Amended Plans Submission Form
(Application Not Approved)

Applicant: Ben Deagan (Opal Specialist Aged Care)

Property: 8-14 Sherbrook Road & 78-82 Mons Ave

LDA No: LDA2014/0419 (If amended plans for DA) *(include prefix – eg LDA2009/0001)*

CC No: _____ (If amended plans for CC) *(include prefix – eg PCA2009/1234)*

Assessing Officer: Sandra B.

Notification Required: YES / NO

3 set of plans with amendments clearly marked _____ 1.5.15 (initials & date)

3 A4s for notification: YES / N/A

Received: _____ 1.5.15 (initials & date)

Events updated: _____ 1.5.15 (initials & date)

☑ ***All plans and covering letter are stamped with 'Amended Plans' date stamp***

☑ ***Original and Spare Copies are Separated by a Blue Sheet***

RECORDS

Received: _____

Registered: _____

TO ASSESSING OFFICER

specialist aged care

29 April, 2015

Team Leader Major Development
City of Ryde
Post Locked Bag 2069
North Ryde, NSW 1670

Attn: Sandra Bailey

Dear Sandra

8-14 Sherbrook Road and 78-82 Mons Avenue, West Ryde
Local Development Application No. LDA2014/0419

We refer to above Development Application (DA) and your letter dated 16 February 2015 regarding a preliminary assessment of the application and the range of issues identified by Council that required review and possible resolution.

Opal Aged Care have endeavoured to address and respond positively to all the issues raised in your letter of the 16 February 2015 and the comments raised by Council's Planning Consultant Brad Roeleven in relation to the revised plans provided at the meeting of 25 March 2015. As you would appreciate, there is often a fine balance between implementing significant design amendments and satisfying the commercial realities in relation to our aged care resident needs, operational efficiency and project viability. The changes which are outlined below represent the limit to which Opal Aged Care are able to amend the design while maintaining a viable redevelopment.

Opal Aged Care has demonstrated its willingness to work co-operatively to address all the planning issues raised by Council and many of the concerns raised by the surrounding neighbours. Over the last 12 months we have had several meetings with Council's Planning Officers and the Urban Design Review Panel, undertaken various community consultation meetings, distributed information to the general community by post and over the internet and have met with various neighbours since the submission of our original DA. As a result of these meetings and numerous discussions and consultation with our Design Team, we have now implemented significant design changes to the previously submitted DA drawings.

Key changes to the previously submitted DA drawings include:

- Deletion of strategic resident rooms over all three (3) levels and changes to elevation treatments and landscaping to further articulate the building elevations and to reduce building scale adjacent to 84 Mons Avenue.

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specialist aged care

- Lowering of the basement floor level, and redesign of the basement for service and garbage vehicle access, resulting in the loss of 1 basement parking space (which is replaced in the at grade car park).
- Removal of the vehicular access to Sherbrooke Road, with pedestrian entry only
- Adjusted site planning to increase existing tree retention; to further set-back parts of the development from the rear of 84 Mons Avenue, and to increase landscaping on the Sherbrooke Road frontage.
- Additional information on support services, and a formal justification for variation to the development standards in Clause 26 of the SEPP.

Attached are copies of the revised design drawings and supporting documentation which outlines the proposed changes in detail.

We trust that these significant design amendments satisfactorily address all the issues raised by Council's Planning Department and surrounding neighbours and look forward to receiving your favourable response in due course.

The redevelopment of Fernleigh addresses a pressing need for more aged care places in the City of Ryde at a time when aged care providers are increasingly being forced out of suburban areas due to the strong residential property market. We believe addressing this need, together with the creation of new employment opportunities, represents a very positive outcome for the City of Ryde.

In the meantime, please do not hesitate to contact the undersigned or our Town Planning Consultant, Mike George, should you require further information or wish to discuss any matters in relation to the revised drawings and supporting documentation.

Yours faithfully

Opal Specialist Aged Care

Ben Deagan

Development Manager

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CD Document transmittal

CALDER FLOWER ARCHITECTS

Project:	Opal Fernleigh		Project No:	13150
	Sherbrooke Road West Ryde			
	day	30		
	month	04		
	year	15		
drawing no.	title			
	ARCHITECTURAL DRAWINGS			
	Cover Sheet			
DA 11	Site Plan & Site Analysis	B		
DA 12	Plan Level 1	B		
DA 13	Plan Level 2	B		
DA14	Plan Level 3	B		
DA 15	Plan Level 4	B		
DA 16	Roof Plan	B		
DA 17	Elevations	B		
DA 18	Sections	B		
DA 19	Calculations	B		
DA 20	Smoke Compartments	B		
D A 21	Cameo Elevations and Views	B		
DA 22	Site Set-backs	B		
DA 23	Shadow Diagrams	B		
DA 24	Height Studies	B		
DA 25	GFA Calculations	B		
DA 30	Existing & New Figure Ground	B		
DA 31	Site Set-backs Comparisons	B		
DA 32	Shadows June 21 1hr Intervals	B		
DA 33	Shadows Sept. 21 1hr Intervals	B		
DA 34	Site Cross Sections	B		
DA 35	Views	B		
	REPORTS & DOCUMENTS			
	Statement of Environmental Effects for Revised Scheme dated April 2015.	o		
	Arboricullural Impact Assessment Report for Revised Layout dated 27 April 2015	o		
	Supplementary Traffic Report dated 24 April 2015	o		
	Condenser Noise Assessment Report dated 27 March 2015	o		
	External Building Finishes Sample Board	o		
	Civil Engineering Report	o		
	CIVIL ENGINEERING			
C01	Notes & Legends	P3		
C02	Erosion and Sedimentation Control Plan	P3		
C05	Site Works and Stormwater Plan	P4		
C10	Driveway Long Section	P1		
C20	Details Sheet 1	P2		
C21	Details Sheet 2	P2		
	LANDSCAPING			
L-CD-01	Landscape Concept Plan	B		
L-CD-02	Landscape Sections	B		
L-CD-03	Sections & Character Images	B		
L-CD-04	Landscape Concept Level 3 Terraces	B		
L-CD-05	Landscape Concept Level 4 Terraces	B		
L-CD-06	Landscape Areas Calculations	B		
T-02	Tree Protection & Removal Plan	B		

L2, 140 Myrtle Street
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Nominated Architect J Flower 3974
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AMENDED PLANS
2015

day	30	
month	04	
year	15	
issued to:		
Opal	1	
GRC	1	
Mike George Planning	1	
Arterra		
TTW		
Ryde City Council	4	

reason for issue:	D								
	A:	as built or recorded dwg	E:	cost planning	P:	Clients Review	D:	DA	
	B:	issued with comments	F:	for comment	S:		CC:	Construcli	
	C:	for construction	I:	for information	T:				
	CO:	cordination	O:	Tender Issue for Review	X:				

comments:	Preliminary

sent by:		mail	X	hand			X	other: Email
		fax		courier				webshare

issued by:	name: Donald Maseh date: 30-Apr-15

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SUPPLEMENT TO STATEMENT OF ENVIRONMENTAL EFFECTS

PROPOSED REDEVELOPMENT & EXPANSION OF EXISTING AGED CARE FACILITY, 8-14 SHERBROOKE ROAD & 78-82 MONS AVENUE, WEST RYDE NSW 2114

REVISED SCHEME

Prepared by:
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April 2015

CONTENTS

Accompanying Documents

- **Revised Architectural, Landscaping & Civil Engineering Plans**
- **Revised Tree Impact Assessment Report**
- **Supplementary Acoustic Report**
- **Revised Traffic assessment Report**
- **Civil Engineering Report**

1.0 INTRODUCTION

This report has been prepared in response to issues raised by Council in its assessment of the subject development application (DA No LDA2014/0419). It integrates the various responses to the items set out in Council's letter of 16 February 2015 (Appendix A), as well as subsequent Council comments on draft amended plans.

2.0 SUMMARY OF CHANGES TO SUBMITTED APPLICATION

Key changes to the submitted application proposed in this response include-

- Deletion of strategic units over 2 levels to Sherbrooke Road and part of the upper level to Mons Avenue, together with changes to elevation treatments and landscaping to further articulate the building elevation to Sherbrooke Road, and to reduce building scale adjacent to 84 Mons Avenue.
- Additional information on support services, and a formal justification for variation to the development standards in Clause 26 of the SEPP.
- Lowering of the basement floor level, and redesign of the basement for service and garbage vehicle access, resulting in the loss of 1 basement parking space (which is replaced in the at grade car park).
- Removal of the vehicular access to Sherbrooke Road, with pedestrian entry only
- Adjusted site planning to increase existing tree retention; to further set-back parts of the development from the rear of 84 Mons Avenue, and to increase landscaping on the Sherbrooke Road frontage.

Modified plans and supplementary drawings and reports are separately submitted. The revised project statistics and additional information sought by Council, are set in this report. Chapter 6 provides a detailed summary of the responses to Council's letter

The modified statistics of the proposal are-

Site Area	-	6639m^2
Site Coverage	-	2561m^2 (39%)
Gross Floor Area	-	6339m^2
Floor Space Ratio	-	0.95:1
Total Bedrooms	-	127
Total Beds	-	141

Building Height from existing ground (varies). Refer to drawings

Set-Backs	Sherbrooke Road	3.034m min to 8.185m
	Mons Avenue	11.2m min
	Internal (Refer Drawings)	8.286 min

Landscaped area	Total landscaped area	4078m^2
	Total deep planting zone	1833m^2
	Soft landscape on structure	52m^2
	Hardscape on structure	469m^2
	Total hardscape	1744m^2
	Total terraces on structure	521m^2

(Refer Landscaping Drawing L-SD-06)

Parking	Required – 14 + 27 staff + ambulance bay
	Provided – 41 spaces (incl. 1 disabled) + ambulance bay

3.0 SEPP CLAUSE 26 – SUPPORT SERVICES

3.1 Overview

There are 2 key components of the response set out in this report-

- The requirements of Clause 26 of the SEPP relate to all types of seniors housing permitted by the SEPP, and were intended to act as a means of limiting the wide potential created for seniors housing by the SEPP, to sites with reasonable access to services. This was particularly pertinent to over 55's downsizing their accommodation. It has virtually no practical relevance to an aged care facility due to the limited mobility and declining health of the majority of residents. The practical solution is to bring the particular services required by residents to the facility, as the proposal does. The same development could be permitted as a nursing home under the definition of "hospital" without any requirement or restrictions relating to services. The only difference would be that a nursing home would not enjoy the floor space ratio incentive provided by the SEPP.
- The provisions of Clause 26 are "development standards" within the meaning of the Act, and are open to variation by the mechanism provided by Clause 4.6 of Ryde LEP 2014. Legal advice to this effect accompanies this submission (Appendix B). Formal justification for variation of the standard is presented below. The clause is not open to the narrow and inflexible interpretation put on it by the Council.

3.2 Original SEE Details on Services

The Statement of Environmental Effects accompanying the development application included the following relating to resident services-

The operation of the facility will involve the following:

- *The employment of approximately 150 staff operating 3 shifts per day. Registered Nursing staff will be on site 24 hours. Administration staff will*

work between 8.30am and 5.00pm. The maximum number of staff on-site during the day will be 54, and the minimum will be 7

- *In addition to the hairdresser's room and cafe, space is provided for visiting medical practitioners. Other services will include physiotherapy, podiatry and dental*
- *Dementia specific services will be provided in a specially designed 15 bed discrete unit with self-contained food service, lounge and medical facilities. This area will also have direct access to dedicated and secure level outdoor spaces.*
- *Laundry will be cleaned and stored on site with no external interaction.*
- *Group excursions will occur on a weekly basis using a minibus owned and operated by Opal in the Sydney Metropolitan Area.*

The proposed development will address the provision of services in terms of Clause 26 of the SEPP in a number of ways. The clause does not distinguish between different types of seniors housing and assumes a degree of mobility of residents. The proposal is for a residential care facility catering for seniors who need care, including specific facilities for residents suffering dementia Residents who need care typically have different needs for services than, e.g. a 55 year old resident of a self- care apartment. There are currently no residents at Fernleigh who own a motor vehicle, which is an indicator of their general health and mobility. Future car ownership is unlikely to be different. In broad terms the vast majority of residents of the proposal are likely to be physically unable to walk to shops etc. irrespective of grades, and in the case of residents with dementia, would not be responsibly allowed to do so unsupervised. Across the larger portfolio operated by Opal, more than 50% of residents have a diagnosis of dementia.

The nature and needs of the residents is such that services are almost entirely delivered in the facility. This is underpinned by the availability of Registered Nurses at all times. The proposal also makes provision for-

- *Supply of all meals prepared on site*
- *A café and hairdressing salon on the premises*

- *A consultation room for use by medical practitioners with all GP, physiotherapy, dental and podiatry services delivered on site*
- *Full laundry service for residents, including all linen*
- *Deliveries of pharmaceuticals, newspapers and magazines*
- *Excursions eg to shopping centres, by minibus*
- *Provision of internet access for computer banking, and other services including retail if required*
- *Staff escorts for any specialist medical treatments.*

These arrangements act to satisfy the intent and terms of Clause 26, having regard to the particular characteristics of residents of care facilities that are likely.

In any event, the site is within 400m of Meadowbank Railway Station and shops, and is in the order of 600m from West Ryde Station and a more comprehensive range of shops. Access to West Ryde is available by bus from Adelaide Street within 400m (Routes 523 and 524) with further bus linkages from West Ryde (Routes 501, 534, 543). Route 507 between Macquarie University and the City stops at Meadowbank Station. There are sections of pedestrian routes that have grades in excess of that provided in Clause 26. In other words there is practical access, but it is of limited relevance in the circumstances.

In addition the facility has been designed to facilitate ambulance access, which is particularly relevant to the needs of aged care facility residents.

3.3 Supplementary Information

In the light of Council's comments, Opal Specialist Health Care has reviewed the proposed services for the development, and now proposes the following measures in addition to those specified in the SEE-

- Increase the current minibus service (minibus owned and operated by Opal) from one day a week to three days a week. The additional two days a week

bus service will be dedicated to providing access for our residents to the local retail village

- Provide an internet banking terminal within the facility for resident and staff to utilise 24/7. (Note: the majority of residents typically handover their power of attorney to their families when entering a high care facility, meaning all banking is completed by a resident's family member.)
- Entertainment services, which will include but not be limited to; singers, musicians, comedians, trivia nights, etc.
- The staff training room will be designed to convert into a mini theatre for residents to view the latest movies via the facility's Foxtel channels
- Other on-site medical services will include physiotherapy, podiatry, speech pathology, dieticians, nursing, optometry and dental. Pharmacy /medication distribution services will also be provided.

Opal has also analysed resident characteristics derived from its operation of 69 similar facilities throughout Australia catering for 5500 residents. The key characteristics of existing facility residents (and likely characteristics of future residents of the Fernleigh facility), include-

- Approximately 97% of Opal residents do use public transport from Opal's facilities due to their health and restricted mobility. The risk of falls and injuries on public transport is the key reason. Dementia residents do not use public transport due to the stress and confusion that it creates for them.
- The remaining 3% of residents that utilise public transport is made up of Low care residents that reside within Opal's Assistant Living Apartments (ALA) that are located at Endeavour, Killarney Vale, Edgewood Park and Hillside. Note: the ALA are a class 3 building , not class 9C high-care buildings, such as the Fernleigh development
- Across the entire 5500 residents there were only 10 residents that owned a vehicle that was parked within a facility. 8 out of the 10 residents that owned a vehicle were low care residents that reside in an Assistant Living Apartment

This profile underlines the point that there is no practical requirement or demand for aged care residents to walk to shopping centres or to access public transport.

Moreover it reinforces the significance of the on-site services as relevant to resident's practical needs.

3.4 Variation of Standard

The following sets out the formal justification for variation of the standards contain in Clause 26

LEP Clause 4.6 Variation – SEPP Clause 26 Access to Services

Relevant Development Standard

Clause 26 of SEPP (Housing for Seniors or People with a Disability) 2004 provides-l

(1) A consent authority must not consent to a development application made pursuant to this Chapter unless the consent authority is satisfied, by written evidence, that residents of the proposed development will have access that complies with subclause (2) to:

(a) shops, bank service providers and other retail and commercial services that residents may reasonably require, and

(b) community services and recreation facilities, and

(c) the practice of a general medical practitioner.

(2) Access complies with this clause if:

(a) the facilities and services referred to in subclause (1) are located at a distance of not more than 400 metres from the site of the proposed development that is a distance accessible by means of a suitable access pathway and the overall average gradient for the pathway is no more than 1:14, although the following gradients along the pathway are also acceptable:

(i) a gradient of no more than 1:12 for slopes for a maximum of 15 metres at a time,

(ii) a gradient of no more than 1:10 for a maximum length of 5 metres at a time,

(iii) a gradient of no more than 1:8 for distances of no more than 1.5 metres at a time, or

(b) in the case of a proposed development on land in a local government area within the Sydney Statistical Division—there is a public transport service available to the residents who will occupy the proposed development:

(i) that is located at a distance of not more than 400 metres from the site of the proposed development and the distance is accessible by means of a suitable access pathway, and

(ii) that will take those residents to a place that is located at a distance of not more than 400 metres from the facilities and services referred to in subclause (1), and

(iii) that is available both to and from the proposed development at least once between 8am and 12pm per day and at least once between 12pm and 6pm each day from Monday to Friday (both days inclusive),

and the gradient along the pathway from the site to the public transport services (and from the public transport services to the facilities and services referred to in subclause (1)) complies with subclause (3), or

(3) For the purposes of subclause (2) (b) and (c), the overall average gradient along a pathway from the site of the proposed development to the public transport services (and from the transport services to the facilities and services referred to in subclause (1)) is to be no more than 1:14, although the following gradients along the pathway are also acceptable:

(i) a gradient of no more than 1:12 for slopes for a maximum of 15 metres at a time,

(ii) a gradient of no more than 1:10 for a maximum length of 5 metres at a time,

(iii) a gradient of no more than 1:8 for distances of no more than 1.5 metres at a time.

(4) For the purposes of subclause (2):

*(a) a **suitable access pathway** is a path of travel by means of a sealed footpath or other similar and safe means that is suitable for access by means of an electric wheelchair, motorised cart or the like, and*
(b) distances that are specified for the purposes of that subclause are to be measured by reference to the length of any such pathway.
(5) In this clause:

***bank service provider** means any bank, credit union or building society or any post office that provides banking services.*

Proposal

The proposal makes provision for medical and other services within the development as specified above. Communal and recreation services are provided on site. The services provided reasonably satisfy the clause in terms of commercial services being those that "residents may reasonably require", as discussed above.

The proposal does not strictly satisfy the terms of the standard in terms of access to shops, and access to public transport to shops (although it is now proposed to provide a twice weekly service to local centres by the facilities private bus). As noted in the SEE, there is practical access to Meadowbank centre and bus and train services, within or close to 400m, but with sections of non-complying gradients. However, this aspect is not pressed on the basis that it is of limited relevance in the circumstances.

Objectives of the Standard

The objectives of the standards are not stated. The assumed objectives generally relate to the particular effect of the SEPP in allowing opportunities for seniors housing throughout residential zones, and seeking to differentiate in favour of sites within residential zones that provide reasonable access to services required by residents, including access to transport to those services. The provisions assume that a resident of seniors housing, being aged 55 or more, will be reasonably mobile and will have a preference for walking or public transport over driving. The standard, and its assumed objectives, do not distinguish between the needs of a resident in an independent living dwelling and those of a resident of a care facility.

Justification for Variation of Standard

The application seeks the an exception to the SEPP access to services standards under Clause 4.6 of Ryde LEP 2014 on the following basis –

Clause 4.6 (3)(a)

In terms of Clause 4.6 of the LEP, strict compliance with the SEPP clause 26 requirements is unnecessary and unreasonable in the particular circumstances of the case. The proposed variation to this controls is justified in the circumstances because-

1. The proposal makes adequate provision on site for the particular needs of residents of an aged care facility, on the basis of the operator's substantial working experience in identifying and providing for those particular needs, as set out above. To that extent the assumed objective of the standard to meet the reasonable service needs of those residents, is satisfied.

2. The needs of an aged care resident are typically different to those of a resident in other types of seniors housing. Among other aspects they are there because their age, health, frailty, mental condition or otherwise, requires them to be cared for. In fact they are required to be assessed as requiring care to attract Federal funding. They typically are not fit or independently mobile, as set out above.

3. The presumption underlying the standard about the mobility of seniors housing residents, has very limited application in the case of a care facility, as set out above.

4. The requirements of the clause are largely unchanged since SEPP 5 was introduced in 1982. In that time a series of changes have been made to the way key services operate. In particular, banking is substantially conducted through ATMs or via computer, and mobile bankers visit customers on more substantial matters. Internet shopping has grown to the extent that it underpins Australia

Post, which in turn has been affected by emails replacing letters. Major supermarket chains and other retail outlets provide home delivery services. A person at home armed with a computer can do virtually the same things as a shopper in a centre. That is, location near shops and the like is less significant than it may have been.

5. To the extent that access to shopping centres also encourages social interaction, that end is addressed in the facilities and services provided in the development, and the proposed private bus service. People with impaired mobility have access to dining, lounges, outdoor recreation spaces, the café etc which foster interaction

6. The site has a long history of providing aged care facilities notwithstanding the nature of pedestrian access to centres, train stations or bus stops. The proposal simply replaces and expands the existing facility, in a location that has proven suitable to people who are accommodated there. There is no history of people leaving the facility, or refusing to enter it because it isn't an easy walk to shops.

7. Variation of the standard in the circumstances would be consistent with the Objects of the Act, in that it would facilitate the reasonable development of the land to provide a socially beneficial outcome. The objectives of a state-wide standard designed for typical suburban circumstances and different resident needs - which are unrepresented on the subject site - are not materially compromised.

Clause 4.6(3)(b)

The environmental planning grounds that justify contravening the SEPP support services and access development standards include-

1. The non-compliance is not significant, even if it was relevant to the particular circumstances. It will help achieve a socially beneficial outcome that expressly implements state planning policy.

2. The proposal otherwise satisfies planning objectives on a site that has a history of use for the same purpose, with no evidence of any resident being disadvantaged because of a technical non-compliance with the terms of the standard.
3. The intent of the standard is otherwise satisfied in that the proposal will provide access to the services that residents of this particular category of seniors housing actually require.
4. Blanket application of the standard to aged care facilities is unnecessary, particularly where a high standard of relevant on-site services is to be provided.
5. There are no material planning consequences that arise.

4.0 SEPP CLAUSE 33 – AMENITY & STREETSCAPE

4.1 Overview

It is axiomatic that a building designed for use as an aged care facility will not look like a cottage. The SEPP provides a FSR incentive to encourage this type of development in residential zones. The applicable FSR is essentially double that applying to conventional residential development. The application of that FSR to a large consolidated site will inevitably produce a relatively large building mass. From the perspective of the operator, it is essential that individual resident wings and specialised services within the overall facility be of a size and configuration that is effective and convenient for staff and optimises resident access to staff. Managing the facility and optimising staff convenience, requires integration of all its parts and precludes breaking it up into small components in discrete buildings.

This situation is no different for schools, hospitals, churches, and community facilities that are permitted in residential zones and typically require structures that are larger than houses.

This circumstance is recognised in the drafting of Clause 33, both in terms of its general language (e.g. "should" rather than "shall", and terms such as "reasonable")

as well as the specific reference to aspects being "in sympathy with, but not necessarily the same as". Clause 33 is reproduced below

The proposed development should:

(a) recognise the desirable elements of the location's current character (or, in the case of precincts undergoing a transition, where described in local planning controls, the desired future character) so that new buildings contribute to the quality and identity of the area, and

(b) retain, complement and sensitively harmonise with any heritage conservation areas in the vicinity and any relevant heritage items that are identified in a local environmental plan, and

(c) maintain reasonable neighbourhood amenity and appropriate residential character by:

(i) providing building setbacks to reduce bulk and overshadowing, and

(ii) using building form and siting that relates to the site's land form, and

(iii) adopting building heights at the street frontage that are compatible in scale with adjacent development, and

(iv) considering, where buildings are located on the boundary, the impact of the boundary walls on neighbours, and

(d) be designed so that the front building of the development is set back in sympathy with, but not necessarily the same as, the existing building line, and

(e) embody planting that is in sympathy with, but not necessarily the same as, other planting in the streetscape, and

(f) retain, wherever reasonable, major existing trees, and

(g) be designed so that no building is constructed in a riparian zone.

As in any visual impact assessment, it is critical to assess a development in terms of what actually will be seen. The proposal should not be assessed based on aerial perspectives or street elevations alone. The Sherbrooke Road frontage for example straddles a crest in the road, which means it will not be able to be viewed in its totality from most local vantage points. The impact of proposed site landscaping on what will actually be seen, also needs to be considered.

4.2 Design Changes

The original scheme sought to address the general principles in this clause by reducing height from that existing, articulating facades, particularly through the use of materials, following existing set-backs to Sherbrooke Road, retention of key existing trees, and substantial building set-backs from the adjoining dwelling in Mons Avenue. The architectural design statement in the original SEE describes how multiple site and building factors, as well as the requirements of Council's Architectural Review Panel, were balanced to this end.

The following further design changes go to increasing the degree to which the proposed development satisfies the general principles of the clause -

- Deletion of strategic units over 2 levels to Sherbrooke Road and part of the upper level to Mons Avenue, together with changes to elevation treatments to further articulate the building elevations and to reduce building scale adjacent to 84 Mons Avenue. The building mass on Sherbrooke Road is broken into domestic scale elements in this manner, and a suburban rhythm is reflected. The separation achieved is comparable to a standard dwelling set-back adjoining a driveway on an adjoining site. The deleted units are partly replaced elsewhere on the site in locations that do not materially bear on the streetscape or neighbouring amenity. (Drawing 35 illustrates the proposed presentation to the street)
- Lowering of the basement floor level, and redesign of the basement. Excavated material would be used to "bury" the basement and in general retain existing land form.
- Removal of the access to Sherbrooke Road
- Adjusted site planning to increase existing tree retention. This has the effect of screening the proposal from distant viewpoints.
- Adjusted landscaping treatment to Sherbrooke Road, to reinforce the building articulation and to assist in breaking up scale
- Changing the roof pitch to respect surrounding dwellings.
- Providing traffic management system for existing car parking Driveway on Constitution Road.

Following discussions with Council over earlier draft modified plans, the deletion of units to the Sherbrooke Road elevation was increased by also removing the unit under, presenting a full height gap to the street. The location of the gaps were also modified. An associated concern whether the set-backs to Sherbrooke Road will allow for adequate landscape treatment, particularly towards the eastern part of the site, has been addressed in the revised landscaping concept forming part of the modified scheme.

It has also been queried whether the slight shift of buildings closer to the eastern site boundary requires further assessment of windows and building relationships. In this context it should be noted that the bulk of the adjoining residential flat building is separated by 25m, and that the section that is closer achieves a separation in excess of 12m wall to wall, as would be required for 2 adjoining flat buildings.

4.3 ASSESSMENT

The proposed modified scheme is assessed against the provisions of Clause 33 below, following the numbering of that clause-

(a) The additional significant façade modelling, combined with the location of part of the complex below the level of Sherbrooke Road, creates the appearance of a series of more domestic scale modules to that Road. A similar effect is created through the stepping of the Mons Avenue elevation. To the extent that the locality can be said to have a single dwelling character as its "desirable" elements, (ignoring the existing nursing home, flats and town houses), the proposal now reasonably recognises that character.

(b) There are no recognised heritage items or conservation areas affected by the proposal. The presumed "heritage" values associated with the existing nursing home, have been adequately addressed in the original DA documents.

(c) Reasonable neighbourhood amenity and appropriate residential character are provided-

(i) by providing reasonable set-backs to Sherbrooke Road, in conjunction with excavation, and substantial set-backs to Mons Ave, which reasonably relate to existing set-backs

(ii) by relating building form and siting to the landform, and by modifying the landform, to reduce building bulk

(iii) by providing building heights to the street that are less than existing in Sherbrooke Road, and consistent with existing and approved in Mons Avenue.

(iv) by locating building walls well away from boundaries with other land

(d) The existing front building lines to both Sherbrooke Road and Mons Avenue are generally maintained,

(e) The proposed planting is intended to achieve a number of on-site objectives, as detailed in the original DA documents, as well as complementing building articulation to Sherbrooke Road and existing landscape treatments in the locality

(f) All major existing trees that can reasonably be retained, have been retained. (See 5.1). The modified proposal includes retention of additional trees.

(g) No riparian zone is affected.

5.0 OTHER ISSUES

5.1 Trees

An updated Tree Impact Assessment Report prepared by Arterra accompanies the modified scheme. That assessment has led to a redesign of the rear surface parking area to enable additional tree retention in line with Council's requirements.

Arterra's assessment notes that some vegetation identified in Council's letter is exempt from Council's tree preservation order, and does not warrant retention, particularly in the context of the intended landscaping that will replace it.

The only significant variation relates to the brush box at the front of the site. That tree is currently compromised by the existing building, and its retention would have an unreasonable impact on the development of the land. The proposed removal of this tree needs to be viewed in the context of the significant tree retention that has otherwise been achieved, and the intended planting which will more than offset existing vegetation removal.

5.2 Access, Parking & Servicing

The multiple comments made by Council in relation to these issues have been addressed by-

- Deletion of the proposed crossing on Sherbrooke Road. Among other aspects, this further reduces the length of road affected by vehicle crossings, and as a consequence, increases kerb side parking opportunities. The 7 existing vehicular crossings to the site in Sherbrooke and Mons are replaced by one crossing in Mons, freeing up almost 20m of kerb space. At some future point, there may be a need to consider a restricted parking zone adjacent to the pedestrian entry.
- Lowering of the basement floor by 800mm through additional excavation. The increased minimum clearance of 3.8m will allow access by a 3.5m high 8m garbage collection vehicle as well as other smaller service vehicles. A loading dock to Council's specifications is provided. The change will remove the driveway grades, and assist the perpendicular alignment of the driveway to the road. Garbage will be stored and collected within the building, allowing increased frontage landscaping.

In addition, and in response to particular questions raised in the letter-

- The following table sets out the type and frequency of service vehicles accessing the site. In particular, food items are sourced from multiple suppliers, necessitating small delivery vehicles.

Opal Fernleigh - Delivery Vehicles Roster

Purpose	Vehicle Type	Frequency	Delivery Time
Garbage	8.0 m SITA Rear loaded	3 times a week	10.00am - 2.00 pm
Fresh Food	6.5 m Small Rigid Truck	4 times a week	10.00am - 2.00 pm
Couriers	Vans/Cars/Motorcycles	Everyday	10.00am to 2.00pm
Ambulance	AWD - Mercedes Benz Sprinter	Emergency call	As required 24/7
Visitors	Family car	Everyday	10.00am - 5.00pm

- The swept path of the largest service vehicle (8m garbage truck) is indicated on drawing 34. The driveway is intentionally wide enough to enable service vehicles to use it without crossing the centreline of the road.

- Provision will be made for an intercom facility located adjacent to the entry door, to enable visitor and service vehicle entry to the basement. (Shown in Traffic Assessment report)
- The use of the driveway to Constitution Road will be limited to staff only, and will involve a reduction in the number of vehicles using it compared to the present. Based on current experience, it is not apparent that any control system is necessary. This can be addressed in conditions.

These changes and additional information should address the issues raised by Council.

5.3 SEPP Clause 30 – Site Analysis

The submitted application included a site analysis plan and a discussion in Chapter 3.2 on the design approach adopted, including the manner in which key site factors had influenced the design process. In terms of the provisions of Clause 30, the overall site analysis included the detailed survey plans, specialist reports and discussion of various issues in the SEE. The documentation clearly demonstrated that the site and its context had been addressed in detail, and that the development clearly responded to contextual constraints. In particular, substantial building set-backs to neighbouring property were adopted to serve the dual purposes of retention of existing trees and moderating potential effects of the proposal on adjoining land (particularly given differences in levels).

The particular issue of the length of the building elevation to Sherbrooke Road was addressed in the original site analysis and design assessment, in terms of the balancing of site and contextual factors that acted to push building mass towards the Sherbrooke Road frontage, and the subsequent design attention to reducing building height (in turn related to operating requirements and site topography), and measures to articulate the façade. The set-back to Sherbrooke Road has been based on existing set-back patterns (Refer drawing 31).

The design and landscaping changes now proposed will increase the extent of articulation. While there is no other building element of this length in the site context, the existing aged care building, the residential flat and town house buildings all present lengths of building well in excess of that represented in the limited number of dwellings concentrated in the western part of the street block. In other words, it would be unreasonable to argue that the immediate and wider site context is overwhelmingly of small single dwelling scale that needs to be replicated in the proposal (even if the operation of the facility might work if split between a number of smaller buildings – which it doesn't). The proposed design approach to moderate building scale, having regard to the total set of factors at play in the design of the proposal, is reasonable in itself and in the manner in which it addresses the design requirements of Clause 33of the SEPP , as discussed above.

As requested, the approved extensions to 84 Mons Avenue have been incorporated in the drawings.

In broad terms, the proposal as submitted appropriately and reasonably takes into account the principles underlying Clause 30, and the application of site factors in the design process. The following table deals with the specifics of the clause and how they have been addressed in the documentation

Clause 30 reference	**Issue**	**Response**
(1)	Council to be satisfied applicant has taken site analysis into account.	See 3.2 in SEE & Reports accompanying application, as well as additional discussion in this reports
(2)	(a) Site analysis to contain information in (3) & (4) (b) Written statement on how design has had regard to site analysis plan and design principles in Division 2 of SEPP	See below Addressed in 3,2 & 4.1 of SEPP, and Chapter 4.0 and discussion above
(3)	Site information (a) Site dimensions (b) Topography (c) Services (d) Existing vegetation	 See survey plans See survey & site analysis See survey plans Refer Arterra report

	(e) Micro Climate (f) Location of buildings, heritage features, fences, boundaries, access (g) Views to & from (h) Overshadowing by neighbouring properties	See site analysis plan See survey plans See 4.5 in SEE Addressed in shadow plans
(4).	Information about surrounds (a) Neighbouring buildings (b) Privacy (c) Walls to site boundary (d) Level differences at boundary (e) Views & solar access by neighbouring property (f) Major adjoining trees (g) Street features (h) Adjacent built form & character (i) Heritage features (j) Direction & distance to local facilities (k) Public open space (l) Adjoining bushland or environmentally sensitive land (m) Sources of nuisance (n) Adjoining land use	 See survey & 4.5 in SEE See survey. Addressed in set-backs Not applicable See survey See 4.5 in SEE & revised shadow diagrams Refer Arterra report See survey See 4.5 in SEE No heritage in direct vicinity See 4.1 in SEE as quoted in 2.0 above Not applicable Not applicable Not applicable See survey & SEE

5.4 Staff Shifts

The following table outlines the proposed staggered shift changes and the number of staff involved.

FERNLEIGH - CHANGE-OVER STAFFING MATRIX		
Day Shift 1 is from 07:00 hrs to 14:30 hrs	Day Shift 2 is from 07:30 hrs to 15:00 hrs	Total
17.75	17.75	35.5
Afternoon Shift 1 is from 14:30 hrs to 21:30 hrs	Afternoon Shift 2 is from 15:00 hrs to 22:00 hrs	
11.5	11.5	23
Night Shift 1 is from 21:30 hrs to 07:00 hrs	Night Shift 2 is from 22:00 hrs to 07:30 hrs	
3.5	3.5	7

5.5 Rooftop Air Conditioning Plant

The proposal involves multiple modern roof top air conditioning condensers. This approach has proven to be the most energy efficient method, enabling temperature control tailored to each room's needs. It avoids large scale continually operating plants with their complex reticulation, and associated wastage. As requested, a supplementary acoustic report addressing this aspect is separately submitted.

6.0 SUMMARY OF RESPONSES TO COUNCIL LETTER

The following table summarises the responses to the matters raised in Council's letter and in subsequent discussions.

Letter Reference	Issue	Response
1.	SEPP Clause 26- Services	See 3.0 & Appendix B
2.	SEPP Clause 30- Site Analysis	See amended site analysis plan & discussion in 5.3
3.	SEPP Clause 33 - Amenity	See 4.0
4.	SEPP Clause 40 - Height	See Drawing No 24
5.	SEPP Clause 48-Landscaping calculations	See Landscape Drawing L-SD-06 and revised statistics
6.	(a) Loading Dock (b) Traffic Control system	See amended basement plan See 5.2
7.	(a) Sherbrooke access (b) Mons access	Deleted Modified to comply. See drawings
8.	(a) Sherbrooke access (b) Basement headroom (c)(i) Mons driveway grades (ii) Levels at Mons Frontage (iii) Service vehicle headroom	Deleted Increased to 3.8m min Adjusted see 5.2 Addressed in base plan details Increased to 3.8m within 4.4m floor to floor
9.	Retaining walls adjoining 84 Mons	Relocated as required. See Landscape Drawing L-SD-01/B
10.	(a) Details of visitor access to basement (b) Details of service vehicles (c) Service vehicle frequency (d) Swept path from Mons (e) Sherbrooke Access	See 5.2', Civil Engineering drawings & Traffic Assessment report See 5.2 See 5.2 See drawing 34 for 8m garbage truck Deleted
11.	Waste storage & collection within	Achieved. See 5.2 & Drawing 12

	basement	
12.	Roof top AC plant	See 5.5 & Supplementary acoustic report
13.	Architectural plans – additional information	See modified plans and sample board
14.	Staff shift details	See 5.4
15.	Mechanical ventilation of basement	Ventilation shaft identified on Drawings
16.	Additional shadow details re 84 Mons	See drawings 32 & 33

APPENDIX A

COUNCIL LETTER

City of Ryde

Lifestyle and opportunity @ your doorstep

Opal Specialist Aged Care
135 King Street
SYDNEY NSW 2000

Attention: Sean Bilton

16 February 2015

Dear Sir

8-14 Sherbrooke Road and 78-82 Mons Road, West Ryde
Local Development Application No. LDA2014/0419

A preliminary assessment of your development application has been carried out and a range of issues have been identified that must be resolved. These matters are set out below:

STATUTORY MATTERS

State Environmental Planning Policy (Housing for seniors or people with a disability) 2004

1) **Clause 26 - Location and access to facilities**

On the information available the site related requirements in clause 26 of this Policy are not satisfied, notably that the site is more than 400m from Meadowbank railway station or any bus stop in Adelaide Street. Further, access to either, were it less than 400m, is unlikely to meet the requirements in clauses 26(3) and 26(4) as conceded in the Statement of Environmental Effects (SEE).

The contentions in the SEE regarding the provision of onsite services for residents and limitations on the mobility of residents due to health are acknowledged, however there is no discretion in the SEPP regarding compliance with this clause. We further note that any offer to instead provide a private bus from the RCF would not meet terms of clause 26(2)(b) as it refers to 'public transport service'.

Compliance with clause 26 is a 'threshold' matter. If you are satisfied its requirements are achieved then this must be demonstrated through appropriate survey diagrams and details, along with identification of any works necessary to achieve compliance. If any alternative contentions are to be relied upon it is recommended such a position be supported by a legal opinion.

2) **Clause 30 - Site analysis**

The site analysis plan fails to include many of the matters noted in subclause (3), and the Design Statement fails to explain how the design has regard to the site analysis, and how the design has regard to the design principles set out in Division 2. See further comments below.

Also ensure that the site analysis takes into account development approvals for No.84 Mons Avenue.

3) **Division 2 - Design Principles**

A range of concerns have been identified relative to the matters for consideration, being:

<u>Clause 33(a) - (f) - Neighbourhood amenity and streetscape</u>

- The size and scale of the building is entirely incongruous with the built form character of the locality which is not expected to significantly alter noting the recently implemented LEP and DCP controls. The exceptional length of the building floor plate alone will visually overwhelm Sherbrooke Road, and the articulation of the northern elevation is not sufficient to successfully manage building mass.
- In combination with the above concern, around 64% (or 55m) of the Sherbrooke Road elevation is setback only 3.5m-4.5m which is atypical of the streetscape. Further, the setbacks generally provide no opportunity for effective landscaping given the incursions from terraces, retaining walls and the entry driveway facility which occupy almost that entire frontage.

- Despite more generous setbacks to Mons Avenue theses same circumstances apply equally to that frontage, with the impacts exacerbated by the basement level being elevated in the order of 1.7m-4.2m above the levels at the kerb.
- The incompatible scale and visual dominance of the building extends beyond the immediate streetscape, with local topography such that building mass and volume will be evident from areas to the south and west of the site.
- A satisfactory outcome is not achieved for No. 84 Mons Avenue given the visual dominance resulting from the height, scale and reduced setbacks to that site, the size and location of the staff terrace, the multiple elevated terraces and the height of the 'central' wing.
- The following trees provide a significant role in protecting amenity or contributing to the streetscape:
    - Trees 34 and 35 must be retained as they contribute to streetscape and will scale and soften building at intersection with Mons Avenue Sherbrooke Road;
    - Tree 47 must be retained for benefit of No. 84 Mons Avenue;
    - The arborist report notes that Tree 9 is to be retained but the Tree Protection and Removal Plan nominates its removal to accommodate car parking. This tree must be retained;
    - The tree survey does not plot a stand of cypress trees at the common boundary with No.105 Constitution Rd. These trees provide a valuable screen and must be retained;
    - Tree 14 is a significant element within the streetscape and must be retained; and
    - Trees 41 and 42 similarly contribute to the streetscape and must be retained.

If this application is to be supported these site planning and built form issues must be resolved, with the suitability of any revised design supported by a detailed site analysis and discussion. In summary it the revised scheme must:

- Break down the building into significantly smaller elements, to both street frontages. This should also address the setback issue;
- To Mons Avenue, lower the floor levels to better relate to that streetscape. Locating the driveway at the lowest point on that frontage should be considered;
- Moderate the scale and volume of the building adjacent to the northern and eastern boundaries of No. 84 Mons Avenue.

4) Clause 40 - Development standards

The extent to which the height control, particularly that in clause (40)4(a), must be quantified. Diagrams are required which plot and dimension the maximum defined heights of the building in those locations which are illustrated on the image at page 27 of the SEE.

Variations to the height controls as requested with the application, will only be considered if it is demonstrated no adverse urban design or amenity impacts will result.

5) Clause 48 - Standards that cannot be used to refuse consent for residential care facilities

A plan and calculation is to be provided demonstrating how the landscape totals nominated in the SEE are achieved.

INTERNAL REFERRALS

Assessment comments and information requested noted by other Council departments are provided below:

6) Traffic

a) The loading dock facility shall be designed to a minimum Small Rigid Vehicle in accordance with AS 2890.2-2004. Accordingly, minimum headroom clearance of 3.5m along with adequate turning area shall be provided to ensure an SRV can enter and leave safely in a forward direction.

b) To facilitate safe entry and exit from Constitution Road, details are required for a traffic control system which is required to be installed to regulate safe access by ensuring only one vehicle at a time can utilise the driveway at any given time.

7) Public domain

a) The proposed circular vehicular crossing entrance in Sherbrooke Road is not supported. All parking, loading and unloading of ambulance vehicles are to take place wholly within the property.

b) The proposed vehicular crossing in Mons Avenue is shown at a skew to the kerb alignment and it is therefore non-complying with the requirements of CoR DCP2014 Part 8.3 Driveways (refer Section 2.3 Layout).

8) Development Engineer

a) The proposed vehicle access and pickup/drop-off bay located on the Sherbrooke Road frontage proposes an extensive level of structural encroachments which presents the following issues;

- There is an increased level of risk and public liability for Council, in terms of property damage and public safety;
- The inconsistent infrastructure substantially increases the cost of works in this area for Council;
- The works impose on the installation or maintenance of public services, any future pedestrian or bike path and/ or potential road widening;
- Any vehicles standing or parked on the access way are located on a public roadway. This poses an issue in regards to the enforcement of the road rules; and
- There is sufficient site area to accommodate this function inside the site boundary and do not present any reasonable justification.

The double driveway access will also remove a considerable portion of the onstreet parking in Sherbrooke Road (22m = 3 carspaces) which is also unsatisfactory.

There is no objection to a vehicle access from Sherbrooke Road in principle however it should be compliant with Councils development controls relating to driveways and vehicle access points. Apart from the issue concerning encroachment, the proposed arrangement is hazardous to pedestrians in the public domain and therefore not supported.

b) The applicant has presented that the basement garage may be accessed by an SRV vehicle for service deliveries. This will require a minimum overhead clearance of 3.5m. As the proposed floor to floor clearance between the basement garage and the ground floor is 3.6m, there is insufficient headroom clearance when accounting for structural beams and slab thickness to accommodate an SRV vehicle. For the size of the development and its service needs, this element must be compliant. It would appear possible this could be readily addressed by lowering the basement level further.

c) Assessment of the engineering components of the proposed development has revealed the following matters and inconsistencies in the documentation which must be addressed prior to any development consent:

(i) Mons Avenue driveway grade – The driveway access from Mons Avenue is not detailed on the plans however the proposed levels of the footpath located midway along the ramp) produce ramp grades that exceed the requirements of AS 2890.1 and Councils requirements in regards to footpath crossovers. Council's verge in this section is also considerably elevated above the roadway due to a sandstone outcrop and Councils Public Works may require this to be removed/ regarded as part of the development. This will affect the design of the ramp. It is advised that the levels and verge treatment be clarified and a driveway profile be submitted to clarify driveway grades. The driveway profile should be undertaken along the worst case scenario, which in this case will be along the southern edge of the driveway ramp as it presents the greatest level difference between the parking area and the kerb in Mons Avenue.

(ii) Clarification of levels and elevation views on the Mons Avenue frontage. Further to the first point above, the depicted elevation view shown on the architectural plans, does not correlate with the existing road levels. This distorts the appearance of the development from the public domain.

(iii) Service vehicle headroom - The loading bay has been designed to accommodate an SRV (which is considered a minimum requirement for this development) however the available headroom is unlikely to satisfy the minimum 3.5m required by the Australian Standard.

9) Landscape

The retaining walls along the boundary with No. 84 Mons Ave are to be relocated by a minimum of 1m to allow for the retention of Tree Nos 43, 44 - 46 and 51.

DESIGN AND OPERATIONAL MATTERS

10) Vehicle access and parking

a) Provide details of how visitors will be able to access the basement parking spaces noting that access is controlled by a roller door. Demonstrate the design of the driveway is of adequate dimensions to accommodate an intercom system or the like within the centre of the driveway.

b) Provide details of the size of all service and delivery vehicles that will attend the site and demonstrate, through swept path analysis, that the loading dock and the design of the basement can accommodate those vehicles. No service or delivery vehicles will be permitted to stand within any street, or within the basement access driveway.

c) Provide details of the likely weekly frequency for all service vehicles at (b) above and demonstrate why it is appropriate for such vehicles and associated facilities to not be separated from visitor and staff parking.

d) Provide swept path analysis to demonstrate that the largest service vehicle to attend the site is able to utilise the Mons Avenue driveway without crossing the centre line of the carriageway.

e) As identified by the Public Domain team and the Development Engineer, the circular vehicular crossing entrance in Sherbrooke Road will not be supported. All access and parking requirements, including the ambulance bay, must be contained wholly within the site.

11) Waste storage and collection

Waste collection arrangements as nominated will result in unacceptable outcomes with regards to traffic and pedestrian safety, and noise impacts for residents. All waste storage and collection must occur wholly within the basement.

The bin storage area at the Mons Avenue boundary shall be deleted and replaced with landscaping.

12) Roof top mechanical plant

The amount of roof top space dedicated to mechanical plant, and the associated 96 condenser units, seems excessive given the size of the building. If such is essential then the following details are required:

a) A report by a services engineer explaining why 96 condensers are needed;
b) An ESD report demonstrating how the design therefore responds to clause 35 of State Environmental State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004; and
c) An updated acoustic report providing a detailed analysis of the acoustic impacts and the adequacy of the design to ensure relevant noise criteria will be achieved. If necessary, a preliminary review of all external plant shall be undertaken to inform this assessment.

ADDITIONAL INFORMATION

13) In addition to the above, the architectural plans are to be updated to address the following:

a) The site plan is to show the whole of the development site and all facilities including rear parking area.
b) All windows to be shown on floor plans
c) Existing and proposed finished ground levels required on the Level 1 and Level 2 plans
d) All RLs to be plotted especially for the tops of roofs
e) Provide high resolution montages of the revised plans, including images from the area near the Grand Avenue/Constitution Road intersection.
f) Provide a sample board of all external materials/finishes.

14) Provide a breakdown of staff numbers and times for each of the three shifts.

15) It is expected the basement will be mechanically ventilated. Details of the location of the exhaust shafts/vents to be provided, and impacts for neighbours addressed by the acoustic report.

16) Provide hourly shadow diagrams on site plan and dwelling elevation of No. 84 Mons Avenue to allow for shadowing impacts to be fully considered. To further assist those shadows should include comparisons with a building which is strictly compliant with the height controls in clause 40 of the Seniors SEPP.

Given the concerns above the proposal is not supported in its current form. You are therefore invited to contact Council in order to discuss these matters.

Should you have any enquires please contact Sandra Bailey on (02) 9952 8209 between the hours of 9:30am to 3:30pm Monday to Thursday.

Yours sincerely

S. Bailey

Sandra Bailey
Team Leader Major Development

APPENDIX B

LEGAL ADVICE RE CL. 26

Fenja Berglund
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Sydney NSW 2000
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Susan Hill & Associates Lawyers
Level 5, 192 Pitt Street
SYDNEY NSW 2000

13 March 2015

Dear Susan

Clause 26 of SEPP (Housing for Seniors or People with a Disability) 2004

On behalf of your client, Opal Aged Care, you have asked me to advise on the question of whether Clause 26 of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (**SEPP**) is a development standard or a prohibition. I understand the purpose of the question to be in the context of whether the requirements set out in clause 26 are capable of variation at the discretion of a consent authority, in this case the City of Ryde.

Relevant Provisions

Clause 26 of the SEPP is entitled "Location and Access to Facilities" and sets out requirements for access to services. Relevantly, these requirements include that certain commercial, community and medical facilities must be located at a distance of not more than 400m from the proposed development, and within specified gradient criteria.

Clause 4.6(2) of Ryde LEP 2014 ("LEP") states:

> Development consent may, subject to this clause, be granted for development even though the development would contravene a development standard imposed by this or any other environmental planning instrument. However, this clause does not apply to a development standard that is expressly excluded from the operation of this clause.

As the SEPP is "any other environmental planning instrument", it falls within the scope of Clause 4.6.

"Development standards" is defined in section 4 of the Environmental Planning and Assessment Act 1979 ("Act") as follows:

> **development standards** means provisions of an environmental planning instrument or the regulations in relation to the carrying out of development, being provisions by or under which requirements are specified or standards are fixed in respect of any aspect of that development, including, but without limiting the generality of the foregoing, requirements or standards in respect of:

(a) the area, shape or frontage of any land, the dimensions of any land, buildings or works, or the distance of any land, building or work from any specified point,

...

(c) the character, location, siting, bulk, scale, shape, size, height, density, design or external appearance of a building or work,

...

(m) the provision of services, facilities and amenities demanded by development,

...

The relevant test

A two part test for determining whether a provision was a development standard was proposed by Giles JA in *Strathfield Municipal Council v Poynting* (2001) 116 LGERA 319 [at 96-99]. Under the *Poynting* test, the first step is to determine whether the provision prohibits the development in any circumstances and the second step is to determine whether the provision specifies a requirement or fixes a standard in respect of an aspect of the development.

It was subsequently identified that, although the two part test was inherently correct, some confusion could arise from its application in certain circumstances. (See in particular *Blue Mountains City Council v Laurence Browning Pty Ltd* (2006) 150 LGERA 130 per Basten JA and Ipp JA).

The *Poynting* test came to clarified via principles that were distilled by Jagot J *in Laurence Browning Pty Ltd v Blue Mountains City Council* [2006] NSWLEC 74, with her Honour's summary being adopted by the Court of Appeal in *Residents Against Improper Development Inc v Chase Property Investments Pty Ltd* (2006) 149 LGERA 360. That summary has been widely reproduced in subsequent cases and reads as follows:

> "(1) The provision in question must be 'seen as part of the environmental planning instrument as a whole' (*Poynting* at 342 [94]). The 'wider context' of the provision, as part of the instrument overall, should be considered in construing the provision (*Lowy v The Land and Environment Court of NSW & Others* (2002) 123 LGERA 179 at 182 – 183 [2] per Mason P).
>
> (2) If a provision falls within one of the matters in sub-paras (a) to (o) of the definition of 'development standard', that fact alone does not mean that the provision is thereby a development standard. The provision must be 'in relation to the carrying out of development' and must fix requirements or standards in respect of an aspect of the development (*Poynting* at 333 –334 [58]).
>
> (3) Although [there is a distinction] between a provision that is a development standard and a provision controlling development in some other way, the dichotomy between 'regulation' and 'prohibition' cannot replace the definition in the EPA Act. As this conceptual division 'will bring finely divided decisions', 'care must be taken lest form govern rather than substance' (*Poynting* at 342 [93]).
>
> (4) A provision that prohibits the development under any circumstances controls development, but is not a development standard (*Poynting* at 343 [96] and [98]).
>
> (5) If the provision does not prohibit the development under any circumstances and the development is permissible in the circumstances expressed in the provision (whether expressed positively or negatively), then 'in most instances the provision will specify a requirement or fix a standard in respect of an aspect of the development'. Hence:

> Control by complete prohibition on the development in question will not leave room for requirements or standards. But anything less than complete prohibition means that there can be the development in question, and provided the relevant aspect of the development is identified the control will be by imposition of a development standard.
>
> (*Poynting* at 343 [98]).
>
> (6) It is necessary to identify the development in order to say whether the provision specifies a requirement or fixes a standard in respect of an aspect of the development (*Woollahra Municipal Council v Carr* (1985) 62 LGRA 263 a 269-270 per McHugh JA and *Poynting* at 343 [97]).
>
> (7) An essential condition of the definition of 'development standard' is that the 'requirements specified or standards fixed in respect of any aspect of the development must be requirements or standards which, ex hypothesi, are external to the aspects of that development' (*Carr* at 269 -270 per McHugh JA).
>
> (8) Hence, the key consideration in any debate over this second step (the question whether the provision specifies a requirement or fixes a standard in respect of an aspect of the development) is identifying a relevant aspect of the development. In this regard, the list of aspects of development in sub-paras (a) to (n) of the definition of 'development standard' shows that 'a broad view of what is an aspect of a development should be taken' (*Poynting* at 343 [99])."

That the two part test in *Poynting*, as distilled in *Chase*, is the currently accepted test has been confirmed in two recent decisions: *Huang v Hurstville City Council (No 2)* [2011] NSWLEC 151 per Pain J and Wilson *Parking Australia 1992 Pty Ltd v Council of the City of Sydney* [2014] NSWLEC 12 per Pepper J.

Additional assistance in approaching the question of what is a development standard is found in *Agostino v Penrith City Council* (2010) 172 LGERA 380 [at 46 per Tobias JA]:

> In the present case, what one is required to do is to identify the proposed development and then to determine whether it falls within the description of that which clause 41(3) makes permissible with consent. In performing this exercise it is necessary to identify which criteria are essential conditions in determining whether the particular development proposed is permissible.

Application of principles to clause 26 of SEPP

The starting point for determining whether clause 26 is a development standard is to note that the proposed development is "aged care facility", which is permissible pursuant to the SEPP as it falls within the definition of "residential care facilities" set out in clause 11.

The next question is whether the development which is permissible is inherently subject to specific restrictions. In *Agostino,* for example, a particular development was permissible only if it was a certain size – a fruit and vegetable shop of under 150 m^2. In *Huang*, a clause existed under which a particular type of development was specified to be impermissible if it was in a particular location - namely sex service premises located near schools and the like.

In this case, the use which is permissible under the SEPP is a residential care facility. That permissibility is not limited to residential care facilities in a particular location or within a certain distance from a point. The essential condition for permissibility is only that it be a residential care facility. In other words, reading the instrument as a whole, there is nothing which prohibits this particular development under any circumstances.

The requirements set out in Clause 26 of the SEPP do not define the permissibility of the development itself but set standards as to how the permissible use is to be carried out. They are benchmarks rather than commandments (to adopt the language of Ipp JA in *Blue Mountains City Council v Laurence Browning Pty Ltd* (2006) 150 LGERA 130). Accordingly clause 26 represents a development standard rather than a prohibition.

The definition and list of examples of "development standards" at s4 of the Act supports this conclusion. Development standards are matters "in relation to the carrying out of development" and relevantly include distance from a specified point (a), location (c) and provision of services, facilities and amenities (m). Development standards determine the way development is to be carried out and not what development can be carried out in the first place. They are not an essential condition to the type of development which is permissible.

An important part of the definition of "development standards" as construed in the case law set out above is that development standards must be "in respect of any aspect of that development". Location generally, or distance from a specified point or service, is indeed an aspect of development, rather than an essential conditions of what development is permissible.

To summarise in the terms of the Poynting test:

1. Construction of the SEPP reveals that the only essential condition which determines permissibility is that the development is a residential care facility. Clause 26 does not have the effect of prohibiting particular development in any circumstances; and

2. Clause 26 of the SEPP specifies requirements in respect of aspects of the development, being location or distance from certain points. This is an aspect of the way development is to be carried out and not an essential or defining characteristic of the development itself. It does, however, set a benchmark, or standard, for how development is to be carried out.

Case Law

My conclusion that clause 26 is a development standard is supported by three cases in the Land and Environment Court of NSW. Each of these cases related to *SEPP 5 – Housing for Older People or People with a Disability* which preceded the current SEPP. Clause 12 of SEPP 5 contained very similar provisions to clause 26 in relation to distance from services. It did not contain the same provisions in relation to gradients but this is not a material difference for the purpose of determining whether a location or distance requirement is a development standard.

In *Georgakis v North Sydney Council* [2004] NSWLEC 123, McClellan CJ (as he then was) considered an argument that by reason of the location of the site of the proposed development relative to public transport facilities it could not lawfully be approved. His Honour rejected that argument and held [at 43]:

> It follows that although the development is not absolutely prohibited, by a combination of clauses 12(1) and (2) of SEPP 5 it is subject to a requirement that access to the relevant facilities be within 400 metres. This is an aspect of the development and, accordingly, a development standard amenable to dispensation pursuant to SEPP 1.

In *Hewitt v Hurstville Council* [2001] NSWLEC 294, Bignold J considered an appeal against a Commissioner's determination on a matter relating to SEPP 5. His Honour noted, without criticism, [at 5]:

> Both before the Senior Commissioner and on appeal, the Council has conceded that cl 12(2) of SEPP No 5 in specifying the maximum distance of 400 metres between the proposed development and the requisite services and facilities relevantly imposes a "development standard" within the meaning of the EP&A Act which is amenable to the dispensing power conferred by SEPP No 1.

In *Neometro Architects and Planners v Gosford City Council* [2002] NSWLEC 33 Sheahan J also assumed that clause 12 represented a development standard when he stated [at 56]:

> One available west-bound bus-stop is more than 400m away, on a level surface, but another closer to the site can be easily and safely accessed by most pedestrians (see photographs in Exhibit C3). In so far as a SEPP 1 objection may be considered necessary in this respect, it should be upheld.

By contrast I have not identified any case in which clause 12 of SEPP 5 or clause 26 of the current SEPP have been specifically stated or assumed to represent a prohibition.

Summary of Advice

In my view, clause 26 of the SEPP represents a development standard. This opinion is based on both a direct analysis of the clause and judicial consideration of a very similar provision.

A consent authority may grant consent to development even though it contravenes a development standard found in any other environmental planning instrument (such as the SEPP) provided that an application for exception to the standard is made and assessed under clause 4.6 of the LEP.

Fenja Berglund
Martin Place Chambers

Civil

TTW

TaylorThomsonWhitting

Civil Engineering Report
Fernleigh, Sherbrooke Road West Ryde NSW

for Opal Specialist Aged Care

30/04/15

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TABLE OF CONTENTS

1.0 INTRODUCTION

This report has been prepared to support the Development Application for "Fernleigh", an aged care facility on Sherbrooke Road in West Ryde. This report outlines the stormwater infrastructure at the site, and the impact these constraints will have on the proposed development.

1.1 The Site

The Site is located between on Sherbrooke Road and Mons Avenue in West Ryde. It is within the City of Ryde local government area. It is bounded by Sherbrooke Road in the north, Mons Avenue in the west and adjacent residences to the south and east. There is an access driveway that links the back of the site with Constitution Drive to the south.

The site area is approximately 6,420 m^2

Figure 1 Locality Plan (source: Google)

Figure 2 Existing open channel downstream of Clifton Road

Figure 3 Air Photo

The existing site consists of an aged care facility, and three residential houses. The western portion of the site falls to Mons Avenue in the west. The reminder of the site generally falls in a southerly direction.

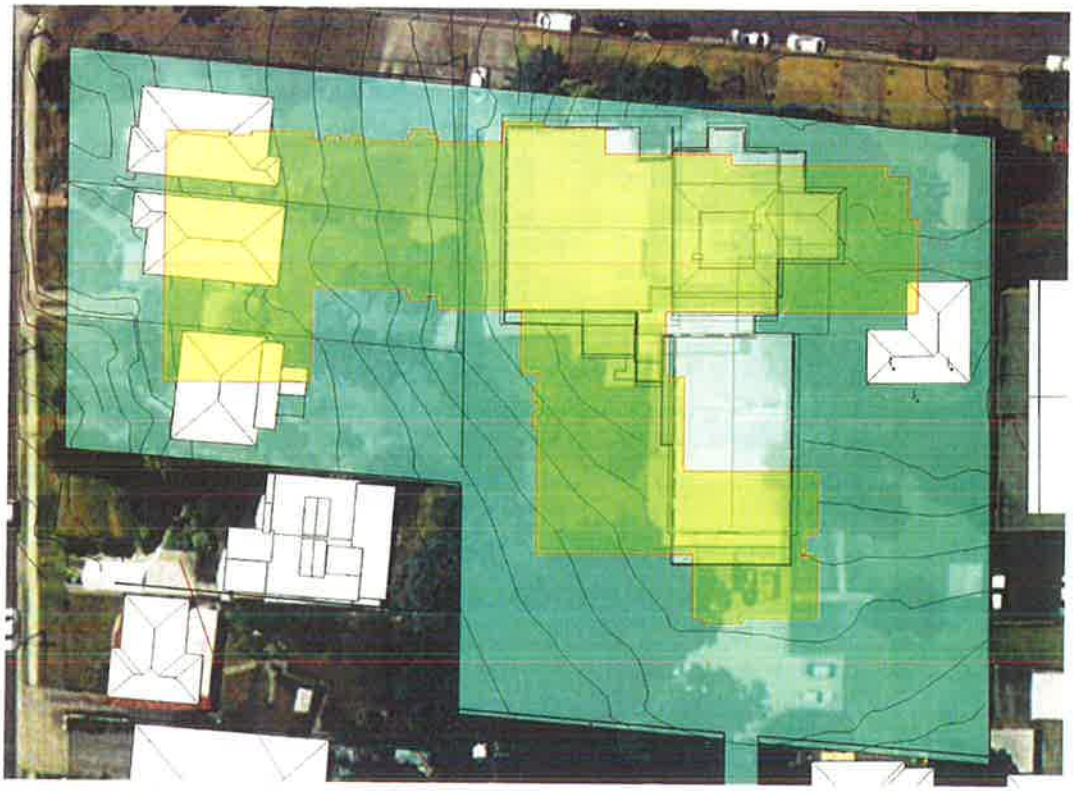

Figure 4 Proposed Development footprint

1.2 Relevant Documents

The following documents have been reviewed in preparing this document:

- City of Ryde Development Control Plan 2010 (DCP)
- Plans provided by Calder Flower Architects dated 18/07/2014

2.0 FLOODING

The site is outside of any flood zones. The steep terrain in the area and the elevation of the site results in no risk of flooding from the surrounding catchment. The site is on a watershed between Denistone and Charity Creek catchments.

3.0 OVERLAND FLOW

Overland flow though the site will be managed to minimise the risk of stormwater damaging buildings and safe discharge to the street.

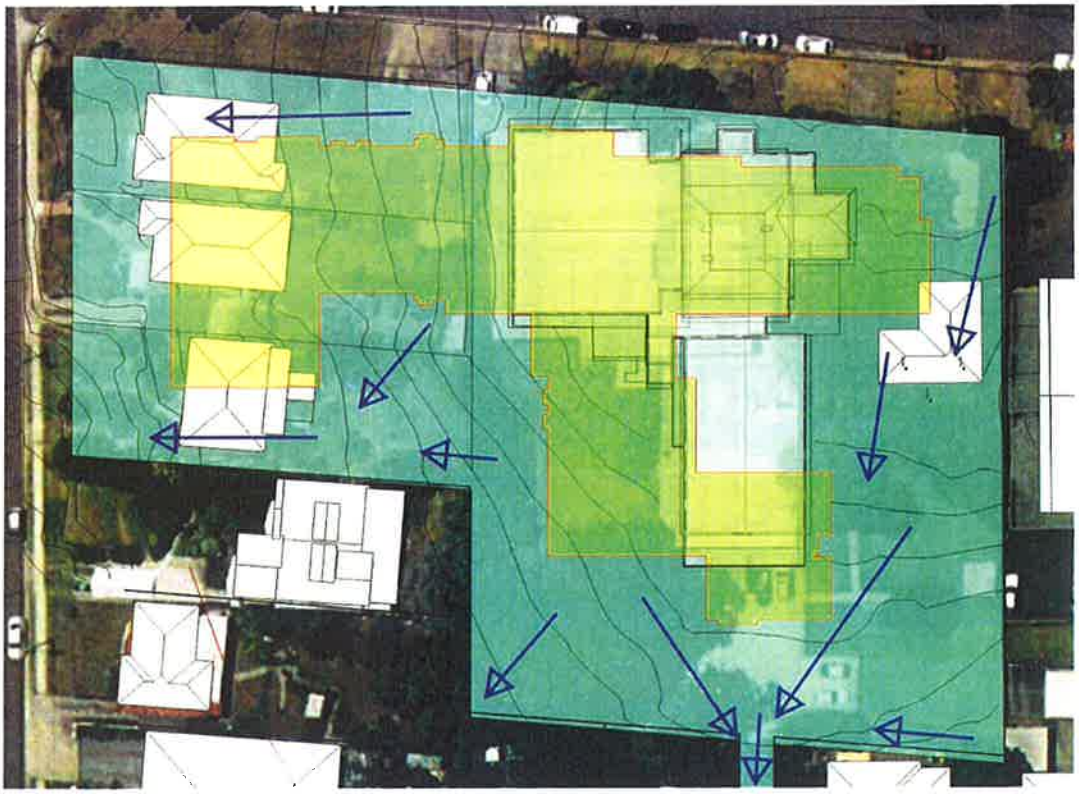

Figure 5 Overland Flow

4.0 STORMWATER QUANTITY

Section 3.2 of the DCP outlines the detention requirements for the site:

3.2 Design Objective

Sufficient storage shall be provided to ensure peak flow rates at any point within the downstream drainage system do not increase as a result of the development during storms from the 5-year to the 100-year ARI storm events of all durations.

NOTE: Where the site contains existing buildings or hard surfaces which are to be removed or substantially modified for a proposed multi occupancy development, the site will be considered vacant and site runoff determined for "state of nature" conditions.

Section 4.2 limits the flow rate that can be discharged via the kerb at gutter:

4.1 Street Kerb and Gutter

a. **Sites that generate less than 30 l/s of runoff and the flow can be contained within a single 100 mmϕ pipeline or equivalent during the design storm will be permitted to discharge directly to the street kerb and gutter kerb if the available kerb is at least 140 mm high**

The detention volumes have been sized using DRAINS.

As the site straddles two catchments, the OSD storage will be split over two tanks. One tank located under the southern car park which discharges through the access driveway to Constitution Road. A second tank on the western side of the site will discharge to Mons Avenue.

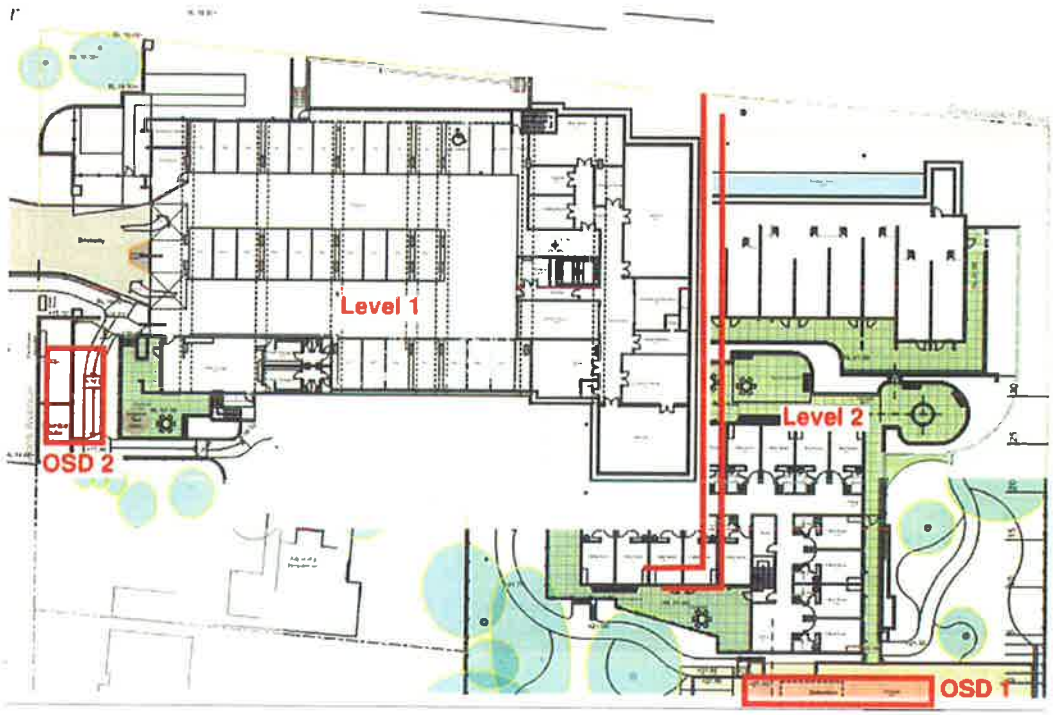

Figure 6 OSD Plan

It is proposed that post detention the systems will discharge to the kerb. The PSD will be restricted to 30 l/s for each outlet. The detention tanks are 145m^3 each, with outlets consisting of an orifice and 150mm diameter pipe discharging to the kerb.

The peak flow rates are presented in Table 1.

Table 1 Site discharge rates

	Western outlet pre-developed	Western outlet proposed	Southern outlet pre-developed	Southern outlet proposed
5-year ARI	96 l/s	20 l/s	96 l/s	19 l/s
100-year ARI	160 l/s	29 l/s	160 l/s	29 l/s

5.0 STORMWATER QUALITY

The DCP does not give specific stormwater quality targets for new developments.

The following water cycle management strategies are recommended for the site:

- Roof water capture and re-use
- Infiltration beds

A sand filter and infiltration bed can be installed into the base of the OSD tanks to infiltrate captured stormwater to the surrounding soil.

Roof water will be collected in a rainwater tank and used on site for irrigation.

6.0 CONSTRUCTION PHASE STORMWATER MANAGEMENT

During the construction phase of the project, an erosion and sediment control plan will be implemented to prevent sediment laden stormwater from entering the council drainage network and Bells Creek. Stormwater controls on site will be detailed in an erosion and sediment control plan, generally in accordance with the "Blue Book" - Managing Urban Stormwater: Soils and Construction (Landcom NSW). The plan will vary based on construction staging and methodology, but will typically include:

- upstream clean water diversion;
- silt fences;
- sedimentation basin;
- dust control; and
- vehicle wash down.

The erosion and sediment control plan includes an inspection and maintenance schedule. The erosion and sediment control plan mitigates against sediment laden stormwater entering the council drainage system and the downstream environment.

7.0 CONCLUSIONS

Stormwater quality and quantity controls including roof water capture and re-use and OSD minimise the impact on the downstream environment.

Prepared by:
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Tim Henderson
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Authorised by:
TAYLOR THOMSON WHITTING (NSW) PTY LTD

Stephen Brain
Technical Director

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arboricultural impact assessment report

AIA-01
For Development Application – Revised Layout
27 April, 2015

DOCUMENT INCLUDES

- T-02 Tree Protection and Removal Plan

PROJECT
Fernleigh RACF – West Ryde
8 Sherbrooke Road
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CONTENTS

i EXECUTIVE SUMMARY

On May 9, 2012 Arterra Design was engaged by Calder Flower on behalf of the Opal Aged Care to undertake an arboricultural assessment of the trees located at 6-8 Sherbrooke Road and 78-82 Mons Avenue, West Ryde (the site) and prepare the relevant arboricultural reports and plans to help guide the demolition and re-development of existing buildings including the 72 bed residential aged care facility (RACF) into a new, 140 bed RACF.

A tree assessment and impact schedule was completed for all trees on the site. (Refer to Appendix 4.2 - Tree Inventory and Assessment Schedule). The trees were photographed, given a unique identification number and plotted onto a scaled survey base plan for referencing and identification throughout the report and for discussions and co-ordination with fellow consultants. (Refer Appendix 4.1 - Tree Protection and Removal Plan).

In summary, of the trees found on the site:-

- **58** existing trees were identified and assessed in total.
- **24** are proposed to be retained and protected. Of the identified **10** high retention value trees, all **10** are proposed to be retained and protected.
- The remaining **34** represent a variety of exotic and native trees, and are either within the proposed building works footprint, or are exempt under the City of Ryde DCP (Part 9.6 Tree Protection) or are not able to be retained due to the likely construction impacts.
- There are several trees to be retained that will experience incursions within their nominal TPZ. The most significant and important trees are (T01) – *Pinus roxburghii* (Chir Pine), (T09) – *Araucaria columnaris* (Cook Pine) and (T10) – *Araucaria heterophylla* (Norfolk Island Pine) are impacted as a result of the proposed construction activities. It is believed these impacts will be able to be managed and the trees able to be successfully retained and protected.

As with all aspects in the development and construction process, the tree related constraints must be weighed up against many other relevant development opportunities and constraints. The retention of the trees on the site must also consider economic, social, environmental, construction and practical realities.

This document has been prepared by Arterra Design Pty Ltd, using the expertise of our in-house consulting arborist (AQF Level 5), Robert Smart. Robert Smart is a member of the International Society of Arboriculture - Australian Chapter and a registered consulting arborist with Arboriculture Australia.

Robert Smart AAILA , ISA, AA
Director, Registered Landscape Architect (054),
Registered Consulting Arborist (1804).

1.0 INTRODUCTION

1.1 Background

Opal Aged Care (OAC) propose to re-develop the existing 72bed residential aged care facility (RACF) situated at 8 Sherbrooke Road together with four surrounding residences at 6 Sherbrooke Road and 78-82 Mons Avenue, West Ryde (the site) and replace them with a new 140 bed RACF. The redevelopment will entail the demolition of existing RACF buildings and the 4 adjacent residences to facilitate the construction of the new RACF, including basement car parking and services area.

The site currently has a variety of native and exotic tree species scattered throughout, with the majority of trees concentrated just beyond the footprint of the existing structures and towards the boundary of the site. The demolition and construction works will have impacts on the trees within the site and a number of trees within the immediately adjacent properties.

On May 9, 2012 Arterra Design was engaged by Calder Flower on behalf of Opal to undertake an arboricultural assessment of the site and prepare the relevant reports and plans to help guide the re-development. This assessment was restricted to the 58 trees within and immediately adjacent to the site, likely to be impacted by the proposed works.

Arterra undertook a "Pre-development Assessment" of the existing trees, identified the trees and ranked their relative significance, health and retention values. This work was distributed to the client and also to the design team to help guide the development proposals.

This Impact Assessment report has been prepared to identify the trees to be retained and removed as part of the development and so that a proactive approach to the management of the trees to be retained may be implemented through appropriate measures to protect them during the construction.

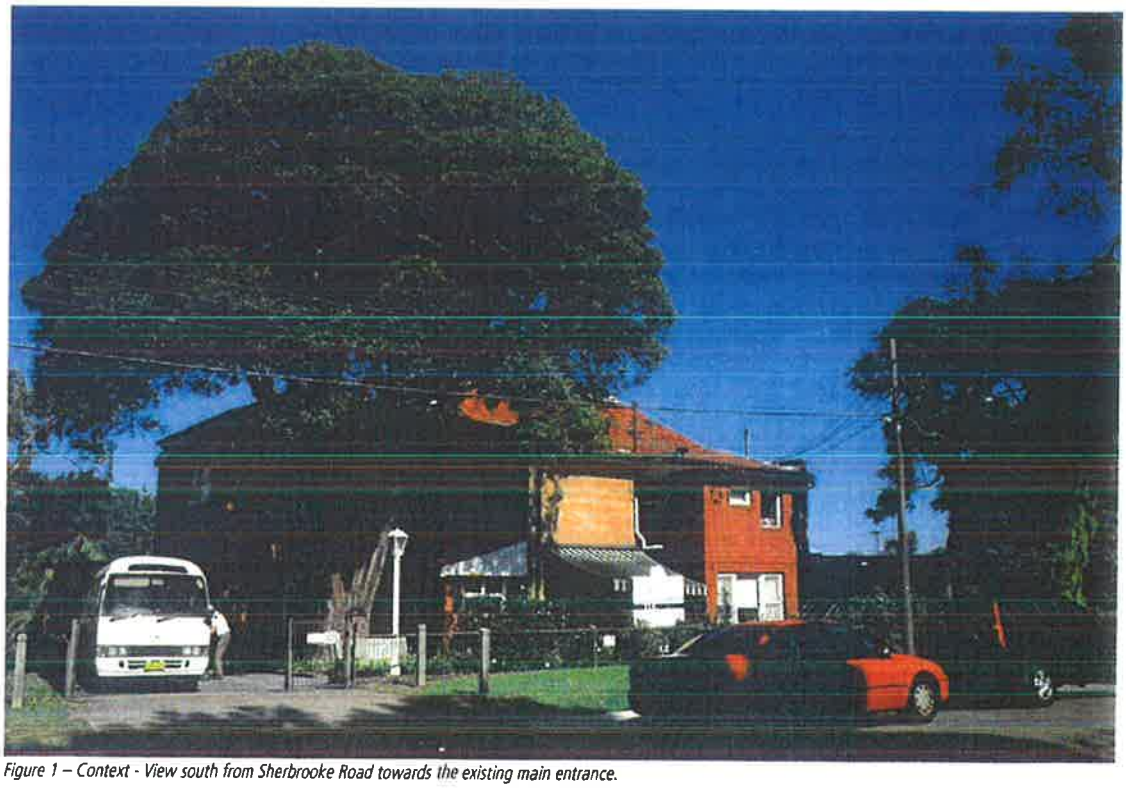

Figure 1 – Context - View south from Sherbrooke Road towards the existing main entrance.

1.2 Aims of This Report

The aim of this report is to assess the impact of the new development on the existing trees located within or in close proximity to the site. Specifically the report aims to:-

- Assess the health and condition of the trees;
- Accurately record information relevant to the existing trees;
- Identify the proposed Tree Protection Zones of the trees being retained and identify and assess the likely arboricultural impacts of the development on the trees;
- Provide preliminary advice on the necessary tree protection measures that will be required during construction to ensure the trees are successfully retained.

All trees within the City of Ryde LGA are protected by the City of Ryde DCP 2010, Part 9.6 (Tree Preservation). Under the provisions of the DCP the following actions are prohibited: ringbarking, cutting down, topping, lopping, removing, injuring or wilfully destroying any Tree without a Tree Permit or Development Application approval issued by Council. Under this Part, **Tree** means:

- trees as defined in Part 10 Dictionary of DCP 2010 where the tree has a height of 5 metres or a stem circumference of 450mm at a height of 1.4 metres above ground level. This includes palm trees; and
- trees described as "major", "substantial" and "significant" in other Parts of DCP 2010,
- unless noted as an exempt species in this Part.

The following limitations apply to this reports use: -

1. Plans: All plans are based on provided information. They should only be used relating to tree issues and are not suitable for any other purpose.
2. Notification of proposed alterations to disturbance within TPZ's: Arterra must be clearly notified of any proposed alterations to the plans or additional disturbance in TPZs, so that we can advise on the implications before any work is undertaken.

1.3 Conduct and Author Qualifications

Given the above stated aims of this report, as author of this report, Arterra Design confirms that Robert Smart is suitably qualified (AQF 5 Consulting Arborist) to provide comment and the required arboricultural advice pertaining to these matters.

Furthermore, Mr Smart confirms he has read and agrees to be bound by the NSW Uniform Civil Procedure Rules 2005, Part 31, Division 2 Provisions, Schedule 7 - Expert witness code of conduct.

Arterra provides specialist consulting arborist services only and does not provide any physical tree work services such as climbing, pruning, removal, root investigations or root pruning.

1.4 Tree Biology and Tree Care Basics

Trees are dynamic living organisms. Trees can be very susceptible to damage, stress and declining rapidly if overly impacted by construction. Trees take decades to grow but can be injured and killed in a very short time frame. This is particularly due to the irreparable damage to the often shallow, extensive and unseen root systems. It is rarely possible to repair a stressed or damaged tree after the damage has occurred. Proper protection is the key. Severing of roots within the Structural Root Zone (SRZ) can also lead to potentially unsafe instability of the tree as a structure.

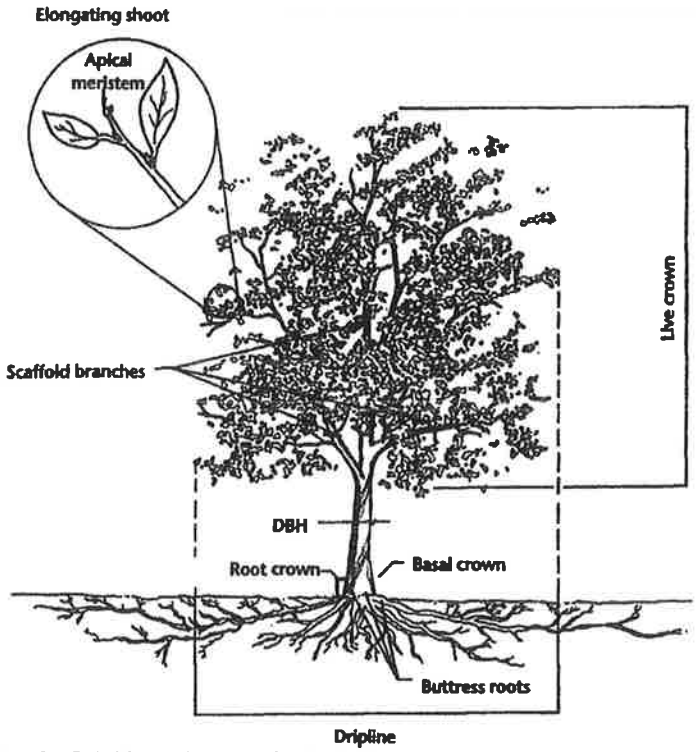

Figure 2 – Typical form and structure of a tree illustrating the typical form, location and extent of root growth (Source: Matheny and Clark, 1998)

Basic Tree Needs

As a living organism a tree remains alive by completing the following chemical reaction:- Carbon Dioxide and water in combination with chlorophyll and light is converted to Glucose and Oxygen [$CO_2 + H_2O$ + light = sugar (CH_2O [Glucose]) + O_2]

The process ultimately leads to the plant cells 'respiring' and producing energy for survival, a natural requirement for all living cells. Anything that affects a plant's photosynthesis and then cellular respiration will affect the overall plant health. The limiting factors of photosynthesis and respiration will typically be the availability of oxygen, water and nutrients that make up the important chemical molecules and reactions.

Trees therefore have five basic requirements to survive and successfully grow:-

1. Oxygen (and particularly oxygen within the soil);
2. Water (a cellular necessity and primarily taken up by the tree roots);
3. Light & Sufficient Foliage (in order to photosynthesise and create the resources needed for cellular survival);
4. Soil (for physical anchorage and critical chemical nutrients) and
5. Physical Space (both above and below ground to grow).

Importantly, a minimum of 15% soil oxygen is required for active root growth and nutrient uptake. Less than 10% available soil oxygen starts to restrict root extension

and growth and a minimum of 3% soil oxygen is required to just maintain root existence. Less than this will result in root death (Harris 1999).

One of the most insidious affects of construction on trees is often that of soil compaction or covering of root zones with impervious surfaces, as it:-

- Reduces infiltration rates of surface water;
- Reduces the availability of water to the roots as they can't naturally extract remaining moisture when soil becomes too dry;
- Reduces air to roots (roots cease to function properly and die without oxygen);
- Increases soil strength caused by compaction meaning that roots need more energy to grow through it or can't even physically penetrate the soil;
- May physically crush or break roots resulting in increased potential for fungal and pathogen attack. (Harris 1999).

Tree Tolerance

Typically older and larger trees are less tolerant of construction impacts. Different species also have different tolerance of injury and disturbance. Importantly it needs to be stressed, that a tree does not "heal" from injury as animals do. Typically any injury made to a tree results in the tree expending considerable energy reserves to create new growth that "seals" and surrounds a wound and then attempts to compensate structurally and physically for any losses. Impacts to trees are therefore cumulative and a series of otherwise small and unrelated impacts can easily result in the death of a tree.

A tree that is already compromised or showing signs of stress is far less likely to tolerate construction impacts due to its lower levels of energy reserves and already weakened state. Therefore a tree that is only in a fair condition or poor condition is less likely to tolerate construction impacts than a young tree in good or excellent condition.

Weakened or stressed trees are also far less able to combat the myriad of normal environmental stresses and pathogens that are naturally imposed against them such as drought, decay, fungi, bacteria and insect pests.

1.5 Documents Reviewed

Plans and documents referenced and reviewed as part of this tree impact assessment were:-

- Ryde City Council DCP 2010 Part 9.6 (Tree Preservation)

Calder Flower:-

- DA11 – Site Plan – Issue B
- DA12 – Level 1 Plan – Issue B
- DA13 – Level 2 Plan – Issue B
- DA14 – Level 3 Plan – Issue B
- DA15 – Level 4 Plan – Issue B
- DA16 – Roof Plan – Issue B
- DA17 – Elevations – Issue B
- DA18 – Sections – Issue B

Arterra Design:-

- L-01 – Landscape Concept Plan – Issue B

At present we have not reviewed the final proposed detailed servicing plans for the development but have been advised by Calder Flower that new services are not proposed to be extended into or through the proposed TPZ's. Any existing services that are no longer required and are within the TPZ's will be capped off and left in situ. Most new services will be entering the site from Mons Ave or from Sherbrooke Road and should not impact the retained trees.

1.6 Site Location, History and Context

The site encompasses the properties located at 6-8 Sherbrooke Road and 78-82 Mons Avenue, West Ryde, approximately 13km northwest from the Sydney CBD. 8 Sherbrooke Road is currently occupied by an existing 72 bed RACF while the other four lots are occupied by existing free-standing residences. The site has a total area of approximately 6639m^2. It is bounded by Sherbrooke Avenue to the north, Mons Avenue and two existing residences to the west and existing residences to the south and east. A driveway enters the site from Constitution Road providing access to staff and visitor parking with the main entry off Sherbrooke Road. The general area surrounding the site is established low and medium density residential development.

The proposed development site is identified in Figure 3 below.

Figure 3 – The site area subject of this tree assessment. (Aerial Photo August 2013. Source: Nearmap)

1.7 Site Ownership and Zoning

The site is owned and managed by Opal Aged Care. The development site is identified as Lots 1 & 4 DP 201757 (approx. 4558m^2) and Lots 6, 7 & 8 DP 2322 (approx. 2081m^2). The site is zoned R2 Low Density Residential under the City of Ryde Local Environmental Plan 2011.

The site is not a listed heritage item, nor is it located within a heritage conservation area under the City Ryde Local Environmental Plan 2011.
(http://www.ryde.nsw.gov.au/accessed 23/01/2014).

1.8 Key Definitions and Abbreviations

The following abbreviations are used throughout this report.

"TPZ" = Tree Protect Zone

This is the area as defined by AS4970 – 2009 "Protection of trees on development sites" and means the typical minimum area above and below ground at a given distance from the trunk to provide for protection of the tree. Most importantly it represents the root zone required to be kept uninjured to maintain a healthy and viable tree. Please note, that roots will usually extend well beyond this zone, so this represents the minimum remaining root zone required, assuming all others are lost or damaged due to construction. It is typically calculated as a circle centred on the trunk unless existing site conditions can be assessed and indicate otherwise.

"SRZ" = Structural Root Zone

This is the area as defined by AS4970 – 2009 "Protection of trees on development sites" and means the area immediately around the base of the tree at a given distance from the trunk. The woody roots and soil cohesion in this area are considered vital to the structural stability of the tree. Damage or removal of soil and roots from this area will typically render the tree unstable and require its removal. It is typically calculated as a circle, centred on the trunk, unless existing site conditions can be assessed and indicate otherwise.

1.9 Assessment Methodology

On the 23rd January and 20th February 2014, Rob Smart (AQF5 Arborist) of Arterra Design undertook a detailed assessment of the existing trees located within and immediately adjacent to the site, that were likely to be impacted by the proposed redevelopment. The trees' health and condition were assessed via a visual inspection of the trees from the ground only. Requisite tree data (including DBH, DGL, height & canopy spread, condition & proximity to services) was recorded using an Apple iPad and Filemaker Pro database.

The basic health and condition criteria that were inspected for each tree can be summarised as follows: -

- Tree size, broad age class and general balance of the tree;
- Above ground obstructions;
- Evidence of recent site disturbance;
- Canopy foliage size, colour and density;
- Dieback and epicormic growth;
- Trunk or branch wounding, branch tear outs and pruning history;
- Structural defects such as any co-dominant stems, cracks, splits, included bark, decay; and
- Pests and disease evidence or occurrence.

All of the trees assessed were photographed and given a unique identification number, plotted onto a scaled base plan for referencing and identification throughout the report and for future discussions and co-ordination. (Refer Appendix 4.2 Tree Inventory and Impact Assessment Schedule and 4.1 T-02 'Tree Protection and Removal Plan').

Tree trunk diameters were measured using a metric diameter tape measure. Approximate tree heights were estimated with a clinometer and paced-out measurements. Canopy spreads were estimated by pacing out distances along the cardinal axis of the canopy and cross-referencing to survey information and aerial photos. Canopy position and extents were then altered on the plans to more accurately portray the canopy extent and position.

The photographic record of all of the trees and general site context was taken using the inbuilt Apple iPad camera and a Canon EOS 400 digital SLR camera. Files have been resized, dated, named and filed in accordance with normal office procedures and protocols. No other image manipulation has been undertaken.

One representative topsoil sample was taken from the site in the vicinity of the retained trees and tested for pH, structure, colour and soil texture class to get a basic understanding of likely soil conditions and topsoil depths surrounding the trees. The sampling was done using a Dormer 62mm diameter hand soil auger to a depth of approximately 700mm. The depth of the profile sample was limited by the available equipment. Tests for pH were done using an Inoculo Laboratories field pH test kit. Soil structure was assessed by observation of soil pedality and soil texture assessment was done using procedures outlined for the field testing of a moist bolus by McDonald et al, 1998. No other exploratory excavations on the site have been done to determine location and condition of roots and no detailed soil laboratory testing has been undertaken.

No specialised equipment or methods were employed to test for the extent of decay in any of the trees other than a basic sounding using a nylon mallet and or investigations using a hand held probe. No plant samples were analysed for formal identification of any pests or diseases.

Desktop Review and Research

Digital AutoCAD files of the proposed works were imported into Arterra's standard CAD software (ArchiCAD v16) and superimposed over the tree and site survey information. The extent of site disturbance was analysed for the proposed building works, landscaping, services and other site grading. An assessment was made of the likely extent of impacts on the TPZ's, taking into account the likely additional construction impacts depending on the type of work being undertaken (ie: cut or fill, suspended slabs, decks, service trenches). Various area calculations and measurements were made in the CAD software of the likely incursions into the TPZ's or SRZ's.

Recent aerial photography data was obtained from the Nearmap website with aerial photos of the site dating from November 2013 imported into the above CAD software for cross checking and assessment.
(http://www.nearmap.com/ accessed 23/1/2014)

Climatic data was obtained from the Bureau of Meteorology using statistics from Riverview Observatory which is located approximately 6.3km from the site. (http://www.bom.gov.au/climate/data/ accessed 23/1/2014)

1.10 Tree Assessment – Tree Retention Values

The information gathered in the field was tabulated and the retention value assessed via a combination of techniques commonly used and recognised in the arboricultural industry. The proposed retention value of the tree was determined based on a considered combination of the size, age, condition and suitability of the tree. Each tree was then ranked according to one of 4 retention categories.

1. **"High" Retention Value** – these are trees that are typically in good or very good condition, large and visually prominent, historically or environmentally important. They should represent a serious physical constraint to the development and their removal avoided where possible and feasible.
2. **"Moderate" Retention Value** – these are trees that are in good to reasonable condition and should be retained where possible and feasible to do so.
3. **"Low" Retention Value** – these are trees that are of poor condition or have structural defects, are particularly small or common-place, are not historically, environmentally or socially significant and should not be considered as a constraint to the development. They could be retained only if they are not likely to be impacted by or constrain potential desirable development outcomes.
4. **"Should Remove" / No Retention Value** – these are trees that are in very poor health, or poor form, or have serious structural defects, are considered weeds or combination of all these, and therefore should be considered for removal regardless of any development.

1.11 Tree Assessment – Tree Protection Zones

In order to ensure the long term survival and growth of any trees to be retained on the development site a suitable area is required to be protected around the tree. This area should typically be as large as possible. It should also take into consideration: -

- The size and age of the tree;
- Above and below ground properties;
- The health and condition of the tree;
- The species of tree and its tolerance to disturbance;
- Soil conditions, type, depth and site hydrology and
- Site-specific conditions and any existing obstructions to root development.

The Tree Protection Zones (TPZ's) have been calculated using the formula and criteria outlined in AS4970-2009 Protection of Trees on Development Sites. In summary the standard applies the calculation for the radius of the TPZ as 12 x (the tree trunk diameter (in metres) calculated at breast height (DBH)). DBH is taken at 1.4m above ground level.

A maximum TPZ radius will be 15m (unless crown protection is required) while the minimum TPZ radius shall be 2m.

The TPZ is typically assumed to be radial and centred on the centre of the tree's trunk unless other site factors or tree canopy size and location dictate an adjustment. Encroachments of up to 10% of the area may be accepted within the TPZ as long as it is outside of the Structural Root Zone (SRZ). This is known as a "minor encroachment". Encroachments greater than this, known as "major encroachments" will only be accepted with additional specific evidence that the tree will not be unduly impacted.

Whenever an encroachment is made into a TPZ, a suitable compensation should be made elsewhere and physically contiguous to the remaining TPZ.

The Structural Root Zone (SRZ) is the area defined as the minimum area required to retain the structural stability of the tree. The formula for calculating the SRZ is outlined in AS4970 Section 3.3.5. No encroachment into the SRZ shall typically be allowed.

2.0 KEY FINDINGS & OBSERVATIONS

2.1 The Proposed Development

The proposed building and development will result in a major site disturbance. This can have a significant impact on the trees within and immediately around the site.

Specifically the proposed development will involve:-

- Major demolition works;
- Use of large scale civil and earthmoving equipment;
- Access to and from the site with large trucks and construction plant;
- Major excavations;
- Stockpiles of excavated material and demolition waste;
- Stockpiles/ storage of building materials;
- Re-grading and filling of the surface levels;
- Trenching for services;
- Major building works involving concreting, painting and general construction;
- Use of large cranes and piling equipment;
- Parking for site personnel and deliveries;
- Paving and Retaining Walls;
- Landscaping.

Key Assumptions:-

- All excavations, particularly those near trees are to be undertaken and retained using sheet, soldier or contiguous piling techniques. Even relatively small excavations, when done near trees are to be retained using contiguous or soldier piling or similar to avoid excessive batters and disruption of tree root zones due to the loamy soils. (Refer to section 2.3)
- Despite the above, the line of disturbance outside of the building line has been typically estimated at 1.5m from the face of the building to allow for provision of water proofing, services, access and scaffolding around the building during construction.
- All services for the building will enter and exit from the north or west (Sherbrooke Road or Mons Ave) and will be clear of any retained trees TPZ's.
- All construction access and deliveries are to be made from Mons Avenue. Concrete will typically be pumped and will not require any truck movements through TPZ's to deliver concrete.
- Where no spot levels are indicated it is assumed that the existing surface levels are retained.
- It is assumed that any new landscape grading within the TPZ's will be minimal and simply involve shallow filling to provide new garden soils and the creation of shallow pedestrian paths.

2.2 Climate & Microclimate

West Ryde is located in Sydney's north western suburbs, and shares the general climate of this region with moderate temperatures, good rainfall and minimal climatic and weather extremes. It is typically described as a temperate climate with hot to warm summers and cool winters, with relatively uniform rainfalls. There is no distinct dry season.

The site is located approximately 500m north of the Parramatta River at Meadowbank and 400m northwest of Meadowbank railway station. The area has an average annual rainfall of 1135mm, fairly evenly spread across the year but with a slightly drier period during the late winter and early spring months. The highest rainfall period is usually March with an average of 126mm and the driest month being September with an average of 62mm.

Maximum average daily temperatures range from 26.6°C in January to 16.7°C in July. The minimum average daily temperatures range from a high of 17.7°C in February down to lows of 6.4°C in July. The site has a northerly aspect, and its position is relatively exposed to the elements being located towards the ridge top and close to the relativel wide Parramatta River valley.

The predominant wind direction is from the south/south-east to the north-east in the afternoons while it is predominantly from the west and north-west in the mornings. This is common of coastal areas dominated by "sea breeze" affects. Sea breezes are caused by unequal heating and cooling of adjacent land and sea surfaces. A sea breeze is one that blows from the sea to the land in consequence of this differential heating. With a weak general wind circulation, a sea breeze will commence over the coastline soon after the land temperature begins to exceed the sea temperature (late morning to early afternoon). As the difference increases, so the sea breeze will become stronger and will extend farther inland. (Source: Australian Bureau of Meteorology)

The strongest winds (>40km/h) are normally experienced from the south or westerly directions and normally later in the day.

There are no prominent microclimatic influences on the site apart from the general coastal influence and the protection offered to the interior spaces of the site by the surrounding buildings.

2.3 Soils and Landform

The site is situated atop a localised rise and slopes south towards the river and away to the western boundary on Mons Avenue. The high point of the site is on the northern boundary at Sherbrooke Road with an elevation of 26m AHD and the low point of 16.6m AHD being the driveway entry off Constitution Road at the southern extremity of the site.

Soil landscape mapping of the area describes the area as gently undulating crests and plateaus on Mittagong Formation (alternating bands of shale and fine grained sandstone). The topsoil is expected to be loose, yellowish-brown sandy loam. The topsoil usually overlies a stony, hard-setting sandy clay loam. The soil is expected to be a loose, apedal single-grained structure and porous sandy fabric. Generally fertility is low, consisting of shallow, stony and highly permeable topsoil with low available water capacities and low nutrient status. Small sandstone, ironstone and charcoal fragments are common. The subsoils are occasionally sodic and impermeable (Chapman 1989).

The soil sample results are summarised below. The soil observed on the site was a loamy sand topsoil with a pH of 6.5, moving to a sandy clay loam/sandy loam subsoil with a pH of 7.0. The structure was weakly pedal largely consistent with the soil expected on the site and outlined in the above natural soil mapping descriptions.

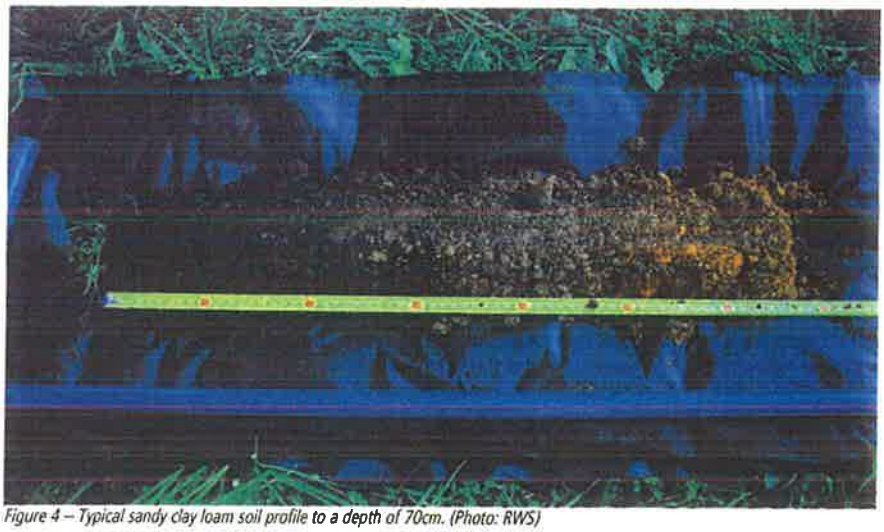

Figure 4 – Typical sandy clay loam soil profile to a depth of 70cm. (Photo: RWS)

2.4 Tree Assessment - General

A total of 58 trees were assessed for this report and were generally determined to be in fair to good health. They are fairly evenly distributed around the site beyond the footprint of the existing structures. Of the trees inspected, 34 will require removal as they either fall within the footprint of the proposed new building or they will be unacceptably impacted by the proposed building and site works.

Figure 5 – The site in 1943. A number of the current trees (centre of image and on Sherbrooke Road boundary) appear to have been present at this time. (Aerial Photo 1943. Source: NSW Lands Dept. Six Viewer)

Detailed information on each tree including; heights, trunk diameters, canopy widths, age classes and condition are all provided in Appendix 4.2 'Tree Inventory and Impact Assessment Schedule'.

2.5 Tree Impact Assessment

The intention of this assessment is to clearly illustrate the trees to be retained and removed as part of the development. It is also to determine any incursions into the retained trees' root zones and canopies by the proposed development and to evaluate the likely impact of the proposed works on the trees. A detailed summary of the incursions and likely impacts of the proposed development on each tree is shown in Appendix 4.2. 'Tree Inventory and Impact Assessment Schedule'.

Of the 58 trees assessed and identified on the site it is proposed that:-

- **24** are proposed to be retained and protected (T1, T4, T5, T6, T7, T09, T10, T11, T24, T25, T26, T27, T29, T30, T31, T34, T35, T43, T44, T45, T46, T47, T48 & T51).
- The remaining **34** represent a variety of exotic and native trees, and are either within the proposed building works footprint, or are exempt or are not able to be retained due to proximity to the proposed site works.
- The three most significant trees within the site are T1, T9 and T10. There is likely to be some impact to these trees as a result of the proposed construction however it is believed the impacts can be managed and the trees able to be successfully retained and protected.
- Trees T43-T46, T48 & T51 are situated on an adjacent property at 84 Mons Avenue. T48 is unlikely to be impacted by the proposed development, as there are no significant level changes proposed in its vicinity. T43-T45 may be impacted to some degree, due to the requirement to construct a retaining wall near the southern boundary of the site in their vicinity. These are quite small trees and they have been planted and grown at the base of an existing stone wall and the adjacent garage that is to be demolished. Most of the roots of these trees are expected to be to the south of the trees so they should be able to be retained without impact.
- T51 is an over mature *Callistemon viminalis* (Bottlebrush) with significant defects. Its condition should mean that it is not considered a significant constraint to the development. It is proposed to construct a wall near the adjoining boundary which may impact the tree. An AQF level 5 arborist should be on site during excavation for this walls footing. If significant roots are discovered and are required to be severed then this tree should be removed and the adjoining owner offered a new tree in its place (up to a maximum installation size of 75L).
- T47 is a semi-mature *Cupressus macrocarpa cultivar* (Golden Cypress) of average form and condition. It is necessary to regrade to the north of the tree which may impact the tree with a potential 13% incursion. The retention of this tree has been requested by the adjoining owner. An AQF level 5 arborist should be on site during excavation and grading. If significant roots are discovered and are required to be severed the retention of this tree should be reassessed and the adjoining owner offered new tree planting in its place (up to a maximum installation size of 100L).

The more significant trees, tree impacts and encroachments are discussed in more detail in the following pages and also outlined graphically in Appendix 4.1 T-02 Tree Protection and Removal Plan.

Tree T1- *Pinus roxburghii* (Chir Pine)
This tree measures 23m in height, 12m spread, with 0.98m DBH and has a nominal TPZ radius of 11.8m. It is a mature, visually significant specimen in good condition with a High Retention Value. It is proposed that this tree be retained and protected throughout the course of construction.

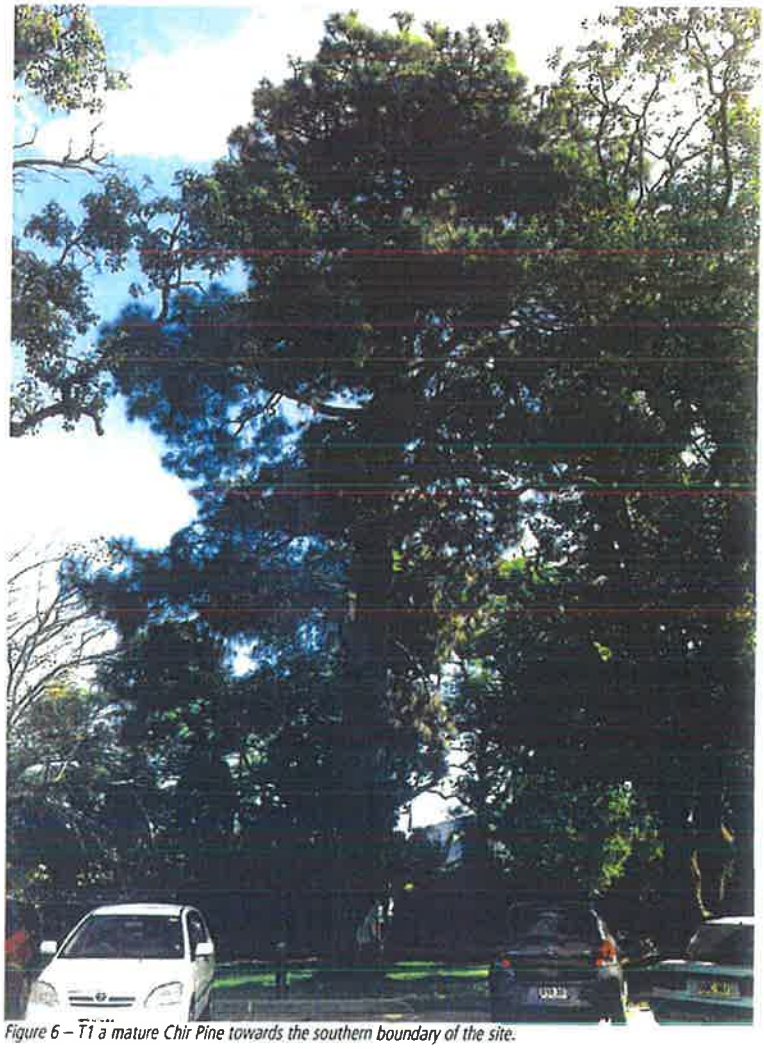

Figure 6 – T1 a mature Chir Pine towards the southern boundary of the site.

According to AS4970-2009 Protection of Trees on Development Sites, T1 will be subject to a minor incursion of 9% within the nominal TPZ. A major incursion is defined as an incursion greater than 10% of the total area of the TPZ.

This tree appears to be present as a relatively significant specimen in 1943 aerial photos of the site. Significant works have taken place on the site since 1943 with the building encroaching on the tree from the north and construction of a concrete paved car park to the east. A large *Cinnamomum camphora* (Camphor Laurel) to the north of the tree together with the building and the car park are likely to have impeded the development of the existing roots to the north and east. This is likely to have resulted in most root development to the south and west away from these influences.

The nominal TPZ is calculated at 435m^2, and the total calculated incursion measures 38m^2 or 9% of the nominal TPZ. In the authors opinion, excavation for the new building works to the north of the tree is unlikely to significantly affect the tree. This disturbance has been located as far form T1 as possible. The line of probable root loss

is at least 8.0m to the north-east of the centre of the tree and is well outside the SRZ. Construction and detailing will be focussed around retention of the existing levels around the remaining TPZ and minimising any further excavation and root loss. A suspended concrete balcony has been designed to allow this. The tree canopy remains wholly within the proposed TPZ fencing and is unlikely to require any pruning to facilitate construction of the building.

In the authors opinion these are acceptable root incursions and pose only a minimal risk to the ongoing health and wellbeing of this tree for the following reasons:

- No work or disturbance is proposed within the SRZ.
- The incursion comprises a defined excavation along the north/north-eastern extremities of the nominal TPZ, in an area where root development is likely to have been historically limited. (See Appendix 4.02 T-02)
- The tree currently appears to be in good health, displaying good form and vigour. With care and proper maintenance this species should have a safe useful life expectancy of at least another 30-40 years.
- The area to the south and west of the tree is to be protected as a consolidated Tree Protection Area and will compensate for any loss of roots to the north.

Tree 09- *Araucaria columnaris* (Cook Pine)
This tree measures 21m in height, with a 6m spread, and 0.60m DBH and has a TPZ radius of 7.20m. It is a mature specimen, in excellent condition with a High Retention Value. 1943 aerial photos indicate this tree was not present at this time.

T09 has a nominal TPZ area of 162m^2 that will be subject to an incursion of 42m^2 or (26%) due to construction of a proposed car park. The car park is to be constructed at aor above the existing surface levels. In the author's opinion this incursion is unlikely to significantly impact upon the tree based on the following observations:-

- The tree currently appears in good health, displaying good form and vigour.
- The construction is above the existing ground surface klevels and therefore direct root loss is likely to be minimal
- An appropriately large compensatory Tree Protection Area to the north side is being provided with no construction that is likely to disturb or damage roots.
- Appropriate management will be employed during and post-construction to help the tree cope with the root losses to the west of the tree. (eg. mulching and irrigation)

Tree 10- *Araucaria heterophylla* (Norfolk Island Pine)
This tree measures 19m in height, with a 6m spread, and 0.55m DBH and has a TPZ radius of 6.60m. It is a mature specimen, in excellent condition with a High Retention Value. 1943 aerial photos indicate this tree was not present at this time.

T10 has a nominal TPZ area of 137m^2 that will be subject to an incursion of 21m^2 or (15%) due to excavation and construction of the eastern wing of the proposed building. In the author's opinion this incursion is unlikely to significantly impact upon the tree based on the following observations:-

- The tree currently appears in good health, displaying good form and vigour.
- The excavation is outside of the SRZ.
- An appropriately large compensatory Tree Protection Area to the north, south and eastern side is being provided with no construction that is likely to disturb or damage roots.
- Appropriate management will be employed during and post-construction to help the tree cope with the root losses to the west of the tree. (eg. mulching and irrigation)

Tree 11- *Pittosporum undulatum* (Sweet Pittosporum)
This tree measures 9m in height, with a 9m spread, and 0.56m DBH and has a TPZ radius of 6.72m, however the shape of the TPZ has been adjusted to suit site conditions. It is an over-mature specimen, in only fair condition with a moderate Retention Value. 1943 aerial photos indicate this tree may have been present at this time.

T11 has a nominal TPZ area of 134m² that will be subject to an incursion of 10m² or (7%) due to excavation and construction of the eastern wing of the proposed building and retaining walls. In the author's opinion this incursion is unlikely to significantly impact upon the tree based on the following observations:

- It is less than the acceptable incursion of 10%.
- The excavation is outside of the SRZ.
- The existing retaining wall that the tree is growing out of the base of is to be retained and is likely to have resulted in most root growth towards the south or along the retaining wall itself.
- An appropriately large compensatory Tree Protection Area to the south of the tree is being provided with no construction that is likely to disturb or damage roots.

Figure 6 – T11 an over-mature Pittosporum towards the eastern boundary of the site. It is proposed to be retained as it provides excellent screening to the adjoining unit developments in the short to medium term. Due to the wall location, it is expected most root development is to the south of the tree. Existing wall is to be retained and repaired.

Trees 43-45 Located adjacent at 84 Mons Road

- These are all small (DBH<20cm and DGL's <0.25cm and heights around 5-6m only) and immature trees or large shrubs located adjacent to the south western boundary of the site. The trees are, T43 *Melaleuca bracteata* (Black Tea Tree), T44 *Leptospermum petersonii* (Lemon Scented Tea Tree), T45 *Grevillea sp.* (Grevillea), and T46 *Grevillea sp.* (Grevillea). A retaining wall is proposed to be constructed near the boundary north of these trees along the line of an existing wall, garage and rock outcropping. Despite works proposed within the nominal TPZ's it is the authors opinion these trees are unlikely to be seriously impacted by the proposed development as the trees' roots are likely to extend predominantly to the south, away from the existing wall and rock outcrop, and towards the far more favourable soil conditions within the front lawn of 84 Mons Avenue.

Trees 51 Located adjacent at 84 Mons Road

- T51 is an over-mature Callistemon viminalis (Bottlebrush) in poor health and vigour and with significant decay and defects. Its condition should mean that it is not considered a significant constraint to the development, despite it

being on the neighbouring property. It is proposed to construct a low retaining wall along the adjoining boundary which may impact the trees roots. An AQF level 5 arborist should be on site during the excavation for this wall. If any significant roots are discovered emanating from this tree and are required to be severed then this tree should be removed and the owner offered a new tree in its place (up to a maximum installation size of 75L).

2.6 Bulk Excavation for Building Basement

In order to achieve the building's lower levels and the development proposed, it will be necessary to excavate for the basement. This is unlikely to have any significant impact on any of the trees to be retained. Those trees likely to be adversely impacted by the excavation have already been recommended for removal. Where bulk excavation or demolition is to take place in proximity to any fenced tree protection zone the following precautions will be taken.

It is proposed that:

- The existing building be demolished carefully and from the internal side of the site to avoid any damage to the retained trees or their nominated Tree Protection Areas.
- That vertical excavation faces or soldier or contiguous piling be undertaken to retain the excavation in proximity to the retained trees to create a vertical face for the basement or retaining wall and prevent the need for any batters that extend into the existing tree protection zones.
- Any roots greater than 75mm in diameter that are discovered during excavation be cleanly and professionally cut by, or under the supervision, of a suitably qualified arborist. (Although few roots are expected to encountered)

2.7 Main Tree Impacts to be Managed During Construction

The main potential impacts from the proposed construction activity can be summarised as tree damage and 'reduced life expectancy' caused by:-

- Root loss and disturbance due to excavations and machinery;
- Compaction or lack of aeration of the root zone from storage and stockpiling of materials;
- Contamination of the soil from the preparation of chemicals, wash down/ cleaning of equipment, refuelling of vehicles and dumping of waste;
- Root damage from site access roads and the parking of vehicles/ plant equipment;
- Root disturbance from cut and fill and soil level changes;
- Physical damage to the tree trunks and branches from passing machinery;
- Damage to the tree roots from landscaping and pedestrian pathway construction.

The following recommendations and proposed tree protection measures are outlined in Section 3 and are proposed to minimise and avoid these impacts as much as physically possible.

3.0 RECOMMENDATIONS

3.1 Consideration of Tree Retention and Removal

The landscape concept design and proposed building and site layout have been developed in consultation with the Client and Architects. Arterra, as both the consulting arborist and landscape architect for the project have aimed to minimise the impact on the existing site trees to be retained and the design has been modified to this effect wherever possible. The trees noted for removal, as well as those to be retained, have been given careful consideration and recommendation for removal has not been given lightly.

It is proposed to retain all 10 of the 10 trees assessed to have a High Retention Value. Four (4) trees of moderate retention value (T3, T14, T15, T17) are proposed for removal due to unavoidable conflicts with the proposed building design. They are proposed for replacement by new tree plantings in appropriate positions within the new development. The remainder of the trees proposed for removal were assessed to have a low to very low retention value.

Trees T43-T46 located adjacent to the site, at 84 Mons Avenue as noted in section 2.5 above, are to be retained and protected throughout construction. If however, in the course of construction, roots of greater than 50mm in diameter are exposed, and or the trees are overly damaged or die as a result of the proposed retaining wall construction, it is the authors recommendation that the trees will be replaced at the developer's cost, with trees of a similar species and an appropriate size to the satisfaction of the owners of 84 Mons Avenue. We would expect this to be a supply size up to 2-3m in height in a 75 litre pot size)

3.2 Key Recommendations to Reduce Tree Impacts

The following recommendations are made to reduce any potential negative impacts on the retained trees.

- Prior to demolition and construction the retained trees are appropriately fenced for the duration of all major site construction work. Refer to Appendix 4.1 T-02 'Tree Protection and Removal Plan' for the fencing location and extent. Access to the Tree Protection Zones shall typically be excluded for all contractors unless authorised.
- Ensure that an appropriately qualified Arborist is on–site and supervises all demolition, grading and any construction work that is required to occur within the identified Tree Protection Areas.
- Existing trees that are to be removed in amongst the trees to be retained are to be removed using qualified arboricultural staff. Stumps are to be ground out to avoid the use of excavators and the like from grubbing out stumps, which may lead to damage of any intertwined roots.
- If during demolition or construction in the immediate vicinity of designated TPZ's, tree roots of 75mm or greater in diameter are exposed, work in the area shall cease, the roots shall be carefully exposed and carefully cut by hand, before further site works continue.
- Carefully control and fence the construction access to and from the building area so that movement does not occur through any TPZ outside of the documented building incursion.
- Ensure all the above and below ground services are excluded from running through any identified TPZ's for trees being retained.
- Minimise the re-grading of the ground surface within TPZ's, (outside of the building incursions). Where level changes are required to meet and match building elements and pathways, the re-grading be limited to a maximum depth of 300mm above the existing ground levels and ensure that only quality sandy and manufactured organic garden mix soils are used.
- Avoid digging into the existing tree root zones for the installation of any proposed landscaping around the trees and ensure installation sizes for new plants be 5L or less to ensure that excavations are less than 250mm in depth. Where possible it is proposed to build up soil levels where new planting is required to a maximum of 300mm to enable the planting to occur without disturbing any existing roots.

- Do not allow storage or stockpiling of any materials or site sheds within the established TPZ's unless it can be demonstrated that this will not impact on the tree retention and it is approved in writing by the Consulting Arborist.

3.3 Proposed Tree Protection & Construction Activity Sequence

The following sequence of activities should be followed for this project: -

1. Detailed Tree Protection Specification to be prepared and issued as part of the building contract and implemented prior to any construction work.
2. Project Consulting Arborist, Landscape Architect, Civil and Structural Engineers, Client and Contractor's Site Foreman are to meet prior to commencing any work on the site to discuss and review all work procedures, construction access routes, stockpiling and tree protection measures (ie. fence types and locations, access, cranage points, piling methods etc.).
3. Contractor to discuss locations and type of any sediment and erosion controls (if any) and install them with minimal tree impact when within or needing to pass through the TPZ.
4. Existing surrounding trees are to be removed. Stumps are to be ground out to avoid the use of excavators and the like from grubbing out stumps, which may lead to damage of any intertwined roots.
5. Existing pathways, fences, driveways, furniture and shrubs are to be carefully removed from within the TPZ using hand methods or small tracked equipment rather than large mechanical equipment or wheeled skid-steer plant (ie. avoid the use of Bobcats).
6. The Construction Phase TPZ is to be defined and fenced off with a 1.8m high metal or plywood temporary fence prior to any further work within the vicinity of the trees. Signage shall be placed on the fence to identify it as a Tree Protection Zone.
7. A utility Arborist is to undertake selective pruning of any canopy to facilitate construction of the building and the use of any large scale piling equipment without accidental damage to the tree canopies (not expected at this point). Pruning to be done in accordance with AS4373-2007 Pruning of Amenity Trees and performed by staff with minimum AQF 3 qualifications.
8. Building works shall then be completed and external landscaping undertaken.
9. Contractor to only remove the TPZ fencing and then install final pathways and landscaping within the TPZ after completion of the main construction of the building exterior and site works.

3.4 Demolition

Demolition of any paths and other structures required within an identified TPZ shall be done with small tracked equipment or by hand, with care to limit damage and disturbance of the root zone. All such work within TPZ's shall be supervised and overseen by an appropriately qualified arborist.

3.5 Tree Protection Fencing & Ground Protection

Establish a clearly defined tree protection zone as indicated in Appendix 4.1 "T-02 Tree Protection and Removal Plan". Install a 1.8m high temporary fence with either plywood hoarding or temporary steel mesh fencing. This area around the tree shall be delineated as a tree protection zone during the remaining construction process. Access will typically be excluded from this zone and the levels will be left largely at the existing levels with the exception of the installation of 75mm of mulch if required.

3.6 Landscaping within TPZ's

Once final levels are set by the finished structural elements. The final trimming and landscaping within TPZ's shall be judiciously undertaken. The final pedestrian pavements shall be installed without undue excavation or compaction to the soil underneath and all soft landscaping within the tree protection zone will be installed with care to avoid root disturbance from irrigation trenching, lighting installation and the planting of larger plants. The installation of 200-300mm of new garden mix topsoil over the pre-existing soil will provide a suitable medium in which to plant new plants without damage to existing tree roots. Permanent irrigation (if used) shall be installed as spray heads located outside of the TPZ's and spraying inwards. All other services such as electrical services shall also be designed and installed to avoid any excavation or trenching around the retained trees.

3.7 Final Building and Pedestrian Clearance Pruning

Once the final levels and finishes are in place the Project Consulting Arborist shall supervise the selective pruning of any lower peripheral branches to retained trees to achieve any clearances for final pedestrian access or final building clearances. This shall be minimised as much as possible. It is anticipated that the final pruning of retained trees will be less than 5% of the existing canopy and will not have any serious impact to any of the trees' health or habit.

The branches of the tree shall only be pruned as specifically needed and directed by the Project Consulting Arborist. Work is to be in strict accordance with to AS4373-2007 Pruning of Amenity Trees. Do not treat wounds. Only clean, sharp pruning implements shall be used for all pruning work, ensuring that cuts are made without damage, tearing or bruising of vascular tissue.

3.8 Other Tree Protection Measures

The following are a summary of the other main measures that will be required during construction. These should be adopted for the Main Construction Contract.

Controlled Construction Access

Construction access points and stockpiling and storage areas shall be clearly identified and fenced where appropriate. Uncontrolled access points and parking of vehicles outside of designated areas is to be avoided. If access is required through a tree protection zone, the driveway/ access way shall be mulched with a minimum of 100mm of hardwood woodchip with rumble boards or other suitable rigid plating laid down over the mulch to limit soil compaction and tree root damage and disturbance.

Clearing and Removal of Trees to be Removed

Removal and clearing of existing trees in close proximity to trees that are to be retained, shall be done by qualified arboricultural staff with care not to impact or damage the trees that are to be retained. Existing stumps shall be ground in a controlled fashion to remove wood that may otherwise decay and promote unwanted pathogens.

Communication - Tool Box Meetings and Construction Inductions

All contractors and subcontractors shall be inducted prior to working on the site. All inductions shall include description and identification of the Tree Protection Zones and the restriction on work and activities with regard to trees. The site foreman shall ensure that all new staff and contractors are appropriately inducted and that brief "tool box" meetings are conducted regularly to ensure Tree Protection is maintained at the forefront of all construction workers minds.

3.9 References

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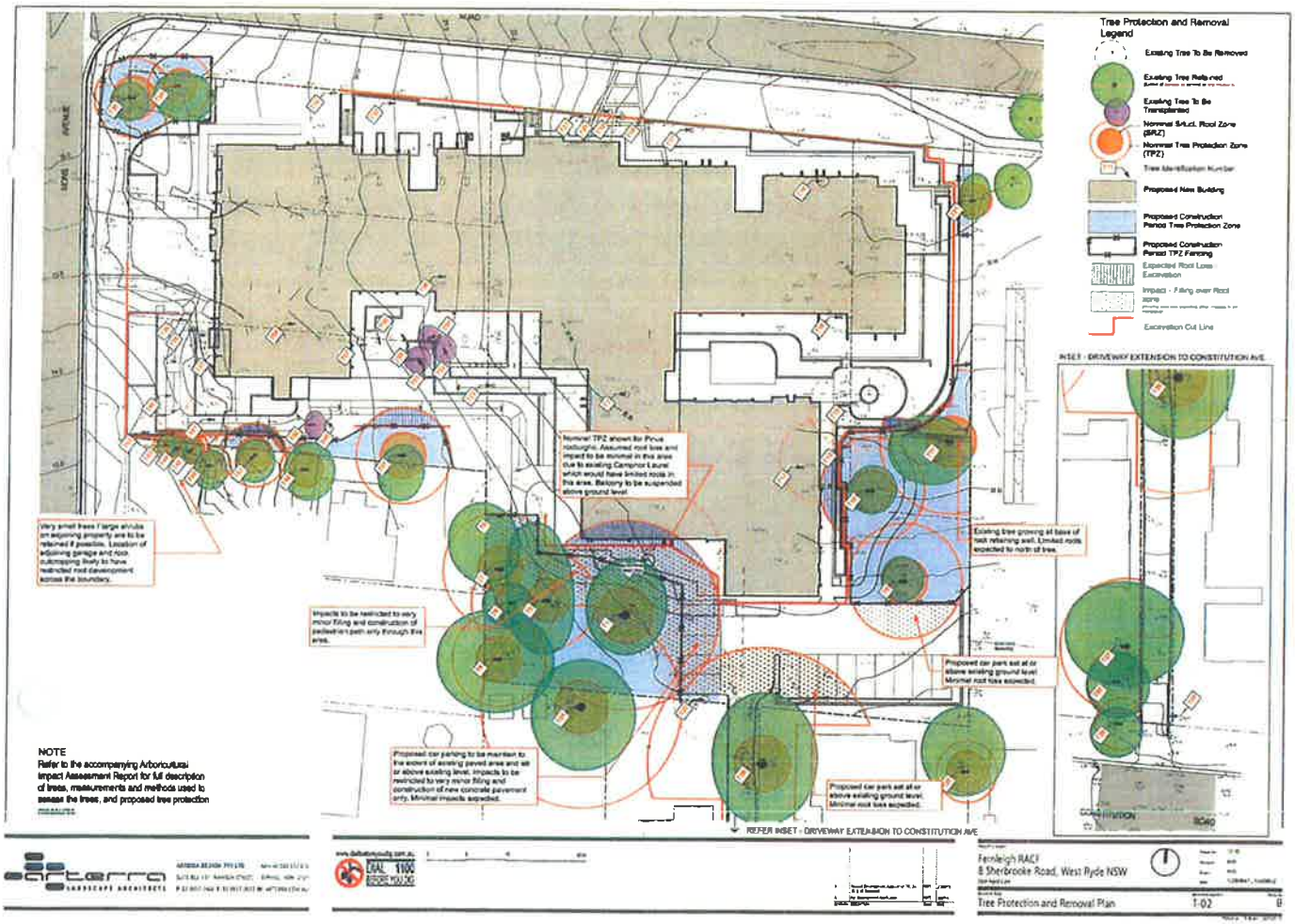
- Standards Australia, 2009, *AS 4970-2009 Protection of Trees on Development Sites.* Standards Australia, Sydney.

- End of report.

4.0 APPENDICES

4.1 T-02 Tree Protection and Removal Plan



NOTE
Refer to the accompanying Arboricultural Impact Assessment Report for full description of trees, measurments and methods used to assess the trees, and proposed tree protection measures

arterra
LANDSCAPE ARCHITECTS

Fernleigh RACF
8 Sherbrooke Road, West Ryde NSW

Tree Protection and Removal Plan

1:02

B

4.2 Tree Inventory and Impact Assessment Schedule

Fernleigh RACF, West Ryde - Tree Impact Assessment Schedule

Tree No.	Tree Species	Common Name	Height (m)	Spread	Trunk Diameter Breast Height	Trunk Diameter at Base	TPZ radius	SRZ radius	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	General Comments and Notes	Retention Value	Incursion and Impact	Recommendation
1	[illegible]	Chir Pine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	[illegible]	Retain & Protect. [illegible] TPZ
2	[illegible]	Camphor Laurel	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	In footprint of new building	Remove
3	[illegible]	Jacaranda	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	In footprint of new building	Remove
4	[illegible]	Jacaranda	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	[illegible]	Retain & Protect - [illegible]
5	[illegible]	Jacaranda	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	[illegible]	Retain & Protect
6	[illegible]	Firewheel Tree	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	[illegible]	Retain & Protect
7	[illegible]	[illegible] Apple	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	[illegible]	Retain & Protect
8	[illegible]	Variegated Rubber Tree	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very Low	[illegible]	Remove
9	[illegible]	[illegible] Pine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	[illegible]	Retain & Protect. [illegible] TPZ
10	[illegible]	Norfolk Island Pine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	[illegible]	Retain & Protect. [illegible] TPZ
11	[illegible]	Sweet Pittosporum	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	[illegible]	Retain & Protect. [illegible] TPZ
12	[illegible]	Jacaranda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	In footprint of new building	Remove
13	[illegible]	Bottle Brush	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	In footprint of new building	Remove
14	[illegible]	Brush Box	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	In footprint of new building	Remove
15	[illegible]	Lemon Scented Gum	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	In footprint of new building	Remove
16	[illegible]	Cabbage Tree Palm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	In footprint of new building	Remove
17	[illegible]	Jacaranda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate	In footprint of new building	Remove
18	[illegible]	Golden Monterey Cypress	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very Low	In footprint of new building	Remove
19	[illegible]	Golden Cypress	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very Low	In footprint of new building	Remove
20	[illegible]	Golden Cypress	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very Low	In footprint of new building	Remove
21	[illegible]	Himalayan Cedar	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	In footprint of new building	Remove
22	[illegible]	[illegible] Myrtle	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very Low	In footprint of new building	Remove
23	[illegible]	Camphor Laurel	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very Low	[illegible]	Remove
24	[illegible]	Coral Tree	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High (adjoining)	Nil	Retain & Protect
25	[illegible]	Jacaranda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High (adjoining)	Nil	Retain & Protect
26	[illegible]	Brush Box	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
27	[illegible]	Sydney Red Gum	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High (adjoining)	[illegible]	Retain & Protect

Fernleigh RACF, West Ryde - Tree Impact Assessment Schedule

Tree ID	Tree Species	Common Name	Height (m)	Spread	Trunk [illegible]	Trunk [illegible]	TPZ [illegible]	SRZ [illegible]	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	General Comments and Notes	Retention Value	Incursion and Impact	Recommendation
28	Angophora costata	Sydney Red Gum	10.0	3.5	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	Deadwood	Short (5-15 years)	[illegible]	Very Low	[illegible]	Remove
29	Angophora costata	Sydney Red Gum	8.0	7.0	[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Good	Average	Deadwood	Long (>40 years)	[illegible]	High (adjoining)	Nil	Retain & Protect
30	Angophora costata	Sydney Red Gum	8.5	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Good	Average	Deadwood	Long (>40 years)	Adjoining site	High (adjoining)	Nil	Retain & Protect
31	Grevillea robusta	Silky Oak			[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Good	Average		Medium (15-40 years)	[illegible]	High (adjoining)	[illegible]	Retain & Protect
32	Callistemon viminalis	Bottlebrush	4.5	3.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	Lean, Deadwood	Short (5-15 years)	[illegible]	Low	Exempt	Remove
33	Prunus cerasifera	Cherry Plum	5.0	8.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Poor	Average	[illegible]	Short (5-15 years)	[illegible]	Low	[illegible]	Remove
34	Jacaranda mimosifolia	Jacaranda	6.5	8.0	[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Fair	Average	Epicormic	Medium (15-40 years)	[illegible]	Moderate	[illegible]	Retain & Protect
35	[illegible]	Strawberry Tree	4.0	5.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	Inclusions, Deadwood	Short (5-15 years)	[illegible]	Low	[illegible]	Retain & Protect
36	Arecastrum romanzoffianum	Cocos Palm	7.0	3.0	-	-	-	-					Short (5-15 years)	Exempt species	Very Low	Exempt	Remove
37	Arecastrum romanzoffianum	Cocos Palm	7.0	3.0	-	-	-	-					Short (5-15 years)	Exempt species	Very Low	Exempt	Remove
38	Cupressus macrocarpa 'Aurea Saligna'	Golden Weeping Monterey Cypress	6.0	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Good	Poor	[illegible]	Short (5-15 years)	[illegible]	Very Low	Poor quality specimen	Remove
39	Ceratopetalum gummiferum	New South Wales Christmas Bush	7.0	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Poor	Poor	[illegible]	Short (5-15 years)	[illegible]	Very Low	Poor quality specimen	Remove
40	Acacia baileyana	Cootamundra Wattle	5.0	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	[illegible]	Remove (<5 years)	[illegible]	Low	In footprint of new building	Remove
41	Jacaranda mimosifolia	Jacaranda	6.0	5.0	[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Good	Poor	[illegible]	Short (5-15 years)	[illegible]	Low	In footprint of new building	Remove
42	[illegible]	[illegible]	6.0	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	Deadwood	Short (5-15 years)	[illegible]	Low	In footprint of new building	Remove
43	Melaleuca bracteata	Black Tea Tree	5.5	7.0	[illegible]	[illegible]	[illegible]	[illegible]	Semi mature	Poor	Poor		Short (5-15 years)	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
44	Leptospermum petersonii	Lemon Scented Tea Tree	5.0	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	Inclusions	Short (5-15 years)	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
45	Grevillea sp.	Grevillea	4.0	3.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Poor	Poor	[illegible]	Remove (<5 years)	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
46	Grevillea sp.	Grevillea	5.5	4.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	Deadwood	Short (5-15 years)	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
47	[illegible]	Golden Cypress	10.0	6.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average	[illegible]	Medium (15-40 years)	[illegible]	Low	[illegible]	Retain & Protect
48	[illegible]	[illegible]	5.5	6.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Fair	Poor	[illegible]	Medium (15-40 years)	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
49	Olea sp.	Olive	7.0	5.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Poor		Short (5-15 years)	[illegible]	Very Low	[illegible]	Remove
50	Archontophoenix alexandrae	Alexandra Palm	7.0	3.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Good	Average		Medium (15-40 years)	[illegible]	Low	Transplantable	Transplant
51	Callistemon viminalis	Bottlebrush	5.5	5.0	[illegible]	[illegible]	[illegible]	[illegible]	Mature	Poor	Average	[illegible]	Remove (<5 years)	[illegible]	Moderate (adjoining)	[illegible]	Retain & Protect
52	Archontophoenix alexandrae	Alexandra Palm	6.5	6.0			2.00	[illegible]	Mature	Good	Good		Medium (15-40 years)	[illegible]	Low	Transplantable	Transplant
53	Archontophoenix alexandrae	Alexandra Palm	4.0	3.0			2.00	[illegible]	Mature	Fair	Average		Medium (15-40 years)	[illegible]	Low	Transplantable	Transplant
54	Archontophoenix alexandrae	Alexandra Palm	6.5	4.0			2.00	[illegible]	Mature	Good	Average		Medium (15-40 years)	[illegible]	Low	Transplantable	Transplant
55	Laurus nobilis	Bay Tree	5.5	3.0			2.00	[illegible]	Mature	Good	Average		Medium (15-40 years)	[illegible]	Very Low	[illegible]	Remove
56	Arecastrum romanzoffianum	Cocos Palm	6.0	4.0	-	-	-	-	Mature	Good	Average		Short (5-15 years)	[illegible]	Very Low	Exempt	Remove
57	Arecastrum romanzoffianum	Cocos Palm	6.0	4.0	-	-	-	-	Mature	Good	Average		Short (5-15 years)	[illegible]	Very Low	Exempt	Remove
58	Plumeria sp.	Frangipani	4.0	3.0	-	-	-	-	Mature	Good	Average		Short (5-15 years)	[illegible]	Very Low	[illegible]	Remove

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(Rev 2)

Fernleigh Residential Aged Care Facility
Supplementary Parking and Traffic Statement

Introduction

This statement as been provided to supply additional information to the Parking and Traffic Report dated 10 September 2014 produce by Taylor Thomson Whitting. This statement has been developed to address council comments raised during the Development application for the propped redevelopment of Fernleigh Aged Care facility.

This statement is to be read in conjunction with the previously submitted Traffic and Parking report with the following additional comments.

Proposed Site Characteristic

The proposal of the Fernleigh Residential Care Facility includes the upgrade to the existing residential aged care facility. This included:

- 141 bed Residential Aged Care Facility (RACF) with 25 dementia ward beds
- Administration, facilities and office areas
- Parking for 28 vehicles under the proposed building off Mons Avenue
- Parking for 13 vehicles off Constitution Road
- Loading dock facility within the underground car park for service vehicles
- Ambulance parking and waste collection in the basement off Mons Road

Minimum Parking Requirements

Ryde City Council's DCP refers to the provision of State Environmental Planning Policy (Housing for Seniors or People with Disability) 2004 (SEPP Seniors). This policy outlines that the following minimum parking is to be provided for such a facility.

Residential Aged Care Facilities (RACF)

- 1 parking space for each 10 beds in the residential care facility (or 1 parking space for each 15 beds if the facility provides care only for persons with dementia), and
- 1 parking space for each 2 persons to be employed in connection with the development and on duty at any one time, and
- 1 parking space suitable for an ambulance.

Minimum Parking requirements (RACF)

- Based on 116 RACF beds = **11.6 spaces**
- Based on 25 Dementia beds = **1.7 space**
- Anticipated employees on duty at any one time is 54 = **27 spaces**
- Minimum Total = **41 spaces**
- Ambulance = **1 space**

The proposal is to include 28 spaces under the proposed building (access via Mons Avenue) to be used for visitors and employees associated with the aged care facility. A further 13 spaces is provided at the rear of the building (access via Constitution Road) to be utilised specifically for staff. The emergency service access to the Ambulance bay is via the drop off facility located within the basement off Mons Avenue. The parking provision meets the minimum requirements outlined in SEPP Seniors, BCA and Council DCP.

Emergency Services Access

The emergency service access to the Ambulance bay is via the drop off facility located within the basement off Mons Avenue. The basement has sufficient area for bariatric ambulance as shown in drawings (refer to attached).

Constitution Road Access

A staff parking area of **13 spaces** is provided at the southern side of the site (access via Constitution Road). It is noted that this access is single lane (3m wide) for a distance of approximately 50m with no passing area. Visibility from Constitution Road to the parking area is restricted due to the grade and length of the driveway. This is an existing situation that has not presented traffic management issues in the past. The proposed parking area in this location is to be increased by only 2 spaces. It is therefore considered that the access will continue to operate similar to the current situation. However consideration is being given to the implementation of a signal warning system for drivers exiting the parking area at the top of the driveway. The signal system could consist of an activation sensor from a vehicle entering the driveway at Constitution Road, connected to red light at the top of the driveway in the parking area and set on a delay suitable for the vehicle to travel the driveway (some 50m). A driver is not to exit the parking during this time.

Providing a signal at the driveway entry from Constitution Road is not practical due to the exiting road layout and longsection configuration. Is intended, for safety, that vehicles from Constitution Road be given priority. As such in the event of a vehicle exiting the car parking area is on the driveway and a vehicle enters from Constitution Road, both drivers will be required to move their vehicle to the parking area, to allow vehicles to pass. This will remove the necessity for vehicles to reverse back onto Constitution Road.

It is important to note that this parking area is for staff only and internal management procedures can inform staff on the implementation of the appropriate procedures along the driveway as part of the induction process and be reinforced with appropriate signage within the car park area and upon exit. It is also noted, that the driveway layout is as per the existing situation, which is currently utilised by staff members without traffic advisory signals and has not presented traffic management issues in the past.

An accident investigation has been undertaken with RMS as outlined in the attached spreadsheet and diagrammatically interpreted in **Figure 1**.

Figure 1: Recorded Accident History 2009-2013

Loading Dock Area

A service loading dock has been provided in the basement parking area under the proposed new building. The dock is nominally 6.4m in length and is proposed to be utilised by small service vehicles such as vans.

Currently, waste collection occurs off Sherbrook Road, with the vehicle (10.5m approx in length) accessing the site in a forward direction and exiting in a reverse manoeuvre. The proposed waste storage facility is positioned adjacent to the driveway via Mons Avenue. The collection of waste is proposed to via the eastern kerbline along Mons Avenue near the driveway. Currently at this location the kerbside has a "No Parking" restriction, therefore access for waste collection should be unimpeded.

The proposal includes the waste collection within the basement area in lieu of Sherbrook Road. Turning paths for Ryde Garbage Vehicle (9.32m) are attached and indicate the vehicle can enter and exit the site in a forward direction onto Mons Avenue. It is proposed however that a 8.0m SITA rear loading vehicle be utilise in the facility (Refer **Table 1** and attached turning path plans)

Access to the basement will be controlled by a gated system with an intercom and video system installed at the entry and operated by the building reception services.

Opal Specialist Aged Care have provided the following schedule for deliveries (refer **Table 1**)

Table 1: Delivery Vehicle Roster

Purpose	Vehicle Type	Frequency	Delivery Time
Garbage	8.0 m SITA Rear loaded	3 times a week	10.00am - 2.00 pm
Fresh Food Delivery	6.4 m Small Rigid Truck	4 times a week	10.00am - 2.00 pm
Couriers	Vans/Cars/Motorcycles	Everyday	Between 10.00am to 2.00pm daily
Ambulance	AWD - Mercedes Benz Sprinter	On Emergency call	At anytime 24/7
Visitors	Family car	Everyday	10:00am - 5.00pm

Drop off Area

The drop off area for the facility is proposed to be along the existing southern kerbline of Sherbrook Road in front of the main entry to the building. For accessible admission, the drop off will occur within the basement with lift access to the building facilities.

For and on Behalf of

TAYLOR THOMSON WHITTING (NSW) PTY LTD

SEAN CLARKE

Senior Engineer

Attachments:

- *Vehicle Accident History*
- *9.32m Vehicle Turning Path Plan*
- *8.0m SITA Turning Path Plan*
- *Bariatric Ambulance Turning Path*

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Detailed Crash Report

NOTES: Reported crashes on Constitution Rd & Sherbrooke Rd between Mons Ave & Station St - 2009 to 2013 reporting years

Crash No.	Date	Day of Week	Time	Distance		ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
																					SF
Sydney Region																					
Ryde LGA																					
Meadowbank																					
Constitution Rd																					
664140	03/04/2009	Fri	07:00		at	MONS AVE	RDB	STR	Overcast	Wet	50	1	CAR	M27	E in CONSTITUTION RD	60 Proceeding in lane		N	0	0	S
E37716041							RUM:	70	Off road to left												
773135	02/11/2011	Wed	18:25	40 m	W	ROSS SMITH AVE	2WY	STR	Fine	Dry	50	2	CAR	M36	W in CONSTITUTION RD	30 Proceeding in lane		N	0	0	F
E666256190							RUM:	71	Off rd left => obj				CAR		W in CONSTITUTION RD	0 Parked					
691942	12/11/2009	Thu	11:10		at	STATION ST	RDB	CRV	Fine	Dry	50	2	CAR	M60	S in STATION ST	Unk Turning right		N	0	0	
E39302962							RUM:	11	Right far				CAR	F62	W in CONSTITUTION RD	Unk Proceeding in lane					
Wst Constituti Rd																					
754423	28/05/2011	Sat	22:00	50 m	E	MONS AVE	2WY	STR	Fine	Dry	50	2	CAR	M31	W in WST CONSTITUTI RD	40 Proceeding in lane		N	0	0	F
E85226702							RUM:	71	Off rd left => obj				CAR		W in WST CONSTITUTI RD	0 Parked					
837312	14/05/2013	Tue	17:45	100 m	E	MONS AVE	2WY	STR	Fine	Dry	50	2	CAR	M44	N in WST CONSTITUTI RD	5 Reverse from drive		I	0	1	
E51563407							RUM:	47	Emerging from drive				TRK	M53	W in WST CONSTITUTI RD	35 Proceeding in lane					

Report Totals: Total Crashes: 5 Fatal Crashes: 0 Injury Crashes: 1 Killed: 0 Injured: 1

Crashid dataset 6381 - Reported crashes on Constitution Rd & Sherbrooke Rd between Mons Ave & Station St - 2009 to 2013 reporting years

Summary Crash Report

Transport for NSW

# Crash Type		
Car Crash	5	100.0%
*Light Truck Crash	1	20.0%
*Rigid Truck Crash	0	0.0%
Articulated Truck Crash	0	0.0%
*Heavy Truck Crash	(0)	(0.0%)
Bus Crash	0	0.0%
*Heavy Vehicle Crash	(0)	(0.0%)
Emergency Vehicle Crash	0	0.0%
Motorcycle Crash	0	0.0%
Pedal Cycle Crash	0	0.0%
Pedestrian Crash	0	0.0%

* Rigid or Artic. Truck * Heavy Truck or Heavy Bus
# These categories are NOT mutually exclusive

Location Type		
*Intersection	2	40.0%
Non Intersection	3	60.0%

* Up to 10 metres from an intersection
– 07:30-09:30 or 14:30-17:00 on school days

Collision Type		
Single Vehicle	1	20.0%
Multi Vehicle	4	80.0%

Road Classification		
Freeway/Motorway	0	0.0%
State Highway	0	0.0%
Other Classified Road	0	0.0%
Unclassified Road	5	100.0%

Contributing Factors		
Speeding	1	20.0%
Fatigue	2	40.0%

Weather		
Fine	4	80.0%
Rain	0	0.0%
Overcast	1	20.0%
Fog or mist	0	0.0%
Other	0	0.0%

Road Surface Condition		
Wet	1	20.0%
Dry	4	80.0%
Snow or Ice	0	0.0%

Natural Lighting		
Dawn	1	20.0%
Daylight	2	40.0%
Dusk	0	0.0%
Darkness	2	40.0%

Speed Limit				
40 km/h or less	0	0.0%	80 km/h zone	0	0.0%
50 km/h zone	5	100.0%	90 km/h zone	0	0.0%
60 km/h zone	0	0.0%	100 km/h zone	0	0.0%
70 km/h zone	0	0.0%	110 km/h zone	0	0.0%

Crash Movement		
Intersection, adjacent approaches	1	20.0%
Head-on (not overtaking)	0	0.0%
Opposing vehicles; turning	0	0.0%
U-turn	0	0.0%
Rear-end	0	0.0%
Lane change	0	0.0%
Parallel lanes; turning	0	0.0%
Vehicle leaving driveway	1	20.0%
Overtaking; same direction	0	0.0%
Hit parked vehicle	0	0.0%
Hit railway train	0	0.0%
Hit pedestrian	0	0.0%
Permanent obstruction on road	0	0.0%
Hit animal	0	0.0%
Off road, on straight	1	20.0%
Off road on straight, hit object	2	40.0%
Out of control on straight	0	0.0%
Off road, on curve	0	0.0%
Off road on curve, hit object	0	0.0%
Out of control on curve	0	0.0%
Other crash type	0	0.0%

– 40km/h or less	0	0.0%

CRASHES	5	
Fatal crash	0	0.0%
Injury crash	1	20.0%
Non-casualty crash	4	80.0%

^ Belt fitted but not worn. No restraint fitted to position OR No helmet worn

Time Group		% of Day	
00:01 - 02:59	0	0.0%	12.5%
03:00 - 04:59	0	0.0%	8.3%
05:00 - 05:59	0	0.0%	4.2%
06:00 - 06:59	0	0.0%	4.2%
07:00 - 07:59	1	20.0%	4.2%
08:00 - 08:59	0	0.0%	4.2%
09:00 - 09:59	0	0.0%	4.2%
10:00 - 10:59	0	0.0%	4.2%
11:00 - 11:59	1	20.0%	4.2%
12:00 - 12:59	0	0.0%	4.2%
13:00 - 13:59	0	0.0%	4.2%
14:00 - 14:59	0	0.0%	4.2%
15:00 - 15:59	0	0.0%	4.2%
16:00 - 16:59	0	0.0%	4.2%
17:00 - 17:59	1	20.0%	4.2%
18:00 - 18:59	1	20.0%	4.2%
19:00 - 19:59	0	0.0%	4.2%
20:00 - 21:59	0	0.0%	8.3%
22:00 - 24:00	1	20.0%	8.3%

Street Lighting Off/Nil	% of Dark
0 of 2 in Dark	0.0%

CASUALTIES	1	
Killed	0	0.0%
Injured	1	100.0%
^ Unrestrained	0	0.0%

Crashes		Casualties
1	2013	1
2	2011	0
2	2009	0

– School Travel Time		
Involvement	0	0.0%

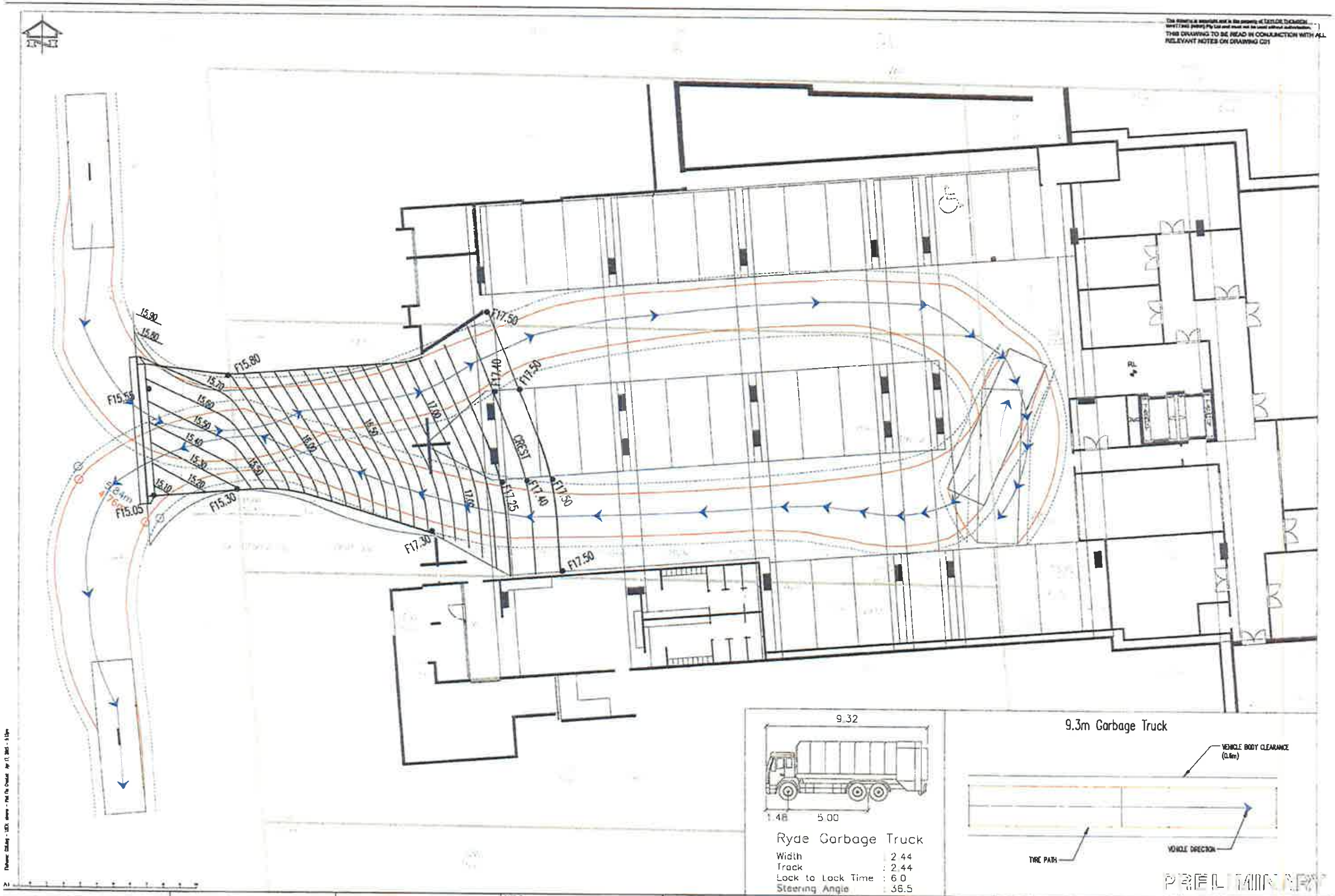
McLean Periods		% Week	
A	1	20.0%	17.9%
B	0	0.0%	7.1%
C	1	20.0%	17.9%
D	0	0.0%	3.5%
E	0	0.0%	3.6%
F	2	40.0%	10.7%
G	0	0.0%	7.1%
H	0	0.0%	7.1%
I	0	0.0%	12.5%
J	1	20.0%	10.7%

Day of the Week						# Holiday Periods		
Monday	0	0.0%	Thursday	1	20.0%	Sunday	0	0.0%
Tuesday	1	20.0%	Friday	1	20.0%	WEEKDAY	4	80.0%
Wednesday	1	20.0%	Saturday	1	20.0%	WEEKEND	1	20.0%

New Year	0	0.0%	Queen's BD	0	0.0%	Easter SH	0	0.0%
Aust. Day	0	0.0%	Labour Day	0	0.0%	June/July SH	0	0.0%
Easter	0	0.0%	Christmas	0	0.0%	Sept./Oct. SH	0	0.0%
Anzac Day	0	0.0%	January SH	0	0.0%	December SH	0	0.0%

Crashid dataset 6381 - Reported crashes on Constitution Rd & Sherbrooke Rd between Mons Ave & Station St - 2009 to 2013 reporting years

Percentages are percentages of all crashes. Unknown values for each category are not shown on this report.


THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01
CREST
F17.50
F17.40
F17.25
F17.30
F15.80
F15.55
F15.05
F15.30
17.00
16.50
16.00
15.50
15.90
15.80
15.70
15.60
15.40
15.30
15.20
15.10
9.3m Garbage Truck
VEHICLE BODY CLEARANCE (0.6m)
TYRE PATH
VEHICLE DIRECTION
9.32
1.48
5.00
Ryde Garbage Truck
Width : 2.44
Track : 2.44
Lock to Lock Time : 6.0
Steering Angle : 36.5
PRELIMINARY

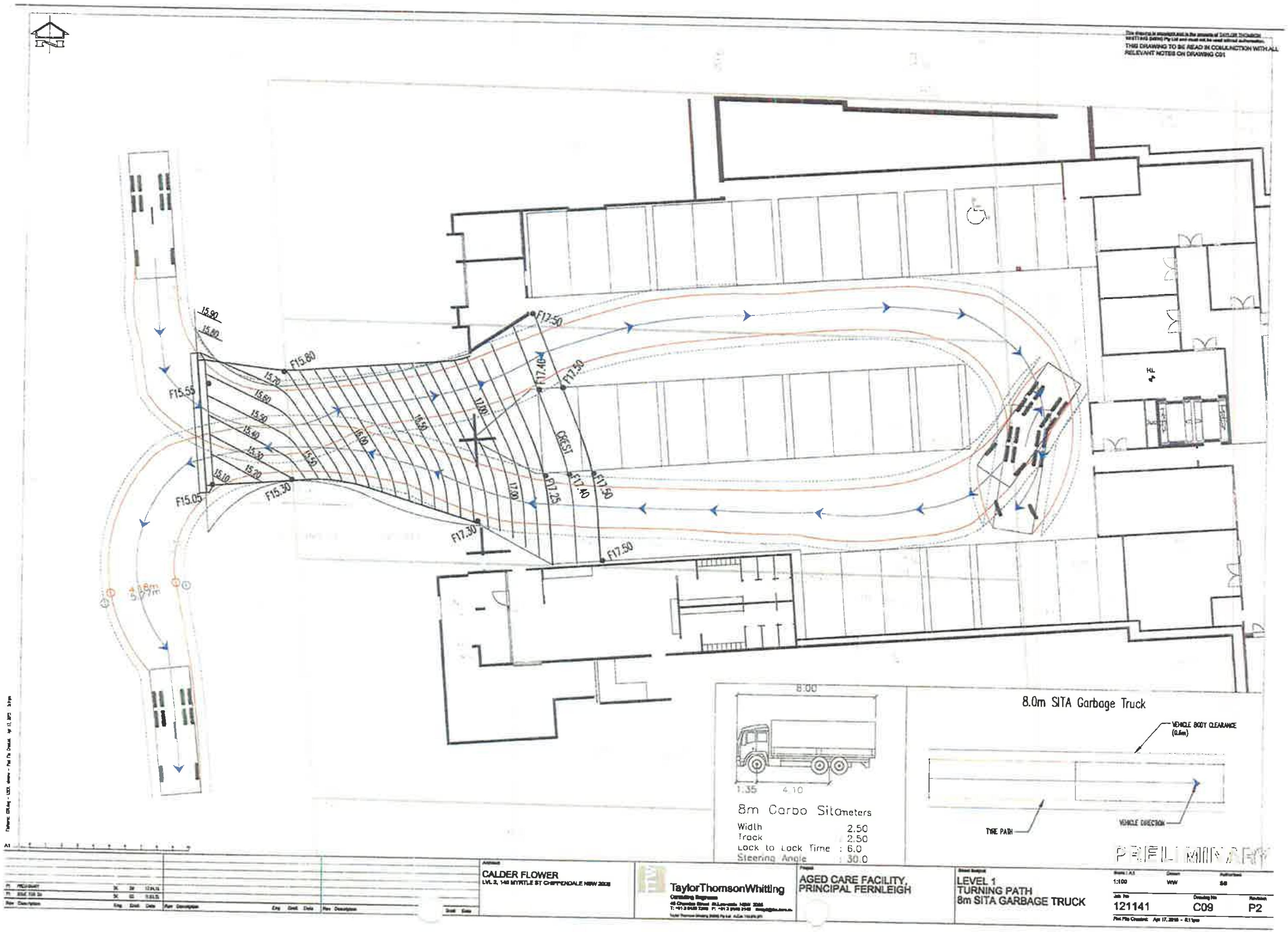
CALDER FLOWER
LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008

TaylorThomsonWhitting
Consulting Engineers

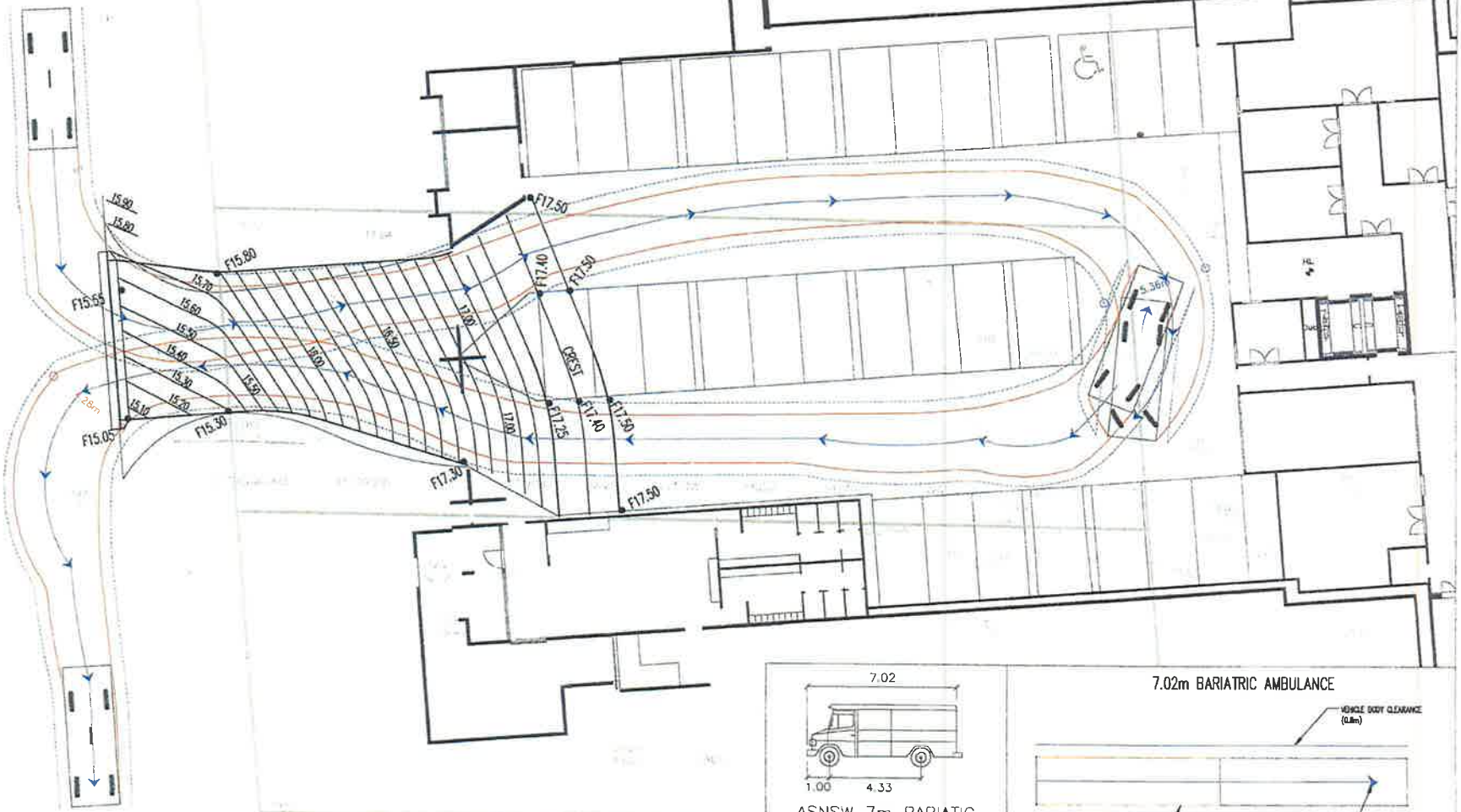
AGED CARE FACILITY, PRINCIPAL FERNLEIGH

LEVEL 1
TURNING PATHS
9.32m RYDE GARBAGE TRUCK

Scale	Drawn	Job No	Drawing No	Revision
1:100	WW	121141	C08	P2


THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01
F15.55
F15.80
F15.05
F15.30
F17.50
F17.40
F17.25
F17.30
CREST
17.00
16.50
16.00
15.50
15.90
15.80
15.70
15.60
15.40
15.30
15.20
15.10
8.00
1.35
4.10
8m Carbo Sitameters
Width 2.50
Track 2.50
Lock to Lock Time : 6.0
Steering Angle : 30.0
8.0m SITA Garbage Truck
VEHICLE BODY CLEARANCE (0.6m)
TYRE PATH
VEHICLE DIRECTION
PRELIMINARY
CALDER FLOWER
LVL 2, 145 MYRTLE ST CHIPPENDALE NSW 2008
TaylorThomsonWhitting
Consulting Engineers
AGED CARE FACILITY, PRINCIPAL FERNLEIGH
LEVEL 1
TURNING PATH
8m SITA GARBAGE TRUCK
1:100
WW
121141
C09
P2

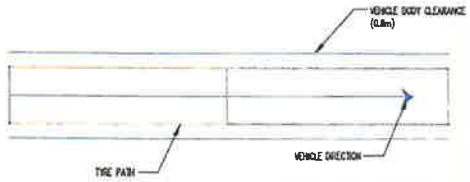
THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01



ASNSW 7m BARIATRIC

		Metric
Width	:	2.40
Track	:	1.99
Lock to Lock Time	:	6.0
Steering Angle	:	38.2

7.02m BARIATRIC AMBULANCE



PRELIMINARY

Architect: CALDER FLOWER, LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008	Project: AGED CARE FACILITY, PRINCIPAL FERNLEIGH	Sheet Subject: LEVEL 1 TURNING PATH 7m BARIATRIC AMBULANCE	Scale / A1: 1:100 · Drawn: SW · Authorised: SB
TaylorThomsonWhitting, Consulting Engineers, 46 Chandos Street St Leonards NSW 2065, T: +61 2 9439 7288 F: +61 2 9439 9449			Job No: 121141 · Drawing No: C11 · Revision: P1
			Plot File Created: Apr 17, 2016 - 8:18pm

Opal Fernleigh

Condenser Noise Assessment

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LONDON DUBAI SINGAPORE GREECE

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DOCUMENT CONTROL REGISTER

Project Number	20140930.1
Project Name	Opal Fernleigh
Document Title	Condenser Noise Assessment
Document Reference	20140930.1/2703A/R0/BW
Issue Type	Email
Attention To	Calder Flower Architects Pty Limited Donald Maseh

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	27/03/2015	20140930.1/2703A/R0/BW	BW	BW	BW

TABLE OF CONTENTS

1 INTRODUCTION

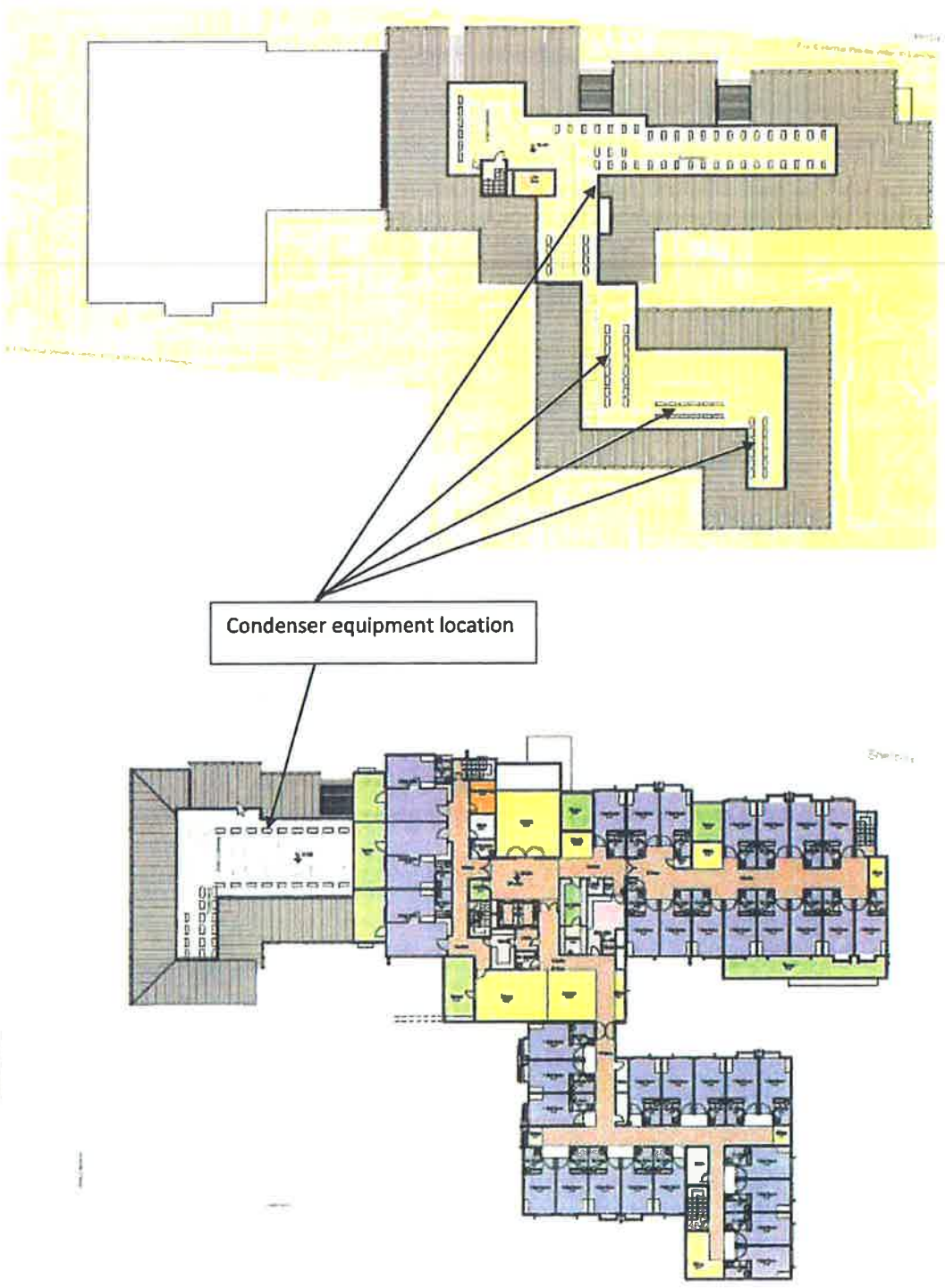
This report presents the results of our investigation of noise emissions which will be generated by the operation of the proposed condensers located on the roof tops of the Opal Fernleigh development.

This report will present the necessary noise attenuation constructions in order to comply with council requirements, EPA Industrial Noise Policy and the Protection of Environmental Operation Act Regulation noise emission requirements regarding the proposed roof top condensers.

2 SITE DESCRIPTION

The proposed development consists of multi-story development. The condenser units are located on the roof of the building and consists of a number of condenser units (assumed to be similar to a Mitsubishi type units PURY-P450Y as previously used on similar development).

The location of the proposed condenser equipment is detailed in the following Figure.



3 AMBIENT NOISE LEVELS

3.1 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing environmental noise conditions by measuring a single, instantaneous noise level.

To accurately determine the environmental noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In analysing environmental noise, three-principle measurement parameters are used, namely L_{10}, L_{90} and L_{eq}.

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the 15 minute period. L_{eq} is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of environmental noise.

3.2 BACKGROUND NOISE MEASUREMENTS

Noise emission objectives from the premises are determined based on the existing background noise level at the site.

Background noise levels have previously been obtained at the site using attended noise level measurements as detailed within the DA Noise Impact Assessment (20140930.1/0407A/R0/BW).
)

4 NOISE LEVEL CRITERIA

The relevant noise level criteria for noise emissions form the proposed condenser units includes the following as detailed in DA Acoustic Report (20120316.1/2305A/R0/JZ)

Table 1 – Environmental Noise Emission Criteria

Receiver Type	Time of Day	Intrusiveness Noise Objective dB(A)$L_{eq(15min)}$	Amenity Noise Objective dB(A)$L_{eq(Lt)}$
Suburban	Day	**50**	55
	Evening	50	**45**
	Night	**37**	40

5 NOISE LEVEL ASSESSMENT

This section of the report details the acoustic treatments required to comply with the relevant criteria as detailed in the section above. The required acoustic treatment to comply with the criteria detailed above includes the following:

- All condensers to be installed using waffle pad isolators.

6 CONCLUSION

Noise emissions from the operation of the proposed air-conditioner condensers units proposed to be installed at the Opal Fernleigh development. Noise from the condenser units have been assessed in conjunction with the requirements of council, EPA Industrial Noise Policy and the Protection of Environmental Operation Act Regulation noise emission requirements.

Provided that the acoustic treatment set out in section 5 is adopted, noise emissions will comply with criteria and will therefore be satisfactory.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

B.G.White.

Acoustic Logic Consultancy Pty Ltd
Ben White

GALGER FLOWER ARCHITECTS

Project Manager

GR CONSULTING

PROPOSED NEW 141 BED AGED CARE FACILITY

SHERBROOKE ROAD WEST RYDE NSW

APRIL 2015

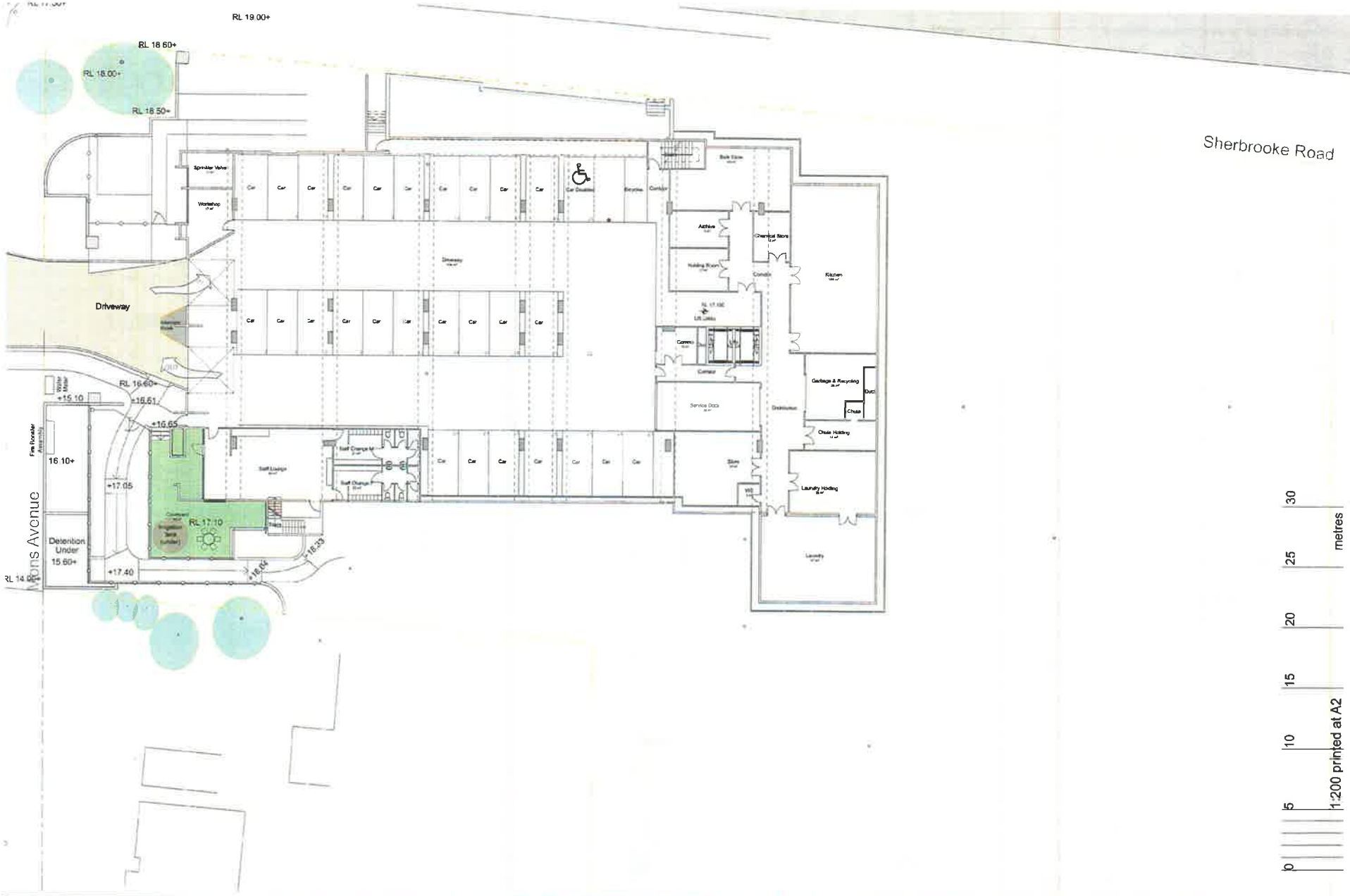
Opal specialist aged care


Sherbrooke Road
Mons Avenue
hot summer breezes
cool summer breezes
CREST OF HILL
DEMOLISH EXISTING HOUSE
DEMOLISH EXISTING HOUSE
DEMOLISH EXISTING HOUSE
DEMOLISH EXISTING HOUSE
DEMOLISH EXISTING SHED
DEMOLISH EXISTING RCF
PROPOSED RCF
GROUND SLOPE DOWN
EXISTING APARTMENTS
EXISTING HOUSE
TREE GROVE
EXISTING CAR PARKING
ACCESS TO CONSTITUTION ROAD
EXISTING UNITS
0 5 10 15 20 25 30
metres

Site Plan + Site Analysis

Locality Plan

CALDER FLOWER ARCHITECTS	grc GR CONSULTING	Opal specialist aged care	Opal Fernleigh Renewal Sherbrooke Road West Ryde NSW 2112 Site Plan + Site Analysis	Date created: 27/04/2015 Scale: refer scale bar Project No 13150 · Stage DA · Drawing No 11 · Issue B



Architect: CALDER FLOWER ARCHITECTS

Project Manager: grc GR CONSULTING

Client: Opal specialist aged care

Notes
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Contact the architect for clarifications if required
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Date	Revisions	Rev	Issue	Drawn	Check
6 Nov 2014	Development Application	01	A	JW	
27 Apr 2015	Amendments in response to Council	02	B	JW	

Project: **Opal Fernleigh Renewal**
Schertbrooke Road West Ryde NSW 2112

Drawing Title: **Plan Level 1**

Date created: 27/04/2015
Scale: refer scale bar
North

Project No	Stage	Drawing No	Issue
13150	DA	12	B

Architect: CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

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Date	Revision	Rel	Issue	Drawn	Check
8 Feb 2016	Development Application	01	A	JWI	
27 Apr 2016	Amendments in response to Council	02	B	JWI	

Project: **Opal Fernleigh Renewal**
Scharbrooke Road West Ryde NSW 2112

Drawing Title: **Plan Level 2**

Date created: 27/04/2015
Scale: refer scale bar
North

Project No	Stage	Drawing No	Issue
13150	DA	13	B

Architect: GALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

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Date	Revision	Rev.	Issued	Drawn	Check
1 Dec 2014	Development Application	01	A	JW	
27 Apr 2015	Development Application	02	B	JW	

Project: **Opal Fernleigh Renewal**
Schertbrooke Road West Ryde NSW 2112

Drawing Title: **Plan Level 3**

Date created: 27/04/2015
Scale: refer scale bar
North

Project No	Stage	Drawing No	Issue
13150	DA	14	B

Opal Fernleigh Renewal

Sherbrooke Road West Ryde NSW 2112

Plan Level 4

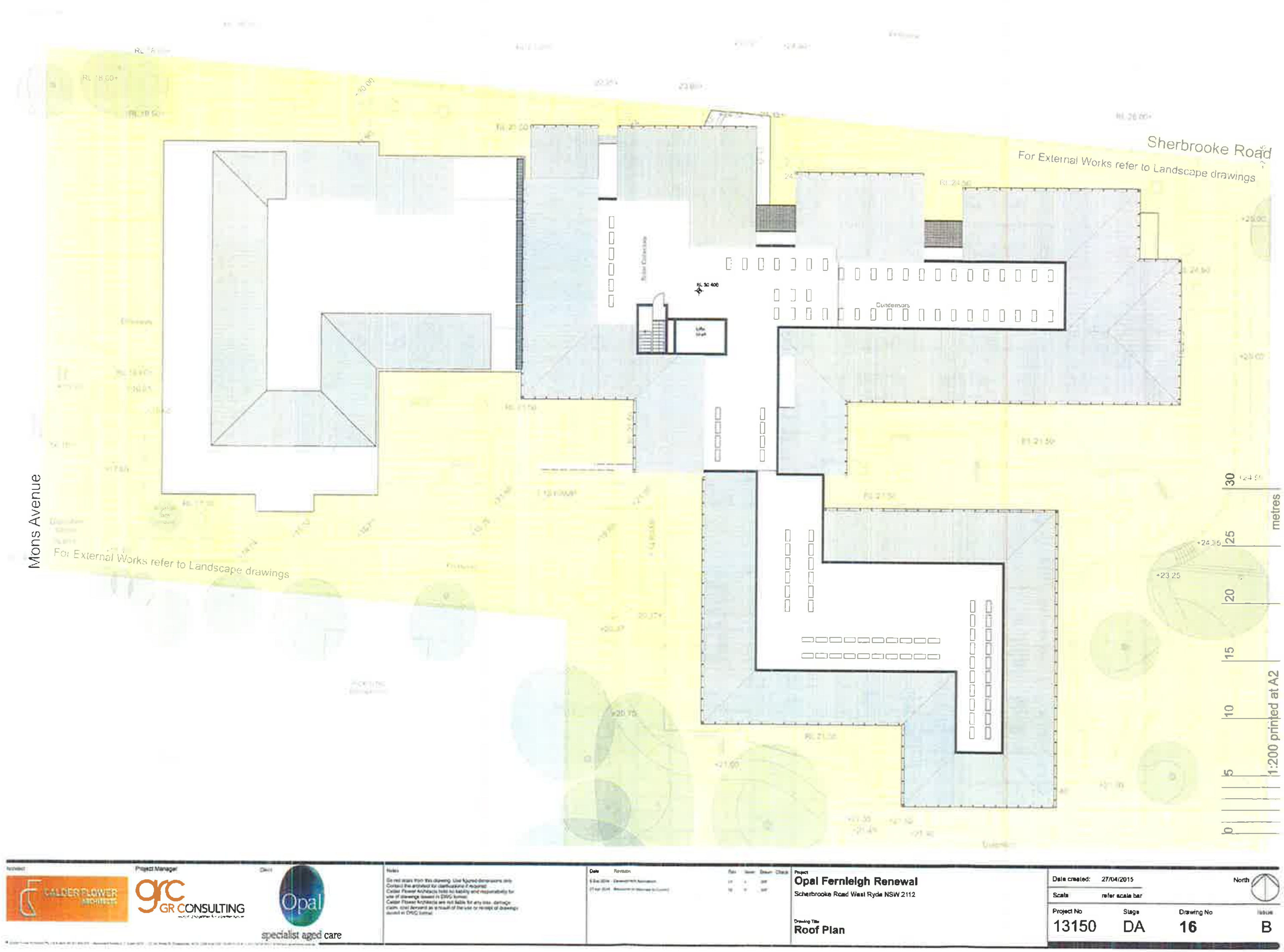
Date created	27/04/2015
Scale	refer scale bar

Project No	Stage	Drawing No	Issue
13150	DA	15	B

CALDER FLOWER ARCHITECTS

GR CONSULTING

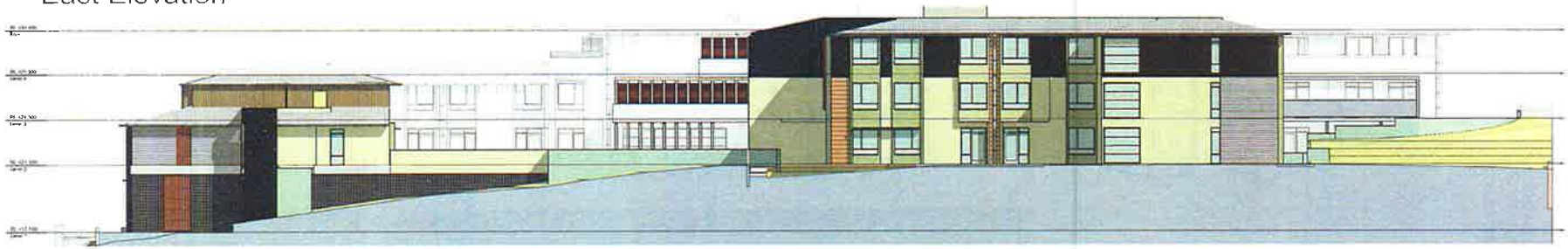
Opal specialist aged care



Sherbrooke Road
For External Works refer to Landscape drawings
Mons Avenue
For External Works refer to Landscape drawings
Condensers
RL 30 400
Lift Shaft
Solar Collectors
0
5
10
15
20
25
30
metres
1:200 printed at A2
CALDER FLOWER ARCHITECTS
GR CONSULTING
Opal
specialist aged care
Project
Opal Fernleigh Renewal
Sherbrooke Road West Ryde NSW 2112
Drawing Title
Roof Plan
Date created: 27/04/2015
Scale refer scale bar
Project No 13150
Stage DA
Drawing No 16
Issue B
North

North Elevation - Sherbrooke Avenue

East Elevation



South Elevation

West Elevation - Mons Avenue

30
25
20
15
10
5
0
metres

1:200 printed at A2

Architect: CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

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Date	Revision	Rev	Issue	Drawn	Check
6 Nov 2014	Development Application	01	A	MW	
27 Apr 2015	Revisions in response to council	02	B	MW	

Project: **Opal Fernleigh Renewal**
Scherbrooke Road West Ryde NSW 2112

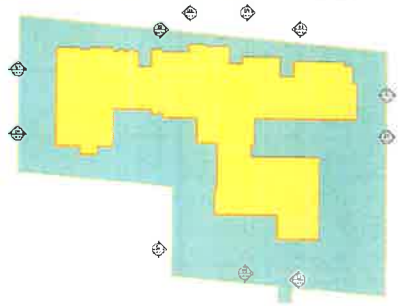
Drawing Title: **Elevations**

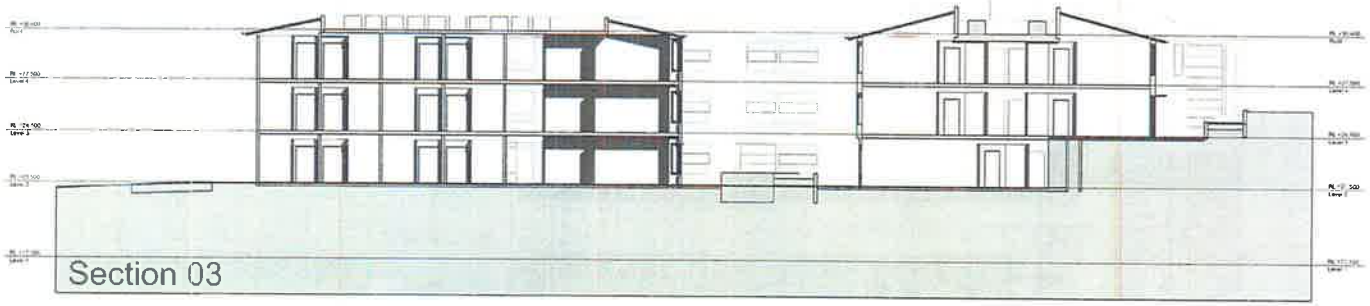
Date created: 27/04/2015
Scale: refer scale bar

Project No	Stage	Drawing No	Issue
13150	DA	17	B

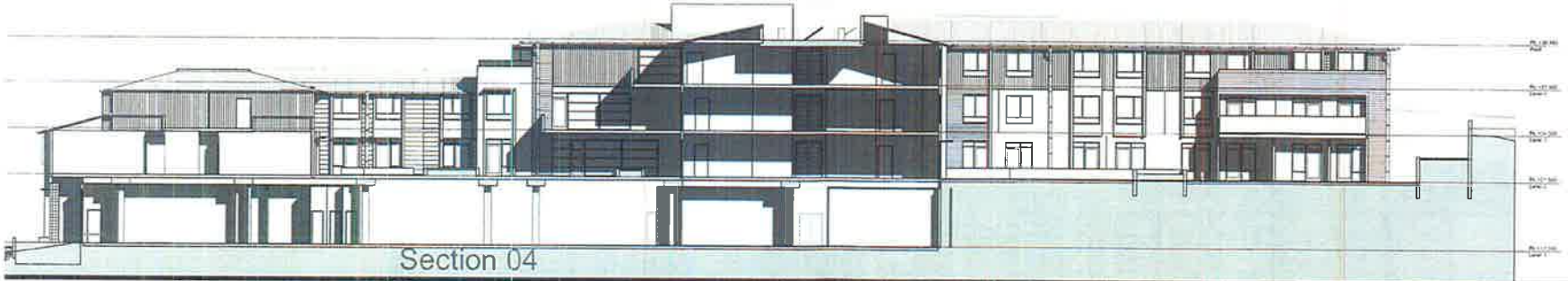
Section 01

Section 02





Section 03



Section 04

1:200 printed at A2

metres

0 5 10 15 20 25 30

Architect: CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

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Date	Revision	Rev	Initials	Drawn	Check
8 Sep 2014	Development Application	A		JWT	
27 Apr 2015	Amendments as requested by Council	B		JWT	

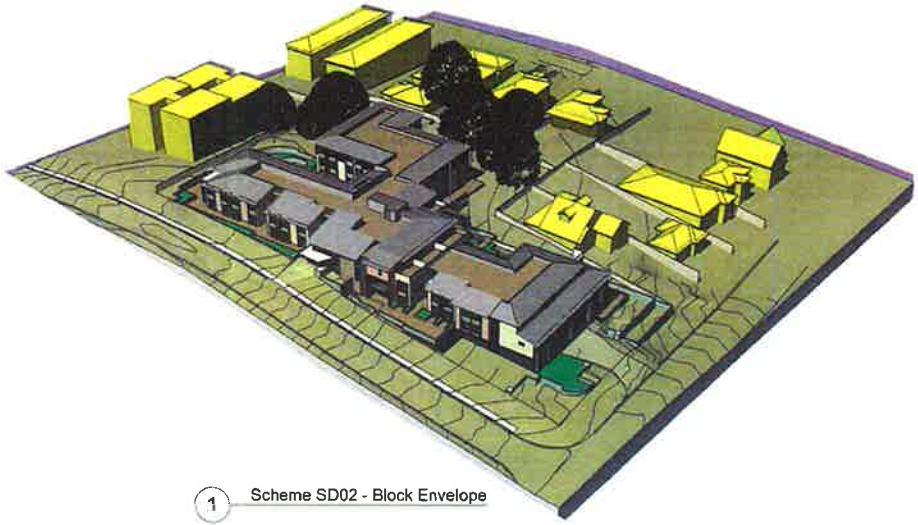
Project: **Opal Fernleigh Renewal**

Scherbrooke Road West Ryde NSW 2112

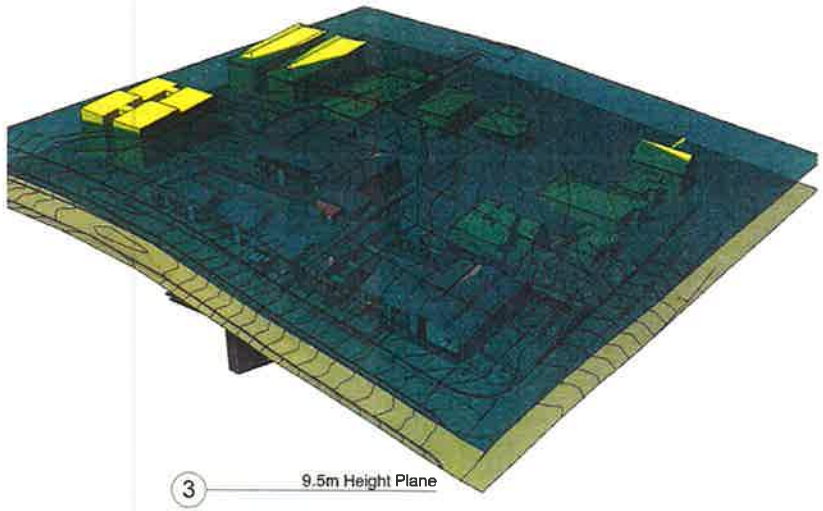
Drawing Title: **Sections**

Date created	27/04/2015
Scale	refer scale bar

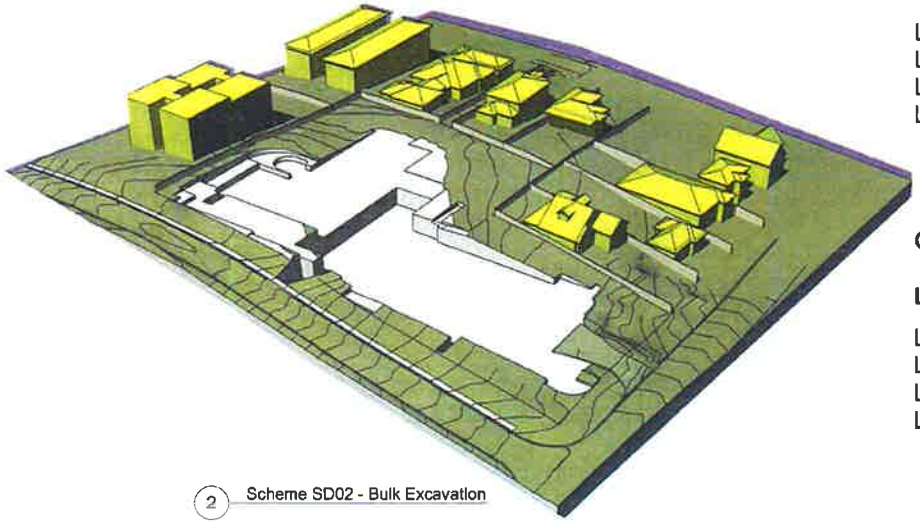
Project No	Stage	Drawing No	Issue
13150	DA	18	B



1 Scheme SD02 - Block Envelope



3 9.5m Height Plane



2 Scheme SD02 - Bulk Excavation

GBA Summary

Level	Area
Level 1	1,777
Level 2	2,397
Level 3	2,353
Level 4	1,758
	8,285 m²

GFA Summary

Level	Area
Level 1	132
Level 2	2,279
Level 3	2,251
Level 4	1,677
	6,339 m²

Bed Count

Level	Quantity
Level 2	52
Level 3	51
Level 4	38
	141

Room Count (Bedroom)

Level	Quantity
Level 2	45
Level 3	47
Level 4	35
	127

Bedroom Type Count

Level	Room Type	Quantity
Level 2		
	1 Bed Room	38
	2 Bed Room	7
Level 3		
	1 Bed Room	43
	2 Bed Room	4
Level 4		
	1 Bed Room	32
	2 Bed Suite	3
		127

Architect: CALDER FLOWER ARCHITECTS
Project Manager: GR CONSULTING
Client: Opal specialist: aged care

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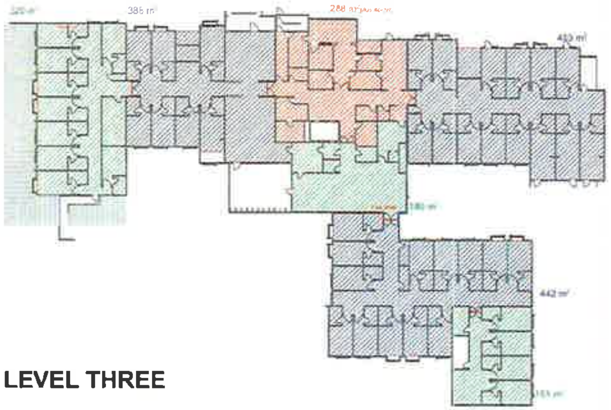
Rev	Issue	Drawn	Check
01	a	AW	

Project: Opal Fernleigh Renewal
Schertzooke Road West Ryde NSW 2112

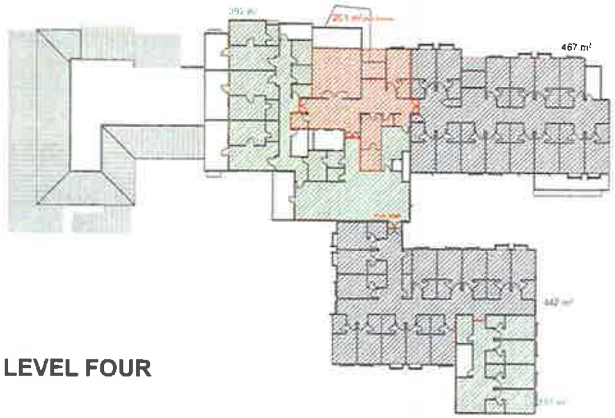
Drawing Title: Calculations

Date created: 27/04/2015
Scale: refer scale bar
North

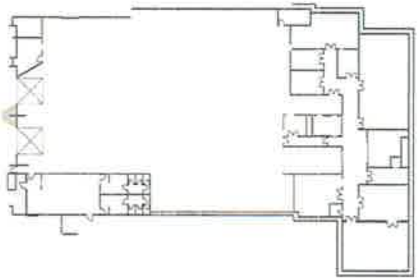
Project No	Stage	Drawing No.	Issue
13150	DA	19	A



LEVEL THREE



LEVEL FOUR



LEVEL ONE

LEVEL TWO

INDIVIDUAL SMOKE COMPARTMENTS SHOWN IN COLOURED HATCHING

Architect	Project Manager	Client	Project		
CALDER FLOWER ARCHITECTS	grc GR CONSULTING	Opal specialist aged care	**Opal Fernleigh Renewal** Scherbrooke Road West Ryde NSW 2112 Drawing Title: **Smoke Compartments**	Date created: 27/04/2015 Scale: refer scale bar Project No: 13150 Stage: DA	North Drawing No: 20 Issue: B

North Elevation Sherbrooke Road

West Elevation Mons Avenue

Sourth Elevation

East Elevation

Architect: CALDER FLOWER ARCHITECTS

Project Manager: grc GR CONSULTING

Client: Opal specialist aged care

Notes

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Date	Revision	Rev	Issue	Drawn	Check
8 Sep 2014	Development Application	01	A	MR	
21 Apr 2015	Amendments in response to Council	02	B	MR	

Project: **Opal Fernleigh Renewal**
Sherbrooke Road West Ryde NSW 2112

Drawing Title: **Cameo Elevations and Views**

Date created	27/04/2015		North
Scale	refer scale bar		
Project No.	Stage	Drawing No	Issue
13150	DA	21	B

Project Manager

GR CONSULTING

Client

Opal

specialist aged care

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Rev	Revision	Issue	Drawn	Check
A	Development Application	A	JW	
B	Response to Information Request	B	JW	

Project

Opal Fernleigh Renewal

Scherbrooke Road West Ryde NSW 2112

Drawing Title

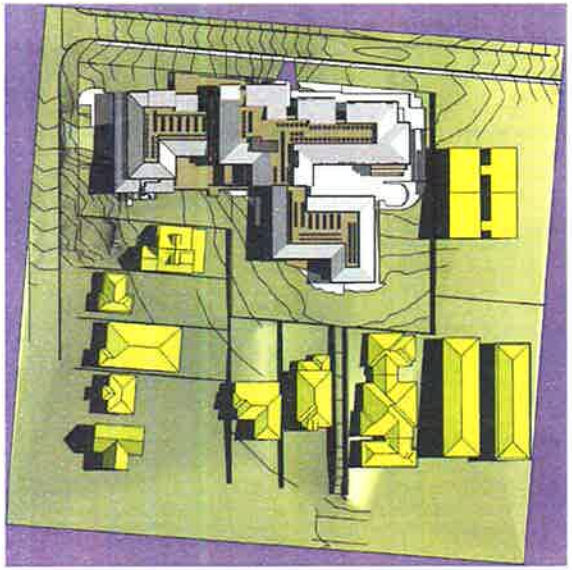
Site Setbacks

Date Issued: 27/04/2015

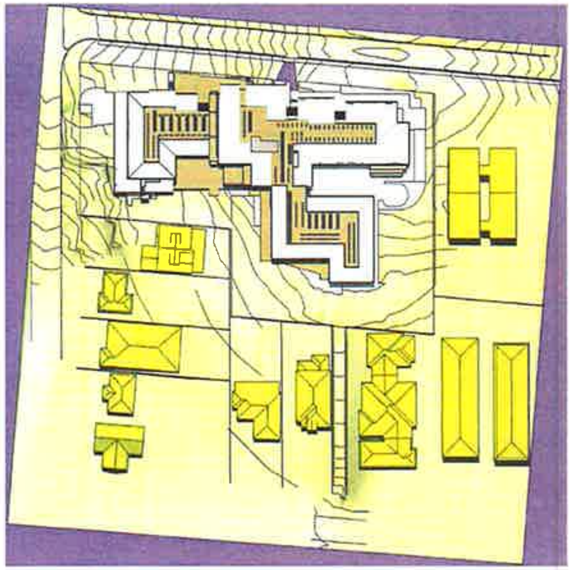
Scale: refer scale bar 1:250

North

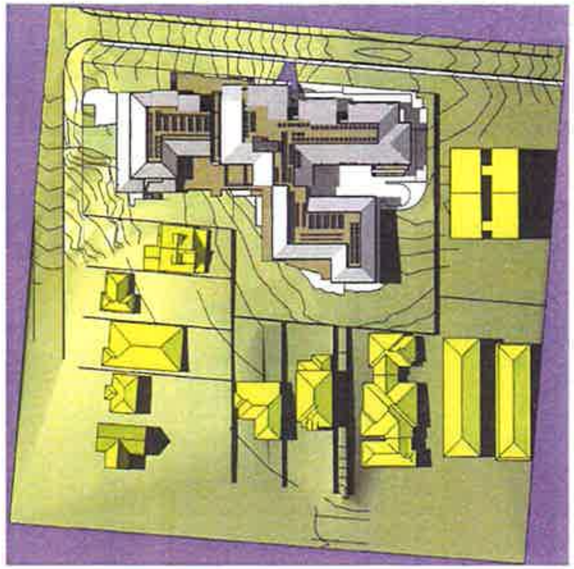
Project No	Stage	Drawing No	Issue
13150	DA	22	B



December 21 9am



December 21 MidDay



December 21 3pm

June 21 9am

June 21 MidDay

June 21 3pm

CALDER FLOWER ARCHITECTS

grc GR CONSULTING

Opal specialist aged care

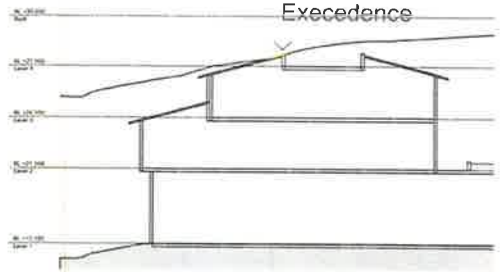
Opal Fernleigh Renewal

Scarborooke Road West Ryde NSW 2112

Drawing Title: **Shadow Diagrams**

Date created	27/04/2015	North
Scale	refer scale bar	

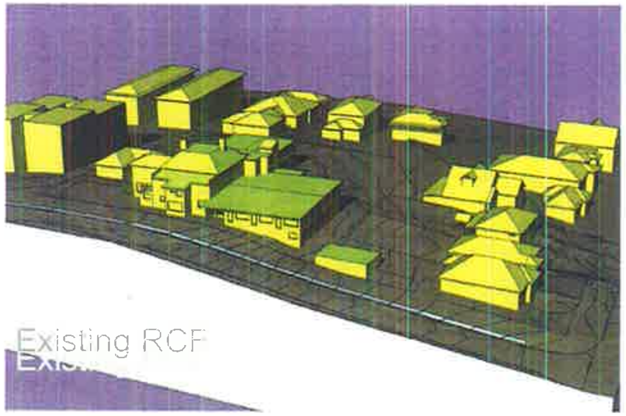
Project No	Stage	Drawing No	Issue
13150	DA	23	B



9.5m height excedence highlighted

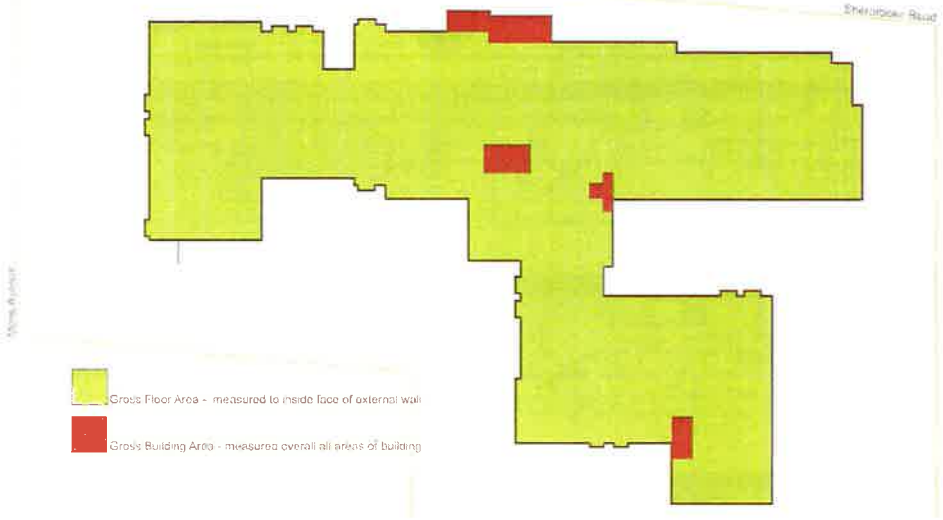
Sherbrooke Road Height Plane Study

Mons Avenue Height Plane Study



Architect: CALDER FLOWER ARCHITECTS	Project Manager: GR CONSULTING	Client: Opal specialist aged care	Project: **Opal Fernleigh Renewal** Scherbrooke Road West Ryde NSW 2112
Drawing Title: **Height Studies**	Date created: 27/04/2015	Scale: refer scale bar	
Project No: 13150	Stage: DA	Drawing No: 24	Issue: B

Level 3



Level 4

GBA Summary

Level	Area
Level 1	1,777
Level 2	2,397
Level 3	2,353
Level 4	1,758
	8,285 m²

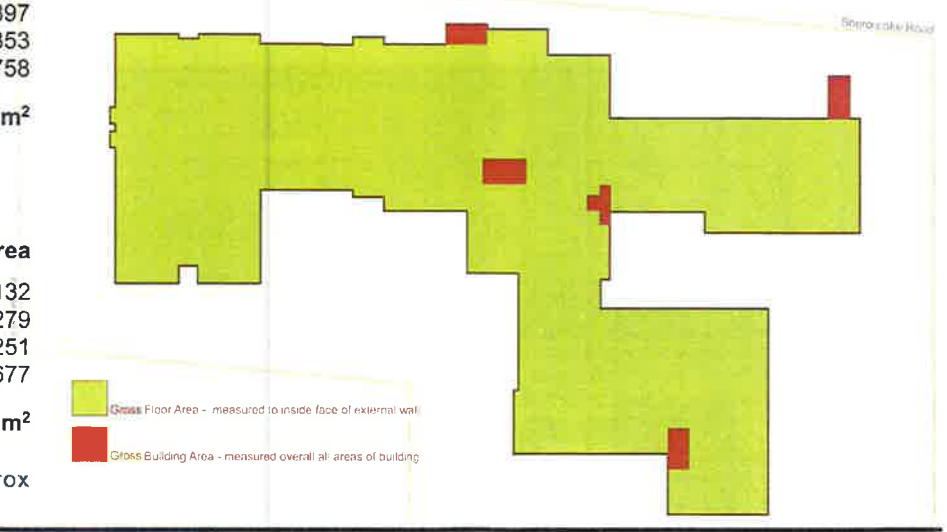
Level 1

GFA Summary

Level	Area
Level 1	132
Level 2	2,279
Level 3	2,251
Level 4	1,677
	6,339 m²

Site Area 6,626 sm aprox

Level 2



Architect: CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

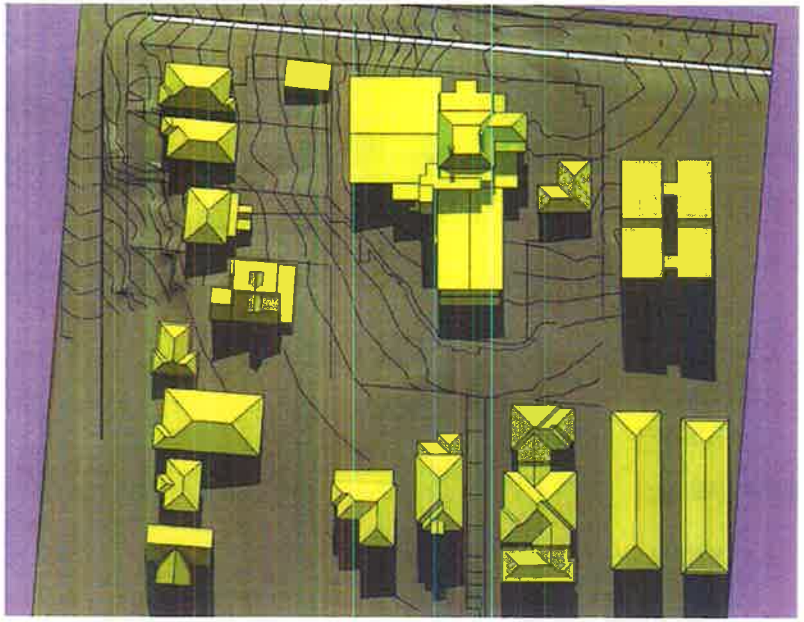
Client: Opal specialist aged care

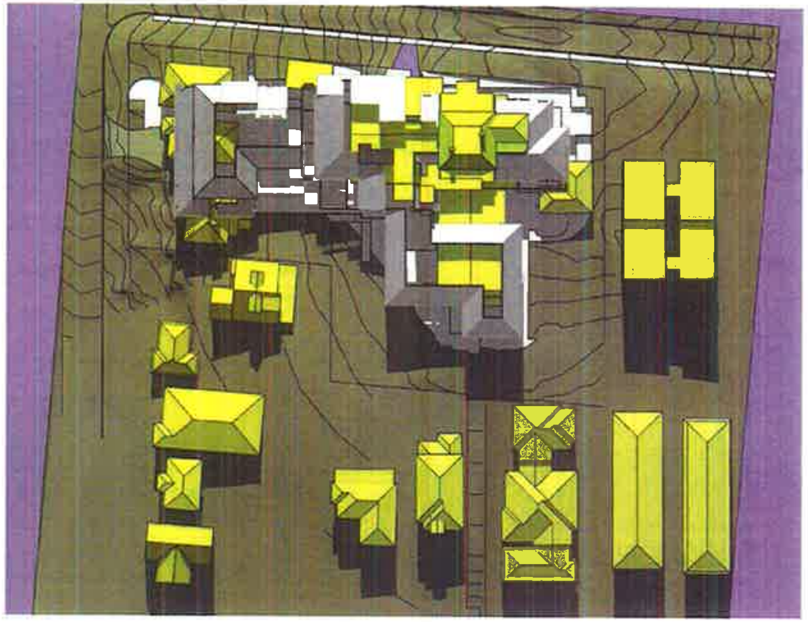
Project: **Opal Fernleigh Renewal**
Schertbrooke Road West Ryde NSW 2112

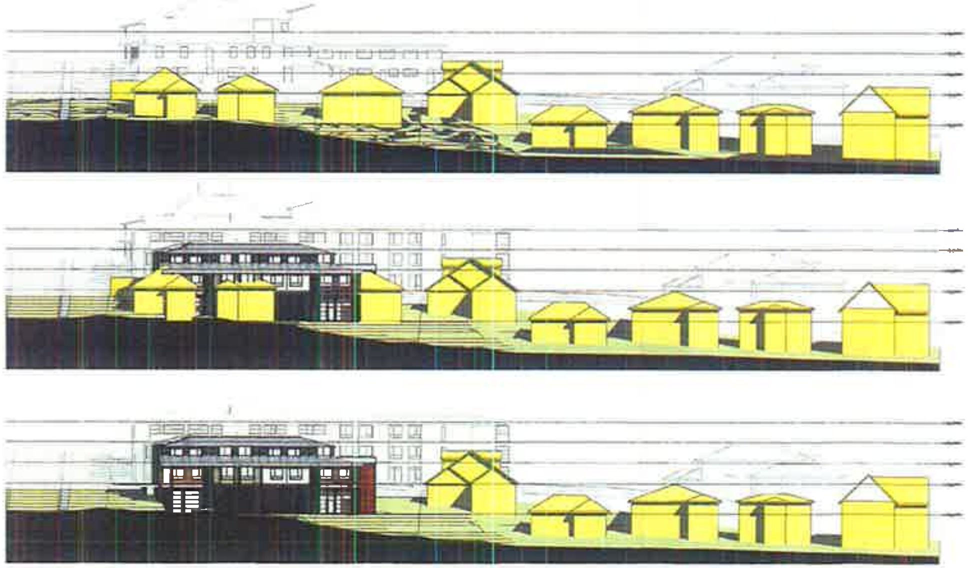
Drawing Title: **GFA Claculations**

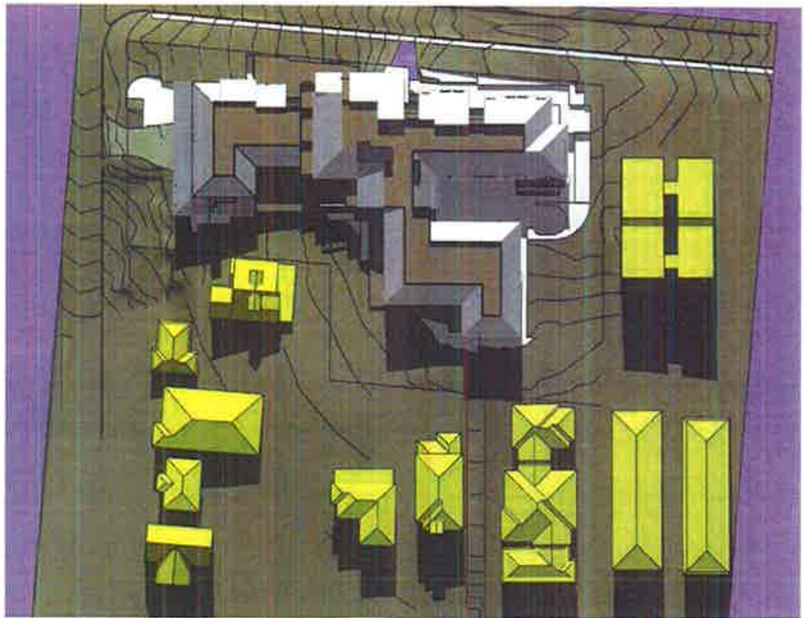
Date created	27/04/2015
Scale	refer scale bar
North	

Project No.	Stage	Drawing No.	Issue
13150	DA	25	B









Architect: CALDER FLOWER ARCHITECTS

Project Manager: grc GR CONSULTING

Client: Opal specialist aged care

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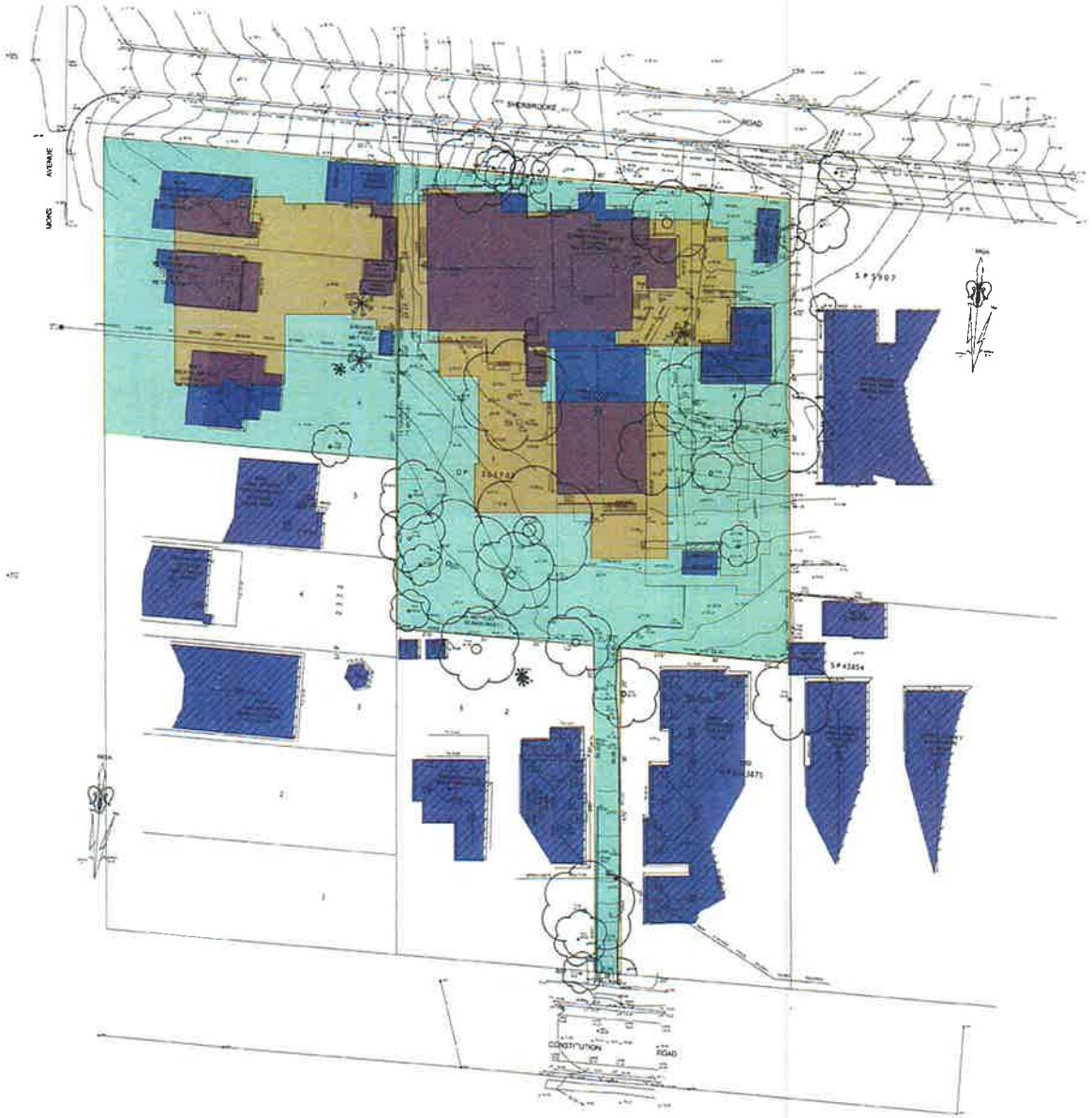
Date	Revision	Rev	Issue	Drawn	Check

Project
Opal Fernleigh Renewal
Scherbrooke Road West Ryde NSW 2112

Drawing Title
Existing + New Figure Ground

Date created	27/04/2015		North
Scale	refer scale bar		
Project No	Stage	Drawing No	Issue
13150	DA	30	B



Architect: CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

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Date	Revision	Rev	Issue	Drawn	Check
9 Dec 2014	Development Application	01	A	AW	
27 Apr 2015	Revisions in response to Council	02	B	AW	

Project
Opal Fernleigh Renewal
Scherbrooke Road West Ryde NSW 2112

Drawing Title
Site Setback Comparisons

Date created: 27/04/2015
Scale: refer scale bar
North

Project No	Stage	Drawing No	Issue
13150	DA	31	B

Shadow Diagrams
June 21st
1 hour intervals
24 hr time signals

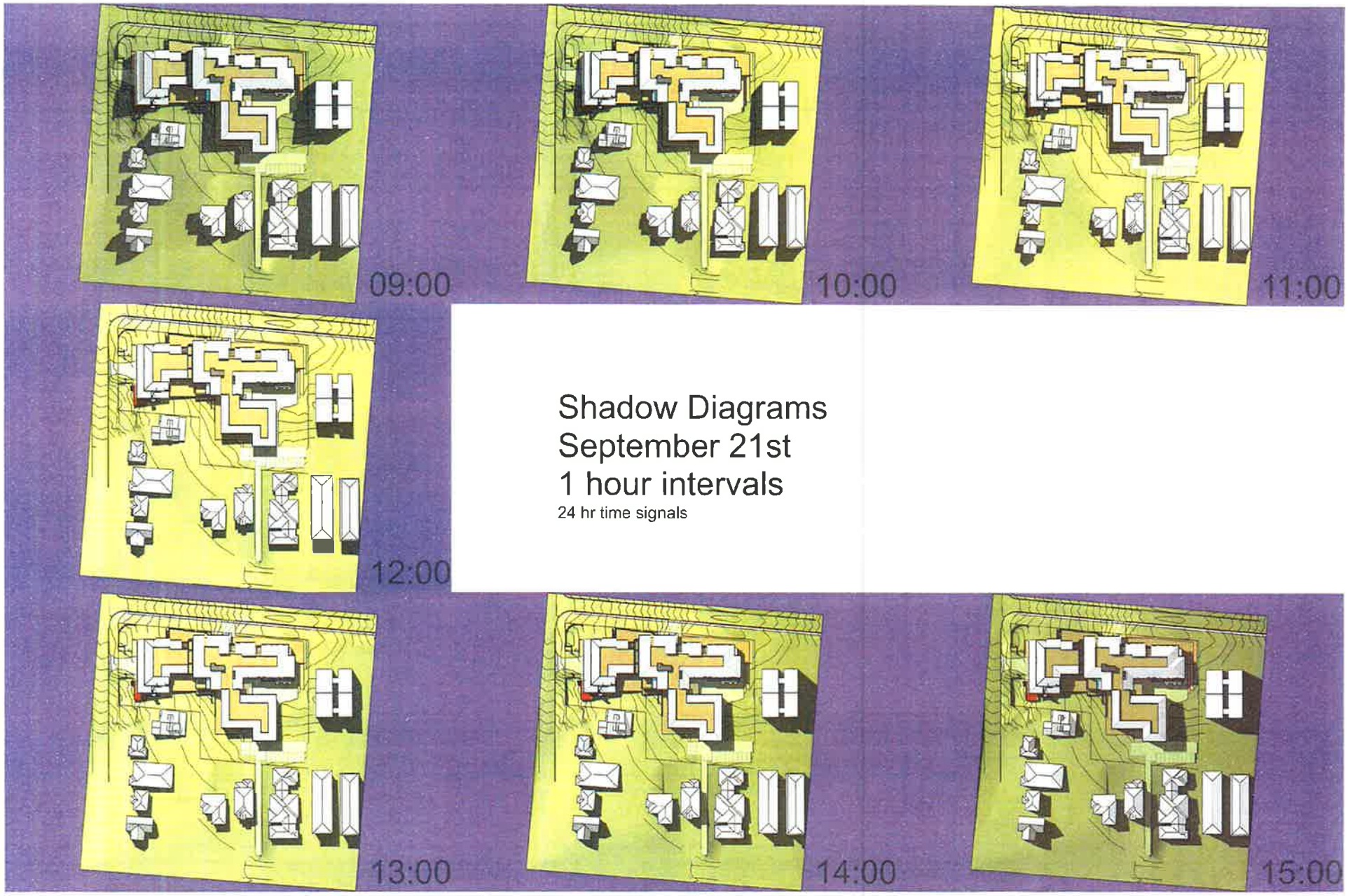
Architect: CALDER FLOWER ARCHITECTS
Project Manager: grc GR CONSULTING
Client: Opal specialist aged care

Project: **Opal Fernleigh Renewal**
Scherbrooke Road West Ryde NSW 2112

Drawing Title: **Shadows Jun 21 1hr intervals**

Date created	27/04/2015
Scale	refer scale bar

Project No	Stage	Drawing No	Issue
13150	DA	32	B



Shadow Diagrams
September 21st
1 hour intervals

24 hr time signals

Architect: CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

Notes:
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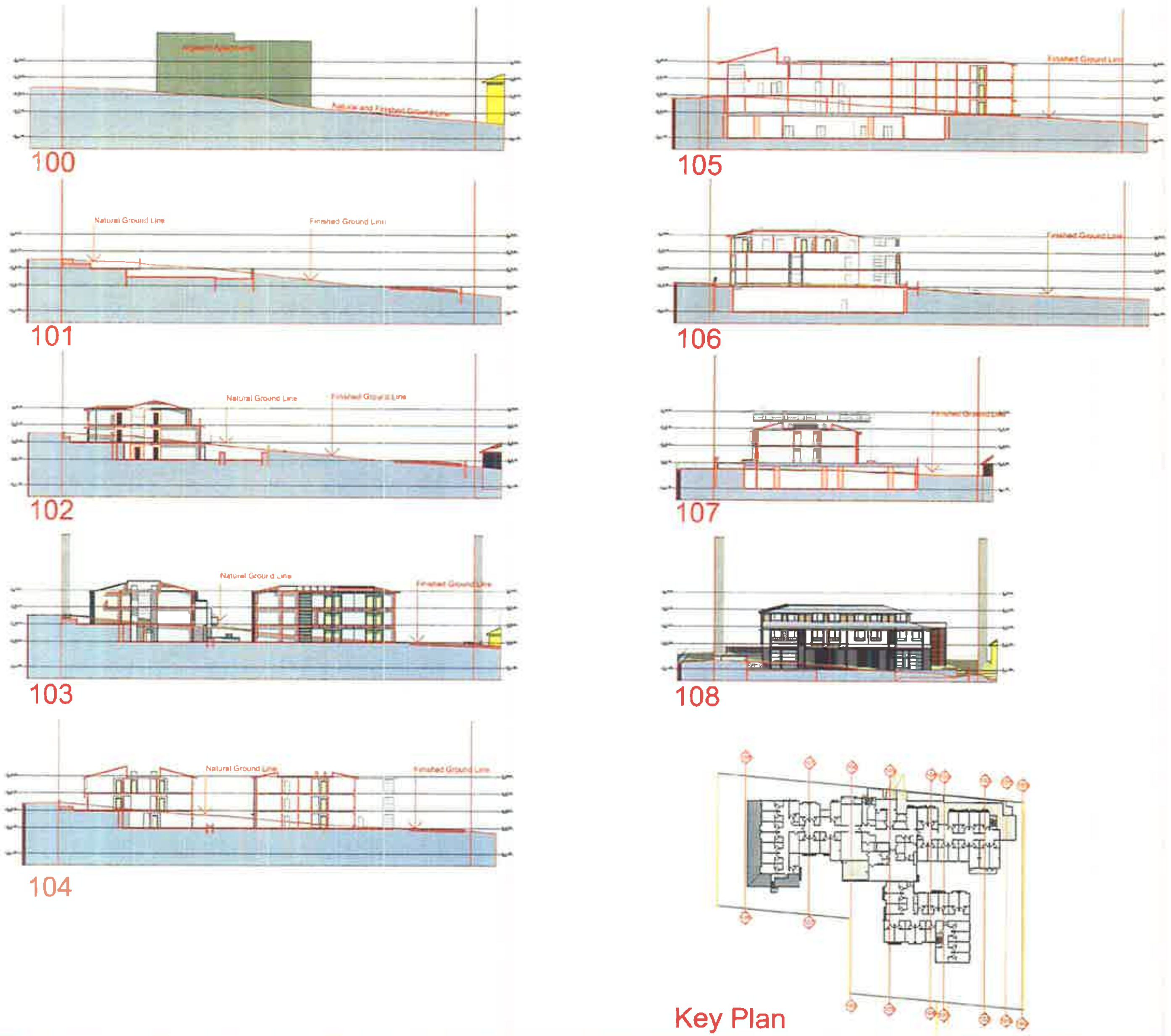
Date	Revision	Rev	Issue	Drawn	Check
6 Nov 2014	Development Application	01	A	JWP	
27 Apr 2015	Revisions in response to Council	02	B	MM	

Project: **Opal Fernleigh Renewal**
Schembrooke Road West Ryde NSW 2112

Drawing Title: **Shadows Sep 21 1hr Intervals**

Date created	27/04/2015		North
Scale:	refer scale bar		
Project No	Stage	Drawing No	Issue
13150	DA	33	B



Architect: CALDER FLOWER ARCHITECTS

Project Manager: grc GR CONSULTING

Client: Opal specialist aged care

Notes

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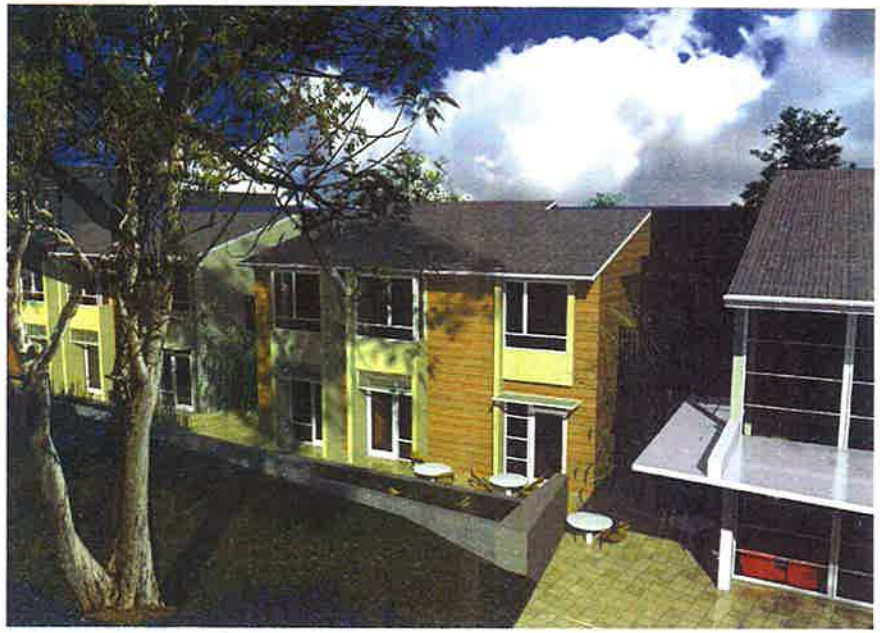
Date	Revision	Rev	Issue	Drawn	Check
[illegible]	[illegible]	[illegible]	[illegible]	JW	
[illegible]	[illegible]	[illegible]	[illegible]	AW	

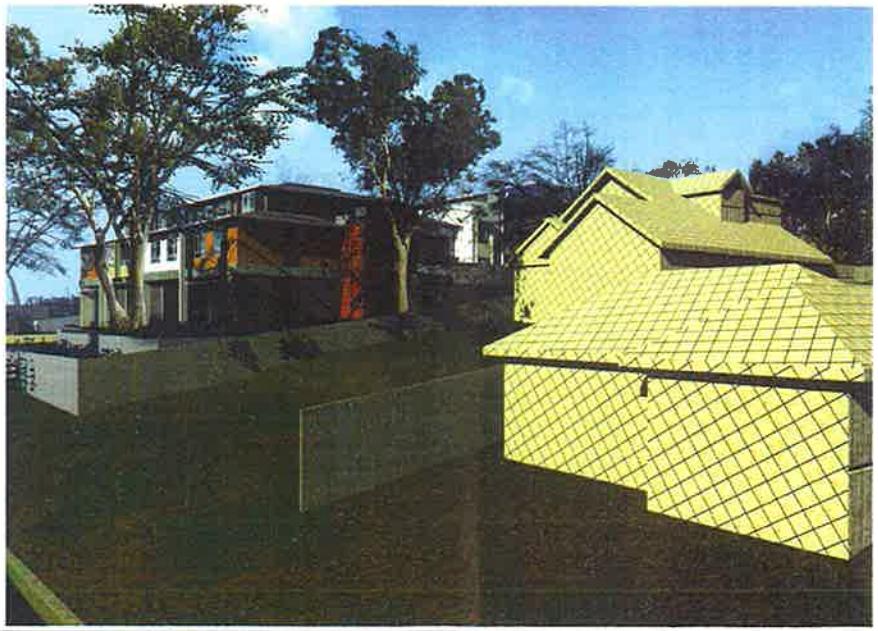
Project: **Opal Fernleigh Renewal**
Scherbrooke Road West Ryde NSW 2112

Drawing Title: **Site Cross Sections**

Date created	29/04/2015	North
Scale:	refer scale bar	

Project No	Stage	Drawing No	Issue
13150	DA	34	B





Architect
CALDER FLOWER ARCHITECTS

Project Manager
grc GR CONSULTING

Client
Opal
specialist aged care

Notes
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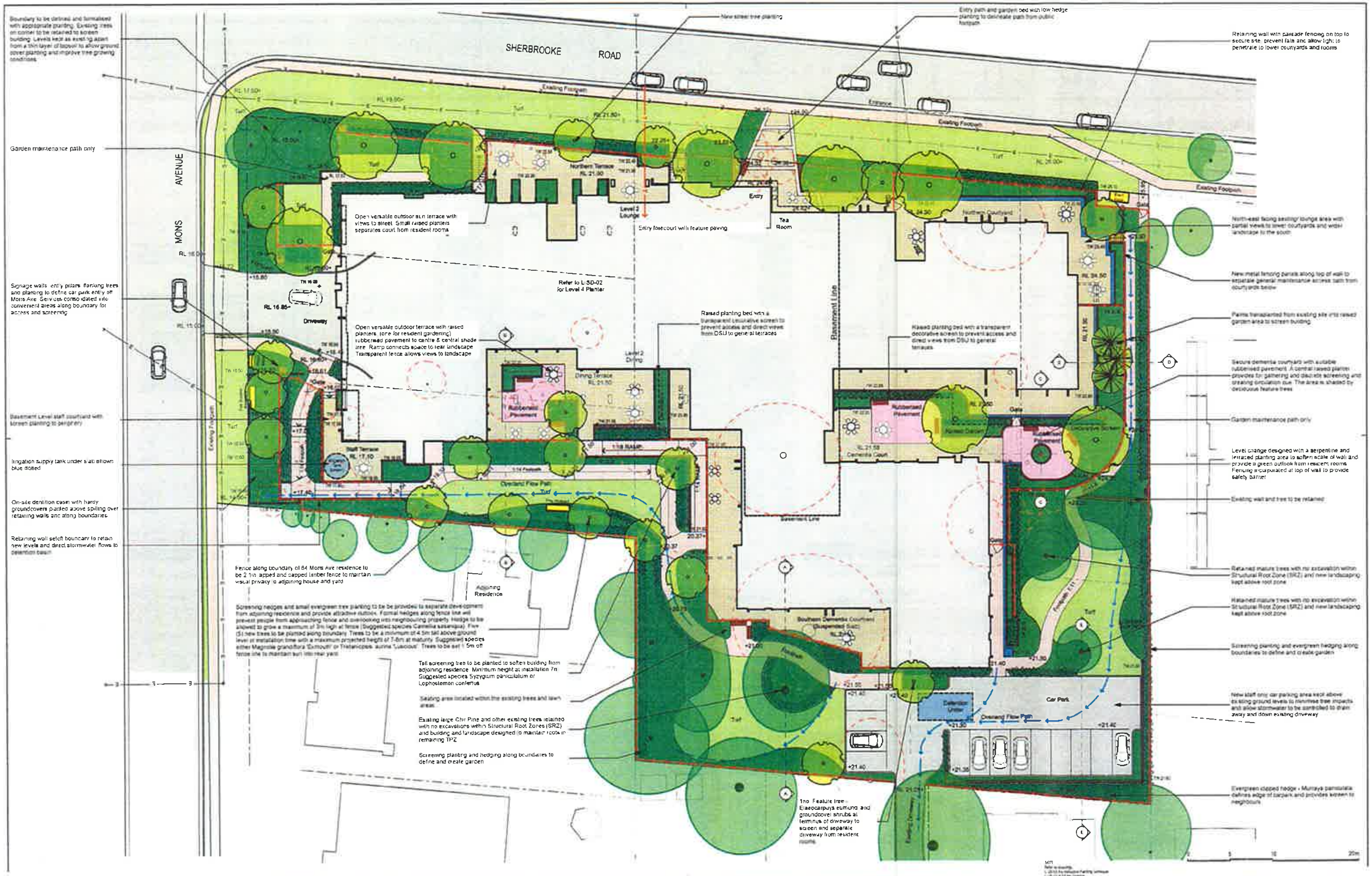
Date	Revision	Rev	Issue	Drawn	Check
4 Dec 2014	Development Application	01	A	JW	
27 Apr 2015	Revisions in response to Council	02	B	JW	

Project
Opal Fernleigh Renewal
Schertbrooke Road West Ryde NSW 2112

Drawing Title
Views

Date created: 27/04/2015
Scale: refer scale bar
North

Project No.	Stage	Drawing No.	Issue
13150	DA	35	B



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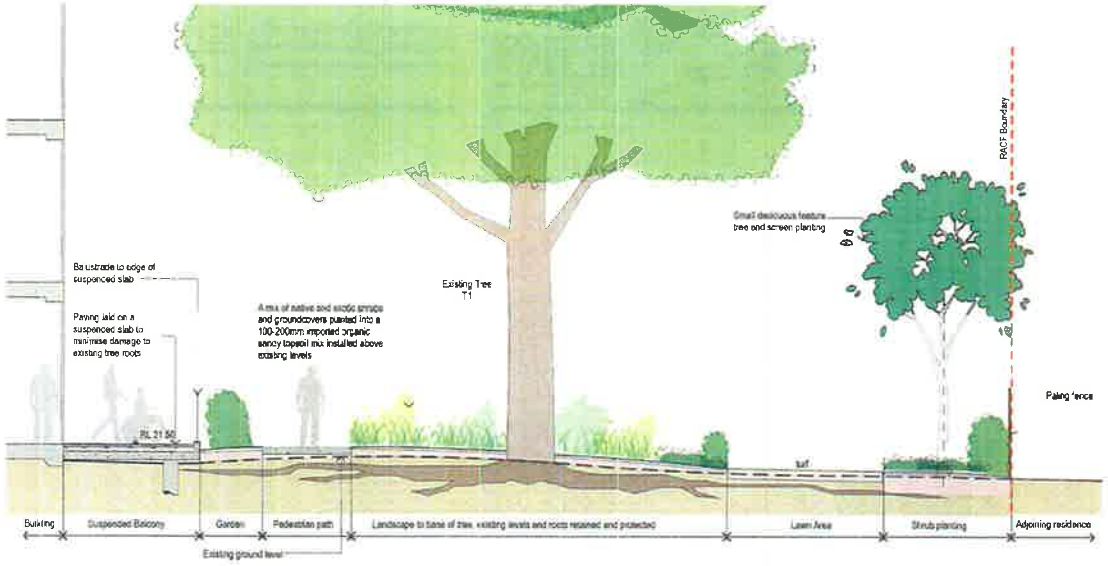
Legend: Trees to be removed; Trees to be retained; Proposed Trees; Palm Trees; Balustrade/ Fences; Clipped Hedges; Mass Planting / Garden Beds Shrubs and Groundcovers; Turf; Rubberised Pavement; Concrete Footpath; Courtyard Unit Paving; Blockwork Retaining Wall; Trench Grate; Indicative Furniture; Bench Seating; Sculptural Feature (ie Wind Sculpture)

Fernleigh RACF
8 Sherbrooke Road, West Ryde NSW
Opal Aged Care

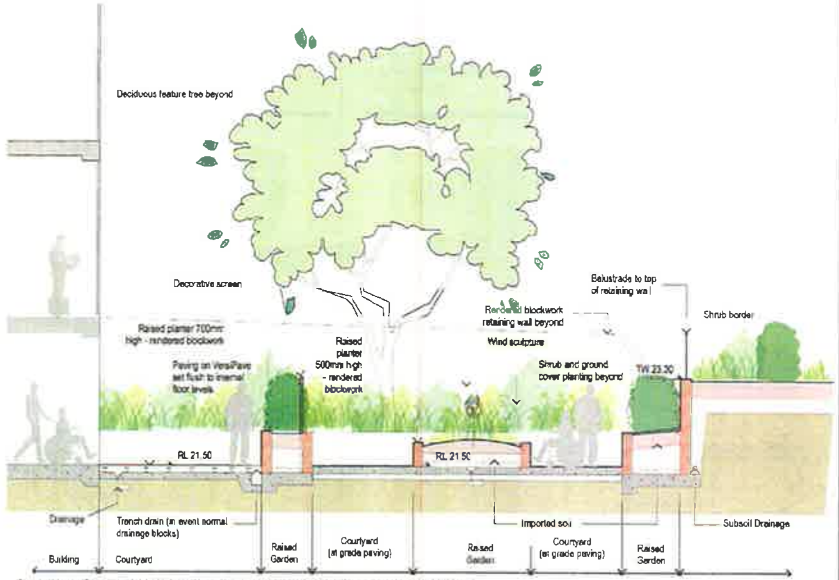
Landscape Concept Plan

L-SD-01 B



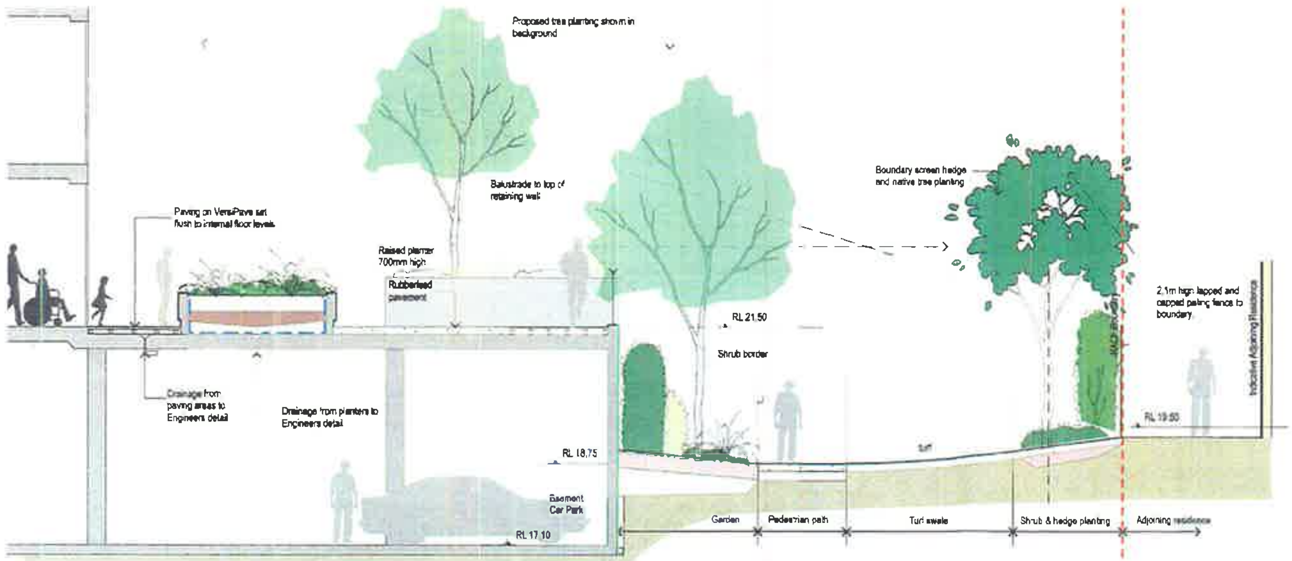
Section A - Southern Dementia Courtyard and Existing Tree

scale 1:50@ A1



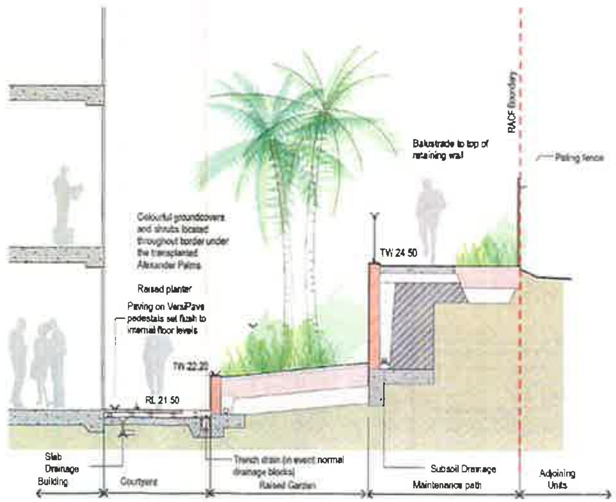
Section C - Dementia Courtyard Raised Planter & Terraces

scale 1:50@ A1



Section Elevation B - Dining Terrace, Raised Planter and Boundary Treatment

scale 1:50@ A1



Section D - Dementia Courtyard Terrace & Raised Planter

scale 1:50@ A1

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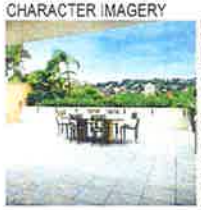
Fernleigh RACF
8 Sherbrooke Road, West Ryde NSW

Landscape Sections

L-SD-02

B

CHARACTER IMAGERY


Courtyard Paving Tiles


Rendered Retaining Wall / Terraces


Gabion Feature Wall

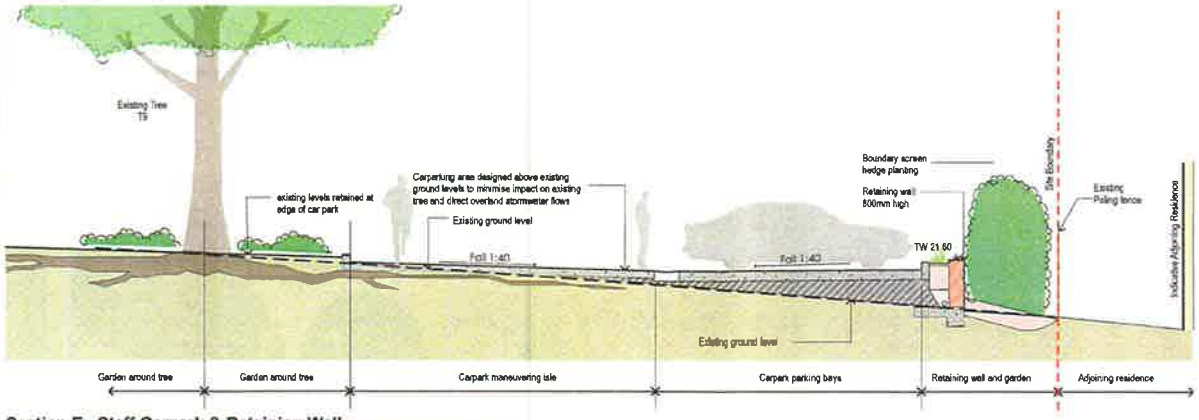

Transparent Decorative Screen


Rubberised Paving to Dementia Courtyard


Trees in Courtyard providing shade, seasonal interest and soften the built form


Wind Sculpture


Large Feature Pots



Section E - Staff Carpark & Retaining Wall
scale 1:80 @ A1

INDICATIVE PLANTING PALETTE


Photinia glabra 'Rubens'


Buxus microphylla 'Japonica' Gardenia augusta 'Florida'


Jacaranda mimosifolia


Zelkova serrata 'Green Vase'


Lophostemon confertus


Harpulia pendula


Magnolia 'Exmouth'


Pyrus ussuriensis (showing autumn colour)


Koelreuteria bipinnata


Cedrus deodora


Tristaniopsis laurina 'Luscious'


Cupaniopsis anacardioides


Elaeocarpus eumundi


Syzygium paniculatum


Liriope muscari 'Stripy White'


Philodendron 'Xanadu'


Clivia miniata


Bergenia cordifolia


Grevillea 'Royal Mantle'


Trachelospermum asiaticum


Arthropodium cirratum

INDICATIVE PLANT SCHEDULE

Botanical Name	Common Name	Potential Height	Container Size
TREES			
Cedrus deodara	Deodar Cedar	16m	100L
Cupaniopsis anacardioides	Tuckaroo	8m	100L
Elaeocarpus eumundi	Eumundi Quandong	10m	100L
Harpulia pendula	Tulipwood	8m	100L
Jacaranda mimosifolia	Jacaranda	15m	100L
Koelreuteria bipinnata	Golden Rain Tree	8m	75L
Lophostemon confertus	Brush Box	15m	75L
Magnolia grandiflora 'Exmouth'	Bull Bay Magnolia	5m	200L
Magnolia x soulangeana	Tulip Magnolia	7m	75L
Pyrus ussuriensis	Manchurian Pear	7m	75L
Syzygium paniculatum	Magenta Lilly Pilly	10m	100L
Ulmus parvifolia	Chinese Elm	10m	100L
Zelkova serrata 'Green Vase'	Japanese Zelkova	10m	100L
SHRUBS			
Arthropodium cirratum	Rock Lily	0.9m	250mm
Calathea burle-marxii	Burle marx Calathea	0.6m	200mm
Callistemon 'White Anzac'	White Bottlebrush	0.8m	200mm
Clivia miniata	Kaffir Lily	0.6m	200mm
Codiaeum variegatum 'zanzibar'	Croton (fine yellow/green foliage)	0.6m	200mm
Cordyline fruticosa 'Rubra'	Red Cordyline	0.6m	200mm
Gardenia augusta 'Florida'	Florida Gardenia	1.2m	200mm
Lavandula angustifolia	English Lavender	1.2m	200mm
Philodendron 'Xanadu'	Xanadu	0.6m	250mm
Phormium tenax 'Evening Glow'	Dwarf New Zealand Flax (red foliage)	0.8m	200mm
Rhapis excelsa	Bamboo Palm	1.5m	200mm
Rosmarinus officinalis	Rosemary	1.5m	200mm
Sansevieria trifasciata	Mother in Law's Tongue	0.5m	200mm
Strelitzia reginae	Bird of Paradise	1.5m	250mm
Vriesia sp	Bromiliad	0.5m	200mm
HEDGING			
Buxus microphylla var. japonica	Japanese Box	1m	200mm
Camellia sasanqua	Camellia	6-8m	300mm
Photinia glabra 'Rubens'	Photinia / Red Photinia	2-3m	300mm
Murraya paniculata	Orange Jessamine	2.5m	300mm
Syzygium australe 'Tiny Trev'	Dwarf Lillypilly	0.5m	300mm
GROUNDCOVERS			
Ajuga reptans	Carpet Bugle	0.3m	150mm
Bergenia cordifolia	Siberian Tea	0.3m	150mm
Blechnum nudum 'Silver Lacy'	Silver Fern	0.7m	150mm
Convolvulus cneorum	Convolvulus	0.3m	150mm
Convolvulus mauritanicus	Ground Morning Glory	0.2m	150mm
Grevillea 'Royal Mantle'	Poorinda Royal Mantle	0.3m	100mm
Hemerocallis aurantiaca	Day Lily	0.5m	150mm
Liriope 'Stripy White'	Lily Turf	0.4m	150mm
Liriope muscari 'Evergreen Giant'	Turf Lily	0.5m	150mm
Molinenia capitulata	Palm Grass	1.0m	150mm
Myoporum parvifolium	Creeping Boobiala	0.5m	150mm
Ophiopogon japonicus	Mondo Grass	0.3m	150mm
Trachelospermum asiaticum	Japanese Star Jasmine	0.3m	150mm
Trachelospermum trachelospermum	Star Jasmine	0.3m	150mm

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B	For Development Application (Revised Layout)	RWS	27.06.13
A	For Development Application	RWS	22.03.13

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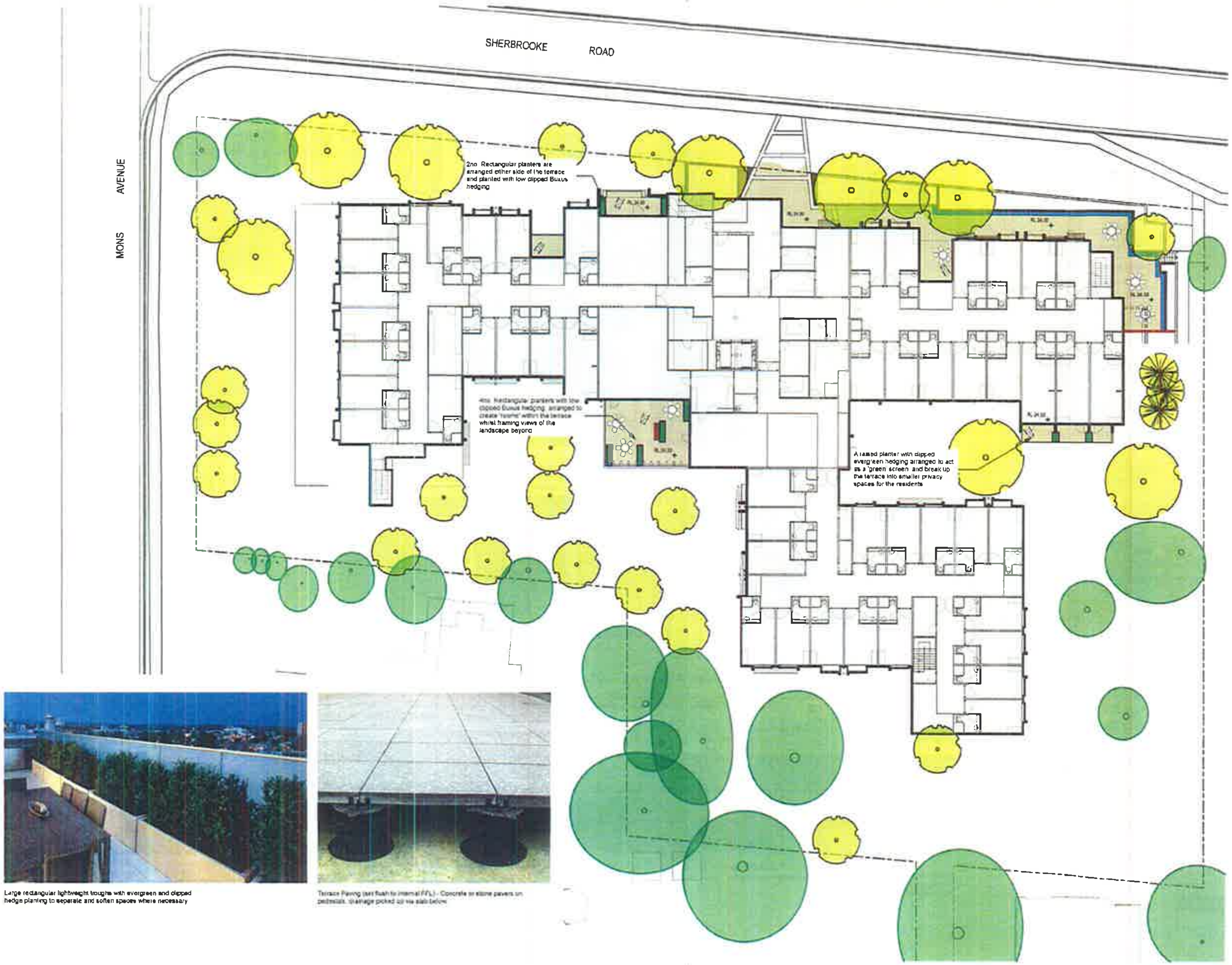
8 Sherbrooke Road, West Ryde NSW
Ope: Aged Care

Project No 12.10
Designed RWS
Drawn TWS
Scale As Shown@A1

Sections & Character Images

DRAWING NUMBER L-SD-03
REVISION B



SHERBROOKE ROAD
MONS AVENUE
2no. Rectangular planters are arranged either side of the terrace and planted with low clipped Buxus hedging
4no. Rectangular planters with low clipped Buxus hedging, arranged to create "rooms" within the terrace whilst framing views of the landscape beyond
A raised planter with clipped evergreen hedging arranged to act as a "green screen" and break up the terrace into smaller privacy spaces for the residents
0 5 10 20m

Large rectangular lightweight troughs with evergreen and clipped hedge planting to separate and soften spaces where necessary

Terrace Paving (set flush to internal FFL) - Concrete or stone pavers on pedestals, drainage picked up via slab below

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External Terrace Paving	Indicative Bench Seating
Clipped Hedges in rectangular lightweight troughs	Indicative Moveable Furniture

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8 Sherbrooke Road, West Ryde NSW
Opal Aged Care

Landscape Concept Level 3 Terraces

L-SD-04 B

SHERBROOKE ROAD

MONS AVENUE

An insitu raised planter with a clipped evergreen hedge and some feature colourful ground covers will act as a green screen to the air- conditioning plant and soften the foreground views for the private outdoor terraces

Flat Roof Level 4 RL 37.50

Rectangular planters with low clipped Buxus hedging frames the terrace and softens the views looking out from the corridor

A rectangular planter with low clipped Buxus hedging softens the terrace and defines the individual terraces providing privacy

Large rectangular lightweight troughs with evergreen and clipped hedge planting to seperate and soften spaces where necessary

Terrace Paving (set flush to internal FFL) - Concrete or stone pavers on pedestals drainage picked up via slab below

0 5 10 20m

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External Terrace Paving
Clipped Hedges on rectangular lightweight troughs
Indicative Bench Seating
Indicative Moveable Furniture

REVISION	DESCRIPTION	CHKD	DATE
B	for Development Application Revised Layout	RWS	27/4/15
A	For Development Application	RWS	23/9/14

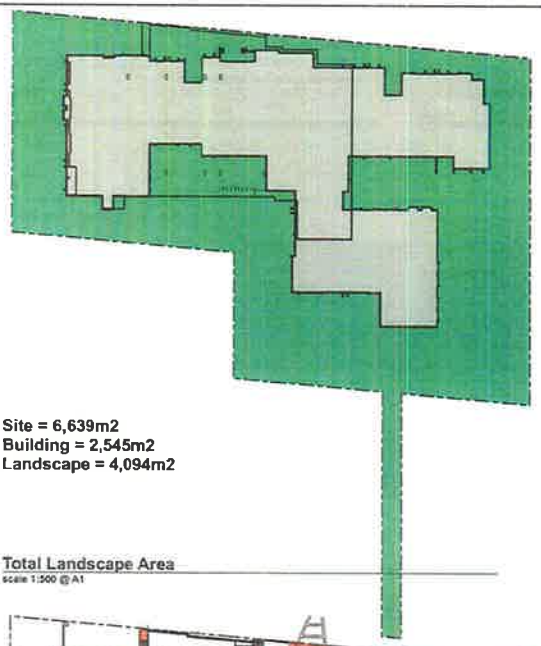
Fernleigh RACF
8 Sherbrooke Road, West Ryde NSW
Opal Aged Care

Project No 12 10
Designed RWS
Drawn RWS
Scale 1:200@A1, 1:400@A3

DRAWING TITLE
Landscape Concept Level 4 Terraces

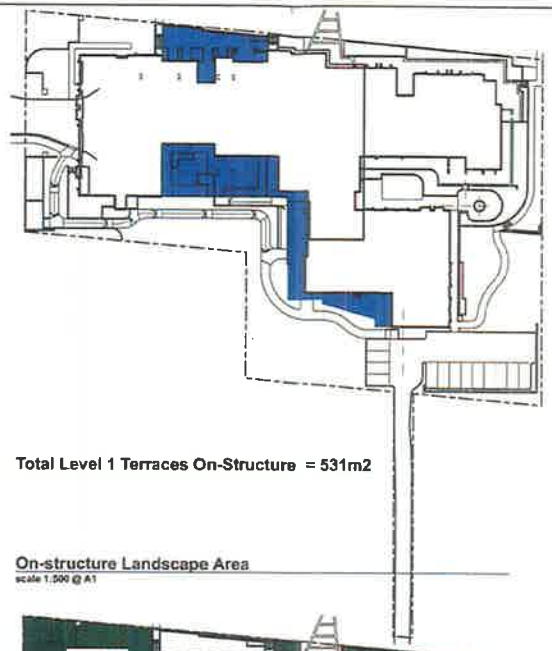
DRAWING NUMBER L-SD-05

REVISION B



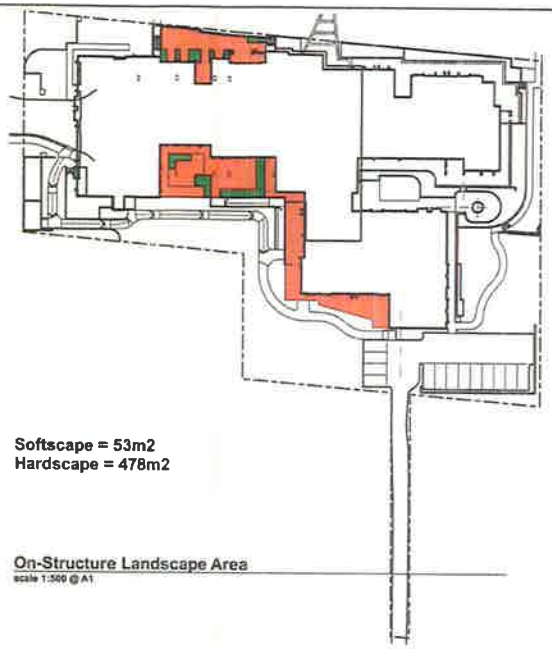
Site = 6,639m2
Building = 2,545m2
Landscape = 4,094m2

Total Landscape Area
scale 1:500 @ A1



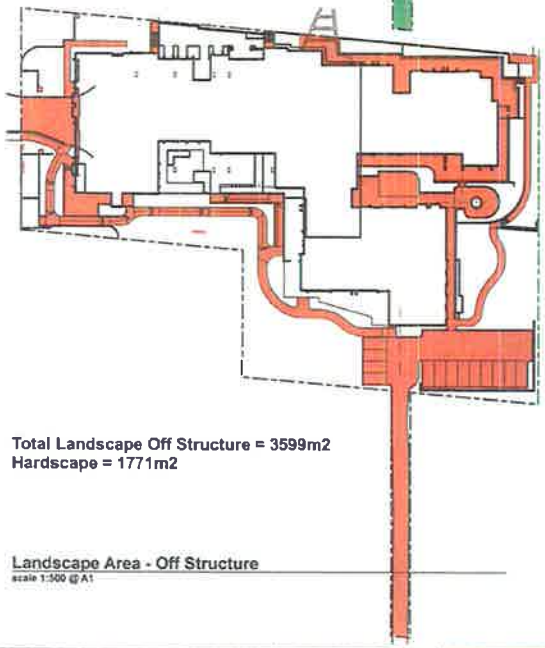
Total Level 1 Terraces On-Structure = 531m2

On-structure Landscape Area
scale 1:500 @ A1



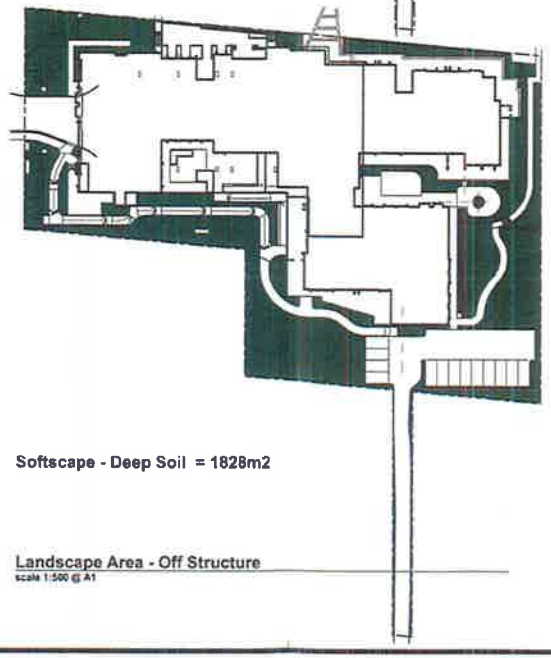
Softscape = 53m2
Hardscape = 478m2

On-Structure Landscape Area
scale 1:500 @ A1



Total Landscape Off Structure = 3599m2
Hardscape = 1771m2

Landscape Area - Off Structure
scale 1:500 @ A1



Softscape - Deep Soil = 1828m2

Landscape Area - Off Structure
scale 1:500 @ A1

arterra LANDSCAPE ARCHITECTS

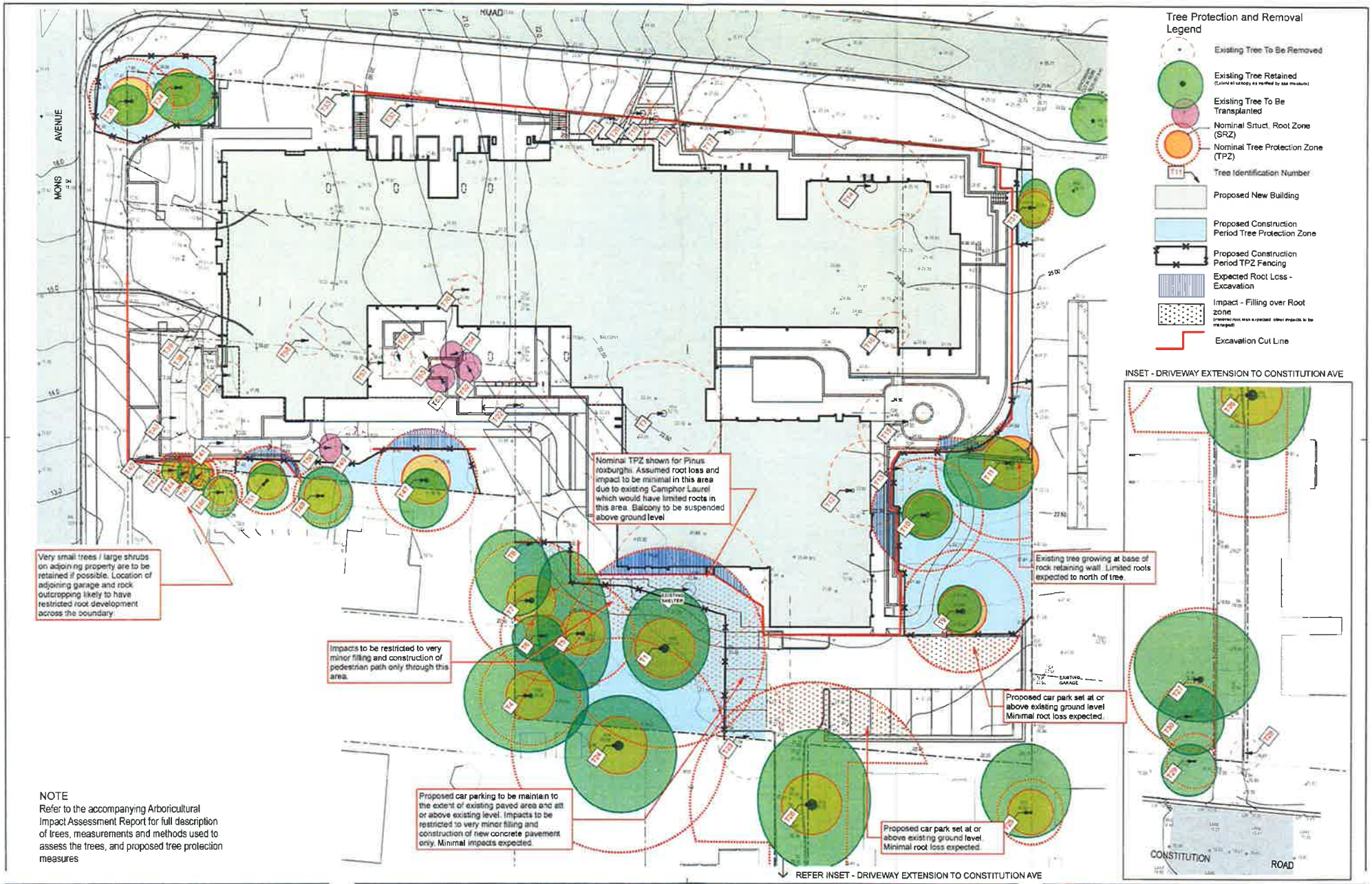
ARTERRA DESIGN PTY LTD ABN 40 063 552 619
SUITE 602 / 91 LAWSON STREET, EPPING NSW 2121
P 02 9957 3466 F 02 9957 3977 W ARTERRA.COM.AU

Fernleigh RACF
8 Sherbrooke Road, West Ryde NSW
Opal Aged Care

Landscape Areas Calculations

L-SD-06

A



NOTE
Refer to the accompanying Arboricultural Impact Assessment Report for full description of trees, measurements and methods used to assess the trees, and proposed tree protection measures

arterra LANDSCAPE ARCHITECTS
ARTERRA DESIGN PTY LTD ABN 40 069 552 610
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0 5 10 20m

Fernleigh RACF
8 Sherbrooke Road, West Ryde NSW

Tree Protection and Removal Plan T-02 B

AGED CARE FACILITY,PRINCIPAL FERNLEIGH

GENERAL NOTES

1. Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the Engineer.
2. Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
3. Make smooth connection with all existing works.
4. Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint.
5. All work on public property, property which is to become public property or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable.
6. For all temporary batters refer to geotechnical recommendations.

REFERENCE DRAWINGS

1. These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No	Rev	Date
PROJECT SURVEYORS	NO6-8 SHERBROOKE ROAD	81438-1	C	15.06.12
ARTERRA	LANDSCAPE CONCEPT PLAN	L-SD-01		27.04.15
CALDER FLOWER	PLAN LEVEL 1	12	C	09.05.15
	PLAN LEVEL 2	13	C	09.05.15
	PLAN LEVEL 3	14	C	09.05.14

SURVEY AND SERVICES INFORMATION

SURVEY

Origin of levels : SSM 44151 RL17.498
Datum of levels : A.H.D. AUSTRALIAN HEIGHT DATUM
Coordinate system : MGA
Survey prepared by : PROJECT SURVEYORS
Setout Points : CONTACT THE SURVEYOR

Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.

UNDERGROUND SERVICES - WARNING

The locations of underground services shown on Taylor Thomson Whitting drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate.

The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.

Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.

The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.
Taylor Thomson Whitting plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.

BOUNDARY AND EASEMENT NOTE

The property boundary and easement locations shown on Taylor Thomson Whitting drawing's have been based from information received from: PROJECT SURVEYORS

Taylor Thomson Whitting makes no guarantees that the boundary or easement information shown is correct.
Taylor Thomson Whitting will accept no liabilities for boundary inaccuracies. The contractor/builder is advised to check/confirm all boundaries in relation to all proposed work prior to the commencement of construction. Boundary inaccuracies found are to be reported to the superintendent prior to construction starting.

KERBING NOTES

Includes all kerbs, gutters, dish drains, crossings and edges.

1. All kerbs, gutters, dish drains and crossings to be constructed on minimum 75mm granular basecourse compacted to minimum 98% modified maximum dry density in accordance with AS 1289 5.2.1.
2. Expansion joints (EJ) to be formed from 10mm compressible cork filler board for the full depth of the section and cut to profile. Expansion joints to be located at drainage pits, on tangent points of curves and elsewhere at 12m centres except for integral kerbs where the expansion joints are to match the joint locations in slabs.
3. Weakened plane joints to be min 3mm wide and located at 3m centres except for integral kerbs where weakened plane joints are to match the joint locations in slabs.
4. Broomed finished to all ramped and vehicular crossings, all other kerbing or dish drains to be steel float finished.
5. In the replacement of kerbs –
   Existing road pavement is to be sawcut 900mm from lip of gutter. Upon completion of new kerbs, new basecourse and surface is to be laid 900mm wide to match existing materials and thicknesses.
   Existing allotment drainage pipes are to be built into the new kerb with a 100mm dia hole.
   Existing kerbs are to be completely removed where new kerbs are shown.

SITEWORKS NOTES

1. All basecourse material to comply with RTA specification No 3051 and compacted to minimum 98% modified standard dry density in accordance with AS 1289 5.2.1.
2. All trench backfill material shall be compacted to the same density as the adjacent material.
3. All service trenches under vehicular pavements shall be backfilled with an approved select material and compacted to a minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1.

STORMWATER DRAINAGE NOTES

1. Stormwater Design Criteria :
   (A) Average recurrence interval -
   1:100 years for roof drainage to first external pit
   1:20 years for paved and landscaped areas
   (B) Rainfall intensities -
   Time of concentration: 5 minutes
   1:100 years = 2[illegible] mm/hr
   1:20 years = 177 mm/hr
   (C) Runoff coefficients -
   Roof areas Cm = 1.00
   Roads and paved areas Cm = 0.9[illegible]
   Landscaped areas Cm = 0.[illegible]
2. Pipes 300 dia and larger to be reinforced concrete Class '2' approved spigot and socket with rubber ring joints U.N.O.
3. Pipes up to 300 dia shall be sewer grade uPVC with solvent welded joints.
4. Equivalent strength VCP or FRP pipes may be used subject to approval.
5. Precast pits may be used external to the building subject to approval by Engineer.
6. Enlargers, connections and junctions to be manufactured fittings where pipes are less than 300 dia.
7. Where subsoil drains pass under floor slabs and vehicular pavements, unslotted uPVC sewer grade pipe is to be used.
8. Grates and covers shall conform with AS 3996-2006, and AS 1428.1 for access requirements.
9. Pipes are to be installed in accordance with AS 3725. All bedding to be type H2 U.N.O.
10. Care is to be taken with levels of stormwater lines. Grades shown are not to be reduced without approval.
11. All stormwater pipes to be 150 dia at 1.0% min fall U.N.O.
12. Subsoil drains to be slotted flexible uPVC U.N.O.
13. Adopt invert levels for pipe installation (grades shown are only nominal).

PIT SCHEDULE

Note: Grate size does not necessarily reflect pit size, refer pit type details, shown on detail sheets - C21
Final internal pit dimensions are to comply with AS3500

Type	Description	Cover (Clear Opening)	Number
A	Kerb inlet pit 1800 lintel	450 x 900 Class C galvanised mild steel grate hinged to frame	5A
B	Surface inlet pit	600 x 900 Class B galvanised mild steel grate hinged to frame	1A,3A,4A,1C, 1D,2D,1F, 1G
		900 x 900 Class B galvanised mild steel grate hinged to frame	1A,2C,3C, 3D,4D,5D, 1E,1H
C	OSD 1	900 x 900 Class C galvanised mild steel grate hinged to frame	6A,4C,5C
D	OSD 2	900 x 900 Class C galvanised mild steel grate hinged to frame	6D,7D

BULK EARTHWORKS NOTES

1. All bulk earthworks setout from grid lines U.N.O.
2. All batters at a slope of 2(H) : 1(V) U.N.O.
3. Excavated material may be used as structural fill provided:
   (1) it complies with the specification requirements for fill material,
   (2) the placement moisture content complies with the Geotechnical Consultants requirements, and allows filling to be placed and proofrolled in accordance with the specification. Where necessary the Contractor must moisture condition the excavated material to meet these requirements.
4. Compact fill areas and subgrade to not less than:

Location	Standard dry density (AS 1289 5.1.1.)	Moisture (OMC)
Under building slabs on ground:	98%	±2%
Under roads and carparks:	98%	±2%
Landscaped areas:	95%	±2%

5. Before placing fill, proof roll exposed subgrade with a 10 tonne minimum roller to test subgrade and then remove soft spots (areas with more than 3mm movement under roller). Soft spots to be replaced with select fill U.N.O.
6. Contractor shall place safety barriers around excavations in accordance with relevant safety regulations.
7. For interpretation of bulk earthworks foot print line shown on the bulk earthworks drawings refer to the bulk earthworks construction legend.
8. Bulk earthwork drawings are not to be used for detailed excavation.
9. Refer to Geotechnical Report prepared by – DOUGLAS PARTNERS
   PROPOSED FERNLEIGH AGED CARE FACILITY / JULY 2012

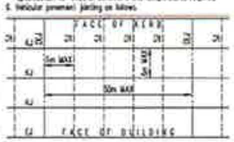
CONCRETE FINISHING NOTES

1. All exposed concrete pavements are to be broomed finished.
2. All edges of the concrete pavement including keyed and dowelled joints are to be finished with an edging tool.
3. Concrete pavements with grades greater than 10 % shall be heavily broomed finished.
4. Carborundum to be added to all stair treads and ramped crossings U.N.O.

JOINTING NOTES

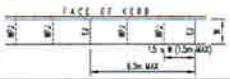
Vehicular Pavement Jointing

1. All vehicular pavements to be jointed as shown on drawings.
2. Keyed construction joints should generally be located at a maximum of 6m centres.
3. Sawn joints should generally be located at a maximum of 6m centres or 1.5 x the spacing of keyed joints, where key joint spacing is less than 4m, with dowelled expansion joints at maximum of 30m centres.
4. Provide 10mm wide full depth expansion joints between buildings and all concrete or unit pavers.
5. The timing of the saw cut is to be confirmed by the contractor on site. Site conditions will determine how many hours after the concrete pour before the saw cuts are commenced. Refer to the specification for weather conditions and temperatures required.
6. Vehicular pavement jointing as follows.



Pedestrian Footpath Jointing

1. Expansion joints are to be located where possible at tangent points of curves and elsewhere at max 6.0m centres.
2. Weakened plane joints are to be located at a max 1.5 x width of the pavement.
3. Where possible joints should be located to match kerbing and / or adjacent pavement joints.
4. All pedestrian footpath jointings as follows (uno).



SAFETY IN DESIGN

Contractor to refer to Appendix B of the Civil Specification for the Civil Risk and Solutions Register.

EXISTING SERVICES

Contractor to be aware existing services are located within the site. Location of all services to be verified by the Contractor prior to commencing works. Contractor to confirm with relevant authority regarding measures to be taken to ensure services are protected or procedures are in place to demolish and/or relocate.

EXISTING STRUCTURES

Contractor to be aware existing structures may exist within the site. To prevent damage to existing structure(s) and/or personnel, site works to be carried out as far as practically possible from existing structure(s).

EXISTING TREES

Contractor to be aware existing trees exist within the site which need to be protected. To prevent damage to trees and/or personnel site works to be carried out as far as practically possible from existing trees. Advice needs to be sought from Arborist and/or Landscape Architect on measures required to protect trees.

GROUNDWATER

Contractor to be aware ground water levels are close to existing surface level. Temporary de-watering may be required during construction works.

EXCAVATIONS

Deep excavations due to stormwater drainage works is required. Contractor to ensure safe working procedures are in place for works. All excavations to be fenced off and battered adequately supported to approval of Geotechnical Engineer.

GROUND CONDITIONS

Contractor to be aware of the site geotechnical conditions. Refer to geotechnical report by (DOUGLAS PARTNERS) for details.

HAZARDOUS MATERIALS

Existing asbestos products & contaminated material may be present on site. Contractor to ensure all hazardous materials are identified prior to commencing works. Safe working practices as per relevant authority to be adopted and appropriate PPE to be used when handling all hazardous materials. Refer to geotechnical/environmental report by (DOUGLAS PARTNERS) for details.

CONFINED SPACES

Contractor to be aware of potential hazards due to working in confined spaces such as stormwater pits, trenches and/or tanks. Contractor to provide safe working methods and use appropriate PPE when entering confined spaces.

MANUAL HANDLING

Contractor to be aware manual handling may be required during construction. Contractor to take appropriate measures to ensure manual handling procedures and assessments are in place prior to commencing works.

WATER POLLUTION

Contractor to ensure appropriate measures are taken to prevent pollutants from construction works contaminating the surrounding environment.

SITE ACCESSIBILITY

Contractor to be aware site works occur in close proximity to footpaths and roadways. Contractor to erect appropriate barriers and signage to protect site personnel and public.

VEHICLE MOVEMENT

Contractor to supply and comply with traffic management plan and provide adequate site traffic control including a certified traffic marshall to supervise vehicle movements where necessary.

SITEWORKS LEGEND

Symbol	Description
● F22.20	Finished surface level
F22.00	Finished contour
K&G	Kerb and gutter
KO	Kerb only
FK	Flush kerb
DD	Dish drain
MK	Mountable kerb
MIK	Mountable integral kerb
MIK+TE	Mountable integral kerb with thickened edge
IK+TE	Integral kerb with thickened edge
TE	Thickened edge
IK	Integral kerb
IK+ED	Integral kerb with edge downturn
K&T	Kerb and toe
	Stormwater pit, flow direction and line with
10.00 / 600 ø '2' / 1.25% / Q=345 L/s / 9.95	Invert level upstream / Pipe size and class / Pipe grade / Flow (Litres per second) / Invert level downstream
GD	Grated drain
IR	Intermediate riser with subsoil drainage line (100 dia)
FP	Flushing point with subsoil drainage line (100 dia)
DP	Down pipe
RP	Rodding point
	Concrete encased stormwater line
	Stormwater line with pipe taper and flow direction
●	Taper kerb to zero height over 500 mm
	Wheelstop
RW	Blockwork retaining wall
RW	Brickwork retaining wall
DEJ	Dowelled expansion joint
SJ	Sawn joint
KJ	Keyed construction joint
WPJ	Weakened plane joint
EJ	Expansion joint
TKJ	Tied keyed joint
	Grass catch drain
	Overland flow path
	Guard Rail

CONCRETE NOTES

EXPOSURE CLASSIFICATION : External : B1
Internal : A1

CONCRETE

Place concrete of the following characteristic compressive strength f'c as defined in AS 1379.

Location	AS 1379 f'c MPa at 28 days	Specified Slump	Nominal agg. Size
Kerbs, footpaths	S25	80	20
Footings, pavements	S32 at 90	80	20

1. Use Type 'GP' cement, unless otherwise specified.
2. All concrete shall be subject to project assessment and testing to AS 1379.
3. Consolidate by mechanical vibration. Cure all concrete surfaces as directed in the Specification.
4. For all falls in slab, drip grooves, rebates, chamfers etc. refer to Architects drawings and specifications.
5. Unless shown on the drawings, the location of all construction joints shall be submitted to Engineer for review.
6. No holes or chases shall be made in the slab without the approval of the Engineer.
7. Conduits and pipes are to be fixed to the underside of the top reinforcement layer.
8. Slurry used to lubricate concrete pump lines is not to be used in any structural members.
9. All slabs cast on ground require sand blinding with a Concrete Underlay.

FORMWORK

1. The design, certification, construction and performance of the formwork, falsework and backpropping shall be the responsibility of the contractor. Proposed method of installation and removal of formwork is to be submitted to the superintendent for comment prior to work being carried out.

PAVEMENT LEGEND

NOTES

1. Asphaltic concrete shall conform to AS2150 and the specification.
2. Pavement based on geotechnical report by DOUGLAS PARTNERS Reference Date JULY 2012

Type	Description
P1	170mm Thickness concrete (f'c=32MPa) with SL82 fabric (45mm top cover) on 150mm Compacted thickness fine crushed rock (DGB 20)
P2	120mm Thickness concrete (f'c=32MPa) with expansion joints at max 6.0m centres and weakened plane joints at max 1.5m centres on 30mm Sand bedding
P3	Soft fall pavement by others
P4	Pavers to Architect details 120mm Thickness concrete (f'c=25MPa) with expansion joints at max 6.0m centres and weakened plane joints at max 1.5m centres on 30mm Sand bedding
P6	Landscape

DRAWING LIST

Drawing No	Drawing Title
C01	NOTES AND LEGENDS SHEET
C02	EROSION AND SEDIMENT CONTROL PLAN
C05	SITEWORKS AND STORMWATER PLAN
C10	DRIVEWAY LONGSECTION
C20	DETAILS SHEET 1
C21	DETAILS SHEET 2

DEVELOPMENT APPLICATION

Rev	Description	Eng	Draft	Date
P3	ISSUE FOR DA	JK	SB	23.04.15
P2	ISSUE FOR DA	JK	JK	21.04.15
P1	ISSUE FOR DA	JK	WW	25.08.14

Architect: CALDER FLOWER
LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008

TaylorThomsonWhitting
Consulting Engineers

Project: AGED CARE FACILITY, PRINCIPAL FERNLEIGH

Sheet Subject: NOTES AND LEGENDS SHEET

Scale : A1 NTS | Drawn WW | Authorised SB
Job No 121141 | Drawing No C01 | Revision P3

Plot File Created: Apr 28, 2015 - 2:01pm

EROSION AND SEDIMENT CONTROL NOTES

1. All work shall be generally carried out in accordance with
   (A) Local authority requirements,
   (B) EPA – Pollution control manual for urban stormwater,
   (C) LANDCOM NSW – Managing Urban Stormwater Soils and Construction ("Blue Book").
2. Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities.
   The erosion and sediment control plan shall be implemented and adapted to meet the varying situations on each on site progresses.
3. Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
4. When stormwater pits are constructed prevent site runoff entering the pits unless all fences are erected around pits.
5. Minimise the area of site being disturbed at any one time.
6. Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
7. All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
8. Control water from upstream of the site such that it does not enter the disturbed site.
9. All construction vehicles shall enter and exit the site via the temporary constructer entry/exit.
10. All vehicles leaving the site shall be cleaned and inspected before leaving.
11. Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
12. Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

1. Prior to commencement of excavation the following soil management devices must be installed.
1.1 Construct silt fences below the site and across all potential runoff sites.
   Construct temporary constructer entry/exit and divert runoff to suitable control systems.
1.3 Construct measures to divert upstream flows into existing stormwater system.
1.4 Construct sedimentation traps/basin including outlet control and overflow.
1.5 Construct turf lined swales.
1.6 Provide sandbag sediment traps upstream of existing pits.
2. Construct geotextile filter pit surround around all proposed pits as they are constructed.
3. On completion of pavement provide sand bag kerb inlet sediment traps around pits.
4. Provide and maintain a strip of turf on both sides of all roads after the construction of roads.

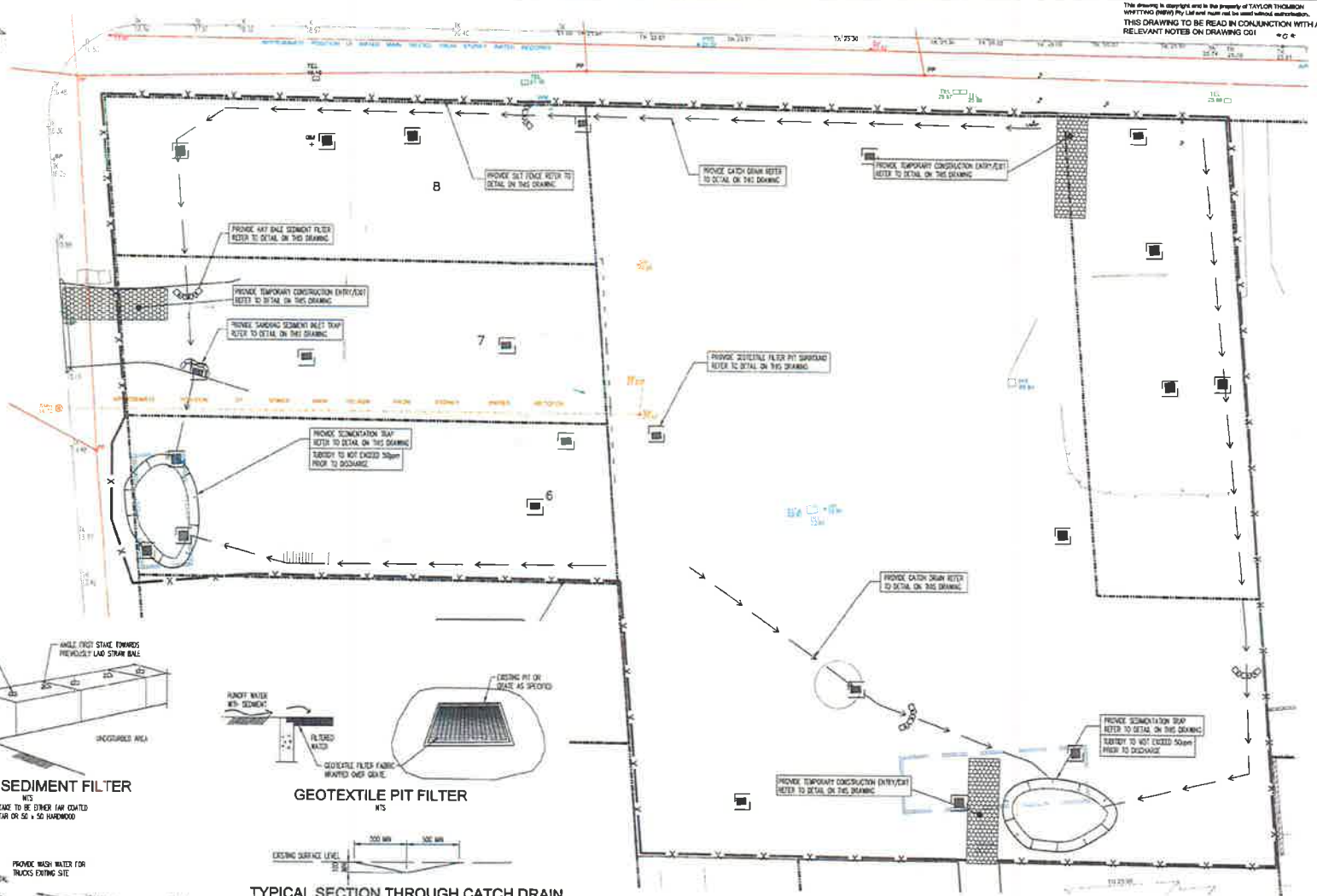
WATER QUALITY TESTING REQUIREMENTS

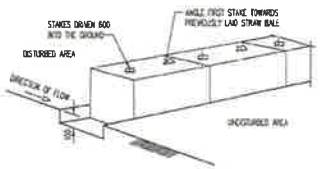
Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from the site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL LEGEND

- Batter
- Silt fence
- Stormwater pit with Geotextile filter surround
- Hay bale barriers
- Sandbag sediment trap
- Catch drain
- Overland flow path

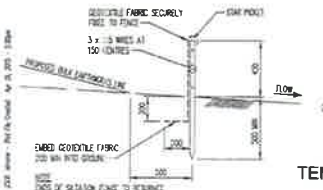




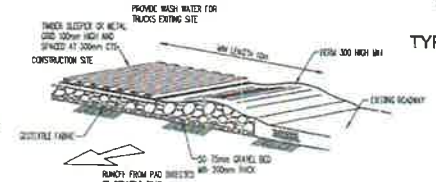
HAY BALE SEDIMENT FILTER
NTS
NOTE: STAKE TO BE EITHER FAR COATED STAR OR 50 x 50 HARDWOOD

GEOTEXTILE PIT FILTER
NTS

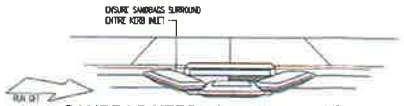
TYPICAL SECTION THROUGH CATCH DRAIN
SCALE 1: 20



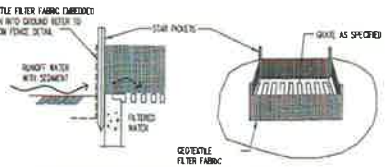
SILTATION FENCE DETAIL
SCALE 1: 20



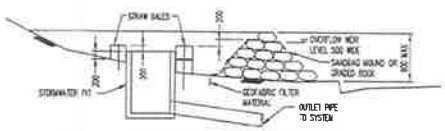
TEMPORARY CONSTRUCTION VEHICLE EXIT
NTS



SANDBAG KERB INLET SEDIMENT TRAP
NTS



GEOTEXTILE FILTER PIT SURROUND
NTS



SEDIMENTATION TRAP
NTS

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01

PRELIMINARY

Rev	Description	Eng	Draft	Date
P3	ISSUE FOR DA	SK	JW	29.04.13
P2	ISSUE FOR DA	SK	JW	27.04.13
P1	ISSUE FOR DA	SK	MB	26.04.13

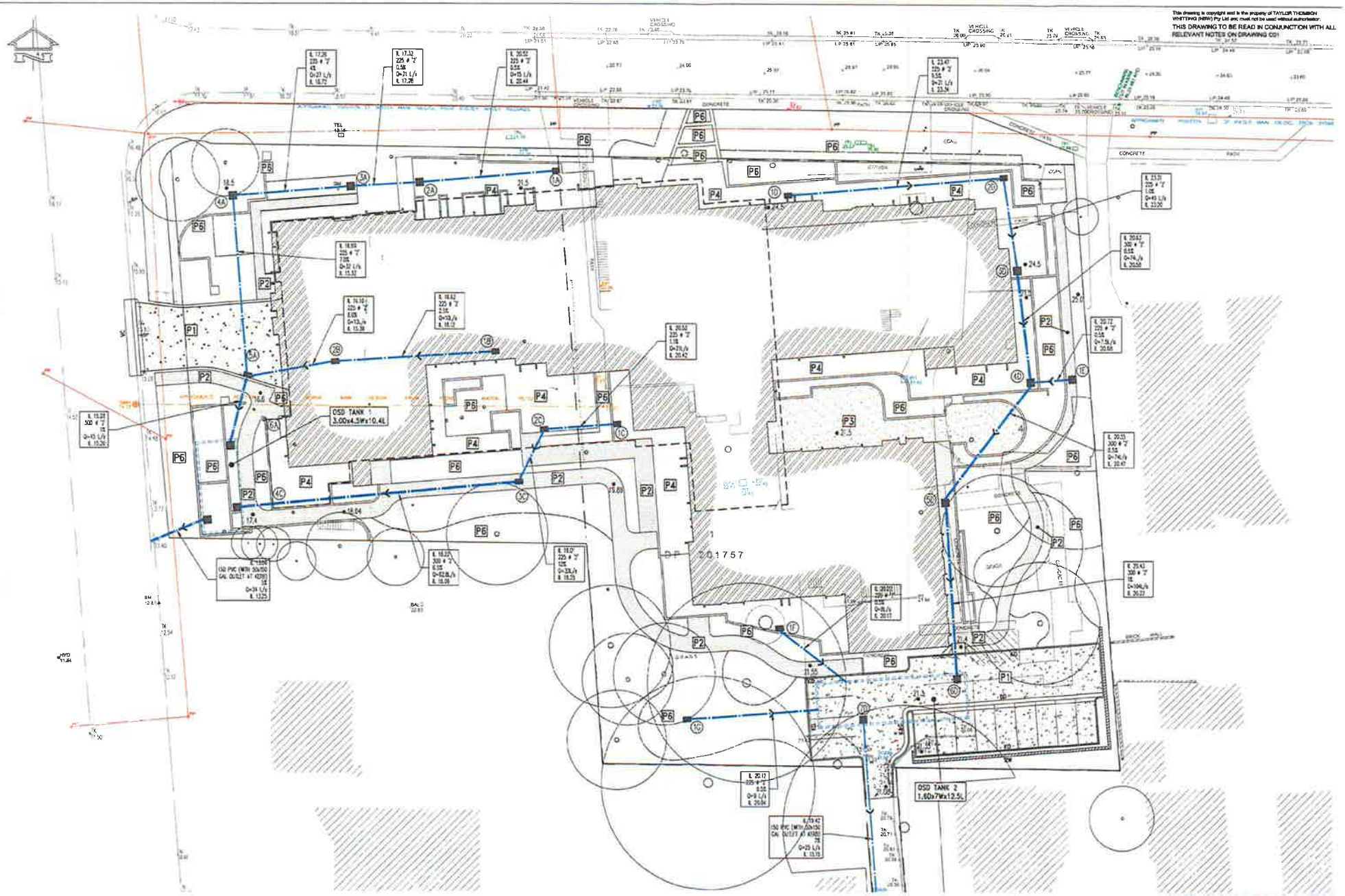
Architect
CALDER FLOWER
LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008

TaylorThomsonWhitting
Consulting Engineers
48 Chandos Street St Leonards NSW 2065
T +61 2 9438 7288 F +61 2 9438 2148 taylor@tw.com.au

Project
AGED CARE FACILITY, PRINCIPAL FERNLEIGH

Sheet Subject
EROSION AND SEDIMENT CONTROL PLAN

Scale: A1 1:200 | Drawn: MB | Authorised:
Job No: 121141 | Drawing No: C02 | Revision: P3
Plot File Created: Apr 29, 2013 - 2:00pm



THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01

PRELIMINARY

Rev	Description	Eng	Draft	Date
P4	ISSUE FOR DA	SI	SN	27.04.15
P3	ISSUE FOR DA	SI	JR	27.04.15
P2	ISSUE FOR DA	SI	SG	10.03.15
P1	ISSUE FOR DA	SI	WW	26.06.14

Architect
CALDER FLOWER
LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008

TaylorThomsonWhitting
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48 Chandos Street St.Leonards NSW 2065
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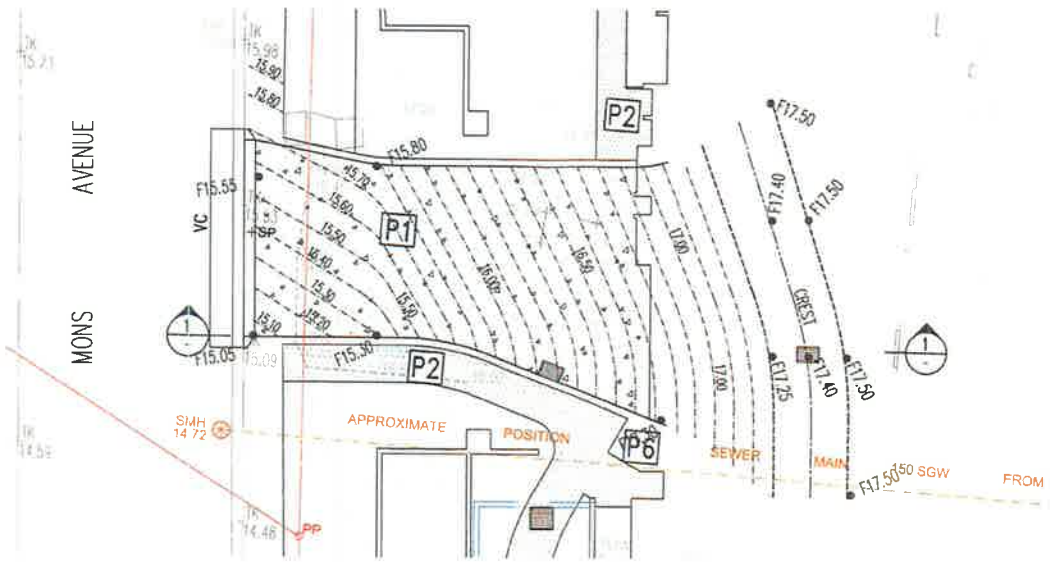
Project
AGED CARE FACILITY,
PRINCIPAL FERNLEIGH

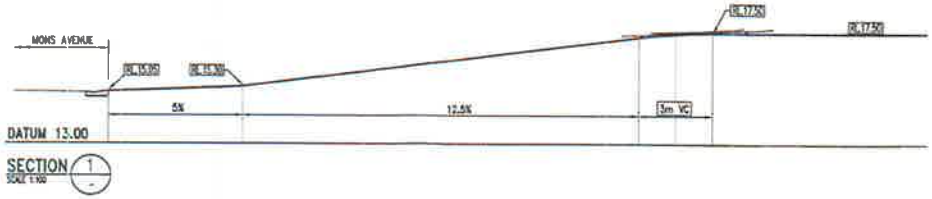
Sheet Subject
SITEWORKS AND
STORMWATER PLAN

Scale / A1	Drawn	Authorised
1:200	WW	SB

Job No	Drawing No	Revision
121141	C05	P4

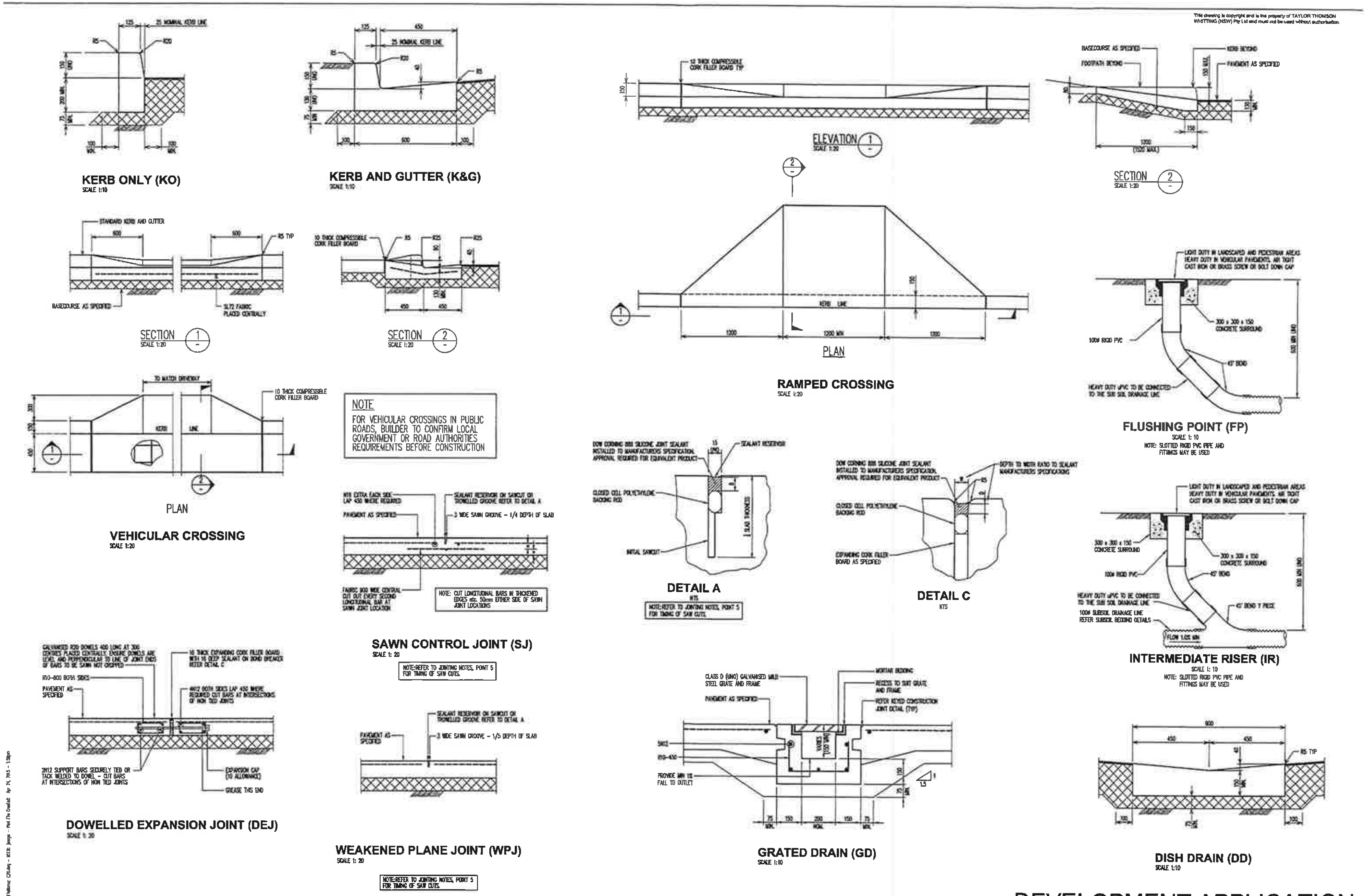
Plot File Created: Apr 28, 2015 - 1:38pm





DEVELOPMENT APPLICATION

Architect: CALDER FLOWER, LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008	TaylorThomsonWhitting, Consulting Engineers, 48 Chandos Street St Leonards NSW 2065, T +61 2 9439 7288 F: +61 2 9439 3144	Project: AGED CARE FACILITY, PRINCIPAL FERNLEIGH	Sheet Subject: DRIVEWAY LONGSECTION	Scale A1: 1:100	Drawn: WW
				Authorised: SB	
				Job No: 121141	Drawing No: C10
				Revision: P1	
				Plot File Created: Apr 24, 2015 - 3:09pm	


KERB ONLY (KO)
SCALE 1:10
KERB AND GUTTER (K&G)
SCALE 1:10
ELEVATION 1
SCALE 1:20
SECTION 2
SCALE 1:20
SECTION 1
SCALE 1:20
PLAN
RAMPED CROSSING
SCALE 1:20
FLUSHING POINT (FP)
SCALE 1: 10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED
PLAN
VEHICULAR CROSSING
SCALE 1:20
NOTE
FOR VEHICULAR CROSSINGS IN PUBLIC ROADS, BUILDER TO CONFIRM LOCAL GOVERNMENT OR ROAD AUTHORITIES REQUIREMENTS BEFORE CONSTRUCTION
DETAIL A
NTS
NOTE: REFER TO JOINTING NOTES, POINT 5 FOR TIMING OF SAW CUTS
DETAIL C
NTS
SAWN CONTROL JOINT (SJ)
SCALE 1: 20
NOTE: REFER TO JOINTING NOTES, POINT 5 FOR TIMING OF SAW CUTS
INTERMEDIATE RISER (IR)
SCALE 1: 10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED
DOWELLED EXPANSION JOINT (DEJ)
SCALE 1: 20
WEAKENED PLANE JOINT (WPJ)
SCALE 1: 20
NOTE: REFER TO JOINTING NOTES, POINT 5 FOR TIMING OF SAW CUTS
GRATED DRAIN (GD)
SCALE 1:10
DISH DRAIN (DD)
SCALE 1:10

DEVELOPMENT APPLICATION

Rev	Description	Eng	Draft	Date
P2	ISSUE FOR DA	SI	JW	23.04.15
P1	ISSUE FOR DA	SI	WW	28.08.14

Architect: CALDER FLOWER
LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008

TaylorThomsonWhitting
Consulting Engineers
48 Chandos Street St.Leonards NSW 2065

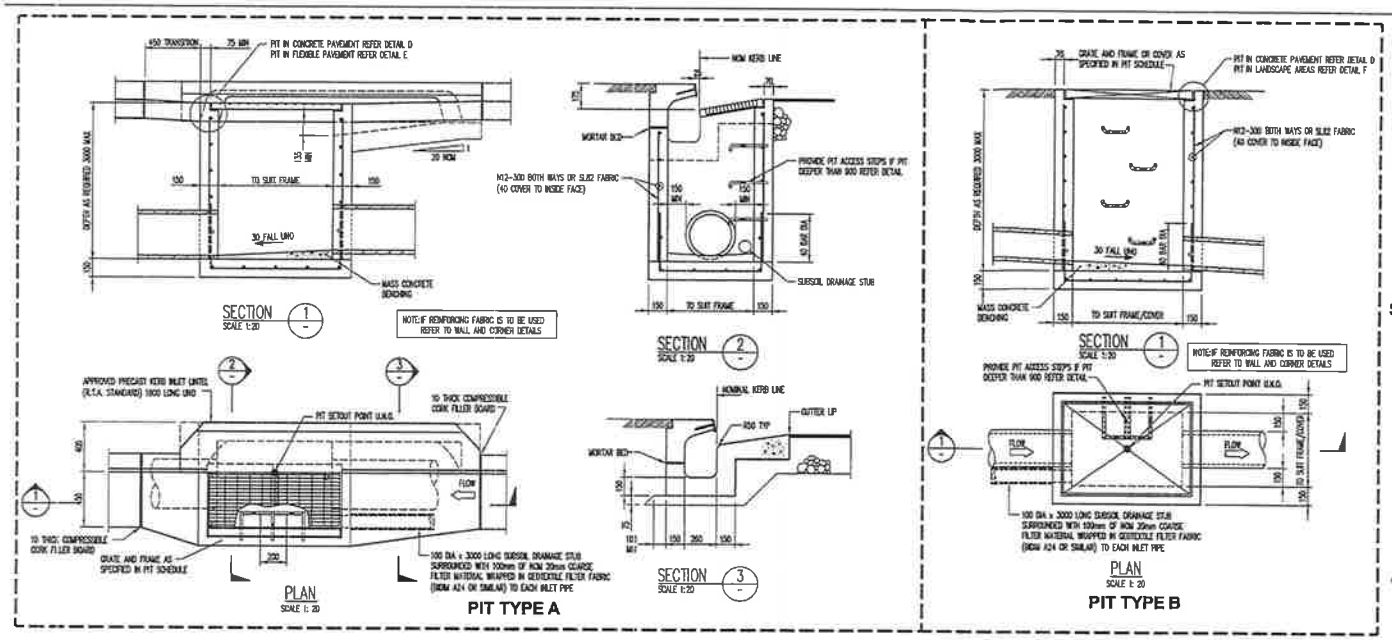
Project: AGED CARE FACILITY, PRINCIPAL FERNLEIGH

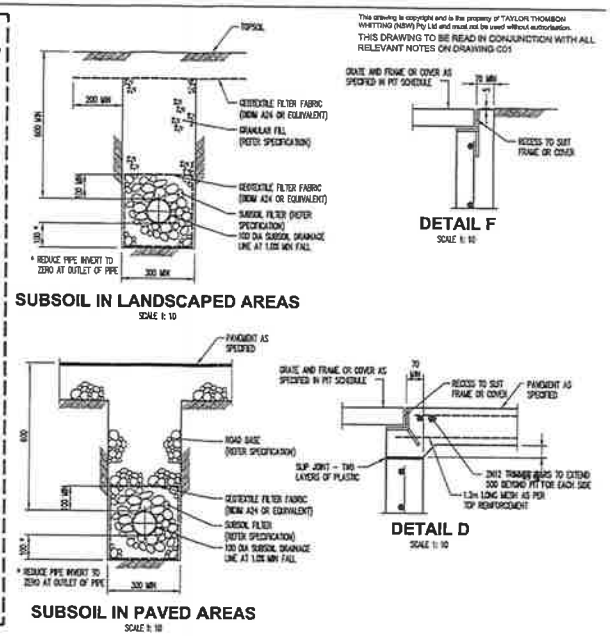
Sheet Subject: DETAILS SHEET 1

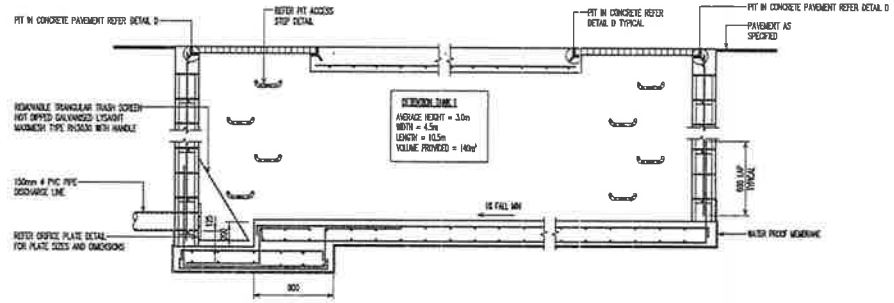
Scale: A1	Drawn	Authorised
AS SHOWN	WW	SB

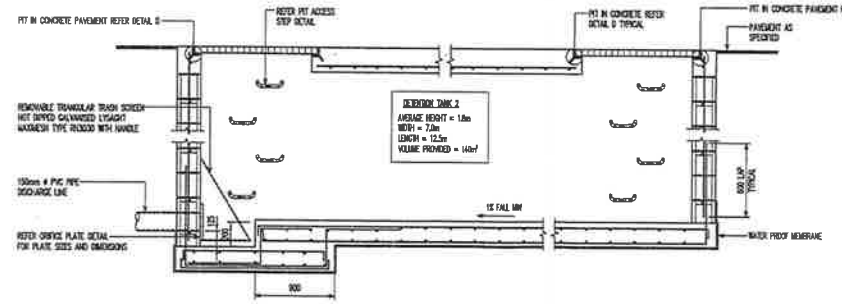
Job No	Drawing No	Revision
121141	C20	P2

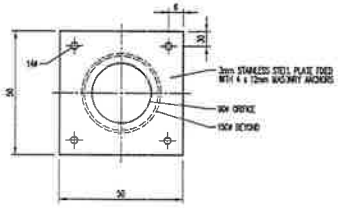
Plot File Created: Apr 24, 2015 - 1:58pm

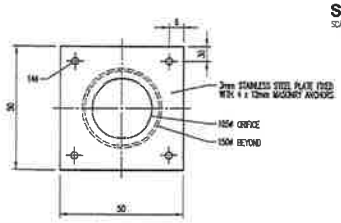












THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01

DEVELOPMENT APPLICATION

Architect	CALDER FLOWER LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2000
	TaylorThomsonWhitting Consulting Engineers 48 Cranbrook Street St Leonards NSW 2065 T: +61 2 9439 7288 F: +61 2 9439 3148
Project	AGED CARE FACILITY, PRINCIPAL FERNLEIGH
Sheet Subject	DETAILS SHEET 2
Scale - A1	AS SHOWN
Drawn	WW
Authorised	SB
Job No.	121141
Drawing No.	C21
Revision	P2

Plot File Created: Apr 24, 2015 - 2:00pm

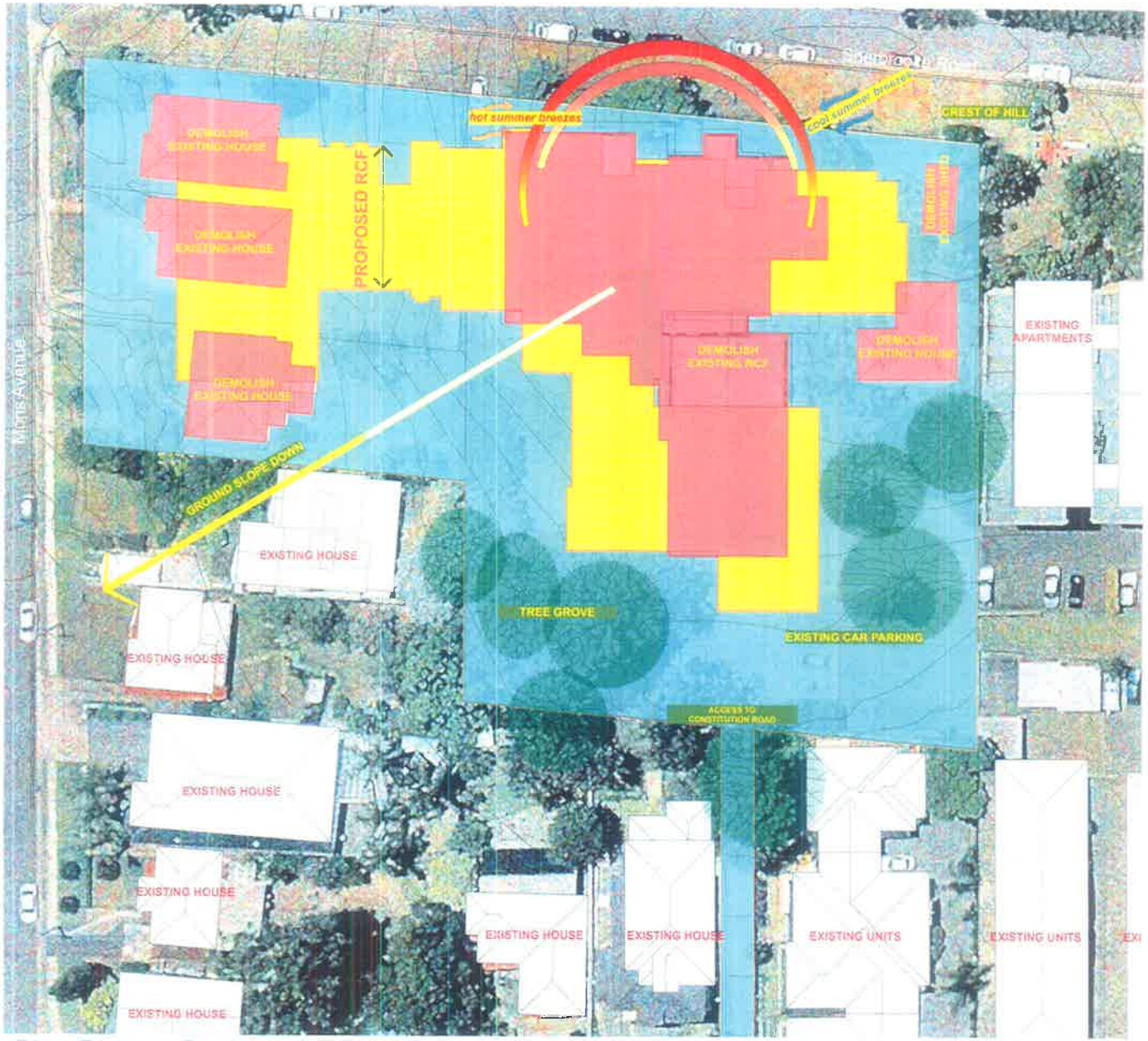
CALDER FLOWER ARCHITECTS

Project Manager

GR CONSULTING

Opal specialist aged care

AMENDED PLANS



Site Plan + Site Analysis

Locality Plan

APPROVED PLANS

CALDER FLOWER ARCHITECTS

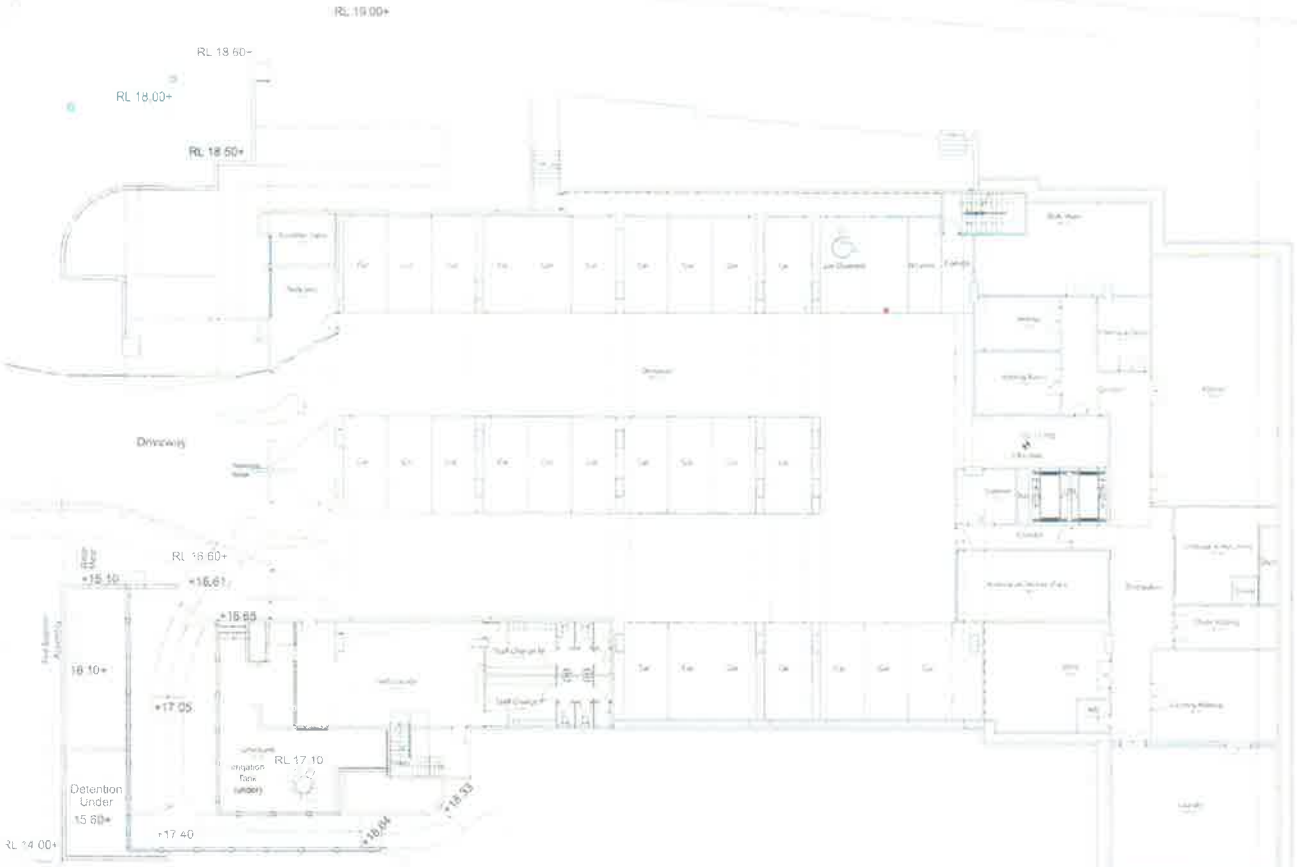
GR CONSULTING

Opal specialist aged care

Opal Fernleigh Renewal
Smiths Lane Road West Ryde NSW 2112

Site Plan + Site Analysis

Date issued	29/04/2015	North
Scale	refer scale bar	
Project No.	Status	Drawing No.	Issue
13150	DA	11	B



1:200 printed at A2

metres

0 5 10 15 20 25 30

CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal

specialist aged care

Opal Fernleigh Renewal

Schenbrooke Road West Ryde NSW 2112

Plan Level 1

Project No	Stage	Drawing No	Issue
13150	DA	12	B

CALDER FLOWER ARCHITECTS

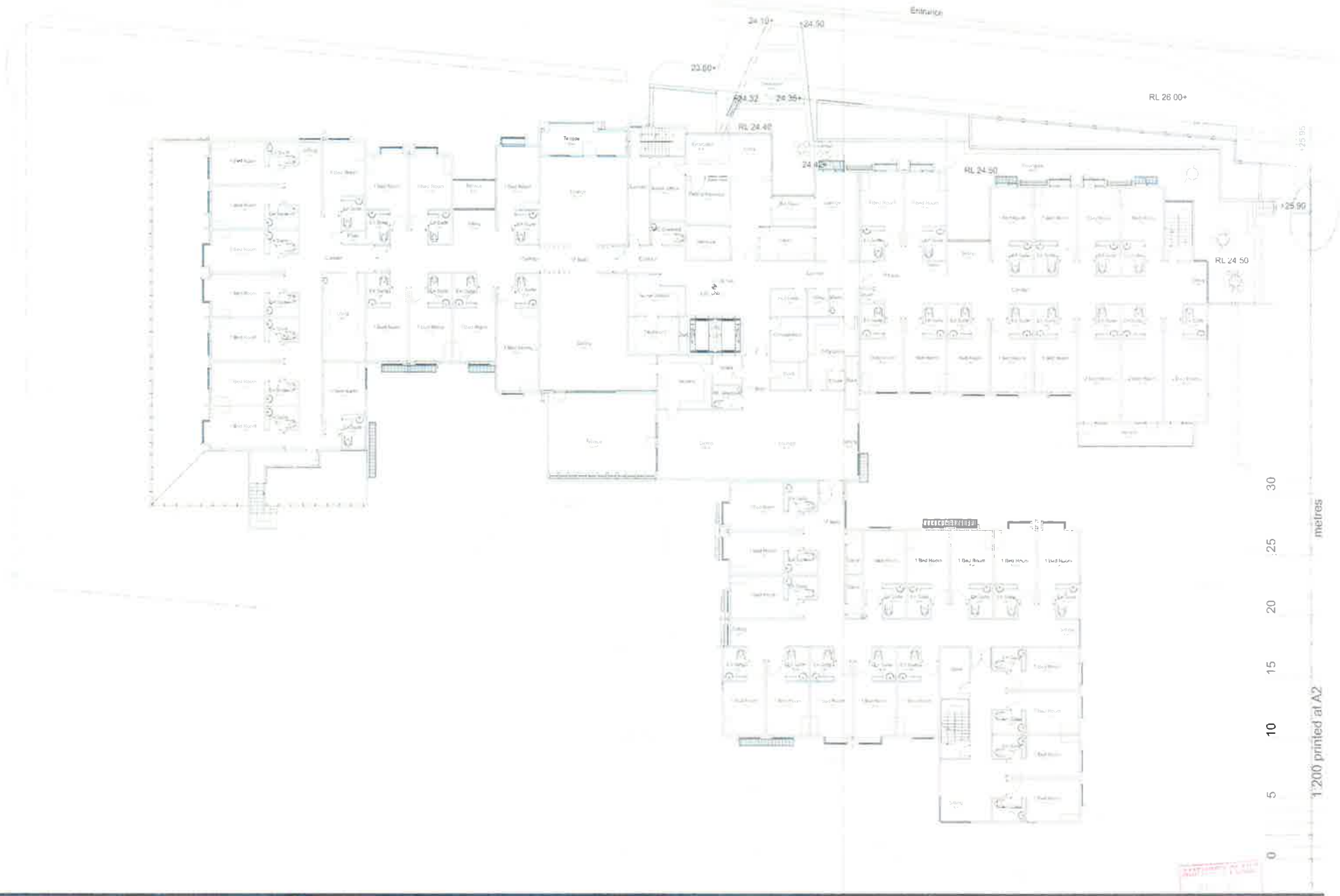
GR CONSULTING

Opal specialist aged care

Opal Fernleigh Renewal

Plan Level 2

Project No.	Stage	Drawing No.	Issue
13150	DA	13	B



CALDER FLOWER ARCHITECTS

Project Manager

GR CONSULTING

Opal specialist aged care

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Project
Opal Fernleigh Renewal
Scherbrooke Road West Ryde NSW 2112

Drawing Title
Plan Level 3

Date created 29/04/2015
Scale
North

Project No	Stage	Drawing No	Issue
13150	DA	14	B

0 5 10 15 20 25 30

metres

1:200 printed at A2

CALDER FLOWER ARCHITECTS

grc GR CONSULTING

Opal specialist aged care

Opal Fernleigh Renewal

Scherbrooke Road West Ryde NSW 2112

Plan Level 4

Date created	29/04/2015

Project No	Stage	Drawing No	Issue
13150	DA	15	B

0
5
10
15
20
25
30
metres
1:200 printed at A2
Date created 26/04/2015
Project No 13150
Status DA
Drawing No 16
Issue B
North
Project
Opal Fernleigh Renewal
Schenbrooke Road West Ryde NSW 2112
Drawing Title
Roof Plan
Opal
specialist aged care
GR CONSULTING
CALDER FLOWER ARCHITECTS

North Elevation - Sherbrooke Avenue

East Elevation

South Elevation

West Elevation - Mons Avenue

0 5 10 15 20 25 30 metres

1:200 printed at A2

CALDER FLOWER ARCHITECTS

GR CONSULTING

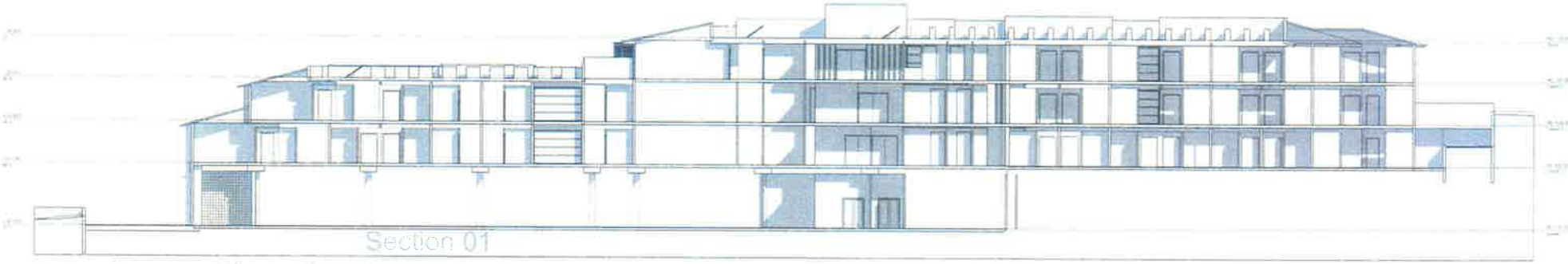
Opal specialist aged care

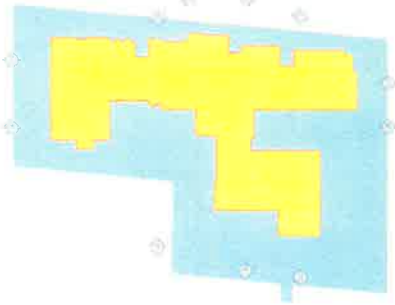
Opal Fernleigh Renewal

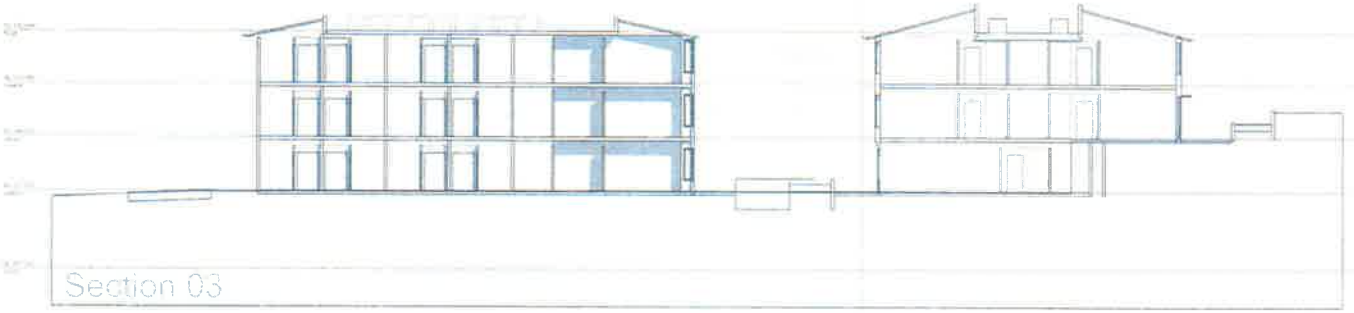
Sherbrooke Road West Ryde NSW 2117

Elevations

Project No.	Stage	Drawing No.	Issue
13150	DA	17	B







0 5 10 15 20 25 30 metres

1:200 printed at A2

CALDER FLOWER ARCHITECTS

Project Manager

GR CONSULTING

Opal

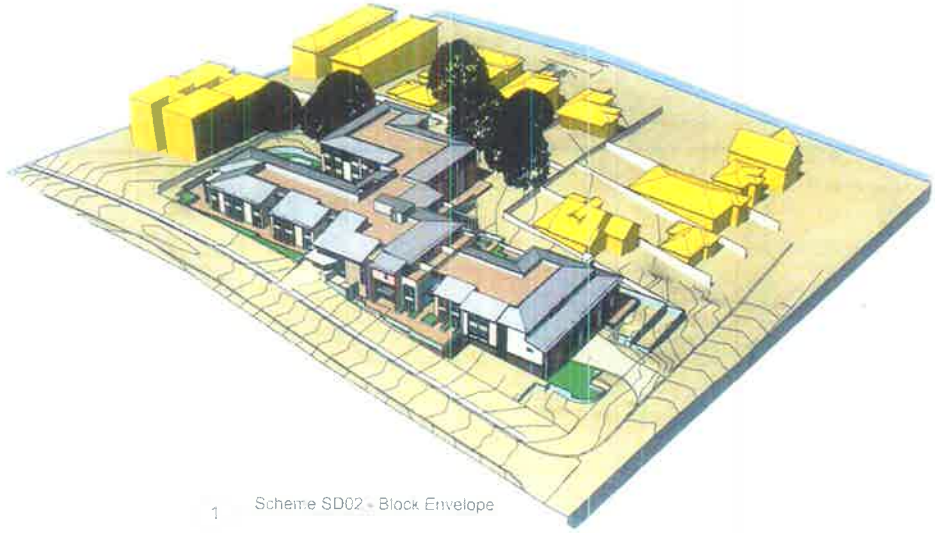
specialist aged care

Opal Fernleigh Renewal

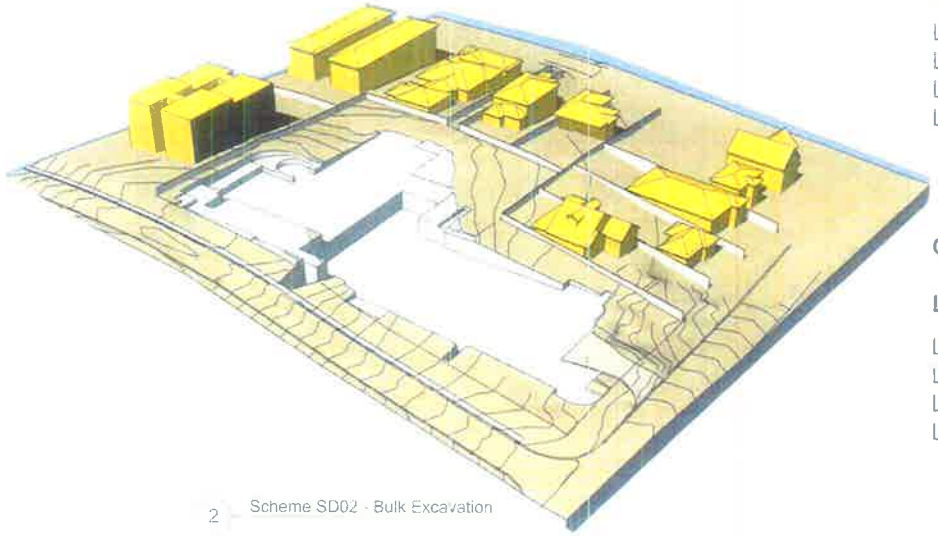
Scherbrooke Road West Ryde NSW 2112

Sections

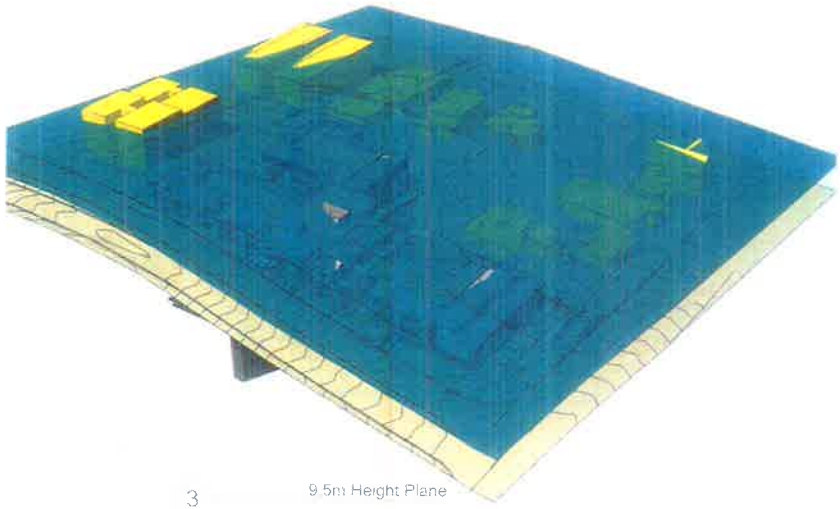
Date created	29/04/2015		
Scale	refer scale bar		
Project No	Stage	Drawing No	Issue
13150	DA	18	B



1 Scheme SD02 - Block Envelope



2 Scheme SD02 - Bulk Excavation



3 9.5m Height Plane

GBA Summary

Level	Area
Level 1	1,777
Level 2	2,397
Level 3	2,353
Level 4	1,758
	8,285 m²

GFA Summary

Level	Area
Level 1	132
Level 2	2,279
Level 3	2,251
Level 4	1,677
	6,339 m²

Bed Count

Level	Quantity
Level 2	52
Level 3	51
Level 4	38
	141

Room Count (Bedroom)

Level	Quantity
Level 2	45
Level 3	47
Level 4	35
	127

Bedroom Type Count

Level	Room Type	Quantity
Level 2		
	1 Bed Room	38
	2 Bed Room	7
Level 3		
	1 Bed Room	43
	2 Bed Room	4
Level 4		
	1 Bed Room	32
	2 Bed Suite	3
		127

CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal specialist aged care

Opal Fernleigh Renewal

Calculations

13150 DA 19 B

LEVEL THREE

LEVEL FOUR

LEVEL ONE

LEVEL TWO

INDIVIDUAL SMOKE COMPARTMENTS SHOWN IN COLOURED HATCHING

CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal specialist aged care

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Project: Opal Fernleigh Renewal
Schenscopke Road West Ryde NSW 2112

Drawing Title: Smoke Compartments

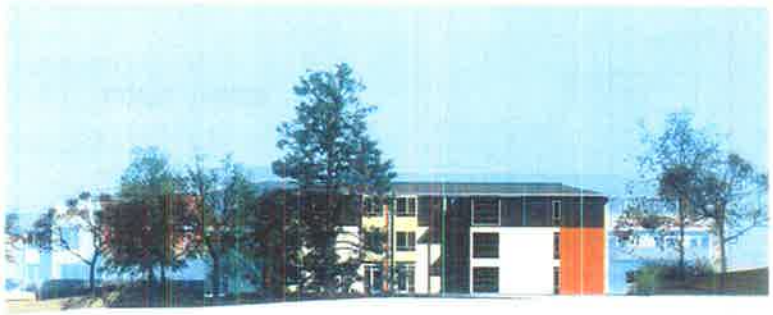
Date created: 29/04/2015

North

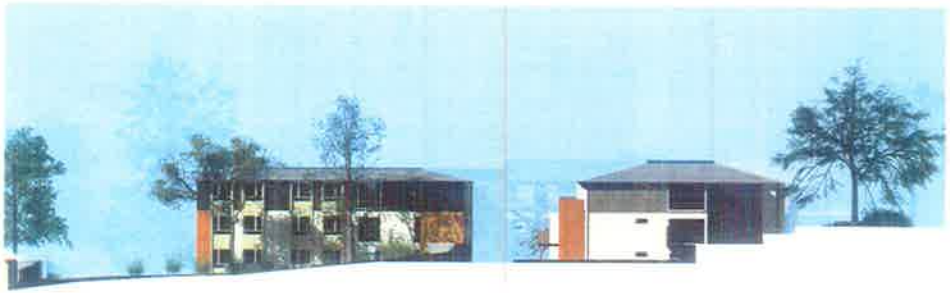
Project No	Stage	Drawing No	Issue
13150	DA	20	B

North Elevation Shelbrooke Road

West Elevation Mons Avenue



Sourth Elevation



East Elevation

CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal specialists aged care

Opal Fernleigh Renewal

Cameo Elevations and Views

13150 DA 21 B

CALDER FLOWER ARCHITECTS

Project Manager: GR CONSULTING

Client: Opal specialist aged care

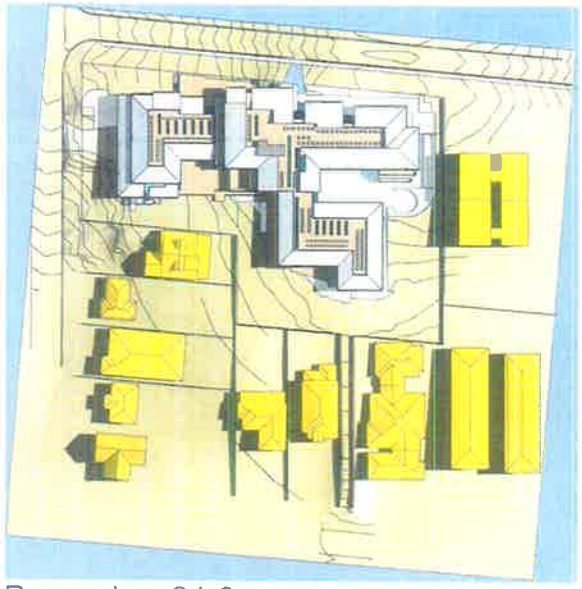
Notes

Project: Opal Fernleigh Renewal
Sherbrooke Road West Ryde NSW 2112

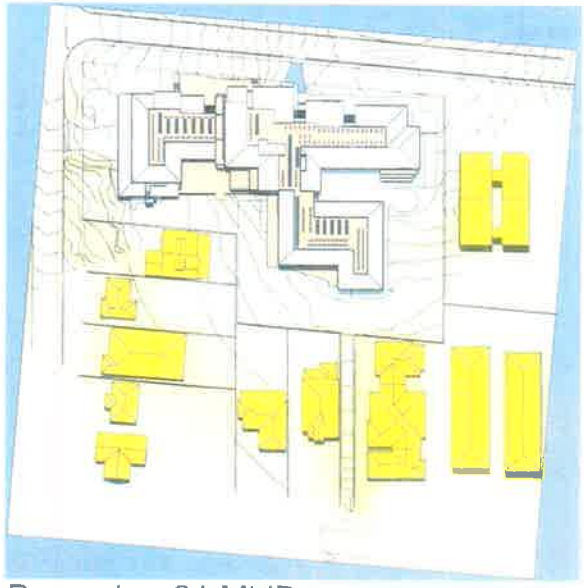
Drawing Title: Site Setbacks

Date Issued: 29/04/2011
Scale: 1:250
North

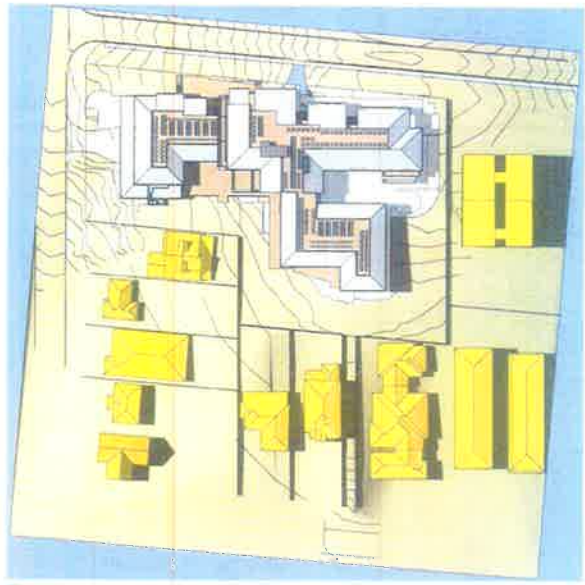
Project No: 13150
Stage: DA
Drawing No: 22
Issue: B



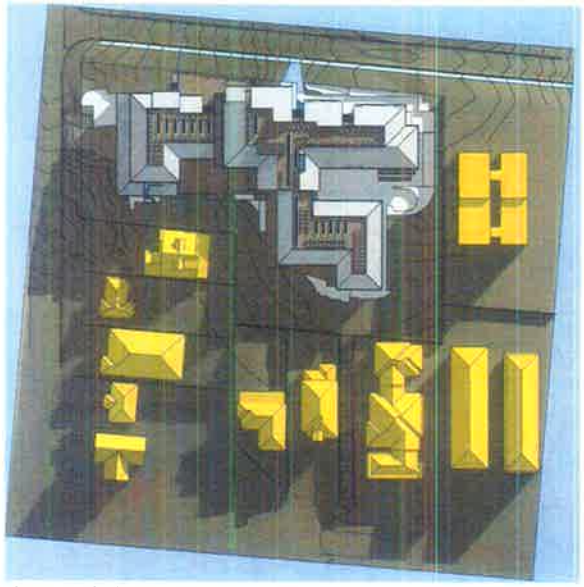
December 21 9am



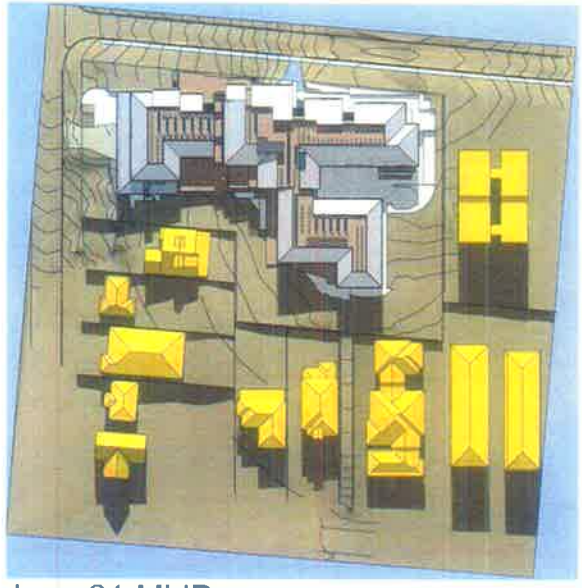
December 21 MidDay



December 21 3pm



June 21 9am



June 21 MidDay

June 21 3pm

CALDER FLOWER ARCHITECTS

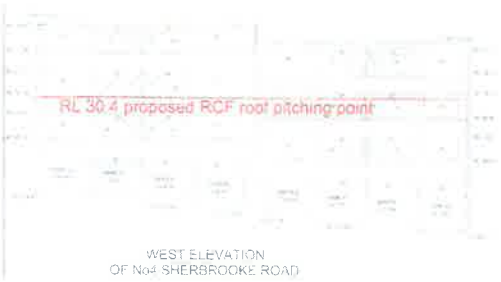
GR CONSULTING

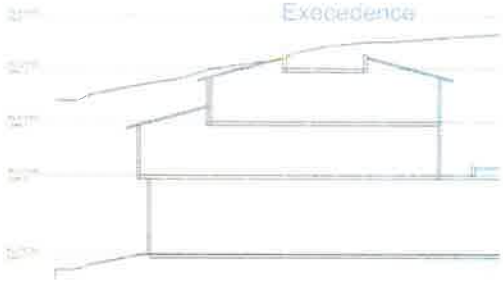
Opal specialist aged care

Opal Fernleigh Renewal

Shadow Diagrams

Project No	Stage	Drawing No	Issue
13150	DA	23	B

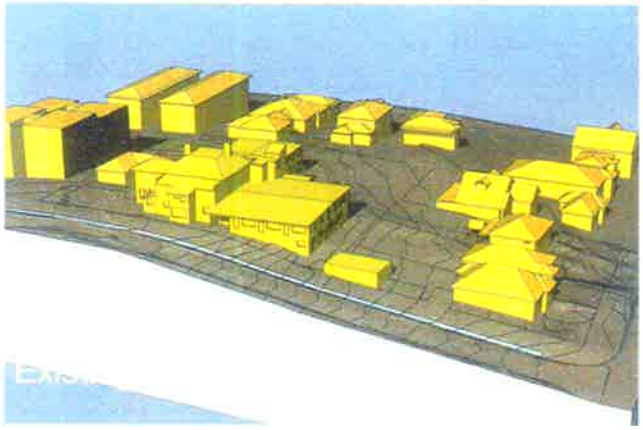




9.5m height excedence highlighted

Sherbrooke Road Height Plane Study

Mons Avenue Height Plane Study



CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal specialist aged care

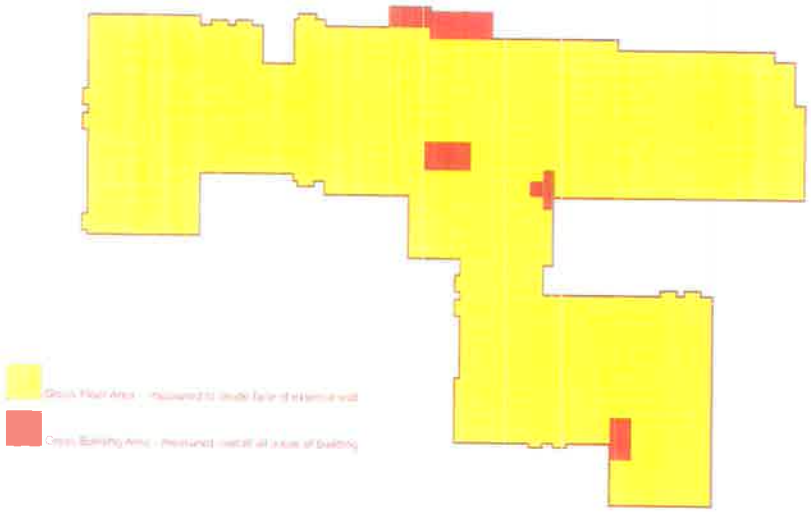
Opal Fernleigh Renewal

Schofbrooke Road West Ryde NSW 2112

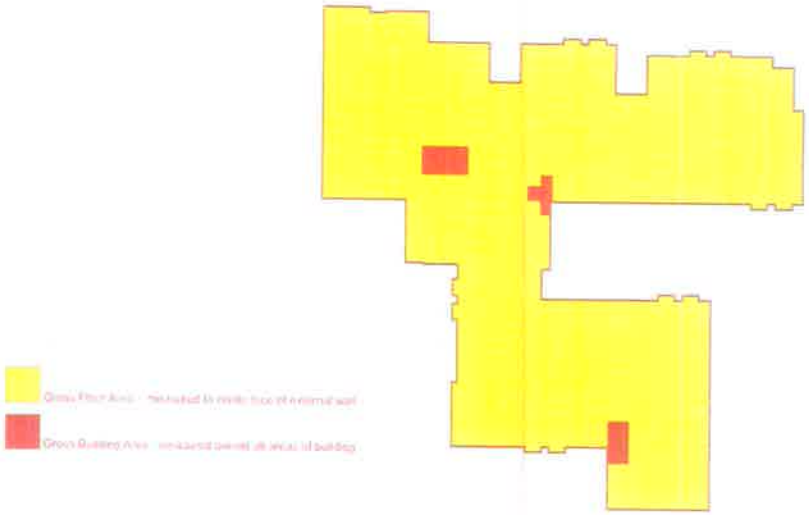
Height Studies

13150 DA 24 B

Level 3



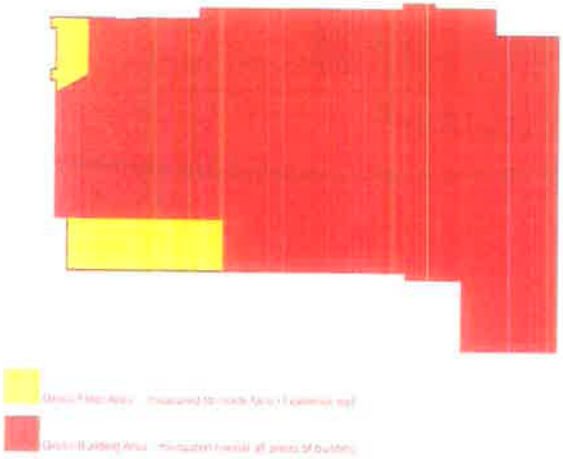
Level 4



GBA Summary

Level	Area
Level 1	1,777
Level 2	2,397
Level 3	2,353
Level 4	1,758
	8,285 m²

Level 1



Level 2

GFA Summary

Level	Area
Level 1	132
Level 2	2,279
Level 3	2,251
Level 4	1,677
	6,339 m²

Site Area 6,639 sm aprox

CALDER FLOWER ARCHITECTS

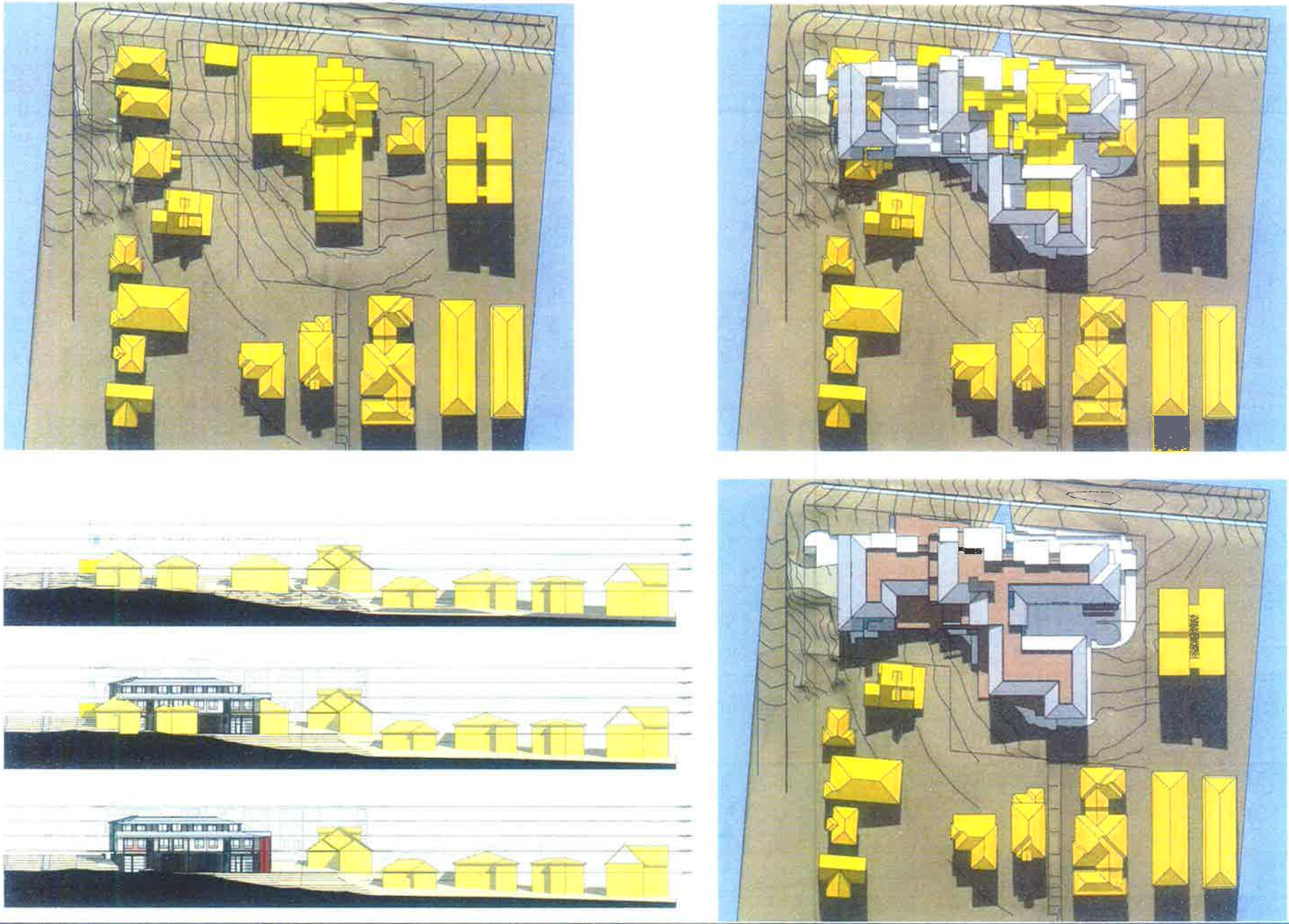
GR CONSULTING

Opal

Opal Fernleigh Renewal

GFA Claculations

Project No	Scale	Drawing No	Issue
13150	DA	25	B



CALDER FLOWER ARCHITECTS

Project Manager: GRC GR CONSULTING

Opal specialist aged care

Project: Opal Fernleigh Renewal

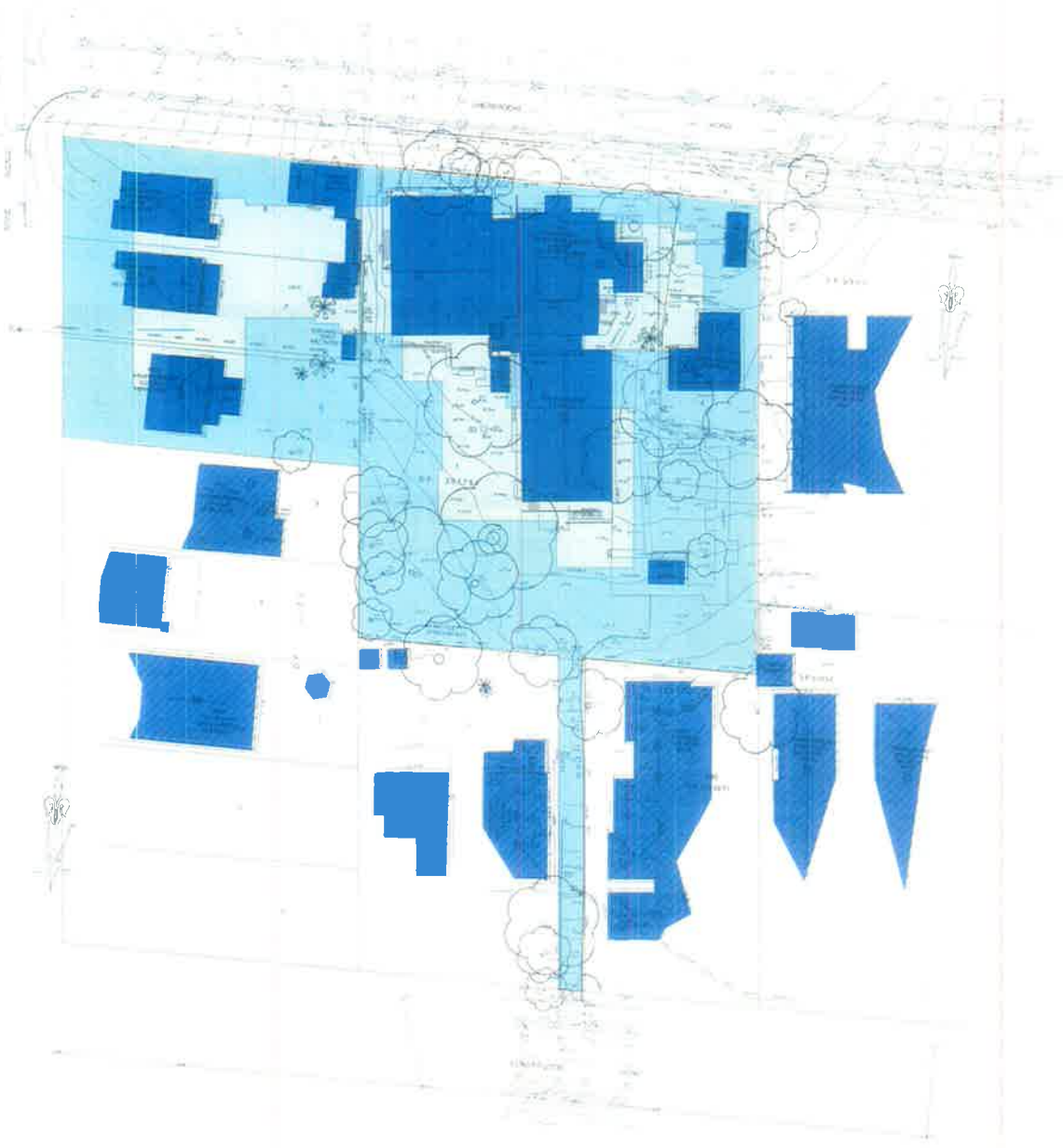
Schwiegrooke Road West Ryde NSW 2112

Date created: 29/04/2016

Scale: refer scale bar

Drawing title: **Existing + New Figure Ground**

Project No	Stage	Drawing No	Issue
13150	DA	30	B



CALDER FLOWER ARCHITECTS

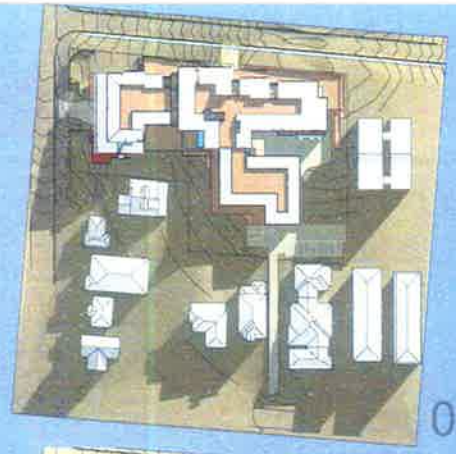
GR CONSULTING

Opal
specialist aged care

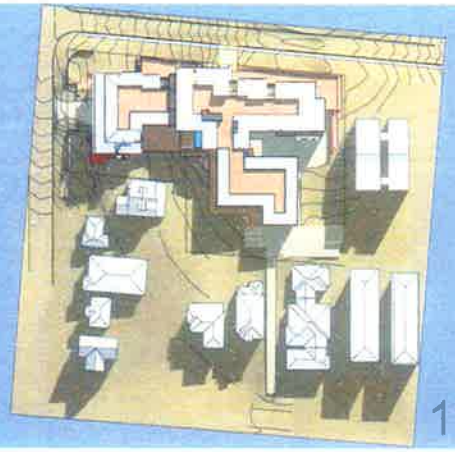
Opal Fernleigh Renewal

Site Setback Comparisons

Project No.	Stage	Drawing No.	Issue
13150	DA	31	B



09:00



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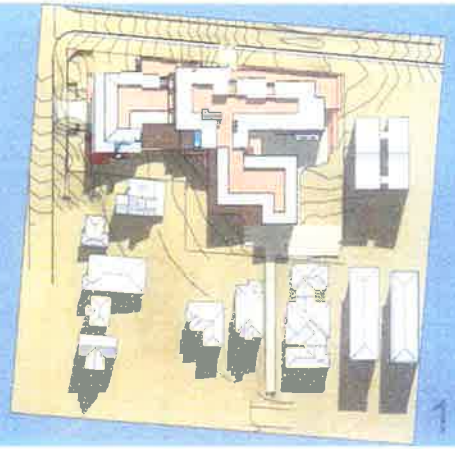

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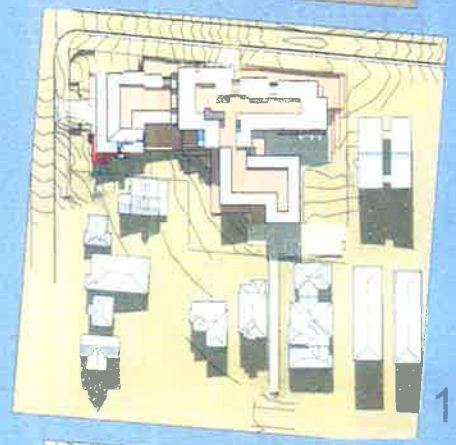
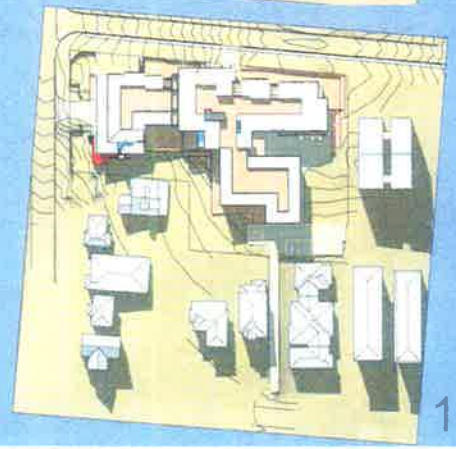
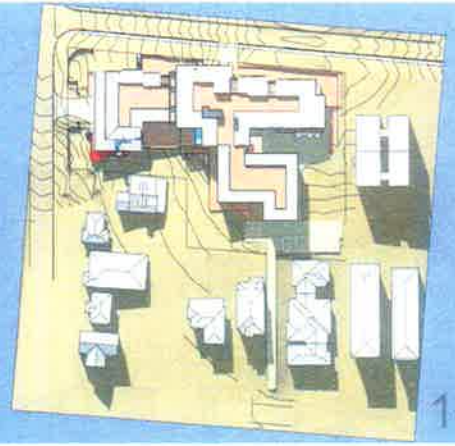


12:00

Shadow Diagrams
June 21st
1 hour intervals
24 hr time signals



13:00



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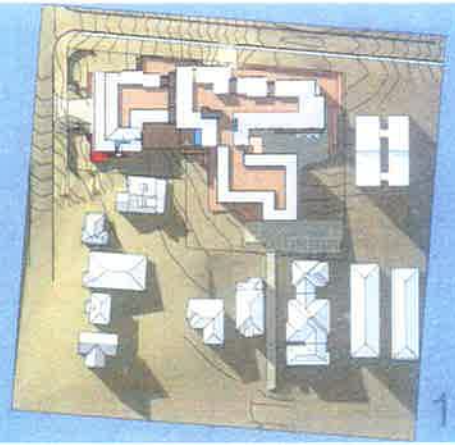


15:00

CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal specialist aged care

Opal Fernleigh Renewal

Shadows Jun 21 1hr intervals

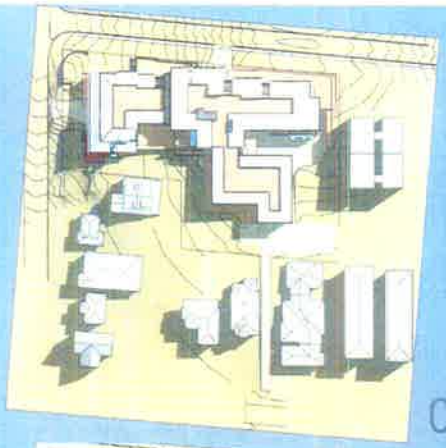
Date created 29/04/2015

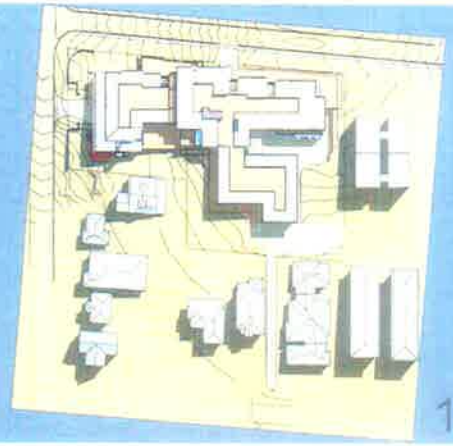
Project No. 13150

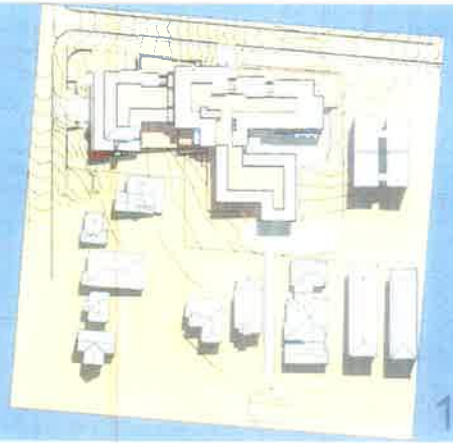
Drawn DA

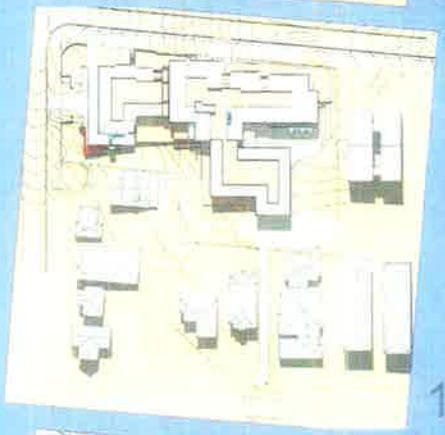
Drawing No. 32

Issue B



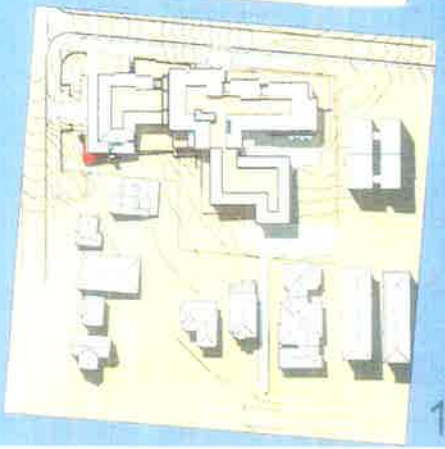


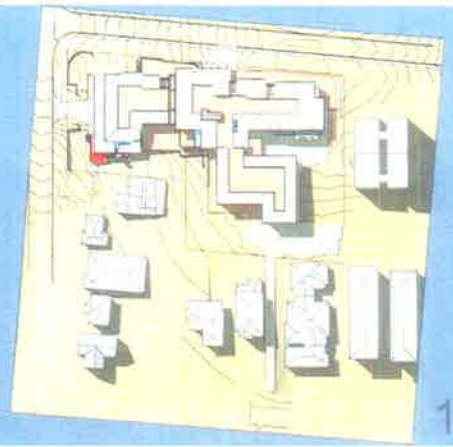


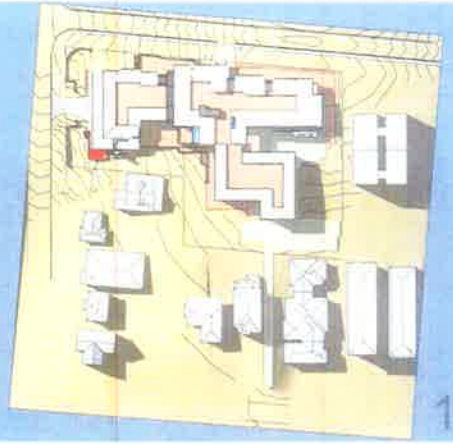


Shadow Diagrams
September 21st
1 hour intervals

24 hr time signals







CALDER FLOWER ARCHITECTS

Project Manager

GR CONSULTING

Opal

specialist aged care

Notes

Do not scale from this drawing. Use figured dimensions only.
Contact the architect for clarifications if required.
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Calder Flower Architects are not liable for any loss, damage, claim, cost demand as a result of the use or receipt of drawings issued in DWG format

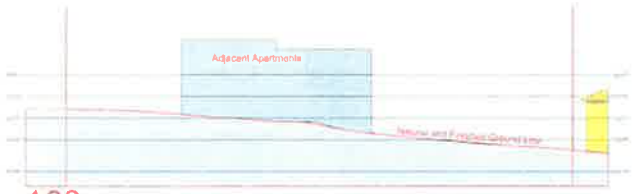
Project
Opal Fernleigh Renewal
Scherbrooke Road West Ryde NSW 2112

Drawing Title
Shadows Sep 21 1hr Intervals

Date created 29/04/2015

North

Project No	Stage	Drawing No	Issue
13150	DA	33	B



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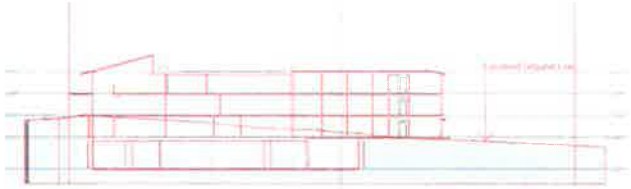

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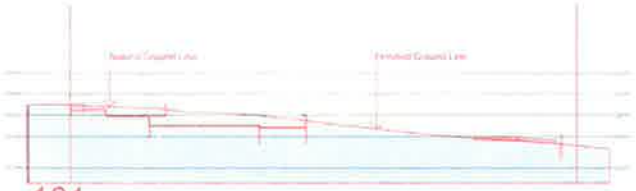

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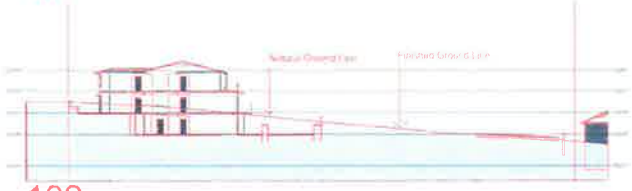
106



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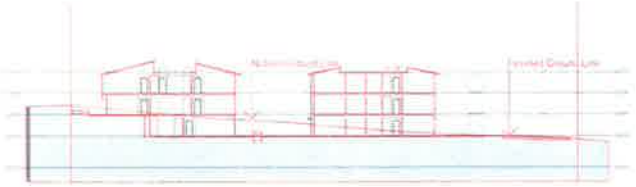
103

108



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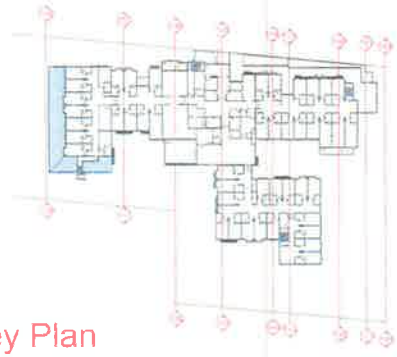

Key Plan

CALDER FLOWER ARCHITECTS

GR CONSULTING

Opal specialist aged care

Notes:
Do not scale from this drawing. Use figured dimensions only.
Contact the architect for clarifications if required.
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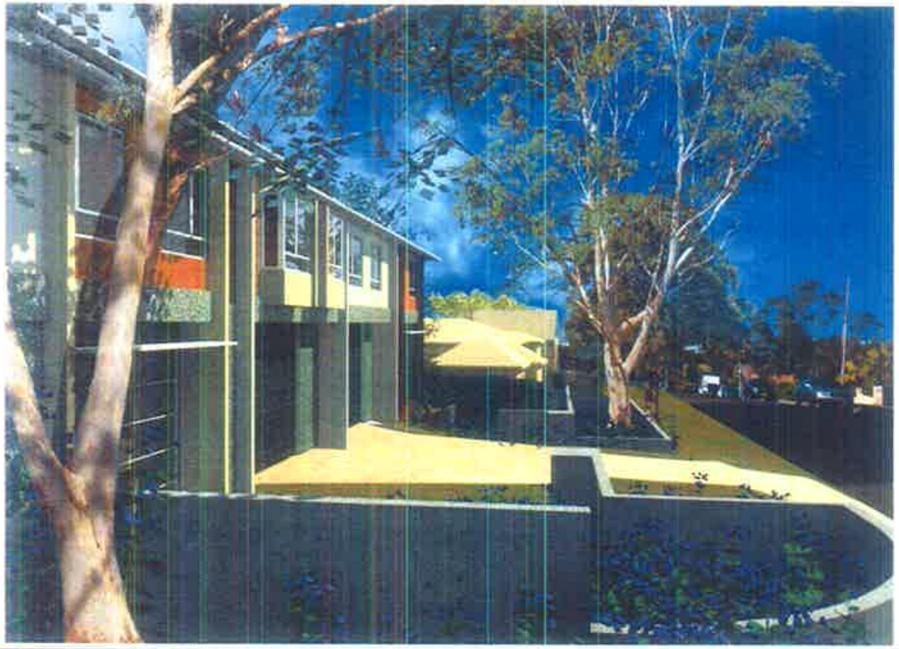
Project
Opal Fernleigh Renewal
Scherbrooke Road West Ryde NSW 2112

Drawing Title
Site Cross Sections

Date created 29/04/2015
Scale

Project No	Stage	Drawing No	Issue
13150	DA	34	B



CALDER FLOWER ARCHITECTS

Project Manager

GR CONSULTING

Client

Opal
specialist aged care

Project
Opal Fernleigh Renewal
Stansbrooke Road West Ryde NSW 2112

Drawing title
Views

Project No.	Stage	Drawing No.	Issue
13150	DA	35	B

AGED CARE FACILITY,PRINCIPAL FERNLEIGH

GENERAL NOTES

REFERENCE DRAWINGS

Consultant	Dwg Title	Dwg No	Rev	Date

SURVEY AND SERVICES INFORMATION

SURVEY

UNDERGROUND SERVICES - WARNING

BOUNDARY AND EASEMENT NOTE

KERBING NOTES

SITEWORKS NOTES

STORMWATER DRAINAGE NOTES

PIT SCHEDULE

Type	Description	Cover (Clear Opening)	Number

BULK EARTHWORKS NOTES

CONCRETE FINISHING NOTES

JOINTING NOTES

Vehicular Pavement Jointing

Pedestrian Footpath Jointing

SAFETY IN DESIGN

EXISTING SERVICES

EXISTING STRUCTURES

EXISTING TREES

GROUNDWATER

EXCAVATIONS

GROUND CONDITIONS

HAZARDOUS MATERIALS

CONFINED SPACES

MANUAL HANDLING

WATER POLLUTION

SITE ACCESS/EGRESS

VEHICLE MOVEMENT

SITEWORKS LEGEND

CONCRETE NOTES

EXPOSURE CLASSIFICATION

CONCRETE

FORMWORK

PAVEMENT LEGEND

NOTES

P1

P2

P3

P4

P5

DRAWING LIST

Drawing No	Drawing Title
C01	NOTES AND LEGENDS SHEET
C02	EROSION AND SEDIMENT CONTROL PLAN
C05	SITEWORKS AND STORMWATER PLAN
C10	DRIVEWAY LONGSECTION
C20	DETAILS SHEET 1
C21	DETAILS SHEET 2

DEVELOPMENT APPLICATION

Architect
CALDER FLOWER
LVL 2, 140 MYRTLE ST CHIPPENDALE NSW 2008

TaylorThomsonWhitting
Consulting Engineers

Project
AGED CARE FACILITY,
PRINCIPAL FERNLEIGH

Sheet Subject
NOTES AND LEGENDS SHEET

Scale: NTS

121141 C01 P3

EROSION AND SEDIMENT CONTROL NOTES

WATER QUALITY TESTING REQUIREMENTS

EROSION AND SEDIMENT CONTROL LEGEND

HAY BALE SEDIMENT FILTER

GEOTEXTILE PIT FILTER

TYPICAL SECTION THROUGH CATCH DRAIN

SILTATION FENCE DETAIL

TEMPORARY CONSTRUCTION VEHICLE EXIT

SANDBAG KERB INLET SEDIMENT TRAP

GEOTEXTILE FILTER PIT SURROUND

SEDIMENTATION TRAP

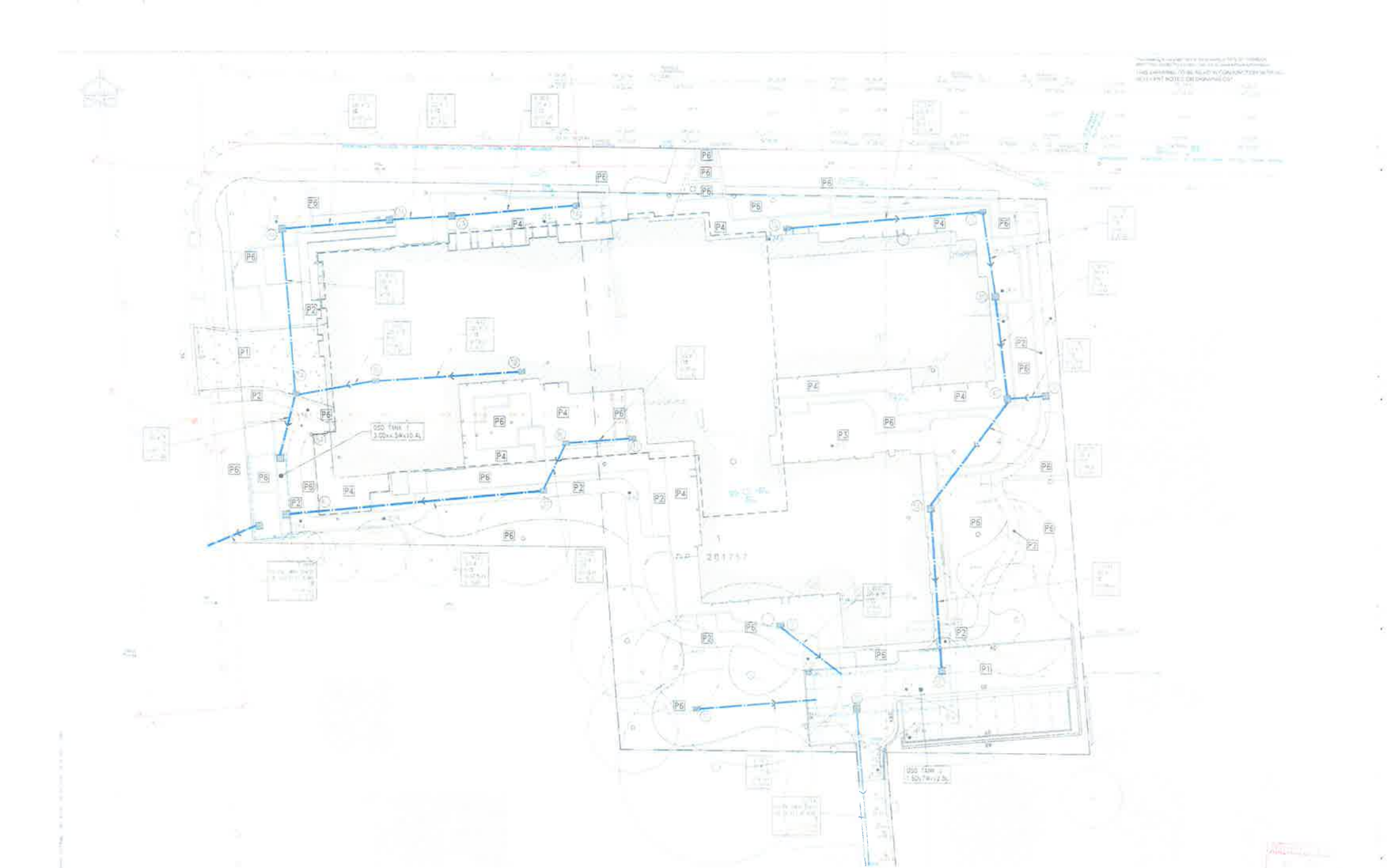
CALDER FLOWER

TaylorThomsonWhitting

AGED CARE FACILITY
PRINCIPAL FERNLEIGH

EROSION AND SEDIMENT CONTROL PLAN

121141 C09 P3



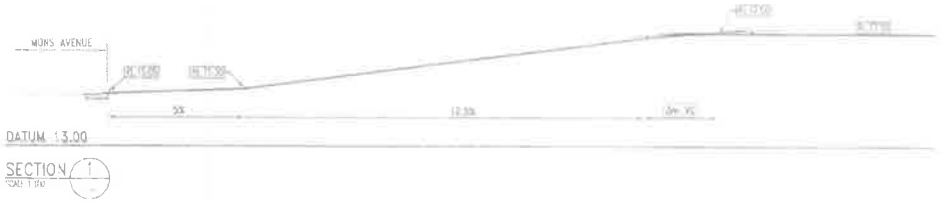
CALDER FLOWER

TaylorThomsonWhitting

AGED CARE FACILITY
PRINCIPAL FERNLEIGH

SITEWORKS AND
STORMWATER PLAN

121141 C05 P4



DEVELOPMENT APPLICATION

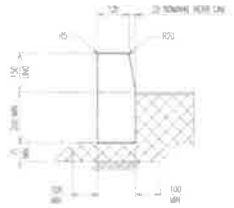
CALDER FLOWER

TaylorThomsonWhitting

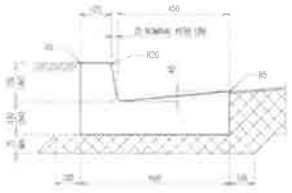
AGED CARE FACILITY
PRINCIPAL FERNLEIGH

DRIVEWAY LONGSECTION

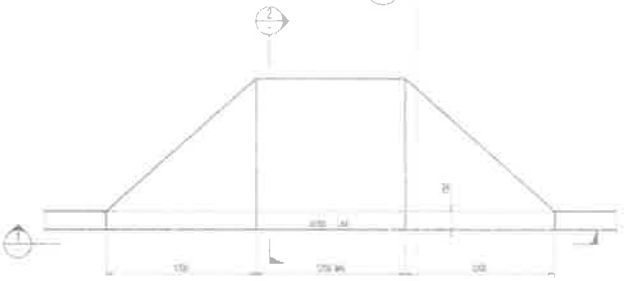
121141 C10 P1



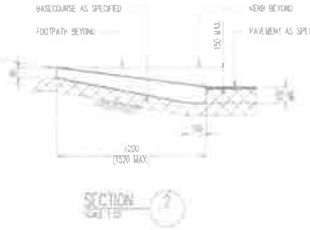
KERB ONLY (KO)
SCALE 1:10

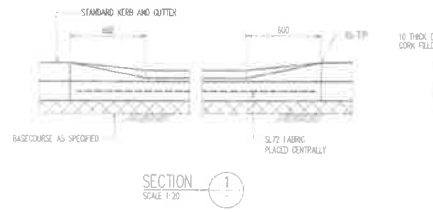


KERB AND GUTTER (K&G)
SCALE 1:10

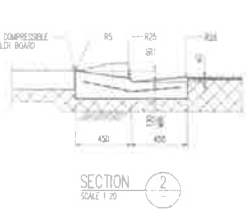


RAMPED CROSSING
SCALE 1:20

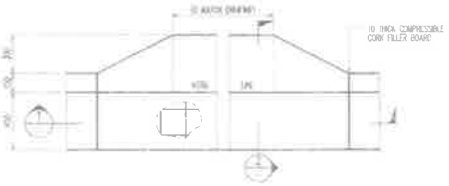




SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20

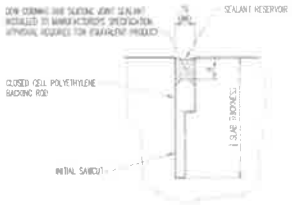


PLAN

VEHICULAR CROSSING
SCALE 1:20

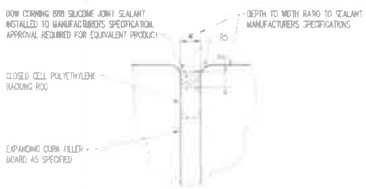
NOTE

FOR VEHICULAR CROSSINGS IN PUBLIC ROADS, BUILDER TO CONFIRM LOCAL GOVERNMENT OR ROAD AUTHORITIES REQUIREMENTS BEFORE CONSTRUCTION

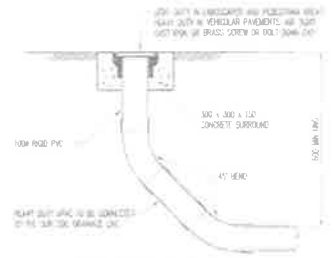


DETAIL A
NTS

NOTE REFER TO JOINTING NOTES, POINT 5 FOR TIMING OF SAW CUTS

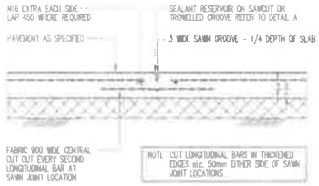


DETAIL C
NTS

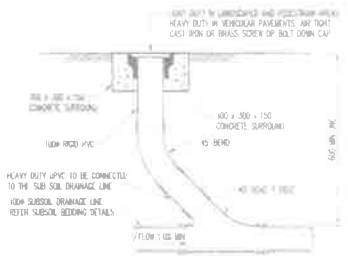


FLUSHING POINT (FP)
SCALE 1:10

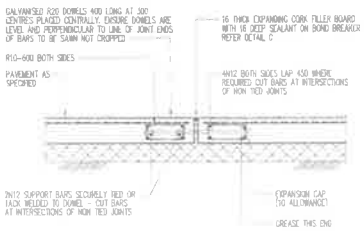
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



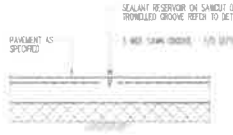
SAWN CONTROL JOINT (SJ)
SCALE 1:20



INTERMEDIATE RISER (IR)
SCALE 1:10

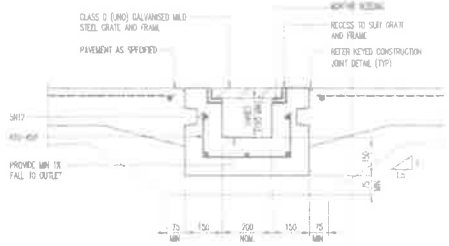


DOWELLED EXPANSION JOINT (DEJ)
SCALE 1:20

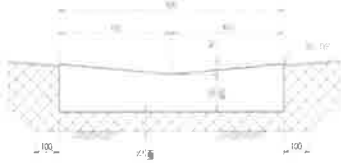


WEAKENED PLANE JOINT (WPJ)
SCALE 1:20

NOTE: REFER TO JOINTING NOTES, POINT 5 FOR TIMING OF SAW CUTS



GRATED DRAIN (GD)
SCALE 1:10



DISH DRAIN (DD)
SCALE 1:10

DEVELOPMENT APPLICATION

CALDER FLOWER
LVL 2, 143 MYRTLE ST CHIPPENDALE NSW 2008

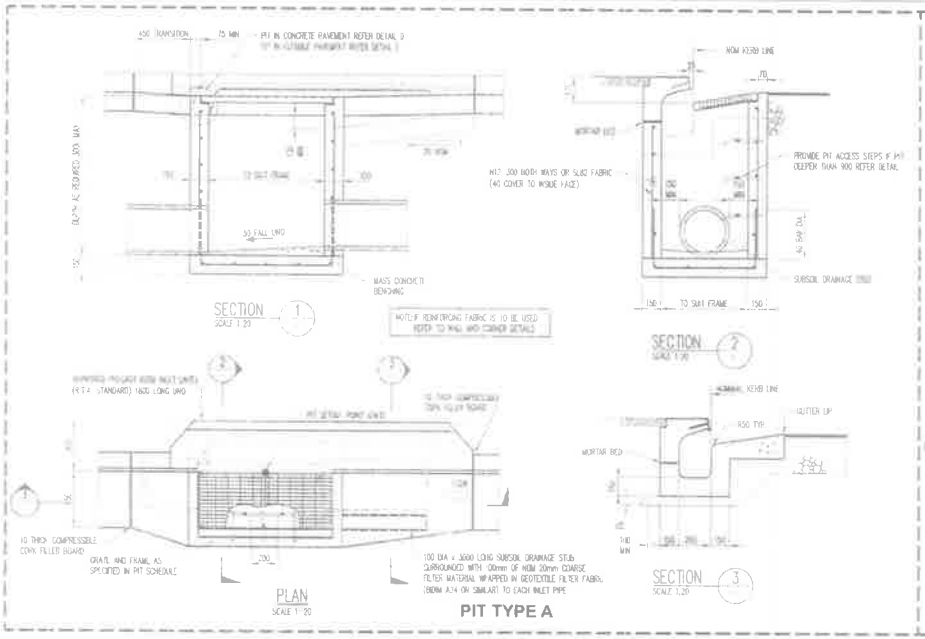
TaylorThomsonWhitting
Consulting Engineers
49 Clarence Street Sydney NSW 2000
T +61 2 9279 7266 F (02) 9279 7155

AGED CARE FACILITY,
PRINCIPAL FERNLEIGH

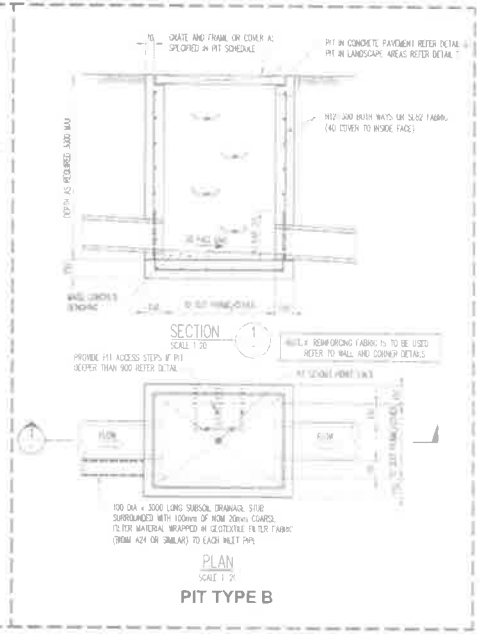
DETAILS SHEET 1

AS SHOWN

121141 C20 P2

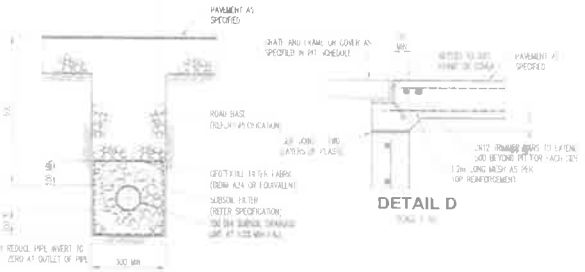


PIT TYPE A

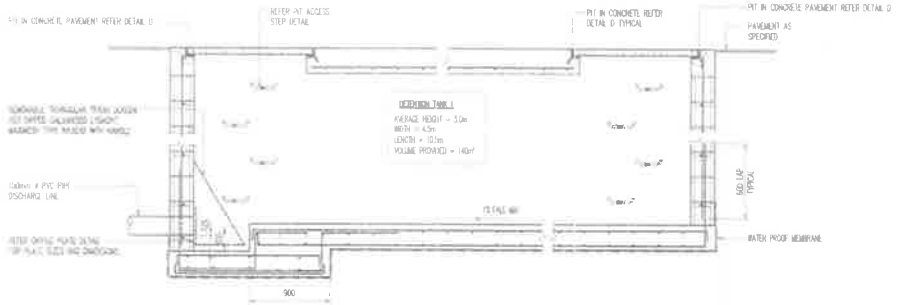


PIT TYPE B

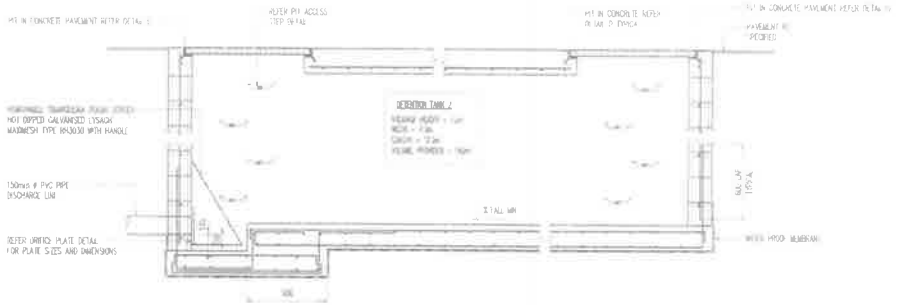
SUBSOIL IN LANDSCAPED AREAS
SCALE 1:10



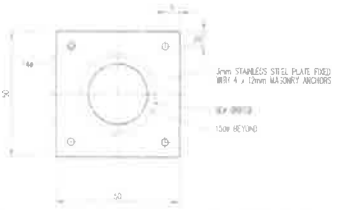
SUBSOIL IN PAVED AREAS
SCALE 1:10



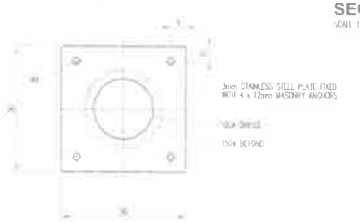
SECTION THROUGH DETENTION TANK 1
SCALE 1:20



SECTION THROUGH DETENTION TANK 2
SCALE 1:20



ORIFICE PLATE DETAIL - DETENTION TANK 1



ORIFICE PLATE DETAIL - DETENTION TANK 2

DEVELOPMENT APPLICATION

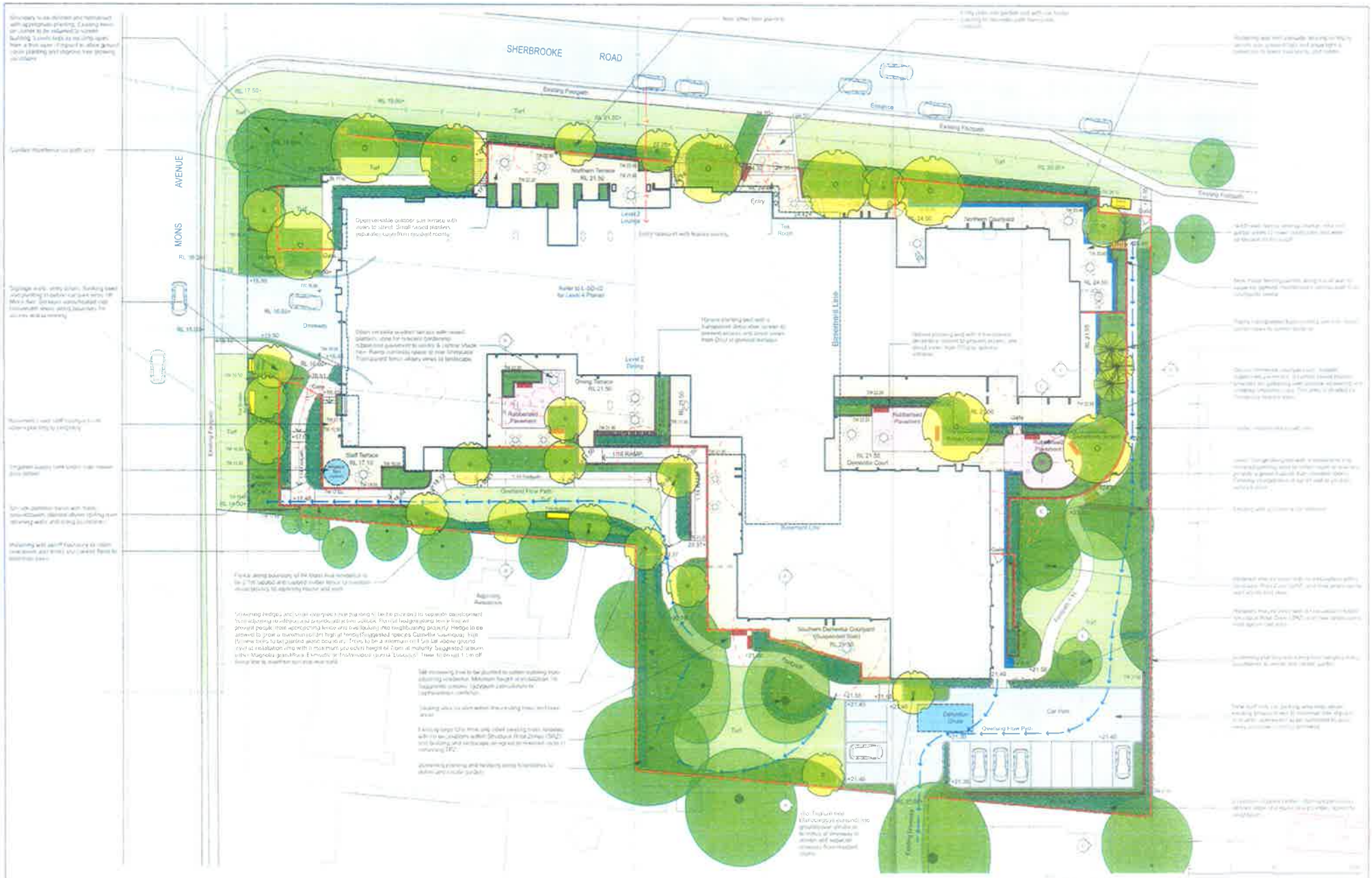
CALDER FLOWER
LEVEL 2, 140 MYRTLE ST, CHIPPENDALE, NSW, 2008

TaylorThomsonWhitting
Consulting Engineers
60 Chandos Street, St Leonards, NSW, 2065

AGED CARE FACILITY,
PRINCIPAL FERNLEIGH

DETAILS SHEET 2

121141 | C21 | P2



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LANDSCAPE ARCHITECTS

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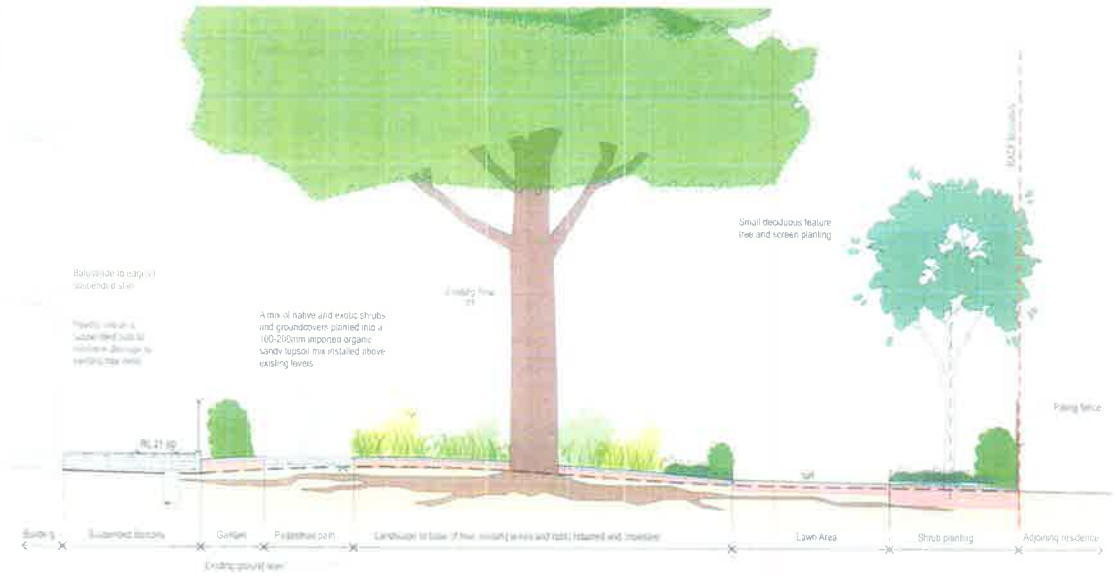
Trees to be removed
Trees to be retained

Fernleigh RACF
8 Sherbrooke Road West Ryde NSW

Landscape Concept Plan

L-SD-01

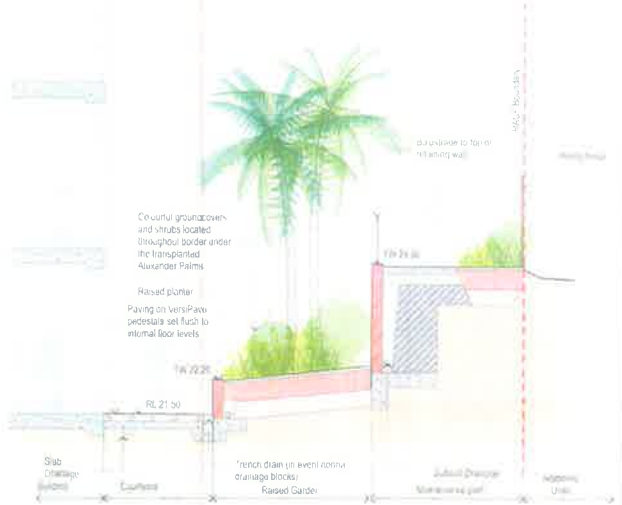
8



Section A - Southern Dementia Courtyard and Existing Tree
scale 1:50@ A1

Section C - Dementia Courtyard Raised Planter & Terraces
scale 1:50@ A1

Section Elevation B - Dining Terrace, Raised Planter and Boundary Treatment
scale 1:50@ A1



Section D - Dementia Courtyard Terrace & Raised Planter
scale 1:50@ A1

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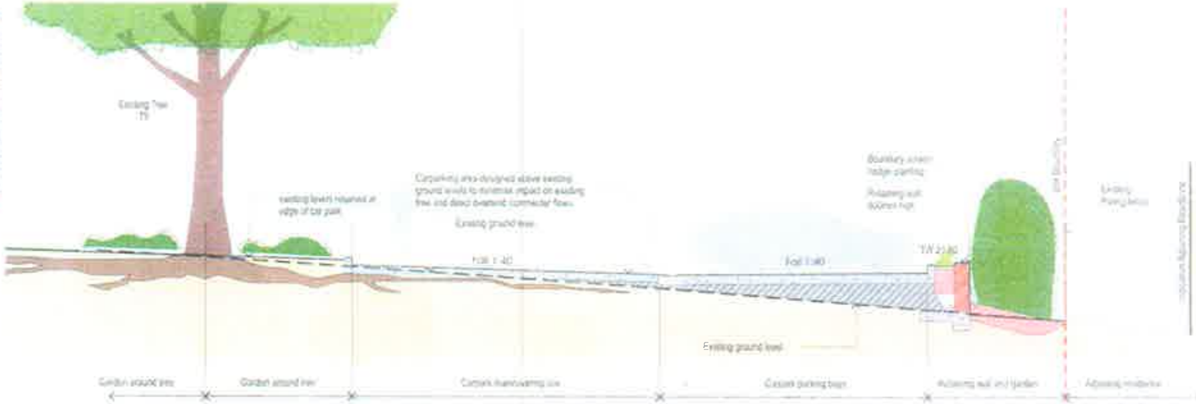
Landscape Sections L-SD-02 B

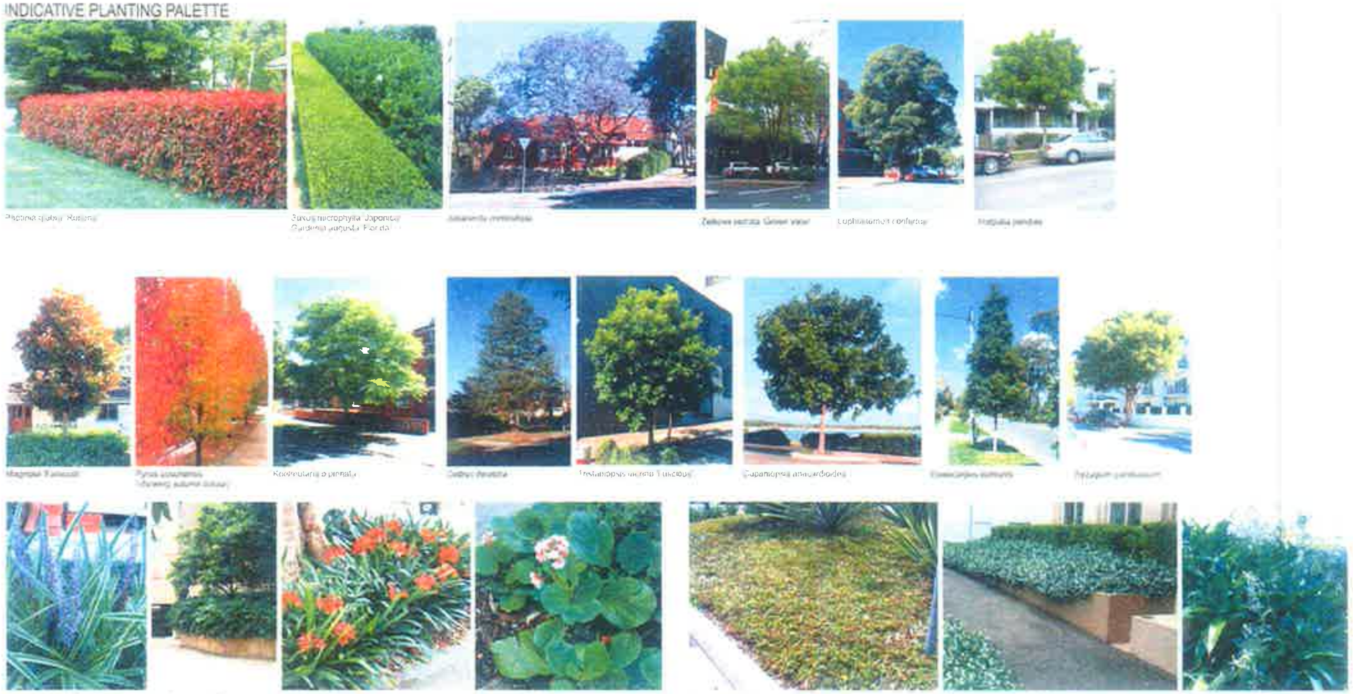
CHARACTER IMAGERY



Section E - Staff Carpark & Retaining Wall

scale 1:50 @ A1

INDICATIVE PLANTING PALETTE



INDICATIVE PLANT SCHEDULE

Botanical Name	Common Name	Projected Height	Container Size
TREES			
Cedrus deodara	Deodar Cedar	15m	100L
Cupaniopsis anacardioides	Tuckeroo	8m	100L
Elaeocarpus eumundi	Eumundi Quandong	10m	100L
Harpullia pendula	Tulipwood	8m	100L
Jacaranda mimosifolia	Jacaranda	10m	100L
Koelreuteria paniculata	Golden Rain Tree	8m	75L
Lophostemon confertus	Brush Box	15m	75L
Magnolia grandiflora 'Exmouth'	Bull Bay Magnolia	5m	200L
Magnolia x soulangeana	Tulip Magnolia	7m	75L
Pyrus ussuriensis	Manchurian Pear	7m	75L
Syzygium paniculatum	Magenta Lilly Pilly	10m	100L
Ulmus parvifolia	Chinese Elm	10m	100L
Zelkova serrata 'Green Vase'	Japanese Zelkova	10m	100L
SHRUBS			
Arthropodium cirratum	Rock Lily	0.8m	200mm
[illegible]	[illegible]	0.8m	200mm
Callistemon 'White Anzac'	White Bottlebrush	0.6m	200mm
Clivia miniata	Kaffir Lily	0.6m	200mm
Codiaeum variegatum 'Zanzibar'	Croton (fine yellow/green foliage)	0.9m	200mm
Cordyline fruticosa 'Rubra'	Red Cordyline	[illegible]	200mm
Gardenia augusta 'Florida'	Florida Gardenia	1.2m	200mm
Lavandula angustifolia	English Lavender	1.2m	200mm
Philodendron 'Xanadu'	Xanadu	0.8m	250mm
Phormium tenax 'Evening Glow'	Dwarf New Zealand Flax (red foliage)	0.8m	200mm
Rhapis excelsa	Bamboo Palm	1.0m	200mm
Rosmarinus officinalis	Rosemary	1.5m	200mm
Sansevieria trifasciata	Mother in Law's Tongue	0.5m	200mm
Strelitzia reginae	Bird of Paradise	1.5m	250mm
Vriesea sp	Bromeliad	0.5m	200mm
HEDGING			
Buxus microphylla var. japonica	Japanese Box	1m	200mm
Camellia sasanqua	Camellia	3.0m	300mm
Photinia glabra 'Rubens'	Photinia / Red Photinia	2.0m	300mm
Murraya paniculata	Orange Jessamine	1.0m	300mm
Syzygium australe 'Tiny Trev'	Dwarf Lillypilly	[illegible]	300mm
GROUNDCOVERS			
Ajuga reptans	Carpet Bugle	0.2m	150mm
Bergenia cordifolia	Siberian Tea	0.3m	150mm
Blechnum nudum 'Silver Lady'	Silver Fern	0.7m	150mm
Convolvulus cneorum	Convolvulus	[illegible]	150mm
Convolvulus mauritanicus	Ground Morning Glory	0.2m	150mm
Grevillea 'Royal Mantle'	Prostrate Royal Mantle	0.2m	150mm
Hemerocallis aurantiaca	Day Lily	0.5m	150mm
Liriope 'Stripy White'	Lily Turf	0.4m	150mm
Liriope muscari 'Evergreen Giant'	Turf Lily	0.3m	150mm
[illegible]	[illegible]	1.0m	150mm
Myoporum parvifolium	Creeping Boobialla	0.5m	150mm
Ophiopogon japonicus	Mondo Grass	0.3m	150mm
Trachelospermum asiaticum	Japanese Star Jasmine	0.3m	150mm
Trachelospermum jasminoides	Star Jasmine	[illegible]	150mm

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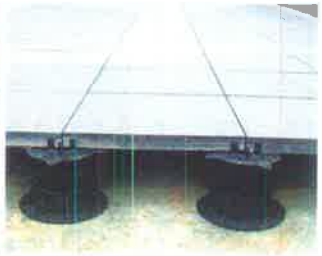
Sections & Character Images
L-SD-03

SHERBROOKE ROAD

MONS AVENUE

Large rectangular lightweight troughs with evergreen and clipped hedge planting to separate and soften spaces where necessary



Terraco Paving (set flush to internal FFL) = Concrete or stone pavers on pedestals, drainage picked up via slab below

arterra LANDSCAPE ARCHITECTS

ARTERRA DESIGN PTY LTD ABN 40 [illegible]

[illegible] SYDNEY STREET [illegible] NSW [illegible]

P [illegible] F [illegible] W ARTERRA.COM.AU

External Terrace Paving

Clipped Hedges or naturalised mid-height hedges

Indicative Bench Seating

Indicative Moveable Furniture

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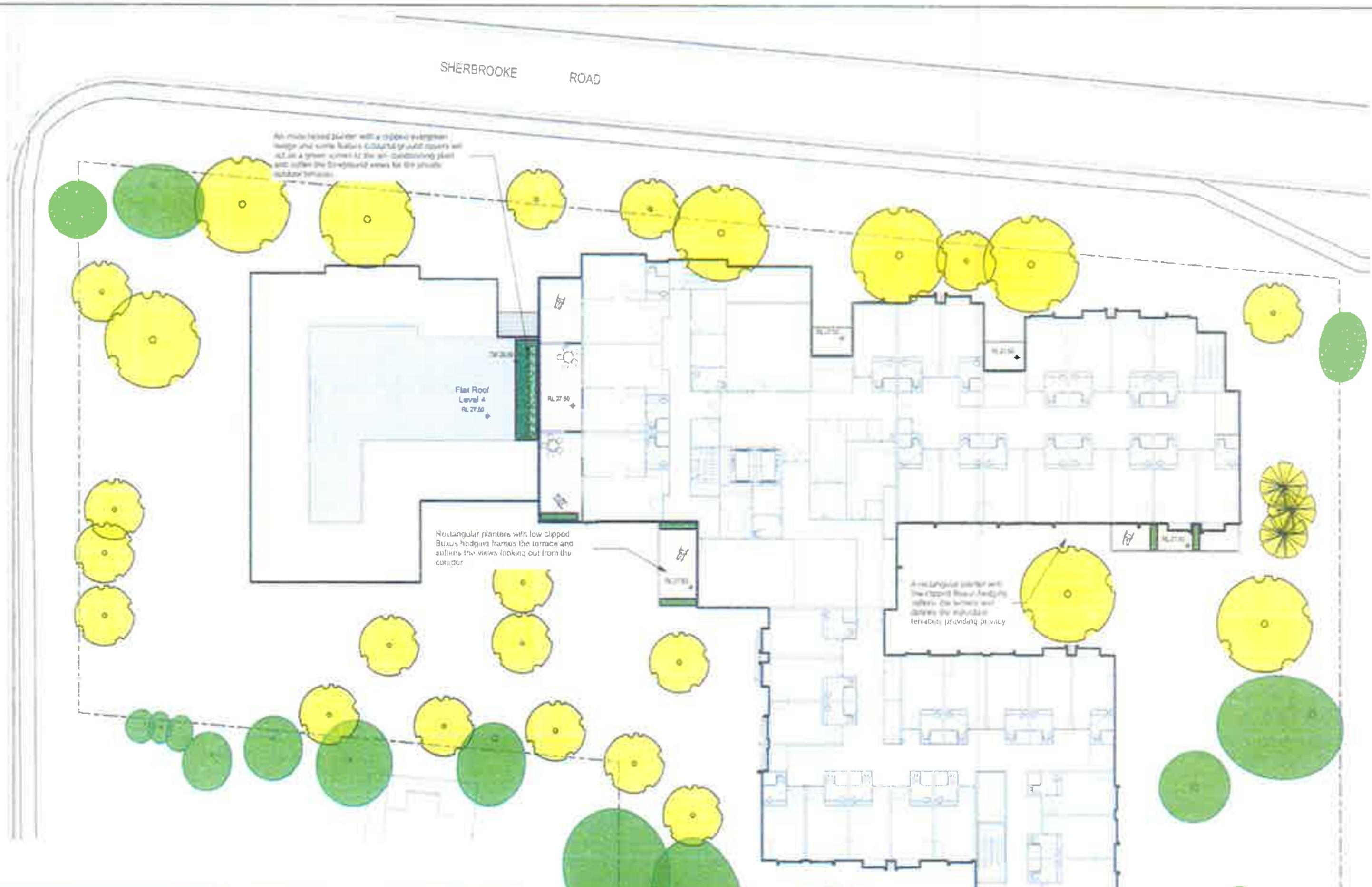
Landscape Concept Level 3 Terraces

L-SD-04

B



Large rectangular lightweight troughs with evergreen and clipped hedge planting to separate and soften spaces where necessary

Terrace Paving (set flush to internal FFL): Concrete or stone pavers on pedestals, drainage picked up via slab below

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Clipped Hedges in rectangular lightweight troughs
Indicative Moveable Furniture

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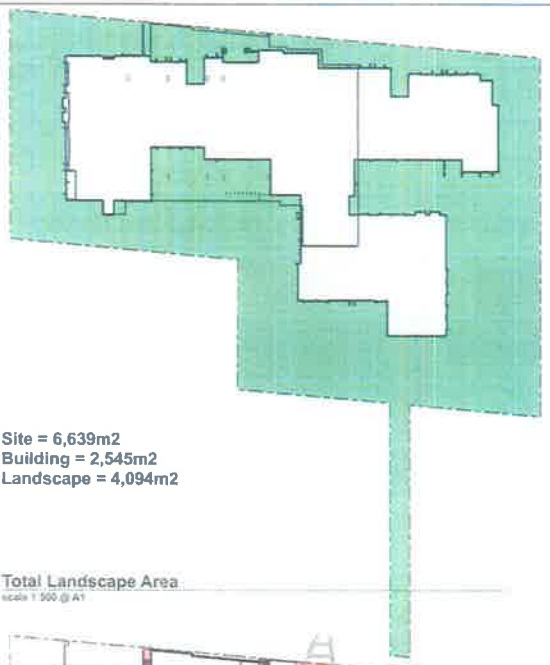
Landscape Concept Level 4 Terraces

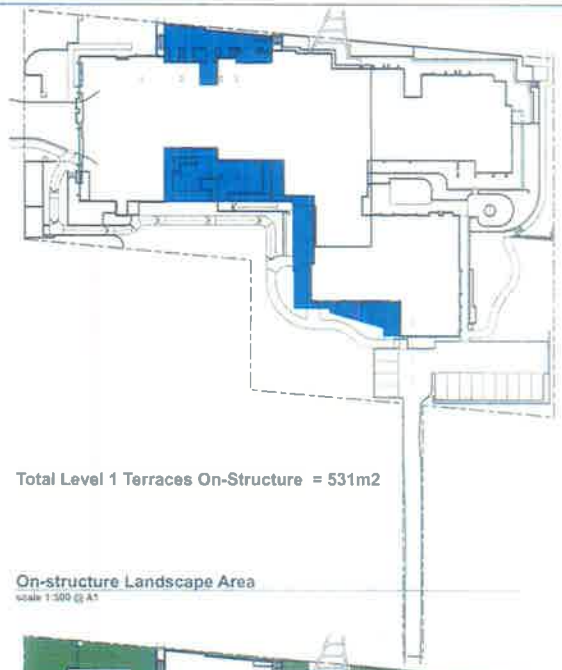
L-SD-05

B



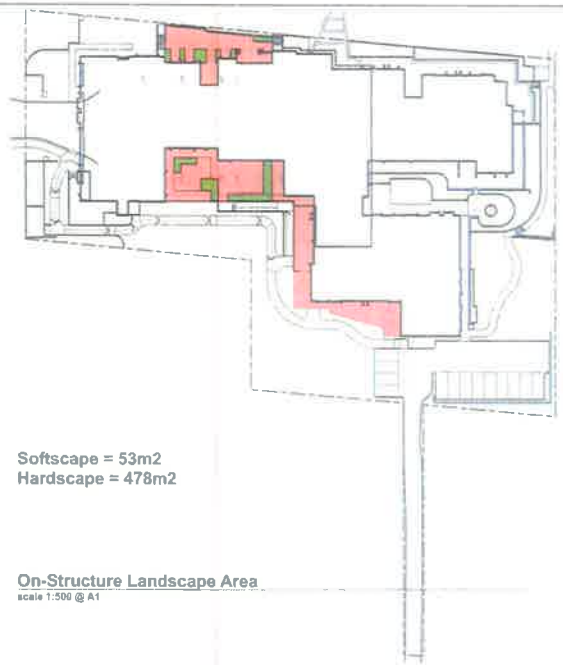
Site = 6,639m2
Building = 2,545m2
Landscape = 4,094m2

Total Landscape Area
scale 1:500 @ A1



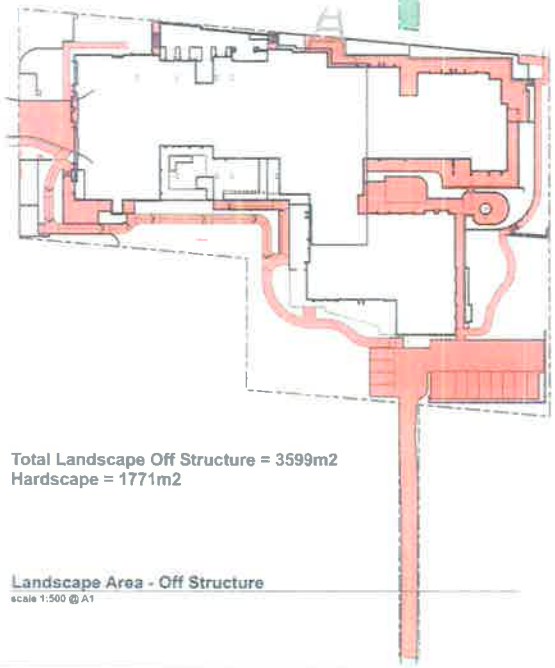
Total Level 1 Terraces On-Structure = 531m2

On-structure Landscape Area
scale 1:500 @ A1



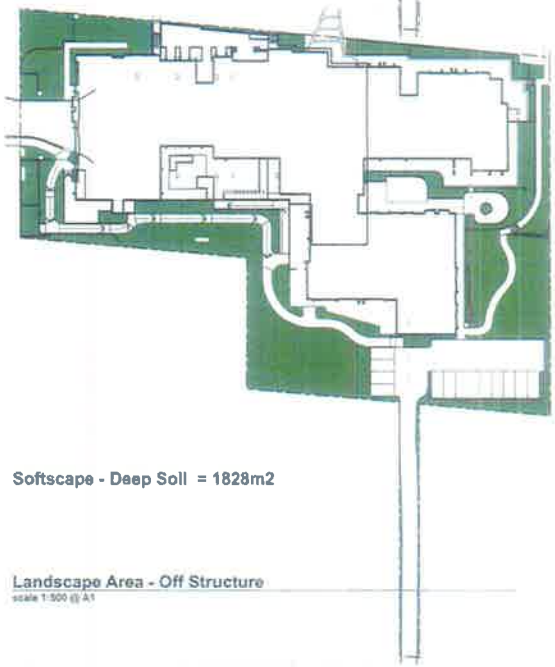
Softscape = 53m2
Hardscape = 478m2

On-Structure Landscape Area
scale 1:500 @ A1



Total Landscape Off Structure = 3599m2
Hardscape = 1771m2

Landscape Area - Off Structure
scale 1:500 @ A1



Softscape - Deep Soil = 1828m2

Landscape Area - Off Structure
scale 1:500 @ A1

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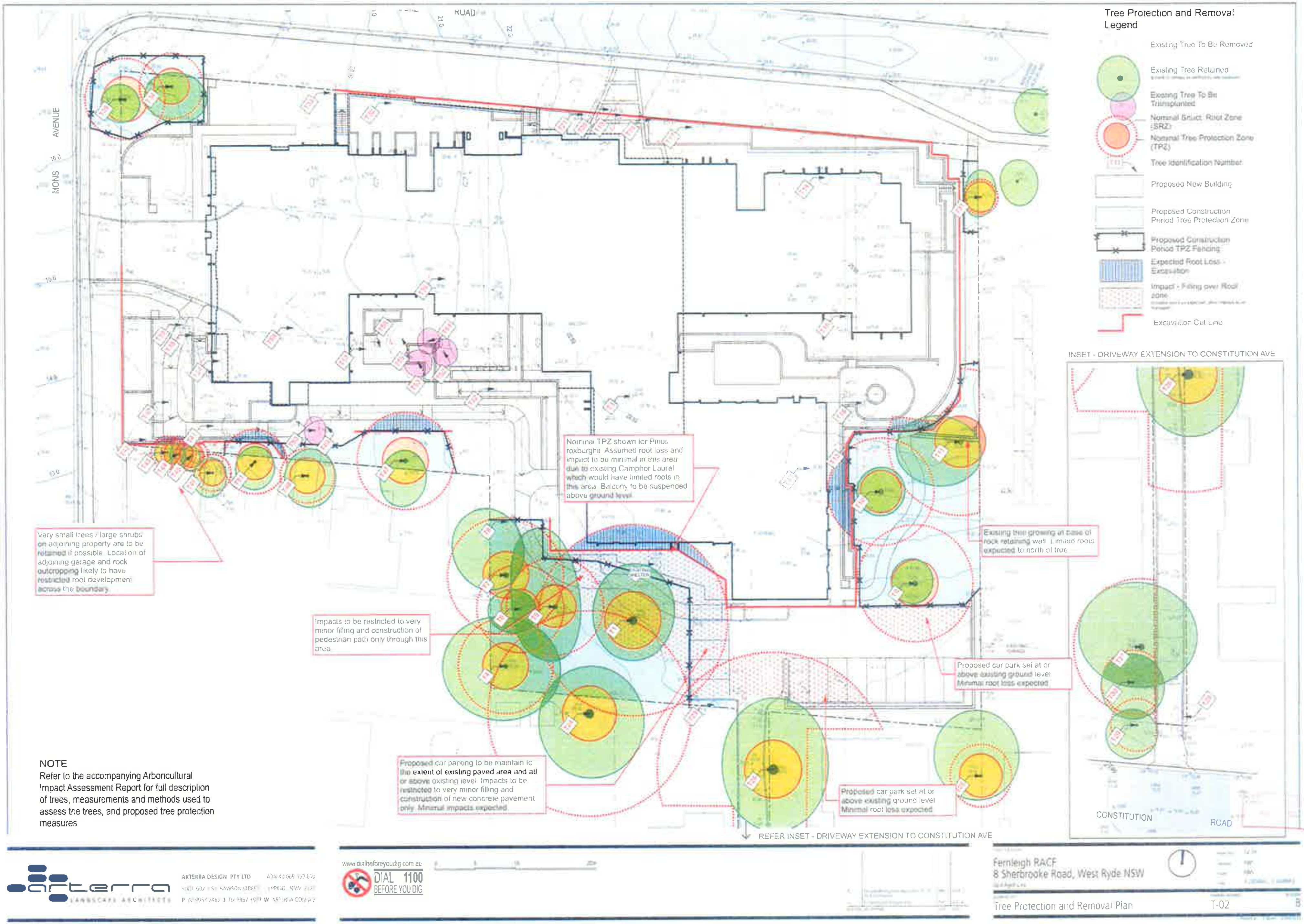
Landscape Areas Calculations L-SD-06 A


Tree Protection and Removal
Legend
Existing Tree To Be Removed
Existing Tree Retained
Existing Tree To Be Transplanted
Nominal Struct. Root Zone (SRZ)
Nominal Tree Protection Zone (TPZ)
Tree Identification Number
Proposed New Building
Proposed Construction Period Tree Protection Zone
Proposed Construction Period TPZ Fencing
Expected Root Loss - Excavation
Impact - Filling over Root zone
Excavation Cut Line
INSET - DRIVEWAY EXTENSION TO CONSTITUTION AVE
CONSTITUTION
ROAD
MONS
AVENUE
ROAD
Nominal TPZ shown for Pinus roxburghii. Assumed root loss and impact to be minimal in this area due to existing Camphor Laurel which would have limited roots in this area. Balcony to be suspended above ground level
Very small trees / large shrubs on adjoining property are to be retained if possible. Location of adjoining garage and rock outcropping likely to have restricted root development across the boundary
Existing tree growing at base of rock retaining wall. Limited roots expected to north of tree
Impacts to be restricted to very minor filling and construction of pedestrian path only through this area
Proposed car park set at or above existing ground level. Minimal root loss expected
Proposed car parking to be maintain to the extent of existing paved area and all or above existing level. Impacts to be restricted to very minor filling and construction of new concrete pavement only. Minimal impacts expected
Proposed car park set at or above existing ground level. Minimal root loss expected
REFER INSET - DRIVEWAY EXTENSION TO CONSTITUTION AVE
NOTE
Refer to the accompanying Arboricultural Impact Assessment Report for full description of trees, measurements and methods used to assess the trees, and proposed tree protection measures
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Tree Protection and Removal Plan
T-02
B