

22 December 2011

The Director General  
NSW Dept. of Planning & Infrastructure  
PO Box 39  
**SYDNEY 2001**

Dear Sir,

**Re: Application for a Site Compatibility Certificate pursuant to SEPP (HSPD) 2004.**  
**Property: Lot 312, DP 863203, No. 183-197 Boronia Road, North St Marys.**

**1. Introduction**

This written submission accompanies the Dept's form and seeks a site compatibility certificate to permit a residential care facility as referred to at clause 11 of the SEPP on the subject site. This written submission addresses itself to Part C of the Dept's form.

**2. The Site.**

The development site comprises Lot 312, DP 863203 No. 183 -197 Boronia Road North St Marys. The site area is 1.374ha (refer level and detail survey 72625 dated 11/08/10 prepared by LandPartners).

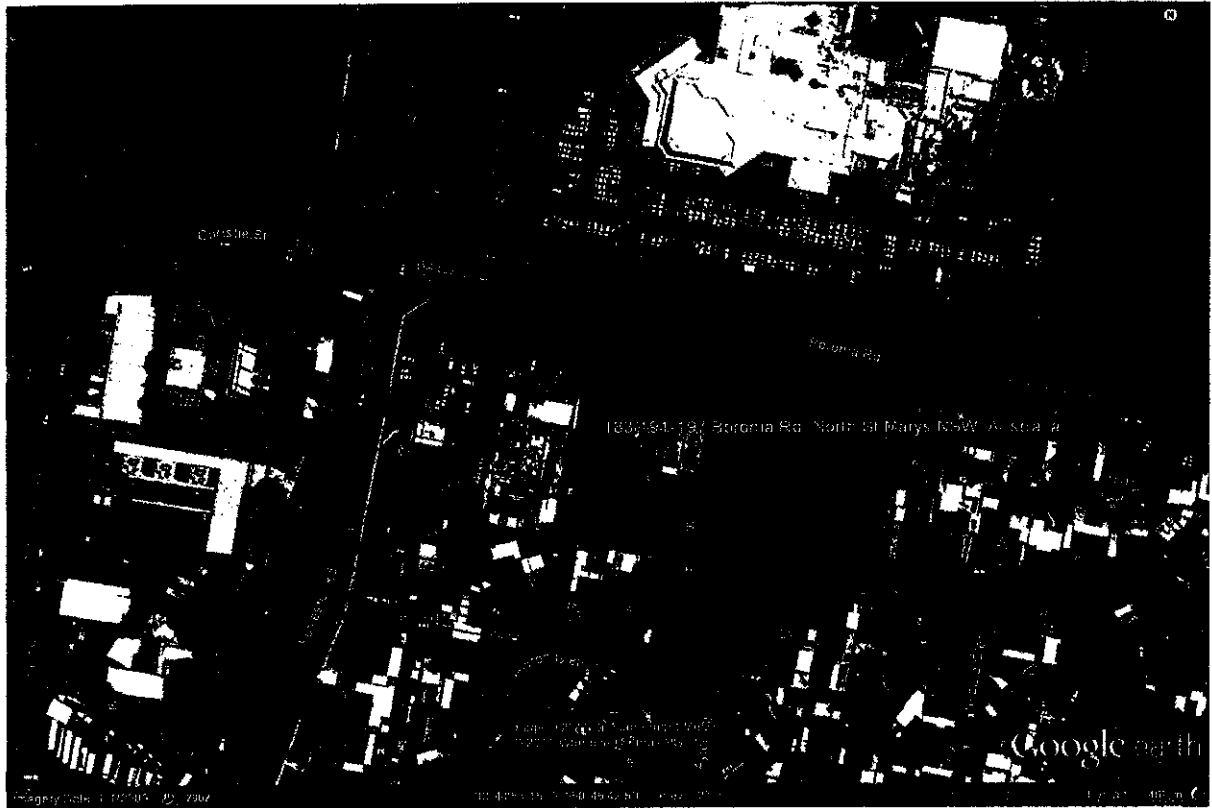
The site topography provides a relatively level allotment with a fall of less than 1m from its rear to the site frontage along the southern boundary at a gradient of 1% and a total cross fall of 1.49m. The land is primarily vacant and is cleared with minor improvements associated with perimeter fencing, a garden and landscape supply business on the western portion of the site and demountable sheds and training facilities associated with the St Marys RLFC on the eastern portion of the land. These site improvements and the land uses will be removed as a consequence of the development as proposed.

The site has a northerly aspect to Boronia Road with limited outlooks confined to the immediate streetscape. The characteristics of the site and the locality dictate that the land is not prominent in any long distant or district views. Development in the vicinity of the site comprises a McDonald's drive through restaurant adjoining to the west at the intersection of Forrester Road and Boronia Road, St Mary's Leagues Club opposite the site in Boronia Road and residential dwellings adjoining the land to the east and south of the site. Adjacent residential streets being Aylett Street and Grose Ave culminate at the subject site boundaries.

The land is within a mapped bushfire buffer area and the proposed development is accordingly integrated development pursuant to S.91 of the EP&A Act 1979 requiring referral to the NSW Rural Fire Service. Council policy guidelines include the land as being within a flood liable locality to a level of RL 26 AHD with a required minimum floor level for development RL 26.5AHD. The existing site levels range between RL 24.98 and 27.07.

In the absence of physical constraint, other than dealing with the flooding and bushfire circumstances impacting the locality generally the land is readily capable of being developed for the purpose as sought. Issues associate with flooding and bushfire planning are addressed by reference to the Bush Fire Hazard Assessment report prepared by Building Code and Bushfire Hazard Solutions Pty Ltd date 27<sup>th</sup> October 2011 and the Overland Flow Path Assessment and civil works details prepared by Mott MacDonald dated March 2011. Both reports conclude the facility can be built in

conformity with the appropriate construction standards in the case of bushfire and with minimum floor levels to RL 26.5 consistent with the recommendations of the Council flood planning advice. A flood plan evacuation procedure plan is included at *Annexure 8*.



*Aerial – subject site and surrounds*

Issues of the proposed building scale and form are matters to be considered in the context of the locality and the relationship of the proposal within the streetscape and across common boundaries. Landuse activities including the intensity of the proposed use of the site and particularly staffing and visitation and service delivery, site access, parking and the containment of noise associated with those activities are matters addressed by the detail of the landuse proposed and detail of the site access, parking layout and the capacity of the local street network. The nature of the established neighbouring land uses is not such that impacts arise directly to the proposed landuse activity.



*Boronia Road McDonald's entry & Garden Centre*



*Boronia Road – Leagues Club entry on right and site on left.*



*Boronia Road – entry to site on right. Leagues Club on left*



*Subject land with demountables and Garden Centre beyond.*

### **3. The Proposal.**

The proponent for the development is Thompson Health Care, a family owned company that operates a number of residential care facilities within NSW.

#### ***What is the intended use?***

The operation provides for a residential care facility as defined by clause 11 of SEPP (SH&PD) providing residential accommodation for aged persons, (the majority of whom will suffer from dementia) including meals, cleaning and nursing care as well as all furnishings and equipment. In addition to the residential care and accommodation the use will include the provision of a range of extended services to residents including physiotherapy, aromatherapy and podiatry services, entertainment, hairdressing and beautician services and access to a range of related health care services and professional medical services on an individual patients needs basis and as required.

#### ***Staffing & Services***

The nursing home will have a staffing of roster 125 persons over 3 shifts per day to cater for the 116 - room and 124 bed capacity of the proposed home as follows;

Director of Nursing  
Deputy Director of Nursing

Clinical nurse specialist  
28 registered nurses  
55 nursing assistants  
Receptionist & clerical/administrative staff  
8 activity co-coordinators  
7 cleaners  
3 laundry staff  
17 kitchen staff  
1 maintenance person  
1 aroma therapist  
1 educator

In addition to these staff the nursing home will engage a range of contractors including garden maintenance, medical equipment supply and building and equipment maintenance specialists.

### ***The Building***

The proposed building is detailed in drawings DA 01 - 06 prepared by Geoffrey Martin + Associates Pty Ltd. Preparation of these details has involved a pre DA meeting with Council officers to address the detail and specification relating to the landuse. The proposal provides for the demolition of the site improvements and construction of a single storey residential care facility comprising 116 individual rooms with associated en-suites and sitting areas.

The accommodation is grouped into a series of wings radiating from an entry reception foyer and administration area with individual accommodation rooms oriented either to the exterior of the site or internally to a series of communal landscaped courtyards throughout the complex. These courtyard areas provide for both the amenity of the rooms that are oriented onto these spaces as well as the opportunity for outdoor sitting areas. The nature of the resident's mental condition is such that a special emphasis on security is required to prevent residents from inadvertently leaving the premises. The residential accommodation is complemented by a series of lounge areas, dining areas, staff training area, patient activity room, library and chapel with attendant utility areas including communal kitchen, store, laundry, loading and waste storage facilities.

The elevation to Boronia Road is articulated along its length by the staging of the building alignment to the street ranging from 6.5m to 33.60m with a central porte cochere entry and circular driveway with separate staff and visitor parking areas. The height of the structure is restricted to a single storey (2.7m eave line) with pitched roof. The building form and detailing is consistent with a residential building form and visual setting.

The building maintains an average front boundary setback over the length of the building of 16.32m, 4m side boundary setback along its eastern boundary, an articulated rear boundary setback ranging from a minimum 4m to 8.95m and averaging 5.6m, a western side setback ranging between 7.13m to 15.8m. A staff parking area in association with a delivery access and loading area adjacent to the rear of the McDonalds common boundary for 20 spaces is proposed with a further 27 visitor parking spaces provided within the building setback and accessed off the porte cocher entry from Boronia Road.

A detailed landscape plan accompanies the application and provides for the facility to sit within a landscape setting with the landscape maturing to a height in excess of the proposed built form. A total landscape site area of 4912m<sup>2</sup> is proposed representing 42.3m<sup>2</sup>/bedroom space.



#### 4. Development Proposal Information

An extract of the Penrith Council planning controls relating to the site is appended to this submission. The land has a split zoning with the western portion being zoned pursuant to Interim Development Order 81 Business 3(d1) Special Business and the remainder being zoned 2(b) Residential pursuant to the Penrith Urban Lands LEP 1988. Accordingly the proposed landuse is a permissible use pursuant to the SEPP on the residential zoned portion of land but requires a site compatibility certificate for that part of the site contained within the IDO. There are no stated aims or objectives for the zoning of the land pursuant to the IDO.

The operation of IDO 81 (made in 1978) as it relates to part of the land is a restrictive instrument that confines the permitted landuse to hotels, motels, open space, TAB agencies and utility installations (other than gas holders or generating works) only. None of the established land uses within the area of the IDO, being the McDonalds restaurant and the garden centre strictly accord with the restrictions of the zoning. The instrument is an archaic planning instrument and the restrictions posed by the limited range of land uses permitted on the land are unlikely to be developed in the current site circumstances.

The nature of the adjacent developments provides a suburban residential style of detached dwellings on individual lots. The presence of the McDonald franchise at the intersection of Forrester Road and Boronia Road reflects the busy nature of this intersection but can be accommodated with the subject use by the concentration of staff parking, loading access and utility service areas in this zone of the site. The proposed building height, setbacks, provision of open space and site landscaping provides for a transitional building form to the neighbouring residential developments and a landuse function that is complementary to the residential nature of those adjacent dwellings.

The land is serviced by established infrastructure and is convenient to transport with Westbus providing regular services (route 759) from St Marys station along Forrester Road and via route 780 along Forester road and Christie Street (opposite the intersection of Forrester and Boronia) to the Penrith CBD and station. Given the nature of the accommodation proposed and the restricted mobility and function of the resident population issues of the proximity and accessibility to services do not arise in terms of those services being supplied to residents on site. Nonetheless the frequency and convenience of the site to transport is appropriate for access by staff.

The application has no impact on any strategic landuse outcomes identified for this site or for this locality. The use provides for an effective infill development on an underutilized allotment that is unlikely to be developed in accordance with the restrictions posed by the current IDO. The Penrith Residential Strategy (June 1997) noted:

**Penrith's population structure is still youthful in comparison with other areas. However, the proportion of older residents, although smaller than that in most parts of Sydney, is growing rapidly. For instance, the proportion of residents aged over 65 rose by 89.8% in the ten years to 1991, compared with 49.3% for Western Sydney on average.**

Whilst the Residential Strategy Study did not addresses itself specifically to the issue of aged persons accommodation the statistical information confirms the growing demand for specialist accommodation in the form proposed by this application and within the region.

## 5. Conclusion

The landuse as proposed provides for a compatible outcome for the land that does not impinge on the neighbouring residential land uses. The building form is recessive in its bulk and scale ameliorated by the setbacks proposed and the effective provision of landscaping. The landuse provides for a transition to the residential area from the neighbouring commercial and licensed club developments and results the effective utilisation of the land. The current zoning is unduly restrictive and development of the land consistent with the intentions of that zoning unlikely. Accordingly a site compatibility certificate to permit the submission and consideration of a development for a residential care facility pursuant to the SEPP is an appropriate outcome.

Yours faithfully

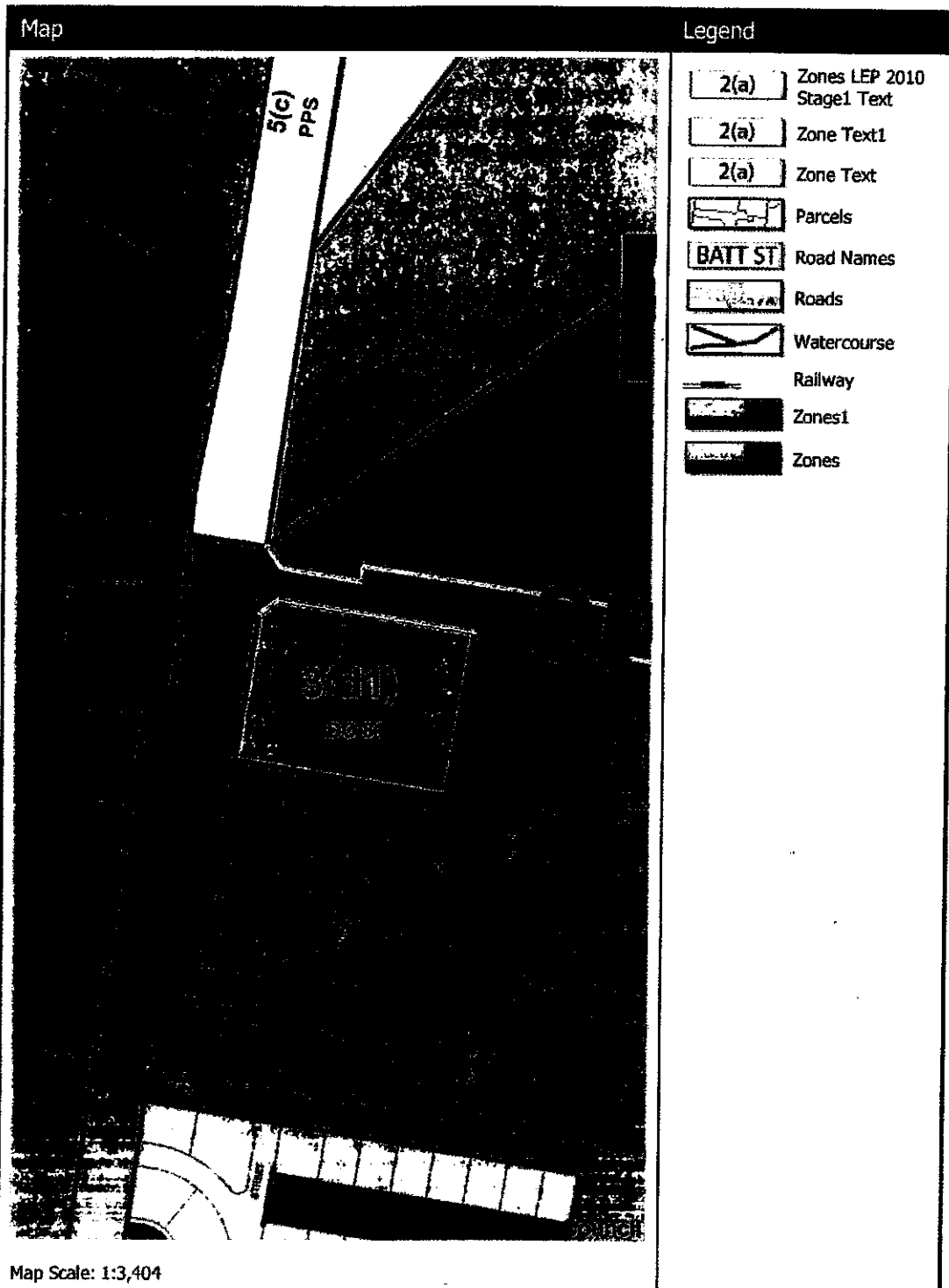
**BOSTON BLYTH FLEMING**



Ross Fleming  
Director

### Attachments:

1. Site survey
2. Zoning Extract
3. Penrith City Council – Pre Lodgement Advice
4. Architectural drawings
5. Landscape drawings
6. Bushfire Assessment
7. Overland Flow Path Assessment
8. Flood Evacuation Procedure



About this Document	Disclaimer
This map has been created for the purpose of showing basic locality information. Property boundary line network data is supplied by State Government. Any error should be reported to the GIS Section.	This map is a representation of the information currently held. While every effort has been made to ensure the accuracy of the product, we accept no responsibility for any errors or omissions.



# PENRITH CITY COUNCIL

*Serving Our Community*

Our Ref: IMS 2544959  
Contact: Rod Esdaile  
Telephone: 4732 7582

29 June 2010

Thompson Health Care Pty Ltd  
PO Box 658  
GORDON NSW 2072

Dear Sir

**Lot 312 DP 863203 No. 183-197 Boronia Road North St Marys  
Flood Level Enquiry**

Please find enclosed Flood Level information for the above property.

Should you require any further information please do not hesitate to contact me on 4732 7582.

Yours sincerely

Rod Esdaile  
**Senior Development Engineer**

Encl.



# PENRITH CITY COUNCIL

*Serving Our Community*

## Flood Information

Lot 312 DP 863203 No. 183-197 Boronia Road North St Marys

Date of issue: 29 June 2010

The mainstream 1% AEP flood level in the vicinity of the above property is 26.0m AHD. This locality has not been investigated in regard to overland flow from the local catchment.

Property less than 0.5m above the 1% AEP flood level is subject to Council's Flood Liable Land Policy which is contained in Section 2.10 of Penrith Development Control Plan 2006. The Development Control Plan 2006 is available from Council's website [www.penrithcity.nsw.gov.au](http://www.penrithcity.nsw.gov.au).



### Definitions

**AEP** – *Annual Exceedance Probability* – The chance of a flood of this size occurring in any one year.

**AHD** – *Australian Height Datum* – A standard level datum used throughout Australia, approximately equivalent to mean sea level.

### Notes:

1. The contours shown above are at 0.5m intervals. The contour levels are approximate and for general information only. Accurate ground levels should be obtained by a Registered Surveyor.
2. The flood level is based on current information available to Council at the date of issue. The flood level may change in the future if new information becomes available. The 1% AEP flood is the flood adopted by Council for planning controls. Rarer and more extreme flood events will have a greater effect on the property.

**Eric Hausfeld**  
Development Engineering Co-Ordinator

Our Ref: PL10/0117  
Contact: Schandel Jefferys  
Telephone: (02) 4732 8125

15 October 2010

Thompson Health Care  
Doug Thompson  
PO Box 658  
GORDON NSW 2072

Dear Doug

**Pre-Lodgement Meeting**  
**Lot 312 DP 863203, 183-197 Boronia Road North St Marys**

We welcome your initiative to commence your project in Penrith Local Government Area.

Thank you for participating in Council's pre-lodgement meeting on 28 September 2010. We consider that the pre-lodgement process will assist both Council and yourself in determination of your proposal. The attached advice will assist you in preparing your development application.

Council provides competitive services in *Certification of Development*. If you need to enquire about *Construction Certificates* and *Principal Certifying Authority* matters please contact Colin Wood, Building Approvals Co-ordinator on (02) 4732 8083.

If you require any further assistance regarding the attached advice please contact me on (02) 4732 8125.

Yours faithfully

Schandel Jefferys  
**Principal Planner**

*\*\*\* The attached advice is to assist you with your development proposal. It is not a full assessment of the proposal. Council's full assessment and determination can only be made after lodgement of the development application. The applicant is responsible to address all Council's requirements if a development application is lodged.*

<b>Pre – Lodgement Advice</b>	
<b>Date of Issue</b>	15 October 2010
<b>Pre- Lodgement Number</b>	PL 10/0117
<b>Proponent</b>	Thompson Health Care
<b>Proposal</b>	Aged Care Facility
<b>Address</b>	Lot 312 DP 863203 183-197 Boronia Road North St Marys
<b>Development Type</b>	<p>Integrated – Rural Fire Service (see comments below under Key Issues heading).</p> <p>As the construction investment value is likely to be greater than \$10 million, the application would need to be reported to the Joint Regional Planning Panel (JRPP) for determination. Please provide details of construction investment value (CIV) as defined below with your application.</p> <p><b><i>Capital investment value</i></b> of a development or project includes all costs necessary to establish and operate the project, including the design and construction of buildings, structures, associated infrastructure and fixed or mobile plant and equipment, other than the following costs:</p> <ul style="list-style-type: none"> <li>a. amounts payable, or the cost of land dedicated or any other benefit provided, under a condition imposed under Division 6 or 6A of Part 4 of the Environmental Planning and Assessment Act or a planning agreement under that Division</li> <li>b. costs relating to any part of the development or project that is the subject of a separate development consent or project approval</li> <li>c. land costs (including any costs of marketing and selling land)</li> <li>d. GST (as defined by A New Tax System (Goods and Services Tax) Act 1999 of the Commonwealth).</li> </ul>
<b>Permissibility</b>	<p>The land is zoned partly zoned 3d1 under Interim Development Order 81 (IDO 81) and partly zoned 2 (b) Residential under Penrith Local Environmental Plan Urban Land 1998 (LEP 1998).</p> <p>State Environmental Planning Policy Housing for Seniors or People with a Disability 2004 (SEPP 2004) states that this</p>

	<p>policy applies to land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes.</p> <p>As discussed with Ross Fowler (planning consultant), the part of the site zoned residential is clearly "land zoned primarily for urban purposes", however, the land zoned under IDO 81 would be considered "land than adjoins land zoned primarily for urban purposes". Therefore the area of land within the IDO does not appear to be excluded under SEPP 2004, specifically by clause 4(2).</p> <p>SEPP 2004 requires that a site compatibility certificate be obtained from the Department of Planning under clauses 24 and 25.</p> <p>Penrith Development Control Plan 2006 applies to the land.</p>
<b>Site Constraints</b>	<p>The site is affected by:</p> <ul style="list-style-type: none"> <li>• Easement for signage and electrical purposes 1.2m and 3.45m wide</li> <li>• Underground easement mains 1m wide</li> <li>• Right of carriage way 15.245m wide – please obtain further information about these various easements to ensure any restrictions are accommodated</li> <li>• Bushfire (within the buffer area)</li> <li>• Contaminated land</li> <li>• Flood related development controls</li> <li>• Overland flow.</li> </ul>
<b>General Requirements</b>	<p>The Statement of Environmental Effects must include:</p> <ul style="list-style-type: none"> <li>• a detailed description of the proposal</li> <li>• consideration of relevant statutory provisions, particularly, section 79C of the Environmental Planning and Assessment Act 1979</li> <li>• consideration of other relevant matters listed on the <i>Application Information Sheet</i> attached with this advice</li> <li>• detailed assessment of the key issues specified below.</li> </ul>
<b>Key Issues</b>	<p><b>Engineering</b></p> <ul style="list-style-type: none"> <li>• This land is flood affected to RL 26, floor levels are to be RL 26.5.</li> <li>• Flood safe access for evacuation purposes is required. Consider the possibility of providing flood safe access through the existing street at the rear – proponent to investigate.</li> <li>• Please refer to the NSW Floodplain Development Manual</li> <li>• The proposal is to consider overland flow paths and drainage from street at rear.</li> </ul>



- The proposal is also to consider impact of fill/floor levels on existing drainage.
- Car parking should be in accordance with AS2890.1
- Disabled spaces are to be provided in accordance with AS2890.6
- Stormwater discharge – concept drainage plan required. The discharge should not have an adverse impact upon existing drainage systems – OSD may be required (to confirm)
- A traffic study is required.

#### **Building**

- A BCA compliance report is not required at DA stage but will be required for the CC.
- Details of the commercial kitchen are to be provided with the development application.
- Consideration is to be given to water recycling for use in maintaining landscaped areas.
- An emergency response plan is required with this application.
- A waste management plan is required which will need to have regard to construction as well as on going waste management.
- The proposal is to comply with relevant sections of Section J of the BCA.
- Ensure that all relevant fire safety considerations are accommodated within the design.
- The requirements under both the Commonwealth aged care accreditation standards and the Building Code of Australia are to be complied with.

#### **Location of car park area**

- The proposed car parking area is to be designed to minimise any potential impact on adjoining residential properties.
- Given that emergency vehicles may need access to the site outside of daylight hours, the emergency vehicle access should be located as far as possible away from adjoining residential properties.

**Bushfire**

- The application will be integrated and require general terms of approval from the Rural Fire Service.
- Relevant requirements of the Rural Fire Service's Planning for Bushfire Protection are to be addressed.
- The application should be submitted along with a cheque made out to the Rural Fire Service for \$250.

**Flora and Fauna**

- Details of tree removal are to be provided with the development application.
- Existing trees are to be retained where appropriate.

**Design and relevant development controls/standards**

- Building envelope – a height plane over the site at 45° from 1.8m above natural ground level at the side boundaries is to be complied with. Please refer to the diagram provided in LEP 1998.
- The maximum external wall height should be 6.5m.
- The minimum landscaped area should be 50%. Please refer to LEP 1998 for a detailed definition of landscaped area.
- The rear boundary setback should be 6m for two storey buildings and 4m for single storey buildings.
- The rear boundary should be used for the purposes of landscaped area only.
- The development should make a positive contribution to creating an attractive streetscape through the use of diversity of building forms and landscaped areas.
- The front setback should be the average of immediate neighbours or 5.5m minimum, whichever is the greater dimension.
- Parking spaces should not be located within the front setback. Should parking be located within the front setback then landscaping is to be used to minimise the visual impact.
- A maximum of 500 mm of cut and fill.
- Extensive blank walls are not permitted. Windows, doors, projecting verandahs and the like are to be used to break up large expanses of wall.
- Bedroom windows facing onto a driveway should be screened by either landscaping or masonry walls.
- Plant and equipment should be screened away from bedroom areas as well as screened from public view.

- Landscaping should be provided in accordance with DCP 2006 to ensure that effective landscaped separation from adjacent development is achieved.
- Driveways and parking areas should be located away from neighbouring residential development.
- The proposed building is to contribute to the quality and identity of the area.
- Building articulation should be used to minimise the apparent bulk of the building and to create visual interest.
- The location and design of windows and balconies must consider any potential impact on adjoining residential land. The use of screening devices and landscaping is encouraged.
- Bedrooms are to be located away from driveways, parking areas and paths. To protect acoustic privacy.
- The use of natural ventilation, solar heating and lighting is required.
- Obvious and safe pedestrian links are to be provided to, from and within the subject site.

It is noted that there are a number of comments listed above however, a floor plan was only made available at the time of pre-lodgement meeting and elevations were not available.

#### **Social and Economic**

- The application is to provide details of social and economic impact. Please note that this may be both positive and negative.

#### **Landscaping**

- A minimum of 50% of the site should be landscaped.
- A landscape plan is to be submitted with the development application.

#### **Section 94 Contributions**

The following Section 94 Plans will apply to the subject proposal:

- City Wide Cultural facilities
- Footpath Construction Works
- Library Facilities
- District Open Space & Recreation Works
- Local Open Space & Recreation Works

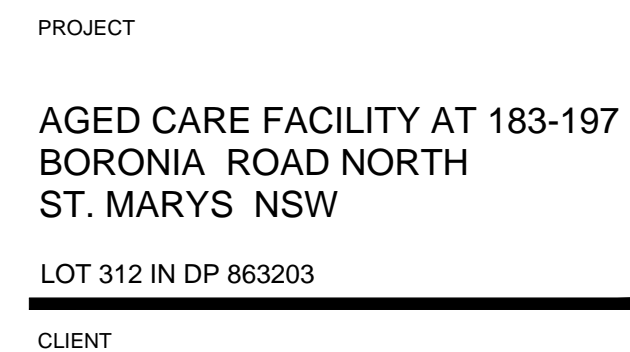
	<p><b>SEPP 2004</b></p> <p>The proposal is to comply with all relevant requirements of SEPP 2004 including, but not limited to the following:</p> <ul style="list-style-type: none"> <li>• Clause 26 – Location and access to facilities</li> <li>• Clause 27 – Bushfire prone land</li> <li>• Clause 28 – Water and sewer</li> <li>• Clause 29 – Site compatibility criteria</li> <li>• Clause 30 – Site analysis</li> <li>• Clause 33 – neighbourhood amenity and streetscape</li> <li>• Clause 34 – visual and acoustic privacy</li> <li>• Clause 35 – Solar access and design for climate</li> <li>• Clause 36 – Stormwater</li> <li>• Clause 37 – Crime prevention</li> <li>• Clause 38 – Accessibility</li> <li>• Clause 39 – Waste management</li> <li>• Clause 40 – Development standards</li> <li>• The floor space ratio should not exceed 1:1.</li> <li>• 25m<sup>2</sup> of landscaped area is to be provided per bed.</li> <li>• 1 parking space per 15 beds is to be provided (as care is only for persons with dementia) plus 1 space for every 2 employees plus 1 space for an ambulance.</li> </ul>
<b>References</b>	Technical and Policy Guidelines, which may be relevant to the proposal are included in the attached list.
<b>Consultation</b>	<p>Prior to lodgement of the development application you must consult with relevant government authorities, service providers, community groups and affected landowners. In particular you must consult with:</p> <ul style="list-style-type: none"> <li>• Rural Fire Service</li> <li>• Energy Provider</li> <li>• Sydney Water.</li> </ul>
<b>Application Form and Information Required</b>	The attached application form must be completed and submitted to Penrith City Council. Notes on Page 3 and matrix on Page 4 of this form provides information, which is required to be submitted with the application.
<b>Fees</b>	Please call Development Services Department's Administrative Support on (02) 4732 7991 to enquire about fees and charges.

Schandel Jefferys  
Principal Planner

## References – Technical and Policy Guidelines

Aspect	Policy / Methodology
<b>Flora and Fauna</b>	<ul style="list-style-type: none"> <li>• <i>Draft Guidelines for Threatened Species Assessment</i> - Department of Environment and Conservation (DEC)</li> <li>• <i>Threatened Biodiversity Survey and Assessment: Guidelines for Development and Activities</i> (DEC)</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>• <i>NSW Industrial Noise Policy</i> (DEC)</li> <li>• <i>Environmental Criteria for Road Traffic Noise</i> (DEC)</li> <li>• <i>Environmental Control Manual</i> (DEC)</li> </ul>
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>• <i>Approved Methods for Modelling and Assessment of Air Pollutants in NSW</i> (DEC)</li> </ul>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>• <i>Guide to Traffic Generating Developments and Road Design Guide</i> – Roads and Traffic Authority (RTA)</li> <li>• Relevant Australian Standards</li> </ul>
<b>Waste</b>	<ul style="list-style-type: none"> <li>• <i>On-site Sewage Management and Greywater Reuse Policy</i> – Penrith City Council (PCC)</li> <li>• <i>Waste Management Plan</i> (PCC)</li> </ul>
<b>Flood Liable Land</b>	<ul style="list-style-type: none"> <li>• <i>Interim Policy for Development of Flood Liable Land</i> (PCC)</li> </ul>
<b>Bushfire</b>	<ul style="list-style-type: none"> <li>• <i>Planning for Bushfire Protection Guidelines</i> – NSW Rural Fire Service</li> </ul>

No	AMENDMENT	DATE
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DRAWING	DATE
	NOV 2011
SITE ANALYSIS	SCALE
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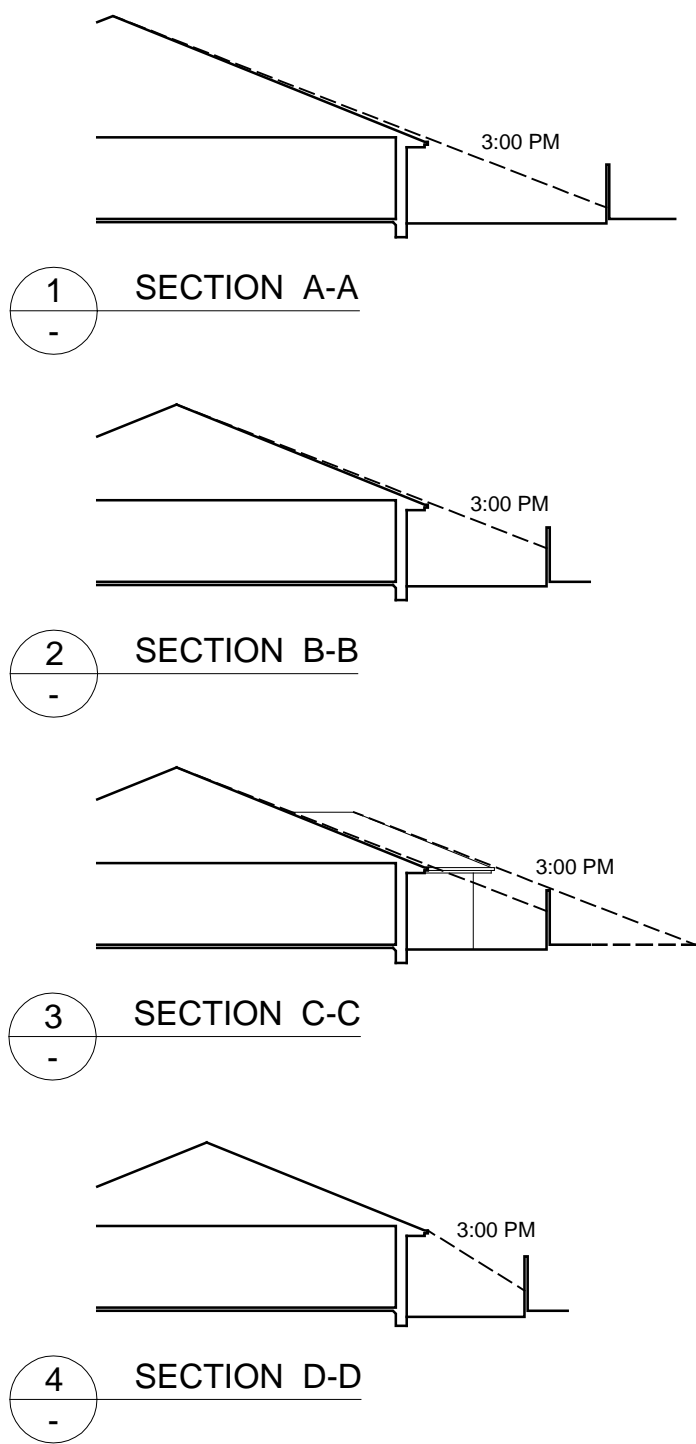
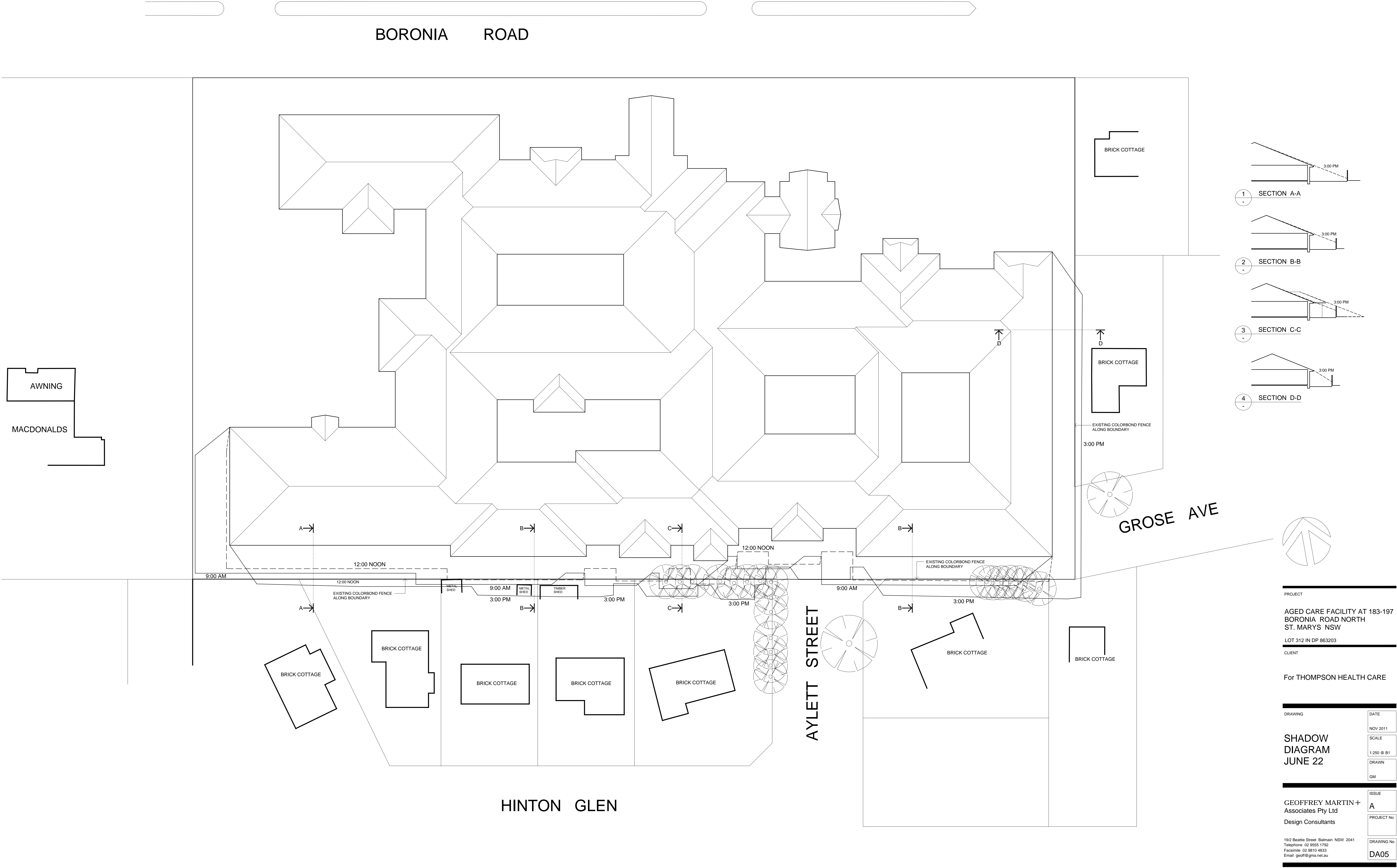
19/2 Beattie Street Balmain NSW 2041  
Telephone 02 9555 1792  
Facsimile 02 9810 4833  
Email geoff@gma.net.au

Geoffrey Martin Associates Pty Ltd ABN 16 074 686 730



NOTES:  
THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS. SPECIFICATIONS AND OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF CONSTRUCTION.  
ALL DIMENSIONS, LEVELS AND DATUM POINTS ON THIS DRAWING ARE TO BE VERIFIED BY THE BUILDER ON SITE. ANY DISCREPANCIES ARE TO BE REFERRED TO THE PROJECT MANAGER OR DESIGN CONSULTANT. USE FIGURED DIMENSIONS ONLY.

No	AMENDMENT	DATE
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PROJECT  
AGED CARE FACILITY AT 183-197  
BORONIA ROAD NORTH  
ST. MARYS NSW  
LOT 312 IN DP 863203  
CLIENT

For THOMPSON HEALTH CARE

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GEOFFREY MARTIN +  
Associates Pty Ltd  
Design Consultants  
19/2 Beattie Street Balmain NSW 2041  
Telephone 02 9555 1792  
Facsimile 02 9810 4833  
Email geoff@gma.net.au  
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No

AMENDMENT

DATE

PROJECT

AGED CARE FACILITY AT 183-197 BORONIA ROAD NORTH ST. MARYS NSW

LOT 312 IN DP 863203

CLIENT

For THOMPSON HEALTH CARE

DRAWING

DATE

NOV 2011

SCALE

1:250 @ B1

DRAWN

GM

GEOFFREY MARTIN + Associates Pty Ltd

Design Consultants

19/2 Beattie Street Balmain NSW 2041  
Telephone 02 9555 1792  
Facsimile 02 9810 4833  
Email geoff@gma.net.au

ISSUE

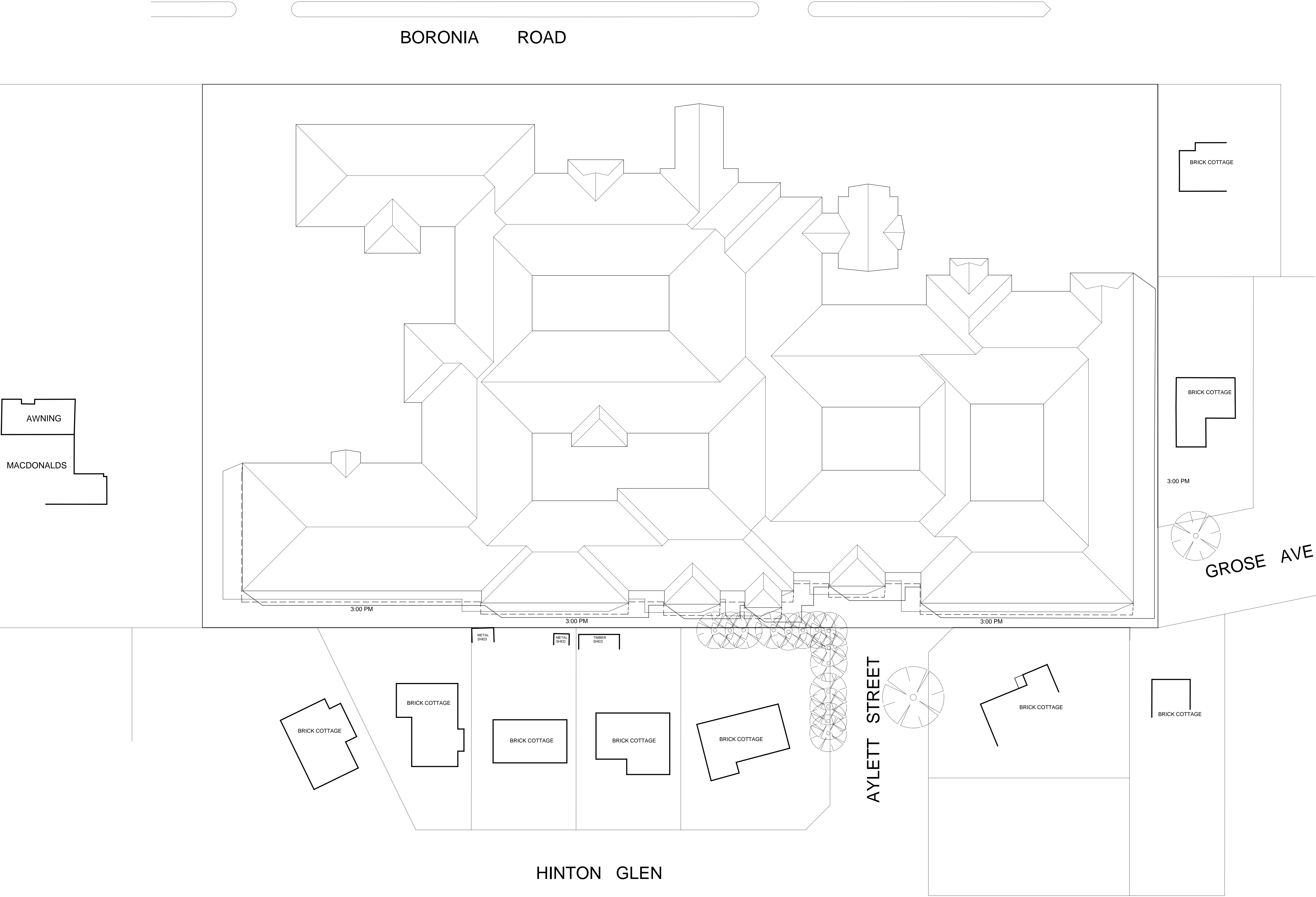
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DA06

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No	AMENDMENT	DATE
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PROJECT  
AGED CARE FACILITY AT 183-197  
BORONIA ROAD NORTH  
ST. MARYS NSW  
LOT 312 IN DP 863203  
CLIENT

For THOMPSON HEALTH CARE

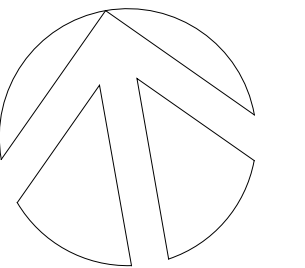
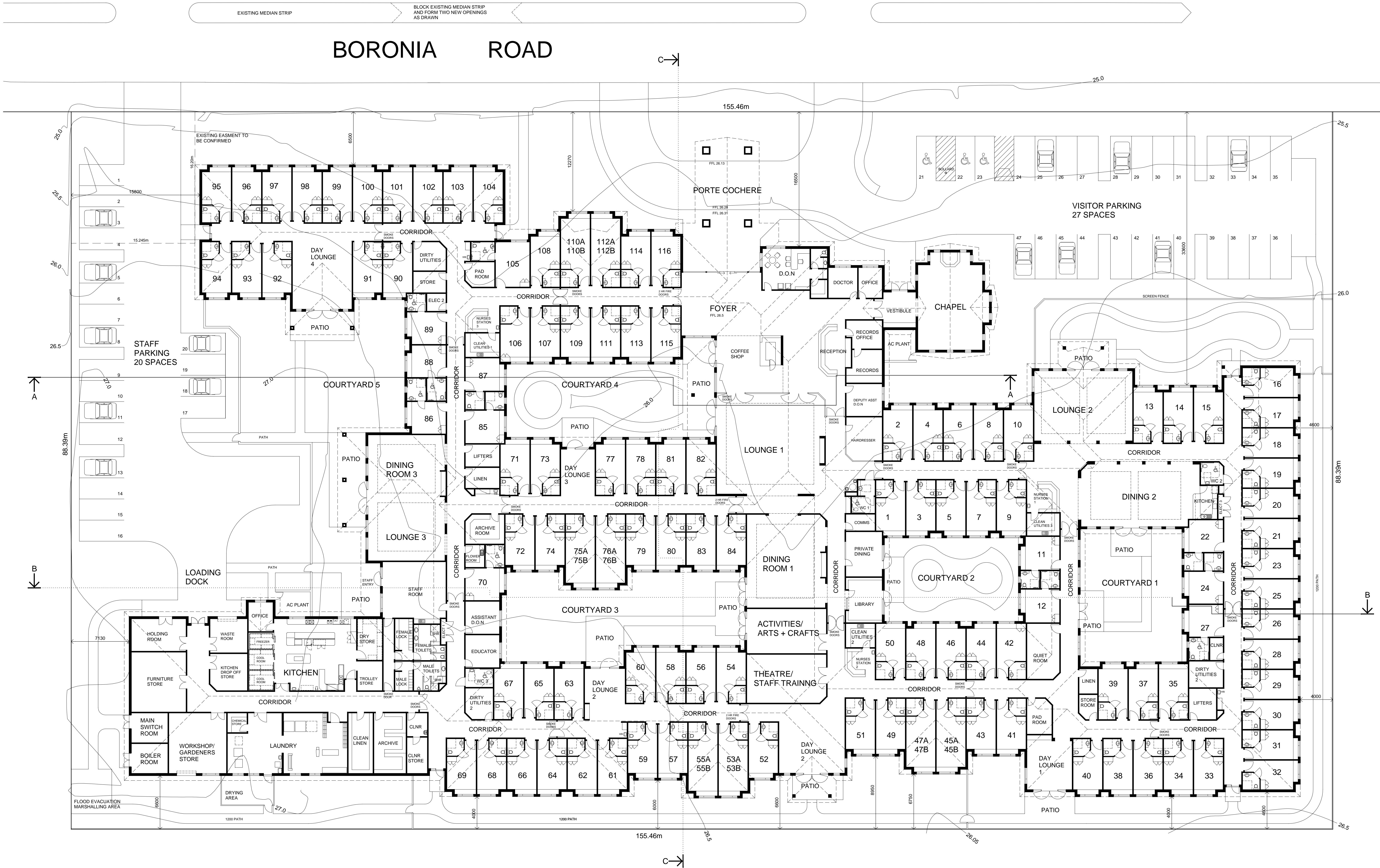
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PROJECT  
AGED CARE FACILITY AT 183-197  
BORONIA ROAD NORTH  
ST. MARYS NSW  
LOT 312 IN DP 863203  
CLIENT

For THOMPSON HEALTH CARE

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FLOOR PLAN

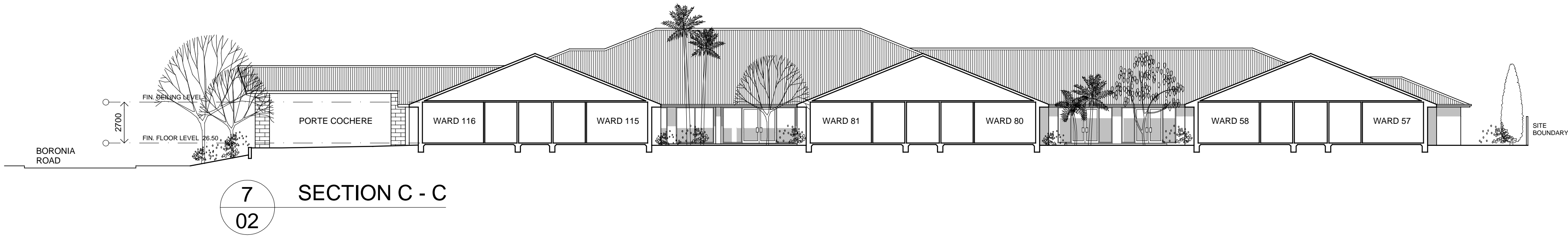
ISSUE	A
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DRAWING No	DA02

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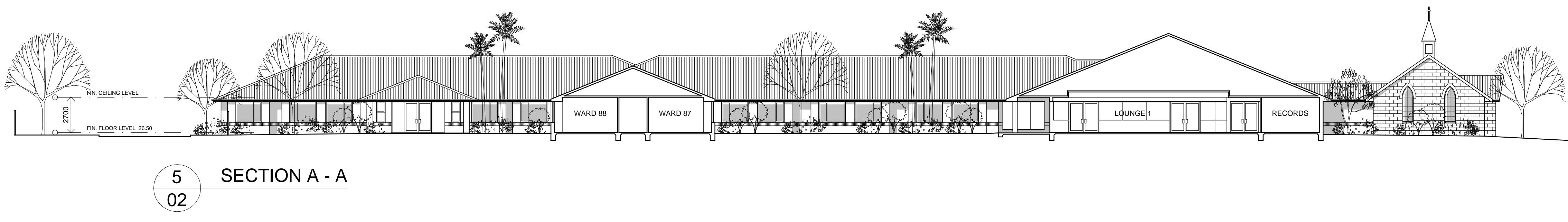
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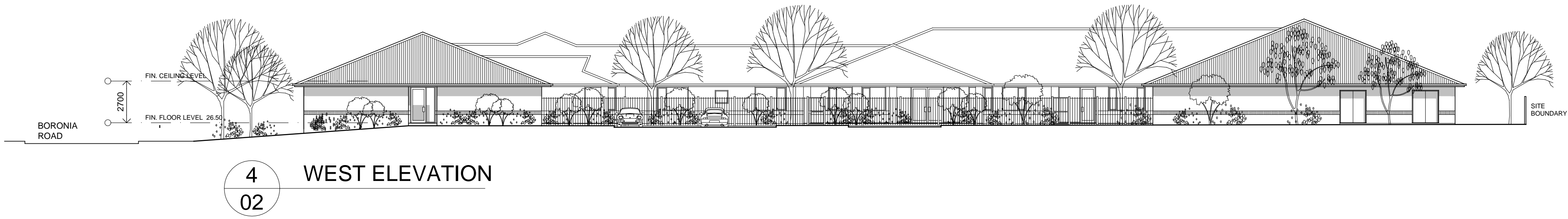
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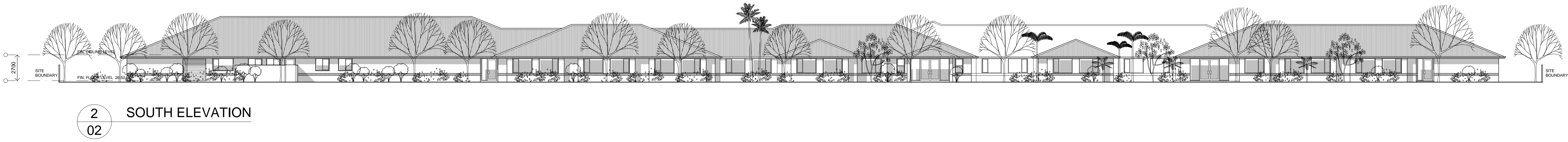
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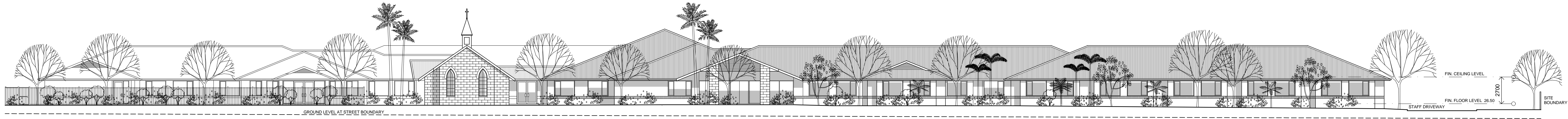
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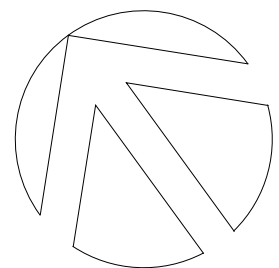
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02 EAST ELEVATION



2  
02 SOUTH ELEVATION



1  
02 NORTH ELEVATION  
TO BORONIA ROAD



PROJECT

AGED CARE FACILITY AT 183-197  
BORONIA ROAD NORTH  
ST. MARYS NSW

LOT 312 IN DP 863203

CLIENT

For THOMPSON HEALTH CARE

DRAWING

DATE	NOV 2011
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ELEVATIONS +  
SECTIONS

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ISSUE	A
PROJECT No	
DRAWING No	DA03



# Bushfire Hazard Assessment Report

***Proposed:***  
**Aged Care Facility**

***At:***  
**183-197 Boronia Road,  
North St Marys NSW**

*Reference Number:* 100573

*Prepared For:*  
Thompson Health Care Pty Ltd  
C/- Northside Constructions P/L

## DRAFT 01

**27<sup>th</sup> October 2011**



*Prepared By:*  
**Building Code & Bushfire  
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**Certified Business**  
Bushfire Planning & Design  
BPD-BA-02354



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## List of Abbreviations:

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APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Penrith City Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire & Rescue NSW
IPA	Inner Protection Area
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2006
ROW	Right of Way
RF Act	Rural Fires Act - 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

## 1.0 Introduction

---

The development proposal relates to the establishment of an Aged Care Facility within an existing allotment located at 183-197 Boronia Road, North St Marys NSW. The proposal will involve the construction of a large aged care facility, including 116 rooms, various amenities and associated infrastructure.

The subject property has street frontage to Boronia Road to the north and abuts private residential allotments to the east and south and a commercial allotment to the west. The vegetation identified as being the hazard is to the northeast within the St Marys Rugby Leagues Club allotment.

Penrith City Council's Bushfire Prone Land Map identifies the subject property as being within the 100 metre buffer zone from designated Category 1 Vegetation and therefore the application of *Planning for Bush Fire Protection - 2006* (PBP) must apply in this instance.

## 2.0 Purpose of Report

---

The purpose of this Bushfire Assessment Report is to provide the centre, The Rural Fire Service and Council with an independent bushfire hazard determination together with appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that the Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

## 3.0 Scope of this Report

---

The scope of this report is limited to providing a bushfire hazard assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

## 4.0 Referenced Documents and Persons

---

Comments provided are based on the requirements of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), the *Rural Fires Act 1997*, the *Rural Fires Regulation 2008*, the RFS document known as '*Planning for Bush Fire Protection 2006*' for the purposes of bushfire hazard determination and *Australian Standard 3959 2009* titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has made a site inspection of the subject property and the surrounding area.

Plans relied upon for this assessment include the Ground Floor Plan prepared by Geoffrey Martin + Associates Pty Ltd, drawing no SK1, dated July 2010.

## 5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2006*.

	North	Northeast	South	West
<b>Vegetation Structure</b>	Maintained sports ovals	Woodland	Maintained curtilages	Maintained gardens
<b>Slope</b>	n/a	0 - 5 degrees up	n/a	n/a
<b>Required Asset Protection Zone</b>	n/a	40 metres	n/a	n/a
<b>Proposed Asset Protection Zone</b>	n/a	94 metres	n/a	n/a
<b>Significant Environmental Features</b>	Boronia Road	Boronia Road	Neighbouring private residential allotments	Existing commercial allotment
<b>Threatened Species</b>	APZ Existing	APZ Existing	APZ Existing	APZ Existing
<b>Aboriginal Relics</b>	APZ Existing	APZ Existing	APZ Existing	APZ Existing
<b>Bushfire Attack Level</b>	n/a	BAL 12.5	n/a	n/a
<b>Required Construction Level</b>	BAL 12.5	BAL 12.5	BAL 12.5	BAL 12.5
<b>Proposed Construction Level</b>	BAL 12.5	BAL 12.5	BAL 12.5	BAL 12.5

### Asset Protection Zones Compliance

The minimum required Asset Protection Zone for Special Fire Protection Purpose development was determined from Table A2.6 of PBP to be 40 metres. The proposed aged care facility will provide Asset Protection Zones (APZ) of 94 metres to the northeast.

The APZ was found to consist of grounds within the subject property and land 'equivalent to an APZ', being maintained grounds within neighbouring private residential allotments, Boronia Road and the new car park within St Marys Rugby League Club.

### Construction Level Compliance

The highest Bushfire Attack Level to the proposed aged care facility was determined to be 'BAL 12.5'. The proposed aged care facility must therefore be constructed to BAL 12.5 under section 3 & 5 of AS 3959 – 2009 and the additional provisions within the addendum to Appendix 3 of PBP.



## Access and Services

Guideline Ref.	Proposed Development Determinations	Compliance
Property Access	The western carpark and loading dock access drive has been design to satisfy the requirements for Internal Roads as detailed in section 4.2.7 of PBP. The provision of this complying access in conjunction with the existing road frontages provides a less than 70 metre path to the external perimeter of the proposed aged care facility.	Yes
Water Supply	Existing hydrants are available along Boronia Road, Grose Avenue and Aylett Street. Furthermore an internal hydrant system will be installed throughout the subject property as part of this development.	Yes
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is recommended that the facility prepare a Bush Fire Evacuation Plan in accordance with the NSW Rural Fire Service guidelines.	Yes

## 6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area Land and Property Management Authority 2010

## 7.0 Bushfire Hazard Assessment

### 7.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document '*Planning for Bush Fire Protection - 2006*' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in *Australian Standard 3959 – 2009 'Construction of buildings in bushfire prone areas'*.

*Planning for Bush Fire Protection – 2006*, (PBP) formally adopted on the 1<sup>st</sup> March 2007 and amended May 2010 (Appendix 3) provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside a determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The subject development relates to the establishment of an aged care facility within an existing allotment. To accord with PBP the development is classified as Special Fire Protection Purpose development and assessed as under section 100b under the *Rural Fires Act 1997*.

#### Legend

- BUSH FIRE PRONE VEGETATION CATEGORY 1
- BUSH FIRE PRONE VEGETATION CATEGORY 2
- BUSH FIRE PRONE VEGETATION BUFFER 100m and 30m
- SEPP5 EXCLUSION AREA  
(As shown on STATE ENVIRONMENTAL PLANNING POLICY No5 Housing for Older People or People with Disability (Amendment No 6) Bush Fire Evacuation Risk Map)

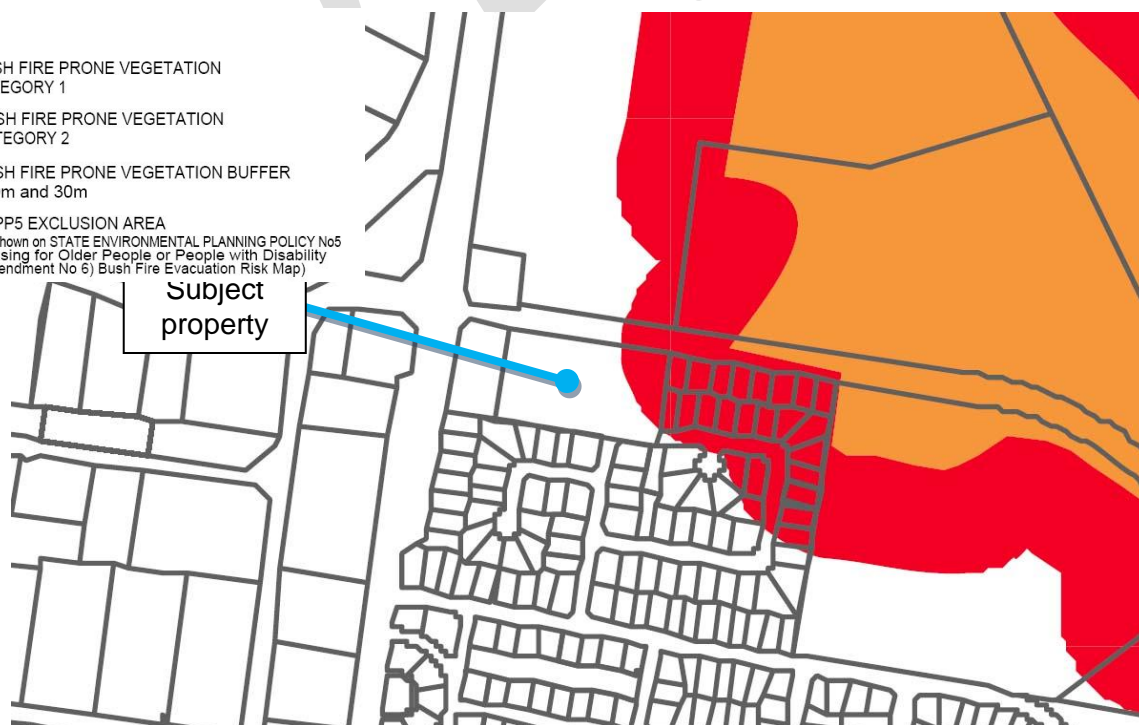


Image 02: Extract from Penrith City Council's Bushfire Prone Land Map



## 7.02 Location

The subject property is located at 183-197 Boronia Road, North St Marys (Lot 312 in DP 863203) and is within Penrith City Councils Local Government Area. The subject property has street frontage to Boronia Road to the north and abuts neighbouring private residential allotments to the east and south and a commercial allotment to the west.

The proposed aged care facility is susceptible to possible bushfire impact from vegetation within the St Marys Rugby League allotment to the northeast.



Photograph 01: View southeast from Boronia Road toward the subject property

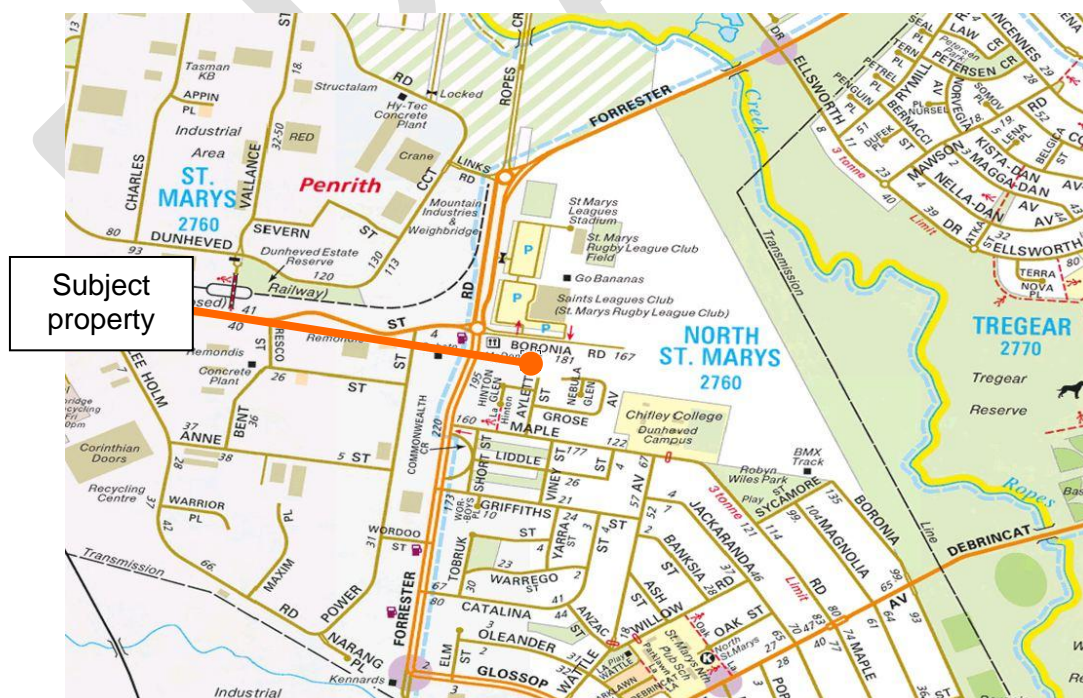


Image 03: Extract from street-directory.com.au

### 7.03 Vegetation

The predominate vegetation within the subject property was found to consist of mown lawns. The neighbouring private residential allotments were found to consist of maintained lawns and gardens around existing dwellings and hard surfaced areas.

The vegetation identified as posing a bushfire hazard to the proposed development is located to the northeast within the St Marys Rugby League Club allotment. The vegetation posing a hazard was found to consist of trees 10-30 metres in height with a 10-30% foliage cover and an understorey of grasses.

For the purpose of assessment under PBP the vegetation to the northeast was determined to be Woodland.

Woodland



Photograph 02: View northeast from Boronia Road toward the hazard interface

Woodland



Photograph 03: View north from Boronia Road toward the hazard interface



## 7.04 Slope and Topography

The slope that would most significantly affect fire behaviour must be assessed for at least 100 metres from the proposed new aged care facility. The most significant bushfire impact from the hazard to the northeast is expected to be a bushfire travelling across slope toward the development site.

The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified using topographic imagery to be:

- 0-5 degrees up slope within the hazard to the northeast



0-5 degrees  
up

Photograph 04: View northeast from within the subject property

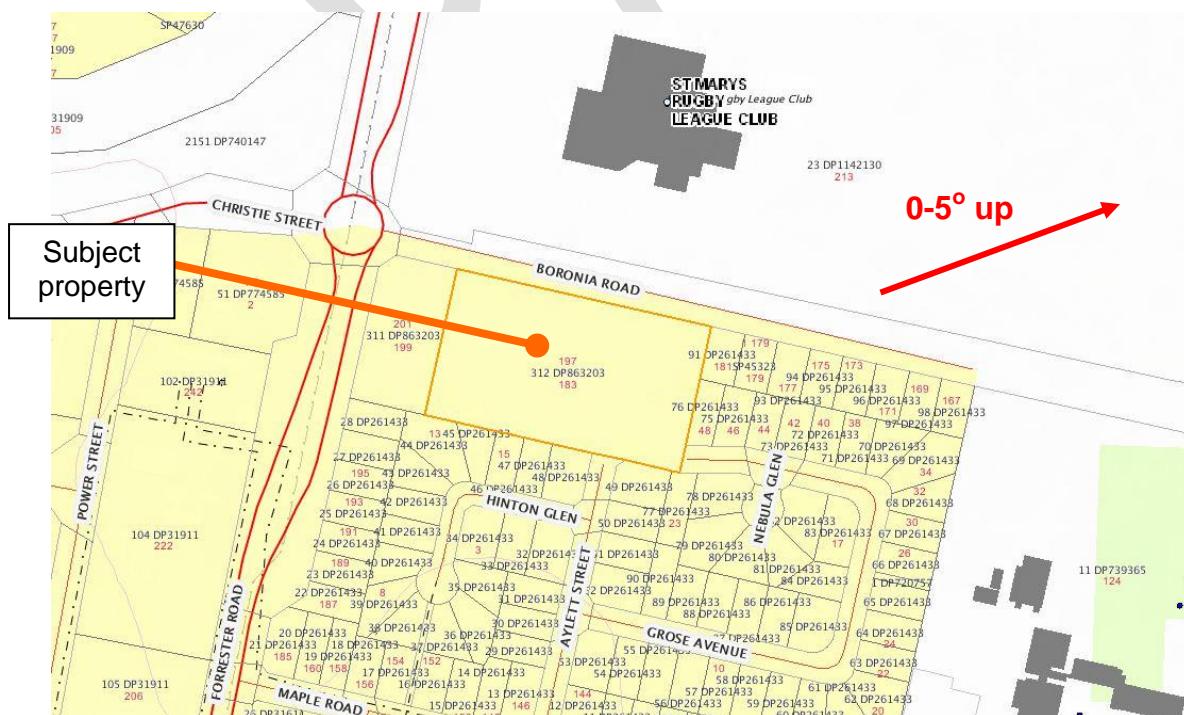


Image 04: Extract from Land and Property Management Authority Spatial Information Exchange

## 7.05 Asset Protection Zones

The minimum required Asset Protection Zone was determined from Table A2.6 of Planning for Bush Fire Protection 2006 to be 40 metres.

The proposed new aged care facility was found to be located 94 metres from the hazard to the northeast. The Asset Protection Zone was found to consist of grounds within the subject property and land 'equivalent to an APZ' being maintained grounds within neighbouring private residential allotments and the St Marys Rugby League Club allotment and Boronia Road.

The grounds within the subject property not built upon will be maintained entirely as Inner Protection Areas as detailed in Appendix 2 of *Planning for Bush Fire Protection 2006* and the NSW Rural Fire Service document '*Standards for Asset Protection Zones*'.



Photograph 05: View northeast from within the subject property of the APZ



Photograph 06: View west along Boronia Road of the APZ

## 7.06 Fire Fighting Water Supply

Existing in-ground hydrants were found along Boronia Road, Grose Avenue and Aylett Street which can be used for the replenishment of attending fire-fighting appliances. Furthermore an external hydrant system will be installed thought the subject property in accordance with AS2419.1 – 2005.

As the proposal involves the construction of a Class 9C structure it will also include the installation of an internal sprinkler system, fire hose reels, automatic fire detection system and first aid fire-fighting equipment (i.e. fire extinguishers and fire blankets) in accordance with the National Construction Code (formally Building Code of Australia) and relevant Australian Standards.

The proposed water supply achieves compliance with section 4.2.7 of *Planning for Bush Fire Protection 2006*.



Photograph 07: View southwest from Boronia Road toward the subject property

## 7.07 Property Access – Fire Services & Evacuation

The subject property has street frontage to Boronia Road to the north, Grose Avenue to the east and Aylett Street to the south.

The proposed application includes a fully compliant access drive for the western carpark/ loading dock inclusive of 'T' turning provisions, a formed pedestrian path around the perimeter of the building and pedestrian access gates at the entrance of Grose Avenue and Aylett Street.

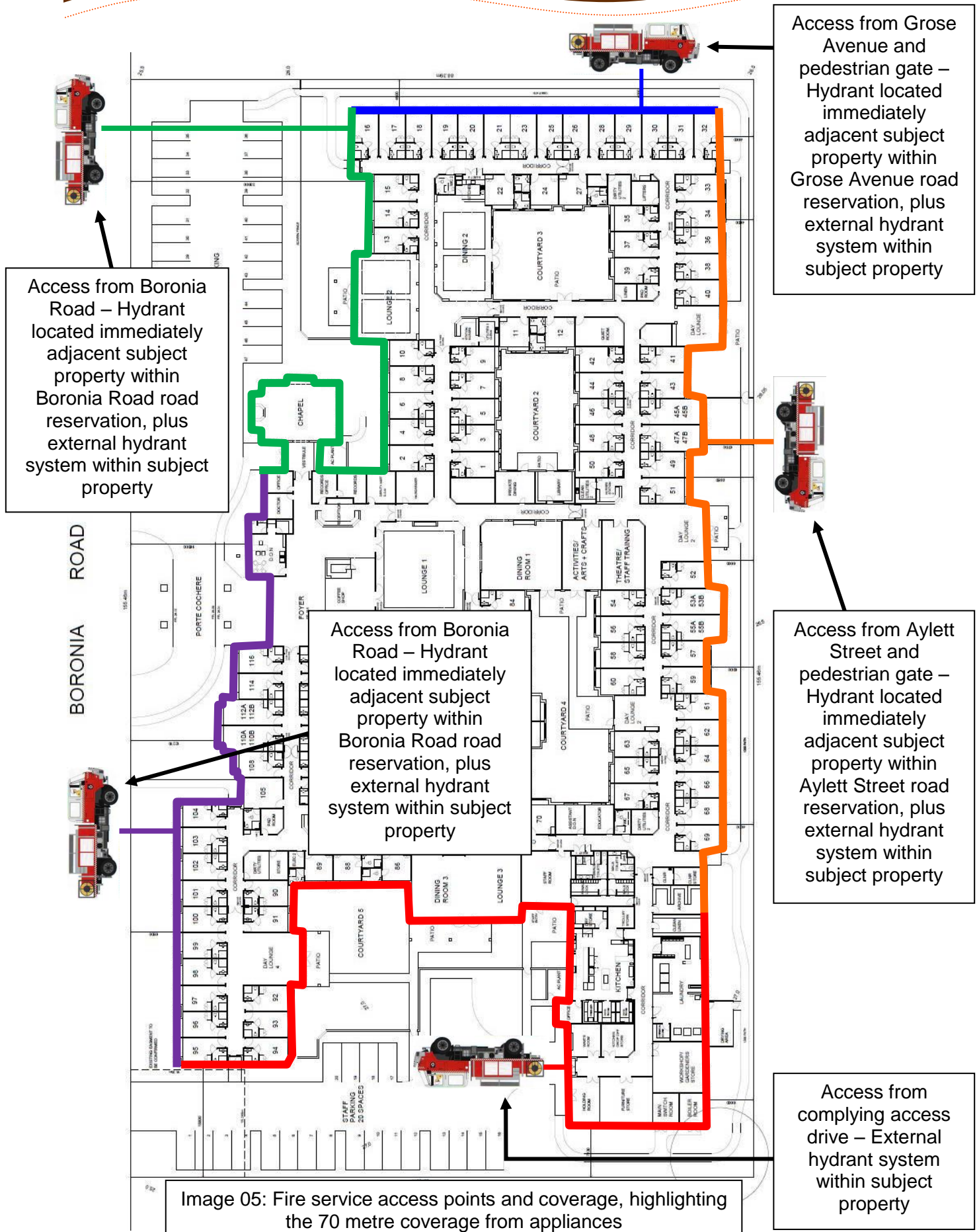
The provisions of the above provides attending fire services access to the entire perimeter of the proposed aged care facility, while not exceeding 70 metres. Access points for attending fire services include, Boronia Road, Grose Avenue and Aylett Street via the proposed pedestrian access gates and the complying access drive to the loading dock. The access coverage is depicted on Image 05.

It will be recommended that clear signage be provided at the hydrant booster point within the subject property identifying the various access points to the subject property, importantly the pedestrian access gates at Grose Avenue and Aylett Street.

Given the comprehensive fire service coverage proposed the north eastern carpark does not require compliance with Internal Roads as detailed in section 4.2.7 of *Planning for Bush Fire Protection 2006*.

Attending fire crews can access the hazard via Boronia Road or the existing carpark within St Marys Rugby League Club for hazard reduction or fire suppression activities without the need to enter the subject property.







## 8.0 Site & Bushfire Hazard Determination

### 8.01 Planning for Bush Fire Protection - 2006

'Planning for Bush Fire Protection – 2006' (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

*Bushfire prone areas are defined as those areas;*

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject property has been identified as being bushfire prone land therefore it is appropriate to apply PBP as follows:

#### North - eastern Aspect:

- a) Vegetation Structure Woodland
- b) Slope 0-5 degrees up slope
- c) A 40 metre APZ is required
- d) A 94 metre APZ is available
- e) The highest Bushfire Attack Level was determined to be 'BAL 12.5'

### 8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2009 'Construction of buildings in bushfire-prone areas' provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the Planning for Bush Fire Protection – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

### 8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m <sup>2</sup> )	Level of construction under AS3959-2009
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

## 8.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed development located at 183-197 Boronia Road, St Marys was assessed against the requirements of *Planning for Bush Fire Protection 2006* noting the following:

- Water supplies for fire fighting purposes will satisfy section 4.2.7 of PBP.
- The proposed new aged care facility was found to be within a Bushfire Attack Level of '12.5'.
- The existing access provisions in conjunction with the proposed access drive to the loading dock, formed perimeter pedestrian path and pedestrian access gates will provide adequate coverage for attending fire services.
- The proposed aged care facility was found to be located 94 metres from any identified bushfire hazard.

## 8.05 Viable Construction Method

The objectives of *Planning for Bush Fire Protection – 2006* are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

The highest Bushfire Attack Level to the proposed aged care facility was determined to be 'BAL 12.5'. The proposed aged care facility must therefore be constructed to BAL 12.5 under section 3 & 5 of AS 3959 – 2009 and the additional provisions within the addendum to Appendix 3 of PBP.

## 8.06 Risk Rating

In assessing the bushfire threat to the site and its structures it is important to have a holistic approach and assess the risk of a bushfire occurring and impacting the subject property. It is also important to include the risk the site poses to neighbouring properties.

Image 06 is an overview of risk to the subject aged care facility. This model takes a holistic approach and assesses the risk of a bushfire occurring and impacting the site. This risk level can be reduced by either an increase in preparedness by the staff/ occupants of the facility (e.g. good house keeping, maintained lawns & bushfire awareness) and/or hazard reduction activities by local fire agencies. Alternatively this risk level can increase if the preparedness level decreases and/or hazard reduction activities are neglected for the area.

The matrix overleaf is for risk only, it does not reflect the Bushfire Attack Level determined within PBP 2006. Note: All new work will comply with the requirements of *Planning for Bush Fire Protection 2006*.

Consequence Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	Extreme
Possible	Insignificant	Low	Medium	High
Unlikely	Insignificant	Insignificant	Low	Medium

Image 06: Risk Matrix

## 9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with *Planning for Bush Fire Protection – 2006* and *Australian Standard 3959 - 2009*. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

### Asset Protection Zones

1. That all grounds within the subject property not built upon be maintained in accordance with an Inner Protection Area as detailed in Appendix 2 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service document 'Standards for Asset Protection Zones'.
2. That a Fuel Management Plan be established to ensure the ongoing management of the Asset Protection Zones within the subject property.

### Construction

3. That the proposed aged care facility be constructed to that of Section 3 and BAL 12.5 under Section 5 of AS3959 – 2009.
4. That the proposed aged care facility be constructed to that of the 'Additional Construction Requirements' detailed in A3.7 of the Addendum to Appendix 3 of Planning for Bushfire Protection 2006 and NSW Rural Fire Service Fast Facts, Development Control Notes and Practice Notes.

### Landscaping

5. That all landscaping is to comply with Appendix 5 'Landscaping and Property Maintenance' under Planning for Bush Fire Protection 2006.

### Emergency Management

6. An emergency/evacuation plan is prepared consistent with the RFS Guidelines for the *Preparation of Emergency/Evacuation Plan*.
7. Compliance with AS 3745-2002 'Emergency control organisation and procedures for buildings, structures and workplaces' for residential accommodation'. (Where applicable)
8. Compliance with AS 4083-1997 'Planning for emergencies - for health care facilities'. (Where applicable)
9. An Emergency Planning Committee is established to consult with residents and their families and staff in developing and implementing an Emergency Procedures Manual.
10. Detailed plans of all Emergency Assembly Areas including "onsite" and "offsite" arrangements as stated in AS 3745- 2002 are clearly displayed, and an annual (as a minimum) trial emergency evacuation is conducted.

### Water Supply

11. That the spacing, sizing and pressures of the proposed external hydrant system onsite comply with AS2419.1 – 2005.

## Access

12. That the proposed perimeter pedestrian access path and access drive servicing the western carpark/ loading dock complies with the Ground Floor Plan prepared by Geoffrey Martin + Associates Pty Ltd, drawing no SK1, dated July 2010.
13. That pedestrian access gates be provided to Grose Avenue and Aylett Street.
14. That clear signage be provided at the hydrant booster point within the subject property identifying the various access points to the subject property, importantly the pedestrian access gates at Grose Avenue and Aylett Street.
15. That the proposed access drive servicing the western carpark/ loading dock complies with section 4.2.7 (Access – Internal Roads) under Planning for Bush Fire Protection 2006, in particular:
  - Internal roads are two-wheel drive, sealed, all-weather roads;
  - Traffic management devices are constructed to facilitate access by emergency services vehicles.
  - A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches, is provided.
  - The minimum distance between inner and outer curves is six metres.
  - Roads are clearly sign-posted and bridges clearly indicate load ratings.
  - The internal road surfaces and bridges have a capacity to carry fully-loaded firefighting vehicles (15 tonnes).

## Services

16. That electrical transmission lines are underground.
17. Reticulated or bottled gas is installed and maintained in accordance with AS 1596 - 2002 and the requirements of relevant authorities. Metal piping is to be used.
18. All fixed LPG tanks are kept clear of all flammable materials and located on the non hazard side of the development.
19. If gas cylinders need to be kept close to the building, the release valves must be directed away from the building and away from any combustible material, so that they do not act as catalysts to combustion.
20. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

## 10.0 Conclusion

Given that the property is deemed bushfire prone under Penrith City Council's Bushfire Prone Land Map any development would need to meet the requirements of *Planning for Bush Fire Protection – 2006* and of the construction requirements of *Australian Standard 3959 – 2009*. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The vegetation identified as being the potential bushfire hazard is located to the northeast within the St Marys Rugby League Club allotment. For the purpose of assessment under PBP the vegetation to the northeast was determined to be Woodland.

The minimum required Asset Protection Zone was determined from Table A2.6 of Planning for Bush Fire Protection 2006 to be 40 metres.

The proposed new aged care facility was found to be located 94 metres from the hazard to the northeast. The Asset Protection Zone was found to consist of grounds within the subject property and land 'equivalent to an APZ' being maintained grounds within neighbouring private residential allotments and the St Marys Rugby League Club allotment and Boronia Road.

The highest Bushfire Attack Level to the proposed aged care facility was determined to be 'BAL 12.5' and therefore construction must comply with BAL 12.5 under section 3 & 5 of AS 3959 – 2009 and the additional provisions within the addendum to Appendix 3 of PBP

The proposal includes the installation of an internal sprinkler system, fire hose reels, automatic fire detection system and first aid fire-fighting equipment (i.e. fire extinguishers and fire blankets) in accordance with the National Construction Code (formally Building Code of Australia) and relevant Australian Standards.

The proposed application includes a fully compliant access drive for the western carpark/ loading dock inclusive of turning provisions, a formed pedestrian path around the perimeter of the building and pedestrian access gates at the entrance of Grose Avenue and Aylett Street.

The proposed access provisions and water supply satisfy the requirements of section 4.2.7 of Planning for Bush Fire Protection 2006.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is my opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development and also satisfy both the Rural Fire Service's concerns and those of Council in this area.

I am therefore in support of the development application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by  
Building Code & Bushfire Hazard Solutions



**Stuart McMonnies**

G. D. Design in Bushfire Prone Areas.  
Certificate IV Fire Technology  
Fire Protection Association of Australia BPAD – A Certified Practitioner  
Certification number – BPD – PA-09400

Reviewed by  
Building Code & Bushfire Hazard Solutions P/L



**Wayne Tucker**

G. D. Design in Bushfire Prone Areas.  
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Fire Protection Association of Australia BPAD – A Certified Practitioner  
Certification number – BPD – PA-09399

**Disclaimer:**

Quote from Planning for Bush Fire Protection 2006, 'Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above..'

Similarly the interpretations and opinions provided by Building Code and Bushfire Hazard Solutions in regard to bushfire protection are also given in the same good faith.

## 11.0 Annexure 01

### List of Referenced Documents

- a) *Environmental Planning and Assessment Act - 1979*
- b) *Rural Fires Act 1997 as amended*
- c) *'Planning for Bush Fire Protection'- 2006* - NSW Rural Fire Services & Planning NSW
- d) *'Construction of buildings in bushfire prone areas'* - AS 3959 – 2009 (as - amended) – Standards Australia
- e) *'Ocean Shores to Desert Dunes' David Keith*
- f) *'Penrith City Council's Bushfire Prone Land Map'*
- g) Acknowledgements to:
  - UBD Directories
  - NSW Department of Lands – SixViewer
  - Street-directory.com.au

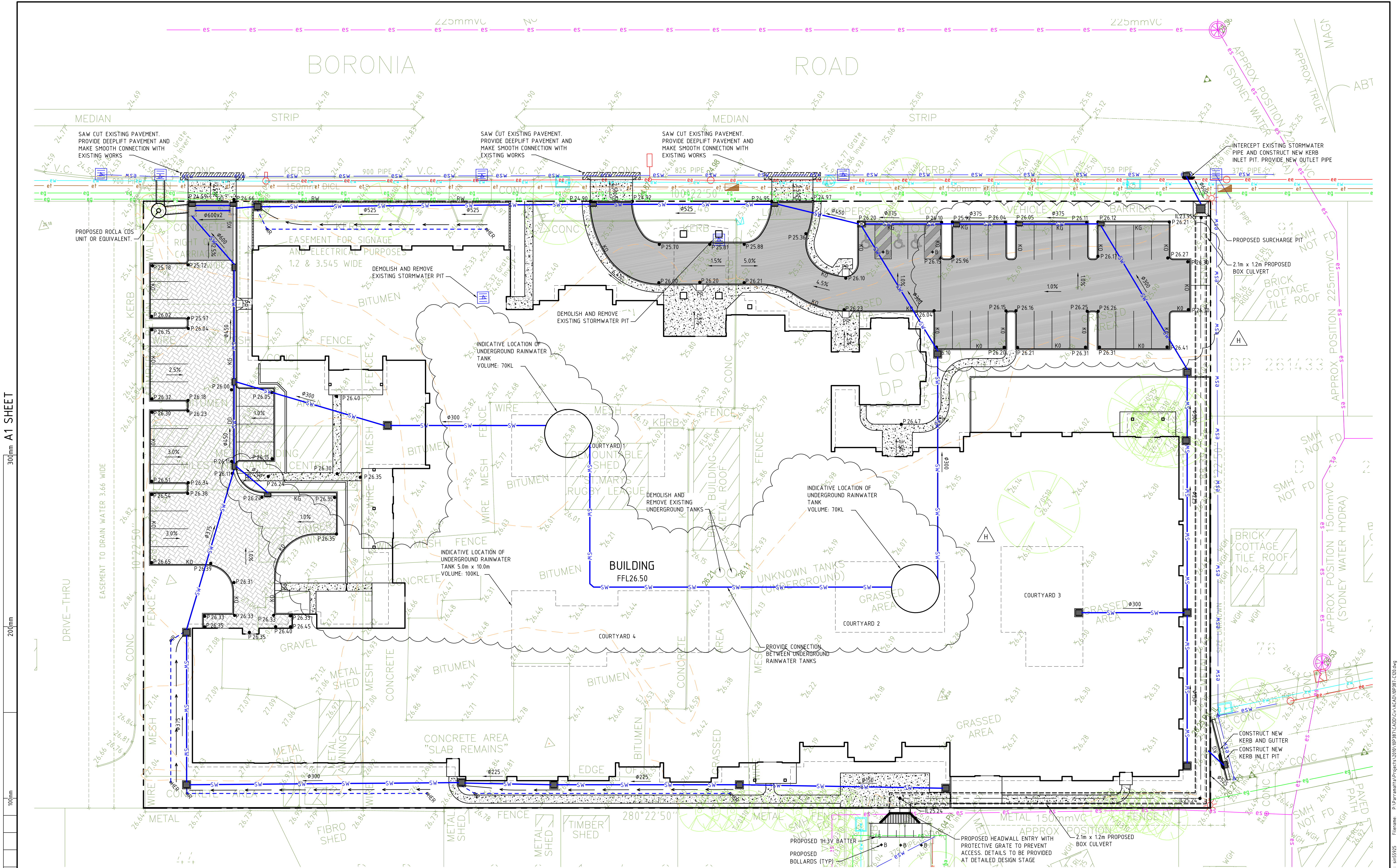
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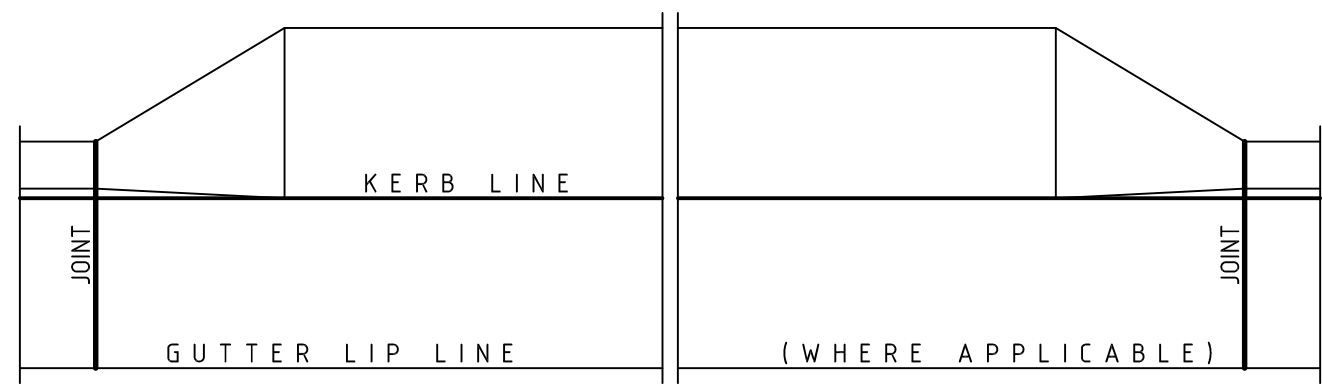




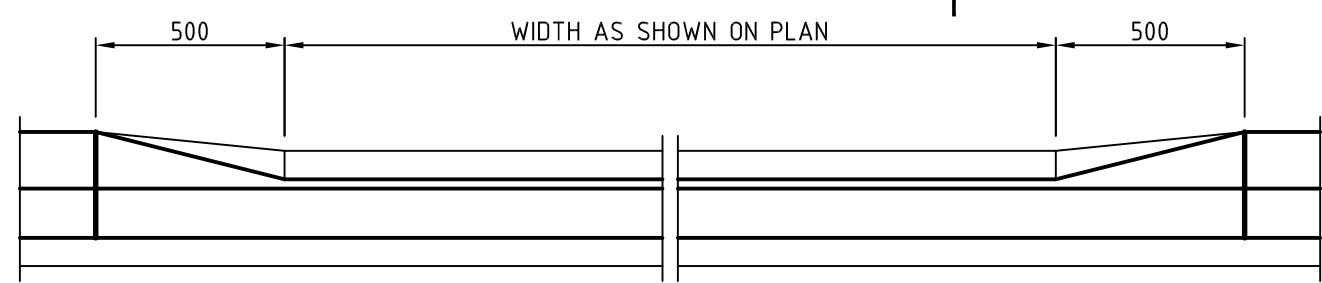
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F	ISSUED FOR CLIENT REVIEW	13.04.11	ADS	JG	X						Client	Drawing No.
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D	ISSUED FOR CLIENT REVIEW - HUMEGARD REMOVED	23.03.11	ADS	JG	X						Architect/Project Manager	Rev
C	ISSUED FOR CLIENT REVIEW	11.03.11	ADS	JG	X						GEOFFREY MARTIN ASSOCIATES	H
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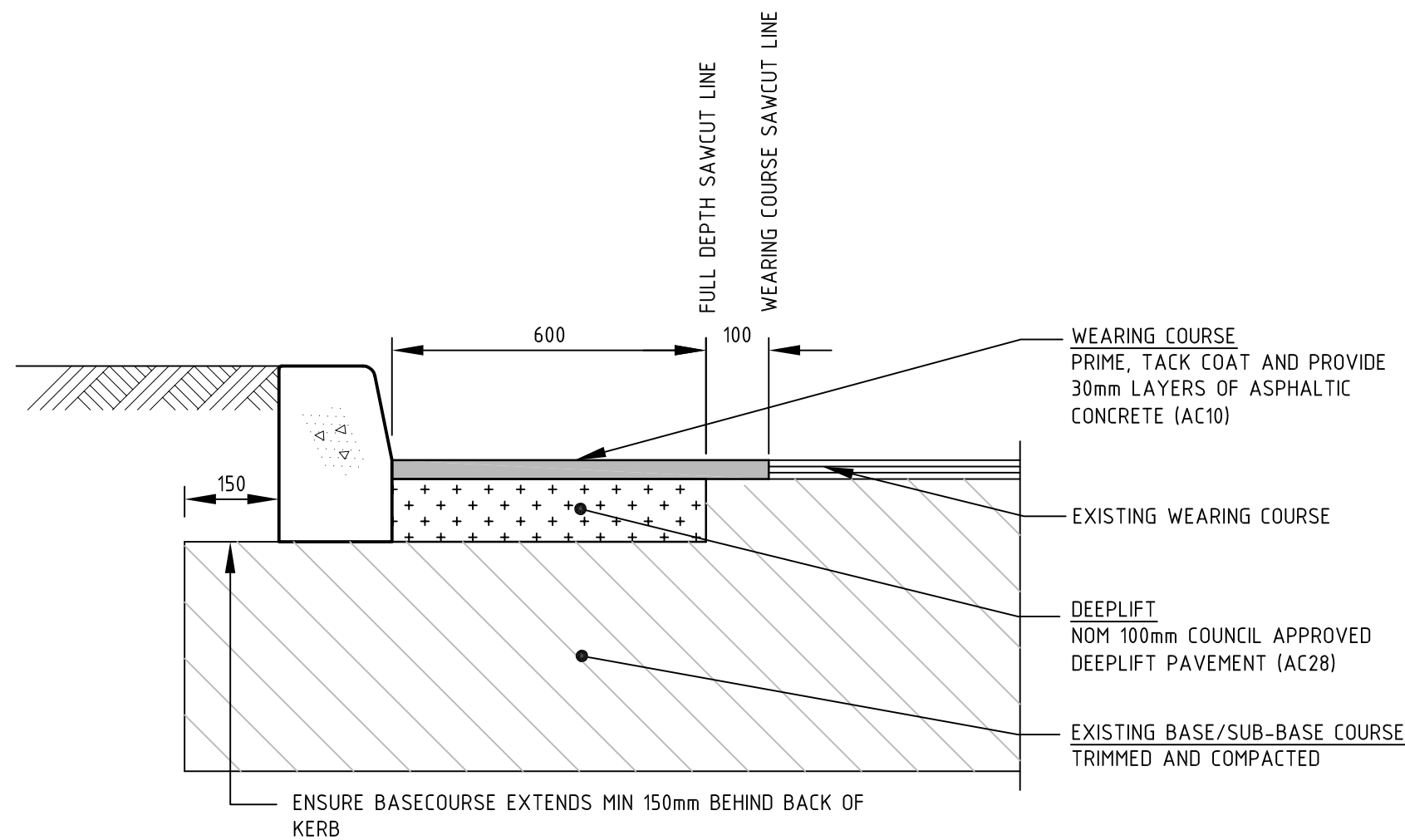


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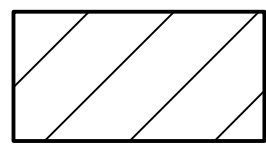


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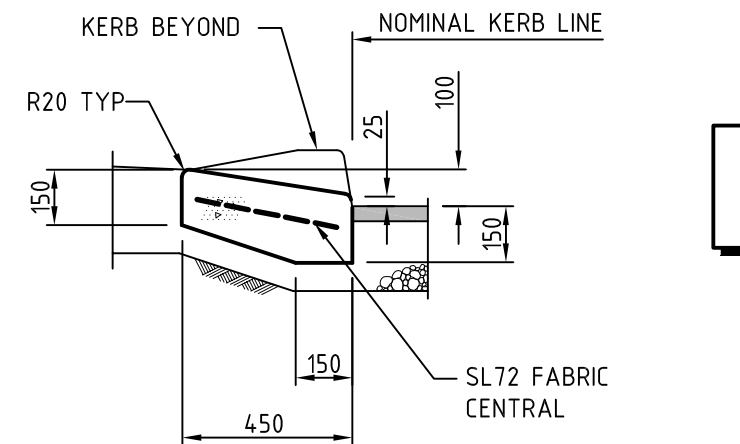
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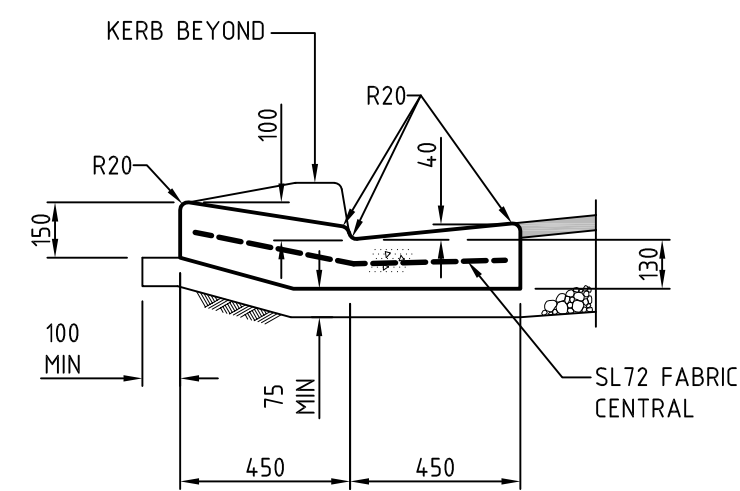
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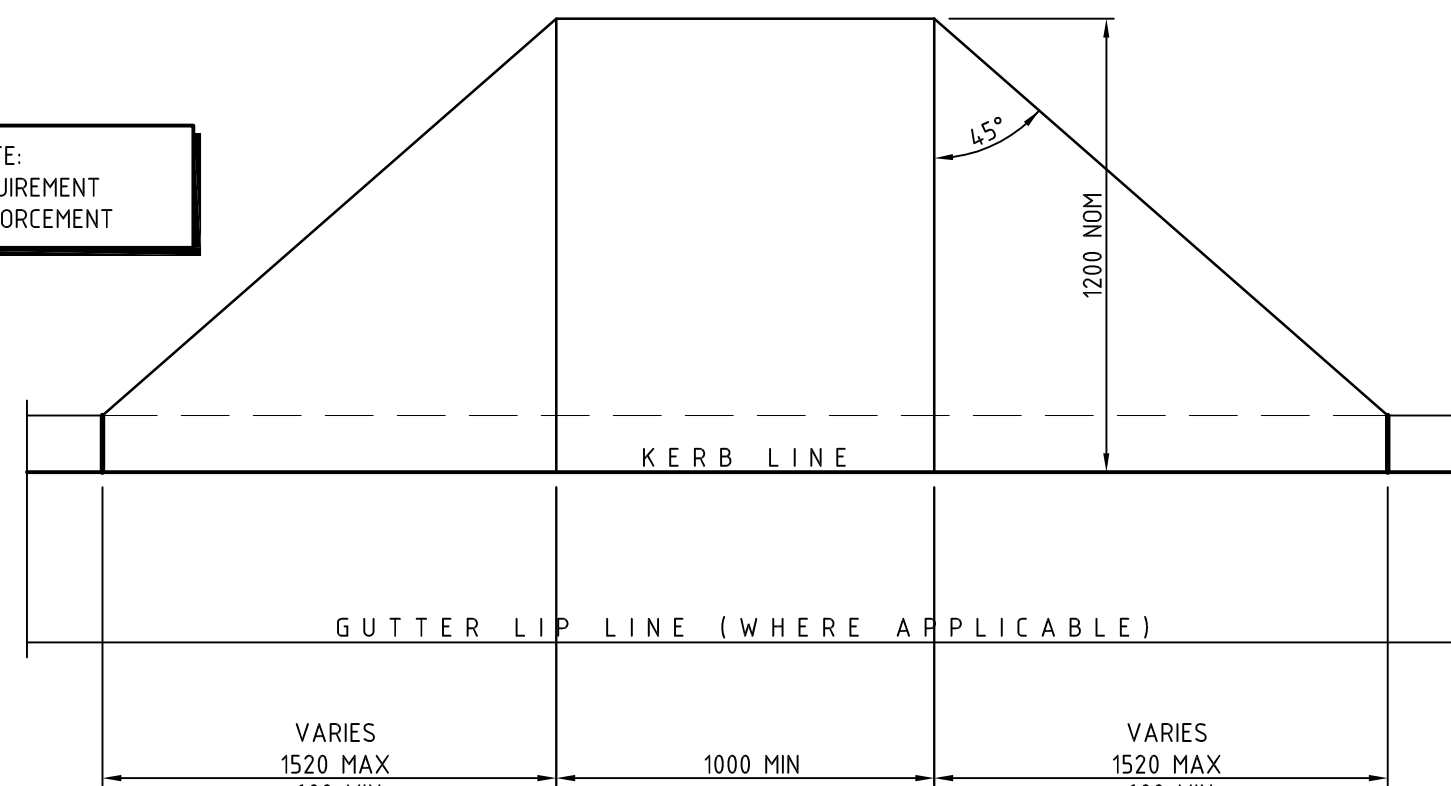


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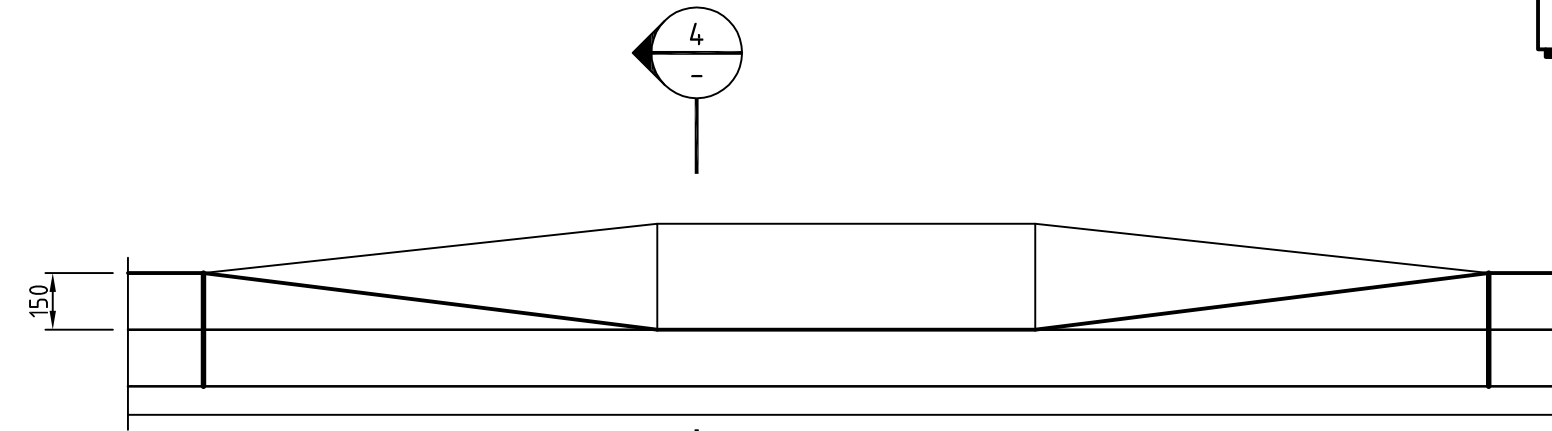


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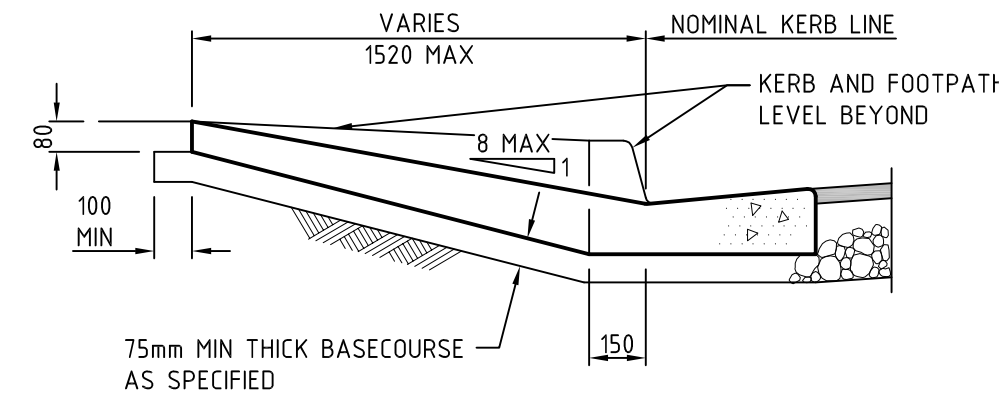
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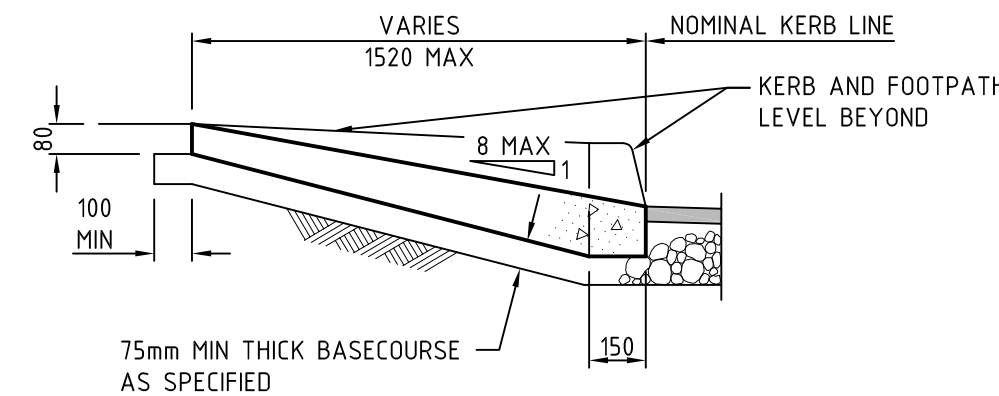
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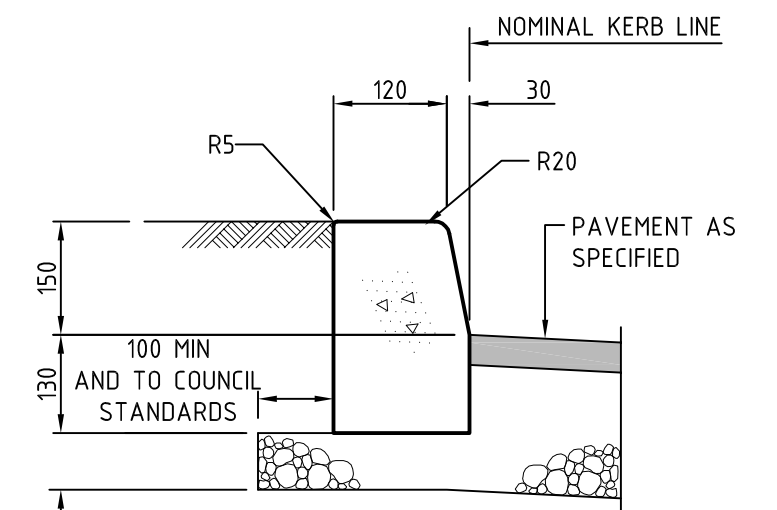
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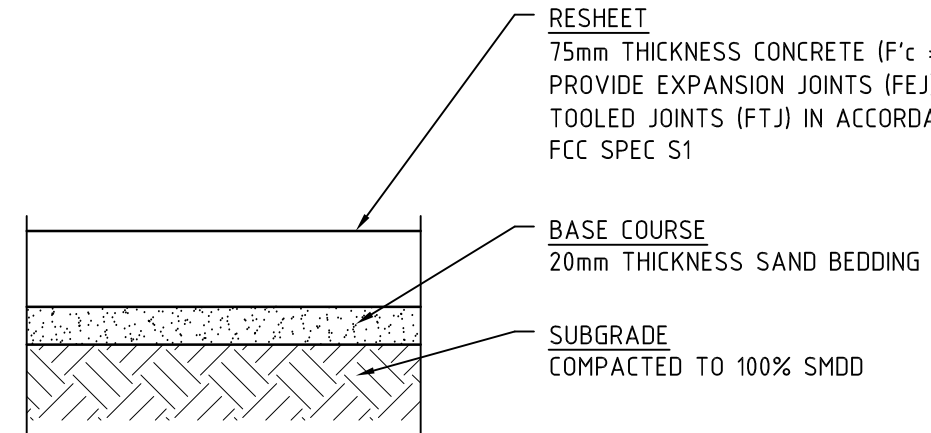


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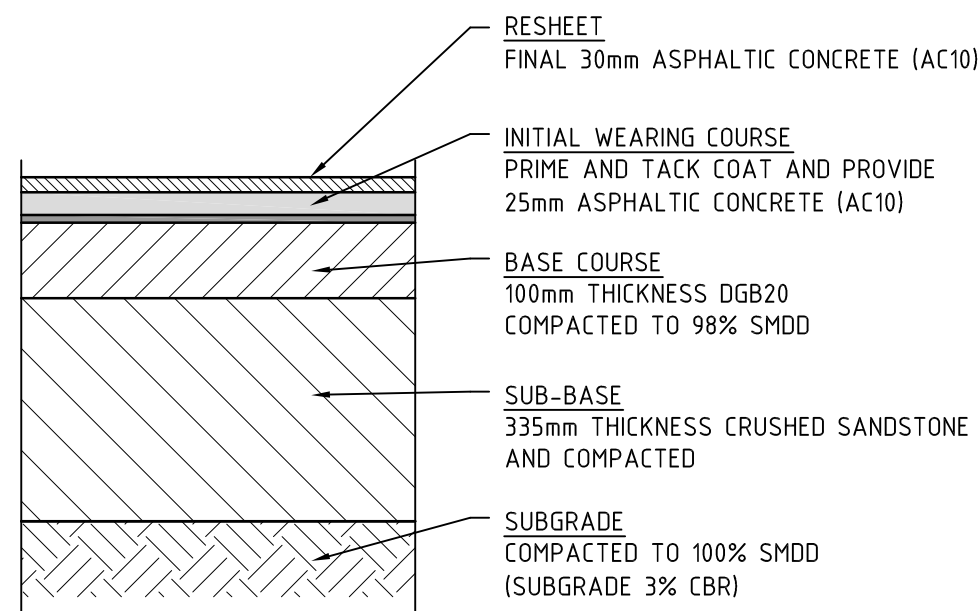
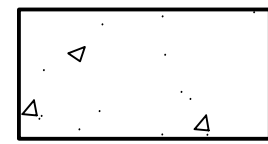


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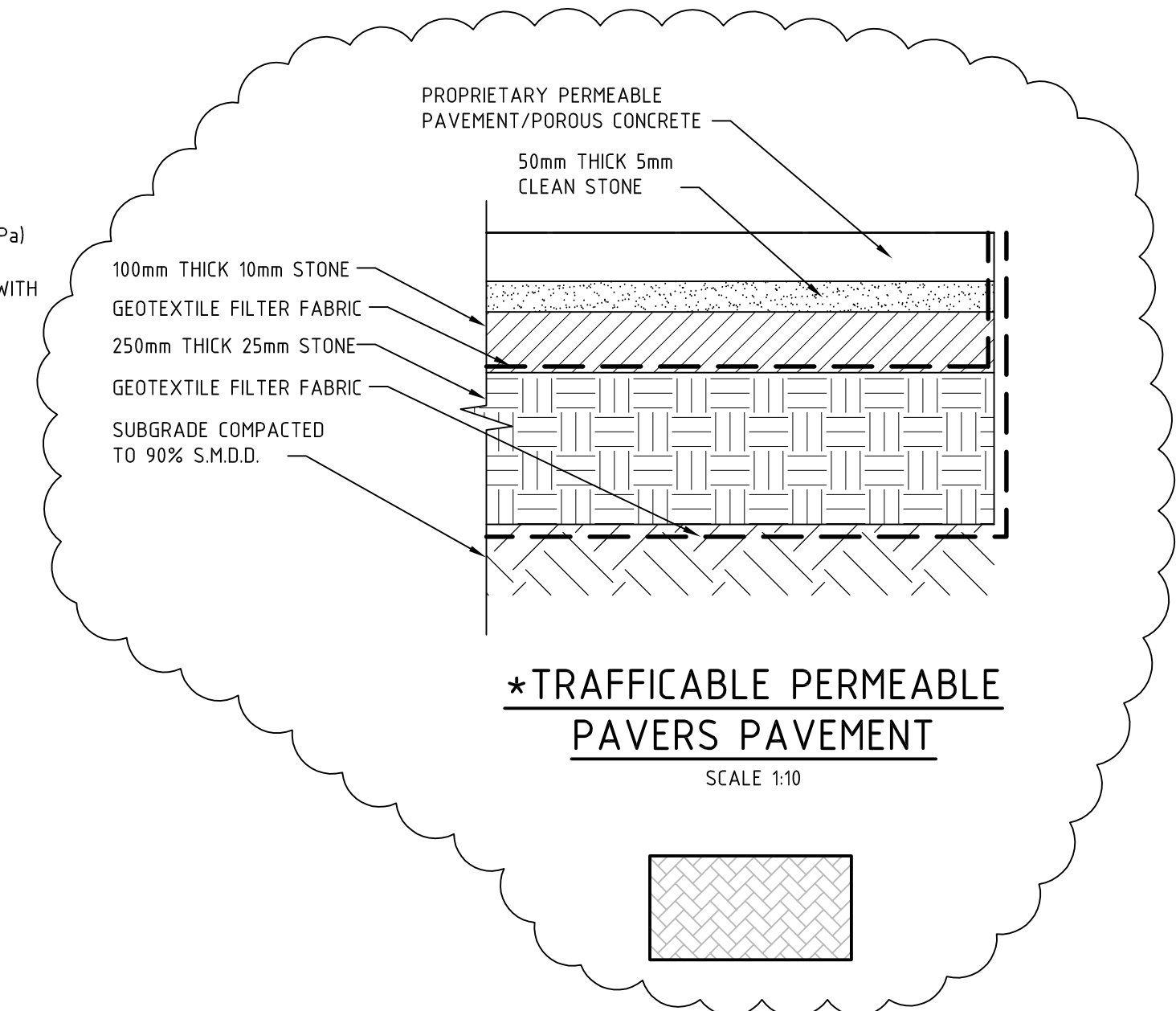
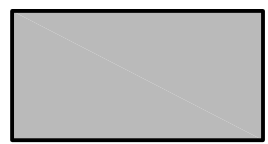
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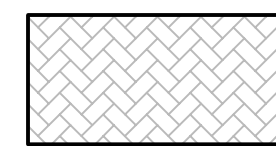
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\*FULL DEPTH RECONSTRUCTION  
FLEXIBLE PAVEMENT OPTION  
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\*TRAFFICABLE PERMEABLE  
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Project  
**ST MARYS  
RETIREMENT VILLAGE**

Client  
**GEOFFREY MARTIN ASSOCIATES**

Architect/Project Manager  
**GEOFFREY MARTIN ASSOCIATES**

Drawing Title  
**SITWORKS DETAILS  
SHEET 1**

Drawing No.  
**10P387 - C130**

Rev  
**E**




ST MARYS RETIREMENT  
VILLAGE  
CIVIL WORKS

Sheet List Table	
Sheet Number	Sheet Title
C100	COVER SHEET
C105	GENERAL NOTES AND LEGENDS
C110	EROSION AND SEDIMENT CONTROL PLAN
C120	SITEWORKS PLAN
C130	SITEWORKS DETAILS SHEET 1
C131	SITEWORKS DETAILS SHEET 2



NORTH ST MARYS  
LOCALITY PLAN  
Not To Scale


ISSUED FOR DA



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**COVER SHEET**

Hughes Trueman Project Number:

**10P387**

Drawing No.

**C100**

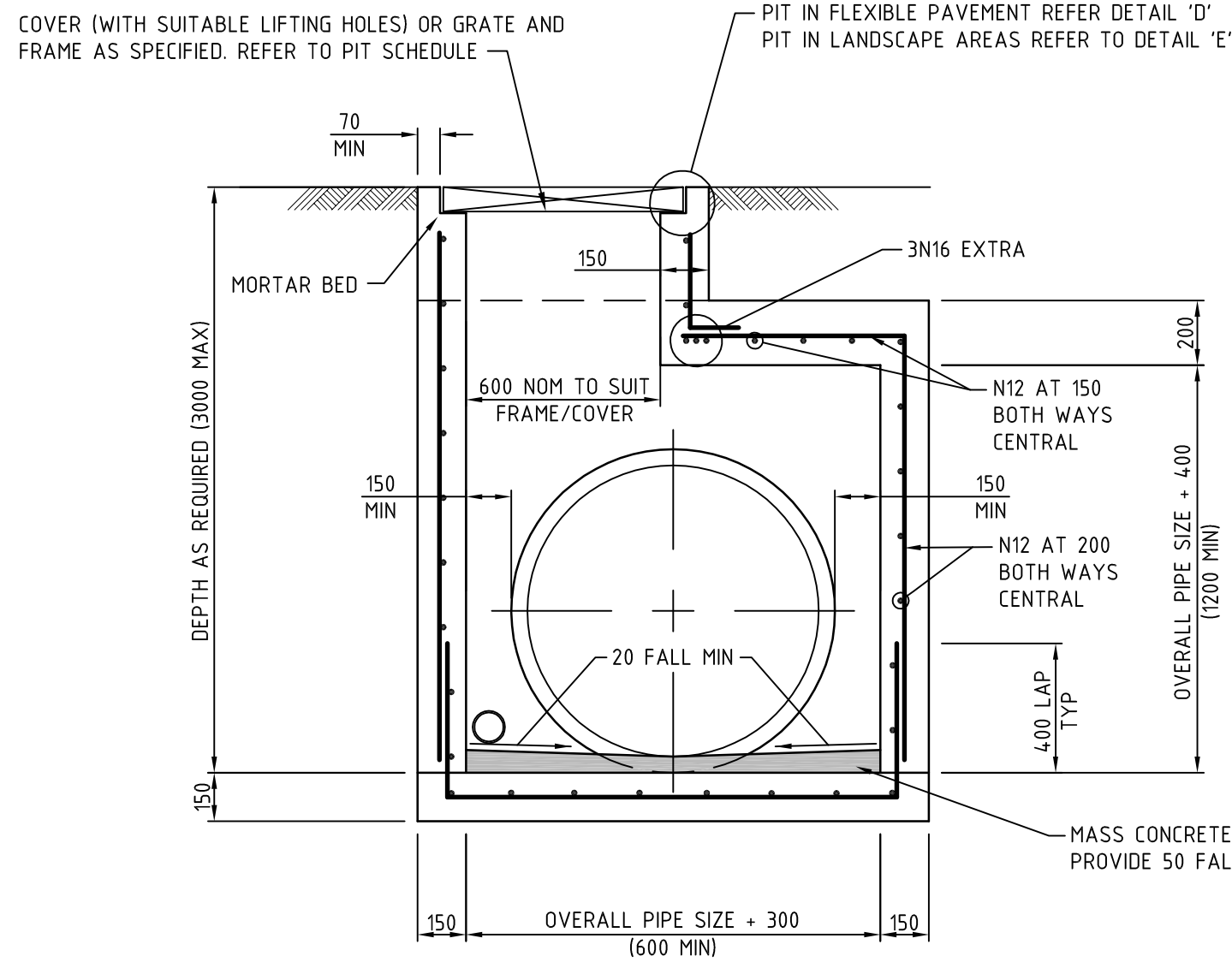
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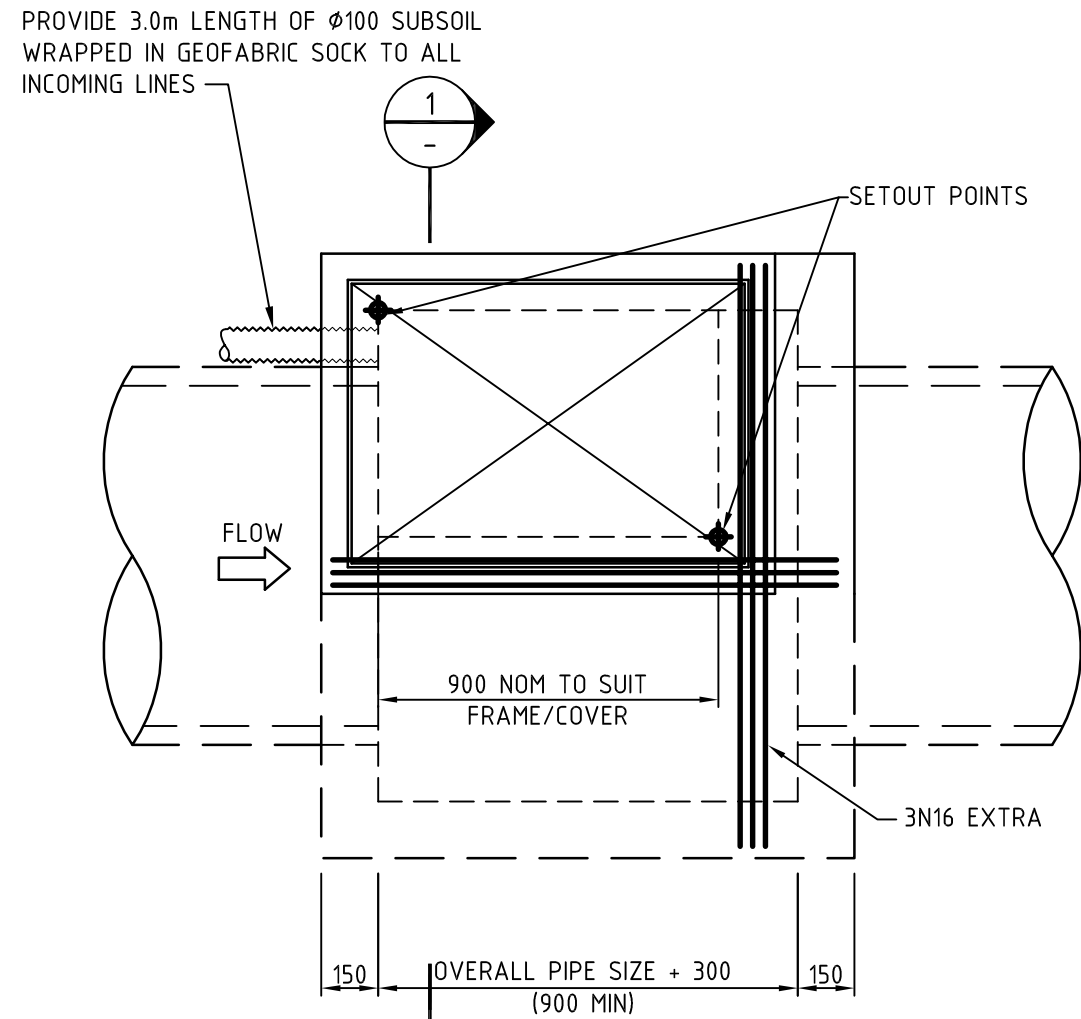
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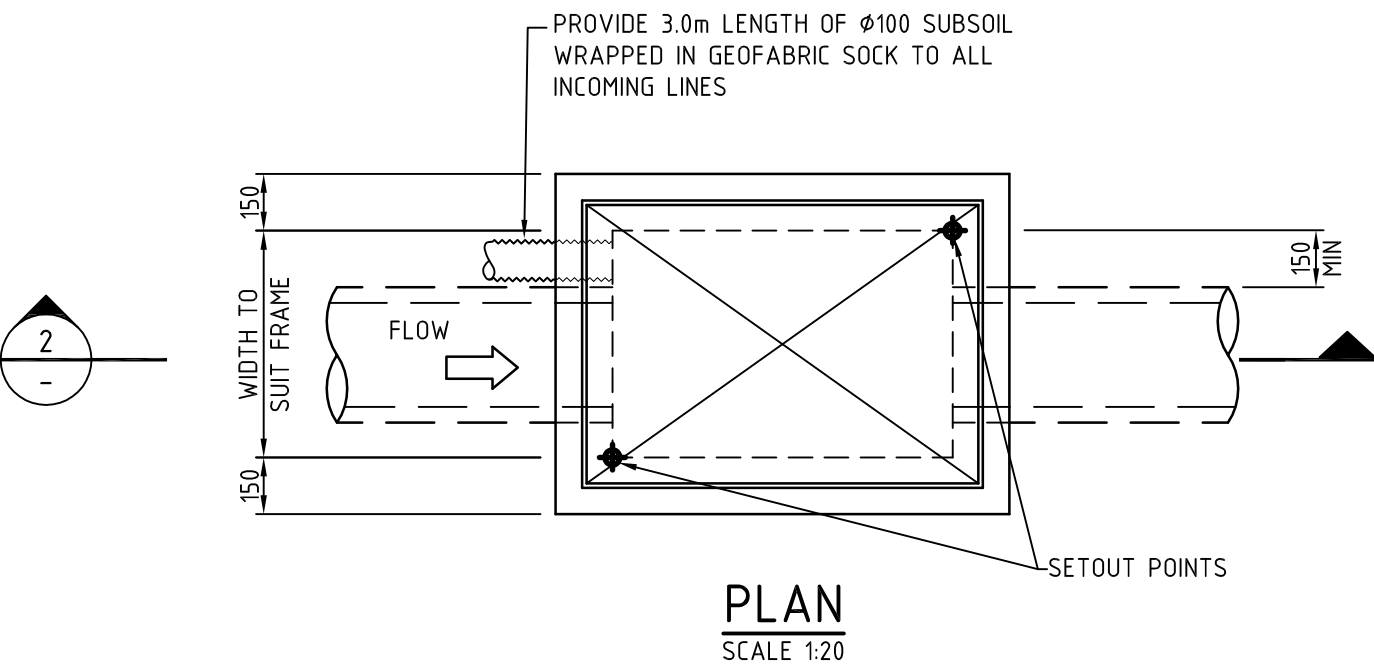
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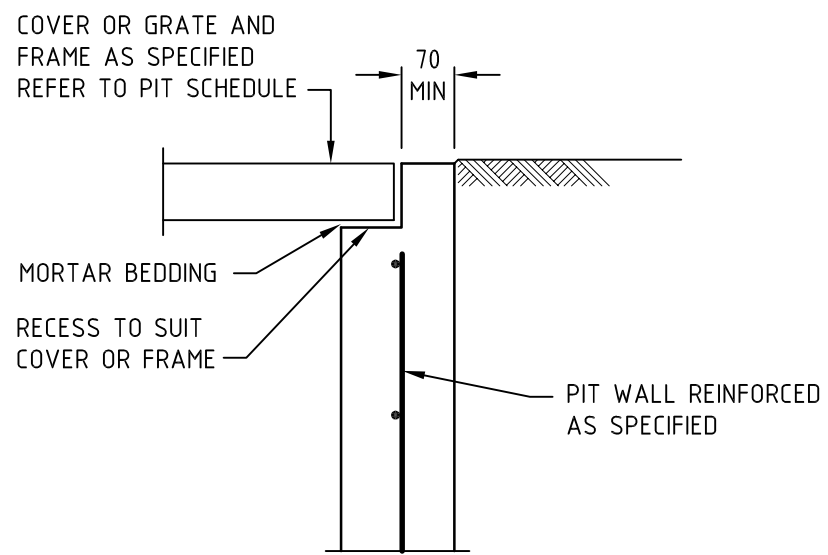
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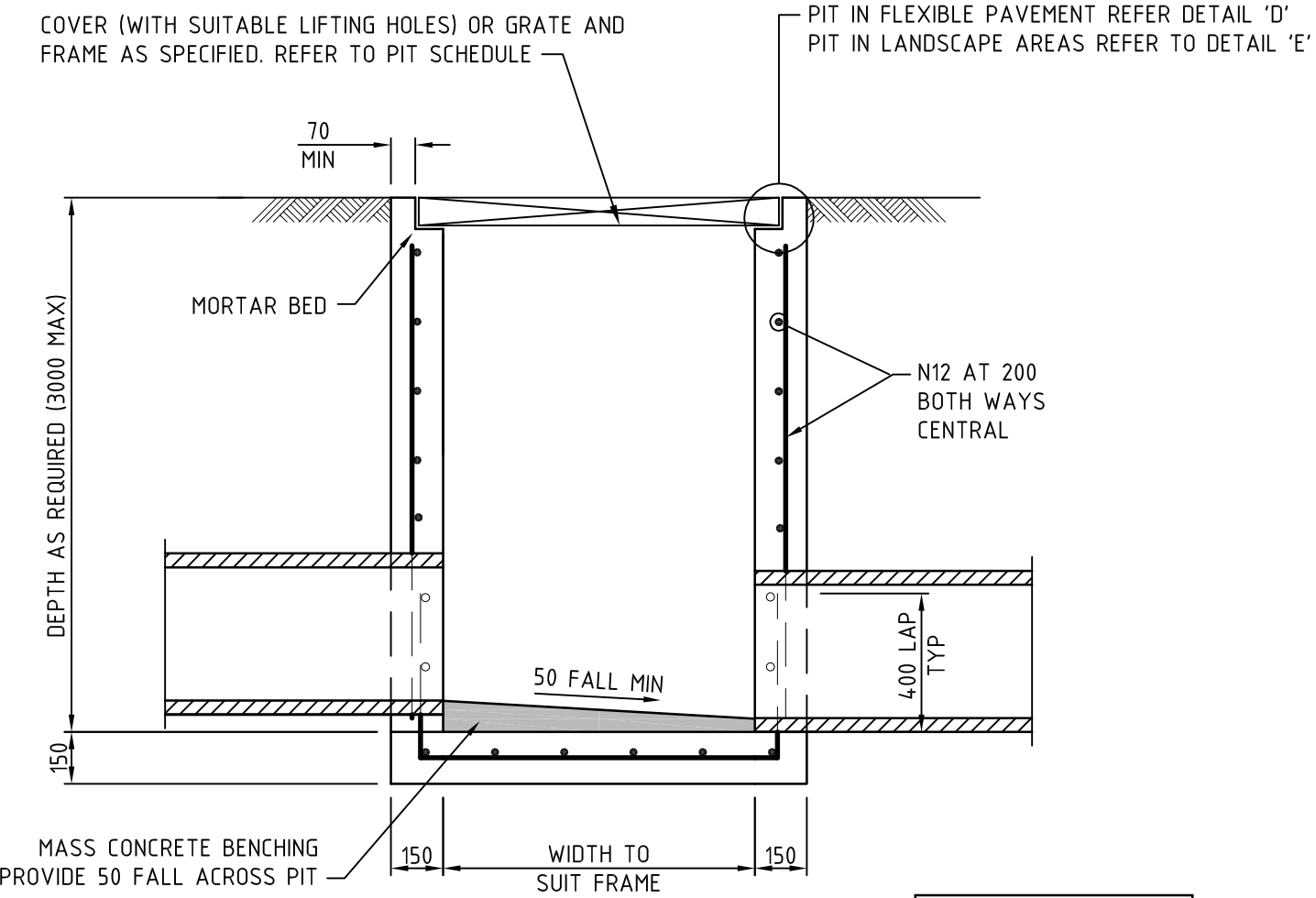
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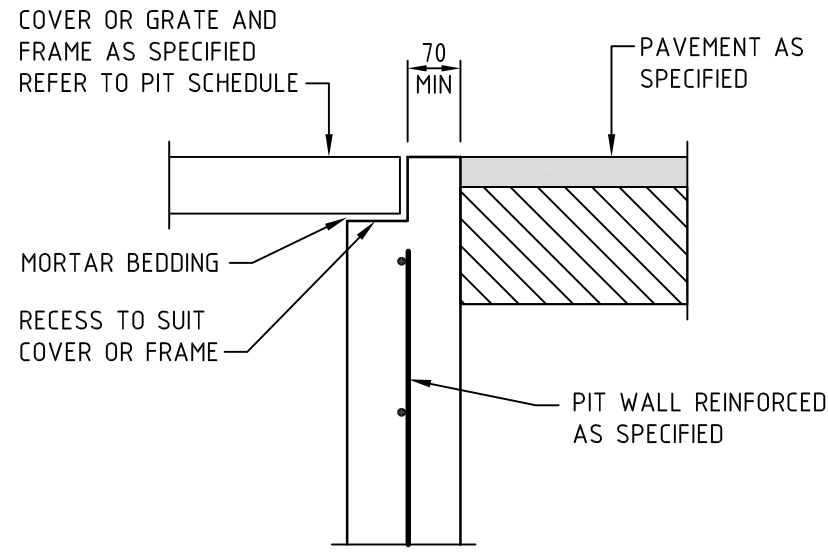
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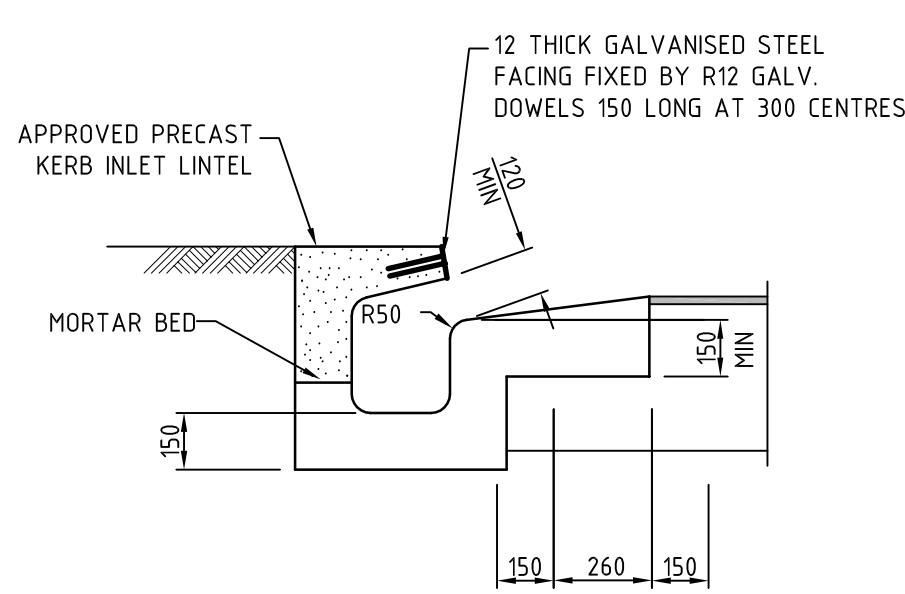
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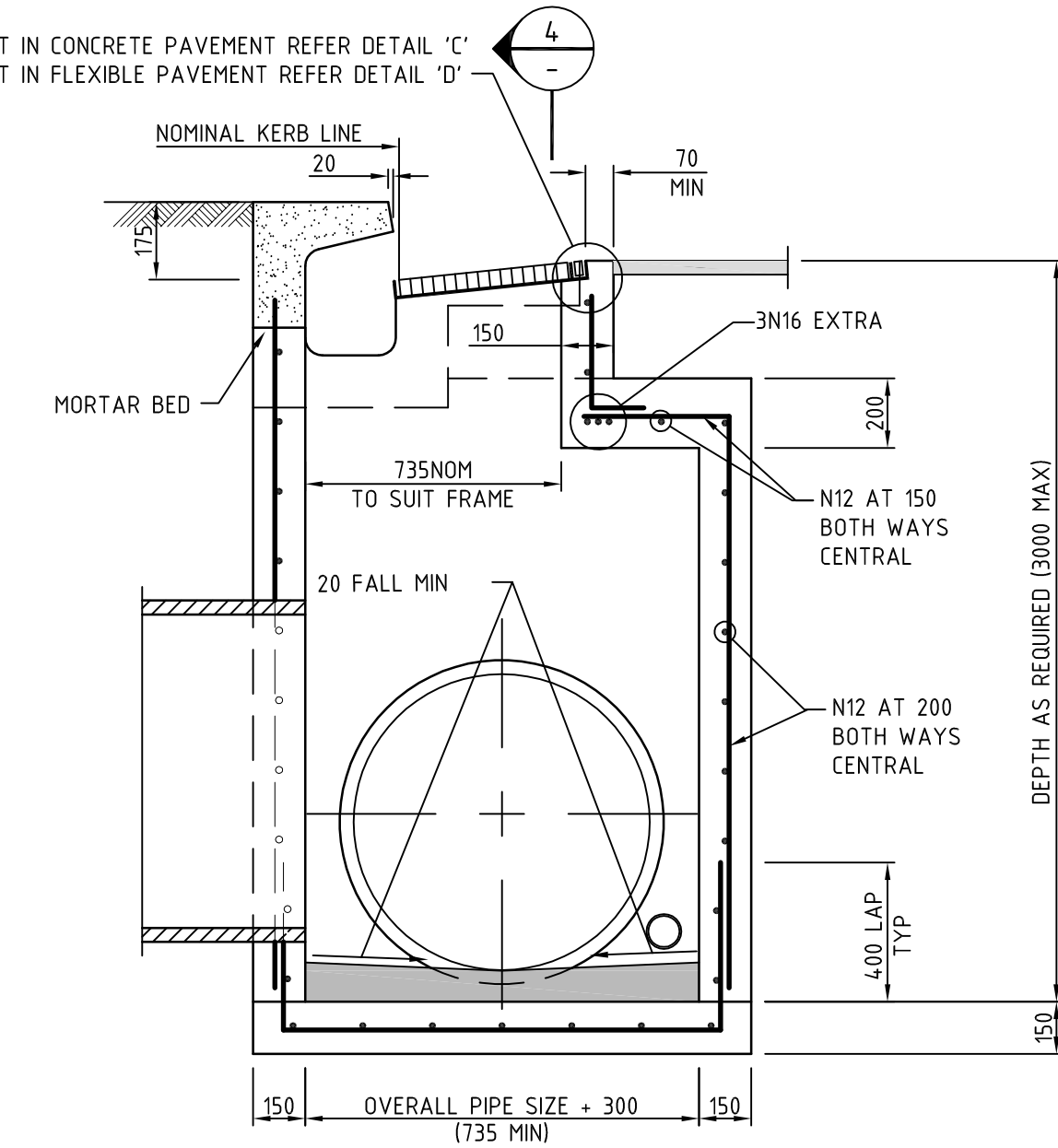
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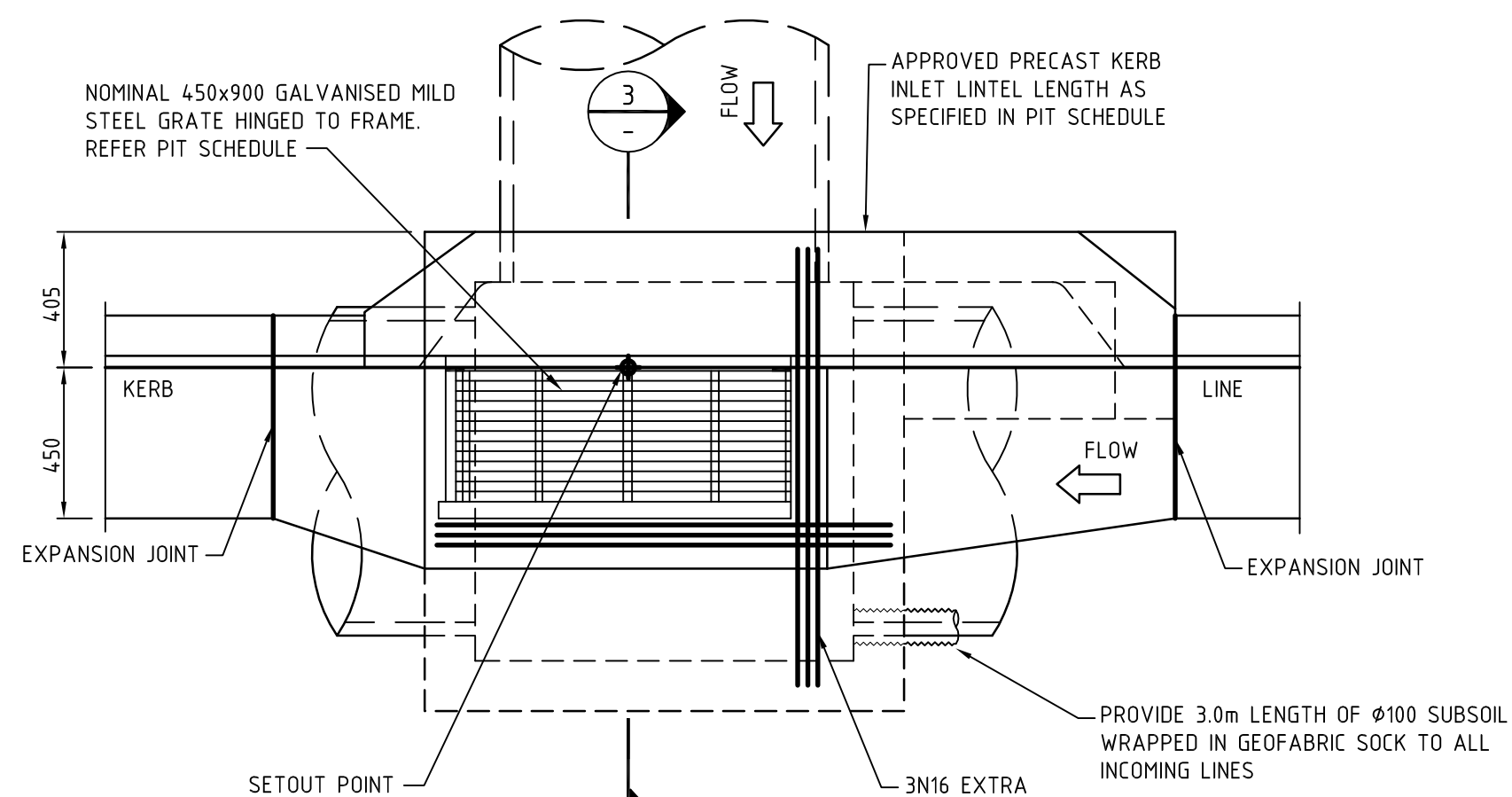


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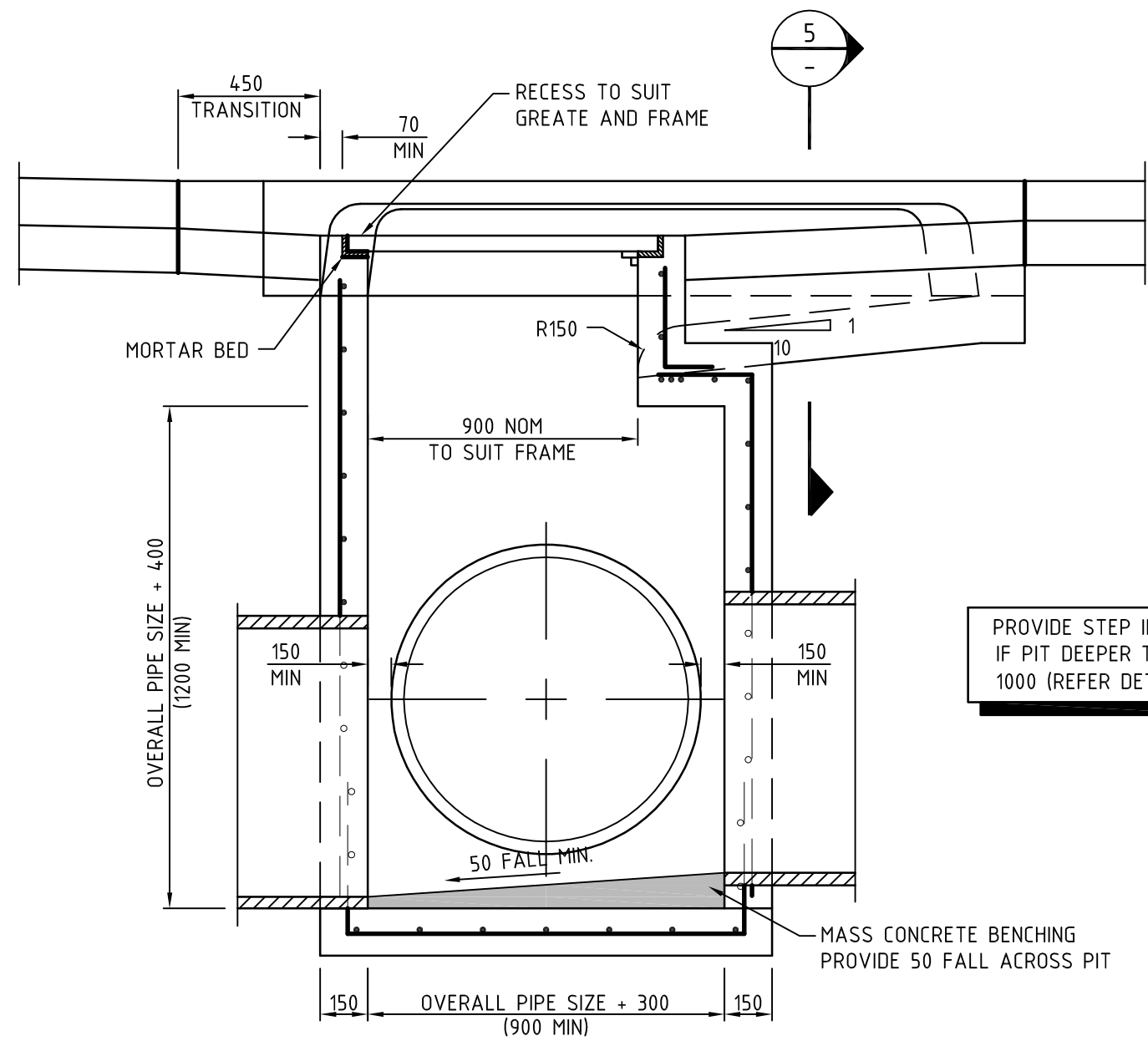


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### GRADED KERB INLET PIT (PIPE SIZES > Ø450)



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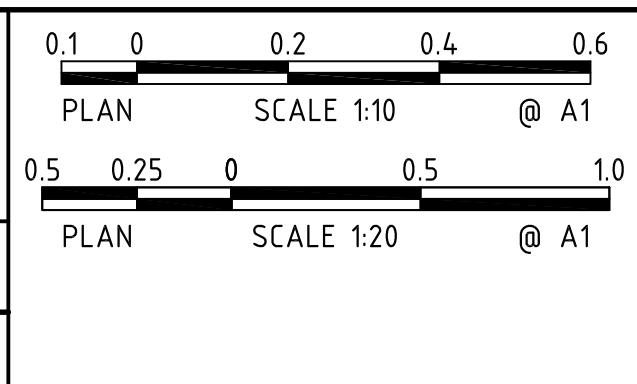
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Project  
**ST MARYS  
RETIREMENT VILLAGE**

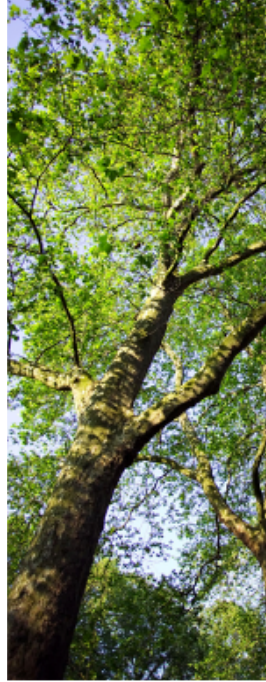
Client  
**GEOFFREY MARTIN ASSOCIATES**

Architect/Project Manager  
**GEOFFREY MARTIN ASSOCIATES**

Drawing Title  
**SITWORKS DETAILS  
SHEET 2**

Drawing No.  
**10P387 - C131**

Rev  
**C**



# Proposed Aged Care Facility at North St Marys NSW

Overland Flow Path Assessment

March 2011

Thompson Health Care

# Proposed Aged Care Facility at North St Marys NSW

Overland Flow Path Assessment

March 2011

Thompson Health Care



# Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	08.03.11	Chris Randall	Chris Avis		Issue for Information

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*Mott MacDonald Hughes Trueman* have been engaged by *Thompson Health Care* to undertake design works to support the proposed aged care facility at 183-197 Boronia Rd, North St Marys NSW. These design works shall include both (a) design of site stormwater system and siteworks; and (b) overland flow assessment for the localised catchment.

The aim of this study is to:

- Assess the overall catchment to the subject site and undertake hydrological calculations to estimate the magnitude of surface flows directed through the site for the 100yr ARI (i.e overland flow);
- Determine the capacity of the existing stormwater infrastructure in the vicinity;
- Make recommendations on how major overland flows (i.e. 1 in 100yr ARI) may be conveyed through the subject site; and
- Assess floor level and freeboard and make recommendations for the proposed works.

## 2. Site Description and Proposed Works

The subject site is located approximately 11km North East from the Penrith CBD at 183-197 Boronia Rd, North St Marys, Penrith NSW and is bounded by:

- Boronia Rd along the northern boundary;
- McDonald's restaurant along the western boundary; and
- Residential dwellings along the southern and eastern boundaries.

Two existing roads (Aylett St and Grose Ave) grade towards the subject site and terminate at the southern and eastern boundaries of the site. As identified within the Pre-DA minutes and preliminary discussions with Council, we understand that Council has undertaken preliminary investigations in the area and have identified that an overland flowpath is directed into the site. We acknowledge that a site specific investigation is required in order to:

- Confirm the volume of water directed overland to the site; and
- Recommend suitable measures to convey surface flows to Boronia Rd.

The existing site is predominately vacant with large grassed areas. An existing nursery is situated on the western side of the site, along with demountable style buildings in the centre. The site generally grades from South to North (approximately 1.26m fall) but is relatively flat along the Boronia St boundary frontage.

The surrounding area consists largely of residential dwellings, with St Marys Rugby League Club located north of the site on Boronia Rd and the St Marys industrial estate located west on the opposite side of Forrester Rd.

Proposed development works includes construction of the following:

- Large aged care facility building (approximately 123 beds);
- 2 carpark areas;
- Looped drop off road to frontage of building;
- Loading dock; and
- Courtyards and landscape areas.

### 3. Methodology

The overland flowpath assessment has incorporated the following methodology:

- Preparation of the catchment plan - including walking the catchment in order to verify pipe sizes, flow splits and overland flowpaths;
- A computer based model of the catchment was prepared within *XP-RAFTS*. Design storms were applied to the model to provide estimates of the 1 in 100yr ARI flows at the subject site;
- Basic *DRAINS* model and rational method was also created in order to perform a check; and
- *DRAINS* model undertaken to determine a suitable sized channel / culvert to convey flows through the site.

The following methodology was agreed with Council for the flowsplit at the corner of Hinton Glen and Aylett St (email correspondence, 7<sup>th</sup> February 2011 – See Appendix B):

- *Determine surface flows from RAFTS modelling*
- *Develop road cross sections from detailed survey information.*
- *Undertake either (a) a mannings calculation or (b) unsteady modelling within DRAINS, to determine applicable flow split towards the site and Hinton Glen.*

#### **MANNINGS METHOD**

- *Develop a cross section showing the levels across the intersection.*
- *Divide the length of the cross section into small increments;*
- *Apply standard weir equation  $Q = CLh^{3/2}$  for a broad crested weir (i.e  $C = 2.0$ );*
- *Complete iterations to determine the height (and flow split) which is assigned to the peak flow in the hydrological modelling (minus pipe flows);*
- *Assign the resulting flow split within hydrological modelling using diversion links in RAFTS.*



**UNSTEADY FLOOD MODELLING METHOD**

- *Develop cross sections at various points across the intersection (through Hinton Gl, Aylett St and centre of intersection)*
- *Apply cross sections to overland flowpath links within drains.*
- *Assign critical levels to links.*
- *Apply unsteady modelling*
- *Assign the resulting flow split with hydrological modelling using diversion links in RAFTS.*

Unsteady modelling option was subsequently incorporated.

## 4. Hydrological Modelling

### 4.1 Catchment Analysis

The catchment plan was prepared based on 1m aerial contours (SKM, 2011). Subcatchments were then defined to model all of the overland flowpaths which are directed to the site. A suitably qualified engineer walked the catchment to confirm flowrates, flowsplits and the size of trunk drainage lines.

The following comments are provided:

- The overall catchment directed to the subject site is 33 Ha with subcatchments ranging in size from 0.26 Ha to 7.06 Ha (refer Table 4.2). The terrain is typically very flat with many roads and properties at low grades (i.e 0.5-1%)
- An additional 34 Ha catchment is directed towards Chifley College. Based on topographic contours and site inspection, it appears that most of this catchment appears to bypass the subject site but is still considered as part of this assessment;
- Road networks have been considered when preparing the sub-catchment division. Here modelling has adopted standard 2 way road cross section profiles and mannings values. These roads typically convey major flows, however there are numerous catchments which drain through properties and backyards rather than directly to road corridors;
- A 1200dia trunk line is situated under the kerblin along Aylett St from its intersection with Maple St to Hinton Glen. The 1200dia pipe is then directed to the lowpoint at the Southern end of Hinton Glen and through properties to the sag in Boronia Rd. There is no clear flowpath through the houses from this sag;
- There is an existing 750dia to 900dia pipe along the frontage of the subject site which drains west to adjoin the 1200dia at the sag in Boronia Rd;
- A 375dia pipe is situated within an easement through properties immediately east of the subject (from the end of Grose Ave to Boronia Rd);
- Catchment C1 directs surface flows to a lowpoint directly in front of Chifley College. It appears that the majority of surface flows are then conveyed through the School and sheetflow to

the North. There is a low flow pipe which also appears to enter the school. For the purposes of modelling, 10% is assumed to flow along Maple Rd towards the site;

- There does not appear to be a clear overland flowpath from the School towards the subject site (i.e Catchment 8); and
- There is a small swale and 375dia headwall at the end of Boronia Rd. Here a portion of flows from the School is directed along Boronia Rd however this does not affect the subject site. (It is noted that this headwall is heavily blocked and should be cleared by Council).

## 4.2 Parameters

RAFTS modeling incorporated the following parameters:

- Rainfall intensities were input from *Appendix 5 in Penrith City Council guidelines for engineering works for subdivisions and developments Part 1 – Design (Part 1 – Design)*;
- Fraction impervious values were estimated via a combination of (a) aerial imagery; and (b) standard values listed in *Table 3 in Penrith City Council's Part 1-Design*. This included 80% for Residential and 85% for Medium Density Residential;
- The land use within the overall catchment is considered to be predominantly urban. This type of land use has an effect on the runoff by providing some "resistance" to flow. The effect is simulated in XP-RAFTS by a storage delay coefficient called "PERN". The following typical values are in accordance with the RAFTS reference manual.

**Table 4.1 Adopted PERN 'n' values**

Catchment Type	PERN 'n'
Developed (Impervious Portion)	0.015
Developed (Pervious Portion)	0.025
Undeveloped (Rural Pastures)	0.05

The catchment area is considered to be predominantly urban. Here a PERN value of 0.1 was applied to the model for all sub-catchments to simulate obstructions which would likely cause further resistance to flows such as fences, buildings and the like.

- The loss model adopted to estimate rainfall excess in the development of design flow hydrographs was the Initial – Continual Loss model. The values used are similar to those specified in the Australian Rainfall and Runoff (I.E Aust, 2000) and in flood studies previously conducted in the area (Parsons Brinckerhoff, 2004). The incorporated initial and continuing loss parameters used are listed as follows:
  - IL16.5mm and CL2.5mm for pervious areas; and
  - IL1.5mm and CL0mm for impervious areas.
- Slopes for sub-catchments and links were determined using “equal area” method in accordance with Australian Rainfall and Runoff (I.E Aust, 2000). Refer Table 4.2;
- Routing links were modelled based on typically road sections (15m wide, 2 way 3% crossfalls and 2.5% across verge). Mannings values of 0.013 and 0.035 were applied for road pavements and grassed verges respectively;
- The b-multiplier (b) used in *RAFTS* is usually determined by calibration against recorded floods. Previous flood studies conducted in the area appear to have used a b-multiplier of 1.0, which has subsequently also been used in this investigation.

**Table 4.2: RAFTS Parameters**

Sub-Catchment	Area (Ha)	Fraction Impervious (%)	Slope (%)
1	20.28	81	0.95
2	7.06	79	1.41
3	3.26	80	1.61
4	4.81	77	1.25
5	2.65	90	1.25
6	3.05	75	0.72
7	5.7	78	0.55
8	11.18	64	0.58
9	1.77	80	0.49
10	1.35	80	0.41
11	0.65	80	0.98
12	1.91	80	0.62
13	0.26	80	0.14
14	0.59	80	0.64

### 4.3 Model Formulation

#### 4.3.1 RAFTS

A *RAFTS* model was formulated to represent the overall catchment directed to the subject site (Refer Figure 1). This included the following:

- Nodes marked “C” represent each defined sub-catchment and contain input information including the impervious / pervious areas and suitable loss parameters.
- “Routing” links and “time lagging” links were both used to model the routing of hydrographs through the catchment. Here channel routing links are representative of each major overland flowpath and include road sections and low flow pipes. The size of low flow pipes were input from site visits with 1200dia incorporated along Aylett St with transitions down to 375dia on surrounding streets.
- A time lag link was used through the school with an assumed a velocity of 1m/s.
- Diversion links were used to simulate flow splits, namely:
  - 10% of flows from C1 above 0.175 m<sup>3</sup>/s (375dia low flow pipe) are directed towards the site along Maple Rd while the remainder travel through the school;
  - For purposes of *RAFTS* modelling, 100% of flow along Aylett St above 1.95m<sup>3</sup>/s (50% blockage on 1200dia) is directed towards the site. (See section 4.4 for discussion).
- Dummy nodes and time lagging links were also used where 2 catchments adjoined (time lag = 0).

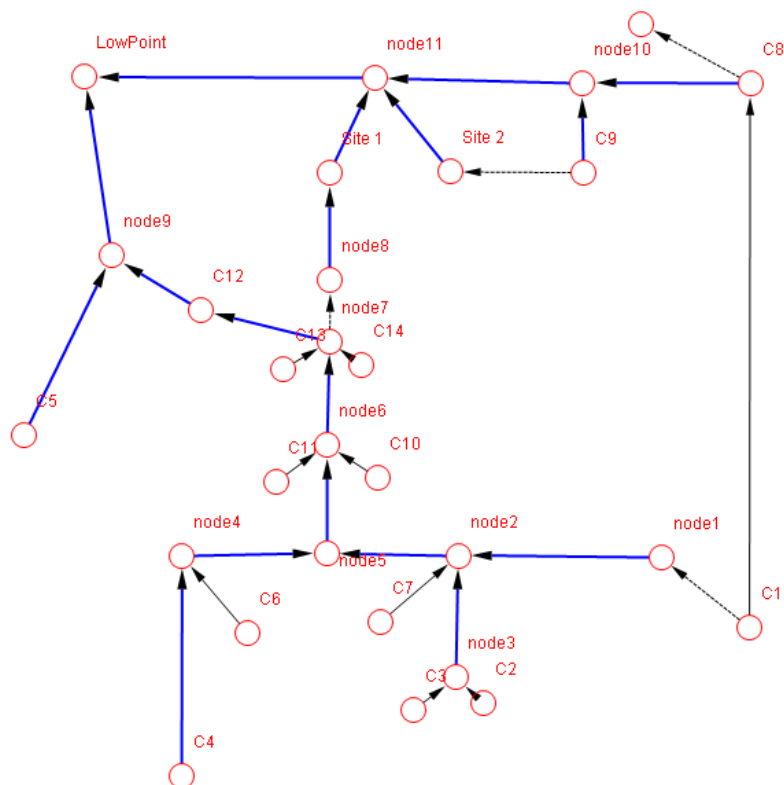
#### 4.3.2 Unsteady Modelling

A *DRAINS* model was formulated to represent the flowsplit at the corner of Aylett St and Hinton Glen (refer Figure 2 and Sketch 2).

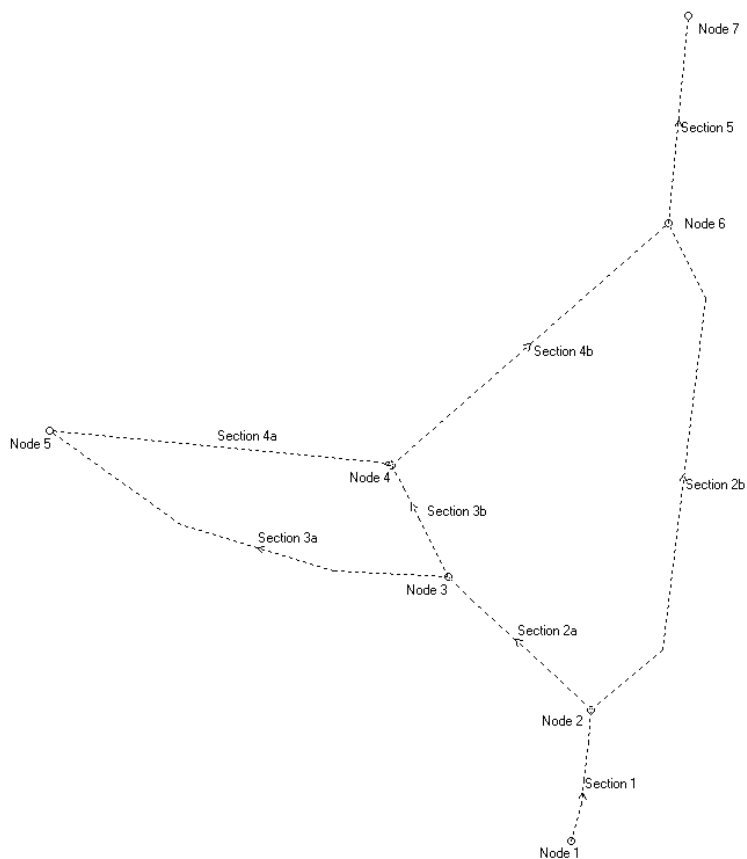
The unsteady model was created in accordance with Section 3.0 and incorporated the following:



- Nodes and overland flowpath links were assigned to represent the performance of flow across the intersection. Here cross sections were derived based on detailed survey information and applied as the cross section in each link.
- In accordance with the *DRAINS* handbook, lengths and invert levels were assigned to each of the flowpaths in order to represent at what level each of the cross sections will begin to operate.
- Flow rate directed to the site from *RAFTS* modelling is input as a hydrograph.



**Figure 1: RAFTS Model**



**Figure 2: DRAINS Model**

## 4. 4 Results

### 4.4.1 RAFTS

A time of concentration was estimated at 40min for the upstream catchment using the kinematic wave equation. The 25min, 30min, 45min, 60min, 90min, 120min and 180min ARI events were therefore run to determine peak flowrates from the site. Refer to Table 4.3 for a summary of results. Full results and data can be found in Appendix A.

These results are obtained at the subject site for nodes "Site 1" and "Site 2" by assuming that all flows in excess of the piped system (which direct flows away from site) continue to the subject site. This included a 50% blockage factor being imposed on Aylett St and Grose Ave piped systems which subsequently reduced the capacity of these systems to 1.95m<sup>3</sup>/s and 0.285m<sup>3</sup>/s respectively.

**Table 4.3: RAFTS 100yr ARI Results**

Duration (min)	Aylett St (m <sup>3</sup> /s)	Grose Ave (m <sup>3</sup> /s)
25	7.70	0.25
30	7.15	0.23
45	6.46	0.17
60	6.82	0.18
90	6.87	0.19
120	6.89	0.18
180	4.32	0.05

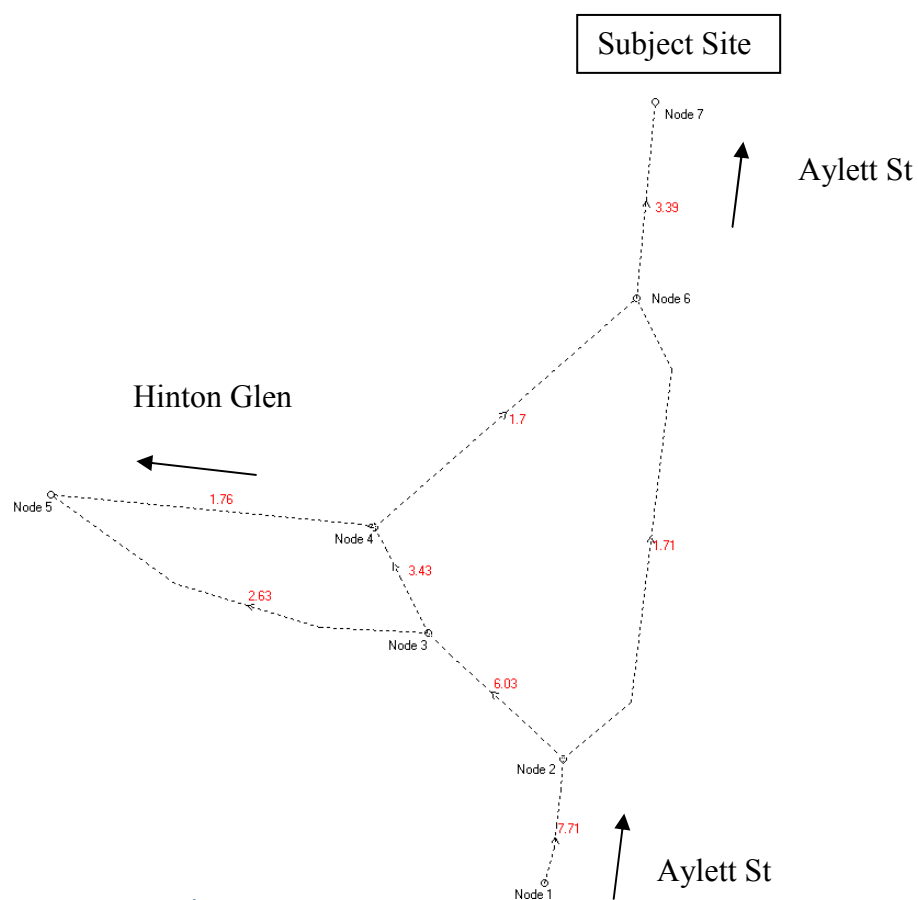
The maximum flowrate directed from Aylett St is subsequently 7.7m<sup>3</sup>/s in the 100 year ARI event, with 0.25m<sup>3</sup>/s being contributed from Grose Ave

### 4.4.2 DRAINS

As discussed in Section 4.3 and 4.4.1, the peak flowrate of 7.7m<sup>3</sup>/s generated from RAFTS modelling was applied to the unsteady model via a hydrograph input. Full results and data can be found in Appendix B.

Results indicate that the flow split at the intersection will direct 4.39m<sup>3</sup>/s into Hinton Glen while 3.39m<sup>3</sup>/s will continue towards the subject site. Refer Sketch 2 and Figure 3

We note that no assessment was made on velocity depth products within these flowpaths through public roads as it is beyond the scope of works.





## 5. Discussion and Recommendations

### 5.1 Discussion

Results indicate that by incorporating 50% blockage on the Council drainage system within both Aylett St and Grose Ave, that peak flowrates of 3.39 m<sup>3</sup>/s and 0.25 m<sup>3</sup>/s overland flow is directed towards the site respectively in the 100yr ARI event. It is important to note that these flows are not generated by the proposed development but instead by upstream catchments; but are still being considered in the development.

Preliminary discussions with Council indicate that the flow rate from Aylett St appears to be generally consistent with preliminary high level flood studies conducted in the area.

In the existing scenario, these flows would typically sheetflow across the subject site towards Boronia Rd. We recognise that the proposed development incorporates a building structure directly within this flowpath, consequently works are required in order to adequately convey flows around the building and discharge similar to existing scenario. Refer Section 5.2.

### 5.2 Recommendations

#### Overland Flow

The proposed building structure is offset from the boundary by 4m minimum. The collection and conveyance of 100 year ARI flows around the building is recommended onto Boronia Rd.

The following options were considered:

- (a) Open swale with planting;
- (b) Open concrete channel; or
- (c) Piped flows, either by circular culvert (approx 2 x 1.35m diameter) or box culvert (approx 2.4m wide x 1.2m deep)

Two alignments were considered to either travel around the western or eastern face of the proposed building towards Boronia Rd (refer attached Sketch 1). Route to the east seems more appropriate since it allows both streets to be picked up.

In each of the above options, overland flows shall be collected by a suitably sized inlet structure and conveyed to the 750dia – 900dia pipe at the Boronia Rd frontage. A surcharge pit will be positioned just inside the front boundary for those flows which are in excess of the piped system capacity.

The box **culvert / piped** arrangement is recommended as the most appropriate method of flow conveyance through the site. This includes the following proposed works:

- Localised regrading of the end of Aylett St towards a headwall inlet;
- Similar smaller headwall at the end of Grose Ave;
- The size of the headwall shall have a surface area more than double the cross sectional area of the piped system in order to account for 100% blockage factors. This headwall shall be minimum 6m wide at the opening with culvert width being transitioned within the structure;
- Grate shall also be sloped to minimise blockage via debris;
- Protective grate over inlet to prevent unauthorised entry;
- Bollards and appropriate street signage;
- Piped flows to Boronia Rd frontage with surcharge pit inside property. The outlet pit shall be maximised equivalent to the receiving system in order to minimise surcharge.
- Box culvert to be 2.1m wide x 1.2m deep (approximate capacity of 8.4m<sup>3</sup>/s). This is oversized to accommodate 100% blockage on the piped system.

While open swale and channels were considered, these were not deemed to be appropriate due to the development being an aged care facility. There may have been safety implications as well as affecting door openings and access around the building perimeter.

### **Floor Levels**

We understand that the minimum floor levels mentioned in the Pre-DA minutes are based on major flood studies conducted on the nearby Ropes Creek and South Creek.

This floor level of RL26.5m appears consistent with all surrounding building floor levels which have RL 26.92, RL 27.25 and RL 26.77. Freeboard from the 100year ARI hydraulic grade line in the piped arrangement appears to also be achievable to this level and will be shown in detailed design documentation.

## 6. References

Parsons Brinckerhoff (2004). *Stormwater Management Plan, Lee Holm Rd St Marys*

Institution of Engineers, Australia (2000) *Australian Rainfall and Runoff – A Guide to Flood Estimations, Volumes 1 and 2.*



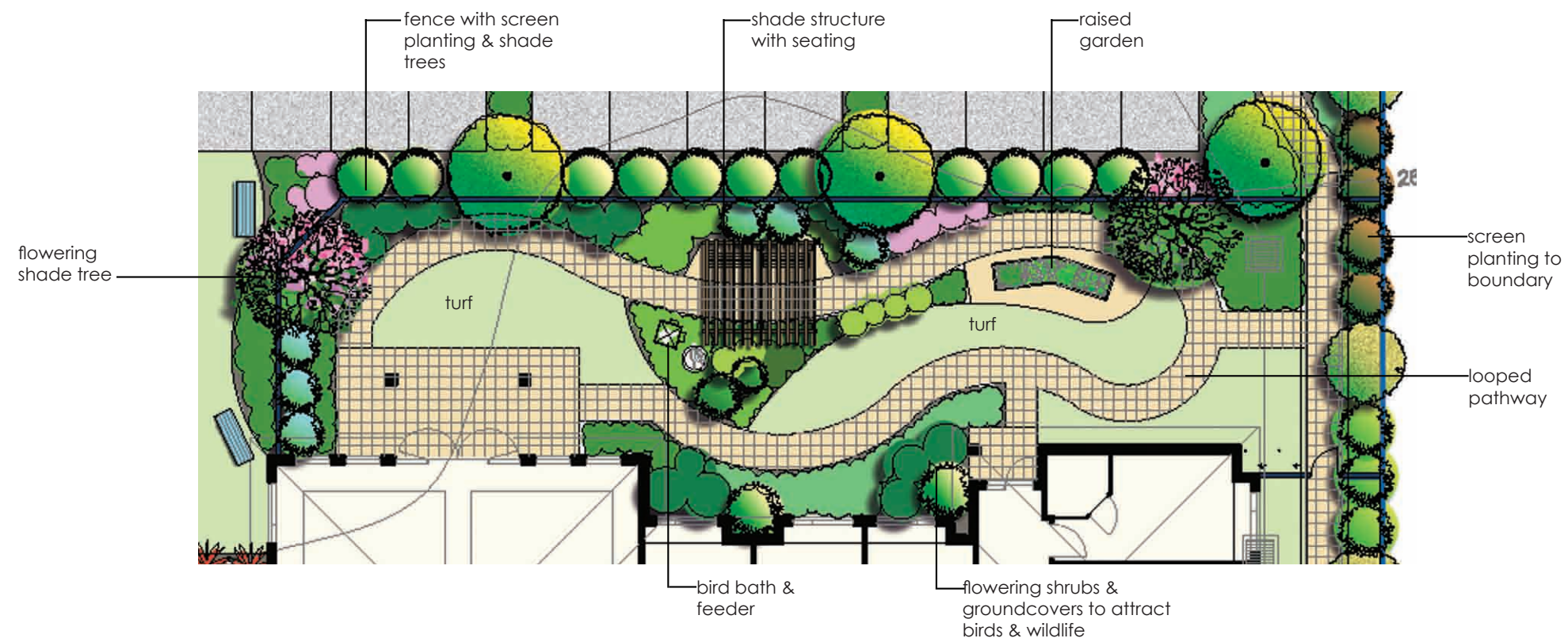
## Appendix A: RAFTS Results

Catchment/ Node	Subcatchment Number	Peak Outflow [m <sup>3</sup> /s]	Total Area [ha]
C1	1	6.782	18.79
	2		4.55
C2	1	2.619	5.6
	2		1.46
C3	1	1.304	2.61
	2		0.65
C4	1	1.763	3.69
	2		1.09
C6	1	1.138	2.56
	2		0.85
C5	1	1.031	2.1
	2		0.23
C7	1	1.688	4.47
	2		1.23
C8	1	8.369	7.13
	2		4.06
C9	1	0.531	1.2
	2		0.3
C10	1	0.5561	1.26
	2		0.31
C11	1	0.2583	0.51
	2		0.13
C12	1	2.642	1.54
	2		0.38
C13	1	0.1064	0.21
	2		0.05
C14	1	0.2602	0.54
	2		0.14
node1	1	0.6607	0.001
node2	1	6.096	0.001
node3	1	3.923	0.001
node4	1	2.79	0.001
node5	1	8.775	0.001
node6	1	9.424	0.001
node7	1	9.688	0.001
node8	1	7.738	0.001
node9	1	3.615	0.001
node10	1	0.46	0.001
node11	1	8.341	0.001
Site 1	1	7.699	0.001
Site 2	1	0.246	0.001
LowPoint	1	11.65	0.001
Bypass	1		0.001

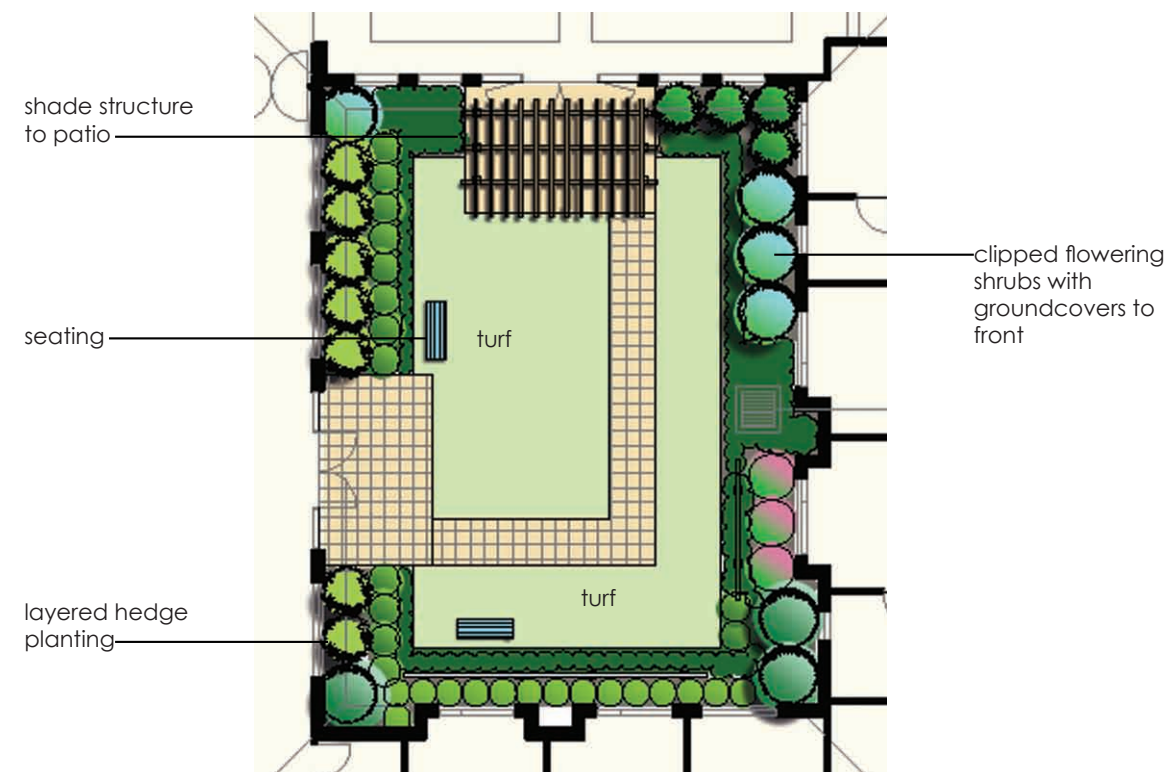




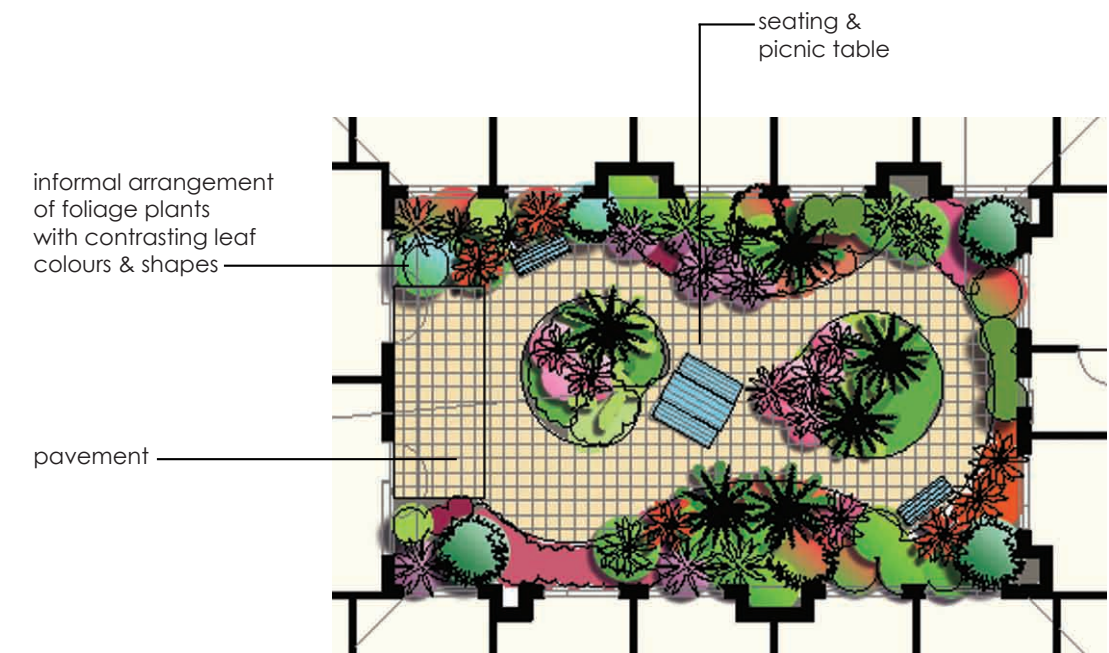




Dementia garden



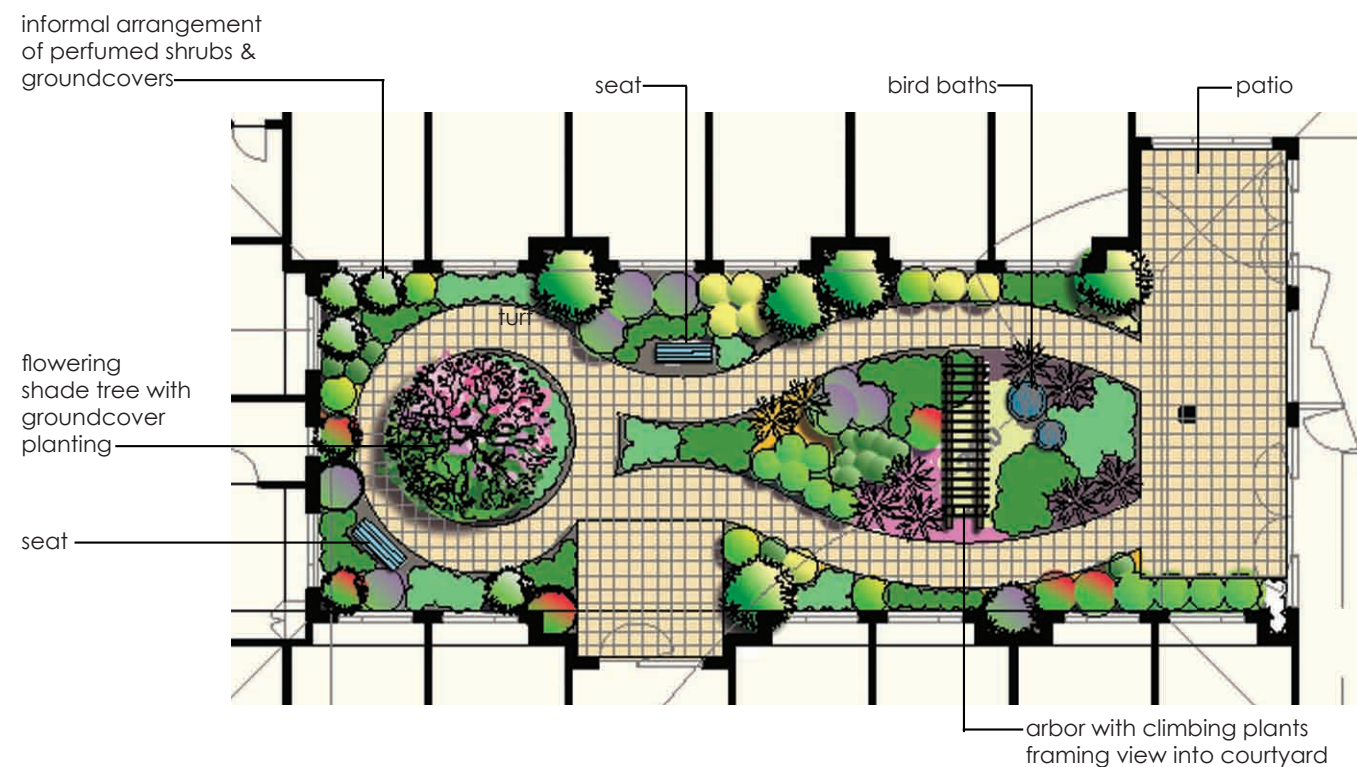
Formal themed courtyard



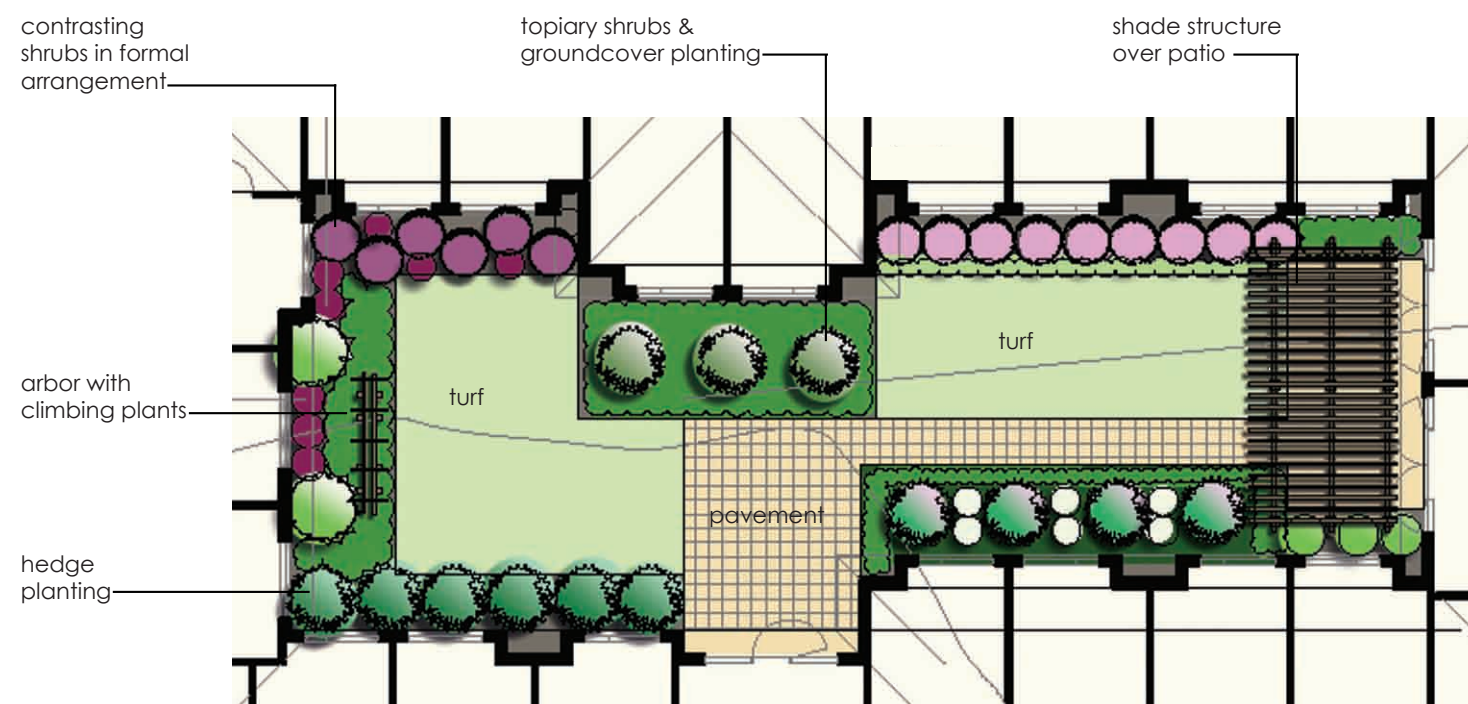
Foliage themed courtyard



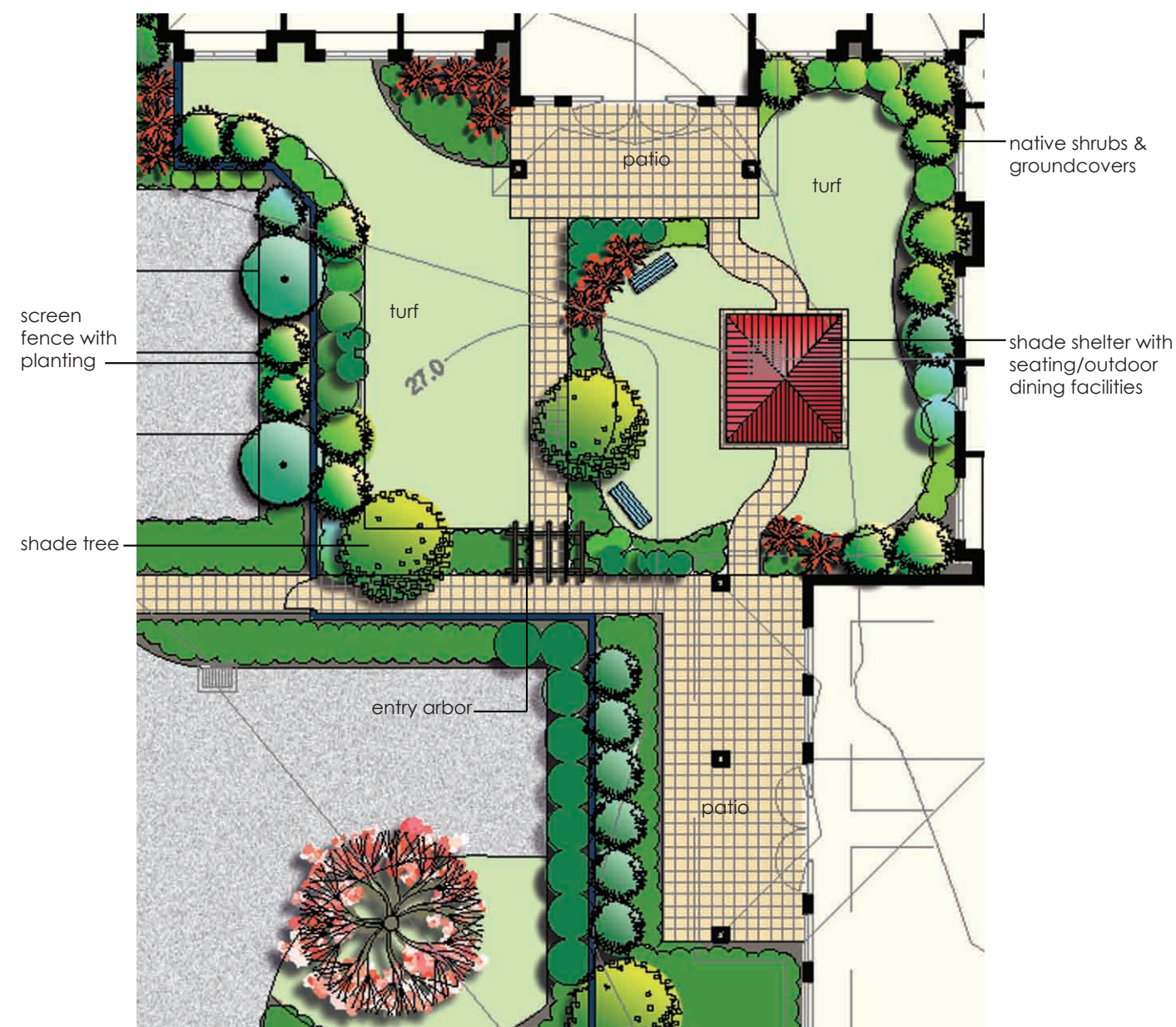




Fragrant themed garden



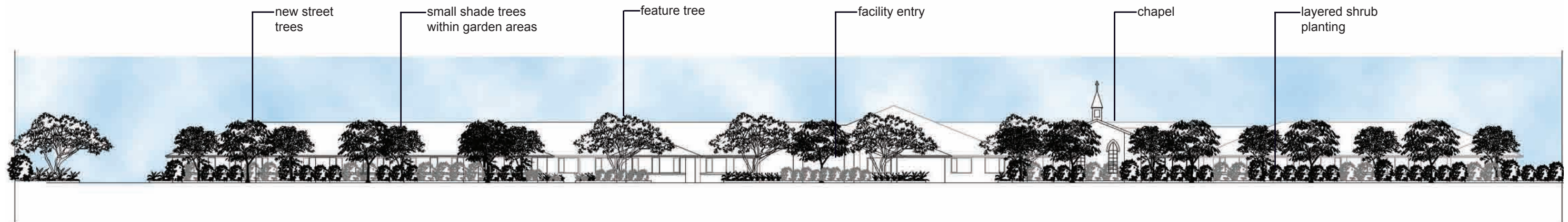
Topiary themed courtyard



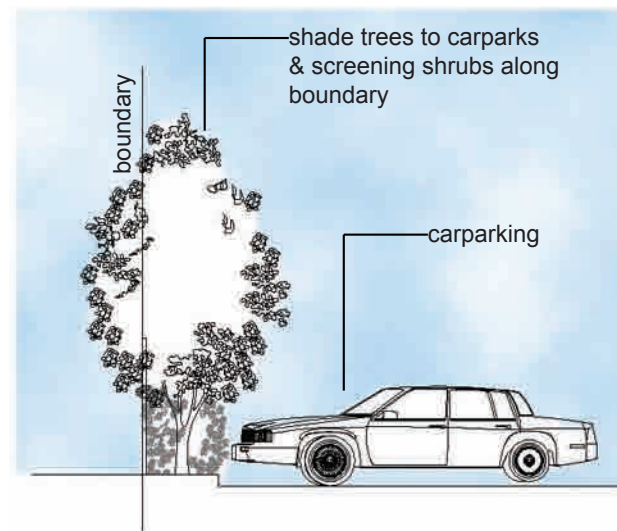
Native plants themed courtyard



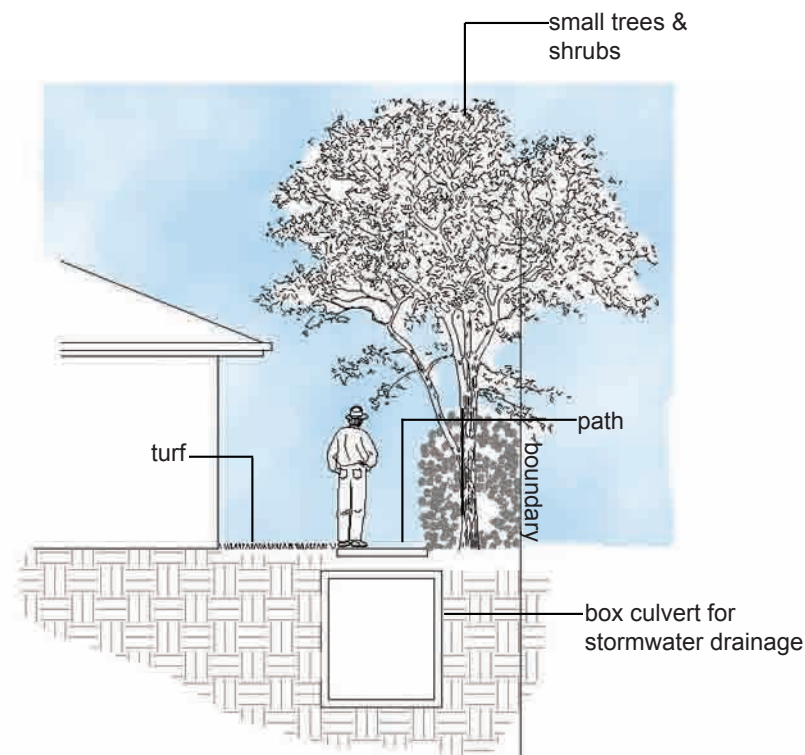




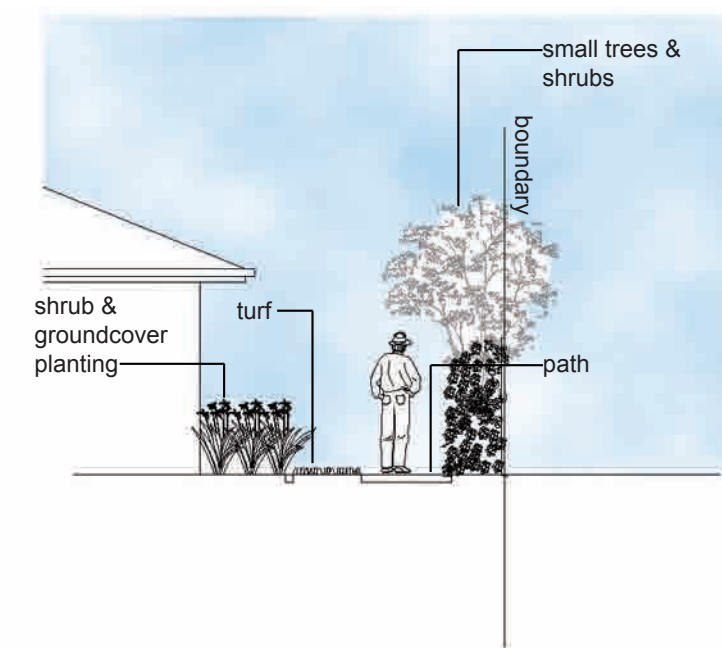
Boronia Road Elevation 1:400 @ A3



A cross section western boundary  
scale 1:100 @ A3



B cross section eastern boundary  
scale 1:100 @ A3



C cross section southern boundary  
scale 1:100 @ A3