Project No: 00008091
Our Contact: Ben Haynes
Reference: 170322 - Response to JRPP Additional Informtion Request - S96 - Restwell St Bankstown

24/03/2017

The Administrator
City of Canterbury Bankstown
PO Box 8
Bankstown NSW 1885

Attention: Ms Samantha Mitchell

Delivered via email: samantha.mitchell@cbcity.nsw.gov.au

Dear Samantha,

Re: DA567/2015/3 - 74-80 Restwell & 1-9 Leonard Streets, Bankstown

Introduction

We refer to the above section 96 application (DA567/2015/3) for the above site and the minutes of the Sydney South Joint Regional Planning Panel (JRPP) meeting, which considered the proposal at its meeting on 15 February, 2017. The JRPP resolved to defer determination of the application for the following:

1. *The applicant to provide a detailed analysis of the visual impact of the additional floor space when viewed from adjoining properties, based on current and future circumstances, and also from the public domain. The view locations to be determined in consultation with Council officers.*

2. *The applicant is to also provide a concept development form on adjoining properties to the south consistent with the current planning controls, and the likely impact of additional overshadowing on this future development.*

3. *The lodgement of an amended BASIX certificate.*

4. *The Council offices to provide an updated assessment report to the panel after having analysed the above additional information.*

5. *That a further assessment report be submitted for the Panel's consideration as soon as possible.*

This submission attends to items 1 to 3 in the JRPP's minutes.

Item 1 – Visual analysis from adjoining properties and the public domain

As agreed with Council on via email on the 6th March, 2017 a total of seven (7) positions were agreed in terms of providing a visual analysis of the proposal from adjoining properties and the public domain. Drawing numbers JRPP.01 1 and JRPP.03 1 illustrate the location of agreed locations noting that position four (4) also has had an analysis from a person of average height standing both at the ground level and from a balcony on level 6 of a future development on adjoining land immediately to the south of the site.

The following provides our assessment of each of the visual analysis prepared and illustrated in drawing numbers JRPP.01 1, JRPP.02 1, JRPP.03 1 and JRPP.04 1 (**see Attachment A)** prepared by Nordon Jago Architects. Where the description in the assessment refers to 'the proposal' this relates to the additional four (4) units sought in the modification application.

Current circumstances

View 1 from the north-east on Leonard Street

As illustrated on drawing JRPP.03 1, the existing building to the north of the site would screen views of the central portion of the development, which is the location of the proposal. The proposal will, therefore, not be readily viewed by a person of average height standing within Leonard street from this location. Hence, there will be no adverse visual impacts as a result of the proposal upon the public domain.

View 2 from south on the corner of Restwell and Ross Streets

As illustrated on drawing JRPP.03 1, the existing development fronting Restwell Street and the site will screen views of the central portion of the development, which is the location of the proposal. The proposal will, therefore, not be readily viewed by a person of average height standing within Restwell Street from this location. Hence, there will be no adverse visual impacts as a result of the proposal upon the public domain.

View 3 approximately 65m from the south at the rear boundary from existing properties

As illustrated on drawing JRPP.03 1, approximately only half of the proposal will be viewed from this location as the western side of the development is screened by existing dwellings fronting Restwell Street. In addition, only the top third of the proposal will be viewed given the built form at this level is set back significantly from the southern elevation and screened by balustrading. Hence, there will be no adverse visual impacts as a result of the proposal upon existing private property when the context of the entire development on this site is taken into consideration.

Moreover, it is important to note that if the existing trees were able to be incorporated into this analysis then it is likely that views of the proposal would be further screened or potentially not seen at all from this location.

View 4 from the south from adjoining properties, immediately adjacent the site

As illustrated on drawing JRPP.04 1, the proposal will not be viewed by a person of average height standing at the ground level at this location. Only the balustrading associated with the additional communal open space proposed and a fire stair shaft can be viewed. These will not contribute to any significant additional adverse visual impacts on existing adjoining properties when the overall approved development is taken into consideration.

View 5 from the north directly in front of the site from Stanley Street

As illustrated on drawing JRPP.04 1, views of the proposal will be unobstructed in the current day situation from this location. The built form as a result of the proposal however will maintain compliance with the maximum 25m height control; a high level of articulation through deep balconies and stepping within the elevation, all of which assist in mitigating any adverse visual impacts on the public domain.

The building will also not be read as one building mass because of the U or C-shaped footprint, which gives the appearance of the development being 3 separate buildings. This is reinforced via the separation of the built form between the western wing and the proposed additional units at the top level. Likewise, the increased setback of the building at the top level where the proposed new units connect with the eastern wing results in a similar outcome.

Given those reasons above, there will be no adverse visual impacts as a result of the proposal upon the public domain.

View 6 from the north within an existing Council car park

As illustrated on drawing JRPP.04, views of the proposal will be unobstructed in the current day situation from this location. If anything, the views closer to the built form highlight the significant level of articulation proposed in the northern elevation of the building. For the same reasons detailed above in the View 5 analysis, the proposal will have no adverse visual impacts on existing private property or on the public domain.

Future development

View 1 from the north-east on Leonard Street

As illustrated on drawing JRPP.01 1, as per the current day circumstances the status quo will remain i.e. the existing building to the north of the site will screen views of the proposal, therefore, it will not be seen from or have adverse visual impacts on the public domain in this location.

View 2 from south on the corner of Restwell and Ross Streets

As illustrated on drawing JRPP.01 1, as per the current day situation, future development fronting Restwell street between the site this location and the site will screen views of the proposal. Hence, there will be no adverse visual impacts as a result of the proposal on the public domain.

View 3 approximately 65m from the south at the rear boundary from existing properties

As illustrated on drawing JRPP.01 1, views of the proposal are narrowed significantly to about less 10% when compared the current situation. This is a result of potential future development on land fronting both Restwell and Leonard Streets. Similar to the current day scenario, only the top third of the proposal will be viewed given they are set back significantly from the southern elevation and screened by balustrading, therefore, limiting any adverse visual impacts from private property.

View 4 from the south from adjoining properties, immediately adjacent the site

As illustrated on drawing JRPP.02 1, the proposal will not be viewed by a person of average height standing at the ground level from this location. Only the balustrading associated with the additional communal open space proposed along the top of the southern elevation and the stairwell will be viewed. These will not contribute to any significant additional adverse visual impacts on the future development of existing adjoining properties.

View 4a from a balcony at the 6th level from a potential future residential flat building immediately adjacent to the south of the site

As illustrated on drawing JRPP.02 1, the proposal will be readily viewed. The proposal is however setback from the southern elevation of the building and future development on adjoining land to the south and thus providing visual relief.

The proposal will also maintain compliance with the maximum height limit and, therefore, is consistent with the built form that would be anticipated on the site. Moreover, when the proposal is viewed in the context of the overall built form that will occur on the site, it will generate any real significant difference from a visual impact perspective.

View 5 from the north directly in front of the site from Stanley Street

As illustrated on drawing JRPP.02 1, future development within Council's current car park to its potential will impede any views of the proposal and around 85% of the whole development itself. Hence, there will be no adverse visual impact upon the public domain as a result of the proposal from this location.

View 6 from the north within an existing Council car park

As illustrated on drawing JRPP.02 1 no views of the proposal would be possible from this location if this adjoining site were developed in the future.

Item 2 – Overshadowing assessment as a result of the proposal

As illustrated on drawing JRPP.05 1 (**see Attachment B**) prepared by Nordon Jago Architects, an elevational shadow analysis has been prepared for the winter solstice at 9am, noon and 3pm. The analysis demonstrates the level of additional overshadowing (identified in red) that would be created by the proposal with respect to potential future development on the adjoining land to the south of the site.

The extent of additional shadow created by this proposal is at best very minor. It is estimated the additional level of shadow generated by the additional four (4) units proposed is less than 5% of the overall impact of the current approval.

Without understanding exactly how the primary internal and external living areas would be orientated on the adjoining land to the south, it is submitted that the very minor level of additional overshadowing created by this proposal would not result in any non-compliance with the minimum requirements of the Apartment Design Guide.

Item 3 – Amended BASIX Certificate

Provided in **Attachment C** are all the necessary requirement to satisfy SEPP Basix, which now take into account the modifications sought by this proposal. The proposal meets the requirements with respect to BASIX.

Conclusion

This submission comprehensively responds to all matters requested by the JRPP in order for Council to finalise its assessment of the proposal. As demonstrated via the analysis undertaken both graphically and as supported by this submission, it is categorically evident that proposal will have no adverse visual impacts from either adjoining properties or from within the public domain. This position stands from both the current day situation and when surrounding land is developed to its full potential.

The level of additional overshadowing created by the proposal is inconsequential. The requirements in respect of BASIX can be achieved.

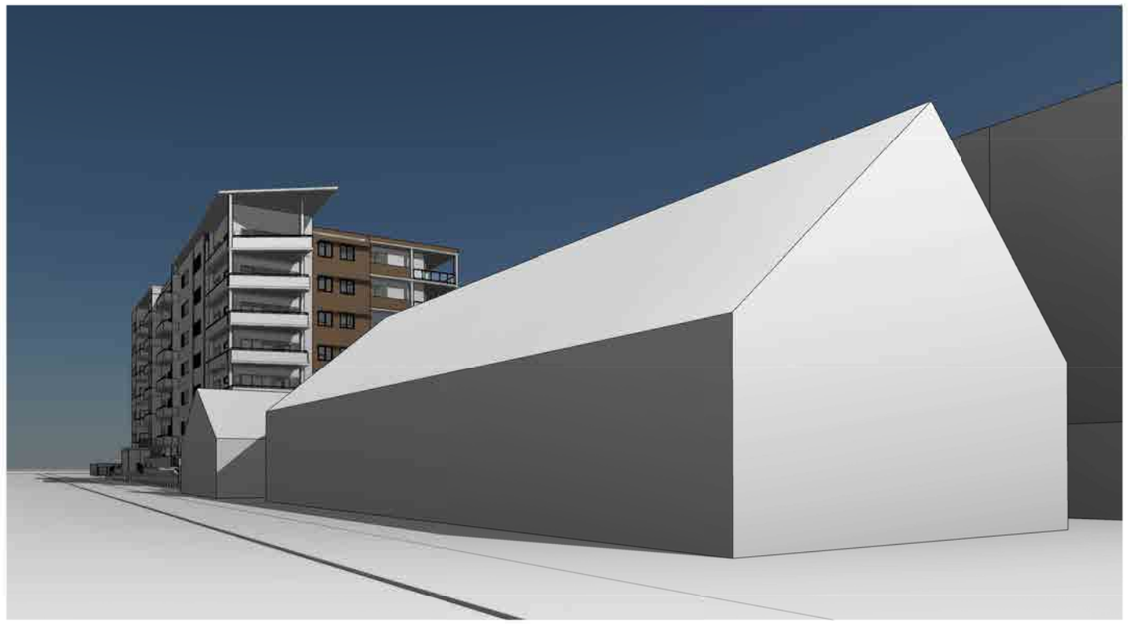
As presented to the JRPP, this proposal has will have no adverse environmental or visual impacts. The extent of additional built form is knowingly so small in the context of the future development anticipated within the immediate locality and within the Sydenham to Bankstown Urban Renewal Corridor. We therefore submit to Council that it should have no reservations in recommending to the JRPP this this section 96 application be approved in its current form.

Yours Faithfully

Ben Haynes
Planning Manager

E benhaynes@jensenbowers.com.au
P 07 3852 1771
M 0419 193 259

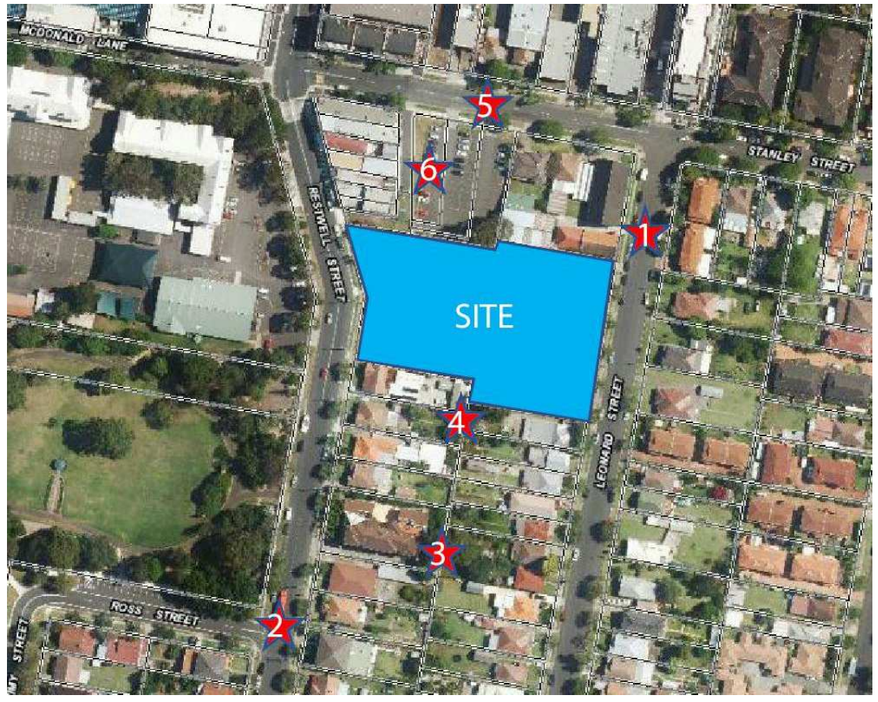
Attachment A – Visual analysis studies



1 View 01_Cnr Leonard St Existing

2 View 02- Restwell street Existing

3 View 03 Existing



NORDON · JAGO ARCHITECTS

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STEPHEN J. NORDON REGISTRATION No. NSW - 4704 - GRAHAM P. JAGO REGISTRATION No. NSW - 4926

SECTION 96

Rev	Description	Date
1	JRPP 3D view analysis	17.03.17

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

J:\MRH00216 Bankstown\4 NJA Documentation\5 CADD\3 DA\01 Model\MRH00216_R2016_massing.rvt

TITLE: 3D Views Existing

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A3 @ 1 : 25
DWG No.	JRPP.03 1

4 View 04 Existing

5 View 05 Existing

6 View 06 Existing

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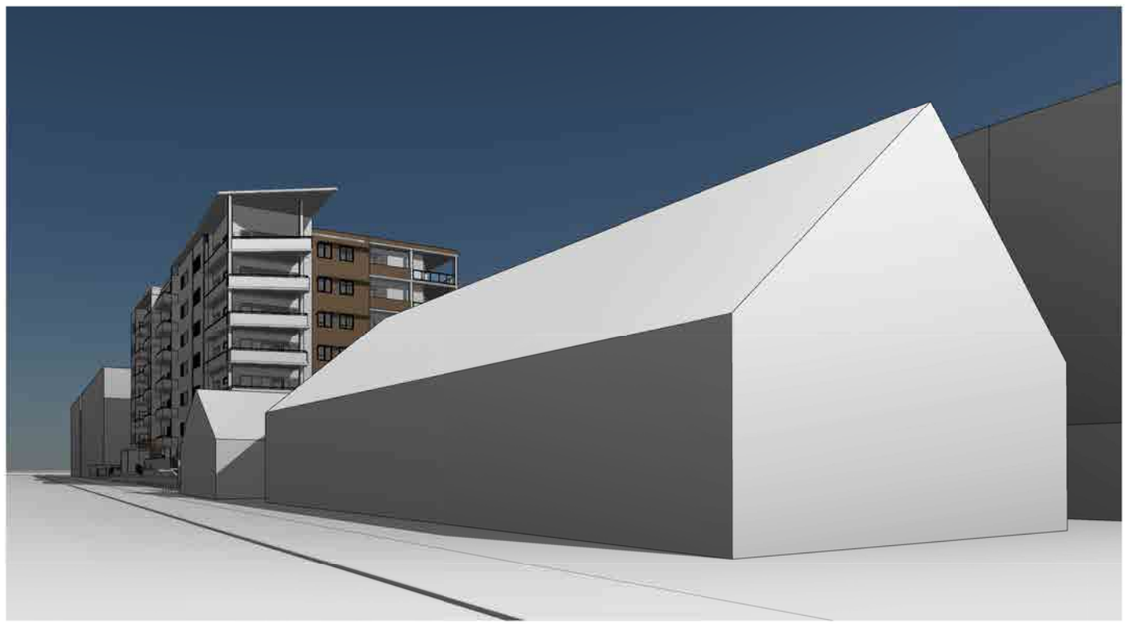
J:\MRH00216 Bankstown\4 NJA Documentation\5 CADD\3 DA\01 Model\MRH00216_R2016_massing.rvt

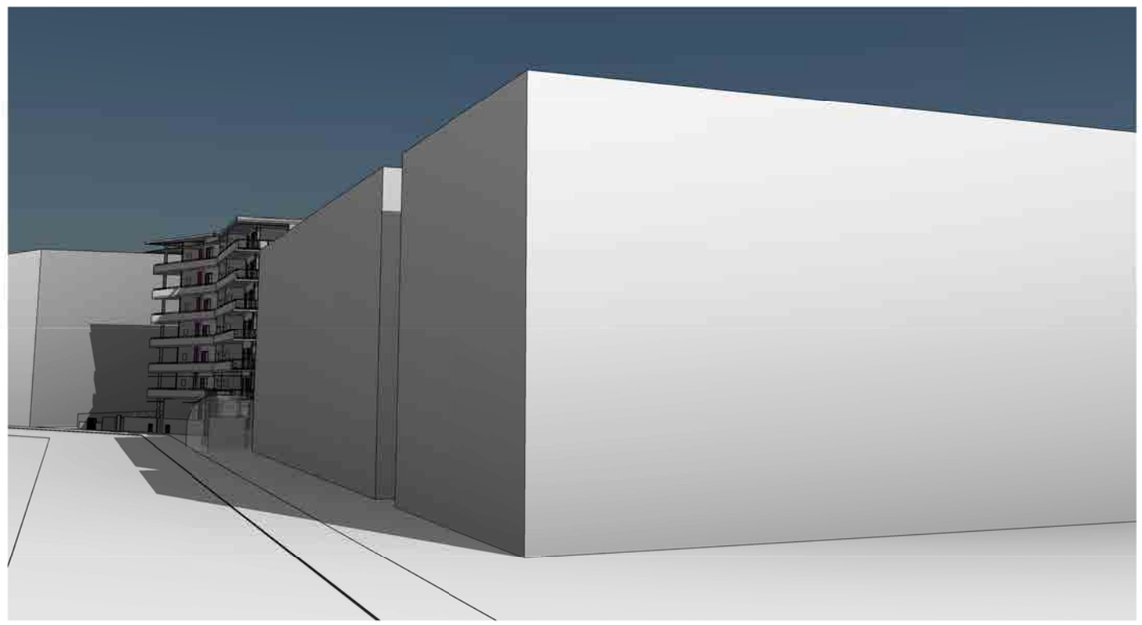
TITLE: 3D view Existing

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A3 @
DWG No.	JRPP.04 1



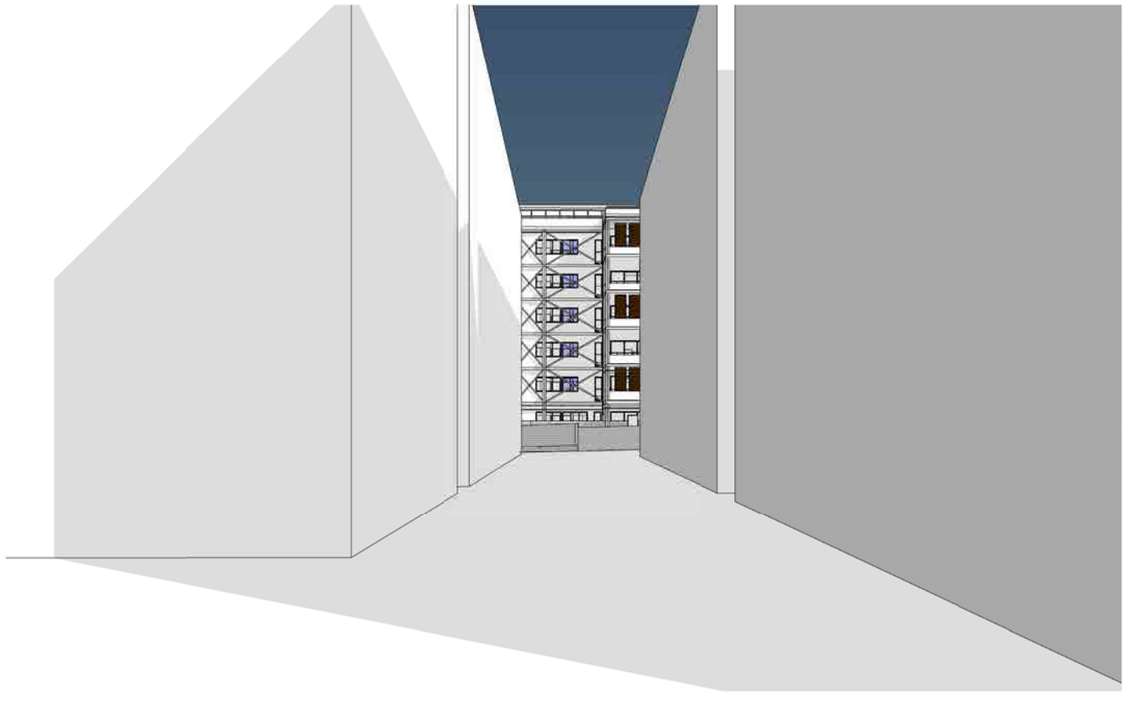
1 **View 01_Cnr Leonard St**

Cannot see the units from this camera angle



2 **View 02- Restwell street**

Cannot see the units from this camera angle



3 **View 03**

From this camera angle we can only see the top of the new corridor that links the 4 units

Key plan: Numbers represents the location of camera at human eye level from ground floor.
Camera angle 4a is at same location as no 4 but at level 6

SECTION 96

Rev	Description	Date
1	Issued for review	09.03.17

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RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

J:\MRH00216 Bankstown\4 NJA Documentation\5 CADD\3 DA\01 Model\MRH00216_R2016_massing.rvt

TITLE: 3D VIEWS

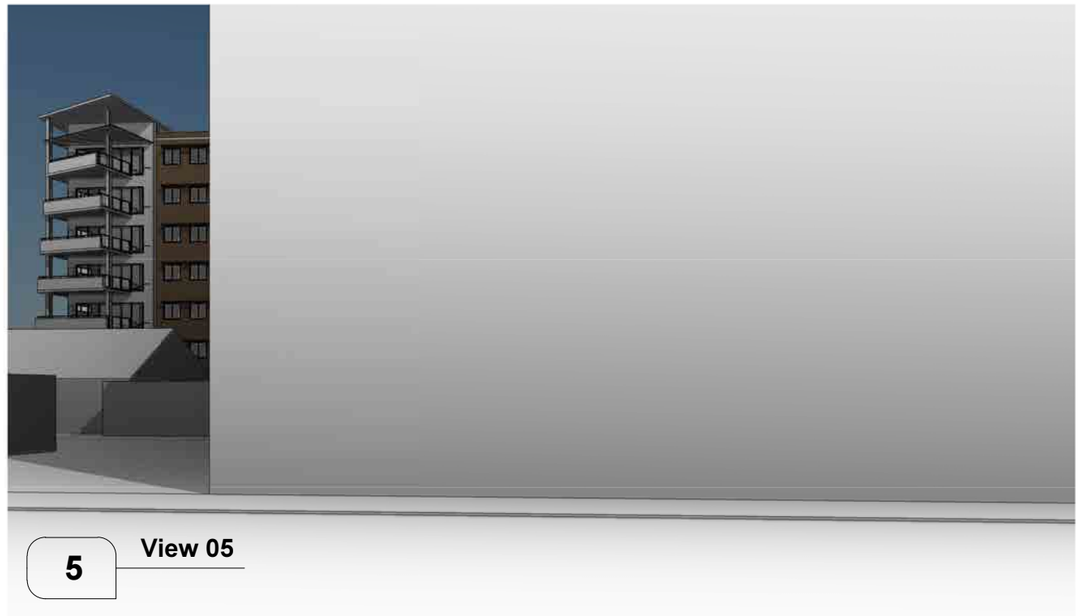
JOB No.	MRH00216
DATE	13-05-2016
SCALE	A3 @ 1 : 25
DWG No.	JRPP.01 1

4 **View 04**

Cannot see the units, except for the staricase block that needs to project to level 6 to service new units.

4a **View 4a level6**

In this camera angle (which is around level 6 of adjoining block to south) we can see the proposed 4 units.



5 **View 05**

Cannot see the units from this camera angle

6 **View 06**

Cannot see the units from this camera angle

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SECTION 96

Rev	Description	Date
1	Issued for review	09.03.17

NOT For Construction

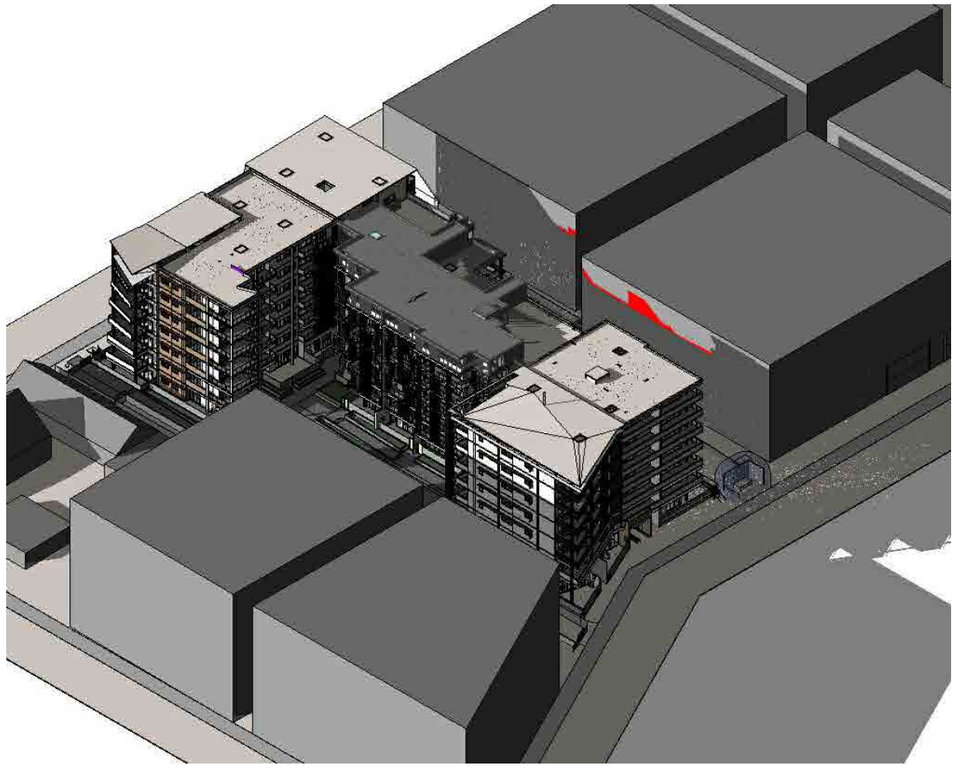
RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

J:\MRH00216 Bankstown\4 NJA Documentation\5 CADD\3 DA\01 Model\MRH00216_R2016_massing.rvt

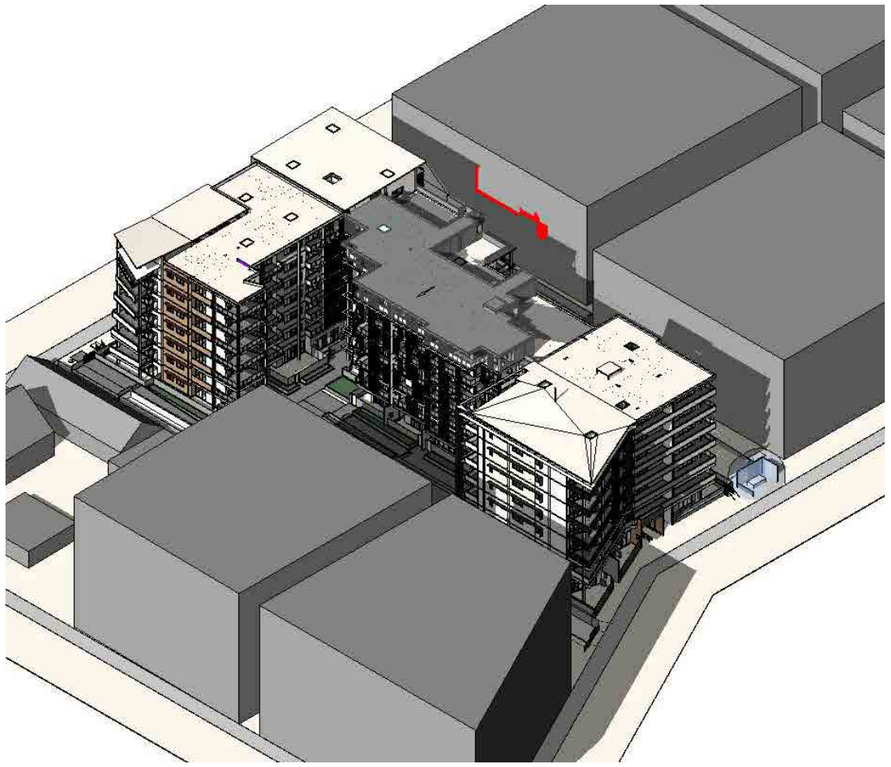
TITLE: 3D VIEWS

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A3 @
DWG No.	JRPP.02 1

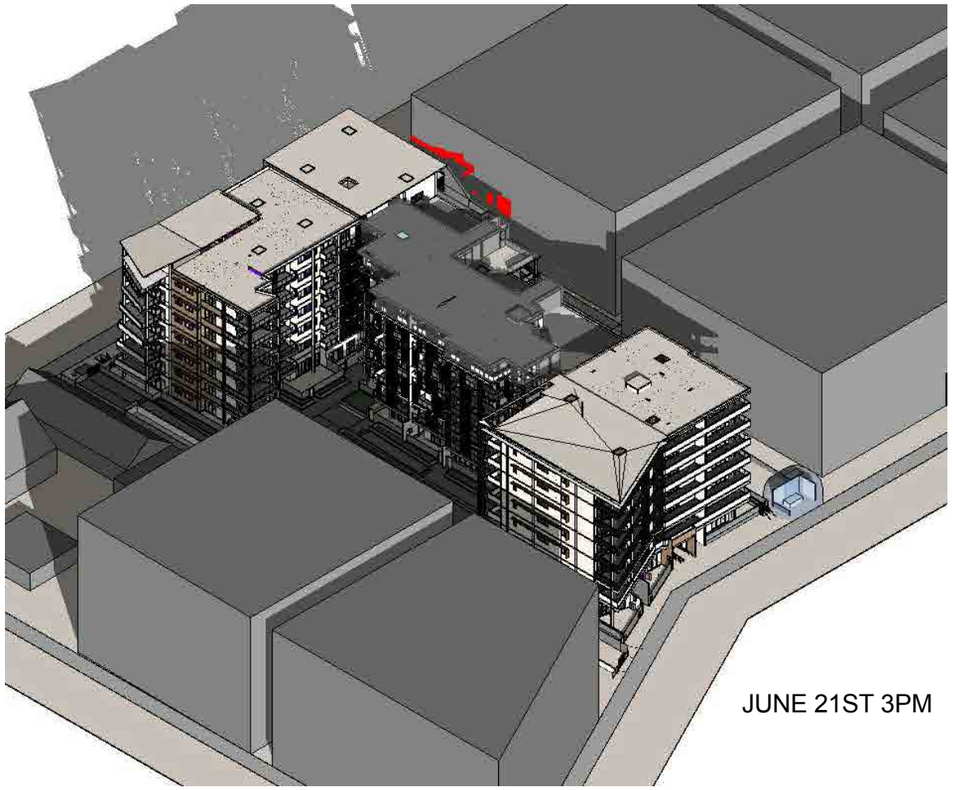
Attachment B – 3D Shadow Analysis



JUNE 21ST 9AM



JUNE 21ST 12NOON



JUNE 21ST 3PM

New Shadow: Sec 96 on future development

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SECTION 96

Rev	Description	Date
1	JRPP 3D view analysis	17.03.17

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

J:\MRH00216 Bankstown\4 NJA Documentation\5 CADD\3 DA\01 Model\MRH00216_R2016_massing.rvt

TITLE: Shadows

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A3 @ 1 : 50
DWG No.	JRPP.05 1

Attachment C – BASIX Certificate

RESTWELL & LEONARD ST BANKSTOWN - SEC-96

FOR MERHIS PTY LTD
74-80 RESTWELL ST.& 1-9 LEONARD ST.BANKSTOWN,NSW
AUG 2016

Sheets - All Drawings			
Dwg No.	**Rev**	**Sheet Name**	**Current Revision Date**
S-96.000	B	COVER SHEET	11-08-2016
S-96.091	A	BASEMENT 02 FLOOR PLAN	05-08-2016
S-96.095	A	BASEMENT 01 FLOOR PLAN	05-08-2016
S-96.100	A	GROUND FLOOR PLAN	05-08-2016
S-96.104	A	LEVEL-01 TO 04 (TYPICAL FLOOR PLAN)	05-08-2016
S-96.120	B	LEVEL-05 FLOOR PLAN	10-08-2016
S-96.124	B	LEVEL-06 FLOOR PLAN	10-08-2016
S-96.128	B	ROOF PLAN	10-08-2016
S-96.140	A	SHADOW DIAGRAM - 21 MARCH	05-08-2016
S-96.141	A	SHADOW DIAGRAM - 21 JUNE	05-08-2016
S-96.142	A	SHADOW DIAGRAM - 21 JUNE	05-08-2016
S-96.143	A	SHADOW DIAGRAM - 21 JUNE	05-08-2016
S-96.144	A	SHADOW DIAGRAM - 21 SEPTEMBER	05-08-2016
S-96.145	A	SHADOW DIAGRAM - 21 DECEMBER	05-08-2016
S-96.150	A	DA-DETAILED SHADOW STUDIES	05-08-2016
S-96.151	A	S96-DETAILED SHADOW STUDIES	05-08-2016
S-96.152	A	S96-L6 DETAILED SHADOW STUDIES	05-08-2016
S-96.200	A	SECTIONS	05-08-2016
S-96.300	A	ELEVATIONS NORTH AND SOUTH	05-08-2016
S-96.301	A	ELEVATIONS EAST AND WEST	05-08-2016

ACCESSIBLE UNITS (COMPARISON TO DA)

LEVEL	1+1 PER 50 UNITS(160=5 TOWER A	
	DA	S96
GROUND	0	0
LEVEL 1	1	1
LEVEL 2	1	1
LEVEL 3	1	1
LEVEL 4	1	1
LEVEL 5	1	1
LEVEL 6	0	0
REQUIRED UNIT NUMBERS(1+1/50 UNITS)	4.1	4.2
NUMBER OF ACCESSIBLE UNITS	5	5
TOTAL NUMBER OF UNITS	156	160
COMPLIANT PERCENTAGE	3%	3%

**NOTE: THERE IS NO CHANGES AS PER REQUIRED UNIT NUMBER HAS NOT BEEN CHANGED

FSR CALCULATION (COMPARISON TO DA)

LEVEL	GROSS FLOOR AREA(m²)	
	DA	S96
BASEMENT 2	CAR PARKING	CAR PARKING
BASEMENT 1	CAR PARKING	CAR PARKING
GROUND	1,900 m²	1,900 m²
LEVEL 1	2,082 m²	2,082 m²
LEVEL 2	2,082 m²	2,082 m²
LEVEL 3	2,082 m²	2,082 m²
LEVEL 4	2,082 m²	2,082 m²
LEVEL 5	2,082 m²	2,082 m²
LEVEL 6	1,294 m²	1,724 m²
TOTAL GROSS FLOOR AREA	13,604 m²	14,034 m²
DIFFERENCES		430 m²
SITE AREA	6,363 m²	6,363 m²
FSR	2.14	2.21
OPENSPACE	3,759 m²	3,759 m²
COMMUNAL OPEN SPACE	2,845 m²	3,260 m²
	45%	51%

**NOTE: GFA measured to the inside face of the exsternal wall, not including basement parking or vertical circulations(Incl. lift shafts, fire stairs and services)

ESD ANALYSIS (COMPARISON TO DA)

LEVEL	req. 60% CROSS-VENT.		req. 70% 2HRS SOLAR ACCESS		SINGLE ASPECT FACING SOUTH		EXCEEING 8m DEPTH	
	DA	S96	DA	S96	DA	S96	DA	S96
GROUND	10	10	13	13	4	4	3	3
LEVEL 1	13	13	16	16	3	3	2	2
LEVEL 2	13	13	16	16	3	3	2	2
LEVEL 3	13	13	16	16	3	3	2	2
LEVEL 4	13	13	16	16	3	3	2	2
LEVEL 5	16	16	18	18	1	3	2	2
LEVEL 6	15	19	15	19	0	0	0	0
TOTAL NUMBER OF COMPLIED UNITS	93	97	110	112	17	19	13	13
TOTAL NUMBER OF UNITS	156	160	156	160	156	160	156	160
COMPLIANT PERCENTAGE	60%	61%	71%	70%	11%	12%	8%	8%

SOLAR ACCESS STUDY (COMPARISON TO DA)

LEVEL	SOLAR ACCESS 2HRS SOLAR ACCESS		3HRS SOLAR ACCESS	
	DA	S96	DA	S96
GROUND	13	13	N/A	7
LEVEL 1	16	16	N/A	9
LEVEL 2	16	16	N/A	10
LEVEL 3	16	16	N/A	10
LEVEL 4	16	16	N/A	10
LEVEL 5	18	18	N/A	10
LEVEL 6	15	19	N/A	9
TOTAL NUMBER OF COMPLIED UNITS	110	112	70	65
TOTAL NUMBER OF UNITS	156	160	156	160
COMPLIANT PERCENTAGE	71%	70%	45%	41%

PARKING REQUIREMENTS (COMPARISON TO DA)

LEVEL	1BED		2BED		3BED		TOTAL	
	DA	S96	DA	S96	DA	S96	DA	S96
UNIT NUMBERS	20	20	115	117	21	23	156	160
1 BED = 1 SPACE PER UNIT	20	20						
2 BED = 1.2 SPACE PER UNIT			138	140.4				
3 BED = 1.5 SPACE PER UNIT					31.5	34.5		
REQUIRED RESIDENTIAL SPACE	20	20	138	140.4	31.5	34.5	189.5	195
VISITORS = 1 SPACE PER 5 UNITS							31.2	32
TOTAL REQUIRED PARKING SPACE + CARWASH							221	228
INCL. DISABLED SPACES PROVIDED							6	6
PARKING SPACES PROVIDED							221	233
BICYCLE PARKING 1 PER 3 UNITS							52	53
BICYCLE PARKING SPACE PROVIDED								59

**NOTE: Accessible Units are 2BED Units and 5 Accesible units Parking Included in 2 BED Parking Calculation.
Accessible Parking required 1 car space /100 units.

Class 2 Building

Assessment	3995170038
Date	7/03/17
Assessor	Glen Flashning
Qualification	CPP41212 Cert IV NatHERS
Signature	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016
B	ISSUED FOR S-96 CHANGES	11-08-2016

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

C:\00 Local Files\MRH00216 LOCAL\MRH00216_R2016_PB LOCAL.rvt

CLIENT MERHIS CORP

NORTH

TITLE: COVER SHEET

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @
DWG No.	S-96.000

LEGEND:

S-96 CHANGES

A0 A BB0 A1 C D D0 E F G G0 H J K L M N P Q R S T U V W W0 X X0 Y

2937 349 2604 8950 2999 2451 5450 5450 2920 2530 5650 2850 2800 5650 5650 2543 407 2500 5450 5450 5450 1610 3990 2004 6111 3210 850

1010 562

BOUNDARY LINE

2 S-96.201

CAR PARK EXHAUST RISER TO BASEMENT -2 ,2400 X 550 MM. CUTOUT IN BASEMENT -01 SLAB.

BOUNDARY LINE

1 S-96.200

2000

2000

13350

12450

5255

4905

TANDEM 225 TANDEM 224 TANDEM 223 TANDEM 222

S-96 CHANGE:
INCREASED PARKING SPACE FOR NEW ADDITIONAL APARTMENTS AT LEVEL-6 .

TOTAL CAR PARKING AT B2 = 122
(INCLUDING DISABLE = 3, CAR WASH =1,TANDEM PARKING =15)

TOTAL BIKE PARKING AT B2 = 37

D R I V E W A Y

D R I V E W A Y

D R I V E W A Y

D R I V E W A Y

SHARED ZONE

SHARED ZONE

SHARED ZONE

NO PARKING

LIFT

UP

RL. 14.000 m

ENTRY/EXIT FOR BASEMENT- 02 FROM BASEMENT -01

STORE

RAMP TO BASEMENT 01

1.5

1.8

7200

RAMP 1:5 ABOVE

RAMP 1:8 ABOVE

CAR WASH

37 BIKE RACKS

S-96 CHANGE:
PUMP ROOM SHIFTED TO BASEMENT-01 FROM BASEMENT-02 AS PER FIRE ENGINEERING REQUIREMENTS HENCE UPDATED. BIKE PARKING AND TOILET LOCATION .

2.0 M SET BACK LINE FOR BASEMENT SHOWN DASHED

3.0 M SET BACK LINE

BOUNDARY LINE

CARPARK AIR SUPPLY RISER TO B2 1150 X550 MM

BOUNDARY LINE

3.0 M SET BACK LINE

2.0 M SET BACK LINE

1280 1314 685 633 4230 1349 1868 2814 5018 3132 1497 2220 1282 425 5425 8150 6870 810 1215 2348 7882

1 2 3 4 5 6 7 7a 8 8a 9 9a 10 10a 11 12 13 14 15 16 16a 17

1 **BASEMENT -02 FLOOR PLAN**

1 : 200

Class 2 Building

Assessment	3965170036
Date	7/03/17
Assessor	Dion Fleming
Qualification	CPP41212 Cert IV Nat'l'd BS
Signature	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average

7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m

Scale Bar 1:200

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

NORTH

TITLE

BASEMENT 02 FLOOR PLAN

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.091

NORDON · JAGO ARCHITECTS

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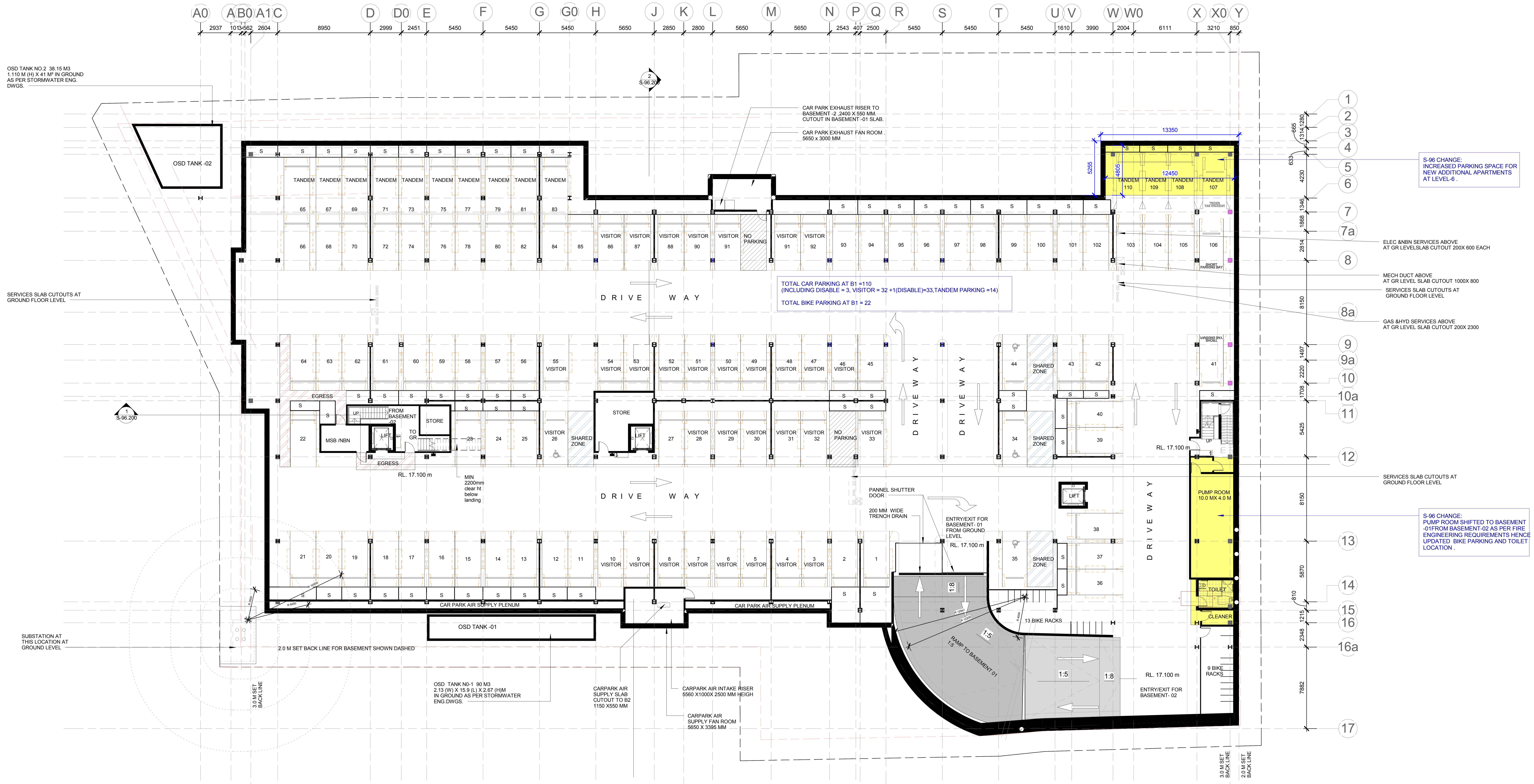
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

LEGEND:

S-96 CHANGES



OSD TANK NO.2 38.15 M3
1.110 M (H) X 41 M² IN GROUND
AS PER STORMWATER ENG. DWGS.
OSD TANK -02
CAR PARK EXHAUST RISER TO BASEMENT -2 .2400 X 550 MM. CUTOUT IN BASEMENT -01 SLAB.
CAR PARK EXHAUST FAN ROOM. 5650 x 3000 MM
S-96 CHANGE: INCREASED PARKING SPACE FOR NEW ADDITIONAL APARTMENTS AT LEVEL-6 .
ELEC &NBN SERVICES ABOVE AT GR LEVELSLAB CUTOUT 200X 600 EACH
MECH DUCT ABOVE AT GR LEVEL SLAB CUTOUT 1000X 800
SERVICES SLAB CUTOUTS AT GROUND FLOOR LEVEL
GAS &HYD SERVICES ABOVE AT GR LEVEL SLAB CUTOUT 200X 2300
SERVICES SLAB CUTOUTS AT GROUND FLOOR LEVEL
TOTAL CAR PARKING AT B1 =110
(INCLUDING DISABLE = 3, VISITOR = 32 +1(DISABLE)=33,TANDEM PARKING =14)
TOTAL BIKE PARKING AT B1 = 22
DRIVE WAY
SERVICES SLAB CUTOUTS AT GROUND FLOOR LEVEL
S-96 CHANGE: PUMP ROOM SHIFTED TO BASEMENT -01FROM BASEMENT-02 AS PER FIRE ENGINEERING REQUIREMENTS HENCE UPDATED BIKE PARKING AND TOILET LOCATION .
PUMP ROOM 10.0 MX 4.0 M
TOILET
CLEANER
PANNEL SHUTTER DOOR
200 MM WIDE TRENCH DRAIN
ENTRY/EXIT FOR BASEMENT- 01 FROM GROUND LEVEL
RL. 17.100 m
13 BIKE RACKS
9 BIKE RACKS
RAMP TO BASEMENT 01
ENTRY/EXIT FOR BASEMENT- 02
MSB /NBN
STORE
EGRESS
MIN 2200mm clear ht below landing
SUBSTATION AT THIS LOCATION AT GROUND LEVEL
2.0 M SET BACK LINE FOR BASEMENT SHOWN DASHED
OSD TANK -01
OSD TANK N0-1 90 M3
2.13 (W) X 15.9 (L) X 2.67 (H)M
IN GROUND AS PER STORMWATER ENG.DWGS.
CARPARK AIR SUPPLY SLAB CUTOUT TO B2 1150 X550 MM
CARPARK AIR INTAKE RISER 5560 X1000X 2500 MM HEIGH
CARPARK AIR SUPPLY FAN ROOM 5650 X 3395 MM
CAR PARK AIR SUPPLY PLENUM
3.0 M SET BACK LINE
2.0 M SET BACK LINE

1 BASEMENT -01 FLOOR PLAN
1 : 200

Class 2 Building
Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

NOT For Construction

Scale Bar 1:200

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

CLIENT: MERHIS CORP

NORTH

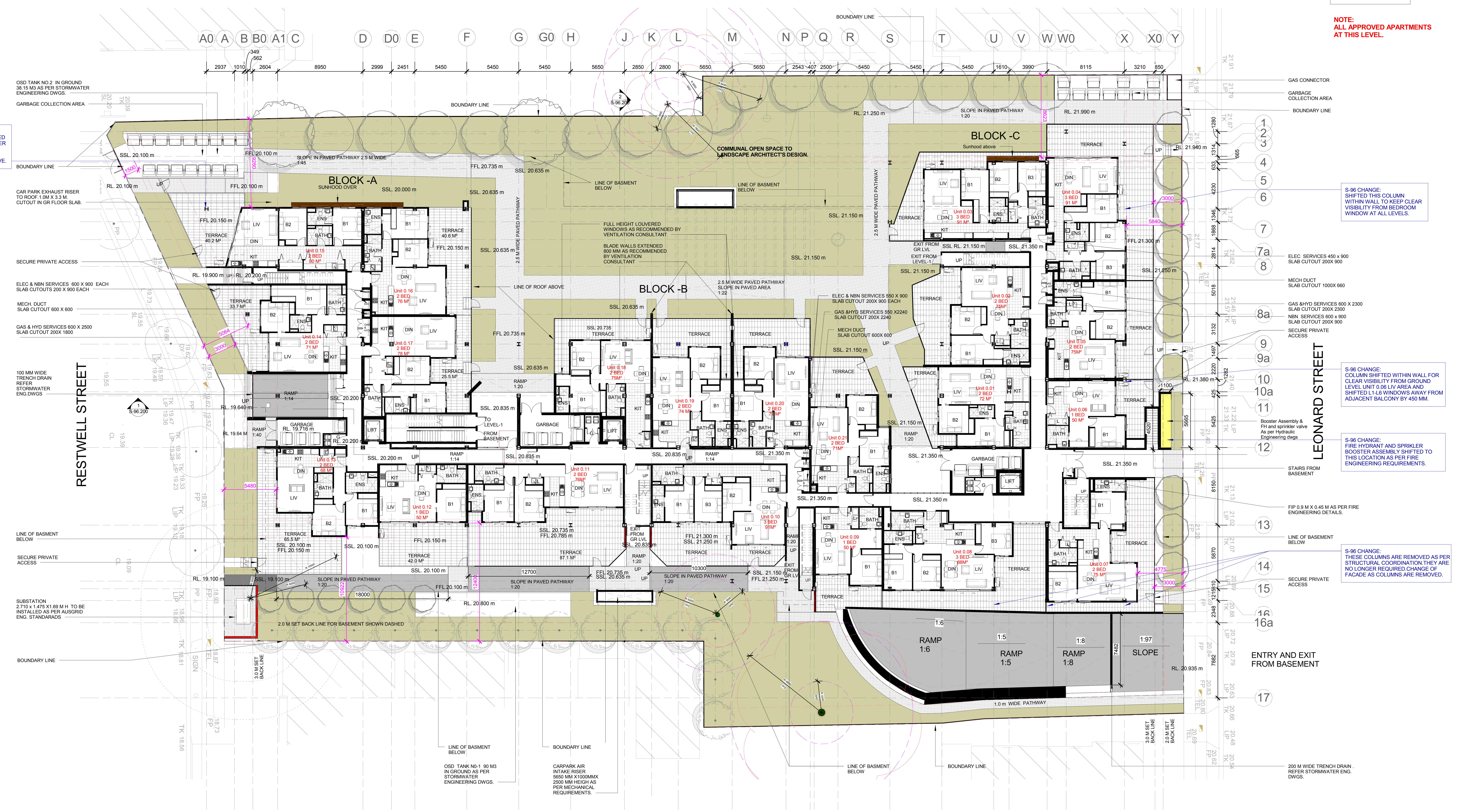
TITLE: BASEMENT 01 FLOOR PLAN

JOB No. MRH00216
DATE 13-05-2016
SCALE A1 @ As indicated
DWG No. S-96.095

LEGEND:

S-96 CHANGES

NOTE:
ALL APPROVED APARTMENTS AT THIS LEVEL.



1 GROUND FLOOR PLAN
1 : 200

Class 2 Building
Project Average
7.4★

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

NORDON · JAGO ARCHITECTS

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CLIENT: MERHIS CORP

NORTH

TITLE: GROUND FLOOR PLAN

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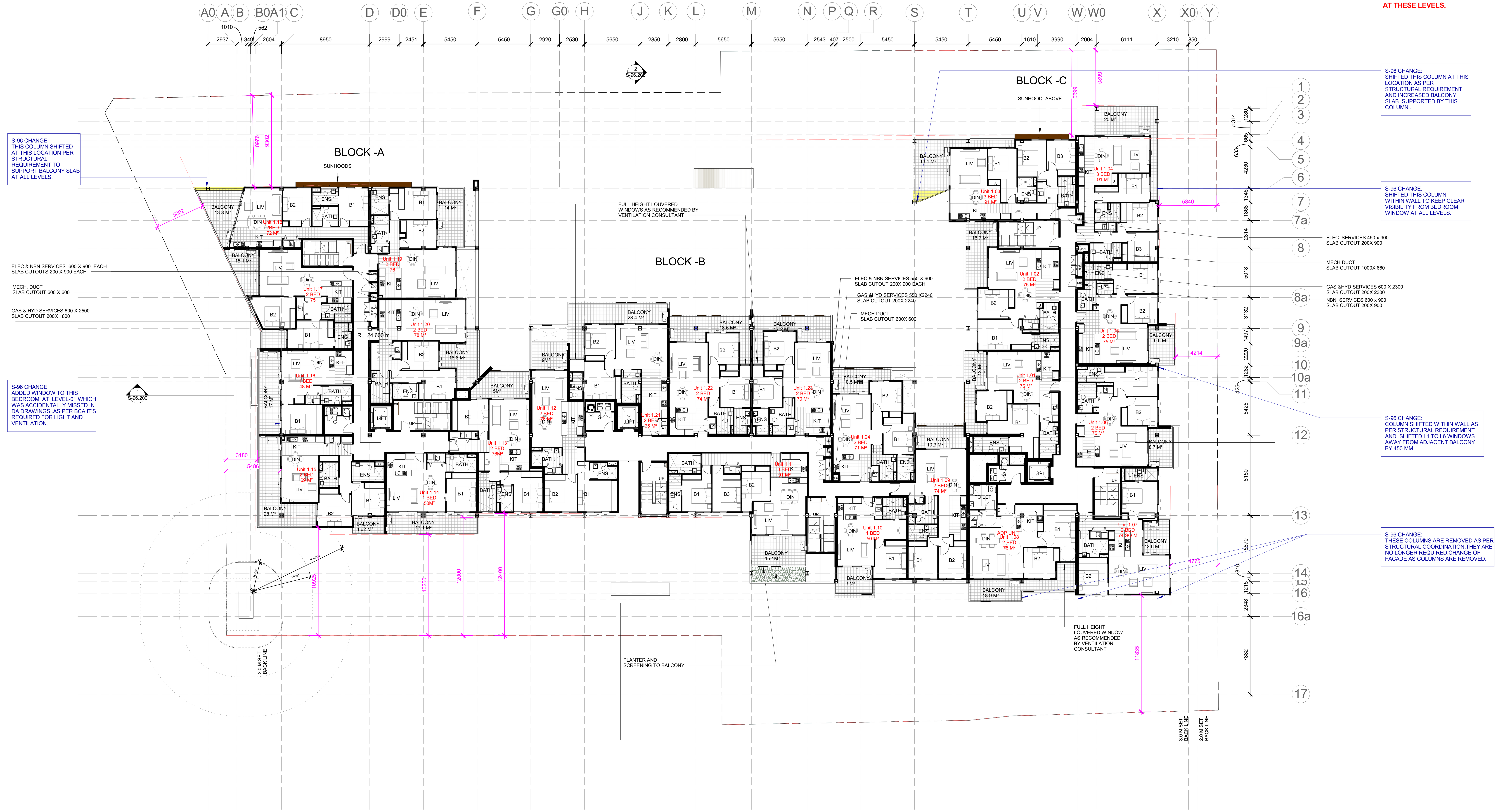
JOB No. MRH00216
DATE 13-05-2016
SCALE A1 @ As indicated
DWG No. S-96.100

LEGEND:

S-96 CHANGES

NOTE:
ALL APPROVED APARTMENTS
AT THESE LEVELS.



BLOCK -A
SUNHOODS
BLOCK -B
BLOCK -C
SUNHOOD ABOVE
S-96 CHANGE:
THIS COLUMN SHIFTED
AT THIS LOCATION PER
STRUCTURAL
REQUIREMENT TO
SUPPORT BALCONY SLAB
AT ALL LEVELS.
ELEC & NBN SERVICES 600 X 900 EACH
SLAB CUTOUTS 200 X 900 EACH
MECH. DUCT
SLAB CUTOUT 600 X 600
GAS & HYD SERVICES 600 X 2500
SLAB CUTOUT 200X 1800
S-96 CHANGE:
ADDED WINDOW TO THIS
BEDROOM AT LEVEL-01 WHICH
WAS ACCIDENTALLY MISSED IN
DA DRAWINGS. AS PER BCA IT'S
REQUIRED FOR LIGHT AND
VENTILATION.
FULL HEIGHT LOUVERED
WINDOWS AS RECOMMENDED BY
VENTILATION CONSULTANT
ELEC & NBN SERVICES 550 X 900
SLAB CUTOUT 200X 900 EACH
GAS &HYD SERVICES 550 X2240
SLAB CUTOUT 200X 2240
MECH DUCT
SLAB CUTOUT 600X 600
S-96 CHANGE:
SHIFTED THIS COLUMN AT THIS
LOCATION AS PER
STRUCTURAL REQUIREMENT
AND INCREASED BALCONY
SLAB SUPPORTED BY THIS
COLUMN .
S-96 CHANGE:
SHIFTED THIS COLUMN
WITHIN WALL TO KEEP CLEAR
VISIBILITY FROM BEDROOM
WINDOW AT ALL LEVELS.
ELEC SERVICES 450 x 900
SLAB CUTOUT 200X 900
MECH DUCT
SLAB CUTOUT 1000X 660
GAS &HYD SERVICES 600 X 2300
SLAB CUTOUT 200X 2300
NBN SERVICES 600 x 900
SLAB CUTOUT 200X 900
S-96 CHANGE:
COLUMN SHIFTED WITHIN WALL AS
PER STRUCTURAL REQUIREMENT
AND SHIFTED L1 TO L6 WINDOWS
AWAY FROM ADJACENT BALCONY
BY 450 MM.
S-96 CHANGE:
THESE COLUMNS ARE REMOVED AS PER
STRUCTURAL COORDINATION.THEY ARE
NO LONGER REQUIRED.CHANGE OF
FACADE AS COLUMNS ARE REMOVED.
FULL HEIGHT
LOUVERED WINDOW
AS RECOMMENDED
BY VENTILATION
CONSULTANT
PLANTER AND
SCREENING TO BALCONY
RL. 24.600 m
3.0 M SET
BACK LINE
2.0 M SET
BACK LINE

1 LEVEL-01 TO LEVEL-04 FLOOR PLAN

1 : 200

Class 2 Building

Project Average

7.4★

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

NORDON · JAGO
ARCHITECTS

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STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

CLIENT

MERHIS CORP

NORTH

TITLE

LEVEL-01 TO 04 (TYPICAL FLOOR PLAN)

JOB No. MRH00216

DATE 13-05-2016

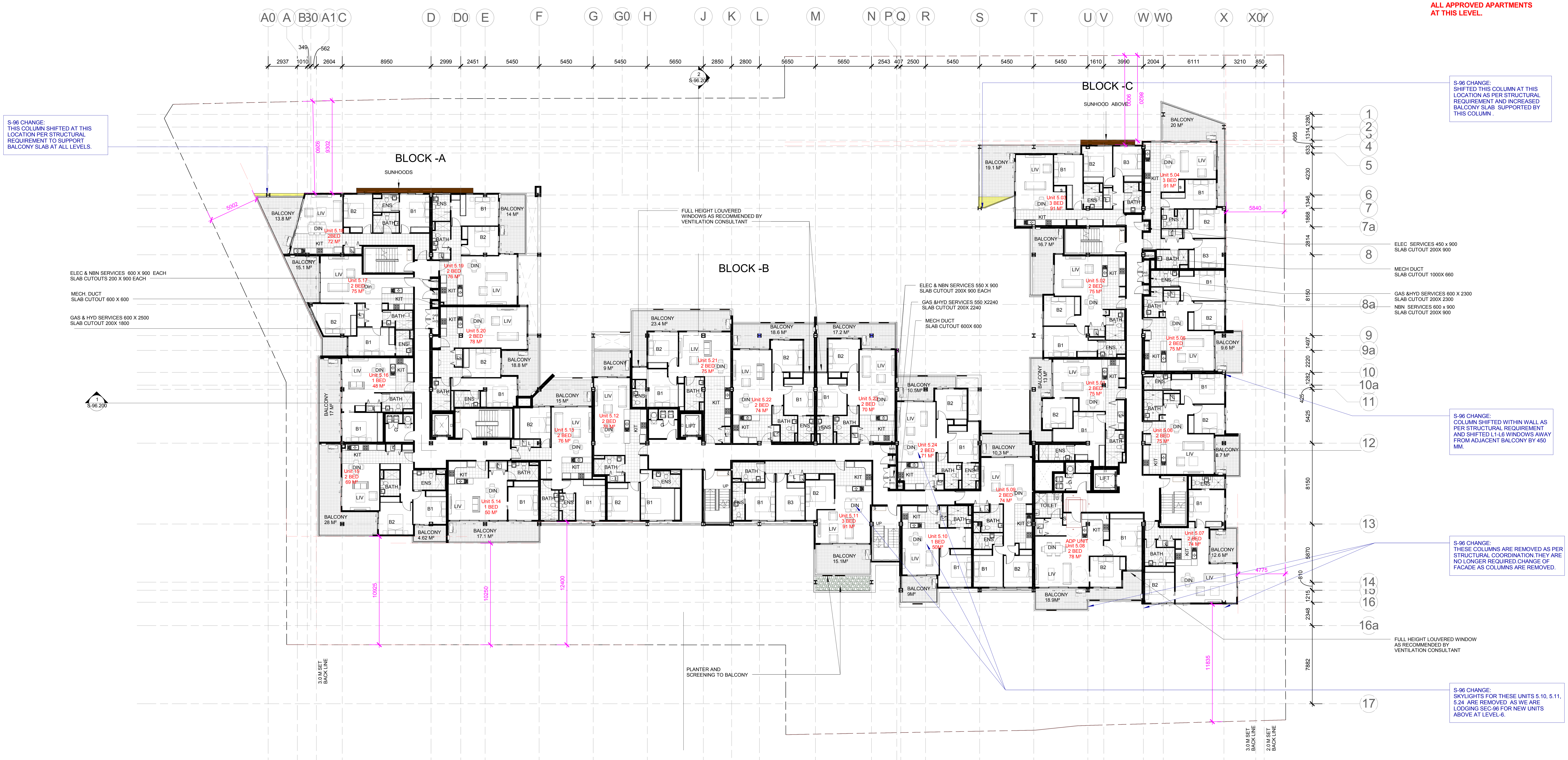
SCALE A1 @ As indicated

DWG No. S-96.104

LEGEND:

S-96 CHANGES

NOTE:
ALL APPROVED APARTMENTS AT THIS LEVEL.



S-96 CHANGE:
THIS COLUMN SHIFTED AT THIS LOCATION PER STRUCTURAL REQUIREMENT TO SUPPORT BALCONY SLAB AT ALL LEVELS.
BLOCK -A
SUNHOODS
BLOCK -B
BLOCK -C
SUNHOOD ABOVE
FULL HEIGHT LOUVERED WINDOWS AS RECOMMENDED BY VENTILATION CONSULTANT
ELEC & NBN SERVICES 600 X 900 EACH SLAB CUTOUTS 200 X 900 EACH
MECH. DUCT SLAB CUTOUT 600 X 600
GAS & HYD SERVICES 600 X 2500 SLAB CUTOUT 200X 1800
ELEC & NBN SERVICES 550 X 900 SLAB CUTOUT 200X 900 EACH
GAS &HYD SERVICES 550 X2240 SLAB CUTOUT 200X 2240
MECH DUCT SLAB CUTOUT 600X 600
ELEC SERVICES 450 x 900 SLAB CUTOUT 200X 900
MECH DUCT SLAB CUTOUT 1000X 660
GAS &HYD SERVICES 600 X 2300 SLAB CUTOUT 200X 2300
NBN SERVICES 600 x 900 SLAB CUTOUT 200X 900
PLANTER AND SCREENING TO BALCONY
FULL HEIGHT LOUVERED WINDOW AS RECOMMENDED BY VENTILATION CONSULTANT
3.0 M SET BACK LINE
2.0 M SET BACK LINE
S-96 CHANGE:
SHIFTED THIS COLUMN AT THIS LOCATION AS PER STRUCTURAL REQUIREMENT AND INCREASED BALCONY SLAB SUPPORTED BY THIS COLUMN .
S-96 CHANGE:
COLUMN SHIFTED WITHIN WALL AS PER STRUCTURAL REQUIREMENT AND SHIFTED L1-L6 WINDOWS AWAY FROM ADJACENT BALCONY BY 450 MM.
S-96 CHANGE:
THESE COLUMNS ARE REMOVED AS PER STRUCTURAL COORDINATION.THEY ARE NO LONGER REQUIRED.CHANGE OF FACADE AS COLUMNS ARE REMOVED.
S-96 CHANGE:
SKYLIGHTS FOR THESE UNITS 5.10, 5.11, 5.24 ARE REMOVED AS WE ARE LODGING SEC-96 FOR NEW UNITS ABOVE AT LEVEL-6.

1 **LEVEL-05 FLOOR PLAN**
1 : 200

Class 2 Building
Average - HEATING: 19.7 MJ/m2 pa
Average - COOLING: 14.1 MJ/m2 pa
Averaged Rating: 33.8 MJ/m2 pa
Project Average
7.4★

NORDON · JAGO ARCHITECTS

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STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT: MERHIS CORP

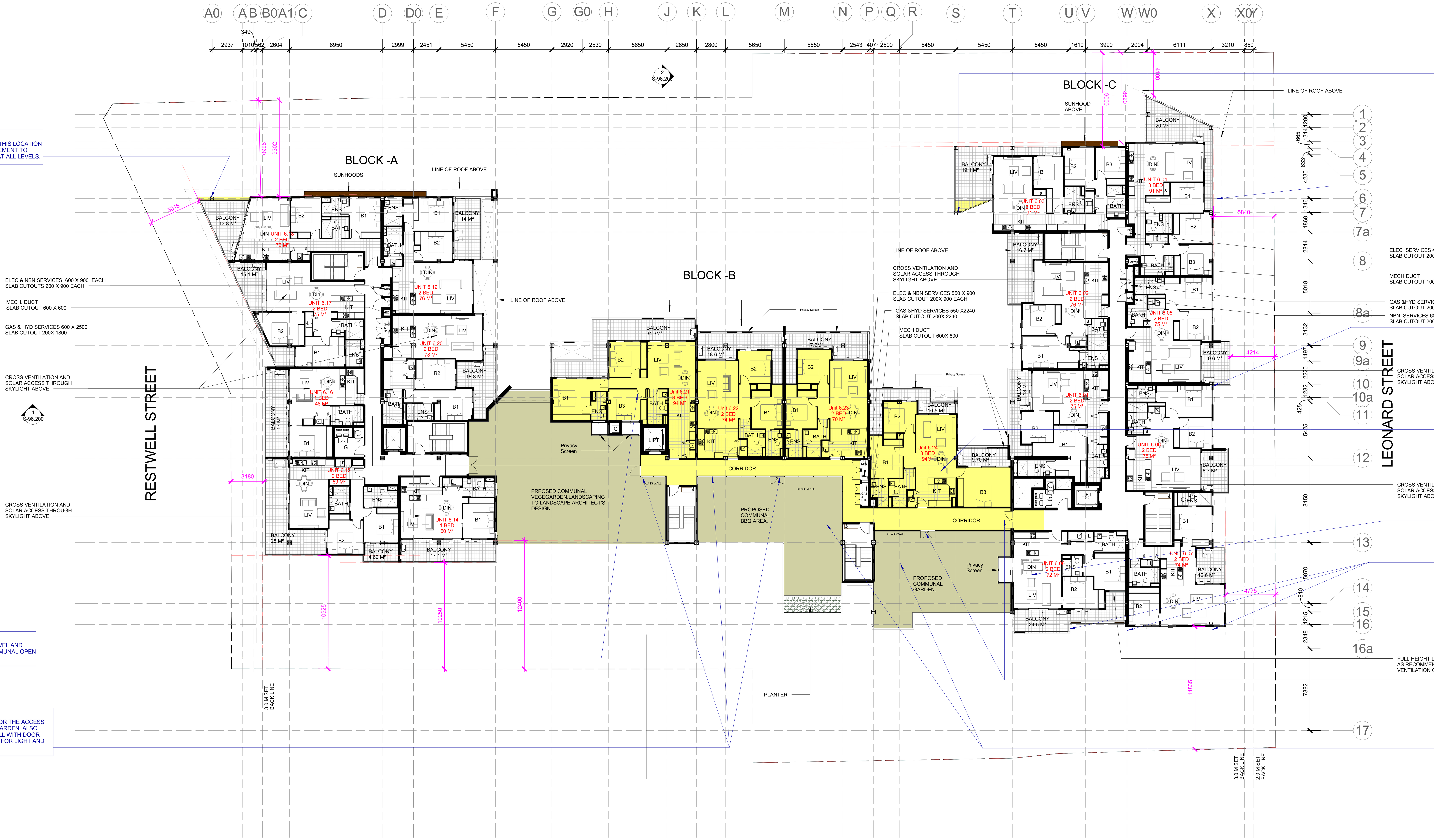
NORTH

TITLE: LEVEL-05 FLOOR PLAN

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.120

LEGEND:

S-96 CHANGES



S-96 CHANGE:
THIS COLUMN SHIFTED AT THIS LOCATION PER STRUCTURAL REQUIREMENT TO SUPPORT BALCONY SLAB AT ALL LEVELS.

S-96 CHANGE:
ADDED 4 UNITS AT THIS LEVEL AND TERRACE GARDENAS COMMUNAL OPEN SPACE AT THIS LEVEL.

S-96 CHANGE:
ADDED DOOR OPENINGS FOR THE ACCESS TO PROPOSED TERRACE GARDEN. ALSO ADDED FULL HT GLASS WALL WITH DOOR OPENINGS FOR CORRIDOR FOR LIGHT AND VENTILATION.

S-96 CHANGE:
SHIFTED THIS COLUMN AT THIS LOCATION AS PER STRUCTURAL REQUIREMENT AND INCREASED BALCONY SLAB SUPPORTED BY THIS COLUMN .

S-96 CHANGE:
SHIFTED THIS COLUMN WITHIN WALL TO KEEP CLEAR VISIBILITY FROM BEDROOM WINDOW AT ALL LEVELS.

S-96 CHANGE:
COLUMN SHIFTED WITHIN WALL AS PER STRUCTURAL REQUIREMENT AND SHIFTED L1-L6 WINDOWS AWAY FROM ADJACENT BALCONY BY 450 MM.

S-96 CHANGE:
ADDED SKYLIGHT FOR SOLAR AND VENTILATION FOR THIS UNIT 6.24.

S-96 CHANGE:
ADDED SKYLIGHT FOR SOLAR AND VENTILATION FOR THIS UNIT.

S-96 CHANGE:
THESE COLUMNS ARE REMOVED AS PER STRUCTURAL COORDINATION.THEY ARE NO LONGER REQUIRED. CHANGE OF FACADE AS COLUMNS ARE REMOVED.

S-96 CHANGE:
ADDED DOOR OPENING FOR THE ACCESS TO NEW ADDED 4 UNITS AND FULL HT GLASS WALL WITH DOOR OPENING FOR CORRIDOR FOR LIGHT AND VENTILATION.

S-96 CHANGE:
SKYLIGHTS FOR UNITS 5.10, 5.11 ARE REMOVED SINCE PROPOSED GARDEN AT LEVEL-6.

Class 2 Building
Project Average
7.4★

1 LEVEL-06 FLOOR PLAN
1 : 200

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO ARCHITECTS

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NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

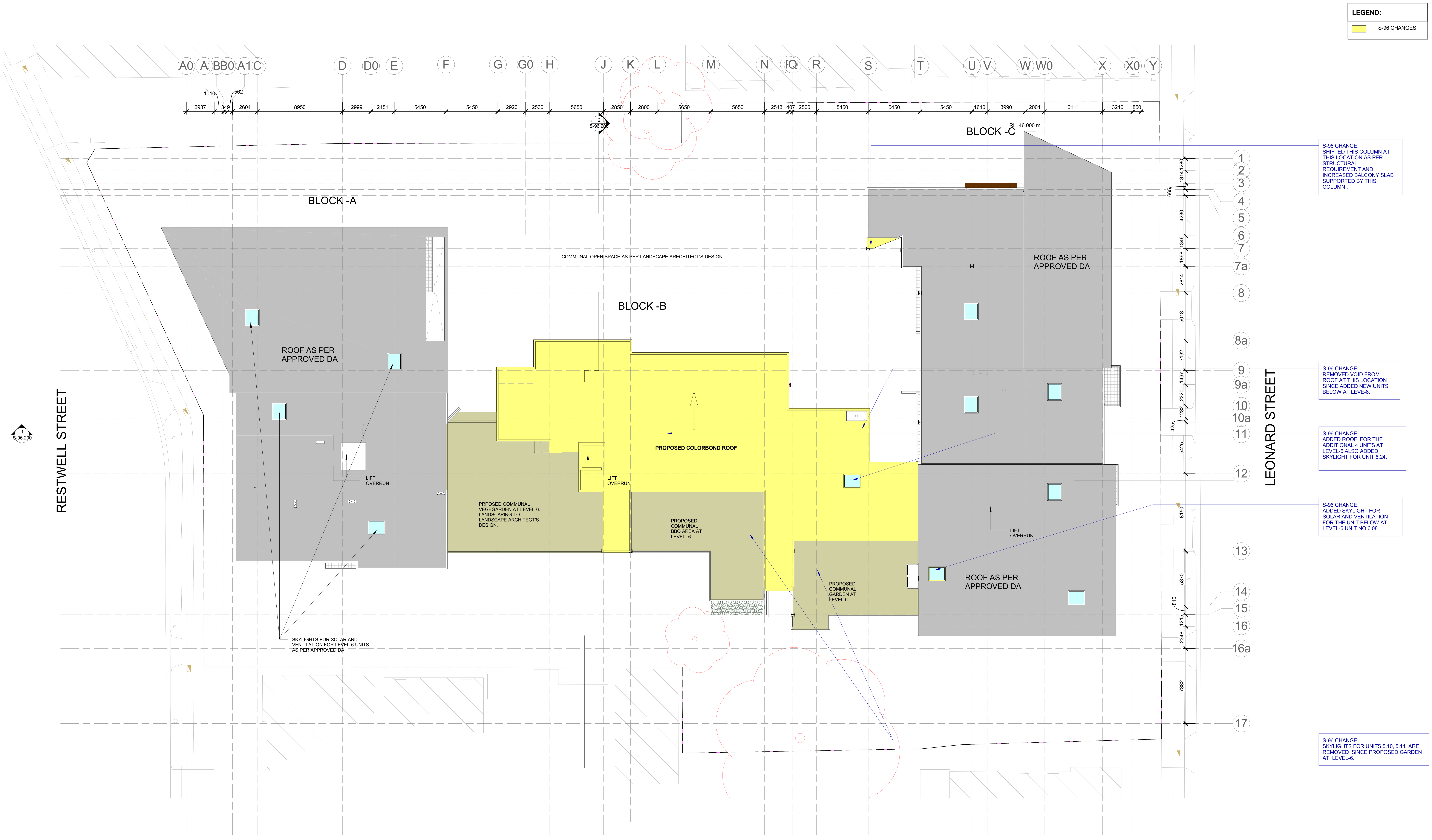
RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

CLIENT: MERHIS CORP

NORTH

TITLE: LEVEL-06 FLOOR PLAN

JOB No. MRH00216
DATE 13-05-2016
SCALE A1 @ As indicated
DWG No. S-96.124



LEGEND:
S-96 CHANGES
BLOCK -A
BLOCK -B
BLOCK -C
RESTWELL STREET
LEONARD STREET
COMMUNAL OPEN SPACE AS PER LANDSCAPE ARECHITECT'S DESIGN
ROOF AS PER APPROVED DA
PROPOSED COLORBOND ROOF
LIFT OVERRUN
PRPOSED COMMUNAL VEGEGARDEN AT LEVEL-6. LANDSCAPING TO LANDSCAPE ARCHITECT'S DESIGN.
PROPOSED COMMUNAL BBQ AREA AT LEVEL -6
PROPOSED COMMUNAL GARDEN AT LEVEL-6.
SKYLIGHTS FOR SOLAR AND VENTILATION FOR LEVEL-6 UNITS AS PER APPROVED DA
RL 46.000 m
S-96 CHANGE: SHIFTED THIS COLUMN AT THIS LOCATION AS PER STRUCTURAL REQUIREMENT AND INCREASED BALCONY SLAB SUPPORTED BY THIS COLUMN .
S-96 CHANGE: REMOVED VOID FROM ROOF AT THIS LOCATION SINCE ADDED NEW UNITS BELOW AT LEVE-6.
S-96 CHANGE: ADDED ROOF FOR THE ADDITIONAL 4 UNITS AT LEVEL-6.ALSO ADDED SKYLIGHT FOR UNIT 6.24.
S-96 CHANGE: ADDED SKYLIGHT FOR SOLAR AND VENTILATION FOR THE UNIT BELOW AT LEVEL-6,UNIT NO.6.08.
S-96 CHANGE: SKYLIGHTS FOR UNITS 5.10, 5.11 ARE REMOVED SINCE PROPOSED GARDEN AT LEVEL-6.

1 ROOF PLAN
1 : 200

Class 2 Building
Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

NOT For Construction

Scale Bar 1:200 — 0m 2m 4m 6m 8m 10m 20m

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

CLIENT: MERHIS CORP

NORTH

TITLE: ROOF PLAN

JOB No. MRH00216
DATE 13-05-2016
SCALE A1 @ As indicated
DWG No. S-96.128

1 **8 AM on 21 MAR**
1 : 1500

2 **12 PM on 21 MAR**
1 : 1500

3 **4 PM on 21 MAR**
1 : 1500

LEGEND:

APPROVED SHADOWS

PROPOPSED UNITS SHADOWS

Class 2 Building

Assessment:	3965170036
Date:	7/03/17
Assessor:	Dean Fleming
Qualification:	CPP41212 Cert IV NatHERS
Signature:	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average

7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

NORTH

TITLE

SHADOW DIAGRAM - 21 MARCH

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.140

1 **8AM ON 21 JUNE**
1 : 1500

2 **9AM ON 21 JUNE**
1 : 1500

3 **10AM ON 21 JUNE**
1 : 1500

LEGEND:

APPROVED SHADOWS

PROPOPSED UNITS SHADOWS

Class 2 Building

Assessment:	9965170036
Date:	7/03/17
Assessor:	Glen Flemming
Qualification:	CPP41212 Cert IV NatHERS
Signature:	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
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NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

NORTH

TITLE

SHADOW DIAGRAM - 21 JUNE

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.141

1 **11AM ON 21 JUNE**
1 : 1500

2 **12PM ON 21 JUNE**
1 : 1500

3 **1PM ON 21 JUNE**
1 : 1500

LEGEND:
APPROVED SHADOWS
PROPOPSED UNITS SHADOWS

Class 2 Building

Assessment	3965170036
Date	7/03/17
Assessor	Don Fleming
Qualification	CPP41212 Cert IV NatHERS
Signature	

Average - HEATING: 19.7 MJ/m2 pa
Average - COOLING: 14.1 MJ/m2 pa
Averaged Rating: 33.8 MJ/m2 pa

Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO
ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT: MERHIS CORP
NORTH
TITLE: SHADOW DIAGRAM - 21 JUNE

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.142

1 **2PM ON 21 JUNE**
1 : 1500

2 **3PM ON 21 JUNE**
1 : 1500

3 **4PM ON 21 JUNE**
1 : 1500

LEGEND:

- APPROVED SHADOWS
- PROPOPSED UNITS SHADOWS

Class 2 Building

Assessment	3965170036
Date	7/05/17
Assessor	Glen Fleming
Qualification	CPP41212 Cert IV NatHERS
Signature	

Average - HEATING: 19.7 MJ/m2 pa
Average - COOLING: 14.1 MJ/m2 pa
Averaged Rating: 33.8 MJ/m2 pa

Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

NORTH

TITLE
SHADOW DIAGRAM - 21 JUNE

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.143

NORDON · JAGO ARCHITECTS
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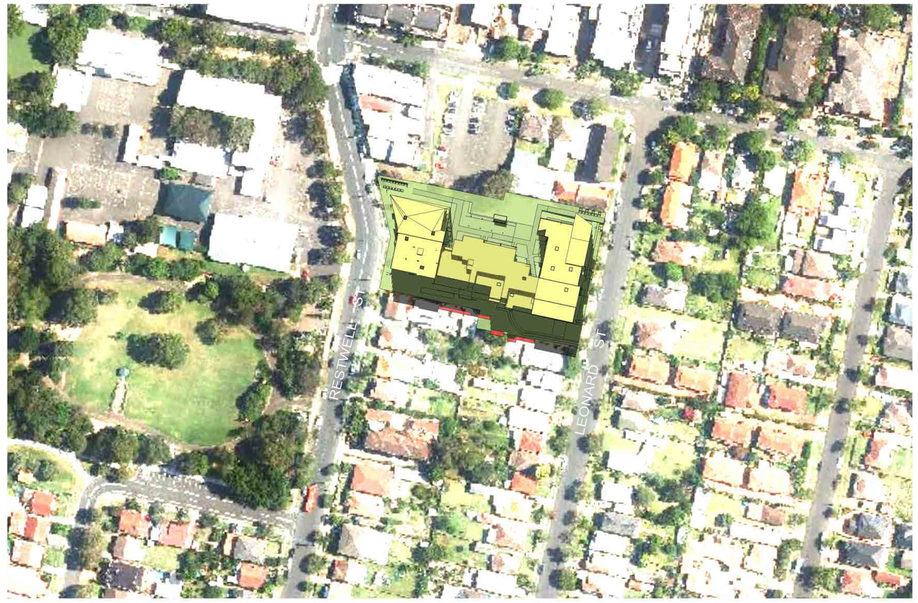
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

1 **8AM ON 21 SEPTEMBER**

1 : 1500



2 **12PM ON 21 SEPTEMBER**

1 : 1500

3 **4PM ON 21 SEPTEMBER**

1 : 1500

LEGEND:

APPROVED SHADOWS

PROPOPSED UNITS SHADOWS

Class 2 Building

Assessment:	3965170039
Date:	7/03/17
Assessor:	Don Fleming
Qualification:	CPP41212 Cert IV Nat'l ERS
Signature:	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average

7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

NORTH

TITLE

SHADOW DIAGRAM - 21 SEPTEMBER

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.144

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

1 8AM ON 21 DECEMBER

1 : 1500

2 12PM ON 21 DECEMBER

1 : 1500

3 4PM ON 21 DECEMBER

1 : 1500

LEGEND:

APPROVED SHADOWS

PROPOPSED UNITS SHADOWS

Class 2 Building

Assessment:	29953170036
Date:	7/03/17
Assessor:	Dave Fleming
Qualification:	CPP41312 Cert IV NatHERS
Signature:	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average

7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

C:\00 Local Files\MRH00216 LOCAL\MRH00216_R2016_PB LOCAL.rvt

CLIENT MERHIS CORP

NORTH

TITLE

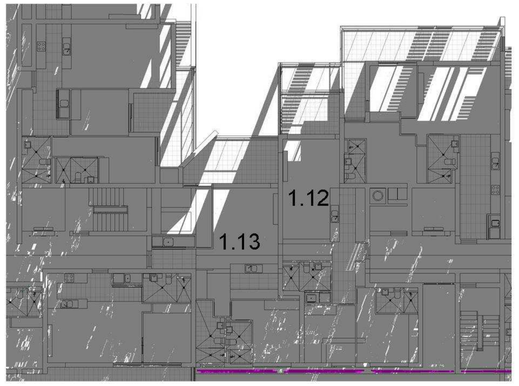
SHADOW DIAGRAM - 21 DECEMBER

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.145

NORDON · JAGO ARCHITECTS

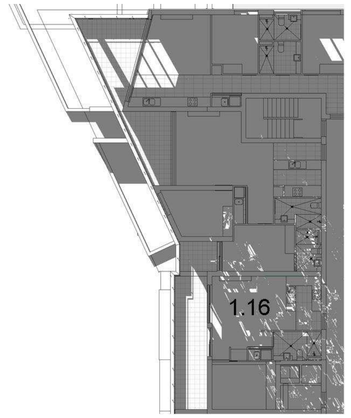
CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

DA-APPROVED DETAILED SHADOW STUDIES (REF. DA 05.08 / REV. C)

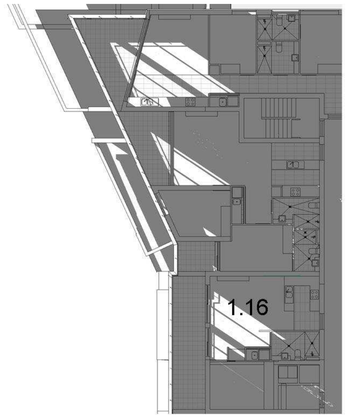


21 June 9.45AM
TYPICAL APARTMENT L1 - 5.12 + L1 - 5.13

21 June 11.45AM
TYPICAL APARTMENT L1 - 5.12 + L1 - 5.13



21 June 1PM
TYPICAL APARTMENT L1 - 5.16, L6.11



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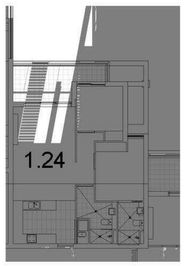
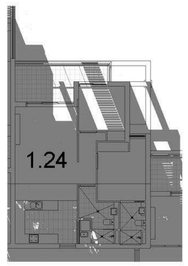
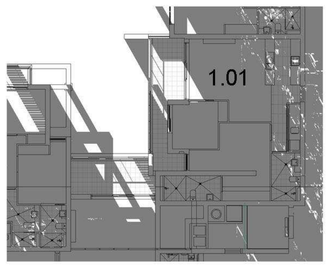
TYPICAL APARTMENT L1 - 5.16, L6.11



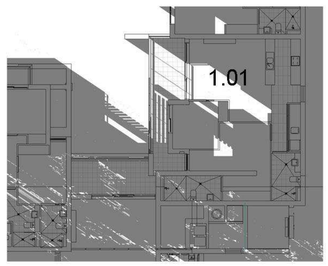
21 June 10.30AM
TYPICAL APARTMENT 0.21, L1 - 5.24



21 June 12.30AM
TYPICAL APARTMENT 0.21, L1 - 5.24



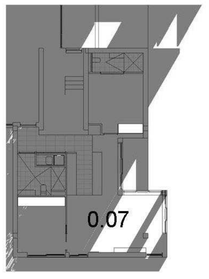
21 June 1PM
TYPICAL APARTMENT L1 - 5.01



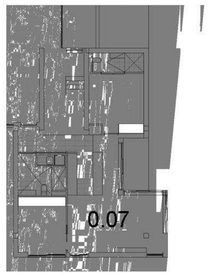
21 June 3PM
TYPICAL APARTMENT L1 - 5.01

21 June 9AM
TYPICAL APARTMENT L0 - 5.20, 6.15

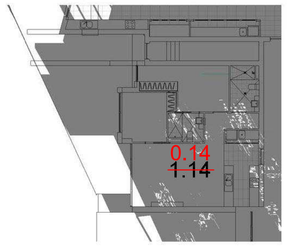
21 June 11AM
TYPICAL APARTMENT L0 - 5.20, 6.15



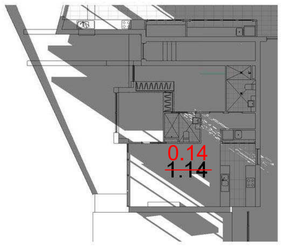
21 June 9AM
GROUND APARTMENT L0 - 6.07



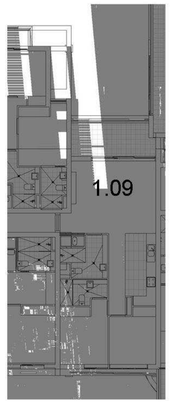
21 June 11AM
GROUND APARTMENT L0 - 6.07



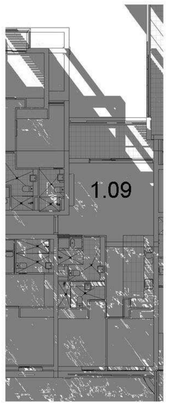
21 June 1PM
~~TYPICAL~~ APARTMENT 0.14
GROUND



21 June 3PM
~~TYPICAL~~ APARTMENT 0.14
GROUND



21 June 11.30AM
TYPICAL APARTMENT L1 - 5.09



21 June 1.30PM
TYPICAL APARTMENT L1 - 5.09

Class 2 Building

Assessment:	3965170036
Date:	7/03/17
Assessor:	Tom Fleming
Qualification:	CPP41212 Cert IV NatHERS
Signature:	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

NORDON · JAGO ARCHITECTS
CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

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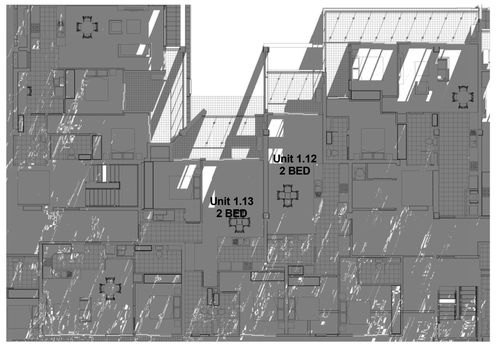
CLIENT: MERHIS CORP

NORTH

TITLE: DA-DETAILED SHADOW STUDIES

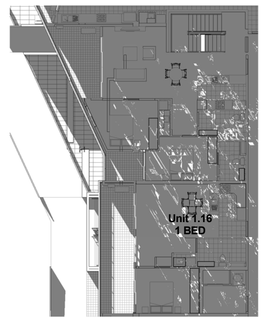
JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @
DWG No.	S-96.150

S96 - DETAILED SHADOW STUDIES (**TYPICAL LEVELS SIM TO DA**)

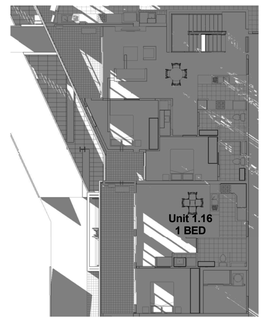


21 June 9.45AM
TYPICL APARTMENT L1 - 5.12 + L1 - 5.13

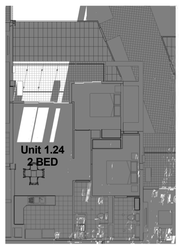
21 June 11.45AM
TYPICL APARTMENT L1 - 5.12 + L1 - 5.13



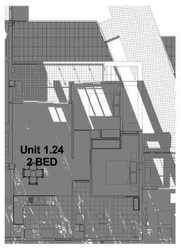
21 June 1PM
TYPICL APARTMENT L1 - 6.16



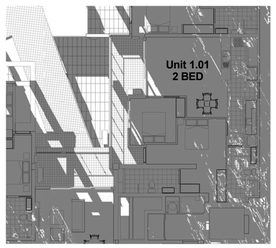
21 June 3PM
TYPICL APARTMENT L1 - 6.16



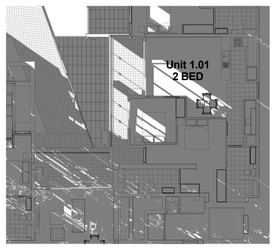
21 June 10.30AM
TYPICL APARTMENT 0.21, L1-5.24



21 June 12.30PM
TYPICL APARTMENT 0.21, L1-5.24



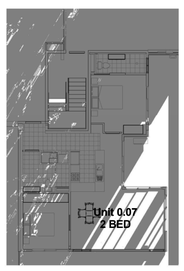
21 June 1PM
TYPICL APARTMENT L1 - 5.01



21 June 3PM
TYPICL APARTMENT L1 - 5.01

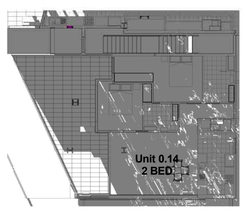
21 June 9AM
TYPICL APARTMENT L0 - 6.20

21 June 11AM
TYPICL APARTMENT L0 - 6.20



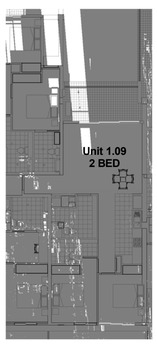
21 June 9AM
GROUND APARTMENT L0 - 6.07

21 June 11AM
GROUND APARTMENT L0 - 6.07

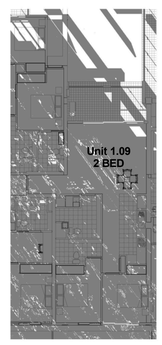


21 June 1PM
GROUND APARTMENT 0.14

21 June 3PM
GROUND APARTMENT 0.14



21 June 11.30AM
TYPICL APARTMENT L1 - 5.0



21 June 1.30PM
TYPICL APARTMENT L1 - 5.09

Class 2 Building

Assessment	9965170036
Date	7/03/17
Assessor	John Flemming
Qualification	CPP41212 Cert IV NatHERS
Signature	

Average - HEATING: 19.7 MJ/m2 pa
Average - COOLING: 14.1 MJ/m2 pa
Averaged Rating: 33.8 MJ/m2 pa

Project Average

7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

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CLIENT MERHIS CORP

NORTH

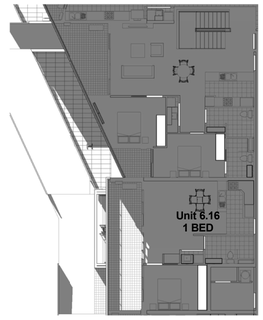
TITLE: S96-DETAILED SHADOW STUDIES

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @
DWG No.	S-96.151

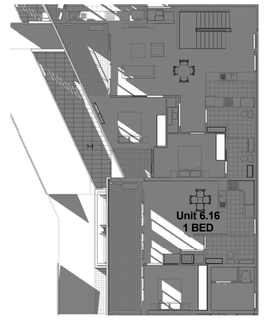
S96 - LEVEL 6 . DETAILED SHADOW STUDIES

21 June 9.45AM
APARTMENT 6.21, 6.22 & 6.23

21 June 11.45AM
APARTMENT 6.12, 6.22 & 6.23

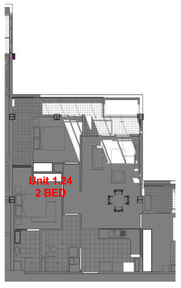


21 June 1PM
APARTMENT 6.16

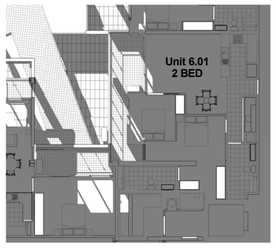


21 June 3PM
APARTMENT 6.16

21 June 10.30AM
APARTMENT 6.24

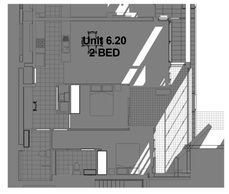


21 June 12.30PM
APARTMENT 6.24

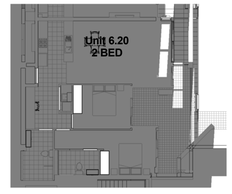


21 June 1PM
APARTMENT 6.01

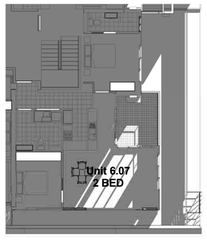
21 June 3PM
APARTMENT 6.01



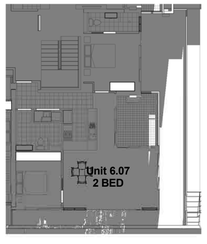
21 June 9AM
APARTMENT 6.20



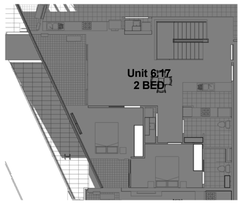
21 June 11AM
APARTMENT 6.20



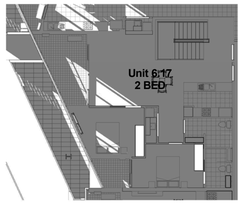
21 June 9AM
APARTMENT 6.07



21 June 11AM
APARTMENT 6.07



21 June 1PM
APARTMENT 6.17



21 June 3PM
APARTMENT 6.17

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

NOT For Construction

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

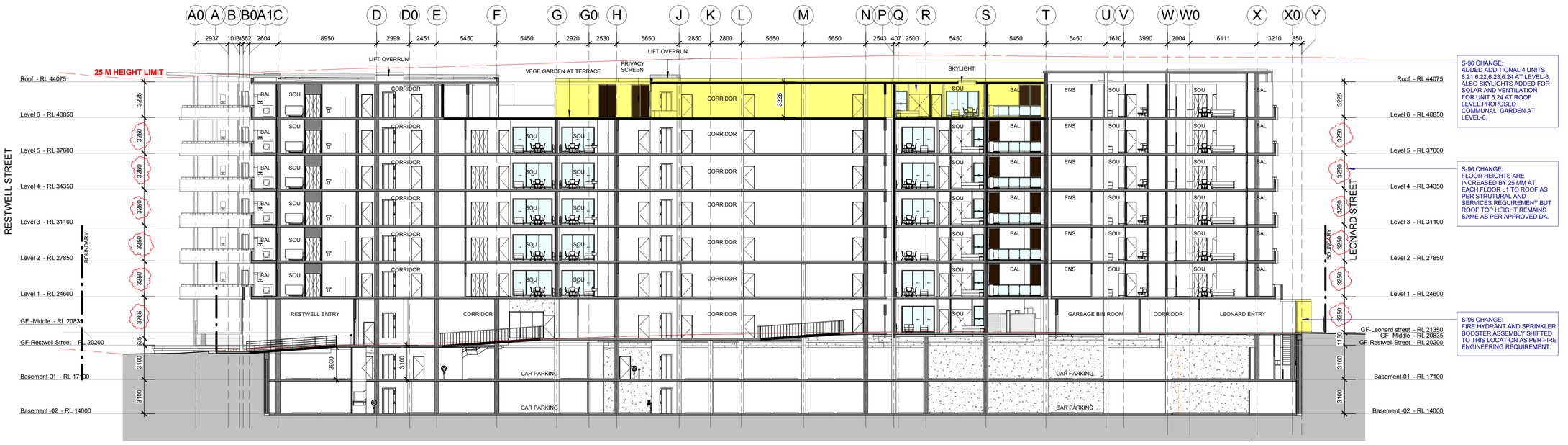
NORTH

TITLE S96-L6 DETAILED SHADOW STUDIES

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @
DWG No.	S-96.152

LEGEND:

S-96 CHANGES



S-96 CHANGE:
ADDED ADDITIONAL 4 UNITS 6.21,6.22,6.23,6.24 AT LEVEL-6. ALSO SKYLIGHTS ADDED FOR SOLAR AND VENTILATION FOR UNIT 6.24 AT ROOF LEVEL.PROPOSED COMMUNAL GARDEN AT LEVEL-6.

S-96 CHANGE:
FLOOR HEIGHTS ARE INCREASED BY 25 MM AT EACH FLOOR L1 TO ROOF AS PER STRUTURAL AND SERVICES REQUIREMENT BUT ROOF TOP HEIGHT REMAINS SAME AS PER APPROVED DA.

S-96 CHANGE:
FIRE HYDRANT AND SPRINKLER BOOSTER ASSEMBLY SHIFTED TO THIS LOCATION AS PER FIRE ENGINEERING REQUIREMENT.

1 **Section East -West**

1 : 200

S96 CHANGES:
ADDED ADDITIONAL 4 UNITS AT LEVEL-6 . ALSO ADDED SKYLIGHT FOR SOLAR AND VENTILATION AT ROOF LEVEL FOR UNIT 6.24.

PROPOSED GLASS WALL AND DOOR OPENINGS FOR ACCESS TO UNITS AND COMMUNAL GARDENS AT LEVEL-6.

S96 CHANGES:
FLOOR HEIGHTS ARE INCREASED BY 25 MM AT EACH FLOOR L1 TO ROOF AS PER STRUCTURAL AND SERVICES REQUIREMENT BUT ROOF TOP HEIGHT REMAINS SAME AS PER APPROVED DA.

2 **Section North- South**

1 : 200

Class 2 Building

Assessment	3965170036
Date	7/03/17
Assessor	Tom Fleming
Qualification	CPP41717 Cert IV Natl BS
Signature	
Average - HEATING:	19.7 MJ/m2 pa
Average - COOLING:	14.1 MJ/m2 pa
Averaged Rating:	33.8 MJ/m2 pa

Project Average

7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

C:\00 Local Files\MRH00216 LOCAL\MRH00216_R2016_PB LOCAL.rvt

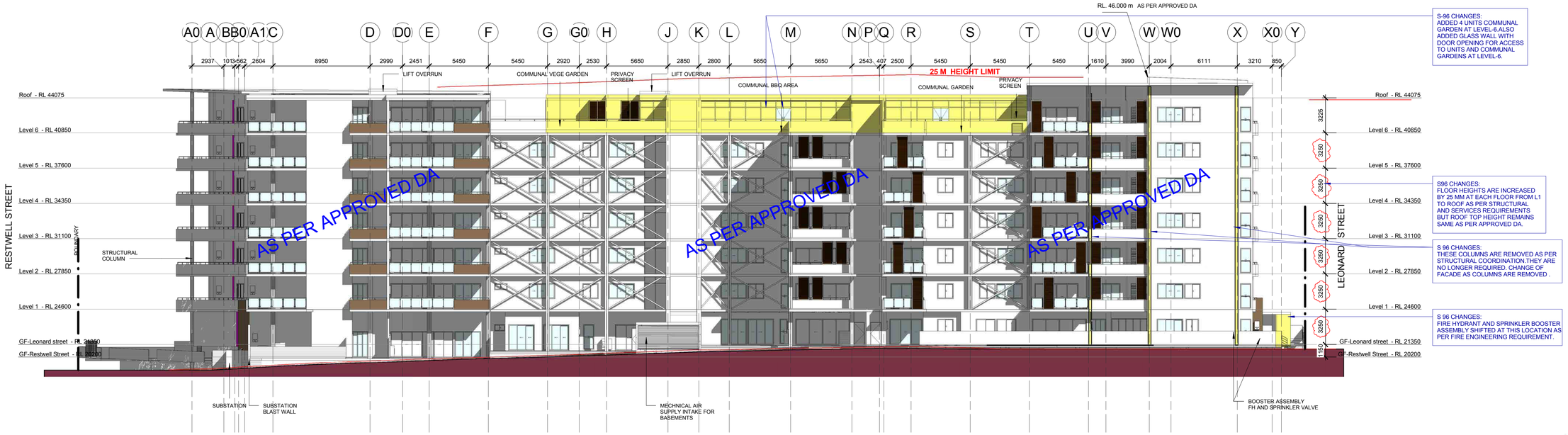
CLIENT MERHIS CORP

NORTH

TITLE: SECTIONS

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.200

1 **S96 NORTH Elevation**
1 : 200



2 **S96 SOUTH Elevation**
1 : 200

Class 2 Building

Assessment	3965170038
Date	1/03/17
Assessor	Mark Fleming
Qualification	CPP41212 Cert IV NatHERS
Signature	
Average - HEATING	19.7 MJ/m2 pa
Average - COOLING	14.1 MJ/m2 pa
Averaged Rating	33.8 MJ/m2 pa

Project Average
7.4★

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

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CLIENT MERHIS CORP

NORTH

TITLE: ELEVATIONS NORTH AND SOUTH

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.300

LEGEND:

S-96 CHANGES

1 **East Elevation(Leonardo Street)**

1 : 200

2 **West Elevation(Restwell street)**

1 : 200

7/03/2017		File Ref: 3965170036	

Important Note for Development Applicants

The following specification was used to achieve the thermal performance values indicated on the assessor declaration form. If they vary from the drawings or other specifications this Specification shall take precedence. If only one specification option is detailed for a building element, that specification must apply to all instances of that element for the whole project. If alternate specifications are detailed, the location and extent of the alternate specification must be detailed below and/or clearly indicated on reference documentation.

Once the development is approved by the consent authority, these specifications will become a condition of consent and must be included in the built works.

This assessment has assumed that the NCC provisions for building sealing will be complied with at construction. No loss of insulation arising from ceiling penetrations has been simulated.

Thermal performance specifications

External wall Construction		Insulation	Colour
Fibre clad framed		R2.5	Medium
Internal wall Construction		**Insulation**	
Plasterboard		Nil	
Ceiling Construction		**Insulation**	
Plasterboard		Nil	
Roof Construction		**Insulation**	**Colour**
Metal clad		R3.0	Medium
Suspended concrete		R3.0	Medium
Floor Construction		**Insulation**	
Suspended slab/CSOG		Nil	
Windows	**Glass & frame type**	**U**	**SHGC**
Generic	Single Aluminium	6.7	0.7
External window cover			
As drawn			
Fixed shading- Eaves	**Width includes guttering, offset is distance above windows**		
Width: as drawn	Offset: as drawn		
Fixed shading- Other	**Verandahs, Pergolas (type & description)**		
Shaded areas & devices as drawn			

For construction in NSW the NCC Vol 1 & 2 must be complied with regarding class 2 building, in particular the following:
- Thermal construction in accordance with Vol 1 section J1.2 or Vol 2 part 3.12.1.1
- Thermal breaks in accordance with section J1.3(d) & 1.5(c) or part 3.12.1.2(c) & 3.12.1.4(b)
- Compensation for loss of ceiling insulation in accordance with section J1.3(C) or Part 3.12.1.2(e)
- Floor insulation in accordance with Section J1.6(c) &(d) or Part 3.12.1.5(a)(ii) or (c) & (d)
- Building sealing in accordance with Section J3 or Part 3.12.3.1 to 3.12.3.6

Section 96 Drawings

Rev	Description	Date
A	ISSUED FOR S-96 CHANGES	05-08-2016

NOT For Construction

0m 2m 4m 6m 8m 10m 20m
Scale Bar 1:200

RESIDENTIAL DEVELOPMENT AT 74-80 RESTWELL &1-9 LEONARD STREET

NORDON · JAGO ARCHITECTS

CNR PARRAMATTA RD & JOHNSTON ST - PO BOX 254 - ANNANDALE - NSW 2038 - T.02 9564 8800 F.02 9517 2833
STEPHEN J. NORDON REGISTRATION No. NSW - 4704 GRAHAM P. JAGO REGISTRATION No. NSW - 4926

CLIENT: MERHIS CORP

NORTH

TITLE: ELEVATIONS EAST AND WEST

JOB No.	MRH00216
DATE	13-05-2016
SCALE	A1 @ As indicated
DWG No.	S-96.301

Assessor Certificate

Multiple Dwellings

Assessed and issued in accordance with the BASIX
Thermal Comfort Protocol for the Simulation Method

Date: 7/03/2017 File Ref: 3965170036

Assessor

Name: Don Fleming CPP41212 Cert IV NatHERS

Declaration of interest in the project design: None

Project

Address: #74-#80 Restwell Street, Bankstown NSW 2200

Assessment **Climate Zone:** 56

Software: Firstrate5 V5.2.5 (3.13)

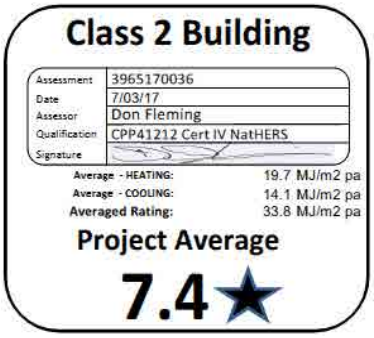
Documentation

All details, upon which this assessment has been based, are included in the project documentation that has been stamped and signed by the assessor issuing this declaration, as identified below:

Drawings used for this assessment:
(title, Ref.#, Revision, issue date, etc)

Nordon-Jago: Rev-A: MRH00216: 05/08/16

Thermal Performance Specification
Attached to the drawings and is on page: 5



Thermal performance specifications		Assessment#	3965170036		Page 1 of 4
Unit No.	Floor Areas		Predict. Loads (MJ/M2/y)		Star Rating	Basix Floor Type and Area m2
	Cond	Uncond	Heat	Cool		
0.01	72.2	0.0	32.0	10.4	6.7	
0.02	74.2	0.0	21.3	19.4	6.9	
0.03	87.4	0.0	22.1	12.5	7.3	
0.04	87.4	0.0	35.0	7.7	6.7	
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2.17	74.3	0.0	14.5	13.2	7.9	
2.18	74.6	0.0	2.1	26.4	7.8	
2.19	75.1	0.0	12.9	14.8	7.9	
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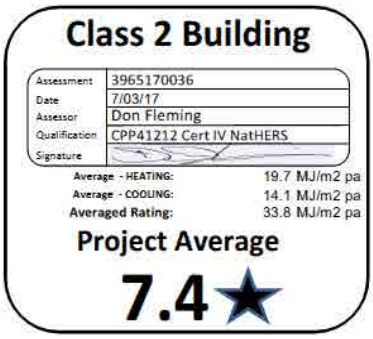

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3.09	73.0	0.0	1.6	8.8	9.4	
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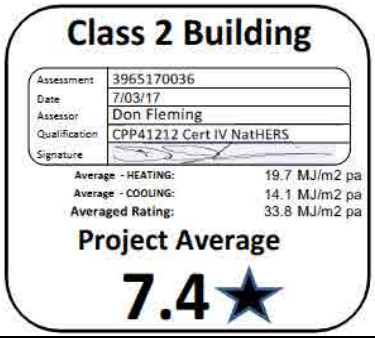

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6.20	77.8	0.0	36.3	9.8	6.4	
6.21	89.2	0.0	29.4	14.2	6.6	
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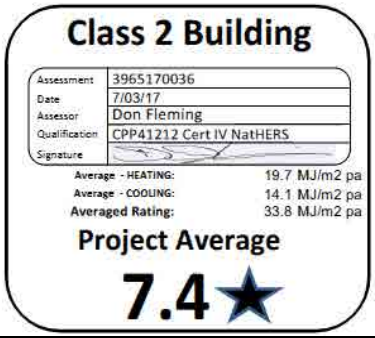

7/03/2017	File Ref: 3965170036

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Thermal performance specifications

External wall Construction	Insulation	Colour
Fibre clad framed	R2.5	Medium

Internal wall Construction	Insulation
Plasterboard	Nil

Ceiling Construction	Insulation
Plasterboard	Nil

Roof Construction	Insulation	Colour
Metal clad	R3.0	Medium
Suspended concrete	R3.0	Medium

Floor Construction	Insulation
Suspended slab/CSOG	Nil

Windows	Glass & frame type	U	SHGC
Generic	Single Aluminium	6.7	0.7

External window cover

As drawn

Fixed shading- Eaves — **Width includes guttering, offset is distance above windows**

Width: as drawn Offset: as drawn

Fixed shading- Other — **Verandahs, Pergolas (type & description)**

Shaded areas & devices as drawn

For construction in NSW the NCC Vol 1 & 2 must be complied with regarding class 2 building, in particular the following:

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- Floor insulation in accordance with Section J1.6(c) &(d) or Part 3.12.1.5(a)(ii) or (c) & (d)
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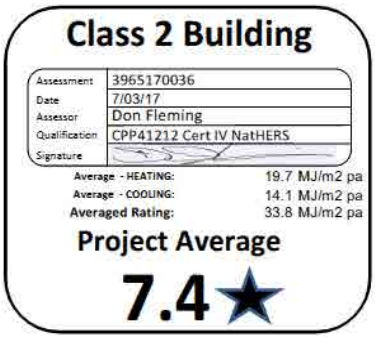

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Vipac Engineers & Scientists

Merhis Management Group Pty Ltd

74-80 Restwell Street Bankstown

BASIX Assessment Report

20E-17-0040-TRP-615497-0

17 Mar 2017

BASIX Assessment Report Job Title:	
DOCUMENT NO: 20E-17-0040-TRP-615497- **PREPARED FOR:** Merhis Management Group Pty Ltd 38-42 Seville Street Fairfield East, New South Wales, 2165, Australia **CONTACT:** Dennis Zhang **Tel:** +61 2 8723 2300 **Fax:**	**REPORT CODE:** TRP **PREPARED BY:** Vipac Engineers and Scientists Limited Office Address 2 Sirius Road, Lane Cove, NSW 2066, **Tel:** +61 2 9422 4222 **Fax**: +61 2 9420 5911
AURTHOR:	Ben Shojaei Senior ESD Engineer Date: 17 Mar 2017
REVIEWED BY:	Maria Tsinonis Office Administrator Date: 17 Mar 2017
AUTHORISED BY:	Maria Tsinonis Office Administrator Date: 17 Mar 2017

REVISION HISTORY

Revision No.	Date Issued	Reason/Comments
0	17 Mar 2017	Initial Issue
1		
2		

DISTRIBUTION

Copy No._____	**Location**	
1	Project	
2	Client (PDF Format)	Uncontrolled Copy
3		
4		

KEYWORDS:

1 EXECUTIVE SUMMARY

Vipac Engineers & Scientists Ltd. has been commissioned by Merhis Projects Pty Ltd to assess the interaction of the proposed development at 74-80 Restwell Street Bankstow NSW, with the local environment in terms of BASIX compliance.

A BASIX Certificate is a DA requirement and demonstrates compliance with the NSW Government's sustainability targets. BASIX assessment and certification has been completed for this project (Certificate No. 630024M_05).

Dwellings within the development have been assessed in terms of their passive energy design using the BASIX Thermal Comfort protocol. They have also been assessed in terms of their ability to conserve water and energy.

With the recommendations provided in the BASIX certificate the development meets and exceeds the minimum requirements for all following areas.

- Energy Efficiency
- Water Efficiency
- Thermal Comfort

This development achieves the following targets:

- Energy Efficiency: 23% reduction (minimum requirements under BASIX: 20%)
- Water Efficiency: 40% reduction (minimum requirements under BASIX: 40%)
- Thermal Comfort: Passing the thermal performance requirements under BASIX.

TABLE OF CONTENTS

1 INTRODUCTION

BASIX is a NSW State Planning Policy Tool which assesses the environmental performance of new residential premises against a range of water, energy and greenhouse gas emissions targets. The assessment has three core components, BASIX Thermal Comfort, BASIX Water and BASIX Energy.

The thermal comfort assessment requires that the thermal performance of dwellings are evaluated and measures put in place to ensure annual heating and cooling loads do not exceed pre-defined limits without compromising the occupants thermal comfort. This assessment uses computer simulation to evaluate the building fabric thermal performance and passive solar design features such as orientation and solar shading.

The energy section evaluates gas and electrical energy used for heating, cooling lighting, ventilation and appliances. The BASIX Energy target requires the development to uses 20% less energy than the NSW average.

The water assessment takes account of landscaping, stormwater management as well as water efficiency performance of fixtures and fitting such as taps and showers. The BASIX target for water requires that potable water consumption is at least 40% lower than the NSW average.

Note:

This report is only a general guide to the BASIX requirements, for complete details of BASIX requirements please refer to the BASIX certificate, thermal modelling documentation and stamped drawings.

While every endeavour has been made to provide a realistic energy rating for the proposed development, we note that the energy calculating process using computer program simulation is not 100% accurate. Computer building simulation provides an estimate of building performance. This estimate is based on a necessarily simplified and idealised version of the building that does not and cannot fully represent all of the intricacies of the building once built. As a result, simulation results only represent an interpretation of the potential performance of the building. No guarantee or warrantee of building performance in practice can be based on simulation results alone.

2 BASIX WATER SECTION

The water efficiency performance of the development has been assessed using the online BASIX Tool. The assessment has considers Common Area and Central System features including the landscape design, plant species, water catchment areas, rain water tank size and efficiency of preferred fixtures and fittings in the dwellings.

The proposed development will meet the mandatory BASIX water target of 40% as long as the water commitments detailed in Table 1 are installed. For details of the requirements necessary to achieve this target, please refer to the BASIX Certificate No. 630024M_05.

Table 1: Water Commitments

Common Areas and Central Systems	
Showerheads	• 3 star (> 6 but <= 7.5 L/min)
Toilets and Taps	• 4 star water rating
Private Dwellings	
Fixtures and Appliances for apartments	• 3-star (Water Rating) showerheads with a flow rate > 4.5 L/min & ≤ 6 L/min • 3-star (Water Rating) toilets • 3-star (Water Rating) kitchen taps • 3-star (Water Rating) bathroom taps

	• 4-star (Water Rating) dishwashers

3 BASIX THERMAL COMFORT SECTION

The thermal performance of the development has been evaluated using FirstRate5 software; this computer simulation of residential developments is used to assess the potential of a residential development to have low heating and cooling energy requirements once operational.

3.1 MODELLING ASSUMPTIONS

The following has been assumed for the thermal simulation:

- FirstRate5 calculates the transient hourly heat gains and losses for each space inside a building taking into account the building's thermal storage, typical residential occupancy and operational profiles plus hourly weather data for the site
- Building geometry and orientation were modelled according to supplied drawings
- The "base-case" building fabric and glazing and associated thermal performance specifications are described in Table 2 below: Note these assumptions are based on the nominated preferred construction materials indicated by the architect.

Table 2: Base Case Construction and Fabric

Element	Details
External walls	As per the thermal assessment certificate and stamped architectural drawings.
Internal walls	
Ceilings	
Roof	
Windows	
Floors	

3.2 REFERENCE DOCUMENTS

Our review is based on the following architectural drawings provided by Nordon-Jago Architects, inputs used in the previous BASIX certificate and details directly provided by Merhis.

Dwg No.	Rev	Sheet Name	Current Revision Date
S-96.000	B	COVER SHEET	11-08-2016
S-96.091	A	BASEMENT 02 FLOOR PLAN	05-08-2016
S-96.095	A	BASEMENT 01 FLOOR PLAN	05-08-2016
S-96.100	A	GROUND FLOOR PLAN	05-08-2016
S-96.104	A	LEVEL-01 TO 04 (TYPICAL FLOOR PLAN)	05-08-2016
S-96.120	B	LEVEL-05 FLOOR PLAN	10-08-2016
S-96.124	B	LEVEL-06 FLOOR PLAN	10-08-2016
S-96.128	B	ROOF PLAN	10-08-2016
S-96.140	A	SHADOW DIAGRAM - 21 MARCH	05-08-2016
S-96.141	A	SHADOW DIAGRAM - 21 JUNE	05-08-2016
S-96.142	A	SHADOW DIAGRAM - 21 JUNE	05-08-2016
S-96.143	A	SHADOW DIAGRAM - 21 JUNE	05-08-2016
S-96.144	A	SHADOW DIAGRAM - 21 SEPTEMBER	05-08-2016
S-96.145	A	SHADOW DIAGRAM - 21 DECEMBER	05-08-2016
S-96.150	A	DA-DETAILED SHADOW STUDIES	05-08-2016
S-96.151	A	S96-DETAILED SHADOW STUDIES	05-08-2016
S-96.152	A	S96-L6 DETAILED SHADOW STUDIES	05-08-2016
S-96.200	A	SECTIONS	05-08-2016
S-96.300	A	ELEVATIONS NORTH AND SOUTH	05-08-2016
S-96.301	A	ELEVATIONS EAST AND WEST	05-08-2016

3.3 THERMAL COMFORT MODELLING RESULTS (FIRSRATE5 SOFTWARE)

The simulated heating and cooling loads per dwelling are summarized in Tables 3 and 4 below.

Table 3: FirstRate Thermal Modelling Results

Thermal performance specifications			Assessment#		3965170036
Unit No.	Floor Areas		Predict. Loads (MJ/M2/y)		Star Rating
	Cond	Uncond	Heat	Cool	
0.01	72.2	0.0	32.0	10.4	6.7
0.02	74.2	0.0	21.3	19.4	6.9
0.03	87.4	0.0	22.1	12.5	7.3
0.04	87.4	0.0	35.0	7.7	6.7
0.05	74.5	0.0	45.7	15.0	5.3
0.06	50.2	0.0	48.8	8.0	5.6
0.07	74.4	0.0	46.7	20.2	4.9
0.08	88.4	0.0	36.8	17.7	5.7
0.09	50.2	0.0	26.7	8.3	7.3
0.10	90.4	0.0	28.2	16.6	6.5
0.11	77.7	0.0	48.7	13.7	5.2
0.12	51.2	0.0	47.1	15.0	5.2
0.13	70.5	0.0	13.2	41.5	5.7
0.14	70.6	0.0	57.9	4.7	5.2
0.15	79.8	0.0	12.8	16.2	7.8
0.16	75.1	0.0	33.0	12.6	6.4
0.17	77.8	0.0	37.7	9.5	6.3
0.18	75.4	0.0	24.5	13.2	7.1
0.19	72.3	0.0	32.8	5.0	7.1
0.20	69.6	0.0	26.6	8.4	7.3
0.21	72.3	0.0	38.8	5.7	6.5
1.01	70.7	0.0	8.4	19.9	7.8
1.02	74.2	0.0	5.8	22.0	7.8
1.03	87.4	0.0	9.3	14.5	8.2
1.04	87.4	0.0	4.8	16.4	8.4
1.05	72.5	0.0	18.9	25.1	6.6
1.06	72.5	0.0	18.9	25.1	6.6
1.07	74.4	0.0	49.3	18.0	4.9
1.08	77.9	0.0	14.6	10.7	8.1
1.09	73.0	0.0	1.3	9.4	9.3
1.10	50.2	0.0	14.1	10.9	8.1
1.11	90.4	0.0	18.5	12.5	7.6
1.12	78.6	0.0	3.3	8.2	9.3
1.13	67.3	6.5	5.8	11.8	8.7
1.14	51.2	0.0	25.7	16.1	6.8
1.15	70.5	0.0	14.4	40.1	5.8
1.16	49.2	0.0	6.6	19.9	7.9
1.17	74.3	0.0	13.6	14.0	7.9
1.18	74.6	0.0	1.9	27.6	7.7
1.19	75.1	0.0	12.1	15.3	7.9
1.20	77.8	0.0	17.0	11.0	7.8
1.21	75.4	0.0	13.2	16.9	7.7
1.22	72.3	0.0	8.3	6.4	8.9
1.23	69.6	0.0	5.1	9.5	8.9
1.24	72.3	0.0	11.8	7.7	8.5

Thermal performance specifications			Assessment#		3965170036
Unit No.	Floor Areas		Predict. Loads (MJ/M2/y)		Star Rating
	Cond	Uncond	Heat	Cool	
2.01	70.7	0.0	9.0	18.4	7.9
2.02	74.2	0.0	6.4	20.5	7.9
2.03	87.4	0.0	10.0	13.5	8.2
2.04	87.4	0.0	5.2	15.7	8.4
2.05	72.5	0.0	19.9	24.1	6.6
2.06	72.5	0.0	19.9	24.1	6.6
2.07	74.4	0.0	50.9	17.9	4.8
2.08	77.9	0.0	15.4	10.2	8.0
2.09	73.0	0.0	1.5	9.0	9.4
2.10	50.2	0.0	15.1	10.7	8.0
2.11	90.4	0.0	19.4	11.7	7.6
2.12	78.6	0.0	3.6	7.8	9.3
2.13	67.3	6.5	6.5	11.4	8.7
2.14	51.2	0.0	27.0	15.2	6.7
2.15	70.5	0.0	15.0	37.9	5.9
2.16	49.2	0.0	7.3	18.3	8.0
2.17	74.3	0.0	14.5	13.2	7.9
2.18	74.6	0.0	2.1	26.4	7.8
2.19	75.1	0.0	12.9	14.8	7.9
2.20	77.8	0.0	17.8	10.6	7.8
2.21	75.4	0.0	13.9	16.5	7.6
2.22	72.3	0.0	9.0	6.5	8.9
2.23	69.6	0.0	5.7	9.1	8.9
2.24	72.3	0.0	12.6	7.3	8.5
3.01	70.7	0.0	9.6	17.8	7.9
3.02	74.2	0.0	6.9	19.9	7.9
3.03	87.4	0.0	10.5	13.3	8.2
3.04	87.4	0.0	5.8	15.2	8.4
3.05	72.5	0.0	20.7	22.7	6.6
3.06	72.5	0.0	20.7	22.7	6.6
3.07	74.4	0.0	52.3	17.0	4.8
3.08	77.9	0.0	16.1	9.8	8.0
3.09	73.0	0.0	1.6	8.8	9.4
3.10	50.2	0.0	15.9	9.7	8.0
3.11	90.4	0.0	20.1	12.1	7.4
3.12	78.6	0.0	3.9	7.7	9.2
3.13	67.3	6.5	7.1	11.3	8.6
3.14	51.2	0.0	28.1	14.2	6.7
3.15	70.5	0.0	15.7	34.5	6.1
3.16	49.2	0.0	8.1	17.3	8.1
3.17	74.3	0.0	15.1	12.8	7.8
3.18	74.6	0.0	2.5	25.8	7.8
3.19	75.1	0.0	13.5	14.2	7.9
3.20	77.8	0.0	18.4	10.4	7.8
3.21	75.4	0.0	14.4	15.9	7.6

Thermal performance specifications			Assessment#		3965170036
Unit No.	Floor Areas		Predict. Loads (MJ/M2/y)		Star Rating
	Cond	Uncond	Heat	Cool	
3.22	72.3	0.0	9.6	6.5	8.8
3.23	69.6	0.0	6.1	8.7	8.9
3.24	72.3	0.0	13.3	7.5	8.4
4.01	70.7	0.0	12.3	13.7	7.9
4.02	74.2	0.0	9.2	13.0	8.3
4.03	87.4	0.0	13.5	11.4	8.1
4.04	87.4	0.0	7.9	13.1	8.4
4.05	72.5	0.0	24.0	17.3	6.8
4.06	72.5	0.0	24.0	17.3	6.8
4.07	74.4	0.0	58.4	13.1	4.7
4.08	77.9	0.0	19.1	7.9	7.9
4.09	73.0	0.0	2.4	6.9	9.4
4.10	50.2	0.0	19.5	8.3	7.9
4.11	90.4	0.0	23.2	9.4	7.4
4.12	78.6	0.0	5.4	6.3	9.2
4.13	67.3	6.5	9.7	8.7	8.6
4.14	51.2	0.0	32.7	12.1	6.5
4.15	70.5	0.0	18.8	29.8	6.2
4.16	49.2	0.0	11.2	13.9	8.1
4.17	74.3	0.0	18.1	9.7	7.9
4.18	74.6	0.0	4.2	21.6	8.0
4.19	75.1	0.0	16.4	10.9	7.9
4.20	77.8	0.0	21.2	7.6	7.8
4.21	75.4	0.0	17.0	12.2	7.7
4.22	72.3	0.0	12.3	5.9	8.7
4.23	69.6	0.0	8.3	8.1	8.8
4.24	72.3	0.0	16.1	6.4	8.3
5.01	70.7	0.0	12.7	13.4	7.9
5.02	74.2	0.0	9.6	12.9	8.3
5.03	87.4	0.0	13.9	11.3	8.1
5.04	87.4	0.0	8.3	13.1	8.4
5.05	72.5	0.0	24.6	16.8	6.8
5.06	72.5	0.0	24.6	16.8	6.8
5.07	74.4	0.0	59.4	12.8	4.7
5.08	77.9	0.0	19.6	7.7	7.9
5.09	73.0	0.0	2.5	6.7	9.4
5.10	50.2	0.0	29.4	8.2	7.1
5.11	90.4	0.0	33.3	9.2	6.7
5.12	78.6	0.0	12.0	6.2	8.7
5.13	67.3	6.5	17.4	8.8	7.9
5.14	51.2	0.0	33.5	12.0	6.4
5.15	70.5	0.0	19.3	29.2	6.2
5.16	49.2	0.0	11.7	13.8	8.0
5.17	74.3	0.0	18.6	9.4	7.8
5.18	74.6	0.0	4.5	21.8	7.9

Thermal performance specifications			Assessment#		3965170036
Unit No.	Floor Areas		Predict. Loads (MJ/M2/y)		Star Rating
	Cond	Uncond	Heat	Cool	
5.19	75.1	0.0	16.9	10.7	7.9
5.20	77.8	0.0	21.7	7.6	7.7
5.21	75.4	0.0	17.5	12.2	7.7
5.22	72.3	0.0	12.7	5.9	8.6
5.23	69.6	0.0	8.7	8.0	8.8
5.24	72.3	0.0	16.5	6.2	8.3
6.01	70.7	0.0	28.4	16.0	6.6
6.02	74.2	0.0	24.0	16.6	6.9
6.03	87.4	0.0	27.7	14.2	6.8
6.04	87.4	0.0	19.7	15.2	7.3
6.05	72.5	0.0	38.3	18.8	5.6
6.06	72.5	0.0	38.3	18.8	5.6
6.07	74.4	0.0	64.1	12.5	4.4
6.08	71.7	0.0	56.1	17.2	4.6
6.14	51.2	0.0	48.6	13.9	5.2
6.15	70.5	0.0	34.2	34.2	4.9
6.16	49.2	0.0	24.5	16.1	6.9
6.17	74.3	0.0	33.5	12.5	6.4
6.18	74.6	0.0	15.9	26.9	6.7
6.19	75.1	0.0	33.0	12.2	6.4
6.20	77.8	0.0	36.3	9.8	6.4
6.21	89.2	0.0	29.4	14.2	6.6
6.22	72.3	0.0	28.7	8.9	7.1
6.23	69.6	0.0	22.0	9.6	7.5
6.24	86.3	0.0	17.9	13.4	7.6

4 BASIX ENERGY SECTION

The Energy performance of the development has been assessed using the online BASIX Tool. The assessment has considered Common Area and Central System features including the lifts, ventilation and lighting for common areas (corridors, lobbies, car park etc), centralised domestic hot water and the efficiency of preferred lighting and appliances in the dwellings.

The proposed development will meet the mandatory BASIX Energy target of 20% as long as the energy commitments detailed in Table are installed.

Table 4: Energy Commitments

Component		Commitment
Common Areas and Central Systems	Centralised Hot Water System	• Gas Instantaneous System with internal and external piping insulation of R0.45 (~20mm)
	Lifts	• All lifts to use Gearless traction with VVVF motor servicing all levels
	Ventilation	• Carpark: ventilation (supply + exhaust), carbon monoxide monitor + VSD fan • Garbage Rooms: supply and exhaust ventilation • Plant/Service Rooms, Lift Motor Rooms, Switch Rooms: supply and exhaust ventilation, interlocked to light • Hallways & lobbies: No mechanical ventilation • Community room: air conditioned, controlled via time clock or BMS
	Lighting	• Carpark: Fluorescent lighting with daylight sensors • Lifts: connected to lift call button • Garbage Rooms: Fluorescent lighting with manual on/off switch • Plant/Service Rooms, Lift Motor Rooms, Switch Rooms: Fluorescent lighting with manual on/off switch • Hallways & lobbies: Compact Fluorescent lighting with daylight sensors • Ground floor lobby type: Fluorescent lighting with daylight sensors • Community room: air conditioned, controlled via time clock or BMS
Private Dwellings	Ventilation	• Kitchen Exhaust: Individual fan, ducted to roof or façade, interlocked to light • Bathroom & Laundry Exhaust: Individual fan, ducted to roof or façade, manual switch on / off
	Heating & Cooling	• Heat: Living & Beds to have individual 1-phase air-conditioning 3.5 Stars (new energy rating) [1] • Cool: Living & Beds to have individual 1-phase air-conditioning 3.5 Stars (new energy rating) [2]
	Lighting	• All hallways, laundries, bathrooms, kitchens and bedrooms areas to use Fluorescent or LED lights with dedicated fittings [3] • Kitchen are to naturally lit by either window or skylight
	Appliances & Other	• Electric cooktop and electric oven • 2.5-stars (Energy Rating) dishwashers • 1.5-stars (Energy Rating) clothes dryers

[1] Changes in energy labelling standards for air conditioners and refrigerators came into effect as of April 1st 2010. For more information, please see http://www.basix.nsw.gov.au/docs/energy/newStarRating.pdf

[2] Changes in energy labelling standards for air conditioners and refrigerators came into effect as of April 1st 2010. For more information, please see http://www.basix.nsw.gov.au/docs/energy/newStarRating.pdf

[3] Definition of dedicated fittings is a light fitting that is only capable of accepting fluorescent or LED (Light Emitting Diode) lamps. It will not accept incandescent, halogen or any other non-fluorescent or non-LED lamps.

5 SUMMARY & CONCLUSION

The proposed development has been assessed to optimise its thermal performance (passive and fabric design) using the BASIX thermal comfort protocol.

The proposed development has also been assessed in terms of its ability to conserve water and minimise energy consumption.

With the recommendations contained within this report the proposed development is able to achieve the BASIX requirements and is eligible for BASIX certification.

For further details, please refer to the BASIX Certificate 630024M_05 provided and stamped drawings and certificates.