessment

REPORT R160099B3

Revision 0

CUMBERLAND CITY COUNCIL

THESE PLANS WERE APPROVED BY THE LAND AND ENVIRONMENT COURT UNDER CONSENT ORDER NO. 2020/327518

DATED 22 January 2021

Prepared for:

Mr. Joseph Scuderi

C/o- Landmark Group

Suite 2201, Level 22, Tower Two, Westfield

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1 November 2016

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Proposed Residential Development

Building 3 & 4 / 1-11 Neil Street, Merrylands NSW

Noise Impact Assessment

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
R160099B3	Revision 0	6 October 2016	Desmond Raymond	Rodney Stevens	Rodney Stevens
R160099B3	Revision 0	1 November 2016	Desmond Raymond	Rodney Stevens	Rodney Stevens

TABLE OF CONTENTS

1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (RSA) has been engaged by Landmark Group to prepare a Noise Assessment for the Proposed Residential Development for Buildings 3 & 4 / 1-11 Neil Street, Merrylands NSW.

The project site is located at 1 - 11 Neil Street, Merrylands and is potentially affected by noise from road traffic and noise and vibration from rail. Building 3 and 4 are proposed to be constructed in the southern corner of the overall project site.

The building is located over 60 m from the Inner West/Cumberland Rail Line and whilst exposed to noise from road traffic, is not affected by rail noise or vibration. The acoustical assessment is required to accompany the Development Application for Building 3 and 4 to Holroyd Council.

This report presents the results of acoustical measurements conducted to quantify the exposure of the site to road and other environmental noise sources including the nearby Inner West/Cumberland Rail Line. Based upon the results from noise monitoring, the levels of transportation noise have been predicted at and around the location of the future residential apartment Building 2 and assessed against regulatory guidelines for residential amenity.

The proposed DA concept has been compared with Holroyd Council's DCP scheme to evaluate the suitability of the building layout on the basis of acoustics.

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in Appendix A.

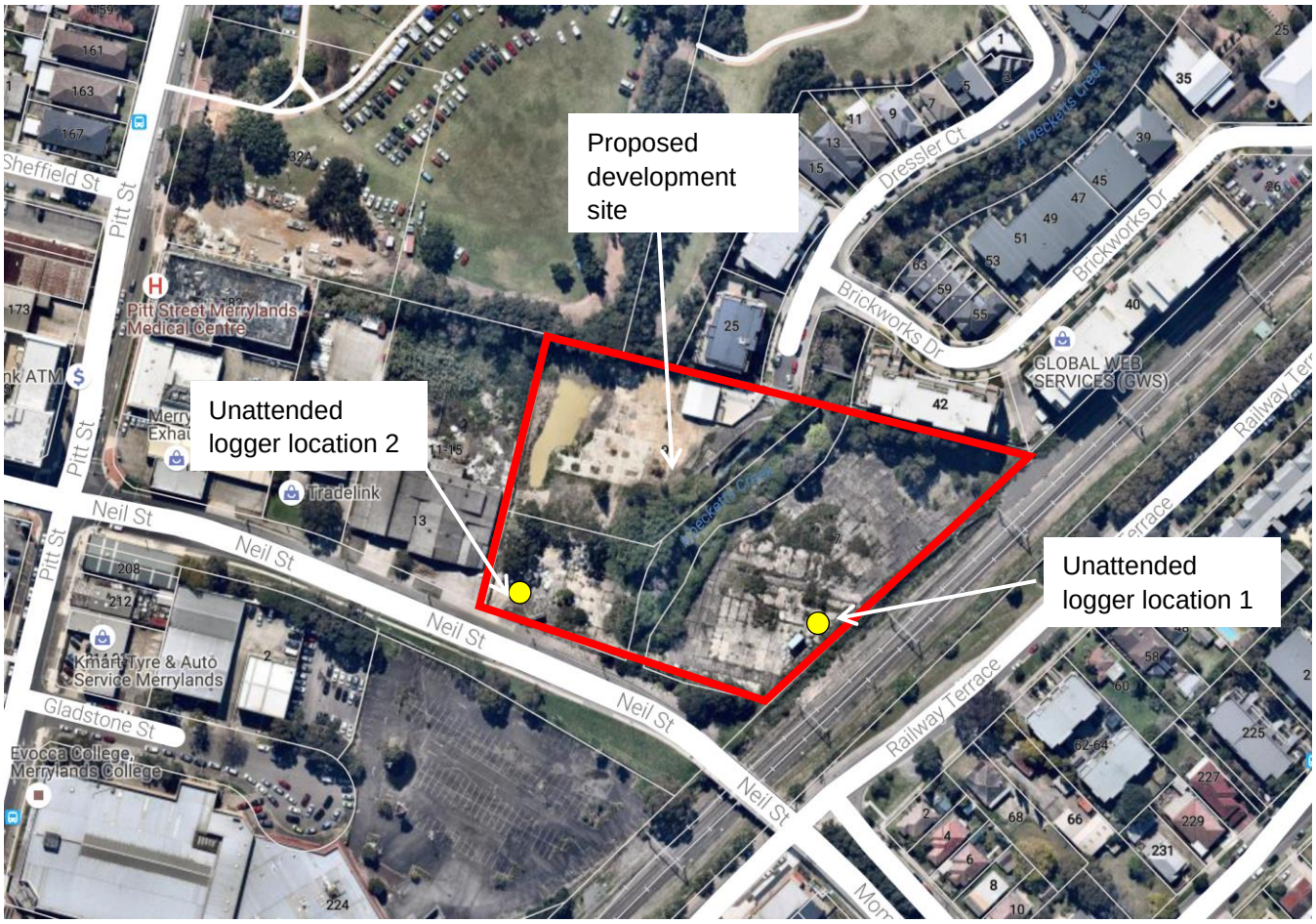
2 PROJECT OVERVIEW

2.1 Proposed Development

The proposed development is located at 1-11 Neil Street, Merrylands.

The project area and its surrounding environment are presented in Figure 2-1 below.

Figure 2-1 Project Area and Surrounding Environment



Aerial image courtesy of © 2016 nearmap ltd

The project area is bounded by the Inner West/Cumberland Rail Line along the eastern boundary, and Neil Street along the southern boundary. Merrylands Station lies approximately 200 m to the southwest. Land immediately to the north of the site has been redeveloped with residential apartments. To the northwest of the site, the adjacent land is public space.

The property immediately to the west is currently light industrial with DA approved scheme for mixed use development and properties on the southern side of Neil Street are generally light industrial. The general area to the southwest is commercial/light industrial. Land on the southern side of Neil Street is also proposed for residential development. Building 3 up to 12 Levels and 4 up to 11 Levels will be constructed in the southern area of the site.

The development site and its surrounding environment are mainly influenced by noise generated from road traffic on Neil Street and the Inner West/Cumberland Rail Line which is located approximately 30m to the east of Building 3 and 4.

The proposed site layouts of the development site are presented in Figure 2-2 to Figure 2-13.

Figure 2-2 Proposed Building 3&4 Basement 3 Floor Plan

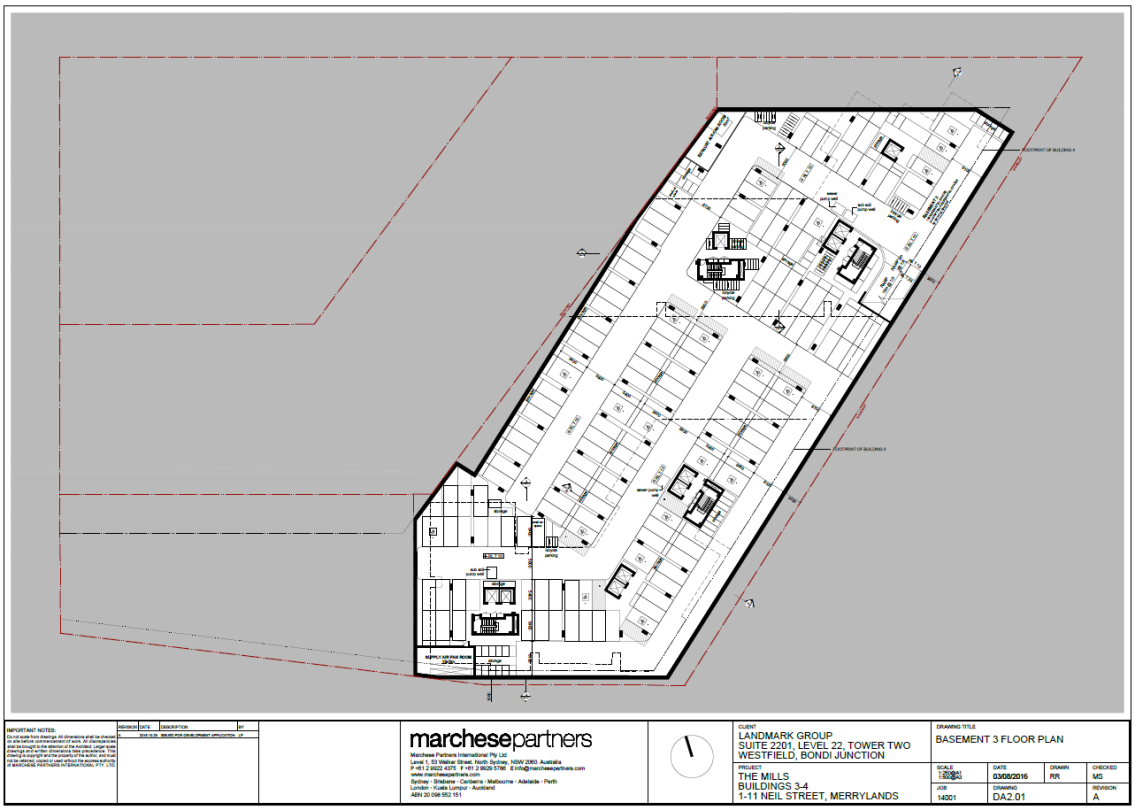


Figure 2-3 Proposed Building 3&4 Basement 2 Floor Plan

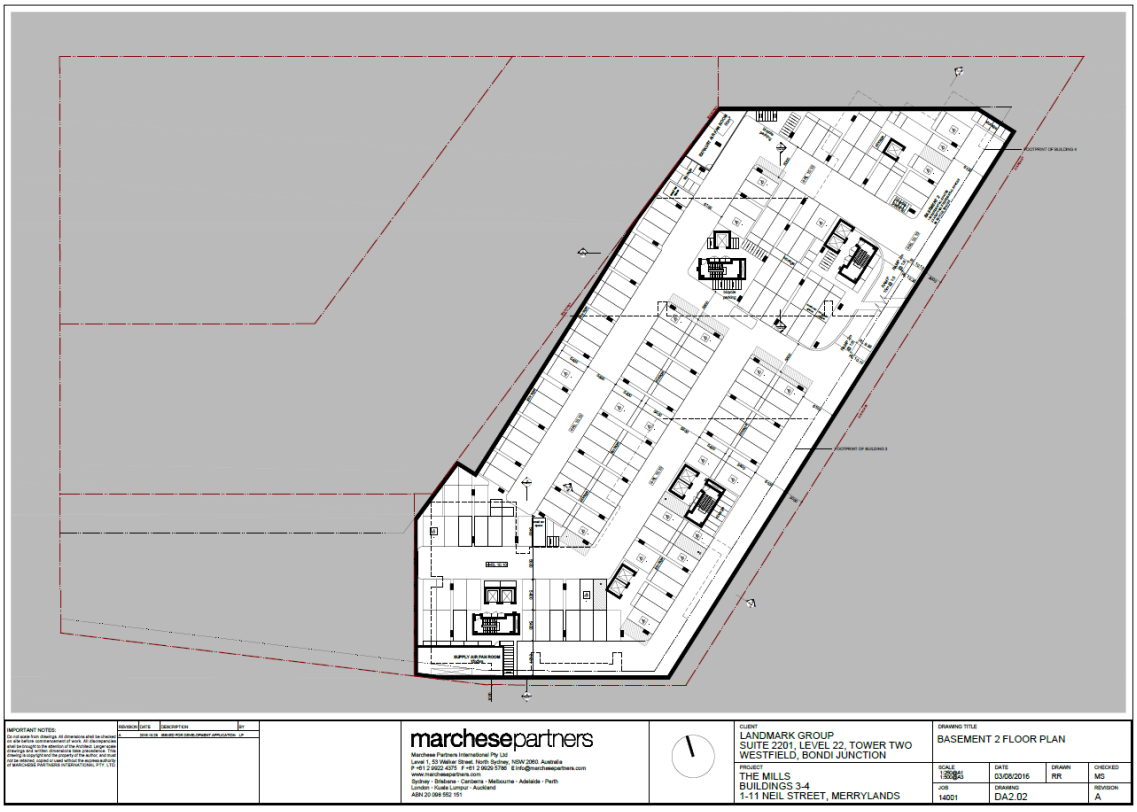


Figure 2-4 Proposed Building 3&4 Basement 3 Floor Plan

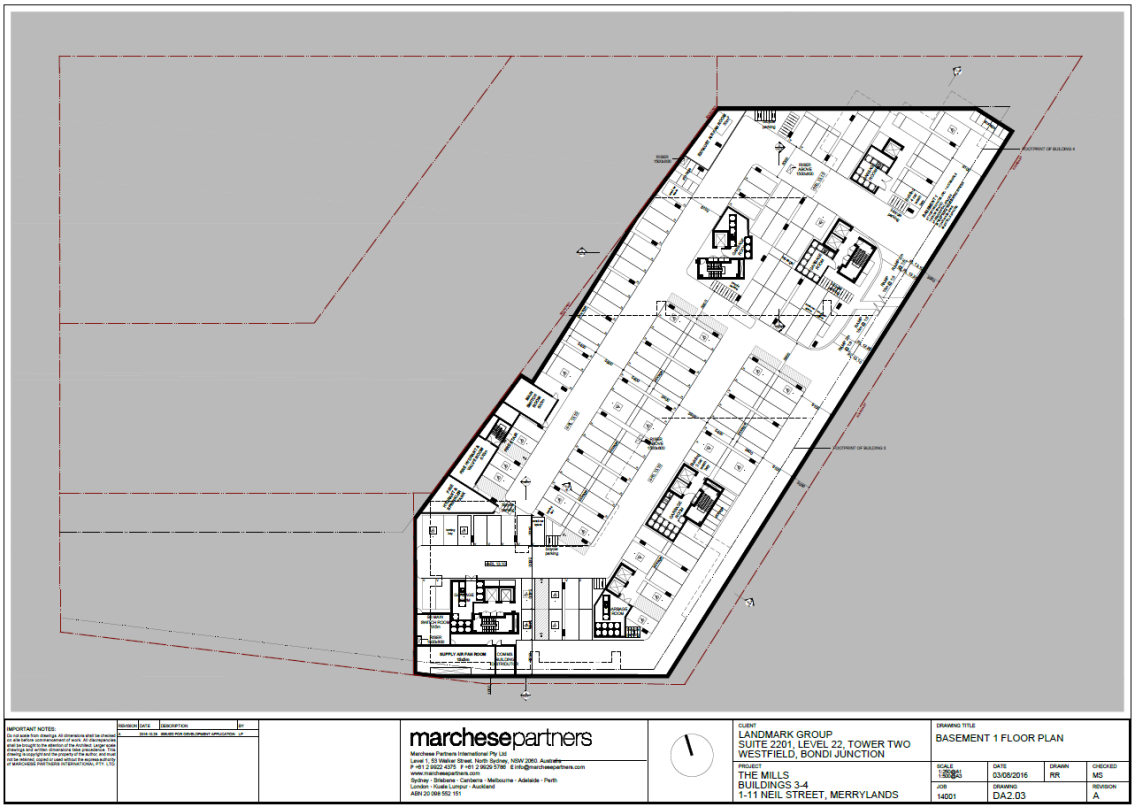


Figure 2-5 Proposed Building 3 Ground Floor Plan

Figure 2-6 Proposed Building 3 Level 1-8 Floor Plan

Figure 2-7 Proposed Building 3 Level 9-11 Floor Plan

Figure 2-8 Proposed Building 4 Ground Floor Plan

Figure 2-9 Proposed Building 4 Level 1-5 Floor Plan

Figure 2-10 Proposed Building 4 Level 6 Floor Plan

Figure 2-11 Proposed Building 4 Level 7 Floor Plan

Figure 2-12 Proposed Building 4 Level 8 Floor Plan

Figure 2-13 Proposed Building 4 Level 9-11 Floor Plan

3 EXISTING NOISE ENVIRONMENT

3.1 Noise Monitoring Results

In order to establish the existing levels of road and rail traffic noise experienced at the overall project site, unattended measurements were conducted at locations representative of the potentially most noise-exposed facade of the proposed future buildings.

The unattended environmental noise monitoring survey was conducted at two (2) locations between Thursday 29 January 2015 and Monday 2 February 2015.

The instrumentation used for the survey consisted of two (2) RION NL-42 Environmental Noise Loggers (serial number 133010 - rail location and serial number 133013 – road location) both fitted with microphone windshields. Calibration of the loggers was checked prior to and following measurements. Drift in calibration did not exceed ±0.5 dBA. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

The selected monitoring locations, which are shown in Figure 2-1, were:

- **Location 1 Rail Corridor** (**Eastern Boundary):** The logger was located approximately 12 m from the nearside rail line (the up line) to measure the levels of rail noise that are likely to be experienced at the eastern facades of proposed future Buildings 4.
- **Location 2 Neil Street (Southern Boundary):** The logger was located approximately 10 m from the edge of the nearside carriageway to measure the levels of road traffic noise that are likely to be experienced at the southern facade of proposed future Building 3.

All equipment carried appropriate and current NATA calibration certificates. Calibration of the sound level meter was checked before and after the measurements, with the drift in calibration found to be within acceptable limits.

The loggers continuously sampled noise levels over the entire survey period, and calculated relevant statistical indices for each 15 minute interval. Data measured during periods of adverse weather established through consultation with historical weather reports provided by the Bureau of Meteorology (BOM), has been excluded.

From the measured noise levels, the results have been summarised and presented in Table 3-1. These results represent the external noise exposure to the proposed development site. The monitored baseline noise levels are detailed in Table 3-1.

Table 3-1 Traffic Noise Levels Corresponding to Defined SEPP 2007 Periods

Location	Measurement Descriptor	Measured Noise Level – dBA re 20 µPa	
		Daytime 7.00 am – 10.00 pm	Night-time 10.00 pm – 7.00 am
Logger 1	LAeq[1]	65	62
	RBL (Background)[2]	49	38
Logger 2	LAeq[1]	68	62
	RBL (Background)[2]	56	41

Note 1: The LAeq is essentially the average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.
Note 2: The RBL noise level is representative of the average minimum background sound level (in the absence of the source under consideration), or simply the background level.

3.2 Vibration Monitoring Results

A survey of ground vibration levels during seven rail passby events, including two freight trains, was carried out on Thursday 29 January 2015 using a Profound Vibra tri-axial vibration meter (serial number VIB01711). All equipment carried appropriate and current NATA or manufacturers calibration certificates. Calibration was checked before and after the measurements and the drift in calibration was within acceptable limits.

The rms vibration velocity was measured in 1 second intervals in one-third octave frequency bands at a distance of approximately 12 m from the nearside rail line (the up line).

The result of the attended vibration measurements, expressed as vibration dose values (VDV) for intermittent vibration events are shown in Table 3-2:

Table 3-2 Rail Vibration Levels – VDV $m/s^{1.75}$

Time	Train Type	Length	Direction	VDV $m/s^{1.75}$
12.49 pm	Passenger	8 car	Up	0.007
12.52 pm	Passenger	4 car	Up	0.022
1.07 pm	Freight	30 car	Down	0.055
1.50 pm	Passenger	4 car	Up	0.035
1.51 pm	Passenger	4 car	Down	0.008
1.55 pm	Passenger	8 car	Down	0.006
2.00 pm	Freight	30 car	Down	0.034

4 ASSESSMENT CRITERIA

4.1 Road Traffic and Rail Noise Assessment Criteria

SEPP (Infrastructure) 2007 was introduced to assist the delivery of necessary infrastructure by improving regulatory certainty and efficiency. The Infrastructure SEPP has specific planning provisions and development controls for various types of infrastructure and for development adjacent to infrastructure. SEPP (Infrastructure) 2007 has superseded many of the previous policies and guidelines relating to the control of rail and road traffic noise intrusion including Railcorp's *Interim Guidelines for Applicants*.

In accordance with the SEPP, Table 3.1 of the NSW Department of Planning and Environment's "*Development near Rail Corridors and Busy Roads - Interim Guideline"* (the DP&E Guideline) provides noise criteria for residential buildings. These criteria are summarised in Table 4-1.

Table 4-1 DP&E Interim Guideline Noise Criteria

Residential Buildings		
Type of occupancy	Noise Level dBA	Applicable time period
Sleeping areas (bedroom)	35	Night 10 pm to 7 am
Other habitable rooms (excl. garages, kitchens, bathrooms & hallways)	40	At any time

Note 1: Airborne noise is calculated as LAeq(15hour) daytime and LAeq(9hour) night-time.

The following guidance is also provided in the DP&E Guideline:

> *"These criteria apply to all forms of residential buildings as well as aged care and nursing home facilities. For some residential buildings, the applicants may wish to apply more stringent design goals in response to market demand for a higher quality living environment.*
>
> *The night-time "sleeping areas" criterion is 5 dB(A) more stringent than the "living areas" criteria to promote passive acoustic design principles. For example, designing the building such that sleeping areas are less exposed to road or rail noise than living areas may result in less onerous requirements for glazing, wall construction and acoustic seals. If internal noise levels with windows or doors open exceed the criteria by more than 10 dB(A), the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia."*

The noise criteria shown in Table 4-1 apply to a 'windows closed condition'. Standard window glazing of a building will typically attenuate noise ingress by 20 dBA with windows closed and 10 dBA with windows open (allowing for natural ventilation). Accordingly, the external noise threshold above which an apartment would generally require mechanical/alternative ventilation is an $L_{Aeq(9hour)}$ of 55 dBA for bedrooms and $L_{Aeq(15hour)}$ of 60 dBA for other areas.

4.2 Vibration Criteria

For the assessment of vibration, the NSW Department of Planning & Environment (DP&E) guideline refers to criteria set out in *"British Standard BS 6472:1992 Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)".* In order to evaluate intermittent vibration such as that associated with rail activities, this standard provides methodology to assess vibration in terms of "dose". Thus the assessment takes into account such factors as the overall vibration level, the duration of vibration events and number of vibration events in each period (day and night). The recommended acceptable limits for intermittent events is shown in Table 4-2.

Table 4-2 Acceptable Vibration Dose Values for Intermittent Vibration ($m/s^{1.75}$)

Location	Daytime (7am – 10pm)		Night-time (10pm – 7am)	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Residence	0.2 $m/s^{1.75}$	0.4 $m/s^{1.75}$	0.13 $m/s^{1.75}$	0.26 $m/s^{1.75}$

The maximum vibration level measured near the boundary of the site (approximately 12m from the up line) was 0.055 m/s$^{1.75}$ during a freight passby. This level is well below the preferred night-time value and no further assessment of vibration levels is therefore warranted.

5 NOISE ASSESSMENT

5.1 Road Traffic and Rail Noise Intrusion

This assessment predicts road traffic and rail noise intrusion from Neil Street and the operation of the nearby railway corridor to the proposed Buildings 3&4.

Standard window glazing of a building will typically attenuate these noise levels by 20 dB(A) with windows closed and 10 dB(A) with windows open (allowing for natural ventilation). The predicted internal noise levels of the proposed residential units are presented in Table 5-1 for the windows open and windows closed scenarios. Standard window system (4 mm thick glass with aluminium frame) has been assumed for this prediction.

Table 5-1 Predicted Internal Noise Levels

Type of Occupancy	Descriptor	Internal Noise Level		Noise Criteria
		Windows Open	Windows Closed	
Residential Apartments on Eastern Façade facing railway corridor				
Living Areas (Daytime)	$L_{Aeq,15hour}$	58 dB(A)	48 dB(A)	40 dB(A)
Living Areas (Night time)	$L_{Aeq,9hour}$	53 dB(A)	43 dB(A)	40 dB(A)
Sleeping Areas (Night time)	$L_{Aeq,9hour}$	53 dB(A)	43 dB(A)	35 dB(A)
Residential Apartments on Southern Façade facing Neil Street				
Living Areas (Daytime)	$L_{Aeq,15hour}$	58 dB(A)	48 dB(A)	40 dB(A)
Living Areas (Night time)	$L_{Aeq,9hour}$	53 dB(A)	43 dB(A)	40 dB(A)
Sleeping Areas (Night time)	$L_{Aeq,9hour}$	53 dB(A)	43 dB(A)	35 dB(A)
Residential Apartments on Northern Façade				
Living Areas (Daytime)	$L_{Aeq,15hour}$	45 dB(A)	35 dB(A)	40 dB(A)

Type of Occupancy	Descriptor	Internal Noise Level		Noise Criteria
		Windows Open	Windows Closed	
Living Areas (Night time)	$L_{Aeq,9hour}$	43 dB(A)	44 dB(A)	40 dB(A)
Sleeping Areas (Night time)	$L_{Aeq,9hour}$	43 dB(A)	44 dB(A)	35 dB(A)

Upgraded glazing will generally be required for windows and doors to habitable and sleeping spaces on the southern, eastern and northern facades of Building 3 and 4 to achieve the design sound levels for airborne noise intrusion. Where the internal noise criteria is exceeded by more than 10 dBA when the windows (or doors) are open, a system of comfort ventilation is recommended to enable glazing to remain closed as required during noisier periods.

6 RECOMMENDATIONS

6.1 Window Glazing Requirement

Based on the above predicted road traffic noise impact the following noise control measures are recommended for the residential units:

- Where glazed windows and doors on facades of residential development require to be closed to meet internal noise levels, alternative ventilation methods which meet the ventilation requirements of the BCA and Australian Standard AS 1668.2:2002 will be required and design input should be sought from an appropriately qualified mechanical services consultant.

Based on the predicted internal noise levels, glazed windows and doors certain facades of residential development should have the following minimum Rw rating as indicated in Table 6-1 below.

Table 6-1 In-principle Glazing Recommendations

Location	Glazing Type	Minimum Glazing Rw Rating	Indicative Glazing System
South-Eastern façade facing Rail Corridor			
Living Rooms	Sliding Door	Rw 28	6.38mm laminated glass with acoustically sealed frame*
	Sliding Window	Rw 28	6.38mm laminated glass with acoustically sealed frame*
Bedrooms	Sliding Door	Rw 30	7.52mm laminated glass with acoustically sealed frame*
	Sliding Window	Rw 30	7.52mm laminated glass with acoustically sealed frame*

Southern façade facing Neil Street			
Living Rooms	Sliding Door	Rw 28	6.38mm laminated glass with acoustically sealed frame*
	Sliding Window	Rw 28	6.38mm laminated glass with acoustically sealed frame*
Bedrooms	Sliding Door	Rw 30	7.52mm laminated glass with acoustically sealed frame*
	Sliding Window	Rw 30	7.52mm laminated glass with acoustically sealed frame*
Northern façade			
Living Rooms	Sliding Door	Rw 24	5mm glass with acoustically sealed frame*
	Sliding Window	Rw 24	5mm glass with acoustically sealed frame*
Bedrooms	Sliding Door	Rw 26	6mm glass with acoustically sealed frame*
	Sliding Window	Rw 26	6mm glass with acoustically sealed frame*
Eastern façade (south-eastern end)			
Living Rooms	Sliding Door	Rw 26	6mm glass with acoustically sealed frame*
	Window	Rw 26	6mm glass with acoustically sealed frame*
Bedrooms	Sliding Door	Rw 28	6.38mm laminated glass with acoustically sealed frame*
	Window	Rw 28	6.38mm laminated glass with acoustically sealed frame*

Note *: glazing system are for reference only. Any glazing system to be installed for the development is to achieve the minimum Rw rating indicated above.

Please note Rw ratings provided in Table 6-1 rely on the acoustic performance of the window glazing and frame. Rw ratings should be checked with glazing manufacturers and frames should be selected and installed as to not degrade the performance of the glazing. It is also recommended that glazing specifications are reviewed at the detailed design stage, most notably if changes to the glazing area are made throughout the design.

7 CONCLUSION

Rodney Stevens Acoustics has conducted Noise Assessment including Road Traffic Noise and Rail Noise Impact Assessment for the Proposed Residential Development site at Building 3&4 1-11 Neil Street, Merrylands NSW.

A survey of the exposure of the site to noise from road and rail traffic, and the levels of vibration generated by rail movements was carried out. Based upon the results of noise monitoring, noise levels at the future apartment building facades were predicted.

Noise levels within living spaces and bedrooms of future residential apartments have been estimated and compared with regulatory requirements for internal acoustical amenity. Habitable and sleeping spaces located on the southern, south-eastern and northern facades of Building 3&4 will require upgraded glazing to achieve the required internal noise levels. In addition, a system of comfort ventilation is recommended to enable any window or door openings in these rooms to be closed during noisy periods.

The potential for sleep disturbance due to high-level rail noise events occurring during the night-time was examined. Based upon the results of attended and continuous noise monitoring, the likelihood of significant adverse effects to health and well-being appear unlikely with the inclusion of the in-principle recommendations for noise control treatments.

Vibration levels and regenerated noise were found to be within acceptable limits.

Approved:-

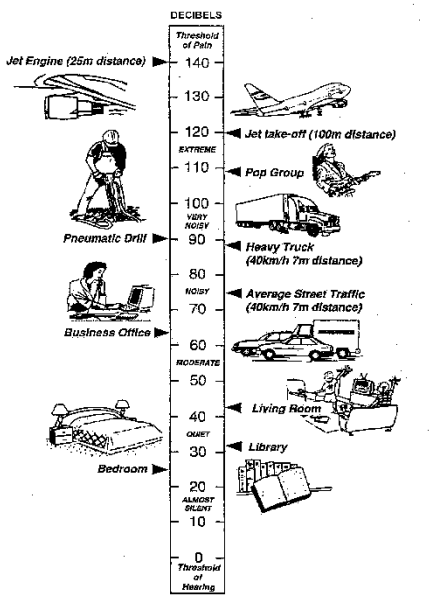
Rodney Stevens - MAAS

Appendix A – Acoustic Terminology

A-weighted sound pressure	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz (1000 – 4000 vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement an electronic '*A-weighting*' frequency filter is applied to the measured sound level *dB(A)* to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted dB(linear).
Ambient noise	The total noise in a given situation, inclusive of all noise source contributions in the near and far field.
Community annoyance	Includes noise annoyance due to: ▪ character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content) ▪ character of the environment (e.g. very quiet suburban, suburban, urban, near industry) ▪ miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations) ▪ human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).
Compliance	The process of checking that source noise levels meet with the noise limits in a statutory context.
Cumulative noise level	The total level of noise from all sources.
Extraneous noise	Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Feasible and reasonable measures	Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, taking into account the following factors: ▪ Noise mitigation benefits (amount of noise reduction provided, number of people protected). ▪ Cost of mitigation (cost of mitigation versus benefit provided). ▪ Community views (aesthetic impacts and community wishes).

- Noise levels for affected land uses (existing and future levels, and changes in noise levels).

Impulsiveness	Impulsive noise is noise with a high peak of short duration or a sequence of these peaks. Impulsive noise is also considered annoying.
Low frequency	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
Noise criteria	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
Noise level (goal)	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
Noise limits	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
Performance-based goals	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
Rating Background Level (RBL)	The rating background level is the overall single figure background level representing each day, evening and night time period. The rating background level is the 10^{th} percentile min L_{A90} noise level measured over all day, evening and night time monitoring periods.
Receptor	The noise-sensitive land use at which noise from a development can be heard.
Sleep disturbance	Awakenings and disturbance of sleep stages.
Sound and decibels (dB)	Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of 2 x 10-5 Pa. The picture below indicates typical noise levels from common noise sources.



dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

Sound Power Level (SWL)

The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in *dB(A)*.

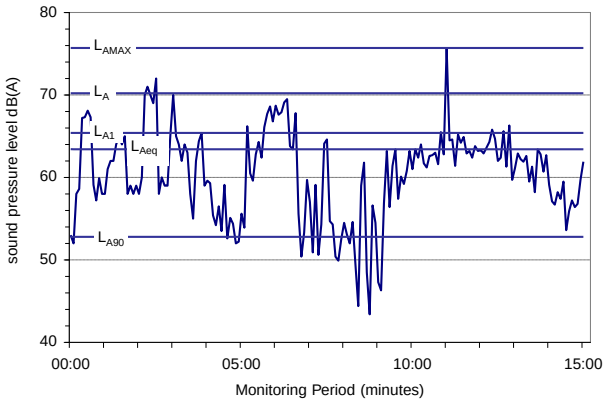
Sound Pressure Level (SPL)

The level of noise, usually expressed as SPL in *dB(A)*, as measured by a standard sound level meter with a pressure microphone. The sound pressure level in *dB(A)* gives a close indication of the subjective loudness of the noise.

Statistical noise levels

Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:



Key descriptor

- LAmax Maximum recorded noise level.

- L_{A1} The noise level exceeded for 1% of the 15 minute interval.
- L_{A10} Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.
- L_{Aeq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.
- L_{A90} Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

Threshold	The lowest sound pressure level that produces a detectable response (in an instrument/person).
Tonality	Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 dBA penalty is typically applied to noise sources with tonal characteristics.

Appendix B – Calibration Certificates

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Level 7 Building 2 423 Pennant Hills Rd
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Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3.2006

Calibration Certificate

Calibration Number C15557

Client Details	Rodney Stevens Acoustics Pty Ltd 1 Majura Close St Ives Chase NSW 2075
Equipment Tested/ Model Number :	Rion NL-42
Instrument Serial Number :	00810779
Microphone Serial Number :	148338
Pre-amplifier Serial Number :	22257

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	20.8°C	**Ambient Temperature :**	20.7°C
Relative Humidity :	51.4%	**Relative Humidity :**	51.4%
Barometric Pressure :	99.85kPa	**Barometric Pressure :**	99.81kPa

Calibration Technician :	Dennis Kim	**Secondary Check:**	Kate Alchin
Calibration Date :	20/10/2015	**Report Issue Date :**	20/10/2015

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
10: Self-generated noise	*Pass*	14: Level linearity on the reference level range	*Pass*
11: Acoustical tests of a frequency weighting	*Pass*	15: Level linearity incl. the level range control	*Pass*
12: Electrical tests of frequency weightings	*Pass*	16: Toneburst response	*Pass*
13: Frequency and time weightings at 1 kHz	*Pass*	17: Peak C sound level	*Pass*
		18: Overload Indication	*Pass*

The sound level meter submitted for testing has successfully completed the class 2 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1:2002 because evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

Least Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	*±0.120dB*	*Temperature*	*±0.3°C*
12.5kHz	*±0.165dB*	*Relative Humidity*	*±4.1%*
16kHz	*±0.245dB*	*Barometric Pressure*	*±0.1kPa*
Electrical Tests			
31.5 Hz to 20 kHz	*±0.121dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA
WORLD RECOGNISED ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards.

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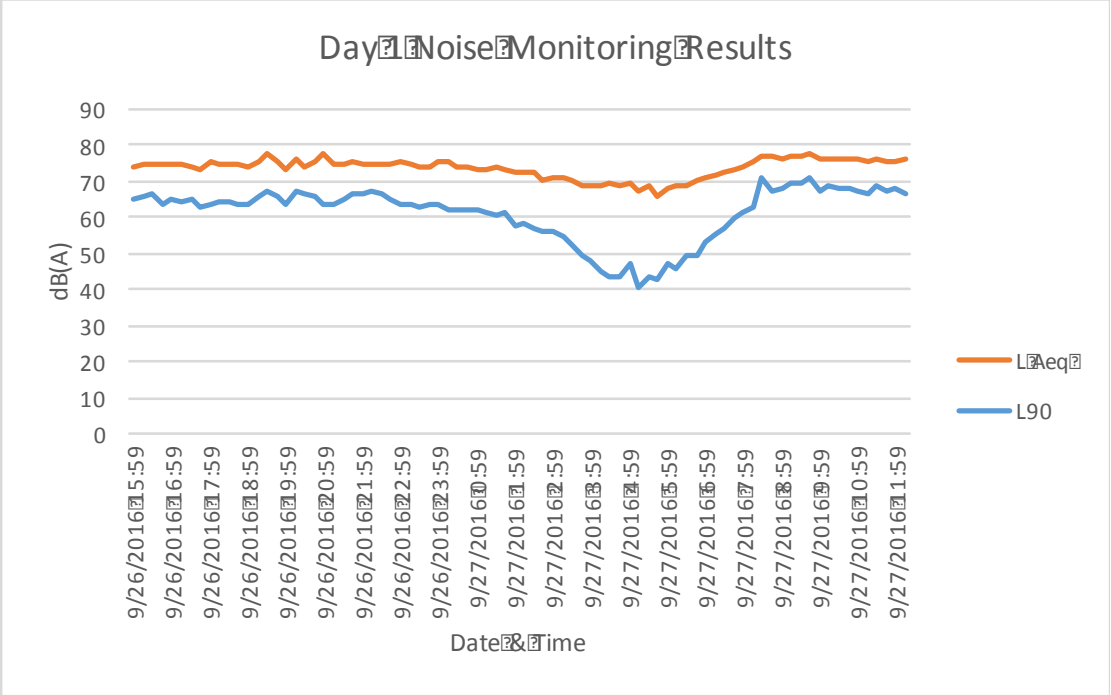
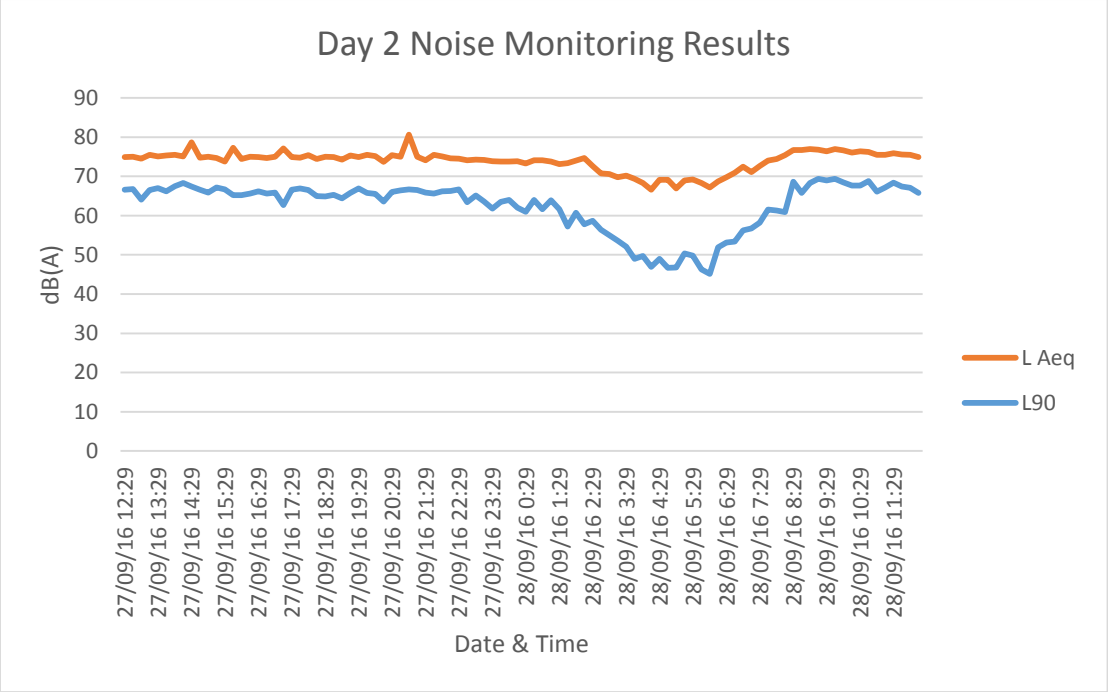
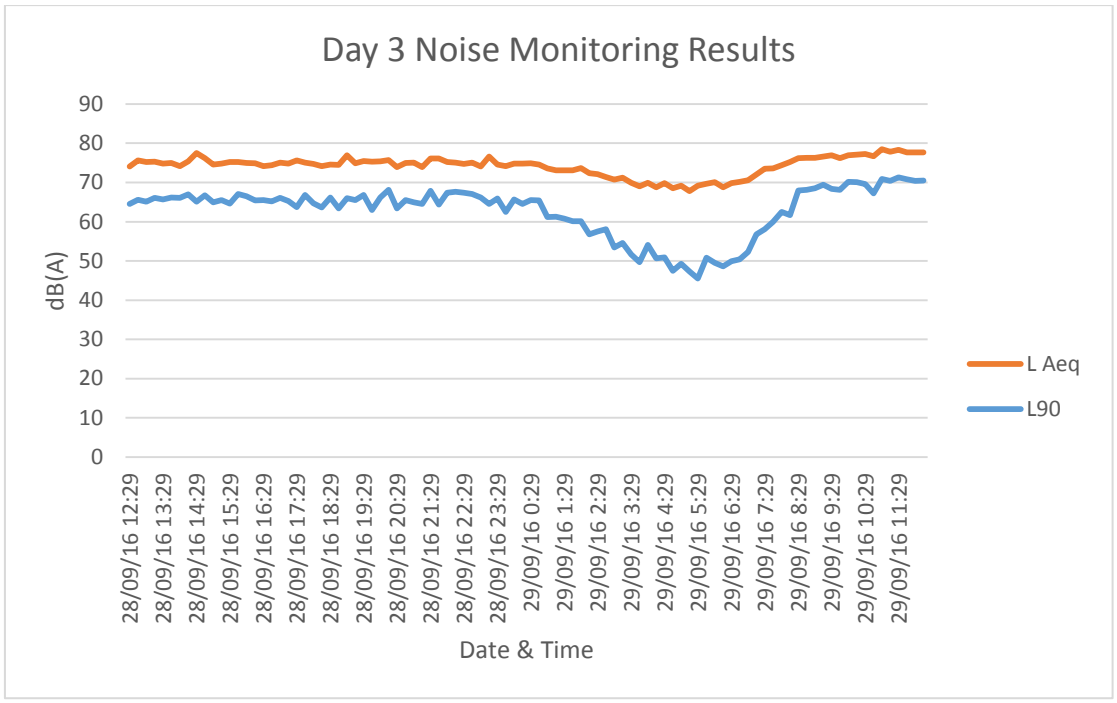
Appendix C – Logging Results






Day 3 Noise Monitoring Results
dB(A)
90
80
70
60
50
40
30
20
10
0
28/09/16 12:29
28/09/16 13:29
28/09/16 14:29
28/09/16 15:29
28/09/16 16:29
28/09/16 17:29
28/09/16 18:29
28/09/16 19:29
28/09/16 20:29
28/09/16 21:29
28/09/16 22:29
28/09/16 23:29
29/09/16 0:29
29/09/16 1:29
29/09/16 2:29
29/09/16 3:29
29/09/16 4:29
29/09/16 5:29
29/09/16 6:29
29/09/16 7:29
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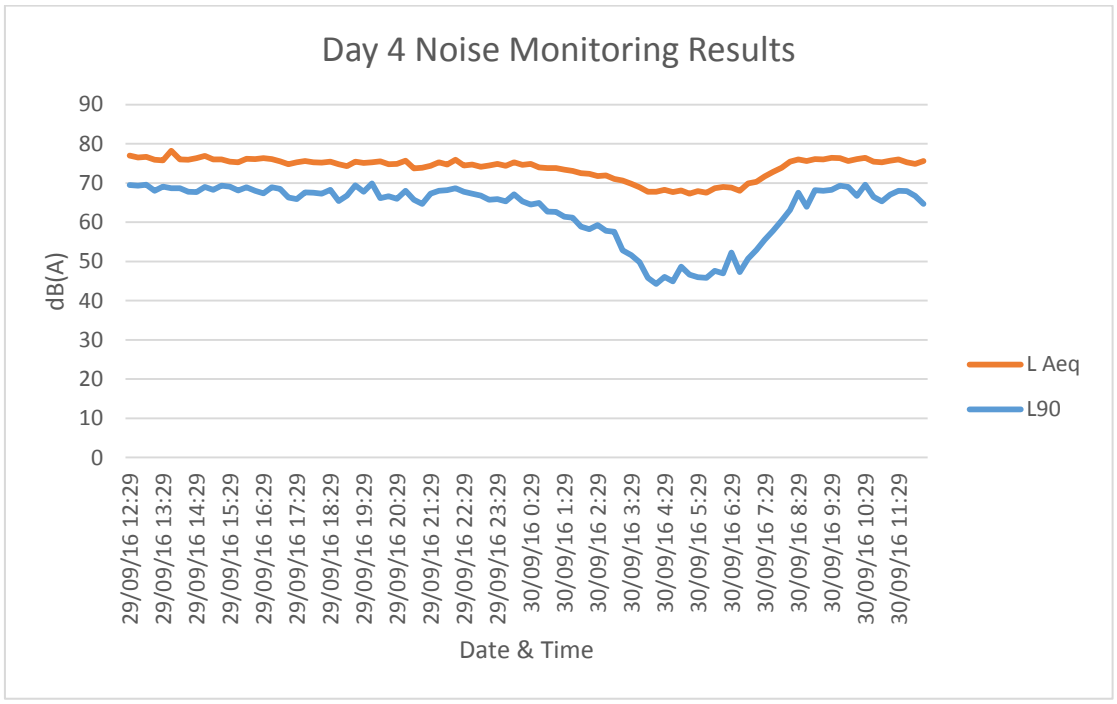
29/09/16 11:29
Date & Time
L Aeq
L90


Day 4 Noise Monitoring Results
dB(A)
90
80
70
60
50
40
30
20
10
0
29/09/16 12:29
29/09/16 13:29
29/09/16 14:29
29/09/16 15:29
29/09/16 16:29
29/09/16 17:29
29/09/16 18:29
29/09/16 19:29
29/09/16 20:29
29/09/16 21:29
29/09/16 22:29
29/09/16 23:29
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30/09/16 1:29
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30/09/16 3:29
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30/09/16 6:29
30/09/16 7:29
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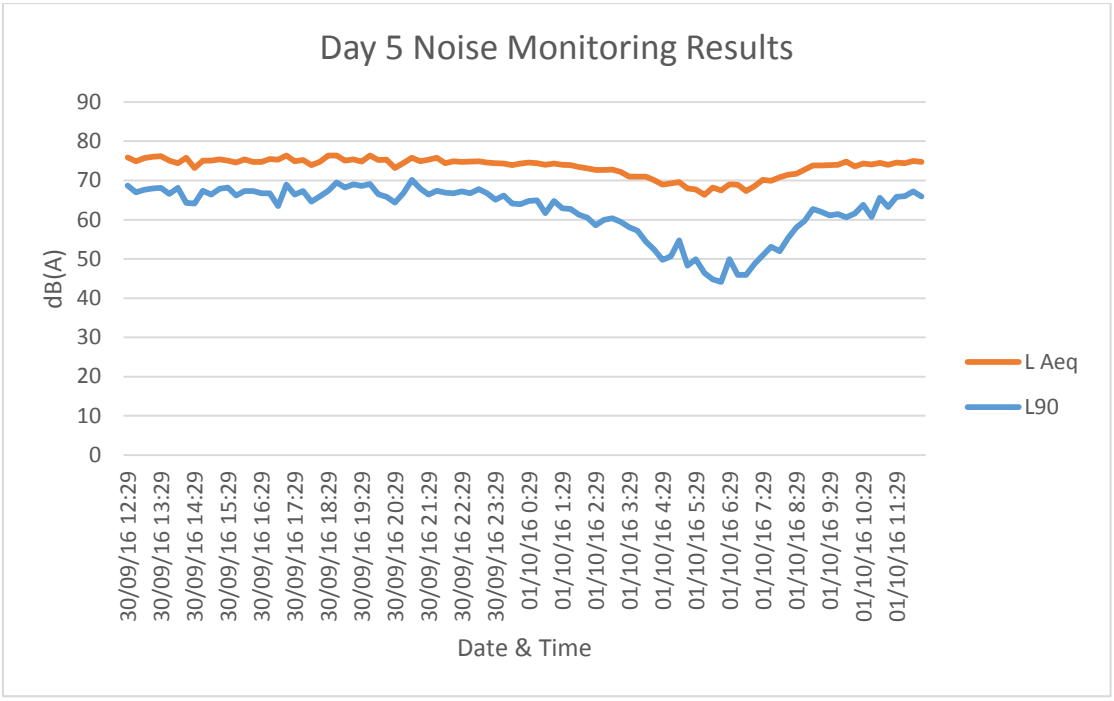
30/09/16 11:29
Date & Time
L Aeq
L90


Day 5 Noise Monitoring Results
dB(A)
90
80
70
60
50
40
30
20
10
0
30/09/16 12:29
30/09/16 13:29
30/09/16 14:29
30/09/16 15:29
30/09/16 16:29
30/09/16 17:29
30/09/16 18:29
30/09/16 19:29
30/09/16 20:29
30/09/16 21:29
30/09/16 22:29
30/09/16 23:29
01/10/16 0:29
01/10/16 1:29
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01/10/16 4:29
01/10/16 5:29
01/10/16 6:29
01/10/16 7:29
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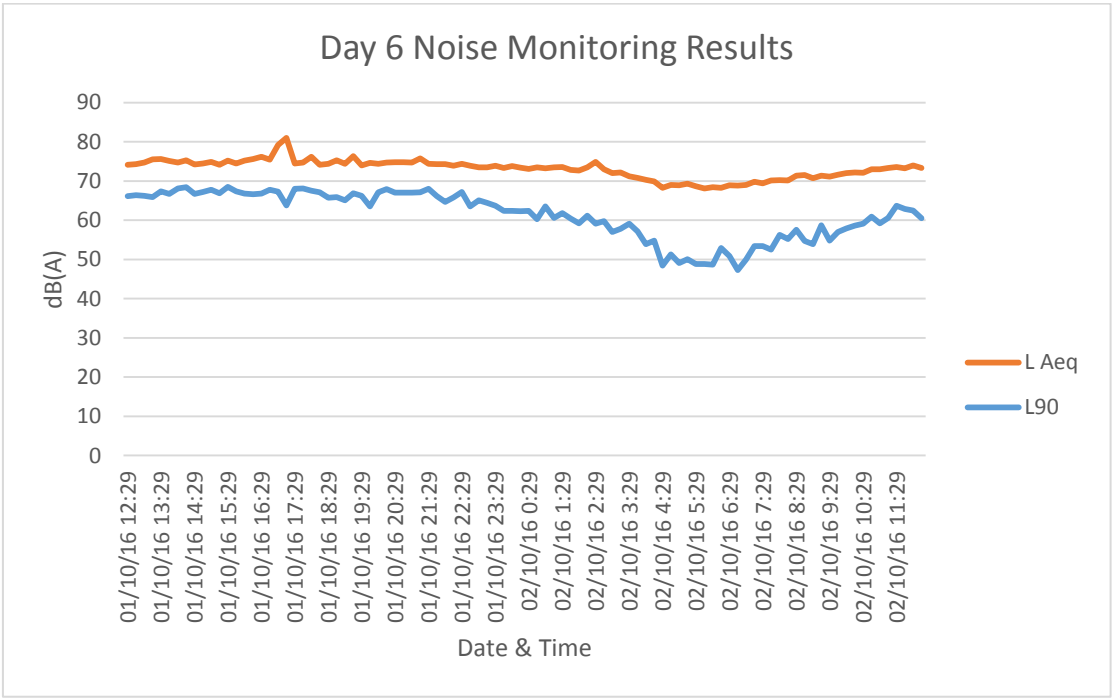
01/10/16 11:29
Date & Time
L Aeq
L90


Day 6 Noise Monitoring Results
dB(A)
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80
70
60
50
40
30
20
10
0
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01/10/16 13:29
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01/10/16 16:29
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02/10/16 0:29
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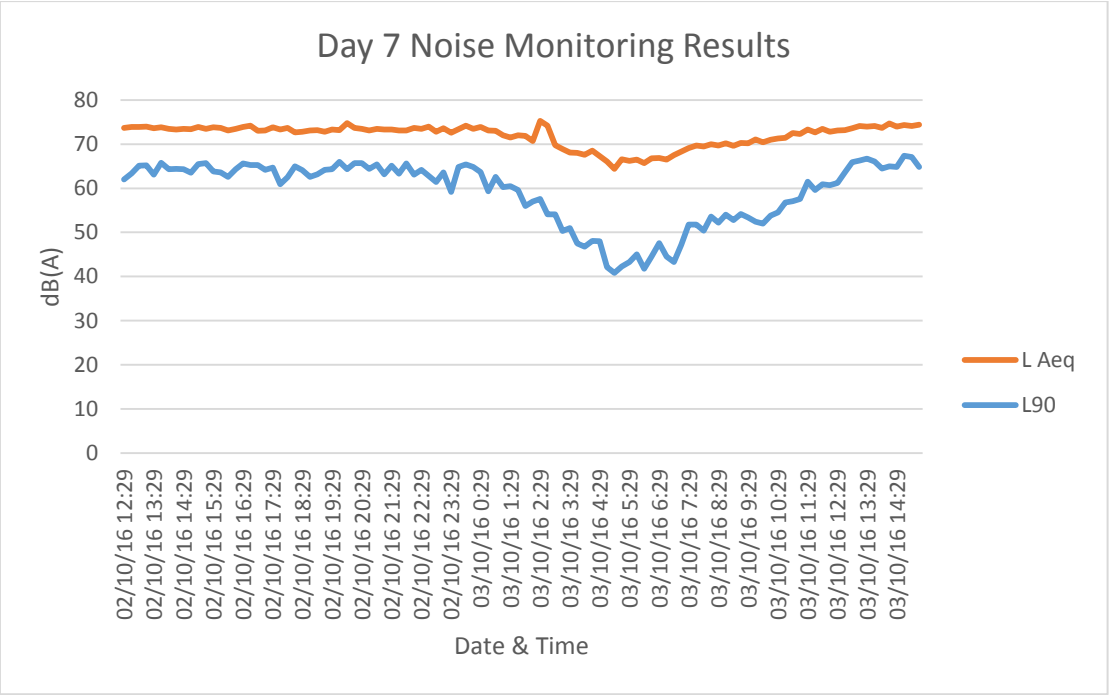
02/10/16 11:29
Date & Time
L Aeq
L90


Day 7 Noise Monitoring Results
dB(A)
80
70
60
50
40
30
20
10
0
02/10/16 12:29
02/10/16 13:29
02/10/16 14:29
02/10/16 15:29
02/10/16 16:29
02/10/16 17:29
02/10/16 18:29
02/10/16 19:29
02/10/16 20:29
02/10/16 21:29
02/10/16 22:29
02/10/16 23:29
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03/10/16 2:29
03/10/16 3:29
03/10/16 4:29
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03/10/16 10:29
03/10/16 11:29
03/10/16 12:29
03/10/16 13:29
03/10/16 14:29
Date & Time
L Aeq
L90