

Tuesday, 10 November 2015
Our Ref. 1509/DA10.2015.198.1/Supplementary

AE Design Partnership
23 Barr Street
CAMPERDOWN NSW 2050
Email: Tristan@aedesignstudio.com.au

Attention: TRISTAN KELL

Dear Tristan,

RE : KIAMA AGED CARE CENTRE OF EXCELLENCE
14a Bonaira Street, KIAMA
Development Application DA 10.2015.198.1

Thank you for your letter to Kiama Municipal Council in relation to the above, in which you are seeking additional information. In response we wish to provide the following that we believe will address matters raised, or provide advice in relation to matters that are being addressed by our Planners, Cardno:

(a) Legal Opinion on SEPP 1

We understand that advice is being sought from Thomson Geer through Cardno, and that this will be forthcoming on Wednesday 11th. Cardno will be providing updated documentation reflecting this legal advice on Thursday 12th.

(b) Visual Analysis for site and local area

We note that there has been concern raised as to the visual impact of the proposed development on the locality, and that specific reference has been made to Whitton Place and Gwinganna Avenue in written submissions. We have undertaken photomontage analysis of typical views of the subject site and proposed development, using a SketchUp model created for the buildings and adjacent properties in Holden Avenue. Views have been superimposed on photographic images taken from each of the streets referred to.

As can be seen in the accompanying 'current' and 'proposed' views (Appendix 'A'), the KACOE development will be silhouetted against a background of existing vegetated hillside, and be largely screened by prospects from the east with the vegetated screening that will be provided along the common boundary with Holden Avenue properties. It will generally meld in with other built form that exists on the eastern slope of the hillside leading up to the proposed development site. It should also be noted that the existing Nurses Home building on the site is already clearly visible from Whitton Place and Gwinganna Avenue, and is taller than the proposed ILU buildings that are proposed along the eastern boundary.

It is our opinion therefore that the perception of the proposed development being incompatible with the existing character of the locality is only valid from viewing of the plan footprint of the proposed development, however within the context of its location within the landscape and the measures that have been adopted to mitigate its potential impact, we believe that it is not an unreasonable form or scale of development.

Cardno will be providing additional supporting information addressing how the proposed development is compatible with the existing character of the locality, on Thursday 12th. This will include a 2-3 page assessment to address the matters raised.

(c) Setbacks

Perpendicular setback dimensions to the eastern boundary are provided in the accompanying Appendix 'B'.

The non-compliance of ILU A and B is associated with the balconies of ILU A and B relates to blade columns, small sections of balconies and louvered screen openings. The encroachments result in ILU A having a setback of 4.56m and ILU B having a setback of 4.91m. These encroachments are associated with the corner of the blade column are not applicable to the entire eastern façade of these ILU buildings, which are setback at least 7m from the side boundary.

The Apartment Design Guide states that the reason for the 6m side setback is "to ensure visual privacy is achieved". The encroachments have direct benefits for visual privacy between the existing dwellings on Holden

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NSW ARB Reg. No. 5506 NSW ARB Reg. No. 5344

Avenue and the future residents of the ILU dwellings. Specifically, the orientation of the balconies, blade columns and louvered openings have been provided to screen potential overlooking of adjoining properties on Holden Avenue. They are designed to direct outlooks to the north-east and away from neighbours. In this regard, it is considered that the minor encroachments are not unreasonable as they have a direct benefit at providing for visual privacy between the two sites, in accordance with the objective of the control within the Apartment Design Guide.

Overall, it is considered that the non-compliance is justified for the reasons identified above and additional reasons mentioned below:

- The encroachment provides a direct visual privacy benefit. The angle of the balcony, blade column and louvers act to concentrate views from the ILUs to the north east of the site, rather than directly over the adjoining properties to the east.
- The extent of the encroachment is considered to be minimal, with any modification of the design to bring these back to 6 metres unlikely to have any significant benefit compared to the current visual privacy benefits.
- The encroachment will not have any unreasonable overshadowing impacts. Shadow diagrams demonstrate that all overshadowing impacts to properties on Holden Avenue during mid-winter are compliant with the rules of thumb listed in the *Seniors Living Policy – Urban design guidelines for infill development*, which states that living rooms of adjoining dwellings should receive a minimum of 3 hours sunlight. Additionally, there should be no unreasonable solar access impacts to the private open space of neighbouring dwellings. In both instances, the proposal ensures the backyards of each dwelling adjacent to the non-compliant setback receive adequate sunlight between 9am and 3pm in mid-winter.
- Visual impacts will also be mitigated along this boundary through the provision of screen planting along the common boundary which will largely remove any ability of Holden Avenue neighbours to be aware of this slight encroachment.

(d) Floor Space Ratio

The accompanying plans in Appendix 'C' illustrate the floor space ratio calculations requested. The final FSR is 0.53:1 against the 30,949m² site area.

It is noted that the FSR provisions for the site vary based on the definition of the building. Under Clause 48 (b) of the Seniors SEPP, the applicable FSR for the RACF building is 1:1. Additionally, under Clause 50 (b) of the Seniors SEPP, the applicable FSR for the ILUs, ALU and other development (i.e. Community Activities Centre and Barroul House) is 0.5:1.

The RACF building is located on 36.23% of the site (11,214m²) with the remaining 63.77% of the site containing the remainder of the development. Therefore, 36.23% of the site is able to have an FSR of 1:1 and the remainder an FSR of 0.5:1. When combined, the overall FSR applicable for the site is 0.68:1. With the overall FSR of 0.53:1, the development is compliant with the provisions of the Seniors SEPP."

(e) Solar Access

Solar access diagrams accompany in Appendix 'D' which illustrate solar access provided to RACF components. These have been produced using a SketchUp model and demonstrate solar access as 3-dimensional views, which include addressing solar obstruction created by other buildings within the development.

In reviewing the ILU components of the development in greater detail against the requirements of the Apartment Design Guide we have noted that the previous table submitted as part of the Statement of Environmental Effects (SEPP65 and Site Analysis, Appendix 2) had 3 apartments which did not quite meet the 3 hour requirements (B/03; C/03; and C/04). There were however 2 additional which in review did meet the requirements (B/01 and C/01). An updated table accompanies, with amended data shown in RED text. Notwithstanding, 82% of ILU's (previously 84%) obtain 3 hours solar access between 9.00am and 3.00pm and thereby satisfy (and exceed) the requirements of the Apartment Design Guide. The updated table is included as Appendix 'E'.

(f) Scale and Privacy

Appendix F illustrates the relative position of the Quiet Lounge areas of the RACF that have proximity to 14 and 16 Reid Street. While the letter of objection makes reference to a 6 metre setback, this distance refers to an external corner of the fire stair which comes to a point on this angled wing. The Lounge at its closest point to the western boundary is 8.265 metres. Sections provided in this drawing identify the relative positions of the proposed building, the adjoining residences at 14 and 16 Reid Street and their floor levels, as well as the location and height of screen tree planting.

Reference to level differences is misleading, as the (current) Hospital site is gently sloping, while Reid Street has a significant fall, particularly where Nos. 14 and 16 are located. The difference in levels is notable between the proposed Residential Aged Care building and 16 Reid Street, however the distance between the Lounge and the closest corner of 16 Reid Street is 22.675m. Moreover, while objection has been made regarding removal of existing trees in this general area, there is provision in the proposed landscape plan for the planting of screen trees along the western boundary in response to perceived impacts of height, privacy and overlooking.

Notwithstanding, we have considered concerns raised by residents in relation to potential loss of amenity, and wish to advise:

- Such Quiet Lounge spaces are not main congregation areas within such facilities and would typically have bench seating around the perimeter, i.e. having residents facing away from the outlook; and
- We are proposing that any overlooking concerns be addressed by the installation of angled vertical louvre screens to Quiet Lounge windows facing the western boundary, as indicated on the Appendix 'F' plan.

In relation to Holden Street properties, drawings now illustrate finished RL's of ILU buildings and the setback provisions at each level.

(g) Existing Ground

All references to natural ground level on sections and elevations equate to existing ground. The Standard Instrument LEP defines "ground level (existing)" as follows:

- *"ground level (existing) means the existing level of a site at any point"*

Additionally, the Seniors SEPP defines "ground level" as follows:

- *"ground level means the level of the site before development is carried out pursuant to this Policy"*

Both definitions relate to the current or existing ground level on site. The existing ground level shown on plans is derived from the Site Survey undertaken for the site in February 2014.

It is noted that a submission referred to the natural ground level of the existing car parking area on site is approximately 3m below the level of the car park, equating to the former ground level prior to the car park's construction during the peak of the hospital's operation in the 1970s and 1980s. As demonstrated in the above definition, the relevant ground level for the assessment of the height of buildings on site is the existing level of a site at any point, not the former level. This definition demonstrates that the ground level used for height calculations are correct and in accordance with the Standard Instrument LEP and Seniors SEPP definitions."

(h) Cut and Fill

The cut and fill plans, justification for the extent of cut and fill and drawing indicating retaining walls exceeding 0.9m in height are provided in accompanying Appendix 'G' information produced by our Civil Engineer, Jones Nicholson.

(i) Landscape and Vegetation

Requested diagrams illustrating trees to be removed from the site, in addition to trees to be planted accompany as Appendix 'H', both produced by our Landscape Architect, Taylor Brammer.

(j) Stormwater

The MUSIC model electronic file is attached to this email.

(k) Heritage

With regard to Barroul House, extensive consultation has occurred with the Heritage Architect, Robin Graham, to determine suitable materials and detailing for the components of the development that have adjacency to this historic building. Page 51 of the Heritage Report identifies the scope proposed for the new building works as having been "carefully considered" and having dealt with issues such as proximity and scale between Barroul House and the RACF as "reducing (the) impact to an acceptable level."

The materials proposed follow the Heritage Architect's advice that façade and roof elements be constructed from materials with dark colours and non-reflective materials. Accordingly face brickwork in muted toning, together with tinted, low-reflectivity glazing and weatherboard upper floor cladding form the façade materials that will be apparent in adjacency to Barroul House. Proposed colours are provided in the sample board submitted to Council as part of the Development Application.

Note also that car spaces previously shown as parallel parking on the western side of the proposed access road adjacent and in front of Barroul House have now been deleted, as illustrated in plans included in appendices.

With regard to proposed signage for the development, we suggest that this be dealt with by separate application as a condition of Consent, given there are a number of aspects of signage and naming that cannot be pre-empted by Blue Haven Care at this point.

It is also our understanding that Council's Heritage Advisor, Jim Stephany, has reviewed the submission and Heritage Report and generally been supportive of the proposal.

(I) Noise Barrier

Our Acoustic Consultants, Renzo Tonin, have modelled the potential noise impacts to properties in Holden Avenue, particularly to those properties at the southern end of our common boundary. Their response to queries raised in your review, and from submissions received accompanies in Appendix 'I'.

As a result of these investigations, Option 1 was selected as the approach to mitigate noise impacts to Holden Avenue properties. Option 1 involves the provision of a noise barrier along the eastern side of the ILU car park ramp. The noise barrier would be 1.5m in height, constructed of concrete and would reduce acoustic impacts to adjoining properties by up to 2-3 dB(A). This would ensure the required noise goals are achieved. The provision of this noise barrier will also have beneficial effects by minimising noise from the main car park, ILU entry car park and noise associated with garbage removal.

The location of the proposed noise barrier is shown on the plan included in Appendix 'I'. The section illustrates that visual impacts associated with the wall is minor, with the overall height of the wall screened by the proposed planting along the side boundary."

We trust that this provides appropriate response to your request for additional information and clarification of the Development Application submission. If however there are aspects that need further explanation or supplementation, please do not hesitate to contact me.

Yours Faithfully,

BOFFA ROBERTSON GROUP

JOCK ROBERTSON

Partner

Encl:

Appendix A - Views from Whitton Place & Gwinganna Avenue

Appendix B - Setbacks

Appendix C - Floor Space Ratio

Appendix D - Solar Access

Appendix E - Solar Access table

Appendix F - Scale and Privacy

Appendix G - Cut and Fill

Appendix H - Landscape and Vegetation

Appendix I - Noise Barrier



Appendix A
VIEWS FROM WHITTON PLACE & GWINGANNA AVENUE



Existing view from Gwinganna Avenue
Note the roof of the existing Nurses Home behind Holden Avenue properties



View of proposed development from Gwinganna Avenue.



View of proposed development
Abutting Holden Avenue properties superimposed from SketchUp model for verification purposes



View of existing site from Whitton Place. Red tiled roofs behind Holden Avenue properties are existing Hospital and Nurses home facilities.



View of proposed development from Whitton Place

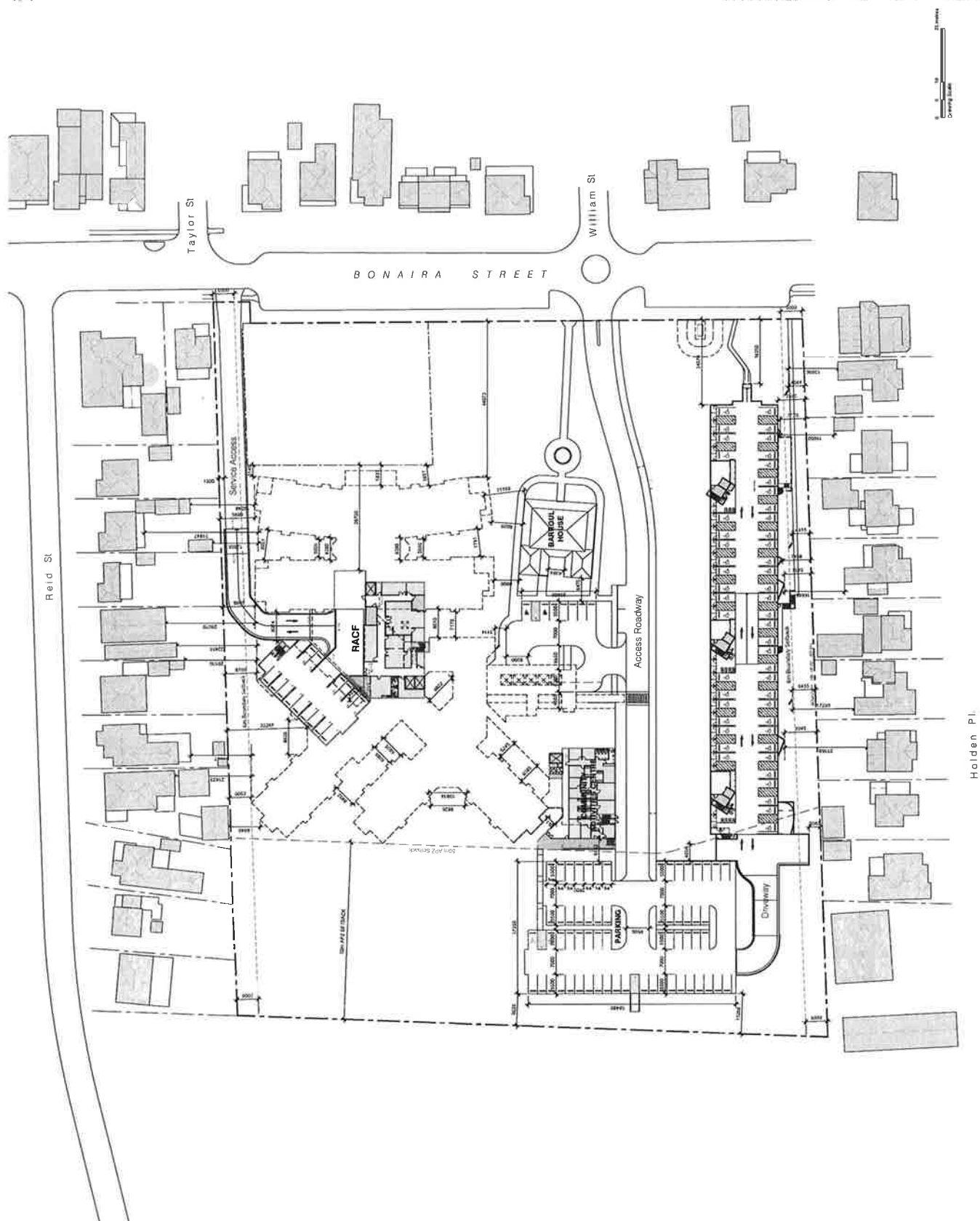


View of proposed development.
Abutting Holden Avenue properties superimposed from SketchUp model for verification purposes



Appendix B

SETBACKS



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Item	Description	Quantity	Unit	Value
1	Site Preparation	1	Lot	1000000
2	Construction	1	Lot	2000000
3	Landscaping	1	Lot	500000
4	Other	1	Lot	100000
5	Total	4	Lot	3500000

PROJECT
KACOE
ACCREDITED RESIDENTIAL AGED CARE
SERVICES SITE PLAN
100% COMMUNITY HALL GROUND FLOORS
100% BALCONY LOWER GROUND FLOORS

BLUE CHAUVEN

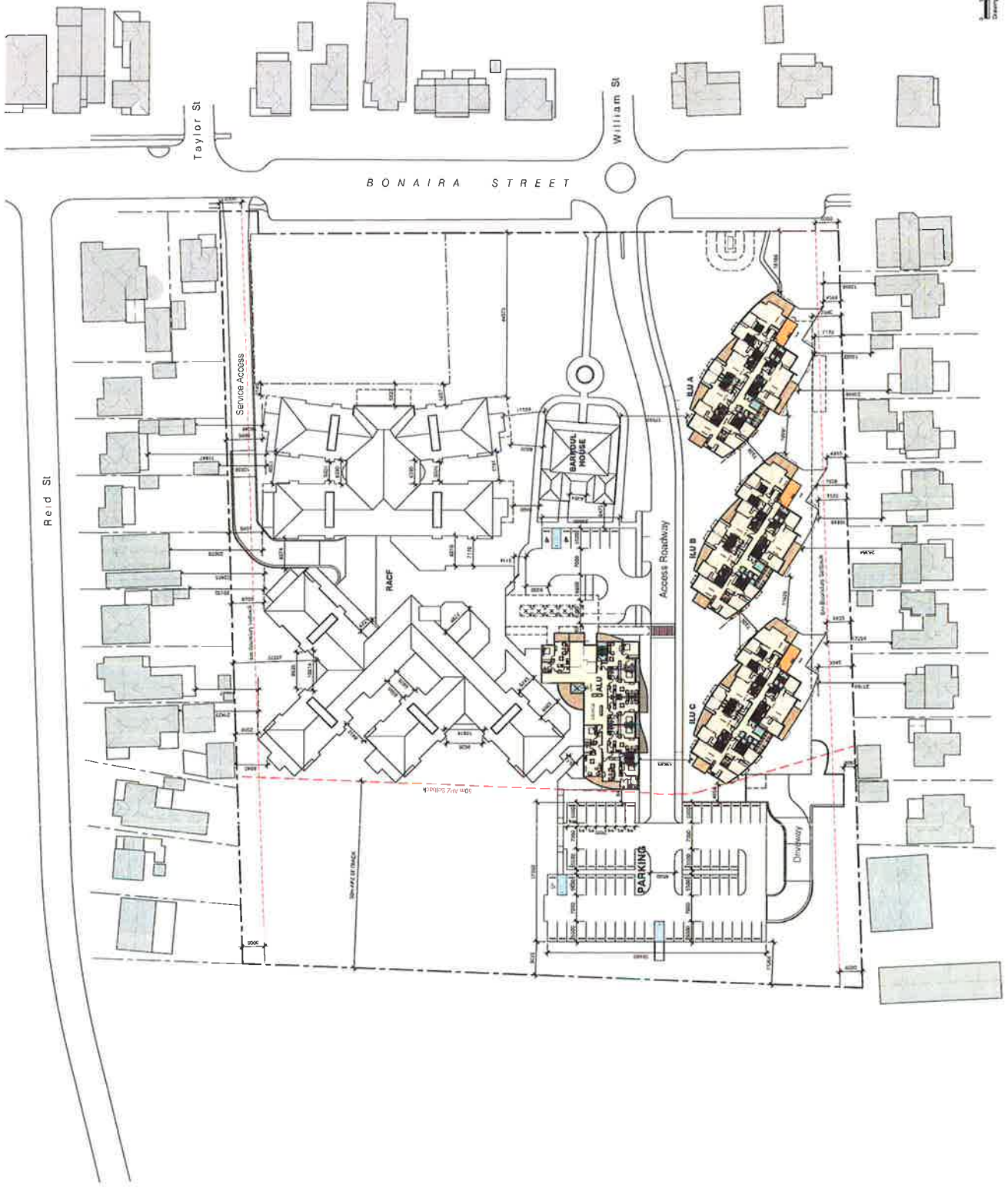
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ARCHITECTS
100% COMMUNITY HALL GROUND FLOORS
100% BALCONY LOWER GROUND FLOORS
100% COMMUNITY HALL GROUND FLOORS
100% BALCONY LOWER GROUND FLOORS

Item	Description	Quantity	Unit	Value
1	Site Preparation	1	Lot	1000000
2	Construction	1	Lot	2000000
3	Landscaping	1	Lot	500000
4	Other	1	Lot	100000
5	Total	4	Lot	3500000

0 5 10 20 meters
Drawing Scale

Holden Pl





1. Project Name	2. Project Number	3. Project Date
4. Project Location	5. Project Status	6. Project Owner
7. Project Manager	8. Project Engineer	9. Project Architect
10. Project Designer	11. Project Consultant	12. Project Contractor

BOFFA ROBERTSON GROUP
 INTEGRATED RESIDENTIAL AGED CARE
 SETBACKS SITE PLAN
 ALU SECOND FLOOR - ALU FIRST FLOORS

BLUE HAVEN
 CARE

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1. Project Name	2. Project Number	3. Project Date
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7. Project Manager	8. Project Engineer	9. Project Architect
10. Project Designer	11. Project Consultant	12. Project Contractor

Holden Pl



Appendix C
FLOOR SPACE RATIO

0 5 10 25 metres
Drawing Scale

Gross Floor Area* Floor Space Ratio Calculations

Building	Area in m ²
RACF - Ground Floor	4389
Community Hall (1st Floor)	1852
16 Bed Pod (1st Floor)	1852
17 Bed Pod (1st Floor)	1852
18 Bed Pod (1st Floor)	2027

KEY PLAN:

- Should Area denote area calculated for the Floor Space Ratio FSR
- RACF
 - COMMUNITY ADMIN & COMMUNITY HALL
 - ILU
 - ALU
 - BARROUL HOUSE

NOTES:

- Refer to drawing 1509/DQ33 for Summary of overall Floor Space Ratio calculations.
- *Gross Floor Area Calculated in p11

BONAIRA STREET

William S

Building	Area in m ²
RACF - Ground Floor	4389
Community Hall (1st Floor)	1852
16 Bed Pod (1st Floor)	1852
17 Bed Pod (1st Floor)	1852
18 Bed Pod (1st Floor)	2027

KACOE
INTEGRATED RESIDENTIAL AGED CARE

BLUE HAVEN
CARE

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1509 / DQ34



Overall Site Area: 10,000 m²
 Building Footprint: 1,500 m²
 Total Floor Area: 15,000 m²

Gross Floor Area/ Floor Space Ratio Calculations	
Building	Area in m ²
1509 / DASS	1,500
1509 / DASS	1,500
1509 / DASS	1,500
1509 / DASS	1,500

KEY PLAN:

Shaded Area denotes area calculated for the Floor Space Ratio (FSR)

- RACF
- COMMUNITY ADMIN & COMMUNITY HALL
- ILU
- ALU
- BARBOUL HOUSE

NOTES:

1. Refer to drawing 1509/DASS for Summary of overall Floor Space Ratio calculations
2. *Gross Floor Area Calculated as per Kaitiaki Local Environmental Plan 2011

BONAIRA STREET

William S

Project	Client	Location	Scale	Date
1509 / DASS	1509 / DASS	1509 / DASS	1509 / DASS	1509 / DASS
1509 / DASS	1509 / DASS	1509 / DASS	1509 / DASS	1509 / DASS
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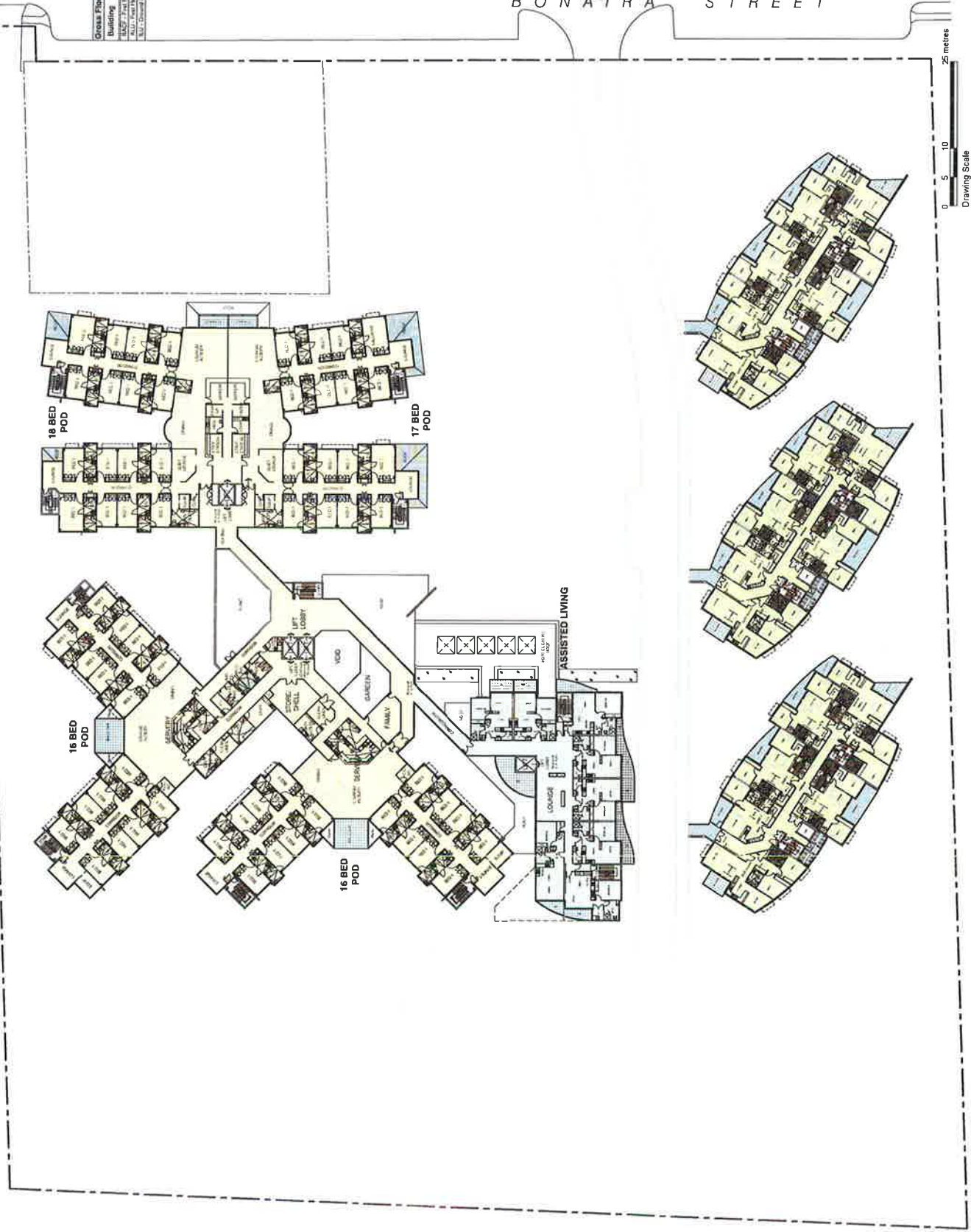
KACOE
 INTEGRATED RESIDENTIAL AGED CARE
 DUNEDIN
 1509 / DASS
 1509 / DASS
 1509 / DASS

BLUE CHAUVENET

boffa robertson group
 CONTACT: 0800 900 900
 1509 / DASS

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 1509 / DASS

1509 / DASS



0 5 10 25 metres
 Drawing Scale

1. The floor area of the building is calculated in accordance with the Building Regulations 2010.

Gross Floor Area / Floor Space Ratio Calculations		
Building	Area in m ²	Ratio
2011 Building	117.5	0.12
2012 Building	117.5	0.12

KEY PLAN:

Shaded Area denotes area calculated for the Floor Space Ratio FSR

- RACF
- COMMUNITY ADMIN & COMMUNITY HALL
- ILU
- ALLU
- BARROUL HOUSE

NOTES:

1. Refer to drawing 1508/DA33 for Summary of overall Floor Space Ratio calculations.
2. *Gross Floor Area Calculated as per Building Local Environmental Plan 2011

BONAIRA STREET

William S

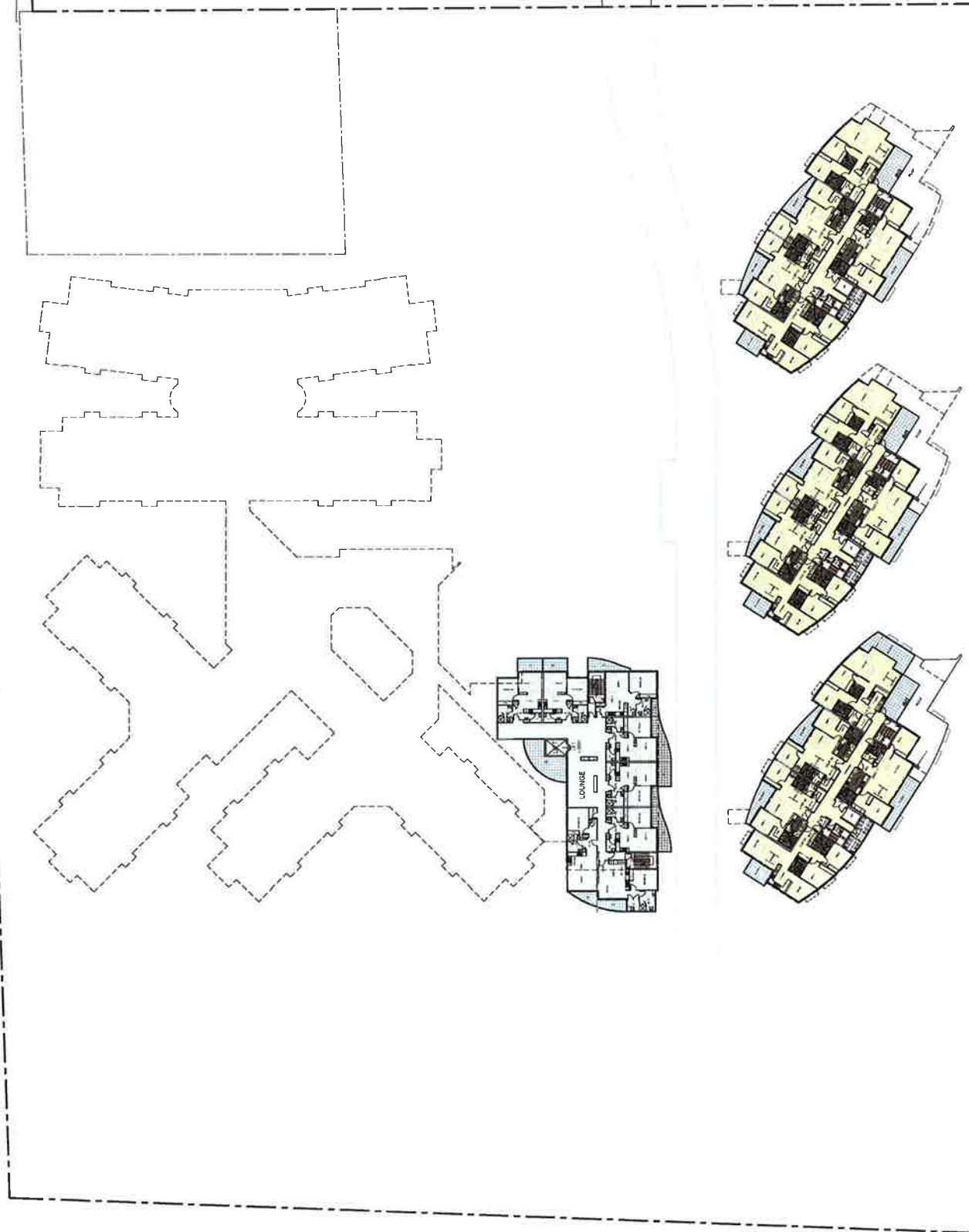
Project	KACCE
Client	INTEGRATED RESIDENTIAL AGED CARE
Location	11/1201 BONAIRA STREET, BONAIRA, ACT 2611
Site	11/1201 BONAIRA STREET, BONAIRA, ACT 2611
Scale	1:1000
Date	15/08/2011

BLUE HAVEN
care

boffa robertson group
architects

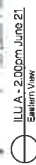
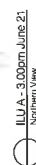
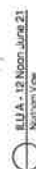
Client	INTEGRATED RESIDENTIAL AGED CARE
Location	11/1201 BONAIRA STREET, BONAIRA, ACT 2611
Site	11/1201 BONAIRA STREET, BONAIRA, ACT 2611
Scale	1:1000
Date	15/08/2011

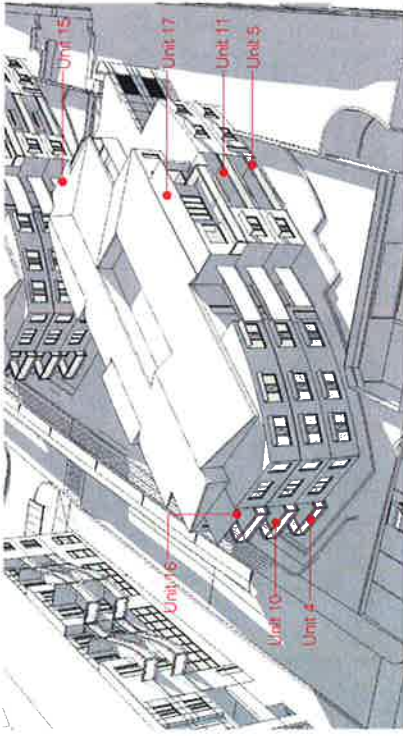
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Drawing Scale



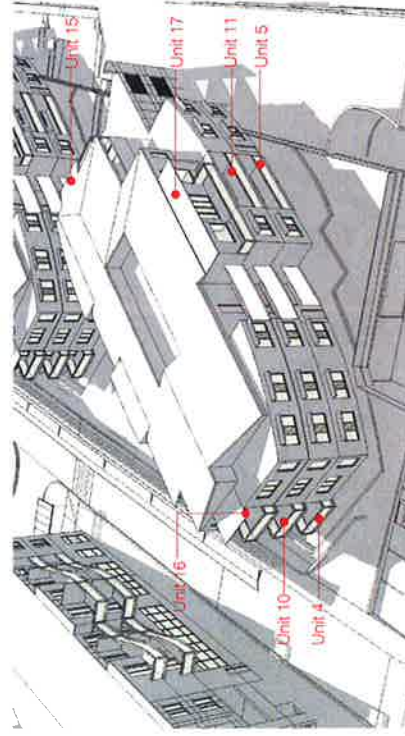


Appendix D
SOLAR ACCESS

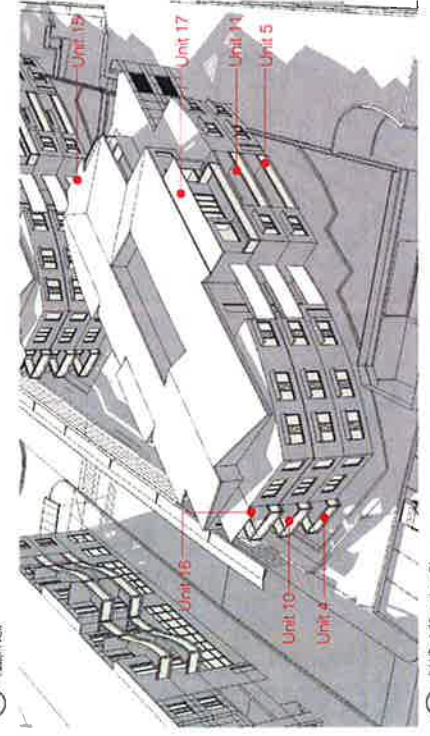




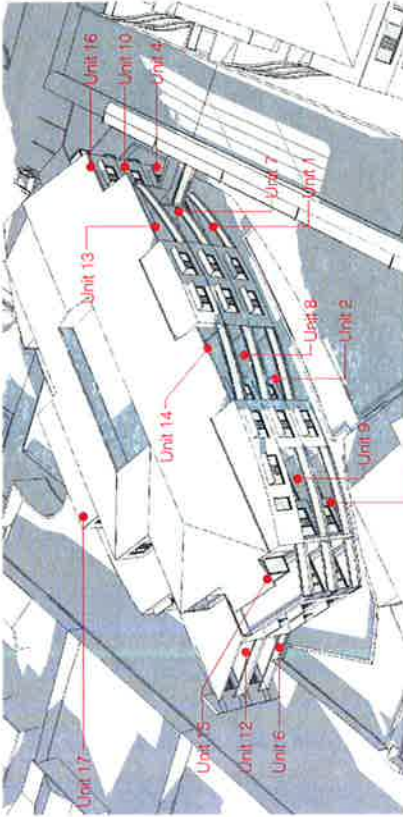
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Eastern View



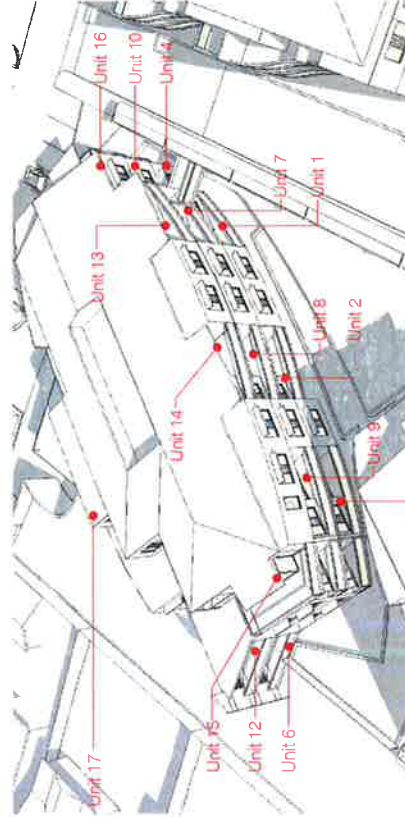
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Eastern View



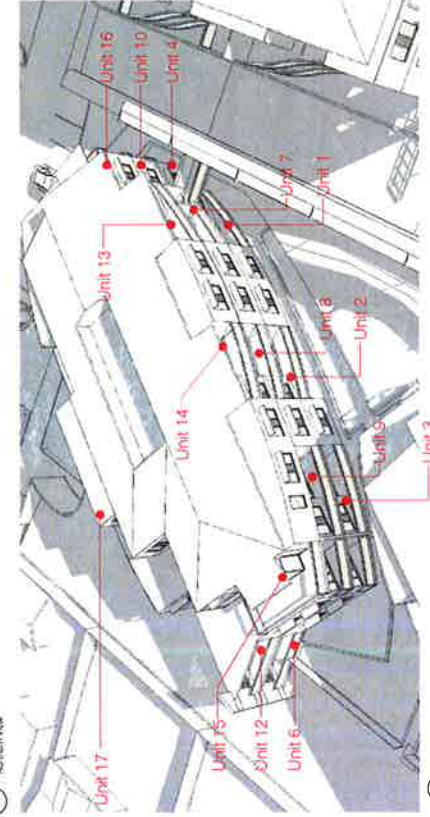
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Eastern View



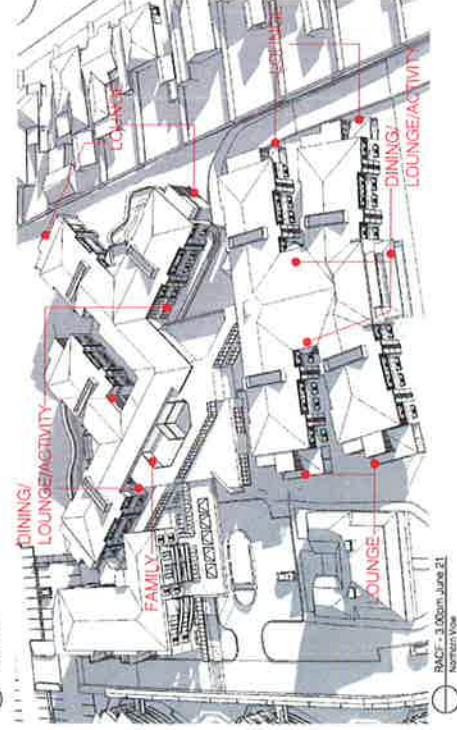
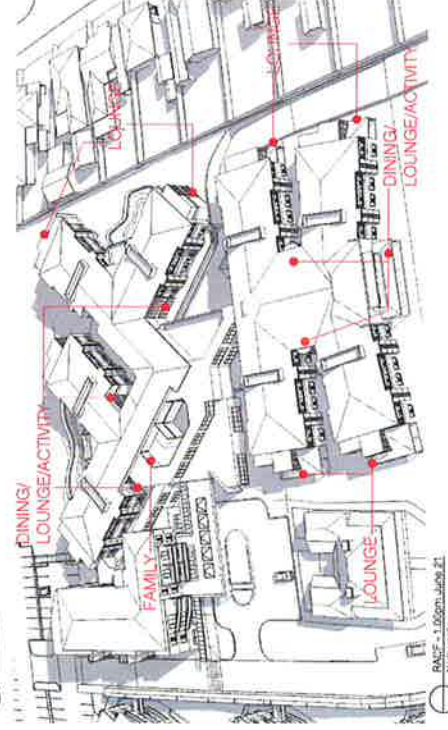
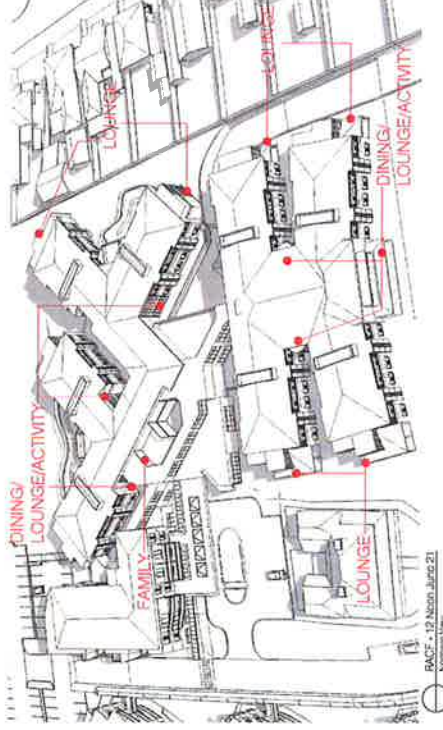
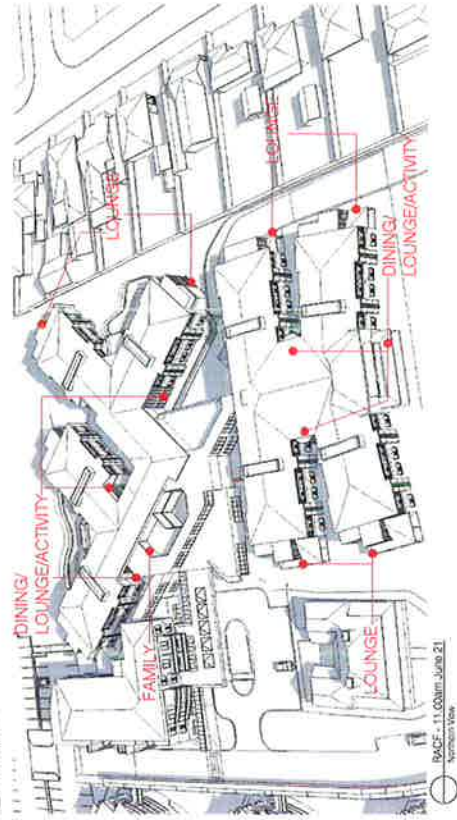
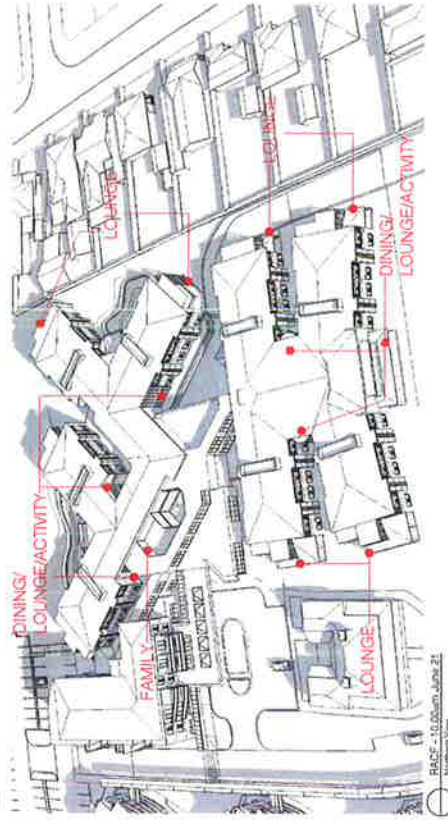
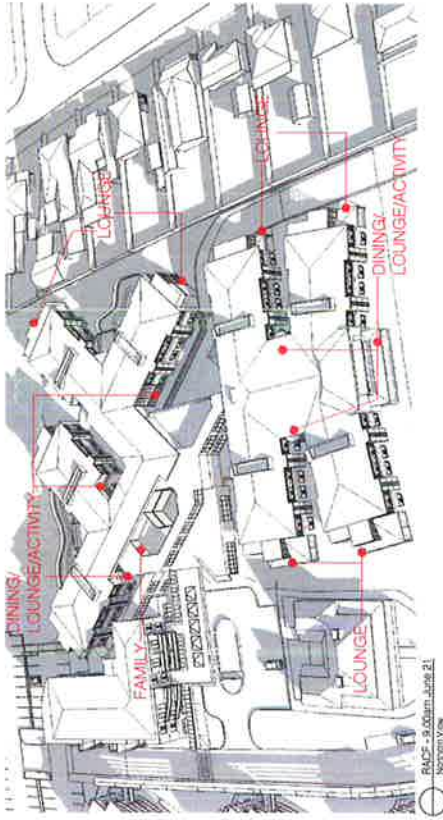
● IU.B.C. - 9:00am June 21
Northern View



● IU.B.C. - 12:00 Noon June 21
Northern View



● IU.B.C. - 2:00pm June 21
Northern View



	No.	Date	Paid To
	0	March 8, 1968	KACOE
			INTEGRATED RESIDENTIAL AGED CARE

KACOE
INTEGRATED RESIDENTIAL AGED CARE
Drawing
RACF
SOLID ADDRESS STUDIO

BLUE HAVEN CARE

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architectural health and safety consulting project management

gbr

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	NAME	DATE	CLASS
	LAST	FIRST	INITIAL
	SIGNATURE		
	DATE		



Appendix E
SOLAR ACCESS TABLE

APPENDIX E

SOLAR ACCESS - Review 08 November 2015

The SEPP 65 Apartment Design Guide requires apartments in other than Metropolitan areas to be provided with a minimum of 3 hours solar access to "Living rooms and private open spaces" of at least 70% of all apartments in a proposed development. The subject proposal was modelled in 3-D using SketchUp and the following hours of solar access to each apartment, in each of the three buildings, were determined. A typical plan also accompanies illustrating the access provided to each apartment, at various times during the day.

	BUILDING A			BUILDING B			BUILDING C		
LEVEL	Apartment	Solar Access	ADG Compliance	Apartment	Solar Access	ADG Compliance	Apartment	Solar Access	ADG Compliance
LOWER GROUND	A / 01	11.30 - 2.30	Yes	B / 01	11.00 - 2.00	Yes	C / 01	11.00 - 2.00	Yes
	A / 02	10.00 - 3.00	Yes	B / 02	10.00 - 3.00	Yes	C / 02	10.00 - 3.00	Yes
	A / 03	9.00 - 3.00	Yes	B / 03	9.00 - 11.30	No	C / 03	9.00 - 11.30	No
	A / 04	11.00 - 3.00	Yes	B / 04	11.00 - 2.00	Yes	C / 04	11.30 - 1.30	No
	A / 05	Sunrise to 9.00	No	B / 05	Sunrise to 9.00	No	C / 05	Sunrise to 9.00	No
	A / 06	9.00 - 3.00	Yes	B / 06	9.00 - 3.00	Yes	C / 06	9.00 - 3.00	Yes
GROUND	A / 07	11.30 - 2.30	Yes	B / 07	11.30 - 2.30	Yes	C / 07	11.30 - 2.30	Yes
	A / 08	10.00 - 3.00	Yes	B / 08	10.00 - 3.00	Yes	C / 08	10.00 - 3.00	Yes
	A / 09	9.00 - 3.00	Yes	B / 09	9.00 - 1.00	Yes	C / 09	9.00 - 1.00	Yes
	A / 10	11.00 - 3.00	Yes	B / 10	11.00 - 3.00	Yes	C / 10	11.00 - 2.30	Yes
	A / 11	Sunrise to 9.00	No	B / 11	Sunrise to 9.00	No	C / 11	Sunrise to 9.00	No
	A / 12	9.00 - 3.00	Yes	B / 12	9.00 - 3.00	Yes	C / 12	9.00 - 3.00	Yes
FIRST	A / 13	11.30 - 2.30	Yes	B / 13	11.30 - 2.30	Yes	C / 13	11.30 - 2.30	Yes
	A / 14	10.00 - 3.00	Yes	B / 14	10.00 - 3.00	Yes	C / 14	10.00 - 3.00	Yes
	A / 15	9.00 - 3.00	Yes	B / 15	9.00 - 3.00	Yes	C / 15	9.00 - 3.00	Yes
	A / 16	11.00 - 3.00	Yes	B / 16	11.00 - 3.00	Yes	C / 16	11.00 - 3.00	Yes
	A / 17	9.00 - 12.00	Yes	B / 17	9.00 - 12.00	Yes	C / 17	9.00 - 12.00	Yes
	ADG COMPLYING		15	ADG COMPLYING		14	ADG COMPLYING		13

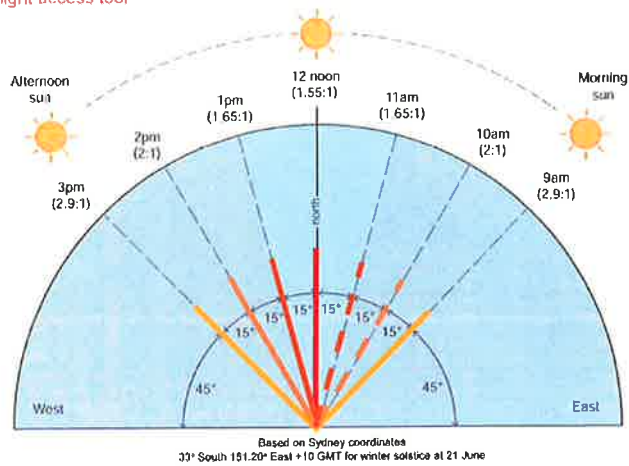
APARTMENT DESIGN GUIDE COMPLIANCE REQUIREMENT = 70% OF APARTMENTS TO ACHIEVE 3 HOURS MIN. SOLAR ACCESS

KACOE DEVELOPMENT ILU NUMBER = 51

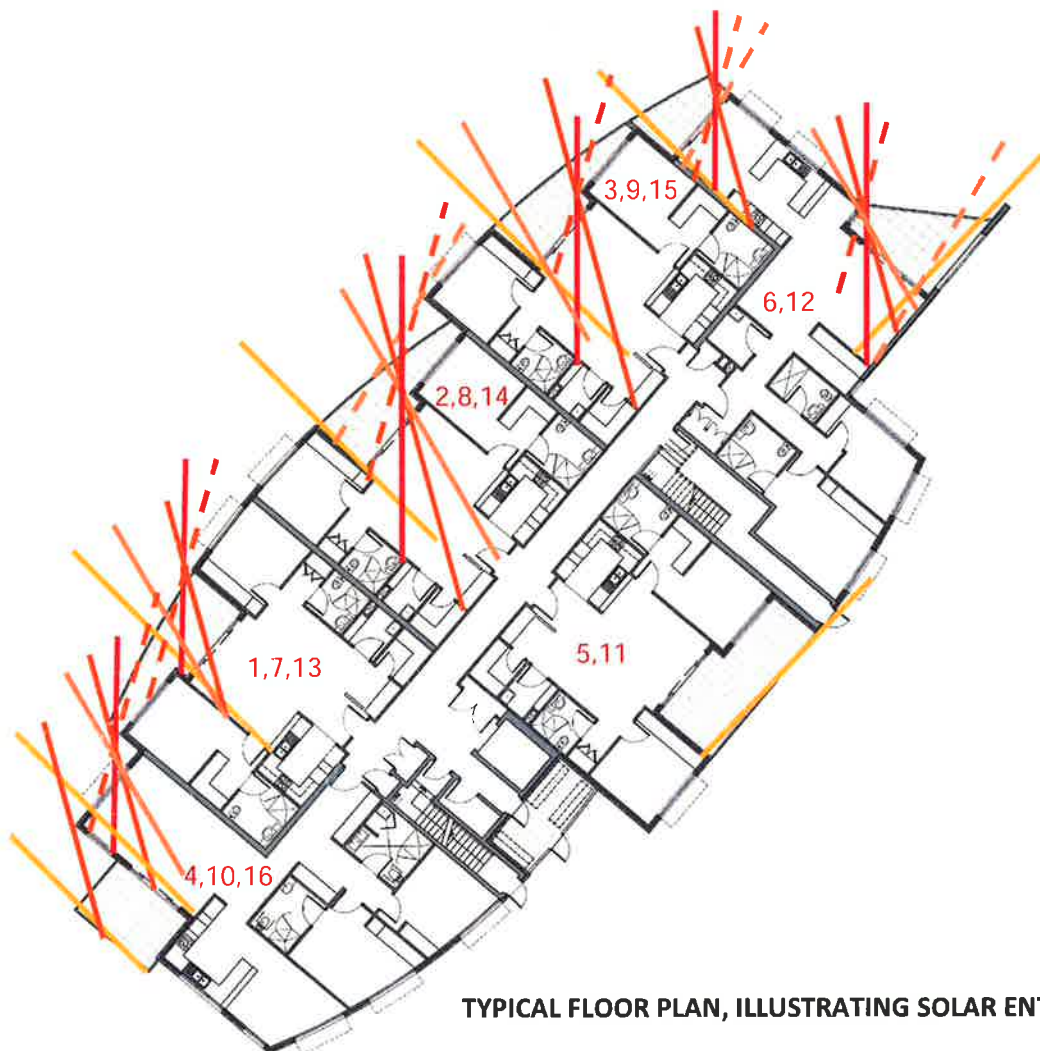
KACOE DEVELOPMENT ACHIEVING >3 HOURS = 42

ACHIEVED COMPLIANCE = 82%

Sunlight access tool



APARTMENT DESIGN GUIDE - SOLAR ACCESS TOOL



TYPICAL FLOOR PLAN, ILLUSTRATING SOLAR ENTRY



Appendix F
SCALE & PRIVACY



Appendix G
CUT & FILL

10 November 2015

Our Ref: CLTR-20150263.01A

Premier Consulting
Level 5, Gold Fields House
1 Alfred Street
SYDNEY NSW 2000

ATTENTION: MR ROBERT GOFF

Dear Robert,

PROJECT: PROPOSED DEVELOPMENT - KIAMA AGED CENTRE OF EXCELLENCE,

ADDRESS: KIAMA HOSPITAL, BONAIRA STREET, KIAMA NSW 2533

Jones Nicholson has been informed via email requesting justification for the amount of cut and fill across the site, whilst also commenting on the visual impact this will have on the land and character of the surrounding area.

In response to this request, the following information is provided:

- Based upon preliminary earthwork calculations, the total amount of cut for the site will be in the order of 32,400 cubic metres, and the total amount of fill will be approximately 2,000 cubic metres. This will result in excess cut material in the order of 32,400 cubic metres of material extracted from the site.
- The building levels for the proposed development have been developed to accommodate ease of access around the site for persons of all ages, in conjunction with balancing the operational requirements of managing the proposed aged care facility.
- With regard to the visual impact of the proposed works, given the majority of excavation works required is to accommodate basement car parking to the independent living units and basement access under the proposed aged care facility, the relatively small quantity of fill works will not be out of character with the area, or be aesthetically obtrusive.
- Some of the proposed filling works is being employed to mitigate existing flooding issues to properties within the downstream catchment area of the site. The filling works will be used to divert existing stormwater flow paths to as a part of the landscaping of the site.
- Some of the proposed filling works is being used to ensure accessibility from the rear car park area is maintained to the proposed buildings.

WOLLONGONG
ABN 51 003 316 032
Unit 6, 119-121 Kembla Street
WOLLONGONG NSW 2500
PO Box 124, WOLLONGONG NSW 2520
Tel: 02 4228 0570 Fax: 02 4228 0599
Email: wgong@jonesnicholson.com.au
www.jonesnicholson.com.au



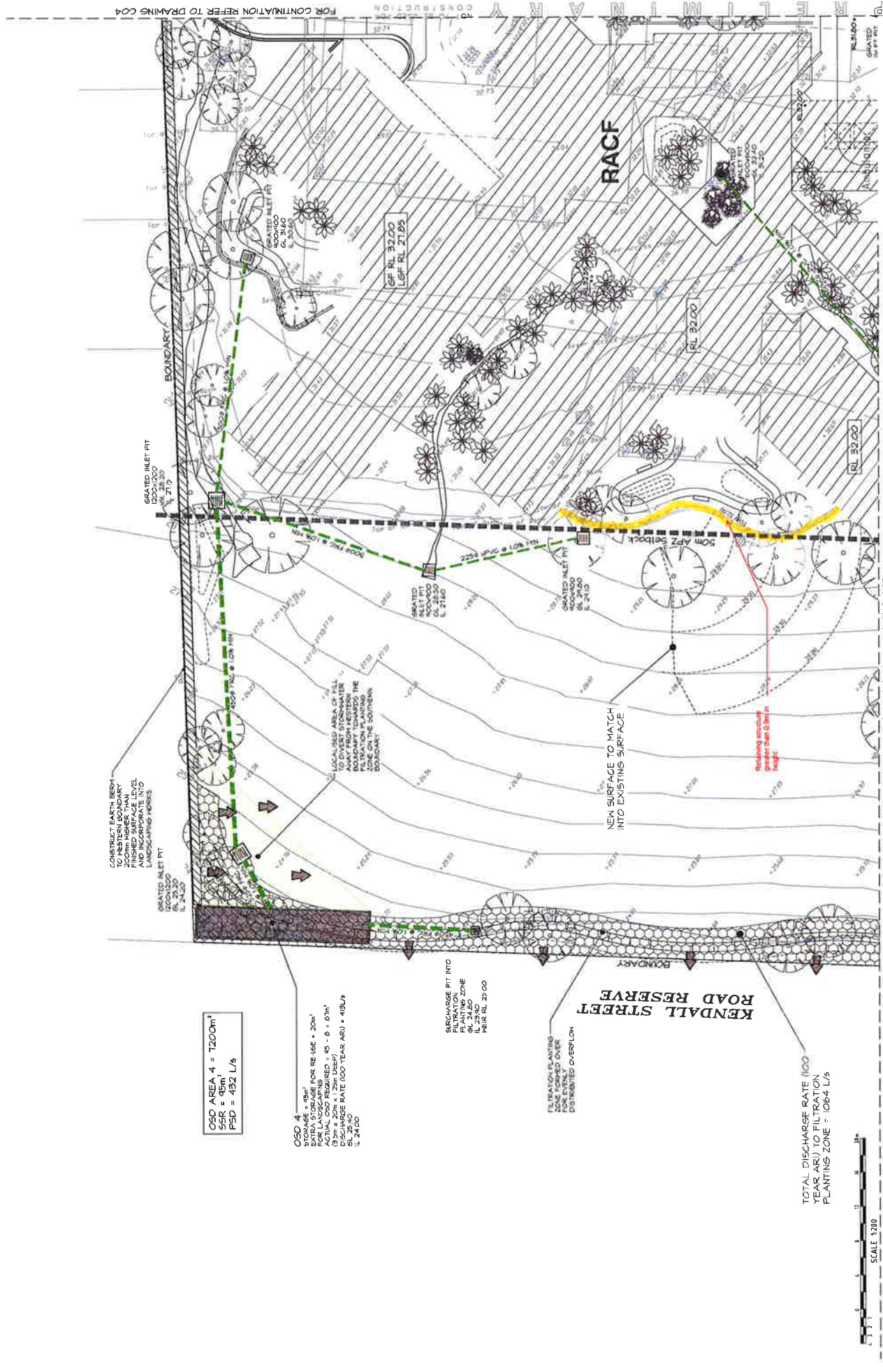
- Proposed excavation works will be limited to the building footprints and consequently, the general topography of the site, particularly fronting Bonaira Street, will remain relatively unchanged.

For and on behalf of Jones Nicholson Pty Ltd



Stephen Falkner

Chartered Professional Engineer (Civil/Structural)



OSD AREA 4 = 7200m²
 SGR = 95m³
 PSD = 432 L/s

OSD 4
 STORAGE = 95m³ FOR RE USE = 20m³
 FOR LANDSCAPING
 ACTUAL OSD REQUIRED = 45 - 6 = 6m³
 100 YEAR ARI DISCHARGE RATE
 DISCHARGE RATE (100 YEAR ARI) = 432 L/s
 RL 24.00

SIRCHARGE PIT INTO
 PLANTING ZONE
 6m x 24.50m
 RL 22.00

FILTRATION PLANTING
 ZONE OVER
 DISTURBED OVERFLOW

ROAD RESERVE

TOTAL DISCHARGE RATE (100
 YEAR ARI) TO FILTRATION
 PLANTING ZONE = 1064 L/s



FOR CONTINUATION REFER TO DRAWING C04

FOR CONTINUATION REFER TO DRAWING C05

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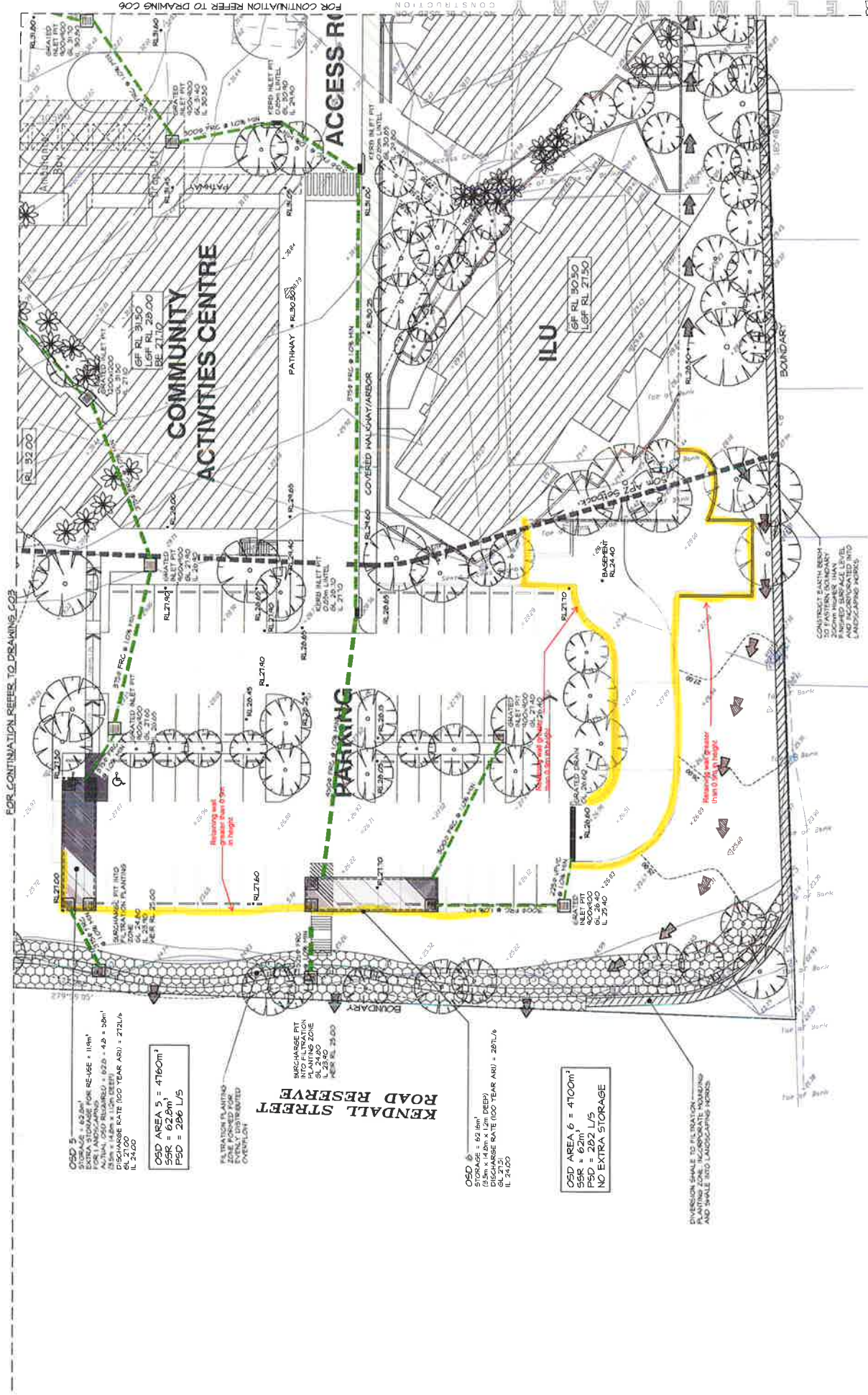
DESIGN: JN
 DRAWN: JN
 DATE: JAN 2015
 Dwg No: 100
 SCALE: 1:200
 PROJECT: 100

CIVIL DESIGN
STORMWATER
DRAINAGE PLAN
SHEET 1

KIAMA AGED CENTRE OF
EXCELLENCE
 KIAMA HOSPITAL,
 KIAMA MUNICIPAL COUNCIL

150263
CO3P2

FOR CONTINUATION REFER TO DRAWING C02



OSD 5
STORAGE = 430m³
FOR LANDSCAPING (OSD) = 620 - 40 = 580m³
(25m x 12m x 1.0m DEEP)
DISCHARGE RATE (100 YEAR ARI) = 272L/s
IL 24.00

OSD AREA 5 = 4160m²
SSR = 62.8m³
PSD = 286 L/s

OSD 6
STORAGE = 420m³
(9.5m x 14.0m x 1.2m DEEP)
DISCHARGE RATE (100 YEAR ARI) = 287L/s
IL 24.00

OSD AREA 6 = 4700m²
SSR = 62m³
PSD = 282 L/s
NO EXTRA STORAGE

OSD 7
STORAGE = 420m³
(9.5m x 14.0m x 1.2m DEEP)
DISCHARGE RATE (100 YEAR ARI) = 287L/s
IL 24.00

OSD AREA 7 = 4700m²
SSR = 62m³
PSD = 282 L/s
NO EXTRA STORAGE

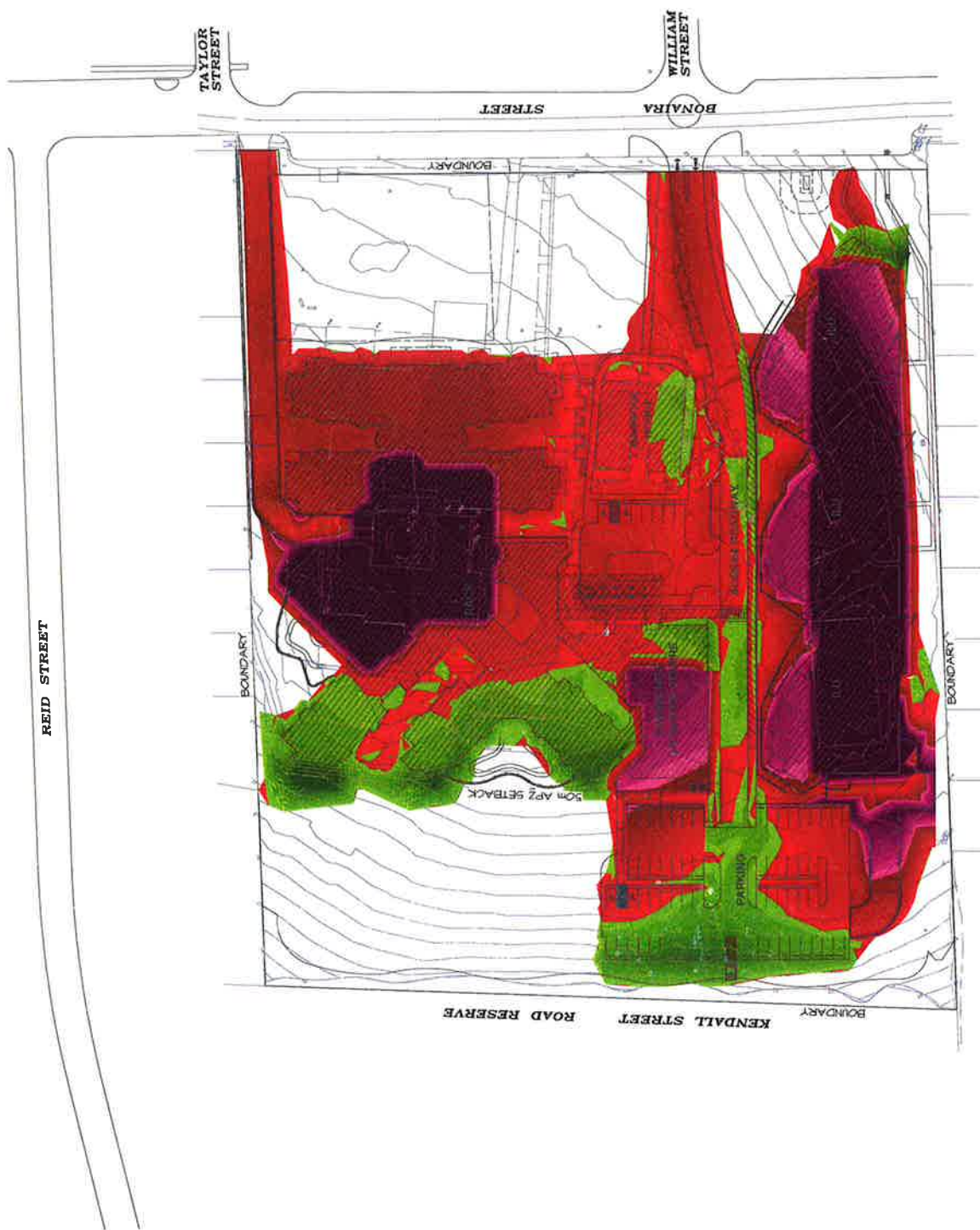
SCALE 1:200

KIAMA AGED CENTRE OF EXCELLENCE
KIAMA HOSPITAL
BONABA ST, KIAMA
KIAMA MUNICIPAL COUNCIL

CIVIL DESIGN
STORMWATER
DRAINAGE PLAN
SHEET 3

JONES NICHOLSON PTY LTD
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 DATE: 11' 1400' 1411' 1412' 1413' 1414' 1415' 1416' 1417' 1418' 1419' 1420' 1421' 1422' 1423' 1424' 1425' 1426' 1427' 1428' 1429' 1430' 1431' 1432' 1433' 1434' 1435' 1436' 1437' 1438' 1439' 1440' 1441' 1442' 1443' 1444' 1445' 1446' 1447' 1448' 1449' 1450' 1451' 1452' 1453' 1454' 1455' 1456' 1457' 1458' 1459' 1460' 1461' 1462' 1463' 1464' 1465' 1466' 1467' 1468' 1469' 1470' 1471' 1472' 1473' 1474' 1475' 1476' 1477' 1478' 1479' 1480' 1481' 1482' 1483' 1484' 1485' 1486' 1487' 1488' 1489' 1490' 1491' 1492' 1493' 1494' 1495' 1496' 1497' 1498' 1499' 1500' 1501' 1502' 1503' 1504' 1505' 1506' 1507' 1508' 1509' 1510' 1511' 1512' 1513' 1514' 1515' 1516' 1517' 1518' 1519' 1520' 1521' 1522' 1523' 1524' 1525' 1526' 1527' 1528' 1529' 1530' 1531' 1532' 1533' 1534' 1535' 1536' 1537' 1538' 1539' 1540' 1541' 1542' 1543' 1544' 1545' 1546' 1547' 1548' 1549' 1550' 1551' 1552' 1553' 1554' 1555' 1556' 1557' 1558' 1559' 1560' 1561' 1562' 1563' 1564' 1565' 1566' 1567' 1568' 1569' 1570' 1571' 1572' 1573' 1574' 1575' 1576' 1577' 1578' 1579' 1580' 1581' 1582' 1583' 1584' 1585' 1586' 1587' 1588' 1589' 1590' 1591' 1592' 1593' 1594' 1595' 1596' 1597' 1598' 1599' 1600' 1601' 1602' 1603' 1604' 1605' 1606' 1607' 1608' 1609' 1610' 1611' 1612' 1613' 1614' 1615' 1616' 1617' 1618' 1619' 1620' 1621' 1622' 1623' 1624' 1625' 1626' 1627' 1628' 1629' 1630' 1631' 1632' 1633' 1634' 1635' 1636' 1637' 1638' 1639' 1640' 1641' 1642' 1643' 1644' 1645' 1646' 1647' 1648' 1649' 1650' 1651' 1652' 1653' 1654' 1655' 1656' 1657' 1658' 1659' 1660' 1661' 1662' 1663' 1664' 1665' 1666' 1667' 1668' 1669' 1670' 1671' 1672' 1673' 1674' 1675' 1676' 1677' 1678' 1679' 1680' 1681' 1682' 1683' 1684' 1685' 1686' 1687' 1688' 1689' 1690' 1691' 1692' 1693' 1694' 1695' 1696' 1697' 1698' 1699' 1700' 1701' 1702' 1703' 1704' 1705' 1706' 1707' 1708' 1709' 1710' 1711' 1712' 1713' 1714' 1715' 1716' 1717' 1718' 1719' 1720' 1721' 1722' 1723' 1724' 1725' 1726' 1727' 1728' 1729' 1730' 1731' 1732' 1733' 1734' 1735' 1736' 1737' 1738' 1739' 1740' 1741' 1742' 1743' 1744' 1745' 1746' 1747' 1748' 1749' 1750' 1751' 1752' 1753' 1754' 1755' 1756' 1757' 1758' 1759' 1760' 1761' 1762' 1763' 1764' 1765' 1766' 1767' 1768' 1769' 1770' 1771' 1772' 1773' 1774' 1775' 1776' 1777' 1778' 1779' 1780' 1781' 1782' 1783' 1784' 1785' 1786' 1787' 1788' 1789' 1790' 1791' 1792' 1793' 1794' 1795' 1796' 1797' 1798' 1799' 1800' 1801' 1802' 1803' 1804' 1805' 1806' 1807' 1808' 1809' 1810' 1811' 1812' 1813' 1814' 1815' 1816' 1817' 1818' 1819' 1820' 1821' 1822' 1823' 1824' 1825' 1826' 1827' 1828' 1829' 1830' 1831' 1832' 1833' 1834' 1835' 1836' 1837' 1838' 1839' 1840' 1841' 1842' 1843' 1844' 1845' 1846' 1847' 1848' 1849' 1850' 1851' 1852' 1853' 1854' 1855' 1856' 1857' 1858' 1859' 1860' 1861' 1862' 1863' 1864' 1865' 1866' 1867' 1868' 1869' 1870' 1871' 1872' 1873' 1874' 1875' 1876' 1877' 1878' 1879' 1880' 1881' 1882' 1883' 1884' 1885' 1886' 1887' 1888' 1889' 1890' 1891' 1892' 1893' 1894' 1895' 1896' 1897' 1898' 1899' 1900' 1901' 1902' 1903' 1904' 1905' 1906' 1907' 1908' 1909' 1910' 1911' 1912' 1913' 1914' 1915' 1916' 1917' 1918' 1919' 1920' 1921' 1922' 1923' 1924' 1925' 1926' 1927' 1928' 1929' 1930' 1931' 1932' 1933' 1934' 1935' 1936' 1937' 1938' 1939' 1940' 1941' 1942' 1943' 1944' 1945' 1946' 1947' 1948' 1949' 1950' 1951' 1952' 1953' 1954' 1955' 1956' 1957' 1958' 1959' 1960' 1961' 1962' 1963' 1964' 1965' 1966' 1967' 1968' 1969' 1970' 1971' 1972' 1973' 1974' 1975' 1976' 1977' 1978' 1979' 1980' 1981' 1982' 1983' 1984' 1985' 1986' 1987' 1988' 1989' 1990' 1991' 1992' 1993' 1994' 1995' 1996' 1997' 1998' 1999' 2000' 2001' 2002' 2003' 2004' 2005' 2006' 2007' 2008' 2009' 2010' 2011' 2012' 2013' 2014' 2015' 2016' 2017' 2018' 2019' 2020' 2021' 2022' 2023' 2024' 2025' 2026' 2027' 2028' 2029' 2030' 2031' 2032' 2033' 2034' 2035' 2036' 2037' 2038' 2039' 2040' 2041' 2042' 2043' 2044' 2045' 2046' 2047' 2048' 2049' 2050' 2051' 2052' 2053' 2054' 2055' 2056' 2057' 2058' 2059' 2060' 2061' 2062' 2063' 2064' 2065' 2066' 2067' 2068' 2069' 2070' 2071' 2072' 2073' 2074' 2075' 2076' 2077' 2078' 2079' 2080' 2081' 2082' 2083'



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1000A ST, KIAMIA
KIAMI MUNICIPAL COUNCIL

10



Appendix H
LANDSCAPE & VEGETATION

Appendix I
NOISE BARRIER

4 November 2015

TH300-01F03 (r1) DA Acoustic Assessment - Supplementary Letter

Robert Goff
Premier Consulting Australia
Level 5 Gold Fields House
1 Alfred Street
Sydney NSW 2000

Dear Robert Goff

KIAMA AGED CENTRE OF EXCELLENCE - DA Acoustic Assessment - Supplementary Letter

Further to Renzo Tonin and Associates report, TH300-01F02 (r2) DA Acoustic Assessment, *Kiama Aged Centre of Excellence DA Acoustic Assessment*, dated 18 August 2015, and in response to queries raised by Kiama Municipal Council following the assessment of the application, this letter provides additional information on two aspects:

1. A noise barrier to control noise from the main car park and Independent Living Unit (ILU) carpark access ramp, on Holden Avenue properties, namely 33 Holden Avenue.
2. The potential noise impacts from garbage collection from the area adjacent to the ILU carpark entry.

Main Carpark and ILU Car park Ramp Noise Barrier

33 Holden Avenue is the most sensitive receiver as it is the closest residence to the main car park and the ILU carpark ramp and lacks a solid boundary fence along the western boundary. Three (3) noise barrier options have been investigated and the potential noise benefits have been quantified by noise modelling. A summary of the results has been provided below and the noise barriers have been listed in order of preference.

Option 1: Noise barrier along the eastern side of the ILU carpark ramp. This is the most effective location for the noise barrier. The modelling has found that a 1.5m barrier provides marginal benefit, in the order of 2-3 dB(A). Presently there is a predicted exceedance of up to 2 dB(A) at 33 Holden Avenue, the implementation of the 1.5m barrier would likely lower noise levels to below the established noise goals. Furthermore, a barrier at this location would reduce noise levels from both the main carpark and the ILU entry ramp.

Option 2: Property boundary fence alongside the western boundary of 33 Holden Avenue. Due to the topography of the site, a 1.8m high boundary fence will be beneficial for the northern end of 33 Holden Avenue but the benefit of the fence will diminish towards the southern end as the land slopes down and the windows of the dwelling become more exposed.

Option 3: Noise barrier along the eastern side of the main carpark. A noise barrier at this location would not be acoustically effective as the ILU entry ramp would restrict a continuous barrier.

The above findings are only preliminary and would be subject to detailed analysis during the design development stage.

Garbage Collection

Given garbage collection is likely to occur only once a week, the adoption of physical mitigation measures to reduce noise to technical compliance is deemed not feasible or reasonable. However the construction of the noise barrier outlined in Option 1 would provide some mitigation to garbage truck movements at the rear of the site. In addition, imposing time restrictions on arrival times would management impacts during the most sensitive time periods, such as restricting access during the night time period (10pm to 7am).

Regards,



Ben Carlyle
Senior Engineer
BCarlyle@renzotonin.com.au

