Anthony Protas Consulting Pty Ltd
BUILDING REGULATIONS CONSULTANTS

12 October 2014

Our Ref: 144065

The General Manager
Pittwater Council
PO Box 882
Mona Vale NSW1660

Dear Sir,

Re: 1174 Barrenjoey Road, Palm Beach
Construction Certificate

Pursuant to the requirements of the Environmental Planning and Assessment Act please find attached a copy of our Construction Certificate, plans and specifications to which the Construction Certificate has been issued and other relevant documents.

Should you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully

Anthony Protas
Anthony Protas Consulting Pty Ltd

$36 REC136911 17/10/14.

Locked Bag 1001 Wareemba NSW 2046 Suite 1 104 William Street Five Dock NSW 2046 Ph 02 9715 5333 Fax 02 9715 5666
Email mail@protas.net.au Web www.protas.net.au ABN 37 079 830 756

Anthony Protas Consulting Pty Ltd
BUILDING REGULATIONS CONSULTANTS

COPY

Construction Certificate – 1174 Barrenjoey Road, Palm Beach - Demolition of the existing garage & shed and construction of a new garage, driveway, retaining walls & associated landscaping

BCA Class: 10a & 10b

1. Details of the applicant

Mr ☐ Ms ☐ Mrs ☒ Dr ☐ Other

First name: Susan
Family name: Rothwell
Flat/street no.: 38
Street name: Lower Serpentine Road
Suburb or town: Greenwich
State: NSW
Postcode: 2065
Daytime telephone: 9439 2380
Fax: 9901 3185
Mobile:
Email:

2. Details of the development consent

Development application no.: N0336/11
Date the consent was issued: 18 June, 2012

3. Decision of the certifying authority

This certificate is issued:

☒ without any conditions

☐ subject to conditions of the kind referred to in clauses 187 or 188 of the Environmental Planning and Assessment Regulation 2000

Conditions have been placed on the certificate for the following reasons:

☒ the issue of this certificate has been endorsed on the plans and specifications that were lodged with the application.

Plan no.s approved: Refer to Attachment 1 for a detailed list of approved plans and specifications

Date of this decision: 12 October 2014

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4. Information attached to this decision

- ☐ A fire safety schedule
- ☒ Schedule of approved plans & specifications

5. Certification

Anthony Protas certifies that

if the work is completed following the plans and specifications which have been approved, it will comply with the requirements of the Environmental Planning and Assessment Regulation 2000 as referred to in section 81A(5) of the *Environmental Planning and Assessment Act 1979*.

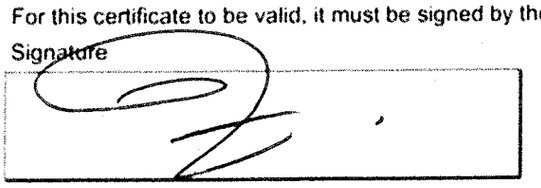
Construction certificate no.: **4065/14**

Date of this certificate: **12 October 2014**

6. Signature

For this certificate to be valid, it must be signed by the certifying authority.

Signature



Name: Anthony Protas

Flat/Street no.: Locked Bag 1001

Street name:

Suburb or town: Wareemba

State: NSW

Postcode: 2046

Telephone: 9715 5333

Fax: 9715 5666

If the certifier is an accredited certifier:

Accreditation body of the certifier: Building Professionals Board

Accreditation no. of the certifier: BPB0332

7. Applicant's right of appeal

If the certifying authority is a council, a Minister or a public authority and the certifying authority has issued a construction certificate subject to conditions, you can appeal against these conditions to the Land and Environment Court within 12 months from the date of the decision.

Anthony Protas Consulting Pty Ltd
BUILDING REGULATIONS CONSULTANTS

COPY

Rec'd 14/8/14

Application for construction certificate

1. Details of the applicant

Mr ☐ Ms ☐ Mrs ☒ Dr ☐ Other

First name: SUSAN
Family name: ROTHWELL
Flat/street no.: 38
Street name: LOWER SERPENTINE ROAD
Suburb or town: GREENWICH
State: NSW
Postcode: 2065
Daytime telephone: 94342380
Fax: 99013185
Mobile:
Email:

2. Identify the land

Flat/street no.: 1174
Street name: BARRENJOEY ROAD
Suburb or town: PALM BEACH
Postcode: 2108
Lot no.: 2
Section:
DP/MPS no.: DP 216436
Volume/folio:

You can find the lot no., section, DP/MPS no. and volume/folio details on a map of the land or on the title documents for the land. If you need additional room, please attach a schedule and/or a map with these details.

3. Estimated cost of the development

$ 236,464.- including GST

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4. Describe the development

What type of work do you propose to carry out?

Building work ☒

Subdivision work ☐

Describe the work

CONSTRUCTION OF A NEW GARAGE, DRIVEWAY, RETAINING WALLS & ASSOCIATED LANDSCAPING
DEMOLITION OF EXISTING GARAGE AND SHED

For building work, what is the class of the building under the Building Code of Australia?

10 A

This can be found on the development consent

Has development consent been granted for the development?

No ☐

Yes ☒ What is the development application no.?

N0336/11

What date was development consent granted?

18 JUNE 2012

5. Information to be attached to the application

You need to provide material with your application that is relevant to the type of work you propose to do. Please indicate the material you have attached by placing a cross in the appropriate boxes ☐:

1. If you are going to carry out **building work**:

☒ a copy of any compliance certificates on which you rely

☒ detailed plans of the building (4 copies)

The plans must be drawn to a suitable scale and consist of a general plan and a block plan. The general plan of the building is to:

- show a plan of each floor section
- show each elevation of the building
- show the level of the lowest floor, the level of any yard or unbuilt area on that floor and the level of the ground
- indicate the fire safety and fire resistance measures (if any), and their height, design and construction

Where you propose to alter, add to or rebuild a building that is already on the land, or modify plans that have already been approved, please mark the general plan (by colour or otherwise) to show the change you propose to make.

☒ detailed specifications of the building (4 copies)

The specifications are to:

- describe the construction (including the standards that will be met), the materials which will be used to construct the building and the methods of drainage, sewerage and water supply
- state whether the materials proposed to be used are new or second hand and give details of any second-hand materials to be used.

Where you propose to modify specifications that have already been approved, please mark the approved specifications (by colour or otherwise) to show the modification.

N/A ☐ a plan of the existing building, drawn to scale, where the application involves building work to alter, enlarge or extend that building

This plan will assist the certifying authority to assess whether the work will reduce the fire protection capacity of the building.

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5. continued

N/A ☐ where you propose to meet the performance requirements of the Building Code of Australia (BCA) by using an alternative solution to the deemed-to-satisfy provisions of the BCA:

- a list of the performance requirements you will meet by using the alternative solution
- the details of the assessment methods you will use to meet those performance requirements
- a copy of any compliance certificates on which you rely

N/A ☐ evidence of any accredited component, process or design on which you seek to rely

Components, processes or designs that relate to the erection or demolition of a building are accredited under the Environmental Planning and Assessment Regulation 2000.

N/A ☐ details of the fire safety measures, unless you are building a single dwelling or a non-habitable building or structure (such as a private garage, carport, shed, fence, antenna, wall or swimming pool). These details are to include:

- a list of any fire safety measures you propose to include in the building or on the land
- if you propose to alter, add to or rebuild a building that is already on the land, a list of the fire safety measures that are currently used in the building or on the land

The lists must describe the extent, capability and the basis of design of each measure.

☒ the attached schedule, completed for the development

The information in the schedule will be used by the Australian Bureau of Statistics to report each quarter on the building activity that occurs in the economy. Building statistics allow governments and businesses to accurately identify main areas of population growth and demand for products and services.

You may also need to pay a long service levy under section 34 of the *Building and Construction Industry Long Service Payments Act 1986* (or where such a levy is payable by instalments, the first instalment of the levy) before the certifying authority can issue a certificate to you.

N/A 2. If you are going to **carry out work to do a subdivision** (eg building roads or a stormwater drainage system):

☐ the details of the existing and proposed subdivision pattern (including the number of lots and the location of roads)

☐ the details of the consultation you have carried out with the public authorities who provide or will increase the services you will need (like water, road, electricity, sewerage)

☐ the existing ground levels and the proposed ground levels when the subdivision is completed

☐ copies of any compliance certificates on which you rely

☐ detailed engineering plans (4 copies). The detailed plans might include the following:

- earthworks
- roadworks
- road pavement
- road furnishings
- stormwater drainage
- water supply works
- sewerage works
- landscaping works
- erosion control works

Where you propose to modify plans that have already been approved, please mark the approved plans (by colour or otherwise) to show the modification.

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Email mail@protas.net.au Web www.protas.net.au ABN 37 079 830 756

5. continued

N/A 3. If you are going to **change the use of a building** or the classification of a building under the Building Code of Australia and you are doing building work (unless the building will now be used as a single dwelling or a non-habitable building or structure (such as a private garage, carport, shed, fence, antenna, wall or swimming pool)):

- ☐ a list of any fire safety measures you propose to include in the building or on the land
- ☐ if you propose to alter, add to or rebuild a building that is already on the land, a list of the fire safety measures that are currently used in the building or on the land
- ☐ details as to how the building will comply with the Category One fire safety provisions of the Building Code of Australia

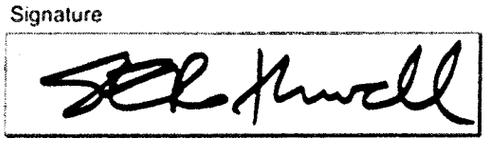
The lists of fire safety measures must describe the extent, capability and the basis of design of each measure.

6. Signatures

The owner(s) of the land must sign this application if:

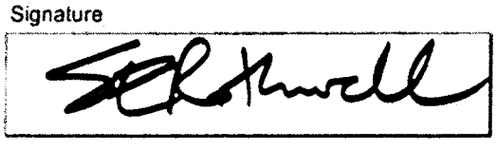
- at the time the owner signed the development application, the owner did not give consent to the applicant to lodge a construction certificate, or
- the owner of the land has changed since the owner signed the development application.

As the owner(s) of the above property, I/we consent to this application:

Signature	Signature
SR 	
Name	Name
SUSAN ROTHWELL	
Date	Date
14/8/14	

The applicant, or the applicant's agent, must sign the application.

Signature



Name, if you are not the applicant

SUSAN ROTHWELL

Date

14/8/14

In what capacity are you signing if you are not the applicant?

7. Privacy policy

The information you provide in this application will enable your application to be assessed by the certifying authority. If the information is not provided, your application may not be accepted. Please contact the council if the information you have provided in your application is incorrect or changes.

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Email mail@protas.net.au Web www.protas.net.au ABN 37 079 830 756

Schedule to application for a construction certificate

Please complete this schedule. The information will be sent to the Australian Bureau of Statistics.

All new buildings

Please complete the following:

- Number of storeys (including underground floors): 1
- Gross floor area of new building (m²): GARAGE 117 / DRIVEWAY 280
- Gross site area (m²): 1238

N/A

Residential buildings only

Please complete the following details on residential structures.

- Number of dwellings to be constructed
- Number of pre-existing dwellings on site
- Number of dwellings to be demolished
- Will the new dwelling(s) be attached to other new buildings? Yes ☐ No ☐
- Will the new building(s) be attached to existing buildings? Yes ☐ No ☐
- Does the site contain a dual occupancy? (NB dual occupancy = two dwellings on the same site) Yes ☐ No ☐

Materials – residential buildings

Please indicate the materials to be used in the construction of the new building(s):

Walls		Code	Roof		Code	Floor		Code	Frame		Code
Brick (double)	☐	11	Tiles	☐	10	Concrete or slate	☒	20	Timber	☐	40
Brick (veneer)	☐	12	Concrete or slate	☒	20	Timber	☐	40	Steel	☐	60
Concrete or stone	☒	20	Fibre cement	☐	30	Other	☐	80	Aluminium	☐	70
Fibre cement	☐	30	Steel	☒	60	Not specified	☐	90	Other	☐	80
Timber	☐	40	Aluminium	☐	70				Not specified	☐	90
Curtain glass	☐	50	Other	☐	80						
Steel	☒	60	Not specified	☐	90						
Aluminium	☐	70									
Other	☐	80									
Not specified	☐	90									

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Email mail@protas.net.au Web www.protas.net.au ABN 37 079 830 756

Our Reference: SY110101

31 August 2012

Anthony Protas
Locked Bag 1001
WAREEMBA NSW 2046

Attn: Mr Anthony Protas

Dear Anthony

Re: New Driveway and Garage
1174 Barrenjoey Road, Palm Beach

Pursuant to the provisions of clause A2.2 of the building Code of Australia, I hereby certify that the above design is in accordance with normal engineering practice and meets the requirements of the Building Code of Australia, relevant Australian standards and relevant conditions of the development consent.

I am an appropriately qualified and competent person in this area and as such can certify that the design and performance of the design systems comply with the above and which are detailed on the following drawings.

SY110101 / S1.01, S2.01, S2.05

I posses indemnity insurance to the satisfaction of the building owner or my principal

Name of Designer	**Chris Rowse**
Qualifications	**BE, MIEAust, CPEng**
Address of designer	**Level 1, 24 Falcon Street, Crows Nest NSW 2065**
Business telephone number	**(02) 9438 5098**
Name of Employer	**ACOR Consultants Pty Ltd**

Yours sincerely,
ACOR Consultants Pty Ltd

Chris Rowse
Director

ACOR CONSULTANTS PTY LTD

ENGINEERS

MANAGERS

INFRASTRUCTURE PLANNERS

SYDNEY - BRISBANE - NEWCASTLE
GOSFORD - ADELAIDE

ACN [illegible]

ABN [illegible]

Level 1, 24 Falcon Street

[illegible]

Crows Nest, NSW 2065

T [illegible]

FAX [illegible]

www.acor.com.au

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 2 – PART A – To be submitted with detailed design for Construction Certificate

Development Application for S. Rothwell
Name of Applicant

Address of site 1174 Barrenjoey Road, Palm Beach

PART A: Declaration made by Structural or Civil Engineer in relation to the incorporation of the Geotechnical Issues into the project design

I, Christopher Rowse (insert name) on behalf of ACOR Consultants P/L. (trading or company name)

on this the 13th August 2012 (date)

certify that I am a Structural or Civil Engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009. I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $2million. I also certify that I have prepared the below listed structural documents in accordance with the recommendations given in the Geotechnical Report for the above development and that

Please mark appropriate box

☑ the structural design meets the recommendations as set out in the Geotechnical Report or any revision thereto.
☐ the structural design has considered the requirements set out in the Geotechnical Report for Excavation and Landfill both for the excavation/construction phase and the final installation in accordance with Clause 3.2 (b)(iv) of the Geotechnical Risk Management Policy.

Geotechnical Report Details:

Report Title: Geotechnical Assessment
Report Date: 19 May 2011
Author: Paul Roberts
Author's Company/Organisation: Jeffery + Katauskas P/L

Structural Documents list:

SY110101 / S1.01 / B
SY110101 / S2.01 / B
SY110101 / S2.05 / B

I am also aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified.

Signature .....
Name Christopher Rowse
Chartered Professional Status CPEng. NPER
Membership No. 585520
Company ACOR Consultants P/L.

Our Reference: SY110101

3 September 2012

Anthony Protas
Locked Bag 1001
WAREEMBA NSW 2046

Dear Anthony

Re: New driveway and garage
Civil Design Certification
1174 Barrenjoey Road, Palm Beach

ACOR Consultants Pty Ltd was responsible for the design and documentation of the stormwater system for the development at the above property.

The design has been carried out in accordance with the following standards and in accordance with good design practice:-

- AS3500 The National Plumbing and Drainage Code of Australia
- The requirements of Pittwater Council
- Australian Rainfall and Runoff 1987

This certification is provided with respect to the following drawings:-

- C1.01 Stormwater Plan (B)
- C1.02 Stormwater Details (B)
- C1.03 Soil and Sediment Plan (B)

If you have any questions in this regard please contact the undersigned.

Yours sincerely,
ACOR Consultants Pty Ltd

Chris Rowse
BE, MIEAust, CPEng
Director

ACOR CONSULTANTS PTY LTD

ENGINEERS

MANAGERS

INFRASTRUCTURE PLANNERS

SYDNEY – BRISBANE – NEWCASTLE
GOSFORD – ADELAIDE

[illegible]

[illegible]

[illegible]

[illegible]

Crows Nest NSW [illegible]

TEL [illegible]

FAX [illegible]

[illegible]

S U S A N R O T H W E L L
A R C H I T E C T S
38 SERPENTINE ROAD, GREENWICH N.S.W. 2065 TEL: (02) 9439 2380 FAX: (02) 9901 3185

The General Manager
Pittwater Council
Mona Vale NSW 1660

03.09.12

RE: NEW DRIVEWAY & GARAGE AT 1174 BARRENJOEY ROAD, PALM BEACH

I hereby certify that the landscape design complies with council's requirements as outlined in Condition C11 of DA No: 336/11 dated 18 June 2012.

Landscape plan srBR-104/C indicates five (5) NSW Xmas Bush (Ceratopetulum gummiferum) in the space available on the side of the driveway.

Regards,

Susan Rothwell

Anthony Protas (APC)

From:	Will Rothwell <willrothwell@icloud.com>
Sent:	Friday, 10 October 2014 9:52 AM
To:	Anthony Protas (APC)
Cc:	Peter Kleijn
Subject:	Fwd: 1174 Barrenjoey Road CC - Deed of Agreement

Hi Anthony,
see below from council's engineer.
We have lodged the deed with them but don't get anything back until after completion.

Regards,
Will Rothwell
Ph: 0411 745 051

Begin forwarded message:

From: Ross McWhirter <Ross_McWhirter@pittwater.nsw.gov.au>
Subject: 1174 Barrenjoey Road - Deed of Agreement
Date: 10 October 2014 9:41:58 am AEDT
To: "willrothwell@icloud.com" <willrothwell@icloud.com>

Will,

Council retains the Deed of Agreement until the driveway is completed and Council is satisfied with the finished product.
Once Council is satisfied with the driveway construction, the Deed is executed and a copy is returned to the owner. Council retains a copy for its records.
In some cases, owners change their minds on the driveway finish e.g. coloured to plain, and the Deed is either no longer required or the Deed needs to be changed. Hence the need to hold the Deed until the driveway is constructed.

Hope this clarifies the matter.

With Regards,

Ross McWhirter
Project Leader Road Reserve Management
P: Phone 9970 1207 **M:** 0419 629007
PITTWATER COUNCIL
www.pittwater.nsw.gov.au

JK Geotechnics
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS

PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113
Tel 02 9888 5000 Fax 02 9888 5003
www.jkgeotechnics.com.au

14 August 2012
Ref No 24787ZRlet

Susan Rothwell & Associates
38 Serpentine Road
GREENWICH NSW 2065

ATTENTION: Mr Peter Kleijn

Dear Sir

REVIEW OF STRUCTURAL DRAWINGS
PROPOSED DRIVEWAY AND GARAGE
1174 BARRENJOEY ROAD, PALM BEACH, NSW

At your request, we have reviewed the suppled structural drawings (Project No. SY11 0101 Drawing Numbers S1.01, S2.01 and S2.05 Issue B, dated 6 August 2012) prepared by ACOR Consultants Pty Ltd. However, we have not carried out a check of any structural aspects of the structural design.

We consider that the supplied structural drawings have been completed in accordance with the recommendations presented in our report (Ref. 24787ZRrpt dated 19 May 2011). Accordingly we have attached a signed copy of Council Form 2 Part B.

Should you require any further information regarding the above, please do not hesitate to contact the undersigned.

Yours faithfully
For and on behalf of
JK GEOTECHNICS

Paul Roberts
Senior Associate

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 2 – PART B – To be submitted with detailed design for Construction Certificate

PART B Declaration made by Geotechnical Engineer or Engineering Geologist and/or Coastal Engineer (where applicable) in relation to the incorporation of the Geotechnical issues into the project design

I, PAUL ROBERTS on behalf of JKGEOTECHNICS
(insert name) (trading or company name)

on this the 14/8/12
(date)

certify that I am a Geotechnical Engineer or Engineering Geologist and/or Coastal Engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2099 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $2million. I also certify that I have reviewed the design plans and structural design plans for the Construction Certificate Stage and that I am satisfied that:

Please mark appropriate box

✓ the structural design meets the recommendations as set out in the Geotechnical Report or any revision thereto.

✓ the structural design has considered the requirements set out in the Geotechnical Report for Excavation and Landfill both for the excavation/construction phase and the final installation in accordance with Clause 3.2 (b)(iv) of the Geotechnical Risk Management Policy.

Geotechnical Report Details:

Report Title: GEOTECHNICAL ASSESSMENT FOR PROPOSED NEW DRIVEWAY & GARAGE AT 1174 BARRENJOEY ROAD, PALM BEACH, NSW

Report Date: 19/5/11

Author: PAUL ROBERTS MIEAust CPEng

Documentation which relates to or is relied upon in report preparation:

Architectural Plans (Drg. No srBR-100 and 101 Issue A dated 29/3/11) prepared by Susan Rothwell Architects

I am also aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified.

Signature Paul Roberts

Name PAUL ROBERTS

Chartered Professional Status CPEng NPER

Membership No. 2307698

Company JKGEOTECHNICS

PLAN ON DRIVEWAY

SCALE 1:100

ALL SETOUT, FALLS, GRADES AND SETDOWNS ARE TO ARCHITECTS DETAILS U.N.O. - TYPICAL

150 ALL SLABS ON GROUND ARE TO BE MIN 150mm THICK U.N.O. (AT THE STAIR THROAT)
ALL SLABS ON GROUND ARE TO BE POURED ONTO A 300um WATERPROOF MEMBRANE OVERLAYING AN 86mm LAYER OF 20mm SINGLE SIZED FREE DRAINING COMPACTED GRANULAR MATERIAL
SLAB TO BE REINFORCED WITH SL102 TOP AND BOTTOM (LAID 2ND AND 6TH). ANY ADDITIONAL REINFORCEMENT IS SHOWN ON PLAN AND SECTIONS.

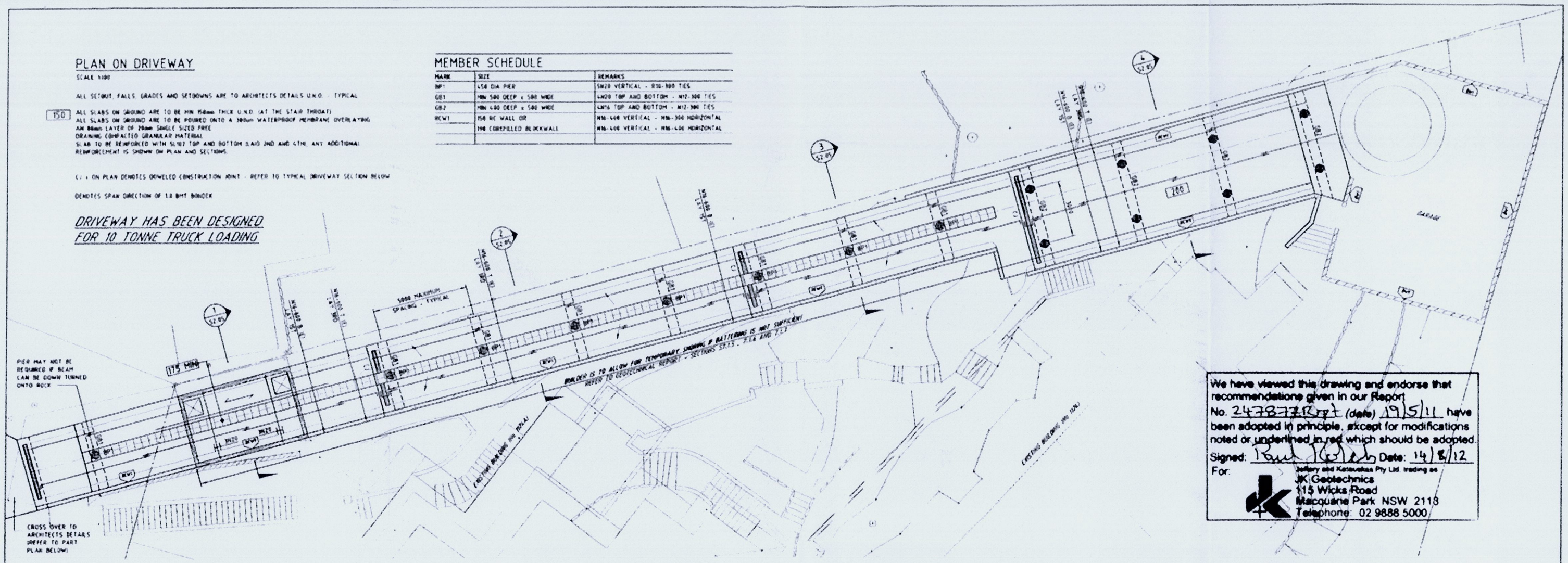
C / J ON PLAN DENOTES DOWELED CONSTRUCTION JOINT - REFER TO TYPICAL DRIVEWAY SECTION BELOW

DENOTES SPAN DIRECTION OF 1.8 BMT BONDEK

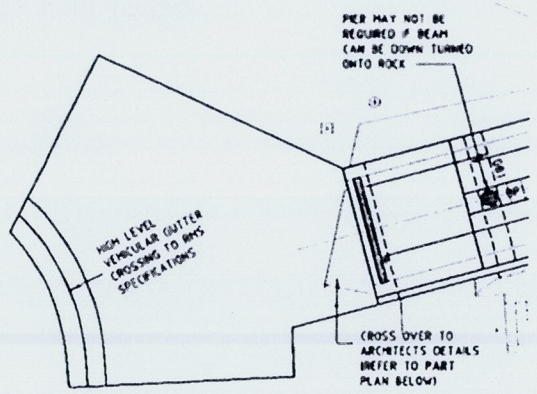
DRIVEWAY HAS BEEN DESIGNED FOR 10 TONNE TRUCK LOADING

MEMBER SCHEDULE

MARK	SIZE	REMARKS
BP1	450 DIA PIER	SW20 VERTICAL - R10-300 TIES
GB1	MIN 500 DEEP x 500 WIDE	LN20 TOP AND BOTTOM - N12-300 TIES
GB2	MIN 600 DEEP x 500 WIDE	LN16 TOP AND BOTTOM - N12-300 TIES
RCW1	150 RC WALL OR	N16-600 VERTICAL - N16-300 HORIZONTAL
	190 COREFILLED BLOCKWALL	N16-600 VERTICAL - N16-600 HORIZONTAL



We have viewed this drawing and endorse that recommendations given in our Report No. 24787ZRpt (date) 19/5/11 have been adopted in principle, except for modifications noted or underlined in red which should be adopted.
Signed: Paul Gledhill Date: 14/8/12
For: Jeffery and Katauskas Pty Ltd trading as JK Geotechnics
115 Wicks Road
Macquarie Park NSW 2113
Telephone: 02 9888 5000

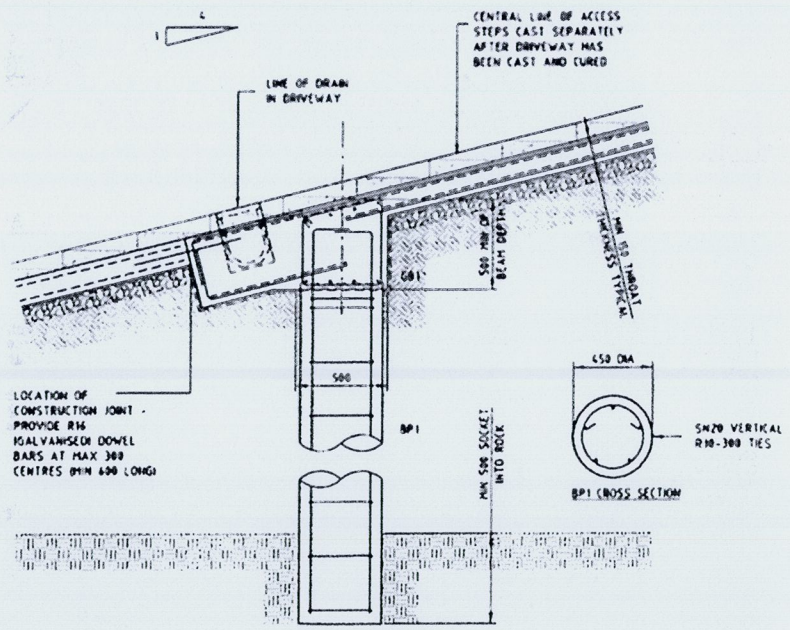


CROSSOVER - PART PLAN

SCALE 1:100

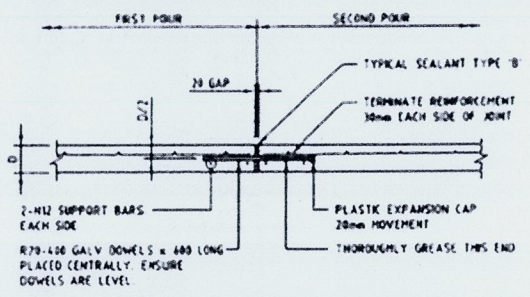
ALL SETOUT, FALLS, GRADES AND SETDOWNS ARE TO ARCHITECTS DETAILS U.N.O. - TYPICAL

150 ALL SLABS ON GROUND ARE TO BE MIN 150mm THICK U.N.O. ALL SLABS ON GROUND ARE TO BE POURED ONTO A 300um WATERPROOF MEMBRANE OVERLAYING AN 86mm LAYER OF 20mm SINGLE SIZED FREE DRAINING COMPACTED GRANULAR MATERIAL
SLAB TO BE REINFORCED WITH SL102 TOP AND BOTTOM. ANY ADDITIONAL REINFORCEMENT IS SHOWN ON PLAN AND SECTIONS.



TYPICAL SECTION THROUGH RAMPED DRIVEWAY

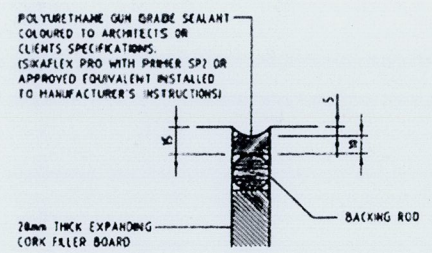
SCALE = 1:20



TYPICAL CONCRETE WALL EXPANSION JOINT

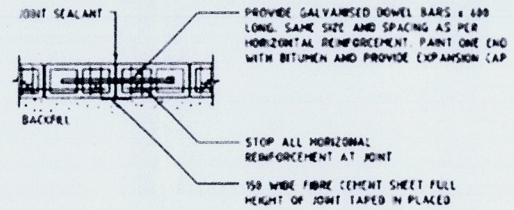
SCALE 1:20

JOINTS ARE TO BE LOCATED AT MAXIMUM 8000 CENTRES.



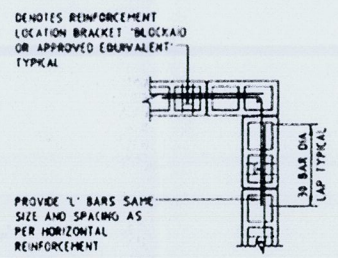
TYPICAL JOINT SEALANT TYPE 'B'

SCALE 1:2

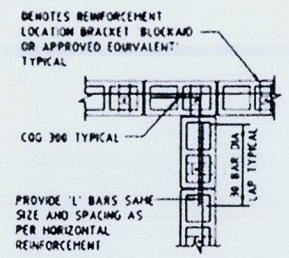


BLOCK RETAINING WALL CONTROL JOINT

SCALE 1:20



CORNER



INTERSECTION

BLOCK WALL JUNCTION DETAILS

SCALE 1:20

GROUT COVER TO REINFORCEMENT IN 190 BLOCK RETAINING WALLS SHALL BE MAINTAINED BY THE USE OF PLASTIC "BLOCKAID" REINFORCEMENT LOCATION BRACKETS (OR APPROVED EQUIVALENT) AT THE INTERSECTION OF ALL HORIZONTAL AND VERTICAL REINFORCEMENT.

NOT FOR CONSTRUCTION

THIS DRAWING HAS BEEN ASSIGNED AN ELECTRONIC CODE THAT IDENTIFIES THE DRAWING HAS BEEN CHECKED AND APPROVED BY "INSERT NAME & CREDENTIALS HERE"

Issue	Description	Date	Drawn	Approved
B	ISSUED FOR "CONSTRUCTION CERTIFICATE" PURPOSES ONLY	06.08.2012	DRW	CR
A	ISSUED FOR COMMENT	19.07.2012	DRW	CR

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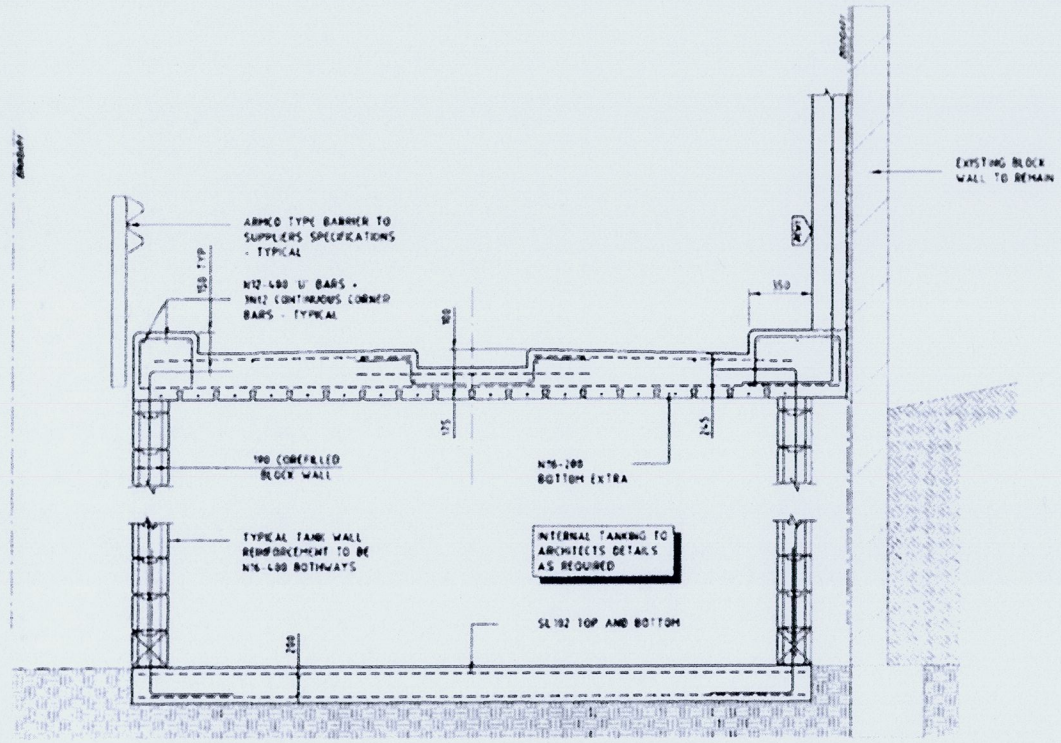
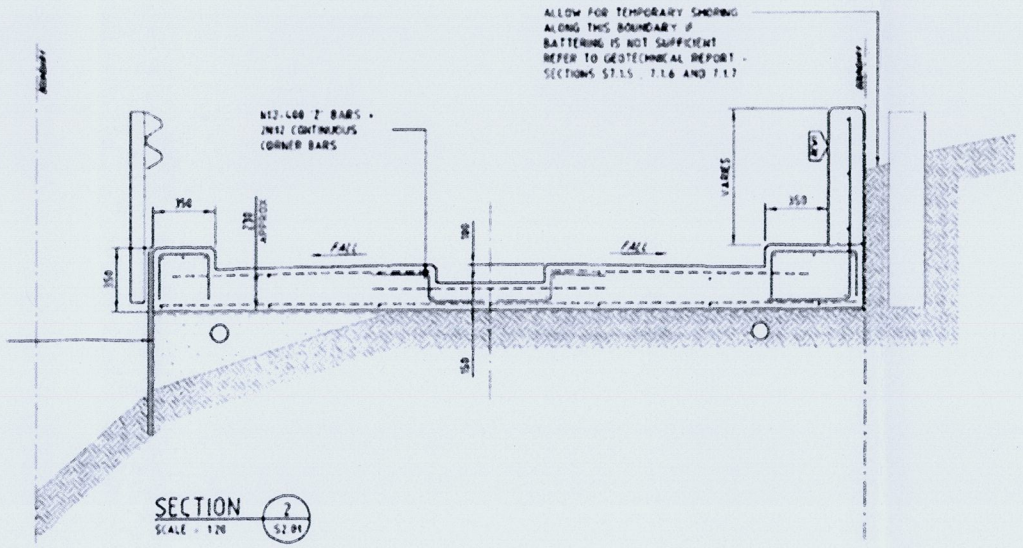
Project
NEW DRIVEWAY AND GARAGE
BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title					
DRIVEWAY PLAN AND DETAILS					
Drawn	Date	Scale A1	Q.A. Check	Date	
DRW	JULY 2012.	1:100			
Designed	Project No.	Dwg. No.	Issue		
CR	SY11 0101	S2.01	B		



SECTION 1 / S2.01
SCALE : 1:20



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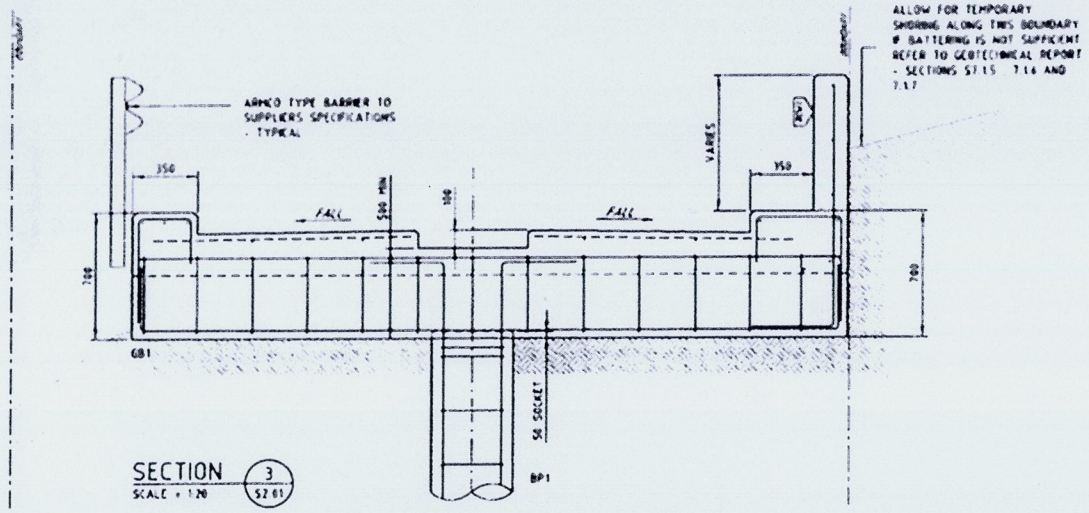

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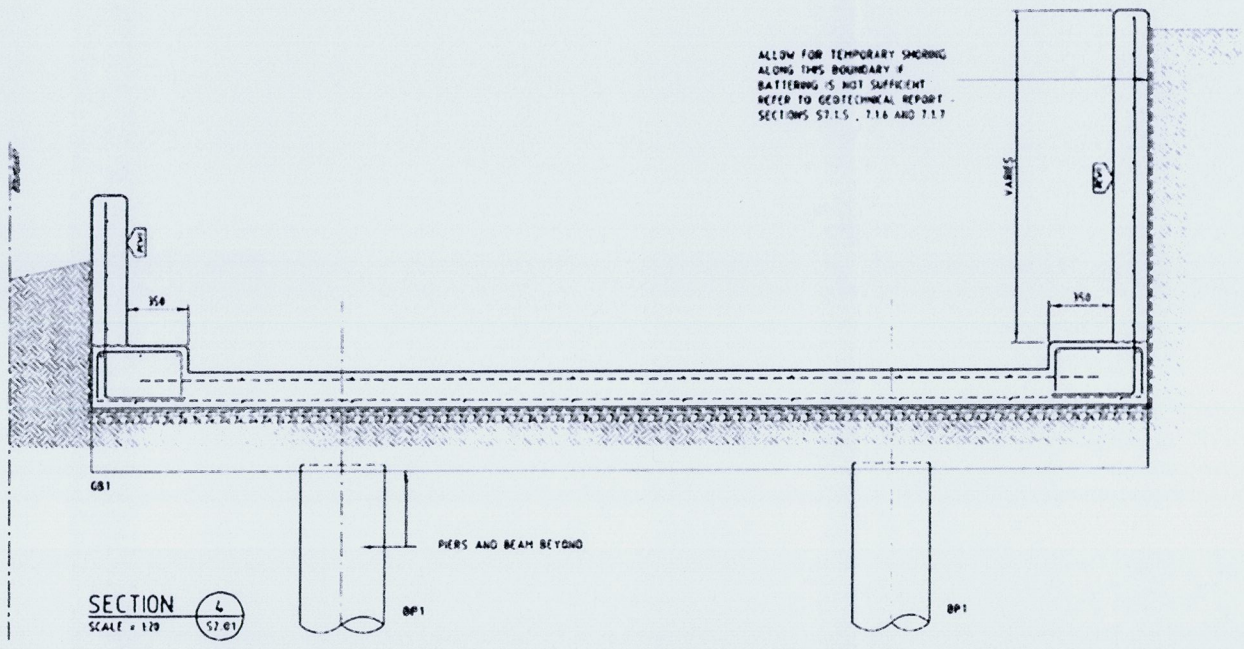
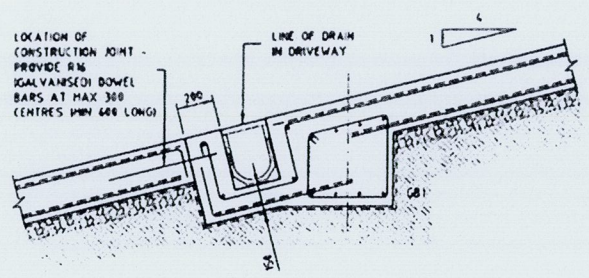


SECTION 4 / S2.01
SCALE : 1:20



TYPICAL SECTION THROUGH GRATED DRAIN
SCALE : 1:20

We have viewed this drawing and endorse that recommendations given in our Report No. 24787ZR rpt (date) 19/5/11 have been adopted in principle, except for modifications noted or underlined in red which should be adopted.
Signed: Paul Roberts Date: 14/8/12
For: Jeffery and Katauskas Pty Ltd, trading as
JK Geotechnics
115 Wicks Road
Macquarie Park NSW 2113
Telephone: 02 9888 5000

NOT FOR CONSTRUCTION

THIS DRAWING HAS BEEN ASSIGNED AN ELECTRONIC CODE THAT SIGNIFIES THE DRAWING HAS BEEN CHECKED AND APPROVED BY "INSERT NAME & CREDENTIALS HERE"

Issue	Description	Date	Drawn	Approved
B	ISSUED FOR "CONSTRUCTION CERTIFICATE" PURPOSES ONLY	16.08.2012	DRW	CR
A	ISSUED FOR COMMENT	19.07.2012	DRW	CR

Client
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Project
NEW DRIVEWAY AND GARAGE
BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title
DRIVEWAY CROSS SECTIONS

Drawn	Date	Scale	A1	D.A. Check	Date
DRW	JULY 2012	NOTED			
Designed	Project No			Dwg. No.	Issue
CR	SY11 0101			S2.05	B

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED.

G2. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED.

G3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.

G4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
ALL LEVELS ARE EXPRESSED IN METRES.

G5. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVER STRESSED UNDER CONSTRUCTION ACTIVITIES.

G6. WORKMANSHIP AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RELEVANT CURRENT S.A.A. CODES INCLUDING ALL AMENDMENTS, AND THE LOCAL STATUTORY AUTHORITIES, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

G7. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER BUT IS NOT AN AUTHORISATION FOR A VARIATION.
ANY VARIATIONS INVOLVED MUST BE TAKEN UP WITH THE ARCHITECT OR PROJECT MANAGER BEFORE THE WORK COMMENCES.

G8. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE ENGINEER FOR A DECISION BEFORE PROCEEDING WITH THE WORK.

G9. THE BUILDER SHALL GIVE 48 HOURS NOTICE FOR ALL ENGINEERING INSPECTIONS.

G10. BUILDING FROM THESE DRAWINGS IS NOT TO COMMENCE UNTIL APPROVED BY THE LOCAL AUTHORITIES.

G11. THE WORD 'ENGINEER' USED IN THESE NOTES REFER TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF ACOR CONSULTANTS PTY.LTD.

G12. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING SUPERIMPOSED LOADS

WIND LOADS IN ACCORDANCE WITH AS1170 - PART 2:2002

STRUCTURAL IMPORTANCE MULTIPLIER	1.0	
TERRAIN CATEGORY	N/A	
REGIONAL WIND SPEED		
REGION A V 35	N/A	m/s
V 1000	N/A	m/s
LIVE LOADS		
DRIVEWAY	5.0	kPa

FOUNDATIONS

F1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING INTENSITY OF 800 kPa ON SANDSTONE OR SHALE IN ACCORDANCE WITH

GEOTECHNICAL REPORT No. 24787ZR

PREPARED BY J + K

IF A GEOTECHNICAL INVESTIGATION HAS NOT BEEN MADE, THE FOUNDATION CONDITIONS AND REACTIVITY CLASS ARE AN ASSUMPTION AND MUST BE CONFIRMED BY TRIAL EXCAVATIONS BY THE BUILDER.

FOUNDATION MATERIAL SHALL BE APPROVED FOR THIS BEARING PRESSURE BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.

F2. RESIDENTIAL SLABS AND FOOTINGS HAVE BEEN DESIGNED FOR A REACTIVITY CLASS A TO AS2870.

F3. BEARING MATERIAL AT BASES OF PIERS TO BE CONFIRMED BY AN EXPERIENCED GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST.

F4. EXCAVATION NEAR FOOTINGS SHALL NOT EXTEND BELOW FOUNDATION LEVEL WITHOUT THE ENGINEERS APPROVAL.

F5. ALL FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE.

F6. DO NOT BACKFILL RETAINING WALLS (OTHER THAN CANTILEVER WALLS) UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED.

F7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ANY EXCAVATION IN A STABLE CONDITION WITHOUT ADVERSELY AFFECTING SURROUNDING PROPERTY INCLUDING SERVICES.
THIS INCLUDES OBTAINING ALL NECESSARY APPROVALS FOR SHORING AND ANCHOR SYSTEMS.

F8. ANY OVER EXCAVATION SHALL BE BACKFILLED WITH CONCRETE GRADE N15.

F9. FOUNDATIONS ADJACENT TO SERVICES ETC. SHALL BE EXTENDED DOWN SUCH THAT THE INFLUENCE LINE OF THE FOUNDATION IS BELOW THE ADJACENT SERVICE.

SUBGRADE PREPARATION

S1. STRIP ALL VEGETATION, TOPSOIL OR OTHER DELETERIOUS MATERIAL TO SPOIL OR STOCKPILE IF SUITABLE FOR REUSE AS LANDSCAPE. THIS SITE SHOULD THEN BE INSPECTED BY A GEOTECHNICAL ENGINEER OR EXPERIENCED TECHNICIAN AT THE CONTRACTORS EXPENSE TO ENSURE THAT THE STRIPPING IS SATISFACTORY.

S2. COMPACT THE STRIPPED SURFACE OVER THE PROPOSED FILL AREAS TO AT LEAST 98% STANDARD MAXIMUM DRY DENSITY (SMDD) AT A MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT (OMC). SUITABLE TO BE USED AS FORMWORK PURPOSES ONLY.

S3. FILLING SHOULD COMPRISE EXCAVATED CLAY SOILS FROM THE SITE OR IMPORTED FILL AND SHOULD BE PLACED IN LAYERS NOT EXCEEDING 200mm COMPACTED THICKNESS TO AT LEAST 98% SMDD WITH A MOISTURE CONTENT WITHIN 2% OF OMC.

S5. DENSITY TESTING AT THIS SITE (AREA GREATER THAN 1500sqm) SHOULD BE CARRIED OUT IN ACCORDANCE WITH AT LEAST THE MINIMUM FREQUENCY RECOMMENDED IN AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS" TABLE 8.1 (P 29) IE.

A) ONE TEST PER LAYER OR 2000m² THICKNESS PER MATERIAL TYPE PER 2500m²
OR
B) ONE TEST PER 500m² DISTRIBUTE REASONABLY EVENLY THROUGHOUT DEPTH AND AREA OR
C) THREE TESTS PER VISIT.

WHICHEVER REQUIRES THE MOST TESTS.

S6. THE LEVEL OF ENGAGEMENT FOR A GEOTECHNICAL TESTING AUTHORITY SHOULD BE LEVEL 2, AS THE FILLING OF THE SITE WILL BE USED AS FORMWORK PURPOSES ONLY.

S7. ADDITIONAL GEOTECHNICAL INSPECTION :-
ADDITIONAL GEOTECHNICAL INSPECTIONS BY A GEOTECHNICAL ENGINEER WILL BE REQUIRED DURING AND FOLLOWING.

A) THE EXISTING GARAGE
B) EXISTING STACKED STONE RETAINING WALLS
C) EXPOSED DETACHED BLOCKS OF SANDSTONE

REFER TO SOLUTIONS 7.1.1, 7.1.2 AND 7.1.3 OF THE GEOTECHNICAL REPORT

ABBREVIATIONS

ABT.

ALT.	ALTERNATE BARS
C/S	BRICKWORK COURSE
BTM	BOTTOM
(BT)	BOTTOM
B.J.	BLOCK JOINT
CTS	CENTRES
D.J	DOWEL JOINT
E.F.	EACH FACE
f'c	CONCRETE STRENGTH
E.W	EACH WAY
F.F.	FAR FACE
N.F.	NEAR FACE
F.F.L	FINISH FLOOR LEVEL
GALV	GALVANISED
G.L.	GROUND LINE
L.V.	LENGTH VARIES
LVL	LAMINATED VENEER LUMBER
M.C.	MASS CONCRETE
N.S.O.E	NOT SHOWN ON ELEVATION
N.S.O.P	NOT SHOWN ON PLAN
R.L.	REDUCED LEVEL
R.C.	REINFORCED CONCRETE
(1)	REINFORCEMENT LAID FIRST
(2)	REINFORCEMENT LAID SECOND
(3)	REINFORCEMENT LAID THIRD
(4)	REINFORCEMENT LAID FOURTH
S/S	STAINLESS STEEL
STAG	STAGGERED BARS
S.S.L	STRUCTURAL SLAB LEVEL
TYP	TYPICAL
(T)	TOP
U/S	UNDERSIDE
U.N.O.	UNLESS NOTED OTHERWISE

REINFORCEMENT

R1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 2001 AND OTHER RELEVANT AUSTRALIAN CODES.

R2. REINFORCEMENT TYPE AND GRADE.

SYMBOL	TYPE	AUS. STAND.	GRADE
N	NORMAL DUCTILITY	4671	500
L	LOW DUCTILITY	4671	500
E	SEISMIC (EARTHQUAKE) DUCTILITY	4671	500
R	PLAIN (ROUND)	4671	250
SL	SQUARE MESH	4671	500
RL	RECTANGULAR MESH	4671	500
TH	TRENCH MESH	4671	500

R3. ALL REINFORCEMENT TO CONFORM TO AS4671, CURRENT EDITIONS WITH AMENDMENTS.

REINFORCEMENT SYMBOLS

N DENOTES 500N GRADE DEFORMED BAR
S DENOTES 250S GRADE DEFORMED BAR
R DENOTES 250R GRADE ROUND BAR

THE NUMBER FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN mm.

R4. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.

R5. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

R6. ALL REINFORCEMENT SHALL BE SECURELY SUPPORTED IN ITS CORRECT POSITION DURING CONCRETING BY APPROVED BAR CHAIRS, SPACERS OR SUPPORT BARS.

R7. SITE BENDING OF N BARS SHALL BE DONE COLD WITH POWER OR MECHANICAL BENDING TOOLS. NOTE: IF N BARS ARE HEATED ABOVE 450°C (LESS THAN RED HEAT) THEY LOSE STRENGTH.

REINFORCEMENT LAPS

R8. LAP TOP BARS MIDSPAN. LAP BOTTOM BARS AT SUPPORTS. LAPS IN SLAB REINFORCEMENT (U.N.O.) ON PLAN OR DETAILS TO BE AS SHOWN BELOW.

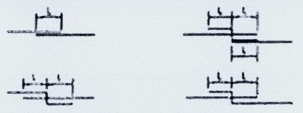
MINIMUM LAPS

BAR SIZE	L (CONCRETE DEPTH < 300)	L (CONCRETE DEPTH > 300)
N12	300	400
N16	400	500
N20	500	600
N24	600	800
N28	800	1000
N32	1000	1250
N36	1200	1500

WHERE LAPS OCCUR AWAY FROM MIDSPAN (TOP STEEL) OR SUPPORTS (BOTTOM STEEL) USE FULL MOMENT LAPS AS SHOWN BELOW. SUBJECT TO APPROVAL. STOCK BAR LENGTHS AND FULL MOMENT LAPS MAY BE USED IN SLABS.

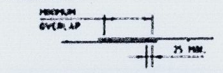
FULL MOMENT LAPS

BAR SIZE	L (CONCRETE DEPTH < 300)	L (CONCRETE DEPTH > 300)
N12	450	500
N16	650	850
N20	1000	1200
N24	1200	1650
N28	1700	2100
N32	2100	2600
N36	2550	3150

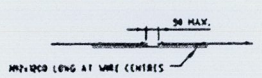


R9. FABRIC TO CONFORM TO AS1304.

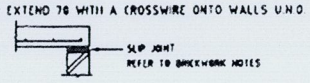
R10. FABRIC LAPS



ALTERNATIVE FABRIC SPLICE DETAIL



R11. FABRIC TO EXTEND TO WITH A CROSSWIRE ONTO WALLS U.N.O.



R12. A MAXIMUM OF THREE SHEETS OF FABRIC SHALL BE LAPPED AT ANY POINT.

CONCRETE NOTES

C1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 (CURRENT EDITION) WITH AMENDMENTS, AND THE ACSE CONCRETE SPECIFICATION EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. CONCRETE COMPONENTS AND QUALITY SHALL BE AS FOLLOWS :-

ELEMENT	COMPRESSIVE STRENGTH f'c - 28 DAYS MPa	SLUMP mm	MAX. AGG SIZE mm
FOOTINGS	25	80	20
COLUMNS	40	80	20
SLABS ON GRD	25	80	20
SUSP. SLABS	40	80	20

C3. CEMENT TO BE TYPE GL TO AS 3972 UNLESS NOTED OTHERWISE. THIS IS A MODIFIED TYPE 'GP' CEMENT. SEE ACSE CONCRETE SPECIFICATION.

C4. NO BRECCIA TYPE AGGREGATE IS TO BE USED.

C5. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.

C6. A VIBRATOR IS TO BE USED FOR THE COMPACTION OF ALL CONCRETE.

C7. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS.

C8. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

C9. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

C10. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USE ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER.

C11. COVER TO REINFORCEMENT FOR CORROSION PROTECTION SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE COVER TO DOMESTIC FOOTINGS SHALL COMPLY WITH:

SURFACES IN CONTACT WITH GROUND		COVER
WITHOUT MEMBRANE		50mm
WITH MEMBRANE	- SLABS	30mm
	- FOOTINGS	50mm
SURFACES ABOVE GROUND	- INTERIOR	20mm
SURFACES ABOVE GROUND	- EXTERIOR	AS MBK

COVER SHALL NOT BE LESS THAN THE SIZE OF THE AGGREGATE OR THE MAIN BARS.

C12. CONDUITS, PIPES AND THE LIKE SHALL NOT BE PLACED WITHIN THE CONCRETE COVER.

C13. CURE ALL CONCRETE USING AN APPROVED METHOD IN ACCORDANCE WITH ACSE SPECIFICATION. CURING COMPOUNDS TO COMPLY WITH AS 3799. PVA BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

C14. ALIPHATIC ALCOHOL -
WHEN SHADE TEMPERATURE EXCEEDS 35° C SPRAY THE EXPOSED SURFACE OF CONCRETE SLAB DURING THE PLACING AND FINISHING OPERATION WITH A FINE FILM OF APPROVED ALIPHATIC ALCOHOL.
REPEAT THE SPRAY IF THE SPRAYED SURFACE HAS BEEN RE-WORKED.

C15. ENSURE ADEQUATE SUPPLY OF ALIPHATIC ALCOHOL ON SITE BEFORE COMMENCING CONCRETE WORK.

C16. ALL CONCRETE SLABS AND BEAMS TO BE PROPORTIONED TO LIMIT DRYING SHRINKAGE TO 500 MICROSTRAIN AT 56 DAYS.

C17. ALL CONCRETE COLUMNS GREATER THAN 12 METRES IN HEIGHT SHALL BE POURED A MINIMUM OF 4 HOURS PRIOR TO SLAB OR BEAM OVER.

C18. DRIP GROOVES ARE TO BE PROVIDED AT ALL EXPOSED EDGES COVER TO REINFORCEMENT TO COMPLY WITH C11 ABOVE.

C19. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

C20. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS
BEAM NUMBERING SYSTEM
2-B18
- B18 — CONCRETE BEAM UNDER
- 2 — FLOOR NUMBER

WALL NUMBERING SYSTEM
W10 (250)
- W10 — WALL NUMBER
- (250) — WALL THICKNESS IF SHOWN ON PLAN

C21. TOP MESH FOR SLAB REINFORCEMENT TO BE CONTINUOUS OVER SLAB SUPPORTS.

CONCRETE CONT'

TYPICAL OPENINGS IN SLABS

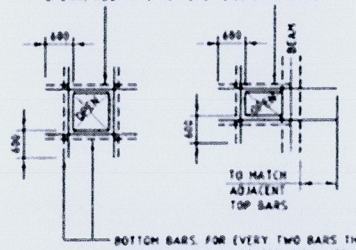
C22. FOR OPENINGS LESS THAN 300 x 300mm, BARS TO BE RE-ARRANGED AROUND HOLE.

C23. FOR PENETRATIONS GREATER THAN 300 x 300mm BUT LESS THAN 1000mm x 1000mm USE DETAILS BELOW.

C24. FOR PENETRATIONS GREATER THAN 1000 x 1000mm REFER TO ENGINEER'S PLANS. WHERE OPENINGS ARE NOT DETAILED, CONTACT ENGINEER IMMEDIATELY.

C25. LOCATION OF OPENINGS TO BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER.

TOP BARS FOR EVERY TWO BARS THAT ARE TERMINATED BY OPENINGS ADD ONE BAR EACH SIDE USING SAME GRADE AND SIZE OF REINFORCEMENT WHERE NO TOP BARS ARE SHOWN ADD 1-N16 TOP EACH SIDE OF OPENING



BOTTOM BARS FOR EVERY TWO BARS THAT ARE TERMINATED BY PENETRATION ADD ONE BAR EACH SIDE USING SAME GRADE AND SIZE OF REINFORCEMENT

PIPE PENETRATION THROUGH BEAM

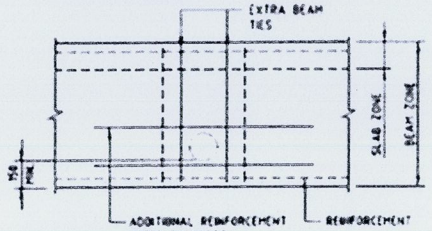
C26. MAXIMUM DISTANCE FROM BEAM SOFFIT TO PIPE SOFFIT TO BE 150mm.

C27. FOR PIPES UP TO Ø90 ADD ONE ROW OF TIES EACH SIDE OF PIPE.

C28. FOR PIPES Ø91 TO Ø150 ADD TWO ROWS OF TIES EACH SIDE OF PIPE AND 1-N16 HORIZONTAL BAR 1200 LONG TOP AND BOTTOM OF PIPE AT EVERY VERTICAL TIE LEG.

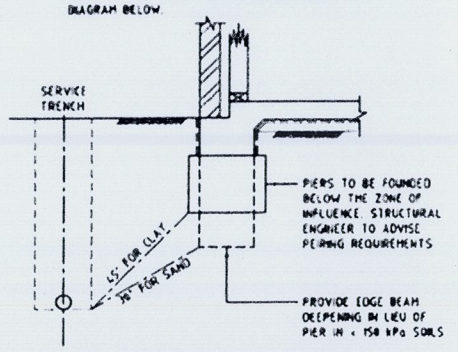
C29. FOR HOLES GREATER THAN Ø150 REFER TO ENGINEER'S DETAILS. WHERE PENETRATIONS ARE NOT DETAILED, CONTACT STRUCTURAL ENGINEER IMMEDIATELY.

C30. LOCATION OF HOLES TO BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER



PIERING REQUIREMENT

C31. WHERE A SERVICE TRENCH IS PARALLEL TO A SIDE OF THE SLAB, WHETHER THE SLAB BE IN AN EXCAVATED OR FILLED AREA, THEN PIERING TO SUPPORT THE SLAB BESIDE THE SERVICE TRENCH IS ONLY REQUIRED IF THE SERVICE LINE IS BELOW A LINE OF INFLUENCE DRAWN FROM THE BOTTOM OF THE EDGE BEAM. REFER TO DIAGRAM BELOW.



C32. THESE NOTES ARE INTENDED AS A GUIDE. THERE IS ALWAYS A POSSIBILITY OF SITE CONDITIONS REQUIRING VARIATION TO THESE PROCEDURES. IN SUCH CASES, THE STRUCTURAL ENGINEER MUST BE CONSULTED.

REINFORCED CONCRETE BLOCKWORK

CB1. ALL WORKMANSHIP SHALL COMPLY WITH AS 3700 AND THE SPECIFICATIONS.

CB2. ALL BLOCKS SHALL CONFORM TO AS 2733.

CB3. THE DESIGN STRENGTH OF CONCRETE MASONRY SHALL BE AS FOLLOWS :-

ELEMENT	BLOCK STRENGTH GRADE	MORTAR MIX (CEMENT:LIME:SAND)
WALLS	12	M3 MORTAR (NORMAL) 1 : 1 : 6 M4 MORTAR (EXPOSURE GRADE) 1 : 0.5 : 4.5

CB4. LAY BOTTOM COURSE OF BLOCKS ON FULL MORTAR BED. ALL PERPENDS SHALL BE FULLY FILLED WITH MORTAR EXCEPT WHERE REQUIRED FOR WEEPHOLES.

CB5. CLEAN OUT HOLES SHALL BE PROVIDED AT THE BASE OF ALL REINFORCED CORES. REINFORCED CORES SHALL BE CLEANED OF MORTAR PROTRUSIONS BEFORE GROUTING.

CB6. ALL REINFORCED CORES SHALL BE FILLED WITH GROUT. THE GROUT FILLING SHALL BE THOROUGHLY COMPACTED BY MECHANICAL VIBRATOR OR RODDING. UNREINFORCED CORES NEED NOT BE FILLED UNLESS OTHERWISE NOTED.

CB7. GROUT SHALL BE IN ACCORDANCE WITH AS 3600 AND COMPLY WITH THE FOLLOWING :-

CHARACTERISTIC STRENGTH f'c = 20 MPa AT 28 DAYS.
MAXIMUM AGGREGATE SIZE = 10 mm.
SLUMP = 230 mm.

CB8. MAXIMUM CONTINUOUS POUR HEIGHT SHALL BE 3600 mm. STOP POUR 50 mm BELOW TOP OF BLOCK TO PROVIDE KEY FOR THE FOLLOWING POUR.

CB9. PROVIDE WATERPROOFING AND DRAINAGE TO BACK OF WALLS AS REQUIRED BY THE ARCHITECT'S SPECIFICATIONS IF REQUIRED.

CB10. PROVIDE TEMPORARY PROPPING TO WALLS WHERE REQUIRED FOR STABILITY DURING CONSTRUCTION.

CB11. BACKFILL RETAINING WALLS, AFTER OBTAINING ENGINEER'S APPROVAL, WITH CLEAN GRANULAR FILLING, FREE FROM CLAY AND OTHER ORGANIC MATTER.

VERTICAL JOINTS

CB12. PROVIDE VERTICAL CONTROL JOINTS IN ALL WALLS AT A MAXIMUM OF @ 6000 mm (CENTRES OR AT SLAB JOINTS UNLESS INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS.

CB13. VERTICAL REINFORCEMENT TO BE POSITIONED 20 mm CLEAR FROM FACE OF BLOCKWORK UNLESS OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS.

HORIZONTAL JOINTS

CB14. PROVIDE HORIZONTAL JOINT REINFORCEMENT EVERY THIRD COURSE FOR SOLID OR CORE FILLED BLOCKS.

We have viewed this drawing and endorse that recommendations given in our Report No. 24787ZRrpt (date) 19/5/11 have been adopted in principle, except for modifications noted or underlined in red which should be adopted.
Signed: Paul Roleh Date: 14/8/12
For: Jeffery and Katsoukas Pty Ltd, trading as JK Geotechnics
115 Wicks Road
Macquarie Park NSW 2113
Telephone: 02 9888 5000

NOT FOR CONSTRUCTION

THIS DRAWING HAS BEEN ASSIGNED AN ELECTRONIC CODE THAT SIGNIFIES THE DRAWING HAS BEEN CHECKED AND APPROVED BY: "INSERT NAME & CREDENTIALS HERE"

Issue.	Description	Date	Drawn	Approved
B	ISSUED FOR "CONSTRUCTION CERTIFICATE" PURPOSES ONLY	16.08.2012	DRW	CR
A	ISSUED FOR COMMENT	19.07.2012	DRW	CR

North

Client
WINTEN PROPERTY GROUP
LEVEL 10, 61 LAVENDER STREET
MILSONS POINT, NSW 2061
PHONE 9929 5000 FAX 9929 5001

Architect
SUSAN ROTHWELL AND ASSOCIATES
38 SERPENTINE ROAD (LOWER)
GREENWICH, NSW 2065
PHONE 9439 2380 FAX 9901 3185

ACOR CONSULTANTS PTY LTD
ENGINEERS MANAGERS
INFRASTRUCTURE PLANNERS
Level 1, 24 Falcon Street
Crows Nest, NSW 2065
www.acor.com.au
Ph +61 2 9438 5098

CONSULT AUSTRALIA Member Firm

Project
NEW DRIVEWAY AND GARAGE
BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title
GENERAL NOTES

Drawn	Date	Scale	A1	Q.A. Check	Date
DRW	JULY				
Designed	Project No.			Dwg. No.	Issue
CR	SY11 0101			S1.01	B

PITTWATER COUNCIL

Stone Cottage
received

ABN 61 340 837 871
02 9970 1111
02 9970 1200

PO Box 882
Mona Vale NSW 1660
DX 9018, Mona Vale

Amy Allen, Senior Planner
8:00am to 5:30pm Monday - Thursday, 8:00am to 5:00pm Friday
Phone 9970 1158

26 September 2012

Peter Kleijn
Level 10, 61 Lavender St
MILSONS POINT NSW 2061

Dear Peter

Condition C12 - Development Consent N0336/11 - 1174 Barrenjoey Rd, Palm Beach

In accordance with condition C12 of Development Consent N0336/11 the applicant forwarded a digital record of the existing stone cottage to Pittwater Council received on 11 September 2012.

Yours sincerely

Amy Allen
SENIOR PLANNER

Levy Online Payment Receipt

Building and Construction

SUSAN ROTHWELL
38 LOWER SERPENTINE RD
GREENWICH NSW 2065

Application Details:

Applicant Name:	**SUSAN ROTHWELL**
Levy Number:	**5072596**
Application Type:	**DA**
Application Number:	**N0336/11**
Approving Authority:	**PITTWATER COUNCIL**

Work Details:

Site Address:	**1174 BARRENJOEY RD** **PALM BEACH NSW 2108**
Value of work:	**$236,464**
Levy Due:	**$827.00**

Payment Details:

LSC Receipt Number:	**174529**
Payment Date:	**14/08/2014 4:08:37 PM**
Bank Payment Reference:	**761016163**
Levy Paid:	**$827.00**
Credit card surcharge:	**$3.31**
Total Payment Received:	**$830.31**

Valuation of works - Estimate Sheet

Additions/ Modifications to Residential Dwellings

Site slope less than 10%

			Cost / m²	
Demolition		m²	$93.50	
Additional Ground/ Foundation Floor Level		m²	$1,419.00	
Additions at other Floor Level(s)		m²	$2,029.50	
Internal Modifications (No additional floor area)		m²	$951.50	
Garage		m²	$676.50	
Deck		m²	$594.00	
Carport/ Open Car Space		m²	$253.00	
Hardstand Area / Driveway		m²	$242.00	
Landscaping & Siteworks		m²	$253.00	
Excavation		m³	$253.00	
Fencing		meter	$44.00	
Swimming Pool Less than 40m²		<40m²	$41,800.00	
Swimming Pool More than 40m²		>40m²	$55,000.00	
		TOTAL		

Please note this Estimate Sheet maybe subject to change
Current as at March 2007

Additions/ Modifications to Residential Dwellings

Site slope more than 10%

			Cost / m²	
Demolition	35	m²	$93.50	3,273
Additional Ground/ Foundation Floor Level		m²	$1,873.08	
Additions at other Floor Level(s)		m²	$2,678.94	
Internal Modifications (No additional floor area)		m²	$1,255.98	
Garage	110	m²	$892.98	98,228
Deck		m²	$784.08	
Carport/ Open Car Space		m²	$333.96	
Hardstand Area / Driveway	250	m²	$319.44	79,860
Landscaping & Siteworks		m²	$333.96	
Excavation	165	m³	$333.96	55,103
Fencing		meter	$58.08	
Swimming Pool Less than 40m²		<40m²	$55,176.00	
Swimming Pool More than 40m²		>40m²	$72,600.00	
		TOTAL		$ 236,464

Please note this Estimate Sheet maybe subject to change
Current as at March 2007

PITTWATER COUNCIL Section 139

ABN61 340837871
Telephone 02 9970 1111
Facsimile 02 9970 1200
Postal Address
PO Box 882
Mona Vale NSW 1660
DX 9018, Mona Vale

Ross McWhirter, Project Leader – Road Reserve Management
8am to 4:30pm Mon - Fri
Phone 9970 1207 Mobile 0419 629 007

10 September 2012

Susan Rothwell Architects
PO Box 575
MILSONS POINT NSW 1565

Dear Sir / Madam,

Re: SECTION 139 CONSENT *(Roads Act 1993)* – 1174 Barrenjoey Road, Palm Beach

Council grants the applicant(s), Susan Rothwell Architects, consent to construct a driveway crossing in the public road reserve at 1174 Barrenjoey Road, Palm Beach.

The following drawings are referenced in relation to this Section 139 consent: -

- Structural Drawings by ACOR Consultants Pty Ltd – Project Number SY11 0101, Drawing Numbers S1.01 Issue B and S2.01 Issue B.

This Section 139 Consent is granted subject to the following conditions: -

1. The Applicant(s) shall, at all times, keep indemnified Council from and against all actions, suits, proceedings, losses, costs, damages, changes, claims and demands in any way arising out of or by reason of anything done or omitted to be done by the Applicant(s) in respect of the work in question.

2. The Applicant(s), at all times for the duration of this Consent, will not interrupt or otherwise disturb the traffic flow on the road without first obtaining the consent of Council.

3. Adequate support of the road reserve shall be provided at all times during the course of the works.

4. In the event that the driveway construction requires the use of a mobile concrete pump in the road reserve, separate approval must be obtained from Council for that activity. Form No UEA313 (*Application to Stand Construction Plant on a Public Road Reserve*) must be lodged with the applicable fees.

5. The Applicant(s) shall be responsible for the cost of all service and utility adjustments associated with the construction of the driveway. Contact Dial Before You Dig (1100) at least two working days before the works are due to start for information on the location of underground pipes and cables.

6. Compliance with conditions of Development Consent N0336/11 which relate to the road reserve.

7. Compliance with the requirements of Transport Roads & Maritime Services as set out in their letter dated 7 September 2012.

8. The Applicant(s) shall make good any damage caused to the property of any person or any property of Council by reason of the carrying out of any work by the Applicant(s) under the Conditions of this Consent.

9. Should the Applicant(s) fail to comply with any of these conditions or any requirement of Council as provided then this Consent shall permanently lapse and any part of the work remaining within the road at that time shall be deemed to be an obstruction or encroachment under *Section 107* of the *Roads Act 1993.*

10. This Consent receipt must be held on the job and produced to any officer of Council when called upon.

11. The Applicant(s) shall accept all responsibility for public safety during the construction of the works.

12. The structural works shall be supervised and certified by a qualified structural engineer. The certification shall address structural adequacy and fitness for purpose. A copy of this certification shall be submitted to Council for its records.

13. COUNCIL IS TO BE ADVISED WHEN THE WORKS HAVE BEEN COMPLETED. Upon receipt of this advice, Council will inspect the works to determine if they are satisfactory. Any works deemed by Council to be unsatisfactory are to be rectified to Council's reasonable satisfaction.

Yours faithfully

R. McWhirter

Ross McWhirter
PROJECT LEADER – ROAD RESERVE MANAGEMENT

Our reference: *File:* *06M0885*
Mr John Hudson: *Telephone:* *8849 2397*
Fax: *8849 2750*

NSW GOVERNMENT | Transport Roads & Maritime Services

Ms Susan E Rothwell
38 Serpentine Road
Greenwich NSW 2065

Local Government Area of Pittwater.
M.R.No. 164 - Barrenjoey Road. Lot 2, D. P. 216436.
Property No. 1174 Barrenjoey Road, Palm Beach

Dear Ms Rothwell

I refer to your letter dated 22nd June, 2012 regarding the subject property and your request for a Consent to be issued in accordance with Pittwater Council Development approval.

Enclosed herewith is a copy of the duly executed Consent under Section 138 and 107 of the Roads Act 1993 in favour of Susan Elizabeth Rothwell, regarding the access driveway within the road reserve of Barrenjoey Road, Palm Beach, in respect of the subject property.

The Consent is executed on behalf of the Roads & Maritime Services (RMS formerly RTA) and does not require execution by either the relevant Council or the Applicant of the Consent nor does it require to be evidenced by a Caveat on Title. Compliance with Section 138 and 107, in this instance the commencement of construction of the access driveway, constitutes agreement by the applicant to be bound by the terms of the Consent.

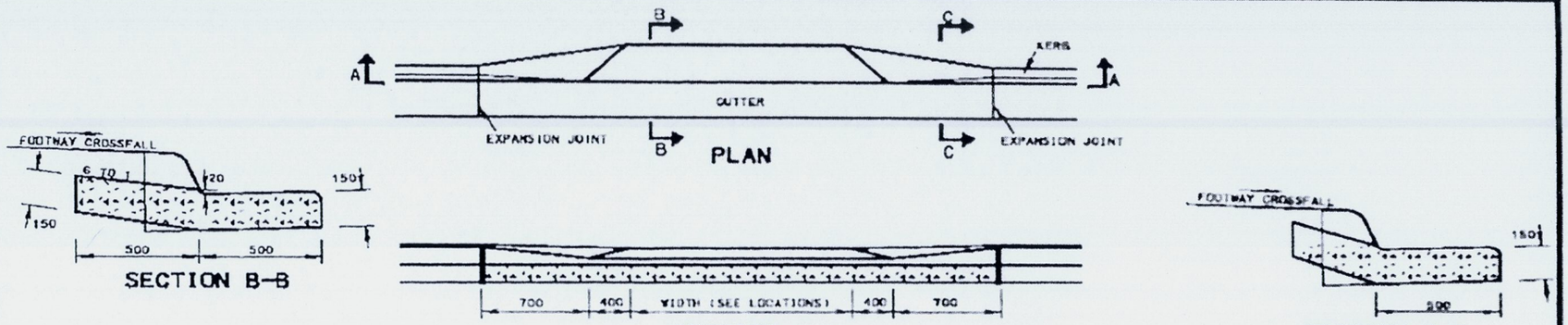
In this instance RMS has determined that Council should undertake all necessary inspections and manage the construction works. The works to be in accordance with the submitted plans approved by Council and the RMS model drawings attached.

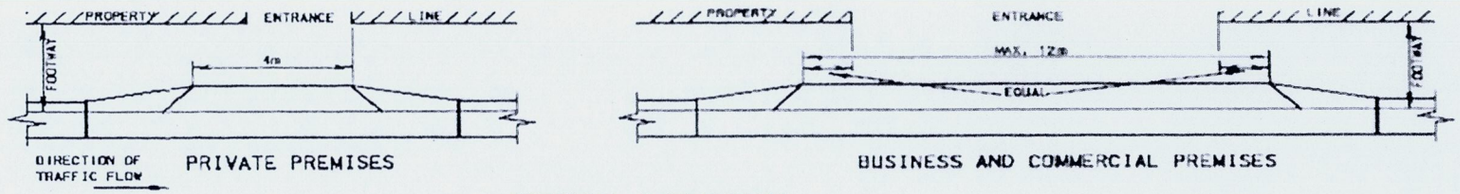
Prior to the commencement of works within the road reserve, RMS must be advised by Council of the nominated Council officer and respective contact details.

Yours sincerely

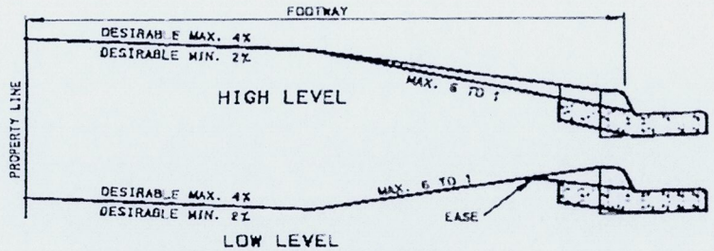
John Hudson
Land & Development Unit Manager
Infrastructure Development

Roads and Maritime Services
[illegible]
[illegible]
www.rms.nsw.gov.au | 13 22 13





TYPICAL LOCATIONS



TYPICAL TREATMENTS

NOTE

1. ALL RADII TO BE 20 mm.
2. FOR DETAIL OF KERB AND GUTTER SEE MD.R15.A01.
3. CONCRETE GRADE STRENGTH SHALL BE H20 AT 28 DAYS.

AMENDMENT DETAILS	DATE

Roads and Traffic Authority NSW

STANDARD VEHICULAR GUTTER CROSSING FOR USE WITH TYPE SA KERB AND GUTTER

SCALE	No. OF SHEETS	SHEET No.
N.T.S.	1	1

DRAWING NUMBER

MD.R15.A08.A

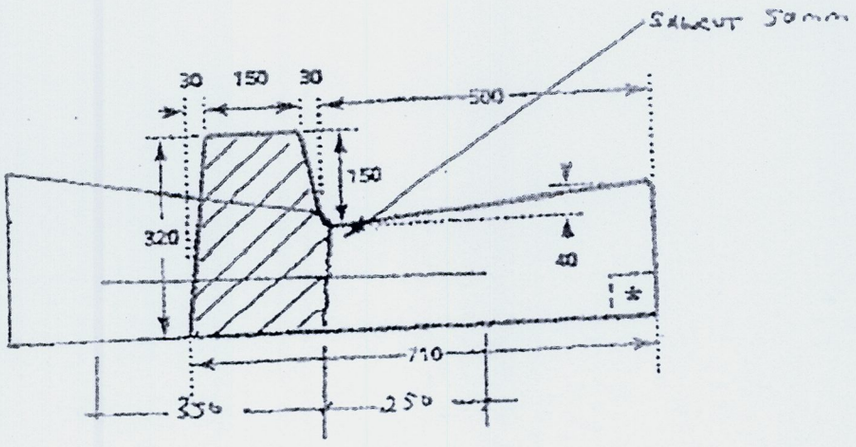
All dimensions are in millimetres unless otherwise stated

[First Issued: October 1998]

G:\SCSB\SydneyProjectServices\TrafficProjects\Developer Projects Jobs Files\YR 2012-13\SYD11-00207 290 Burns Bay Rd Lane Cove\701 Procedure and Standard conditions.doc

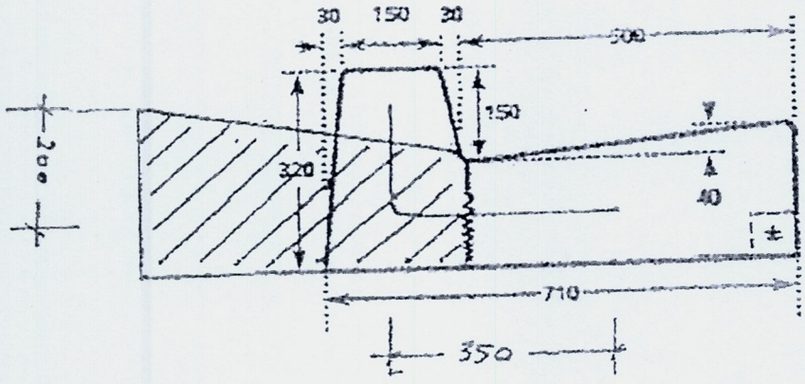
Replacing SA Kerb with Layback

1. Sawcut 50mm at gutter
2. Demolish kerb
3. Install 600mm Y12 galvanised deformed bars. Drill and epoxy at 500 centres 250mm into existing concrete
4. Form and pour layback in 32MPa.



Replacing Layback with SA Kerb

1. Sawcut 50mm at gutter
2. Demolish layback
3. Install 350 x 200 Y12 galvanised deformed bars. Drill and epoxy at 500 centres 250mm into existing concrete
4. Form and pour kerb in 32MPa.



CONSENT 2

ROADS ACT, 1993

CONSENT - SECTION 138

Subject to the conditions set out under, the Roads and Maritime Services (called "the Authority") hereby consents to the placement or erection by the person named in Schedule 1 (called "the Applicant") of the structure or work described in Schedule 2 (called "the work" which expression includes all incidental details) within or across the public road described in Schedule 3 (called "the road" which road is also a classified road pursuant to the Roads Act 1993), in accordance with the conditions of this Consent and in the position generally shown on the Plans and/or Specifications annexed and marked "A" to "H" inclusive.

CONDITIONS

1. Prior to placing or erecting any part of the work, the Applicant will obtain the permission of the Local Council pursuant to Section 611 of the Local Government Act, 1993 and comply with any condition imposed by such permission.

2. The Applicant shall carry out the work, at the cost of the Applicant, in conformity with the said Plans and Specifications as approved by the Authority, to the satisfaction of the Authority's Manager nominated in Schedule 4 (hereafter referred to as the "Manager").

3. The Applicant shall maintain and keep the work in a proper state of repair to the satisfaction of the Manager and the Council, and shall carry out maintenance, renewal and repair work as expeditiously as possible and in conformity with any reasonable requirement of the Manager and the Council and with any statute regulation or ordinance or direction by a public authority.

4. The Applicant, at all times for the duration of this Consent, will not interrupt or otherwise disturb the traffic flow on the road without first obtaining the written consent of the Manager.

5. The Applicant shall, if required by the Manager or the Council by notice in writing, at the cost of the Applicant, relocate or remove all or any part of the work or, for the safety and protection of the public, carry out additional work and make good all damage done to the road by reason of such relocation or removal or carrying out of additional work.

6. The Applicant shall, at all times, indemnify and keep indemnified the Authority and the Council from and against all actions, suits, proceedings, losses, costs, damages, charges, claims and demands in any way arising out of or by reason of anything done or omitted to be done by the Applicant, in respect of the placement, erection, renewal, relocation, repair and maintenance of the work or of the existence or use thereof or by reason of the Authority having given this Consent or by reason of any approval, direction or assent to anything done or purported to be done by the Applicant under this Consent and that, in respect of any matter covered by this indemnity, the Authority and the Council shall be at liberty to pay, satisfy, defend, compromise or settle

any claim action or other proceedings which may be made, threatened, instituted, commenced or prosecuted against the Authority or the Council and any amount paid by the Authority or the Council, in accordance with this Clause, shall be repaid by the Applicant.

7. The Applicant shall make good any damage caused to the property of any person or any property of the Authority or the Council by reason of the carrying out of any work by the Applicant under the conditions of this Consent.

8. Nothing in this Consent shall be deemed to:

(i) prejudice or affect the rights of the public to free passage upon or along the road;

(ii) authorise any nuisance to or permanent obstruction of the road or public places;

(iii) confer upon the Applicant exclusive right or title to that part of the work within the boundaries of the road; or

(iv) in any way restrict or limit the powers of the Authority and the Council in respect of the road.

9. Any notice or request hereunder may be served in the manner mentioned in Section 254 & 255 of the Roads Act, 1993.

File No: 06M0885

(Mr J Hudson - Telephone 8849 2397)

DATED AT SYDNEY THIS 7th DAY OF SEPTEMBER, 2012

SIGNED by PETER McGRATH, Principal)
Property Services Manager, as delegate of Roads)
and Maritime Services)
pursuant to Delegation Book 4623 No148)

SCHEDULE 1

Susan Elizabeth Rothwell

SCHEDULE 2

Access driveway, retaining walls, stairs and landscaping within the road reserve serving Lot 2 in Deposited Plan 216436 being Property No. 1174 Barrenjoey Road, Palm Beach

SCHEDULE 3

Main Road No. 164 - Barrenjoey Road, Palm Beach

SCHEDULE 4

The General Manager, Project Development,
Infrastructure Services

INCO

LABOUR HIRE | RECRUITMENT | TRAFFIC MANAGEMENT | TEMPS

CONSTRUCTION

TRAFFIC MANAGEMENT PLAN

1174 BARRENJOEY RD, PAM BEACH

2 SEPTEMBER 2014

RMS Authorised Traffic Controller

Traffic Management Association of NSW

THIS TRAFFIC MANAGEMENT PLAN IS PREPARED BY INCO TRAFFIC MANAGEMENT ON BEHALF OF S ROTHWELL AND RJC CONSTRUCTIONS PTY LTD. IN PREPARING THIS PLAN, WE HAVE RELIED ON INFORMATION PROVIDED BY RJC CONSTRUCTIONS PTY LTD. WE CANNOT INDEPENDANTLY VERIFY THIS INFORMATION. THIS TMP COMPLIES WITH AUSTRALIAN STANDARDS 1742.3 AND RMS'S TRAFFIC CONTROL AT WORK SITES MANUAL AND INCO TRAFFIC MANAGEMENT'S OHS POLICY IF IMPLEMENTED IN ITS ENTIRETY. NO LIABILITY IS ACCEPTED IF THIS TMP IS NOT CORRECTLY AND ENTIRELY IMPLEMENTED.

INCO P/L ATF KIMIA TRUST
ABN: 94 674 843 011
Ph: (02) 8882 9150 **Fax:** (02) 8212 9034 **Mobile**: 0404 349 000
Email: kaveh@incogroup.com.au **website:** www.incogroup.com.au
Suite D, 409/ 5 Celebration Drive, Bella Vista NSW 2153

1. INTRODUCTION

This Construction Traffic Management Plan (CTMP) has been prepared on behalf of the applicant, S Rothwell and their construction partner RJC Constructions. All correspondence on this matter should be addressed to RJC Constructions at 19/28 Barcoo St, Chatswood NSW 2067. The proposed works at 1174 Barrenjoey Road, Palm Beach is demolition of existing garage and shed and the construction of a new garage, partially suspended driveway, retaining walls and associated landscaping. This Construction Traffic Management Plan has been prepared to review the traffic and parking arrangements to be implemented during the works at the above mentioned development, as required by DA Consent Condition 19 of DA 336/11 issued by Pittwater Council. This CTMP applies to the movement of traffic within the site and into and immediately outside of the worksite during all stages of the project and describes the procedures to be followed and its sub contractors in order to safely manage vehicle, cyclist, pedestrian and construction traffic during all stages of the project.

S Rothwell and their construction partner, RJC Constructions, and its sub contractors acknowledge that the effective management of traffic and the safety of road users as being paramount to the successful completion of the project. This plan seeks to ensure the safety of all those involved with minimal disruption to traffic flows.

2. TRAFFIC MANAGEMENT OBJECTIVES

The key objectives and strategies of this CTMP are:

- Maximise safety for workers by isolating work areas from traffic flows
- Provide a safe environment for road users through the installation of a high standard of traffic control, which effectively informs, warns and guides road users and pedestrians, and that comply with RMS/RTA guidelines and Australian Standards AS 1742.3.
- Ensure that road user delays will be given consideration during the planning part of the project.
- Ensure road users and local communities are kept informed to changed traffic conditions in their area.

Scope of this CTMP

This CTMP has been designed to manage the movement of site vehicular traffic during the construction and modifications planned at 1174 Barrenjoey Road, Palm Beach . It is not to be used for any associated road works.

3. SITE ASSESSMENT

The subject work site located at 1174 Barrenjoey Road, Palm Beach is approximately 1238 m2. Access to the site is from Barrenjoey Road. The area surrounding the site is zoned 50 kmh. To the North, there is a 40kmh shared zone. The site is surrounded by low density residential premises which front onto Barrenjoey Road. Barrenjoey Road is a narrow one lane each way road and approximately 7 metres wide. Barrenjoey Road near the site has no available parking, being mostly being zoned no stopping and no parking. The site is on a bend in the road and sight distance is restricted to 50 metres towards the North and South. Vehicular and pedestrian traffic on Barrenjoey Road is in the low to medium range and consists mostly of passenger vehicles accessing residential properties.

4. DESCRIPTION OF PROPOSED WORKS

The proposed works at 1174 Barrenjoey Road, Palm Beach is the demolition of existing garage and shed and the construction of a new garage, partially suspended driveway, retaining walls and associated landscaping. Construction work is expected to commence in September 2014 and last approximately 4 months. Hours of construction work are expected to be between 7.00am to 3.30pm Mon to Fri, with no work to be carried out on Saturdays, Sundays or public holidays.

5. IDENTIFICATION AND ASSESSMENT OF TRAFFIC IMPACTS OF PROPOSED WORKS.

WORKS STAGES

Stage 1 – Demolition
Demolition is expected to last 1 week, starting September 2014. Demolition activity will entail hand demolition of existing walls and disposal onto skip bins. Structures will be demolished using manual labour and small plant. Materials handling will be conducted by hand with materials loaded on-site in the designated area. Traffic to and from the site during construction will consist of trucks for delivery of equipment, materials and placement and removal of waste bins.

Stage 2 – Excavation
Excavation is expected to take 8 weeks. Work will be carried out within the site boundaries. During this stage, the site will be excavated by hand and removal of earth and materials. Materials handling will be conducted by hand with materials loaded on-site in a designated area. Traffic to and from the site during construction will consist of trucks for delivery of equipment, materials and placement and removal of waste bins.

Stage 3 – Construction
Construction works is expected to take 6 weeks. Construction activity will entail form work, placing of concrete slabs and footing, concrete pours, steel placement, bricklaying, rendering, gyprocking, carpentry, tiling, plumbing and electrical work . Traffic to and from the site during construction will consist of trucks for delivery of equipment and materials and removal of waste bins, and on occasional days, the standing of concrete pumps and concrete trucks. Occasionally hiab trucks, concrete trucks and concrete pumps will need to use the road reserve adjacent to the site.

CONSTRUCTION TRAFFIC

The works are expected to be in three stages – demolition, excavation, and construction. Traffic to and from the site during these stages will consist of trucks for delivery of equipment, and materials and removal of equipment, earth, waste bins and materials.

The works stages duration and expected heavy construction vehicle movements are detailed below:

Stage	Estimated Duration	Vehicle Movements per day		
		Small Rigid Vehicles <4.5T GVM	Heavy Rigid Vehicles >4.5T GVM	Articulated Vehicles
1. Demolition	1 week	0	1	0
2. Excavation	8 weeks	0	6	0
3. Construction	6 weeks	0	2	0

HRV will be rigid trucks up to 8T GVM. During heavy vehicle movements, two traffic controllers are to be present at all times to assist road users and pedestrians. Due to the compactness of the site and narrow width of Barrenjoey Road, articulated vehicles such as Bogie tipper & trailers/ semi trailers tippers are not to be used to access the site.

Note that the stages of construction may overlap.

Table 2 shows the longest vehicle accessing the site during the various work stages.

Table 2: Longest vehicles accessing site during works stages

Stage	Longest Vehicle
1. Demolition	**8m**
2. Excavation	**8m**
3. Construction	**8m**

5. TRAFFIC MANAGEMENT MEASURES

Work Areas

Site must be fenced off and at entry gate to be shut and secured while not attended. All waste materials to be stored on site prior to removal with no materials or equipment on roadway, footpath or reserve. Trucks will enter and exit the site through a gate on 1174 Barrenjoey Road, Palm Beach with all materials being loaded onto trucks inside the site prior to leaving the site.

Traffic Control Measures

A number of traffic control measures have been designed to attempt to ensure the safety of vehicles and pedestrians through the stages of the works to manage the impact of the works at 1174 Barrenjoey Road, Palm Beach . These are:

Heavy Vehicle Routes to and from site

Trucks are to approach from the South on Barrenjoey Road, turn around on the road and depart to the South on Barrenjoey Road. This is because i. There is no space to allow trucks to turn within the site, and ii. Departing to the North would involve considerable travel by heavy vehicles though narrow residential streets.

All heavy vehicles must approach the site from Barrenjoey Road from the South (See Fig 2). Truck drivers approaching the worksite shall contact site manager to schedule arrival time, then contact site manager when on Barrenjoey Road to ensure they can approach the site. When given permission, they are to proceed along Barrenjoey Road and follow all directions given by the Traffic Controllers.

Truck drivers departing the worksite shall contact Traffic controllers that they intend to depart before turning if they need to and slowly departing site and proceeding down Barrenjoey Road. (See Fig 2).

A copy of figure 2 shall be provided to all heavy vehicle drivers along with instructions and contact numbers.

Queuing of trucks waiting to enter site

There is to be no queuing of trucks waiting to approach the site on local roads. Trucks waiting to enter the site must contact the site supervisor by phone before leaving their depots to schedule arrivals. Truck queuing will be monitored and co-ordinated by the site superintendent in order to keep queuing and traffic disruptions to a minimum.

Stand Plant

Some deliveries of large items will require standing plant on the roadway and using hiab trucks. Plant such as concrete pumps and concrete trucks will similarly need to use the roadway adjacent to the site. A "Permit to Stand Plant" will need to be obtained from council for each occasion when standing of plant is required.

Parking

The site is very compact and there no area for parking of construction vehicles within the site and limited parking in surrounding streets. Where possible, construction workers are to use public transport or car pool to travel to and from work site.

Traffic Control Plans

The safety of pedestrians and road users will be maximised through the installation of advance warning signage and traffic control devices. Two traffic control plans (Figures 3 and 4) are to be implemented to assist heavy vehicles and other traffic during the works. The plan in Figure 3 is to be used for trucks entering and exiting site and Figure 4 is to be used for standing plant such as concrete pumps and trucks adjacent to the site. One lane of at least 3.3 metres is to be kept open at all times during activities involving the standing of plant.

As mentioned, the site is too compact and there are no areas for turning of trucks within the site. Trucks will need to reverse into and out of the site. Two traffic Controllers are to be present during all heavy vehicle movements to assist road users and pedestrians.

Coordination

All truck drivers are required to be inducted into the approved operational procedure including;

- approved routes, for approaching and departing the work site,
- method for approaching and departing site,
- who to speak to in the event of a breakdown or other problem, and
- disciplinary procedure for not following the approved procedures (as determined by principal)

6. ASSESSMENT OF PUBLIC TRANSPORT SERVICES AFFECTED.

Sydney Buses (Routes 190 and L90) use Barrenjoey Road and there are bus stops to the North and South of the site. Sydney buses must be consulted during construction traffic movements.

7. ASSESSMENT OF IMPACTS ON EMERGENCY VEHICLES, HEAVY VEHICLES, CYCLISTS AND PEDESTRAINS.

Any blockages/hindrance to emergency vehicles removed instantly. Emergency services (fire, ambulance, and police) to be notified of any hindrances. Deliveries to site and any standing of plant will affect pedestrian traffic directly adjacent to the site. During these times, appropriate signage

and traffic controllers will direct pedestrians across the road (Figures 3 and 4). There is little cyclist traffic in the area but the vehicular traffic plan will accommodate cyclists. Heavy vehicles not affected other than as described above.

8. PROPOSED PUBLIC NOTIFICATION/CONSULTATION PROCESS.

Residents of surrounding streets, to be notified of works and expected traffic impacts by leaflet drop 3 weeks prior to works commencing. Notification to include proposed works, times, streets affected and contact details.

9. KEY CONTACTS

Contractor – RJC Constructions
Contact: Rob Boreham
Position: Construction Manager
Ph: 0411 355 000

Traffic Management – INCO Traffic Management
Contact: Kaveh Jahromi
Position: Director
Ph: 0404 349 000

10. REGULATORY REQUIREMENTS.

Consultation

Effective consultation with the relevant authority will take place and their terms and conditions will be adhered to before the implementation of any and all traffic control measures. In accordance with the Roads Act 1993, RJC Constructions, and its contractors will obtain the necessary approvals from Pittwater Council prior to conducting any works within the road reserve. The planned works at 1174 Barrenjoey Road may impact traffic on Barrenjoey Road.; therefore RMS approval will need to be obtained during truck movements and activities involving the standing of plant.

Standards

All traffic management plans, measures, works and control devices to comply with the requirements of Australia Standards AS1742.3, RTA Specification G10 and the RMS's Traffic Control at Work Sites manual Version 4.01.

Safe Work Method Statement

Traffic controllers to work within the framework of the safe work method statement (SWMS) for traffic control at this site supplied by INCO and /RJC Constructions. This SWMS to include a daily site specific hazard management tool.

Unplanned incidents

The occurrence of unplanned incidents within the construction site will potentially have negative impacts on the respective road where the incident may occur. In accordance with the RMS or any other relevant authority RJC Constructions will inform the relevant authority of any incident which may occur and cause delays to the traffic flow at that particular time. It is the desire of RJC Constructions to ensure the smooth and uninterrupted flow of traffic in or around the respective work sites, and minimise any inconvenience which the works may cause.

Inspections

There is to be inspections of the temporary traffic controls during all phases of the project. These inspections will be carried out in accordance with Section 6 of the RMS's TCWM and Appendix A of Australian Standard 1742.3. These will be carried out by a person with the Design and Inspect certificate issued by RMS.

Emergencies

Heavy vehicle breaking down on roadway

In the event of a heavy vehicle breakdown, traffic to be stopped in affected area and the area around the vehicle coned off. Traffic control to be established to control the flow of vehicle traffic around the affected area. Driver to contact their company and request assistance i.e. mobile mechanical unit and/or heavy haulage vehicle to remove vehicle from site

Fuel / Oil / Hydraulic Fluid spills

In the event of a spill (on the roadway) Traffic Controllers will stop all traffic that affected by the spill and establish exclusion zone with safety cones and other devices, contain the spill and contact 000 request the fire brigade to attend site also notify Pittwater Council.

Other

Inspection of TMP

This Traffic Management Plan should be inspected upon implementation and monthly thereafter, or sooner should RJC Constructions, its contractors, Pittwater Council or the Traffic Controllers request it.

11. NOTES

Traffic Management Plan designed by: Kaveh Jahromi
Contact: (02) 8882 9150 / 0404 349 000
RTA licence type: Design and Inspect Traffic Control Plans
RTA licence No.: 2243014318
Expiry Date: 17/08/2015

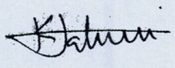


FIGURE 1: SITE PLAN

FIGURE 2: TRUCK ROUTES

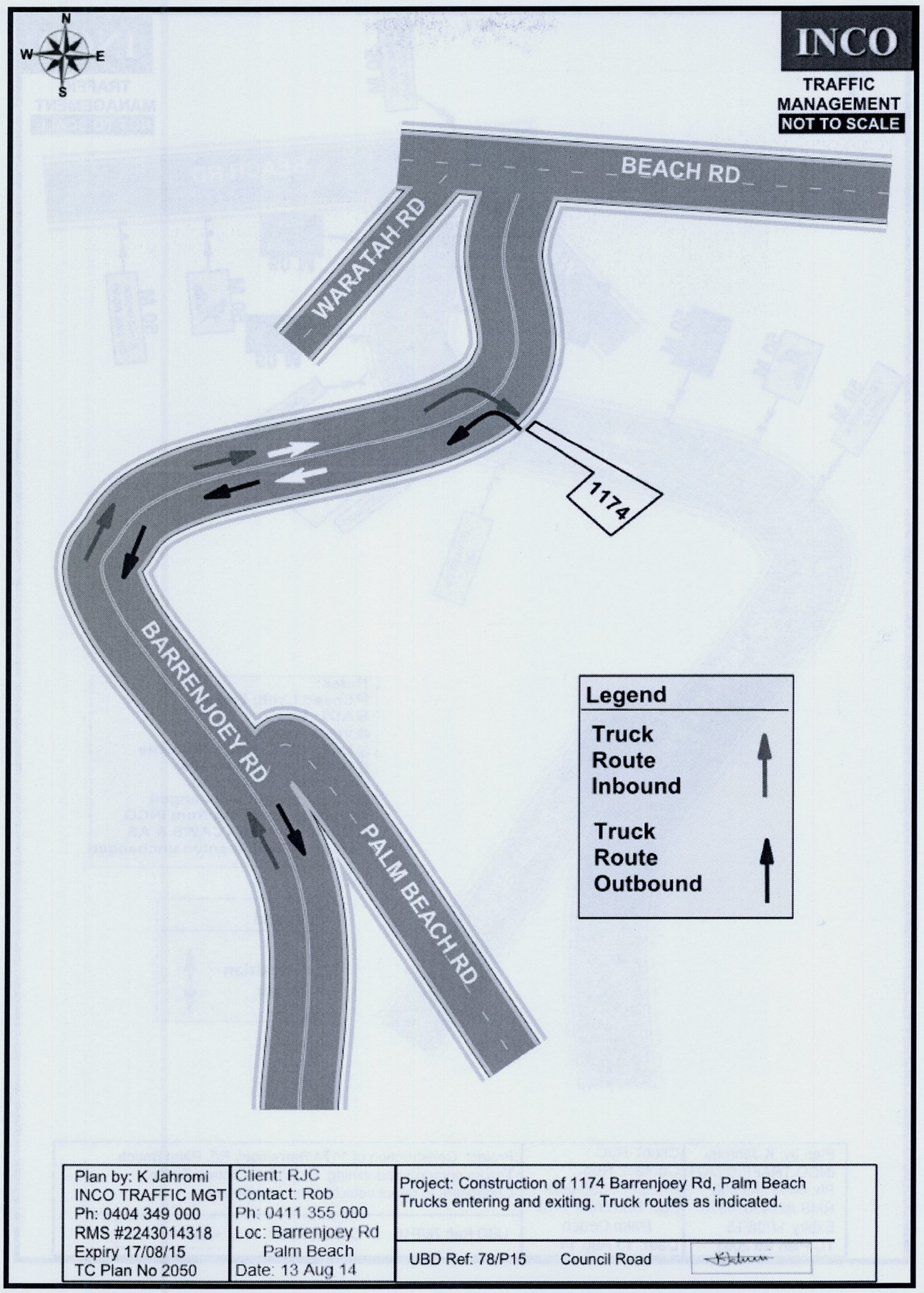


FIGURE 3: TRAFFIC CONTROL PLAN - TRUCKS ENTERING AND EXITING

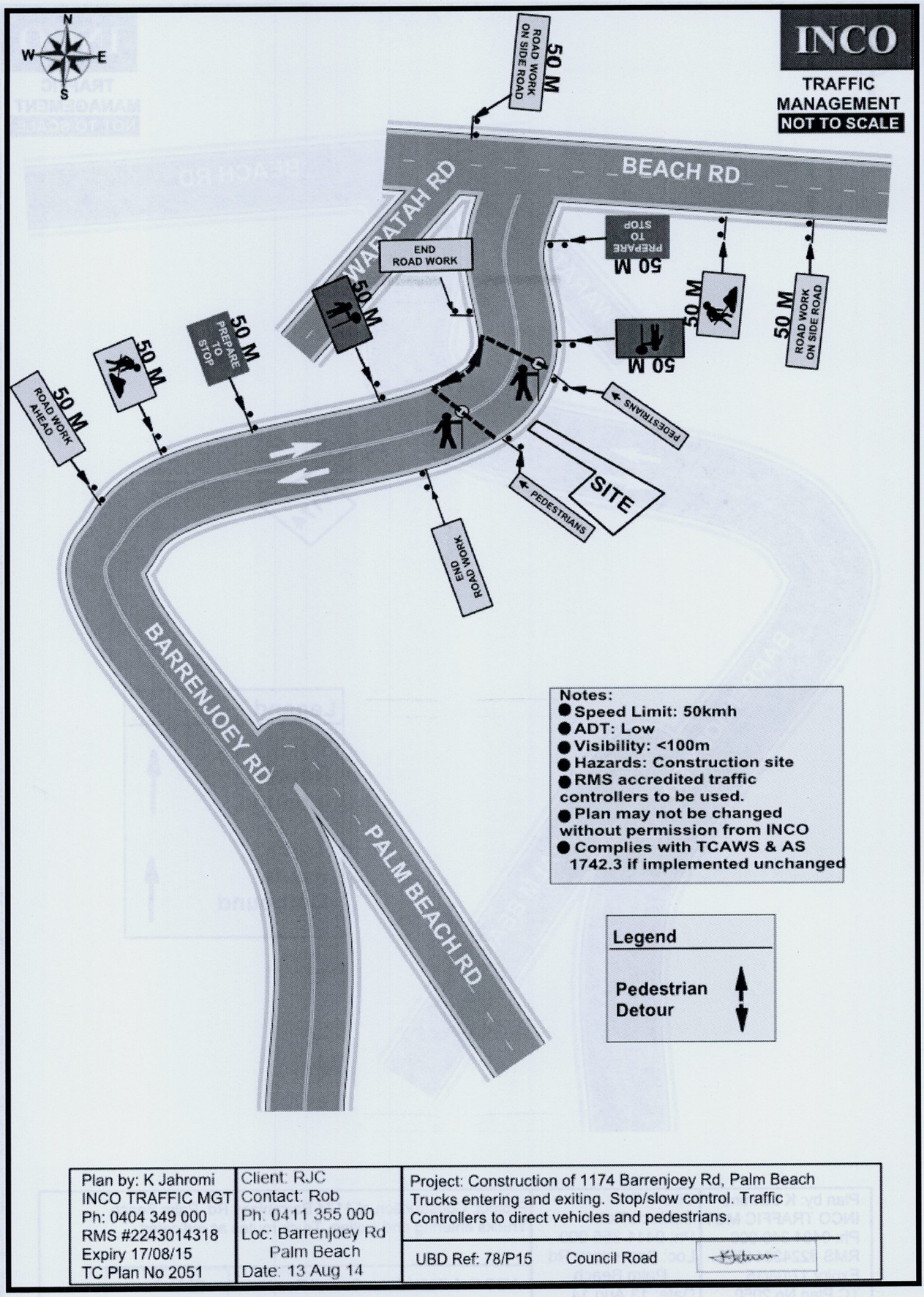
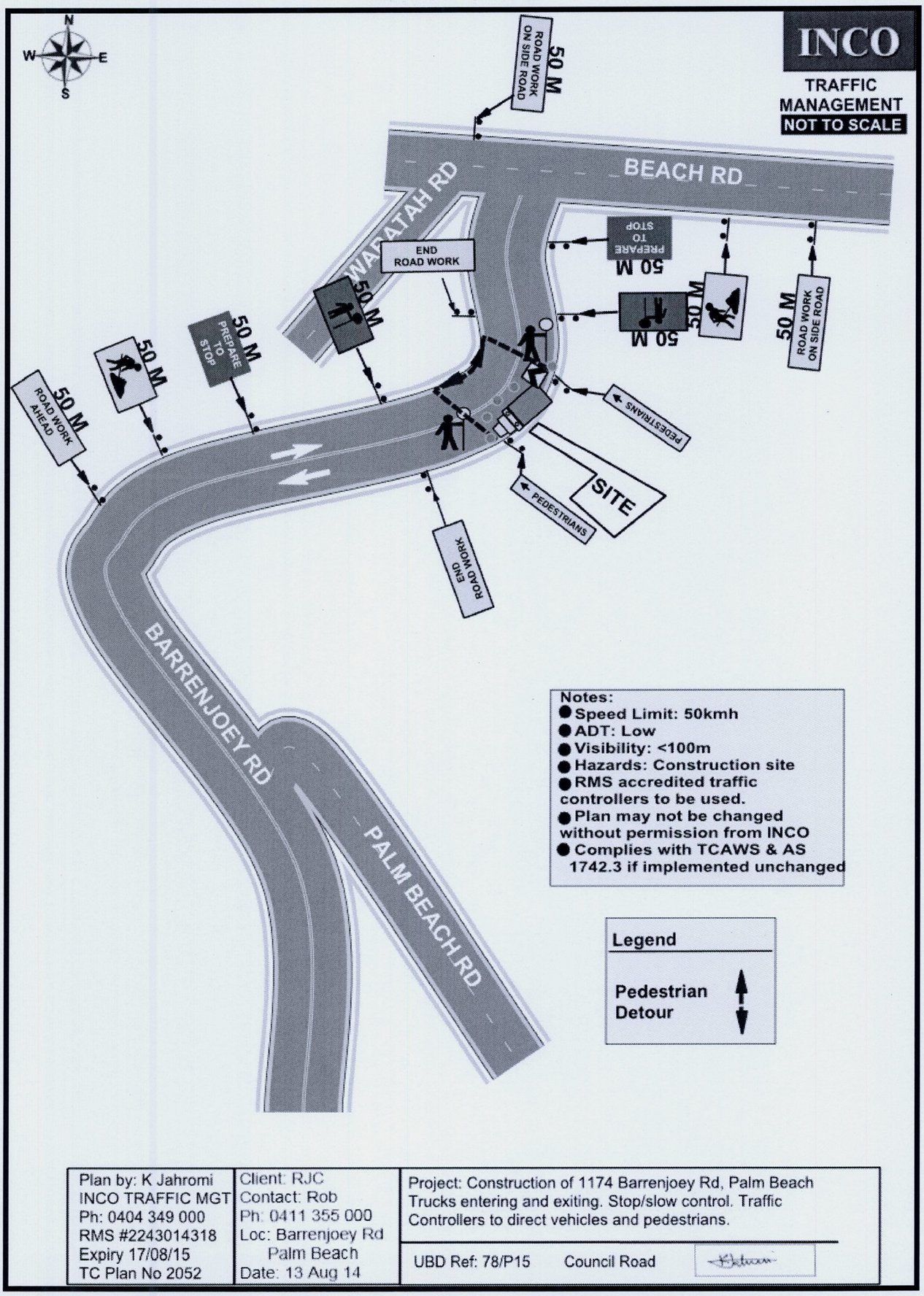
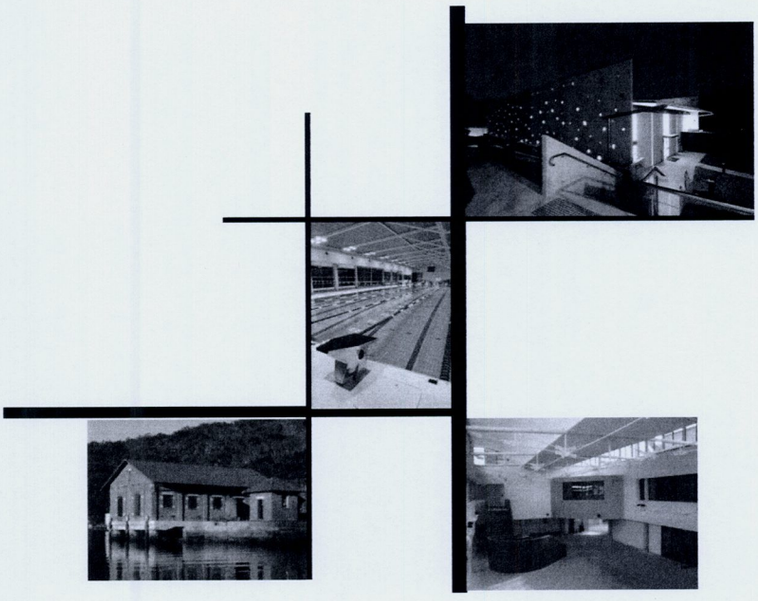


FIGURE 4: TRAFFIC CONTROL PLAN - STAND PLANT



Plan by: K Jahromi INCO TRAFFIC MGT Ph: 0404 349 000 RMS #2243014318 Expiry 17/08/15 TC Plan No 2052	Client: RJC Contact: Rob Ph: 0411 355 000 Loc: Barrenjoey Rd Palm Beach Date: 13 Aug 14	Project: Construction of 1174 Barrenjoey Rd, Palm Beach Trucks entering and exiting. Stop/slow control. Traffic Controllers to direct vehicles and pedestrians. UBD Ref: 78/P15 Council Road

Dilapidation Survey at 1176 Barrenjoey Road, Palm Beach September 2012



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Northern NSW

Adelaide

1176 Barrenjoey Road,
Palm Beach,
NSW 2108

Prepared by:
ACOR Consultants Pty Ltd
Andrew Barnett
(B.E. Civil)

Dated:

13th September 2012

Scope and Introduction

Address: 1176 Barrenjoey Road,

Suburb: Palm Beach, NSW 2108

Date of Survey: 13th September 2012

This report has been undertaken for and on the behalf of the client pertaining to the extensions and renovations of a residential building at 1174 Barrenjoey Road, Palm Beach.

The report is representative of the condition of the structure and building at the time and date of the survey.

Dilapidation reports are prepared by qualified engineers, Building Consultants and personnel and are based on the information obtained from on-site inspections. This report has been prepared for a specific purpose:-

1. To record significant structural features which may be sensitive to the proposed development; and
2. To record the existing serviceability condition of the structure. These features are recorded as a reference to the pre-existing conditions in structural and / or non-structural elements.

This record is required to avoid possible disputes arising from damage that may or may not be caused by the works to 1174 Barrenjoey Road, Palm Beach.

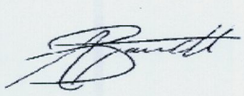
Disclaimer

This report was prepared by taking photographs of all visible defects. The author did not remove foliage, linings, covers and the like to inspect damage that may be hidden or concealed from view from a standing position. Nor did inspections take place in sub floor or roof spaces. All observations are made of the structure from the floor level only. The majority of hair line cracks are noted but not photographed due to clarity of the development process.

Authenticity

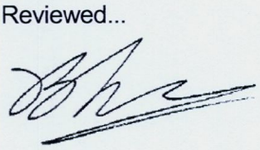
ACOR Consultants Pty Ltd hereby certifies that this report is an exact duplication of the report prepared for our client.

Signed…



Andrew Barnett
Building Consultant / Engineer
B.E. (Civil)

Reviewed...



Brendan Tran
Building Consultant / Engineer
B.E. (Civil)

The following photographs depict the current condition of the structure.

Dilapidation Survey

Report on Internal and External aspects at
1176 Barrenjoey Road,
Palm Beach, NSW 2108
Thursday 13th September 2012.

Note:
For the purpose of this Report, the street frontage of 1176 Barrenjoey Road, Palm Beach is deemed to face North.

Photograph 1

Western Entrance

This photograph represents the general condition of the Western entrance of the dwelling.

Photograph 2

Storage Area

This photograph represents the general condition of the Western storage area.

Photograph 3

Storage Area

This photograph represents the general condition of the Western storage area.

Photograph 4

Entrance

This photograph represents the general condition of the Western façade of the internal cottage.

Photograph 5

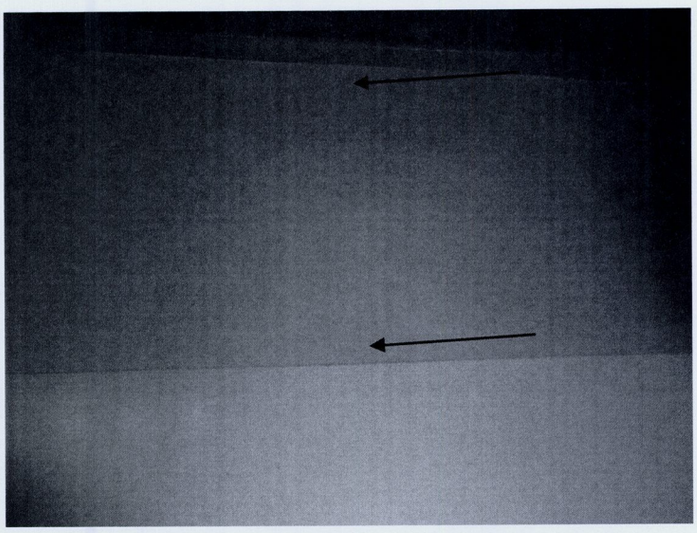
Entrance

This photograph represents the general condition of the Western façade of the internal cottage.

Photograph 6

Entrance

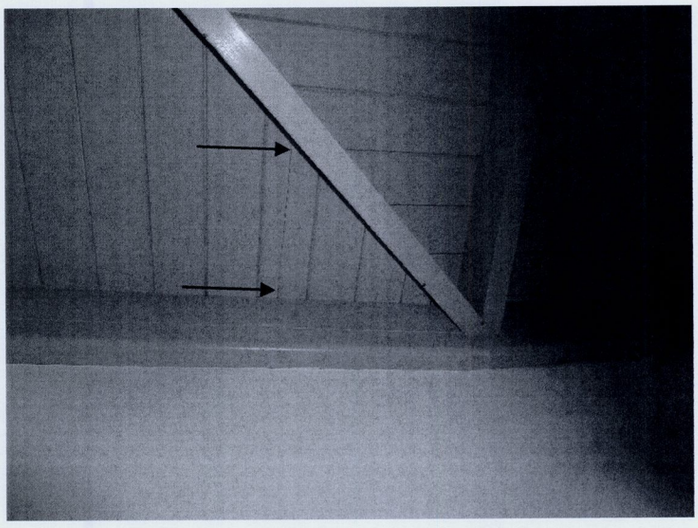
A hairline crack is evident to the mortar joint adjacent to the sandstone block above the RHS of the art piece.



Photograph 7

Entrance

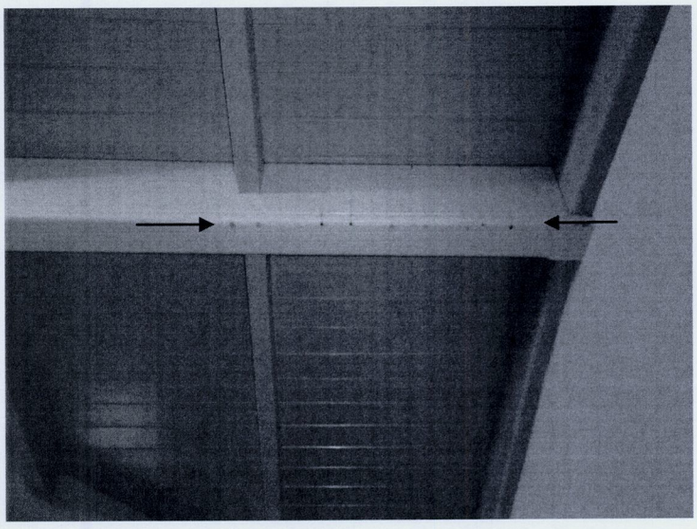
The vertical plasterboard join is evident to the top RHS of the entry door.



Photograph 8

Entrance

A crack is evident in the timber paling above the RHS of the entrance door.



Photograph 9

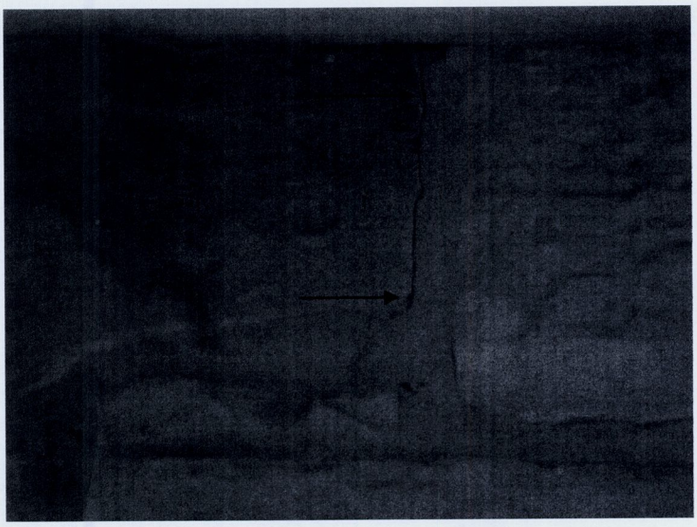
Entrance

Evidence of water penetration above the entrance door.

Photograph 10

Northern Passage

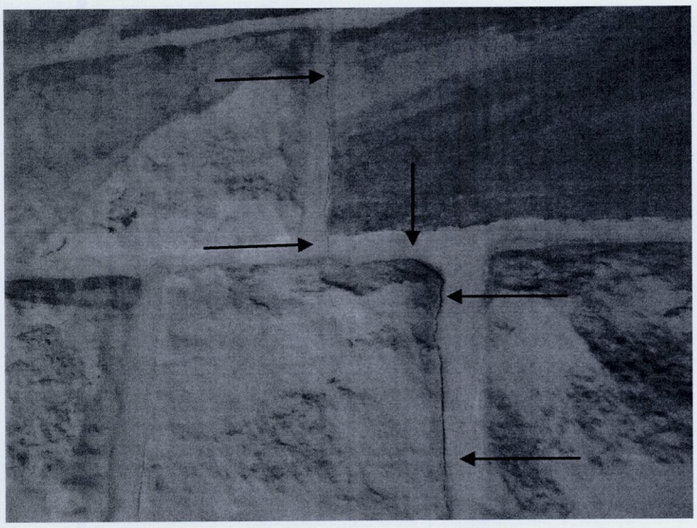
This photograph represents the general condition of the Northern passage from the NW corner.



Photograph 11

Northern Passage

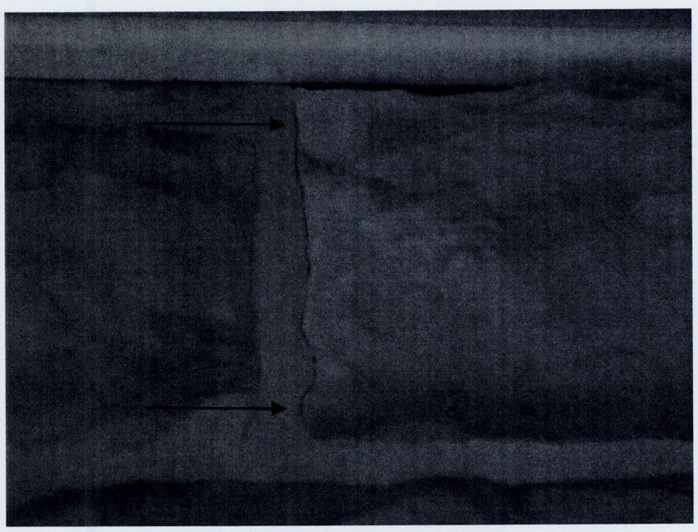
A vertical crack is evident in the mortar joint to the RHS opening of the internal cottage.



Photograph 12

Northern Passage

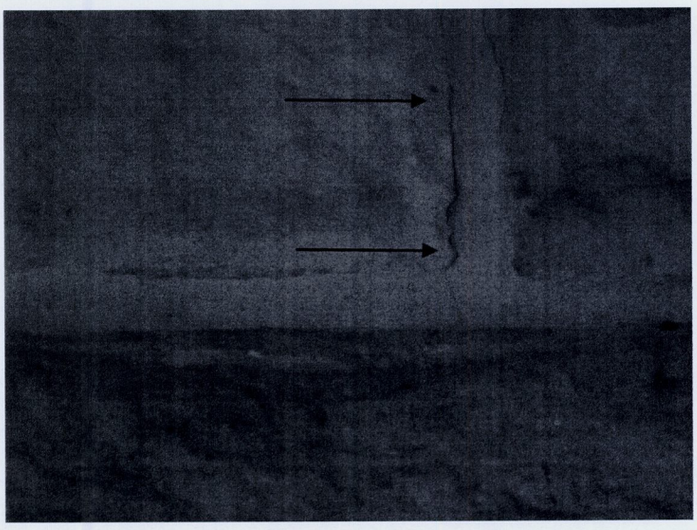
A vertical stepped crack is evident in mortar joint to the central part of the interior cottage.



Photograph 13

Northern Passage

A vertical crack is evident in the mortar joint to the top course sandstone block, central to the interior cottage.



Photograph 14

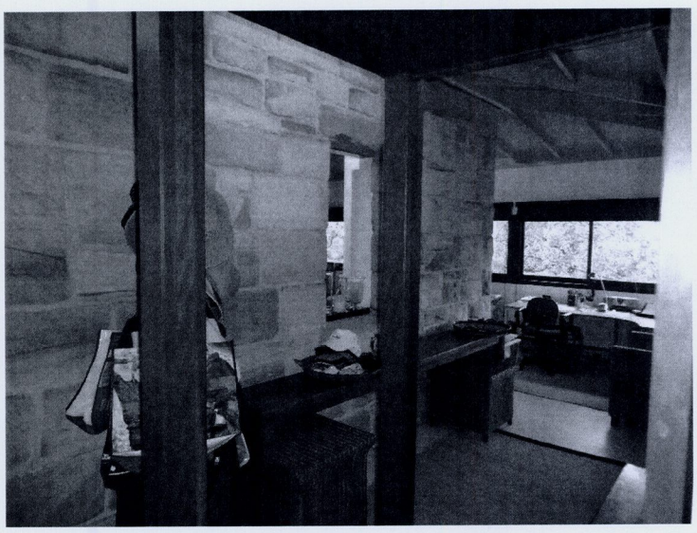
Northern Passage

A vertical crack is evident in the mortar joint to the sandstone block second from the ceiling, central to the interior cottage.

Photograph 15

Northern Passage

This photograph represents the general condition of the Northern passage from the NE corner.



Photograph 16

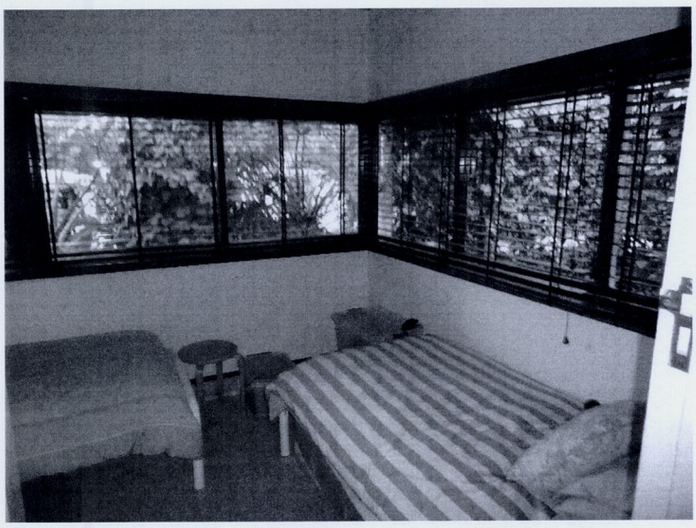
Eastern Passage

This photograph represents the general condition of the Eastern passage from the SE corner.

Photograph 17

Eastern Passage

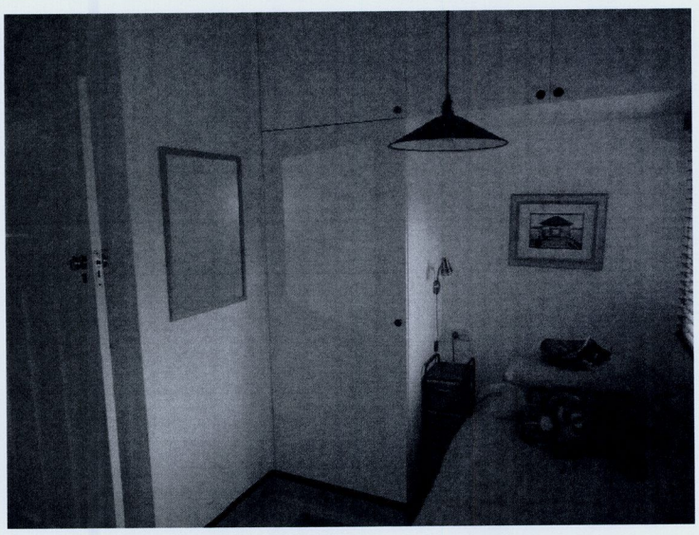
A stepped crack is evident to the mortar joint to the top course of sandstone blocks to the interior cottage.



Photograph 18

First Guestroom

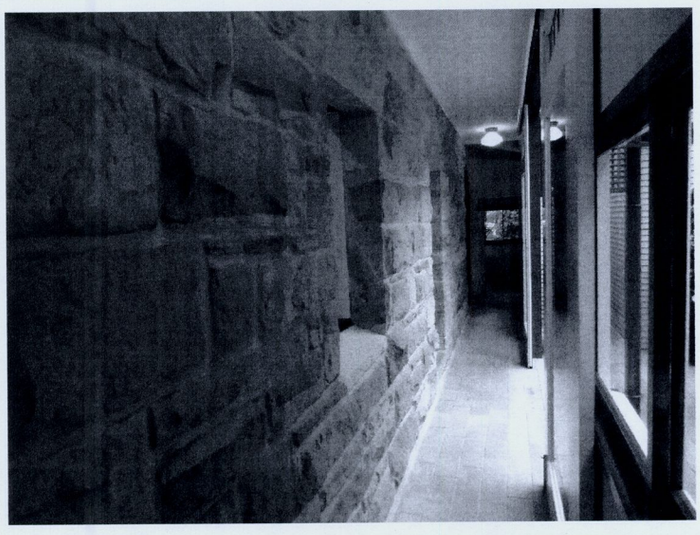
This photograph represents the general condition of the SE ground floor guest bedroom.



Photograph 19

Second Guestroom

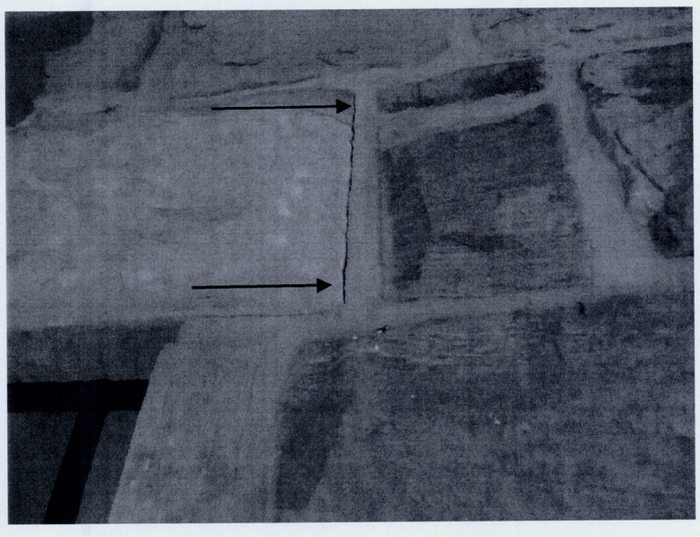
This photograph represents the general condition of the SE ground floor guest bedroom.



Photograph 20

Southern Passage

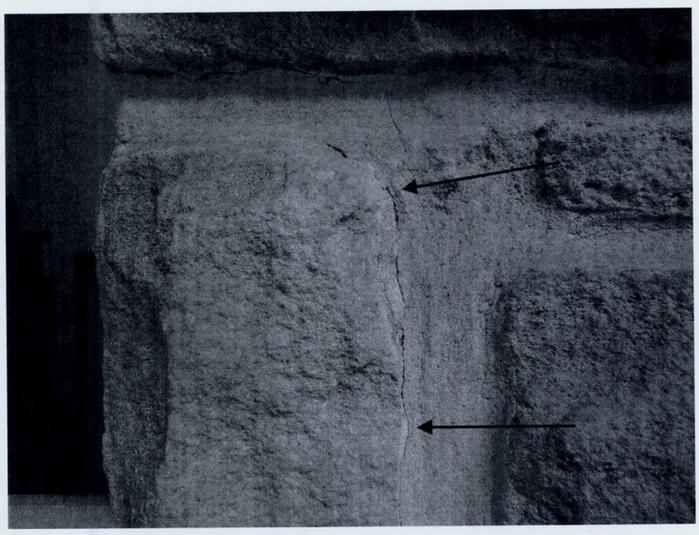
This photograph represents the general condition of the Southern passage from the SW corner.



Photograph 21

Southern Passage

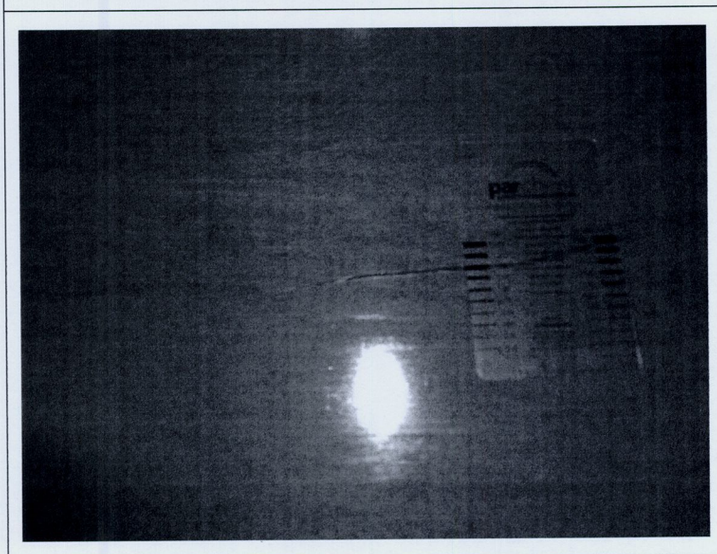
A vertical crack is evident in the mortar joint above the RHS of the Westernmost opening.



Photograph 22

Southern Passage

A hairline crack is evident in the mortar joint to the RHS of the Westernmost opening sill.



Photograph 23

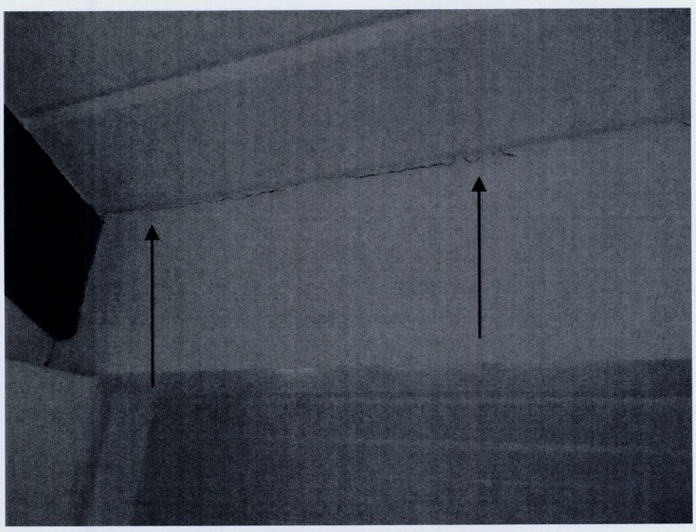
Staircase

A 1.5mm wide crack is evident on the eighth stair tread.

Photograph 24

Staircase

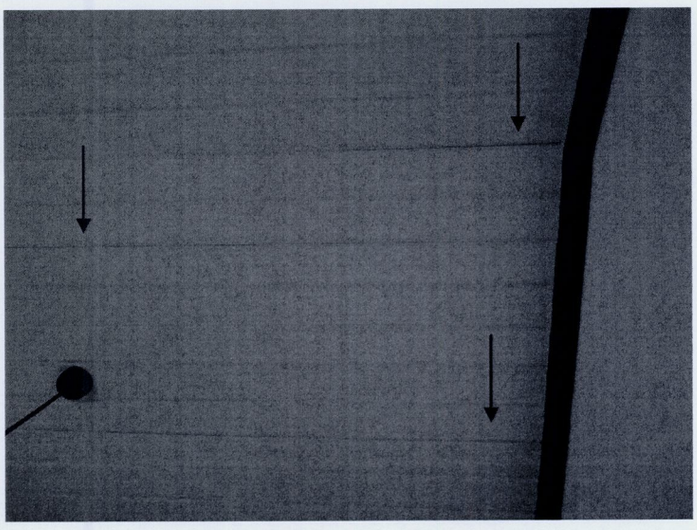
A 0.75mm wide crack is evident on the eighth stair tread.



Photograph 25

Second Floor Common Area

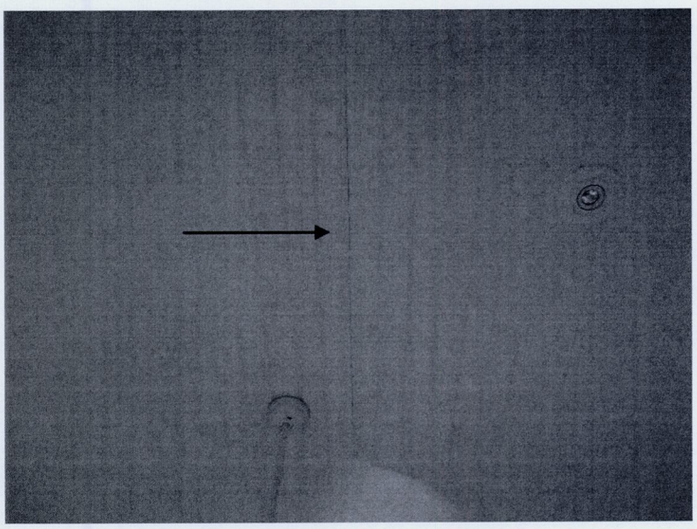
Flaking and delaminated paint is evident below the cornice above the stair landing of the staircase.



Photograph 26

Second Floor Common Area

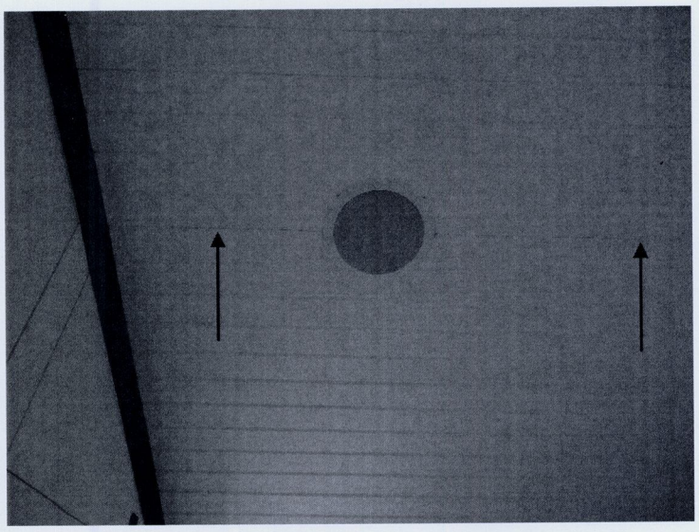
Cracks to the paintwork are evident in ceiling above the stair landing, adjacent to the master bedroom entrance.



Photograph 27

Master Bedroom

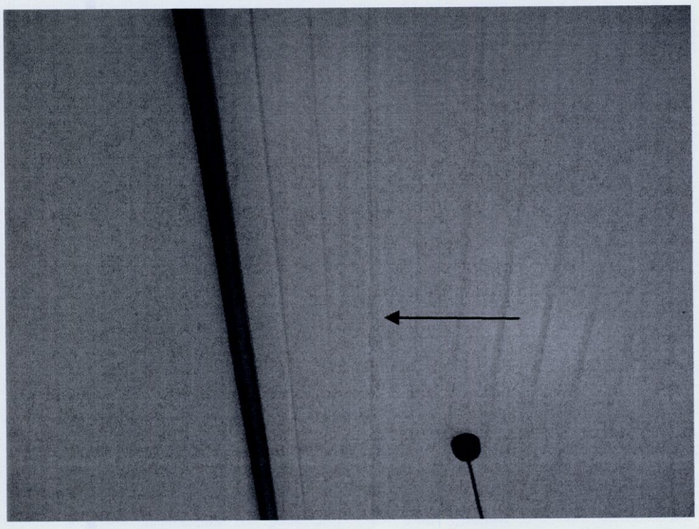
Cracks to the paintwork are evident in ceiling.



Photograph 28

Master Bedroom

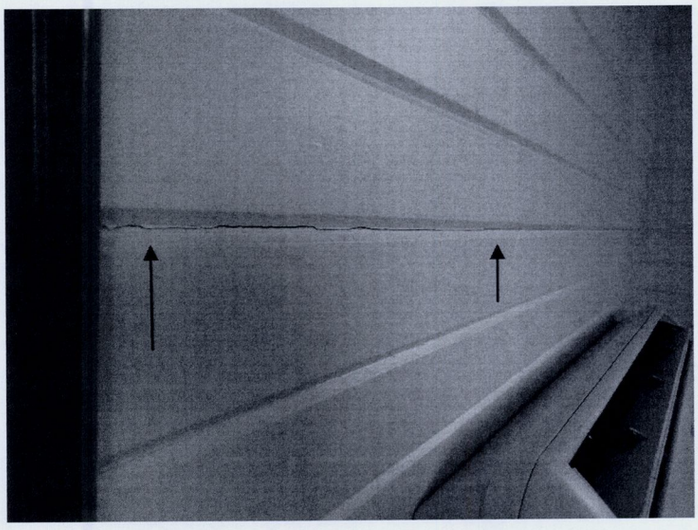
Cracks to the paintwork are evident in ceiling.



Photograph 29

Master Bedroom

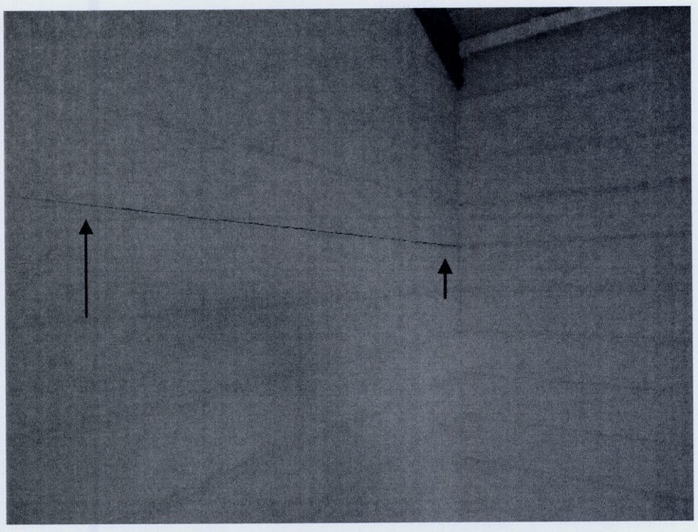
Cracks to the paintwork are evident in ceiling.



Photograph 30

Master Bedroom

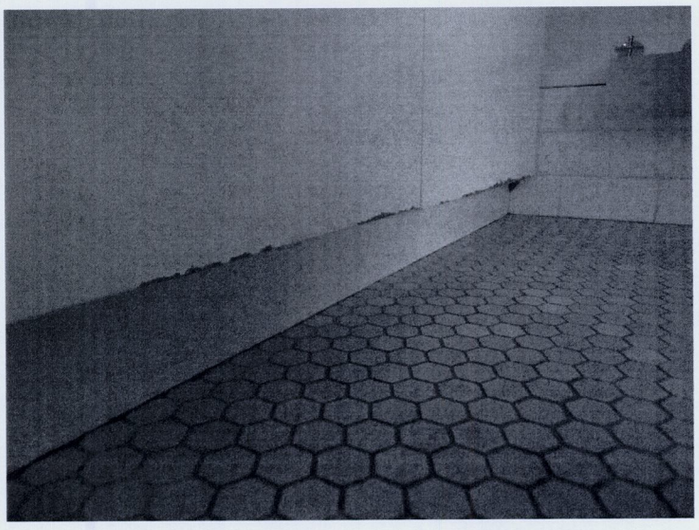
Cracks to the paintwork are evident to the RHS of the ensuite door.



Photograph 31

Master Bedroom

Cracks to the paintwork are evident to the RHS of the ensuite door.



Photograph 32

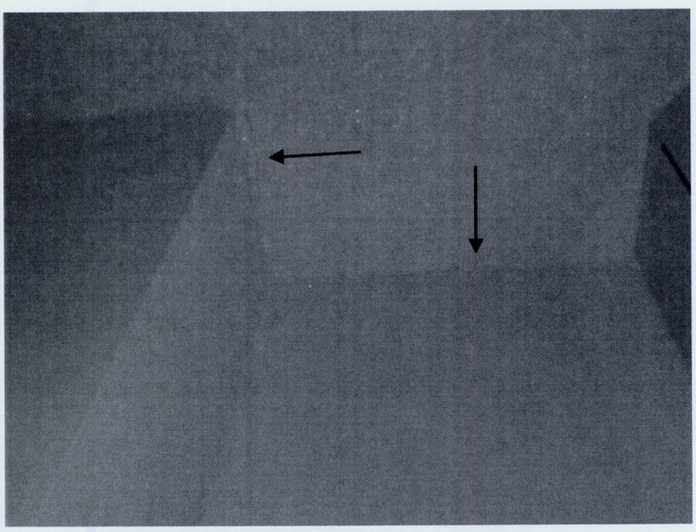
Master Bedroom Ensuite

Ensuite cupboards are frayed with delaminated paint along the bottom edges.

Photograph 33

Rooftop Landing

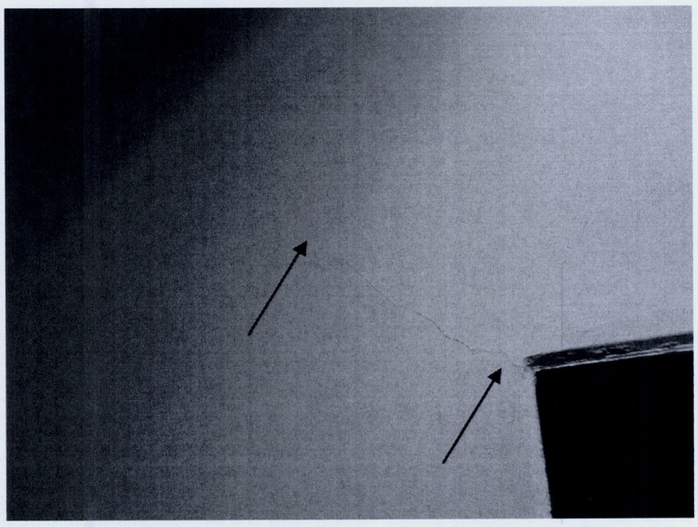
This photograph represents the general condition of the lookout.



Photograph 34

Internal Cottage

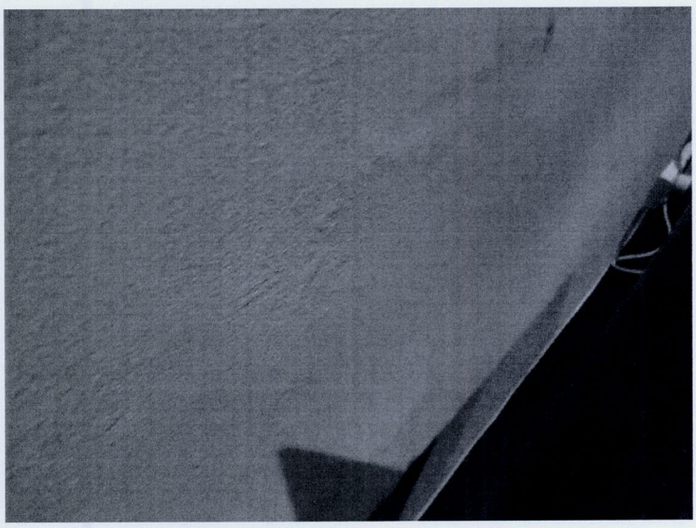
Hairline cracks are evident at the ceiling – wall junction adjacent to the fireplace.



Photograph 35

Internal Cottage

A paint defect is evident to the top LHS of the Southern door opening.



Photograph 36

Internal Cottage

Bubbling paint is evident to the lower LHS of the SW opening timber sill.

Photograph 37

Northern Elevation

This photograph represents the general condition of the driveway sandstone retaining wall.

Photograph 38

Northern Elevation

This photograph represents the general condition of the garden retaining wall and entrance pathway.

Photograph 39

Northern Elevation

This photograph represents the general condition of the Northern façade of the dwelling, from the NW corner.

Photograph 40

Northern Elevation

This photograph represents the general condition of the Northern façade of the dwelling, from the NE corner.

Photograph 41

Eastern Elevation

This photograph represents the general condition of the Eastern façade of the dwelling, from the NE corner.

Photograph 42

Eastern Elevation

Loose sandstone cappings were evident to the Eastern planterbox.

Photograph 43

Eastern Elevation

This photograph represents the general condition of the Eastern pathway.

Photograph 44

Southern Elevation

This photograph represents the general condition of the Southern façade of the dwelling, from the SE corner.

Photograph 45

Southern Elevation

This photograph represents the general condition of the Southern façade of the dwelling, from the SE corner.

Photograph 46

Southern Elevation

This photograph represents the general condition of the Southern façade.

Photograph 47

Southern Elevation

This photograph represents the general condition of the rear courtyard.

Photograph 48

Southern Elevation

This photograph represents the general condition of the rear stone retaining wall.

Photograph 49

Southern Elevation

This photograph represents the general condition of the rear stone retaining wall.

Photograph 50

Southern Elevation

This photograph represents the general condition of the unbound stone retaining wall to the rear pathway.

Photograph 51

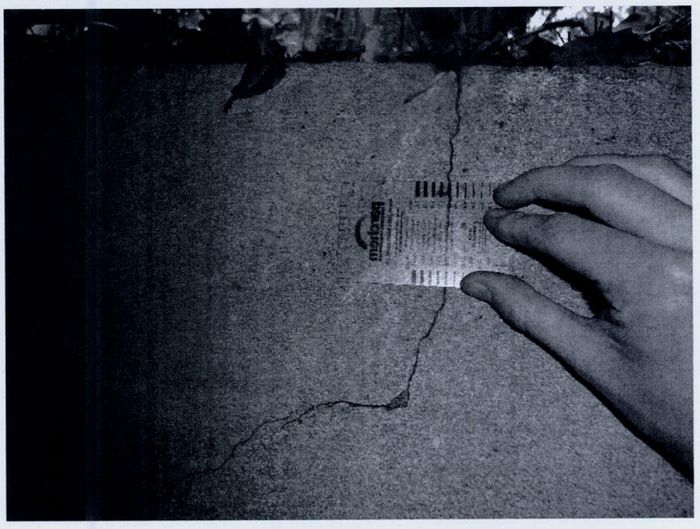
Western Elevation

This photograph represents the general condition of the unbound stone retaining wall to the SW rear pathway.

Photograph 52

Western Elevation

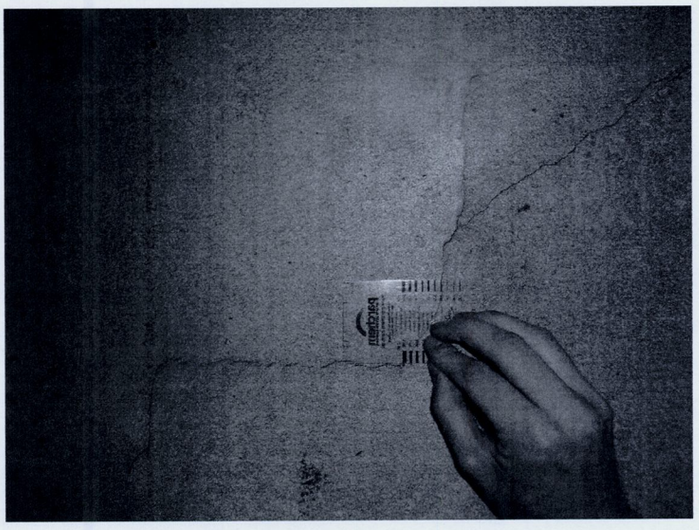
This photograph represents the general condition of the unbound stone retaining wall to the SW rear pathway.



Photograph 53

Western Elevation

A 1.0mm wide stepped crack is evident in the SW blockwork retaining wall.



Photograph 54

Western Elevation

A 0.75mm wide stepped crack is evident in the SW blockwork retaining wall.

Photograph 55

Western Elevation

This photograph represents the general condition of the SW blockwork retaining wall and service riser.

Photograph 56

Western Elevation

This photograph represents the general condition of the inspection opening pertaining to the service riser.

Photograph 57

Western Elevation

This photograph represents the general condition of the Western walkway.

Photograph 58

Western Elevation

This photograph represents the general condition of the Western façade.

Photograph 59

Western Elevation

This photograph represents the general condition of the western facade of the dwelling.

Photograph 60

Western Elevation

A diagonal crack was noted in the weatherboard adjacent to the external tap, to the NW corner of the dwelling.

Photograph 61

Western Boundary

This photograph represents the general condition of the Western garden and boundary.

Photograph 62

Western Boundary

This photograph represents the general condition of the unbound stone retaining wall and walkway.

Photograph 63

Western Boundary

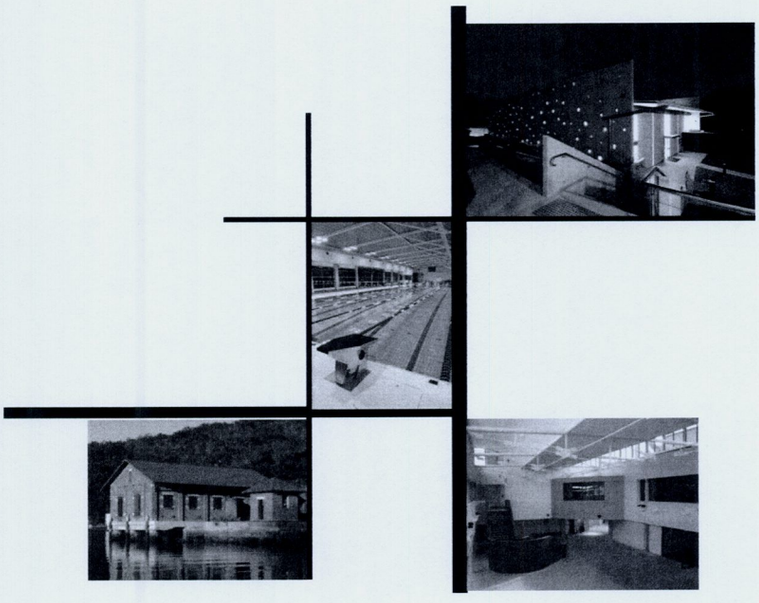
This photograph represents the general condition of the garden.

Photograph 64

Western Boundary

This photograph represents the general condition of the garden.

Dilapidation Survey at 1174a Barrenjoey Road, Palm Beach September 2012



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Northern NSW

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1174a Barrenjoey Road,
Palm Beach,
NSW 2108

Prepared by:
ACOR Consultants Pty Ltd
Andrew Barnett
(B.E. Civil)

Dated:

13th September 2012

Scope and Introduction

Address: 1174a Barrenjoey Road,

Suburb: Palm Beach, NSW 2108

Date of Survey: 13th September 2012

This report has been undertaken for and on the behalf of the client pertaining to the extensions and renovations of a residential building at 1174 Barrenjoey Road, Palm Beach.

The report is representative of the condition of the structure and building at the time and date of the survey.

Dilapidation reports are prepared by qualified engineers, Building Consultants and personnel and are based on the information obtained from on-site inspections. This report has been prepared for a specific purpose:-

1. To record significant structural features which may be sensitive to the proposed development; and
2. To record the existing serviceability condition of the structure. These features are recorded as a reference to the pre-existing conditions in structural and / or non-structural elements.

This record is required to avoid possible disputes arising from damage that may or may not be caused by the works to 1174 Barrenjoey Road, Palm Beach.

Disclaimer

This report was prepared by taking photographs of all visible defects. The author did not remove foliage, linings, covers and the like to inspect damage that may be hidden or concealed from view from a standing position. Nor did inspections take place in sub floor or roof spaces. All observations are made of the structure from the floor level only. The majority of hair line cracks are noted but not photographed due to clarity of the development process.

Authenticity

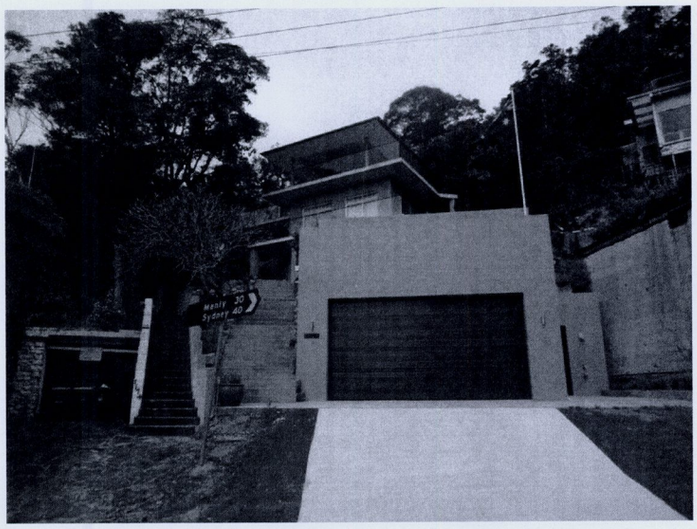
ACOR Consultants Pty Ltd hereby certifies that this report is an exact duplication of the report prepared for our client.

Signed… Reviewed...

Andrew Barnett
Building Consultant / Engineer
B.E. (Civil)

Brendan Tran
Building Consultant / Engineer
B.E. (Civil)

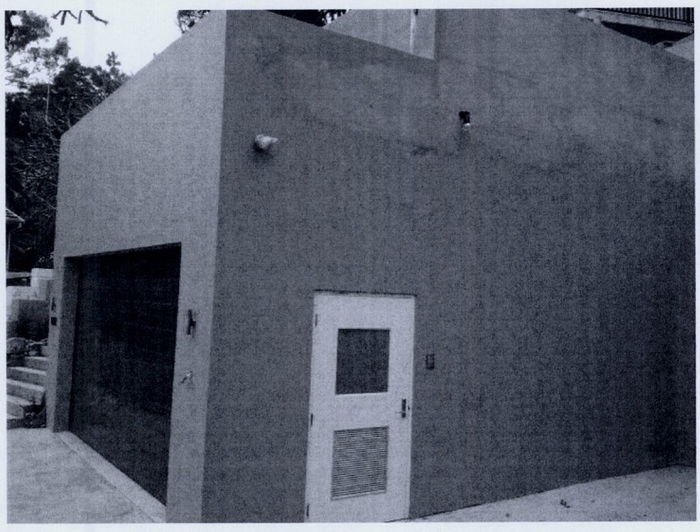
The following photographs depict the current condition of the structure.



Photograph 1

Garage

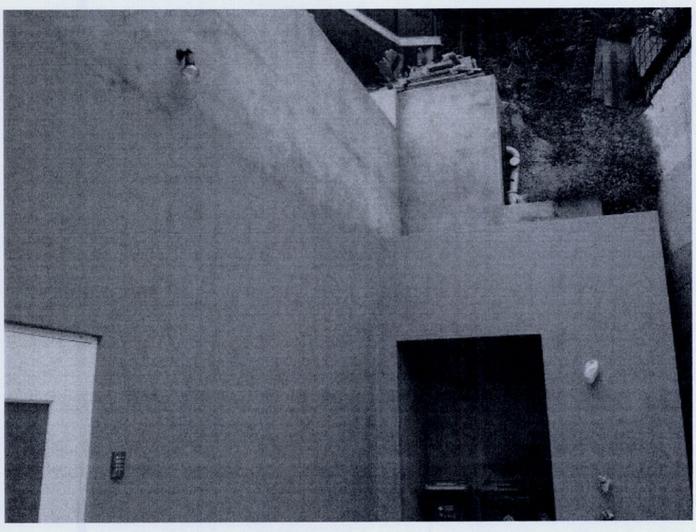
This photograph represents the general condition of the Northern façade of the garage from street level.



Photograph 2

Garage

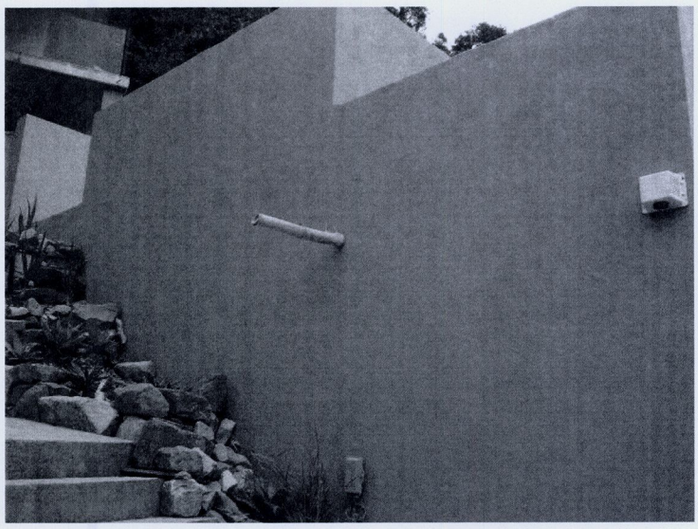
This photograph represents the general condition of the Western façade of the garage from ground level.



Photograph 3

Garage

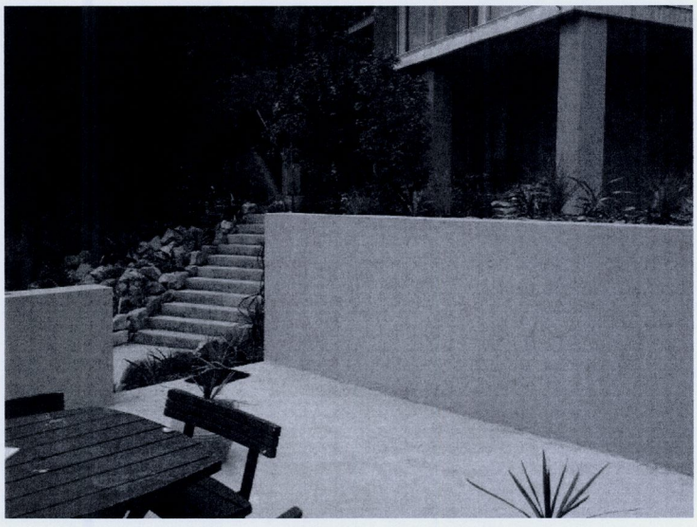
This photograph represents the general condition of the Western façade and bin storage area from ground level.



Photograph 4

Garage

This photograph represents the general condition of the Eastern façade of the ground level garage.



Photograph 5

Garage

This photograph represents the general condition of the terrace above the garage.

Photograph 6

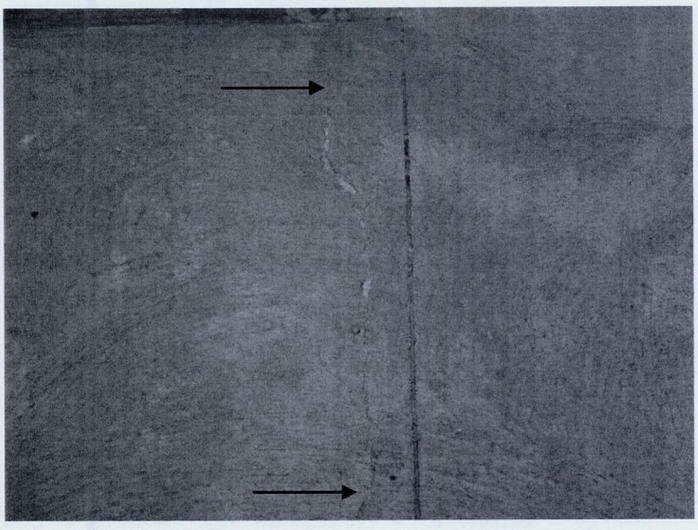
Garage

This photograph represents the general condition of the terrace above the garage.

Photograph 7

Northern Elevation

This photograph represents the general condition of the entrance staircase from street level.



Photograph 8

Northern Elevation

A concrete shrinkage crack was noted to the RHS side of the concrete pavement at the base of the entrance staircase.

Photograph 9

Northern Elevation

A hole is evident in the concrete blockwork above the second tread of the entrance staircase.

Photograph 10

Northern Elevation

This photograph represents the general condition of the Northern façade from the entrance staircase on ground level.

Photograph 11

Northern Elevation

This photograph represents the general condition of the Northern façade from the first level balcony deck.

Photograph 12

Northern Elevation

This photograph represents the general condition of the Northern façade from the second level balcony deck.

Photograph 13

Eastern Elevation

This photograph represents the general condition of the entrance staircase and garden along the Eastern boundary.

Photograph 14

Eastern Elevation

This photograph represents the general condition of the concrete block retaining wall extending to street level along the Eastern boundary.

Photograph 15

Eastern Elevation

This photograph represents the general condition of the concrete block retaining wall extending to the rear of the property along the Eastern boundary.

Photograph 16

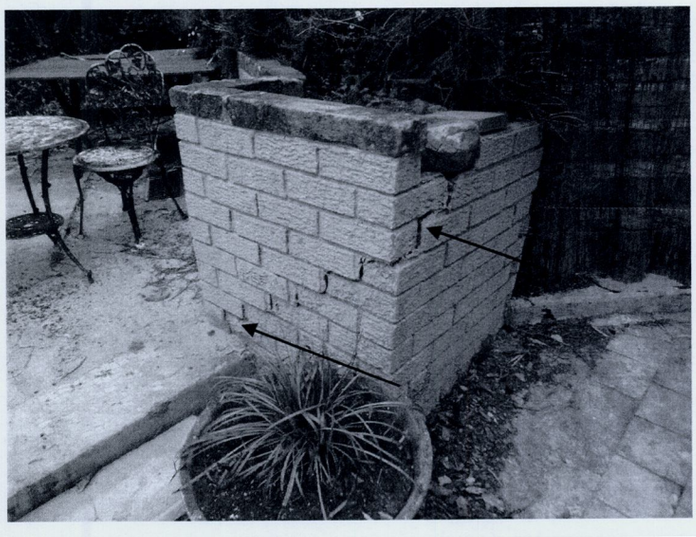
Eastern Elevation

This photograph represents the general condition of the red brick masonry retaining wall.

Photograph 17

Eastern Elevation

This photograph represents the general condition of the staircase and garden along the Eastern boundary.



Photograph 18

Eastern Elevation

A stepped masonry crack is evident to the planterbox on the Eastern terrace.

Photograph 19

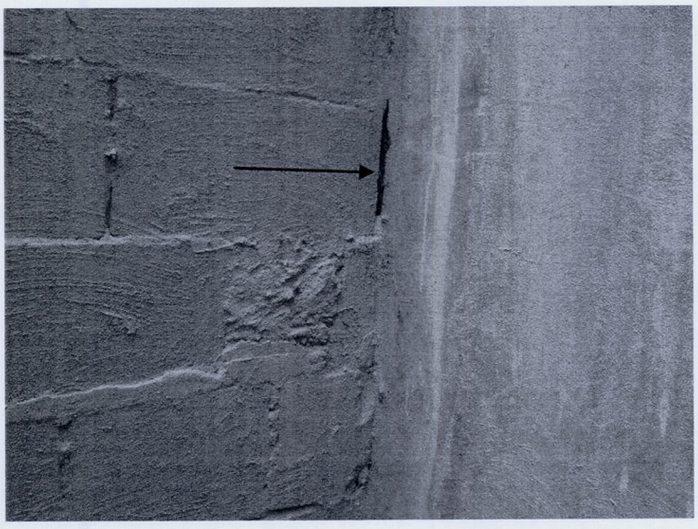
Eastern Elevation

A gap approximately 70mm wide is evident between the masonry and block walls.

Photograph 20

Eastern Elevation

A gap approximately 10mm is evident to the base of the blockwall supporting the entrance landing.



Photograph 21

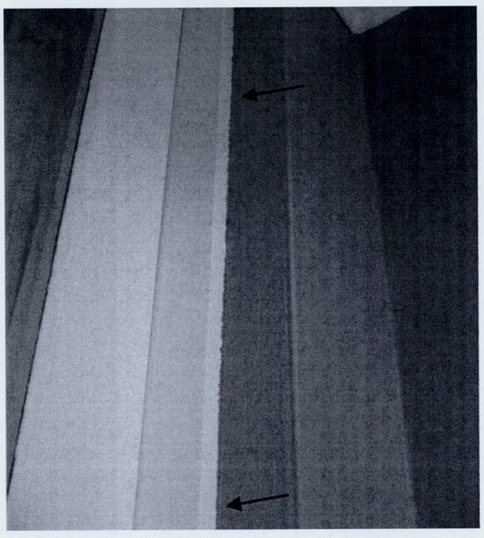
Eastern Elevation

A gap approximately 10mm is evident mid height to the blockwall supporting the entrance landing.

Photograph 22

Eastern Elevation

This photograph represents the general condition of the Eastern terrace and garden along the Eastern boundary.



Photograph 23

Eastern Elevation

A separation is evident between the jamb and render of the balcony access door to second level balcony deck.

Photograph 24

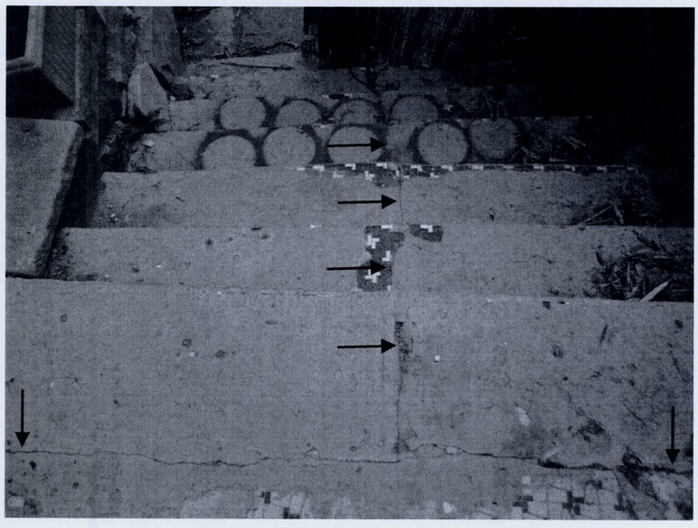
Eastern Elevation

This photograph represents the general condition of the Eastern façade from ground floor level.

Photograph 25

Eastern Elevation

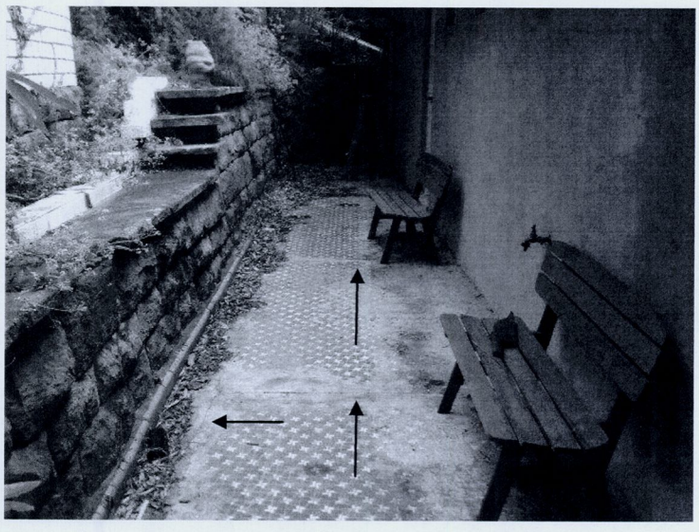
This photograph represents the general condition of the rear Eastern façade from ground floor level.



Photograph 26

Eastern Elevation

Various cracks are evident in the rear Eastern staircase.



Photograph 27

Southern Elevation

Various transverse and longitudinal cracks are evident to the rear pathway.

Photograph 28

Southern Elevation

This photograph represents the general condition of the stone retaining wall to the rear of the property.

Photograph 29

Southern Elevation

This photograph represents the general condition of the stone retaining wall in the SW corner.

Photograph 30

Western Elevation

This photograph represents the general condition of the rear stone retaining wall and pathway along the Western boundary.

Photograph 31

Western Elevation

This photograph represents the general condition of the stone retaining wall and pathway along the Western boundary.

Photograph 32

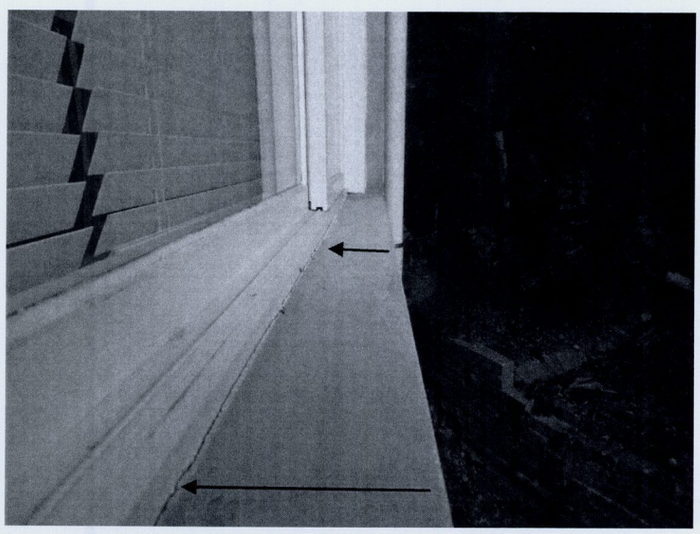
Western Elevation

This photograph represents the general condition of the blockwork retaining walls.

Photograph 33

Western Elevation

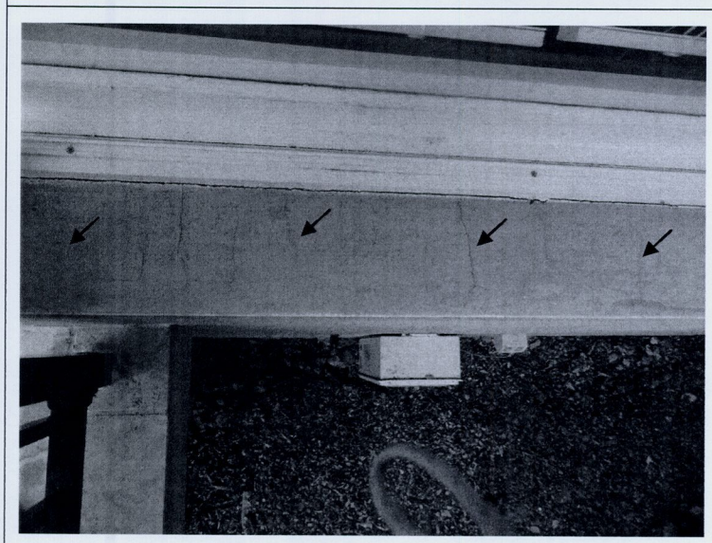
This photograph represents the general condition of the Western façade from the first level balcony deck.



Photograph 34

Western Elevation

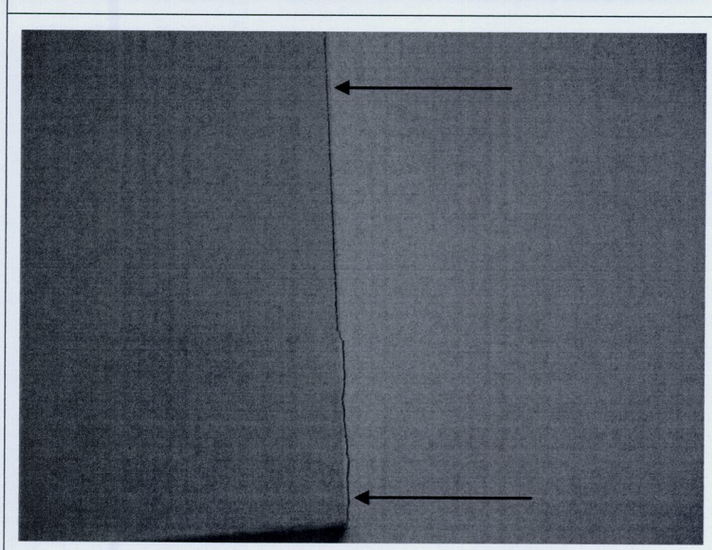
A render crack is evident to the window sill adjoining the second level dining area.



Photograph 35

Western Elevation

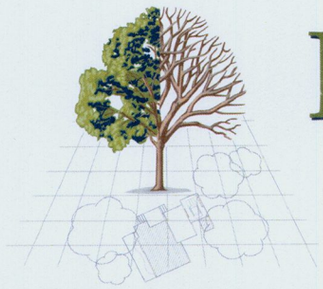
Various hairline render cracks are evident to the window sill adjoining the second level dining area.



Photograph 36

Staircase

A vertical crack is evident in plasterboard above the timber staircase leading up to the third level.



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ARBORICULTURAL IMPACT APPRAISAL AND METHOD STATEMENT

21 June 2011

1174 Barrenjoey Road
Palm Beach, NSW

Prepared for
Winten (No 38) Pty Ltd

Summary

The proposed development involves the construction of a new driveway access and car parking area at 1174, Barrenjoey Road, Palm Beach. I have inspected all the trees that could be affected and list their details in Appendix 2. Based on this information, I provided guidance to the project architect on the constraints these trees impose on the use of the site. The current layout is a result of this detailed consultation and has evolved taking full account of these constraints.

Two high category trees and seven low category trees will be lost because of this proposal. A comprehensive landscaping scheme to mitigate these losses is proposed that will include the planting of new trees. The proposed changes may adversely affect a further three low category trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement included in this report, the impact of proposed development on these trees can be minimised. None of the trees required to be removed are indigenous to this locality or are component species of threatened vegetation communities.

Table of Contents

Appendices

1. INTRODUCTION

1.1 **Instruction:** I am instructed by Susan Rothwell Architects to inspect the significant trees at 1174 Barrenjoey Road, Palm Beach and to provide an arboricultural report to accompany a development application. This report investigates the impact of the proposed development on trees and provides the following guidelines for appropriate tree management and protective measures:

- a schedule of the relevant trees to include basic data and a condition assessment;
- an appraisal of the impact of the proposal on trees and any resulting impact that has on local character and amenity;
- a preliminary arboricultural method statement setting out appropriate protective measures and management for trees to be retained

1.2 **Purpose of this report**: This report provides an analysis of the impact of the development proposal on trees with additional guidance on appropriate management and protective measures. Its primary purpose is for the council to review the tree information in support of the planning submission and use as the basis for issuing a planning consent or engaging in further discussions towards that end. Within this planning process, it will be available for inspection by people other than tree experts so the information is presented to be helpful to those without a detailed knowledge of the subject.

1.3 **Qualifications and experience:** I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, and include a summary in Appendix 1.

1.4 **Documents and information provided:** Susan Rothwell Architects provided me with copies of the following documents:

- Plan Driveway, Dwg No. srBR-100, dated 29 March 2011;
- Survey, Dwg No. srBR-001, by Susan Rothwell Architects dated 24 February 2011.

1.6 **Scope of this report:** This report is only concerned with twelve trees, all located within the subject site. It takes no account of other trees, shrubs or groundcovers within the site unless stated otherwise. It includes a detailed assessment based on the site visit and the documents provided, listed in 1.4 above.

2. THE LAYOUT DESIGN

2.1 **Tree AZ method of tree assessment:** The TreeAZ assessment method determines the worthiness of trees in the planning process. TreeAZ is based on a systematic method of assessing whether individual trees are important and how much weight they should be given in management considerations. Simplistically, trees assessed as potentially important are categorised as '**A**' and those assessed as less important are categorised as '**Z**'. Further explanation of TreeAZ can be found in Appendix 3.

In the context of new development, all the Z trees are discounted as a material constraint in layout design. All the A trees are potentially important and they dictate the design constraints. This relatively simple constraints information is suitable for use by the architect to optimise the retention of the best trees in the context of other material considerations.

2.2 Site visit and collection of data

2.2.1 **Site visit:** I carried out an unaccompanied site visit on 13 June 2011. All my observations were from ground level without detailed investigations and I estimated all dimensions unless otherwise indicated. The weather at the time of inspection was windy and damp with average visibility.

2.2.2 **Brief site description:** 1174 Barrenjoey Road is located in the residential suburb of Palm Beach (refer figure 1). The site is on the eastern side of the road and surrounded by similar residential development. The property consists of a large house that is currently unoccupied set to the rear of a long narrow and steep garden. The garden slopes steeply downwards from the rear boundary to the front and is exposed to the west. There is a narrow watercourse running along the northern boundary.

Figure 1: The location of the subject site (www.Whereis.com.au).

2.2.3 **Collection of basic data:** I inspected each tree and have collected information on species, height, diameter, maturity and potential for contribution to amenity in a development context. I have recorded this information in the tree schedule included, with explanatory notes, in Appendix 2. Each tree was then allocated to one of four categories (**AA**, **A**, **Z** or **ZZ**), which reflected its suitability as a material constraint on development.

I stress that my inspection was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level.

2.2.4 **Identification and location of the trees:** I have illustrated the locations of the significant trees on the Tree Management Plan (Plan TMP01) included as Appendix 8. This plan is for illustrative purposes only and it should not be used for directly scaling measurements.

2.2.5 **Advanced interpretation of data:** Australian Standard *Protection of trees on development sites* (AS4970-2009), recommends that the trunk diameter measurement for each tree is used to calculate the tree protection zone (TPZ), which can then be interpreted to identify the design constraints and, once a layout has been consented, the exclusion zone is to be protected by barriers.

2.3 **The use of the tree information in layout design:** Following my inspection of the trees, the information listed in Appendix 2 was used to provide constraints guidance based on the locations of all the A trees. All the Z trees were discounted because they were not considered worthy of being a material constraint. This guidance identified two zones of constraint based on the following considerations:

- The tree protection zone (TPZ) is an area where ground disturbance must be carefully controlled. The TPZ was established according to the recommendations set out in AS4970-2009. These recommendations quantify the TPZ based on trunk diameter and crown projection. In principle, a maximum encroachment of 10% is acceptable within the TPZ and a high level of care is needed during any activities that are authorised within it if important trees are to be successfully retained.

- The structural root zone (SRZ) is a radial distance from the centre of a tree's trunk, where it is likely that structural, woody roots would be encountered. The distance is generally based on trunk diameter, although this varies with tree height, crown area, soil type and soil moisture. The SRZ may also be influenced by natural or built structures, such as rocks and footings. The SRZ only needs to be calculated when major encroachment (>10%) into a TPZ is proposed.

3. ARBORICULTURAL IMPACT APPRAISAL

3.1 **Summary of the impact on trees:** I have assessed the impact of the proposal on trees by the extent of disturbance in TPZs and the encroachment of structures into the SRZ (as set out briefly in 2.3 above and more extensively in Appendix 2). All the trees that may be affected by the development proposal are listed in Table 1

Table 1: Summary of trees that may be affected by development

Impact	Reason	Important trees		Unimportant trees	
		AA	A	Z	ZZ
Retained trees that may be affected through disturbance to TPZs	Removal of existing surfacing/structures and installation of new driveway.			3, 7, 9	
Trees to be removed	Driveway construction and level variations within TPZ		1, 2	4, 5, 6, 8, 10, 11, 12	

3.2 **Detailed impact appraisal**

3.2.1 **Category A trees to be lost:** Trees 1 and 2 are good trees but are located within the footprint of the proposed driveway. It is proposed to mitigate their loss with new tree plantings around the site.

3.2.2 **Category Z trees that could potentially be adversely affected through TPZ disturbance:** Trees 3, 7 and 9 can be retained and protected if desired. The proposal is to build a new driveway and retaining walls near them. These changes may cause harm if not carried out with care. I have reviewed the situation carefully and my experience is that this tree could be successfully retained without any adverse effects if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement. It should be noted that these trees are classified as undesirable species within the Pittwater Council area.

3.2.3 **Other trees to be removed:** Trees 4, 5, 6, 8, 10, 11 and 12 will be removed but are category Z because they are either dead, dying or are listed as undesirable species within the Pittwater local government area.

3.3 **Proposals to mitigate any impact**

3.3.1 **Protection of retained trees:** The successful retention of trees within the site will depend on the quality of the protection and the administrative procedures to ensure protective measures remain in place throughout the development. An

effective way of doing this is through an arboricultural method statement that can be specifically referred to in the planning condition. An arboricultural method statement for this site is set out in detail in Section 4.

3.3.2 **New planting:** In the context of the loss of trees, a comprehensive new landscaping scheme is proposed including new trees to be planted on the site within available areas. The suggested selection of species, size and location are provisional and would not be considered final until all relevant parties had been fully consulted. The new trees should have the potential to reach a significant height without excessive inconvenience and be sustainable into the long term, significantly improving the potential of the site to contribute to local amenity and character.

3.3.3 **Summary of the impact on local amenity:** Two high category trees and seven low category trees will be lost because of this proposal. A comprehensive landscaping scheme to mitigate these losses is proposed that will include the planting of new trees. The proposed changes may adversely affect a further three low category trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement included in this report, the impact of proposed development on these trees can be minimised. None of the trees required to be removed are indigenous to this locality or are component species of threatened vegetation communities.

4. ARBORICULTURAL METHOD STATEMENT

4.1 Introduction

4.1.1 **Terms of reference:** The impact appraisal in Section 3 identified the potential impacts on trees caused by proposed development. Section 4 is an arboricultural method statement setting out management and protection details that must be implemented to secure successful tree retention. It has evolved from Australian Standard AS4970-2009 Protection of trees on development sites.

4.1.2 **Plan TMP01:** Plan TMP01 in Appendix 8 is illustrative and based entirely on provided information. This plan should only be used for dealing with the tree issues and all scaled measurements must be checked against the original submission documents. The precise location of all protective measures must be confirmed at the pre-commencement meeting before any demolition or construction activity starts. Its base is the existing land survey, which has the proposed layout superimposed so the two can be easily compared. It shows the existing trees numbered, with high categories (A) highlighted in green triangles and low categories (Z) highlighted in blue rectangles. It also shows the locations of the proposed protective measures.

4.2 Tree protection with fencing and ground protection

4.2.1 **Protection fencing:** Tree protection fencing must comply with AS4970 (section 4.3) recommendations. An illustrative guide is included as Appendix 4. The approximate location of the barriers and the TPZs is illustrated on plan TMP01. The precise location of the fencing must be agreed with the project Arborist before any development activity starts.

4.2.2 **Trunk, branch and ground protection:** Any TPZs outside the protective fencing must be covered in ground protection based on AS4970 (section 4.3.5) recommendations until there is no risk of damage from the demolition and construction activity. An illustrative specification for this ground protection is included as Appendix 5.

Trunk and major limb protection shall be undertaken prior to the commencement of demolition and construction works. The protection shall be installed by a qualified Arborist (AQF 2 or 3) and must include:

- Tree trunk protection is to remain in place for the duration of construction and development works.

4.3 **Precautions when working in TPZs:** Any work in TPZs must be done with care as set out in Appendix 6. On this site, special precautions must be taken near trees 3, 7 and 9 as illustrated on plan TMP01 and summarised below:

1. **Removal of existing surfacing/structures and driveway construction:** Trees 3, 7 and 9 may be adversely affected by the removal of existing surfaces, steps and retaining walls and the excavation required for driveway construction. Any adverse impact must be minimised by following the guidance set out in Appendix 6.

2. **Installation of new soft landscaping:** All landscaping activity within TPZs has the potential to cause severe damage and any adverse impact must be minimised by following the guidance set out in section 5 of Appendix 6.

3. **Installation of new services or upgrading of existing services:** It is often difficult to clearly establish the detail of services until the construction is in progress. Where possible, it is proposed to use the existing services into the site and keep all new services outside TPZs. However, where existing services within TPZs require upgrading or new services have to be installed in TPZs, great care must be taken to minimise any disturbance. Trenchless installation should be the preferred option but if that is not feasible, any excavation must be carried out by hand according to the guidelines in Appendix 6. If services do need to be installed within TPZs, consultation must be obtained from the project Arborist and/or council before any works are carried out.

4.4 Other tree related works

4.4.1 **Site storage, cement mixing and washing points:** All site storage areas, cement mixing and washing points for equipment and vehicles must be outside TPZs unless otherwise agreed with the project Arborist and/or council. Where there is a risk of polluted water run off into TPZs, heavy-duty plastic sheeting and sandbags must be used to contain spillages and prevent contamination.

4.4.2 **Pruning:** Any pruning that is required to accommodate hoardings, scaffolding or to accommodate the unloading/loading of vehicles and has been approved by Council shall be carried out by a qualified Arborist (AQF3) and must be in accordance with AS4373 Australian Standards 'Pruning of Amenity Trees'.

4.5 Programme of tree protection and supervision

4.5.1 **Overview:** Tree protection cannot be reliably implemented without arboricultural input. The nature and extent of that input varies according to the complexity of the issues and the resources available on site. For this site, a summary of the level of arboricultural input that is likely to be required is set out in Appendix 7. An project arborist must be instructed to work within this framework to oversee the implementation of the protective measures and management proposals set out in this arboricultural method statement.

4.5.2 **Supervision and the discharge of planning conditions:** Arboricultural planning conditions cannot be reliably or effectively discharged without supervision by the project arborist. The framework in Appendix 7 must form the

basis for the discharge of planning conditions through site visits by the project arborist. These supervisory actions must be confirmed by formal letters circulated to all relevant parties. These permanent records of each site visit will accumulate to provide the proof of compliance and allow conditions to be discharged as the development progresses. The developer must instruct the project arborist to comply with the supervision requirements set out in this document before any work begins on site.

4.5.3 **Phasing of arboricultural input:** Trees can only be properly budgeted for and factored into the developing work programmes if the overall project management takes full account of tree issues once consent is confirmed. The project arborist must be involved in the following phases of the project management:

1. **Administrative preparation before work starts on site:** It is normal for a development proposal to vary considerably from the expectations before consent as the detailed planning of implementation evolves. The early instruction of the project arborist ensures that tree issues are factored into the complexities of site management and can often help ease site pressures through creative approaches to tree protection. Pre-commencement discussions between the project arborist and the developer's team is an effective means of project managing the tree issues to maximise site efficiency within often difficult constraints.

2. **Pre-commencement site visit:** A pre-commencement meeting must be held on site before any of the demolition and construction work begins. This must be attended by the site manager and the project arborist. Any clarifications or modifications to the consented details must be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection will be agreed and finalised by all parties, which will then form the basis of any supervision arrangements between the project arborist and the developer.

3. **Site supervision:** Once the site is active, the project arborist must visit at an interval agreed at the pre-commencement site meeting. The supervision arrangement must be sufficiently flexible to allow the supervision of all sensitive works as they occur. The project arborist's initial role is to liaise with developer to ensure that appropriate protective measures are designed and in place before any works start on site. Once the site is working, that role will switch to monitoring compliance with arboricultural conditions and advising on any tree problems that arise or modifications that become necessary.

4.6 **Site management:** It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents must be kept on site at all times and the site manager must brief all personnel who could have an impact on trees on the specific tree protection requirements. This must be a part of the site induction procedures and written into appropriate site management documents.

5. HOW TO USE THIS REPORT

5.1 **Limitations:** It is common that the detail of logistical issues such as site storage and the build programme are not finalised until after consent is issued. As this report has been prepared in advance of consent, some of its content may need to be updated as more detailed information becomes available once the post-consent project management starts. Although this document will remain the primary reference in the event of any disputes, some of its content may be superseded by authorised post-consent amendments.

5.2 **Suggestions for the effective use of this report:** Section 4 of this report, including the relevant appendices, is designed as an enforcement reference. It is constructed so the council can directly reference the detail in a planning condition. Referencing the report by name and relating conditions to specific subsections is an effective means of reducing confusion and facilitating enforcement in the event of problems during implementation. More specifically, the following issues should be directly referenced in the conditions for this site:

1.	Pre-commencement meeting	4.5.3 and Appendix 7
2.	Barriers	4.2.1 and Appendix 4
3.	Ground protection	4.2.2 and Appendix 5
4.	Removal of surfacing	4.3 and Appendix 6 (Section 2)
5.	Installation of new surfacing	4.3 and Appendices 6 (Section 3)
6.	Removal of structures	4.3 and Appendix 6 (Section 2)
7.	Services	4.3 and Appendix 6 (Section 4)
8.	Installation of new landscaping	4.3 and Appendix 6 (Section 5)
9.	Programming of tree protection	4.5 and Appendix 7
10.	Arboricultural supervision	4.5 and Appendix 7

Each of the above matters must be supervised by the project arborist and the relevant conditions can only be discharged once that supervision has been confirmed in writing to the relevant parties. The last column of the table in Appendix 7 is to be used so that the various supervision issues can be recorded as they are confirmed by supervision letters. It is intended to act as a summary quick-reference to help keep track of the progress of the supervision.

6. OTHER CONSIDERATIONS

6.1 **Trees subject to statutory controls:** The following trees, 1, 2 and 4, are legally protected under Pittwater Council Tree Preservation Order 2009, it will be necessary to consult the council before any tree removal works. The works specified above are necessary for reasonable management and should be acceptable to the council. However, tree owners should appreciate that the council may take an alternative point of view and have the option to refuse consent.

7. BIBLIOGRAPHY

7.1 **List of references:**

Australian Standard AS4373-2007 *Pruning of Amenity Trees.* Standards Australia.

Australian Standard AS4970-2009 *Protection of trees on development sites.* Standards Australia.

Barrell, J (2009) Draft for Practical Tree AZ version 9.02 A+NZ Barrel Tree Consultancy, Bridge House, Ringwood BH24 1EX

8. DISCLAIMER

8.1 Limitations on use of this report:

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, and directly attached to that submission, report or presentation.

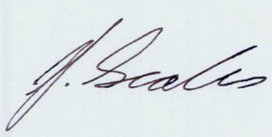
ASSUMPTIONS

Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible: however, Naturally Trees can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

- *Information contained in this report covers only those trees that were examined and reflects the condition of those trees at time of inspection: and*
- *The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.*

Yours sincerely



Andrew Scales

Manager/ Consultant
Arboriculture Australia #2136
Dip. Horticulture / Arboriculture

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Mobile: 0417 250 420

APPENDIX 1
Brief qualifications and experience of Andrew Scales

1. **Qualifications:**

Associate Diploma Horticulture	Northern Sydney Institute of TAFE	1995-1998
Certificate in Tree Surgery	Northern Sydney Institute of TAFE	1998
Associate Diploma Arboriculture	Northern Sydney Institute of TAFE	1999-2006

2. **Practical experience:** Being involved in the arboricultural/horticultural industry for in excess of 10 years, I have developed skills and expertise recognized in the industry. Involvement in the construction industry and tertiary studies has provided me with a good knowledge of tree requirements within construction sites.

   As director of Naturally Trees, in this year alone I have undertaken hundreds of arboricultural consultancy projects and have been engaged by a range of clients to undertake tree assessments. I have gained a wide range of practical tree knowledge through tree removal and pruning works.

3. **Continuing professional development:**

Visual Tree Assessment (Prof. Dr. Claus Mattheck)	Northern Sydney Institute of TAFE 2001
Wood Decay in Trees (F.W.M.R.Schwarze)	Northern Sydney Institute of TAFE 2004
Visual Tree Assessment (Prof. Dr. Claus Mattheck)	Carlton Hotel, Parramatta NSW 2004
Tree A-Z / Report Writing (Jeremy Barrell)	Northern Sydney Institute of TAFE 2006
Up by Roots – Healthy Soils and Trees in the Built Environment (James Urban)	The Sebel Parramatta NSW 2008
Tree Injection for Insect Control (Statement of Attainment)	Northern Sydney Institute of TAFE 2008
Quantified Tree Risk Assessment (QTRA) Registered Licensee #1655	South Western Sydney Institute TAFE 2011
Practitioners Guide to Visual Tree Assessment	South Western Sydney Institute TAFE 2011

4. **Current professional memberships:**
   Arboriculture Australia – (Registered Consulting & Practising Arborist #2136)

APPENDIX 2
Tree schedule

NOTE: Colour annotation is AA & A trees with green background; Z & ZZ trees with blue background; trees to be removed in red text.

No.	Species	Height	Spread m	DBH mm	Foliage %	Age class	Defects	Location	Services	Significance	Tree AZ
1	*Lophostemon confertus*	13	10	500-600	60	M	Ni	Between path and wall		Medium	A1
2	*Podocarpus elatus*	13	7	400-500	80	M	Nil	Next to path	Service wire attached to trunk	Medium	A1
3	*Syagrus romanzoffianum* (x3)	12	5	200-300	70	M	Nil	Within watercourse		Low	Z3
4	*Brachychiton acerifolius*	12	4	300-400	50	M	Nil	Next to path and wall	Service wire beneath canopy	Low	Z3
5	*Ravanea rivularis*	2	1	200-300	0	-	Dead	Garden bed		Low	Z4
6	*Phoenix canariensis*	9	6	500-600	100	M	Nil	Garden bed	Service wire beneath canopy	Medium	Z3
7	*Phoenix canariensis*	9	6	500-600	100	M	Nil	Garden bed		Medium	Z3
8	*Washingtonia robusta*	14	6	400-500	90	M	Nil	Garden bed		Medium	Z3
9	*Archontophoenix cunninghamiana*	10	5	200-300 (x2)	100	M	Nil	Garden bed	Plumbing within 1 metre of trunk.	Medium	Z3
10	*Ptychosperma caryotoides*	6	3	200-300	40	OM	Almost dead	Garden bed		Low	Z3
11	*Archontophoenix cunninghamiana*	8	5	200-300	90	M	Nil	Garden bed		Medium	Z3
12	*Phoenix canariensis*	8	7	500-600	100	M	Nil	Growing out of wall		Low	Z3

Explanatory Notes

- **Measurements/estimates:** All dimensions are estimates unless otherwise indicated. Measurements taken with a tape or clinometer are indicated with a '*'. Less reliable estimated dimensions are indicated with a '?'.
- **Species:** The species identification is based on visual observations and the botanical name. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.
- **Tree number:** relates to the reference number used on site diagram/report.
- **Height:** Height is estimated to the nearest metre.
- **Spread:** The average crown spread is visually estimated to the nearest metre from the outermost tips of the live lateral branches.
- **DBH:** These figures relate to 1.2m above ground level and are recorded in millimetres. If appropriate, diameter is measured with a diameter tape. 'M' indicates trees or shrubs with multiple stems.
- **Foliage Cover:** Percent of estimated live foliage cover for particular species range.
- **Age class:**
  - **Y** Young = recently planted
  - S Semi-mature (<20% of life expectancy)
  - M Mature (20-80% of life expectancy)
  - O Over-mature (>80% of life expectancy)
- **Tree AZ:** See reference for Tree AZ categories in Appendix 3.
- **Significance:** A tree's significance/value in the landscape takes into account its prominence from a wide range of perspectives. This includes, but is not limited to neighbour hood perspective, local perspective and site perspective. The significance of the subject trees has been categorized into three groups, such as: High, Moderate or Low significance.

APPENDIX 3

TreeAZ Categories (Version 9.02 A+NZ)

Z Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. severe structural damage to surfacing and buildings, etc

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

Z9	Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorisation hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

A Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

A1	No significant defects and could be retained with minimal remedial care
A2	Minor defects that could be addressed by remedial care and/or work to adjacent trees
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
A4	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

NOTE: Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.

TreeAZ is designed by Barrell Tree Consultancy (www.treeaz.com/tree_az/)

APPENDIX 4

Protection fencing and signs - Illustrative specification

Protective fencing: Protective 1.8m high fencing should be installed at the location illustrated on the Tree Management Plan before any site works start. All uprights should be fixed in position for the duration of the development activity. The fixings must be able to withstand the pressures of everyday site work.

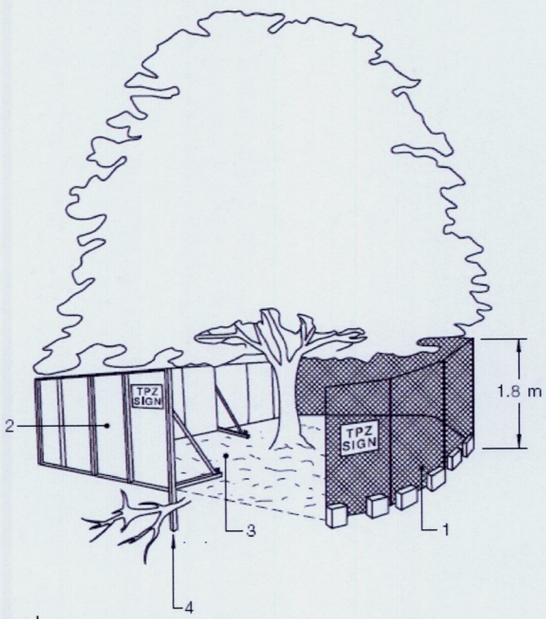
Inside the protective fencing, the following rules must be strictly observed:

- **No vehicular access**
- **No storage of excavated debris, building materials or fuels**
- **No excessive cultivation for landscape planting**
- **No fires**
- **No mixing of cement**
- **No service installation or excavation**

Once erected, protective fencing must not be removed or altered without consulting first with the project Arborist.

Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area and signage must be attached to outside of fencing.

Signage: All signs are to provide clear and readily accessible information to indicate that a TPZ has been established. Signage identifying the TPZ must be attached to outside of fencing and be visible from within the development site.



Signage example:

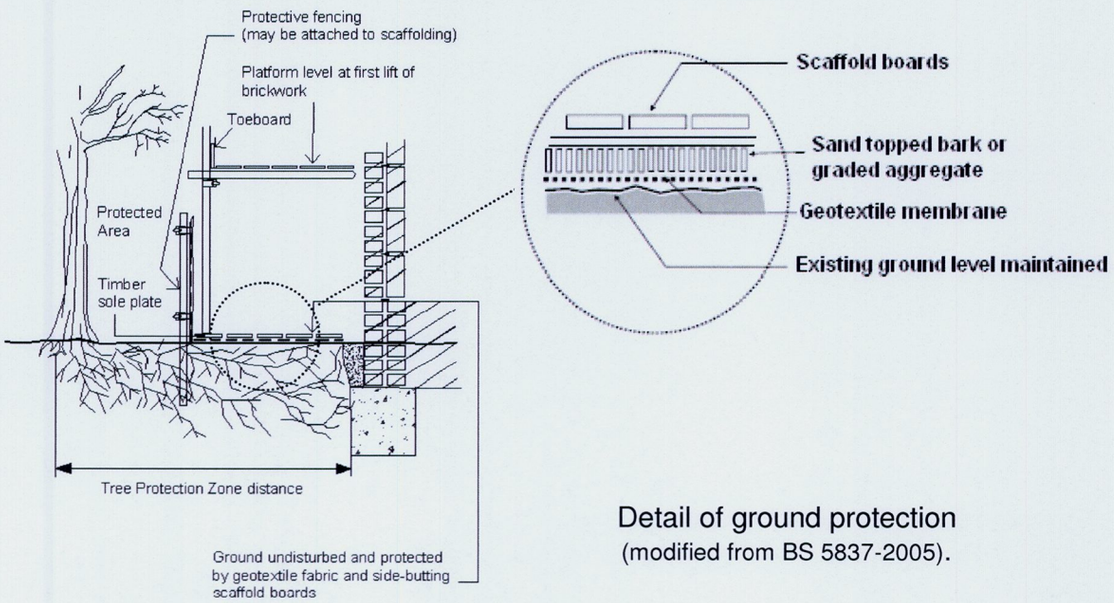
Legend

1. Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2. Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3. Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4. Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

APPENDIX 5

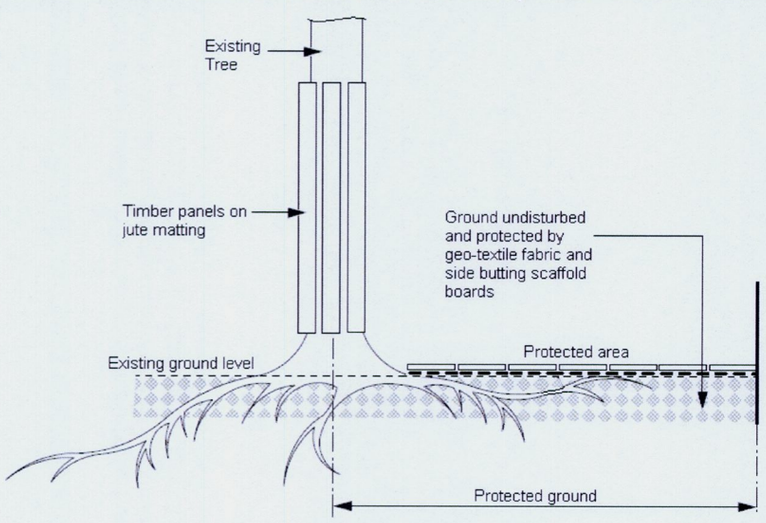
Ground and trunk protection - Illustrative specification

Ground protection: Where necessary, access through the TPZ can be achieved by laying aggregate and timber boards (or similar) over the root zone to protect roots. The ground beneath the boarding should be left undisturbed and should be protected with a porous geo-textile fabric covered with sand or mulch.



Detail of ground protection
(modified from BS 5837-2005).

Trunk protection: Where fencing cannot be installed, the vertical trunk of exposed trees shall be protected by the placement of 3.6m lengths of 50 x 100mm hardwood timbers, spaced vertically, at 150mm centres and secured by 2mm wire at 300mm wide spacing over suitable protective padding material e.g. Jute Matting. The trunk protection shall be maintained intact until the completion of all work on site.



Detail of trunk protection.

APPENDIX 6

General guidance for working in TPZ

1.1 **What is the purpose of this guidance?** This guidance sets out the general principles that must be followed when working in TPZs. Where more detail is required, it will be supplemented by illustrative specifications in other appendices in this document. Before work starts on site, the purpose of this guidance is to demonstrate to the council that tree protection issues have been properly considered and to provide a written record of how they will be implemented. Once the site works start, this guidance is specifically for the site personnel to help them understand what has been agreed and explain what is required to fully meet their obligations to protect trees. All personnel working in TPZs must be properly briefed about their responsibilities towards important trees based on this guidance.

1.2 **What are TPZs?** TPZs are the areas surrounding important trees where disturbance must be minimised if they are to be successfully retained. All TPZs close to the construction area are illustrated on the tree protection plans accompanying this guidance. Damage to roots or degradation of the soil through compaction and/or excavation within TPZs is likely to cause serious damage. Any work operations within TPZs must be carried out with great care if trees are to be successfully retained.

1.3 **When should this guidance be followed?** Anyone entering a TPZ must follow this guidance if important trees are to remain unharmed. Anyone working in a TPZ must take care to minimise excavation into existing soil levels and limit any fill or covering that may adversely affect soil permeability. There are two main scenarios where this guidance must be followed when entering and working within a TPZ:

1. Removal of existing surfacing/structures and replacement with new surfacing, structures and/or landscaping.

2. Preparation and installation of new surfacing, structures and/or landscaping. Broad definitions of surfacing, structures and landscaping are set out in the following sections.

1.4 **Where does this guidance apply?** This guidance should always be read in conjunction with the site plans illustrating the areas where specific precautions are necessary. Each area where precautions are required is annotated on the plans as identified on their keys. All plans are illustrative and intended to be interpreted in the context of the site conditions when the work is started. All protective measures should be installed according to the prevailing site conditions and agreed as satisfactory by the appropriate supervising officer before any demolition or construction work starts.

1.5 **What references is this guidance based on?** This guidance is based on the assumption that the minimum general standards for development issues are those set out in Australian Standards (2009) AS4970: Protection of Trees on Construction Sites. It is interpreted in the context of our experience of managing trees on development sites.

1.6 **Preventing adverse impact to the TPZ beyond the immediate work area:** Any part of the TPZ beyond the agreed work area must be isolated from the work operations by protective barriers or ground protection to at least the minimum standard described in AS4970 for the duration of the work.

1.7 **Excavation and dealing with roots:** All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots. Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of smaller roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage. If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once roots have been located, the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots to be removed should be cut cleanly with a sharp saw or secateurs 10–20cm behind the final face of the excavation. Roots temporarily exposed must be protected from direct sunlight, drying out and extremes of temperature by appropriate covering. Roots greater than 2.5cm in diameter should be retained where possible. Roots 2.5–10cm in diameter should only be cut in exceptional circumstances. Roots greater than 10cm in diameter should only be cut after consultation with the appropriate supervisory officer.

1.8 **Arboricultural supervision:** Any work within TPZs requires a high level of care. Qualified arboricultural supervision is essential to minimise the risk of misunderstanding and misinterpretation. Site personnel must be properly briefed before any work starts. Ongoing work must be inspected regularly and, on

completion, the work must be signed off by the arboriculturist to confirm compliance by the contractor. In the context of this guidance, an appropriate supervising officer would normally be an arboriculturist.

2 REMOVING SURFACING/STRUCTURES IN TPZs

2.1 **Definitions of surfacing and structures:** For the purposes of this guidance, the following broad definitions apply:

- **Surfacing:** Any hard surfacing used as a vehicular road, parking or pedestrian path including tarmac, solid stone, crushed stone, compacted aggregate, concrete and timber decking. This does not include compacted soil with no hard covering.

- **Structures:** Any man-made structure above or below ground including service pipes, walls, gate piers, buildings and foundations. Typically, this would include drainage structures, car-ports, bin stores and concrete slabs that support buildings.

2.2 **Access:** Roots frequently grow adjacent to and beneath existing surfacing/structures so great care is needed during access and demolition. Damage can occur through physical disturbance of roots and/or the compaction of soil around them from the weight of machinery or repeated pedestrian passage. This is not generally a problem whilst surfacing/structures are in place because they spread the load on the soil beneath and further protective measures are not normally necessary. However, once they are removed and the soil below is newly exposed, damage to roots becomes an issue and the following guidance must be observed:

1. No vehicular or repeated pedestrian access into TPZs unless on existing hard surfacing or custom designed ground protection.

2. Regular vehicular and pedestrian access routes must be protected from compaction with temporary ground protection as set out in AS4970.

3. TPZs exposed by the work must be protected as set out in AS4970 until there is no risk of damage from the development activity.

2.3 **Removal:** Removing existing surfacing/structures is a high-risk activity for any adjacent roots and the following guidance must be observed:

1. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow. Secateurs and a handsaw must also be available to deal with any exposed roots that have to be cut.
2. Machines with a long reach may be used if they can work from outside TPZs or from protected areas within TPZs. They must not encroach onto unprotected soil in TPZs.
3. Debris to be removed from TPZs manually must be moved across existing hard surfacing or temporary ground protection in a way that prevents compaction of soil. Alternatively, it can be lifted out by machines provided this does not disturb TPZs.
4. Great care must be taken throughout these operations not to damage roots as set out in 1.7 above.
5. If appropriate, leaving below ground structures in place should be considered if their removal may cause excessive root disturbance.

3 INSTALLATION OF NEW SURFACING IN TPZs

3.1 **Basic principles:** New surfacing is potentially damaging to trees because it may require changes to existing ground levels, result in localised soil structure degradation and/or disrupt the efficient exchange of water and gases in and out of the soil. Mature and overmature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in TPZs. Generally, the most suitable surfacing will be relatively permeable to allow water and gas movement, load spreading to avoid localised compaction and require little or no excavation to limit direct damage. The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading and the frequency of loading. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.

3.2 **Establishing the depth of excavation and surfacing gradient:** The precise location and depth of roots within the soil is unpredictable and will only be known when careful digging starts on site. Ideally, all new

surfacing in TPZs should be no-dig, i.e. requiring no excavation whatsoever, but this is rarely possible on undulating surfaces. New surfacing normally requires an evenly graded sub-base layer, which can be made up to any high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted as would happen in conventional surface installation. Some limited excavation is usually necessary to achieve this and need not be damaging to trees if carried out carefully and large roots are not cut. Tree roots and grass roots rarely occupy the same soil volume at the top of the soil profile, so the removal of a turf layer up to 5cm is unlikely to be damaging to trees. It may be possible to dig to a greater depth depending on local conditions but this would need to be assessed by an arboriculturist if excavation beyond 5cm is anticipated. On undulating surfaces, finished gradients/levels must be planned with sufficient flexibility to allow on-site adjustment if excavation of any high points reveals large unexpected roots near the surface. If the roots are less than 2.5cm in diameter, it would normally be acceptable to cut them and the gradient formed with the preferred minimal excavation of up to 5cm. However, if roots over 2.5cm in diameter are exposed, cutting them may be too damaging and further excavation may not be possible. If that is the case, the surrounding levels must be adjusted to take account of these high points by filling with suitable material. If this is not practical and large roots have to be cut, the situation should be discussed with the supervising officer before a final decision is made.

3.3 **Base and finishing layers:** Once the sub-base has been formed, the load spreading construction is installed on top without compaction. In principle, the load spreading formation will normally be cellular and filled with crushed stone although the detail may vary with different products. Suitable surface finishes include washed gravel, permeable tarmac or block paviours set on a sand base. However, for lightly loaded surfacing of limited widths (<3m) such as pedestrian paths, pre-formed concrete slabs may be appropriate if the sub-base preparation is as set out above. In some situations, limited width floating concrete rafts constructed directly on to the soil surface may be acceptable but the design must not include any strip-dug supports.

3.4 **Edge retention:** Conventional kerb edge retention set in concrete filled excavated trenches is likely to result in damage to roots and should be avoided. Effective edge retention in TPZs must be custom designed to avoid any significant excavation into existing soil levels. For most surfaces, the use of pre-formed edging secured by metal pins or wooden pegs is normally an effective way of minimising any adverse impact on trees from the retention structure.

3.5 **Installing new surfacing on top of existing surfacing:** In some instances, existing surfacing can be retained and used as a base for new surfacing. Normally, this will not result in significant excavation that could expose roots so special precautions are not necessary. However, if large roots already protrude above the proposed sub-base level, then the precautions and procedures set out above must be observed.

4 INSTALLATION OF NEW STRUCTURES IN TPZs

4.1 **Basic principles:** New structures in TPZs are potentially damaging to trees because they may disturb the soil and disrupt the existing exchange of water and gases in and out of it. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in TPZs. This can be done by constructing the main structures above ground level on piled supports and redirecting water to where it is needed. The detailed design and specification of such structures is an engineering issue that should be informed and guided by tree expertise.

4.2 **Small sheds and bin stores:** These light structures do not normally require substantial foundations and can have permeable bases. Ideally, their bases should be of a no-dig, load-spreading construction set directly on to the soil surface. They require a flat base and so an undulating site will need levelling to provide a suitable surface. Excavation of any high points by up to 5cm and filling depressions with permeable fill to provide a flat base will normally be acceptable provided no roots greater than 2.5cm in diameter need to be cut. If large roots are found, the preferred course of action would be to raise the base level of the structure by filling rather than cutting roots. However, if this is not practical and large roots have to be cut, the situation should be discussed with the supervising officer before a final decision is made. Above the base, there will often be a protective covering fixed onto a frame that can rise directly from the base or be fixed to supports either banged into the ground or set in carefully dug holes. Provided the supports are well spaced, i.e. greater than 1.5m apart, and of a relatively narrow diameter, i.e. not in excess of 15cm, it is unlikely they will cause any significant disturbance to TPZs.

4.3 **Walls, gate piers, buildings and bridges on new foundations:** Conventional strip foundations in TPZs for any significant structure may cause excessive root loss and are unlikely to be acceptable. However, disturbance can be significantly reduced by supporting the above ground part of the structures on small diameter piles and beams or cast floor slabs set above ground level. The design should be sufficiently flexible to allow the piles to be moved if significant roots are encountered in the preferred locations. Before the actual installation of the new structure starts, all TPZs that may be affected should be covered with temporary ground protection as set out in AS4970. Gaps in the ground protection should be left where it is expected to install the piles or dig the holes for gate piers. Pile locations should be initially hand dug to a depth of 75cm to establish if there are any significant roots over 2.5cm in diameter that could be damaged. If significant roots are found, then the pile location must be moved slightly and a new exploratory hole dug. Once the piles have been installed, the lowest points of the supporting beams for the structure must be above the ground level between the piles and there should not be any further excavation. The beams between the piles can be pre-cast and imported to the site ready to fix or can be cast in position using shuttering for the sides and a biodegradable void-former for the base. Gate piers generally require larger holes and have less flexibility for relocation if large roots are found. Localised loss of roots may be unavoidable so each situation should be assessed on its own merits by an appropriate supervising officer once the careful excavations have been completed. Any roots found should be dealt with as set out in 1.7 above. When installing any of these structures, the ground protection must remain in place until the construction is completed and there is no risk of damage to TPZs.

4.4 **Walls on existing foundations:** A free-standing wall on an existing foundation is unlikely to require any additional excavation and so its construction should have no adverse impact on TPZs if the appropriate protection is in place. However, replacing walls that retain the soil of TPZs normally requires some limited excavation back into the exposed soil face to provide a working space of at least 10–20cm behind the inside wall face. This should be done carefully and limited to no more than required to construct the new wall. Any roots found should be dealt with as set out in 1.7 above. Once the wall is completed, any voids behind it should be filled with good quality top soil and firmed into place but not over compacted. Specific difficulties with large roots that emerge during the course of the construction should be referred to the supervising officer.

4.5 **Services:** For the purposes of this guidance, services are considered as structures. Excavation to upgrade existing services or install new services in TPZs may damage retained trees and should only be chosen as a last resort. In the event that excavation emerges as the preferred option, the decision should be reviewed by the supervising officer before any work is carried out. If excavation is agreed, all digging should be done carefully and follow the guidance set out in 1.7 above.

5 SOFT LANDSCAPING IN TPZs

5.1 **Upgrading existing soft landscaping or replacing existing surfacing/structures with new soft landscaping:** For the purposes of this guidance, soft landscaping includes the reprofiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch). It does not include the installation of solid structures or compacted surfacing. Soft landscaping activity after construction can be extremely damaging to trees. No significant excavation or cultivation, especially by rotovators, should occur within TPZs. Where new designs require levels to be increased to tie in with new structures or the removal of an existing structure has left a void below the surrounding ground level, good quality and relatively permeable top soil should be used for the fill. It should be firmed into place but not over compacted in preparation for turfing or careful shrub planting. Ideally, all areas close to tree trunks should be kept at the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage.

APPENDIX 7

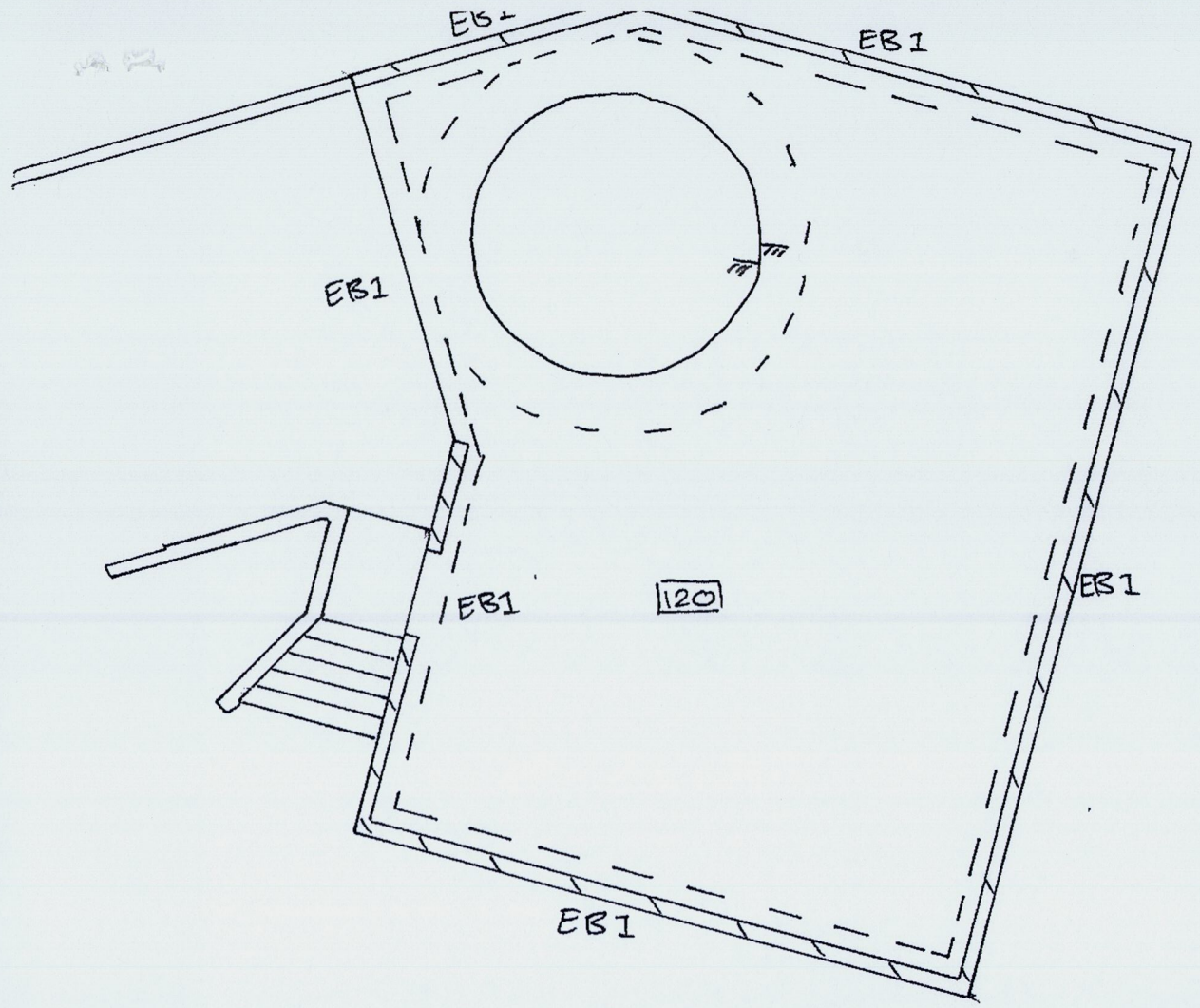
Programme of arboricultural input

Arboricultural action	Programming of action	Extent of arboricultural input	Signed off (project Arborist)
Pre-commencement site meeting with site manager to discuss tree protection and any emerging design issues that may affect trees	Before any site activity starts or once tree protective measures have been installed	• Meeting with relevant members of the developer's team to explain the extent of the tree constraints, i.e. architect, site manager, engineer, landscape architect, etc • Review working space requirements to consider fencing and ground protection adjustments to improve site functionality • Review drainage proposals and identify conflicts with TPZs • Review any post-consent layout changes that may affect trees • Review all special works that may affect trees • Identify any potential conflicts and work towards resolutions • Preparation of draft working drawings if necessary • Review any updated proposals • Confirm tree protective measures are acceptable if already installed	
Finalising tree protection proposals and installation for agreement by consent authority	Before any heavy machinery enters the site	• Preparation of final plans and specifications for agreement by the council • Provide photographs showing relevant aspect of installed tree protective measures • Meeting with contractor to finalise specifications and locations before installation with a further visit on completion to verify correct installation, at the discretion of the project Arborist	
Demolition / Construction	After protective measures are installed	• Meeting with contractor if necessary, at the discretion of arboricultural consultant	
Removal of existing structures inside TPZs but outside fencing to be replaced with ground protection or to remain 'out of bounds	At the discretion of the developer	• Meeting with contractor for briefing before work starts with further visits as necessary, at the discretion of the project Arborist	
Installation of new services	At the discretion of the developer	• Meeting with contractor for briefing before work starts with further visits as necessary, at the discretion of the project Arborist	
Removal of barriers and ground protection	When construction activity is finished	• Meeting with contractor for briefing before work starts	

APPENDIX 8

Tree management plan

-refer attached Tree Management Plan, Dwg No. TMP01,
by Naturally Trees dated 21 June 2011



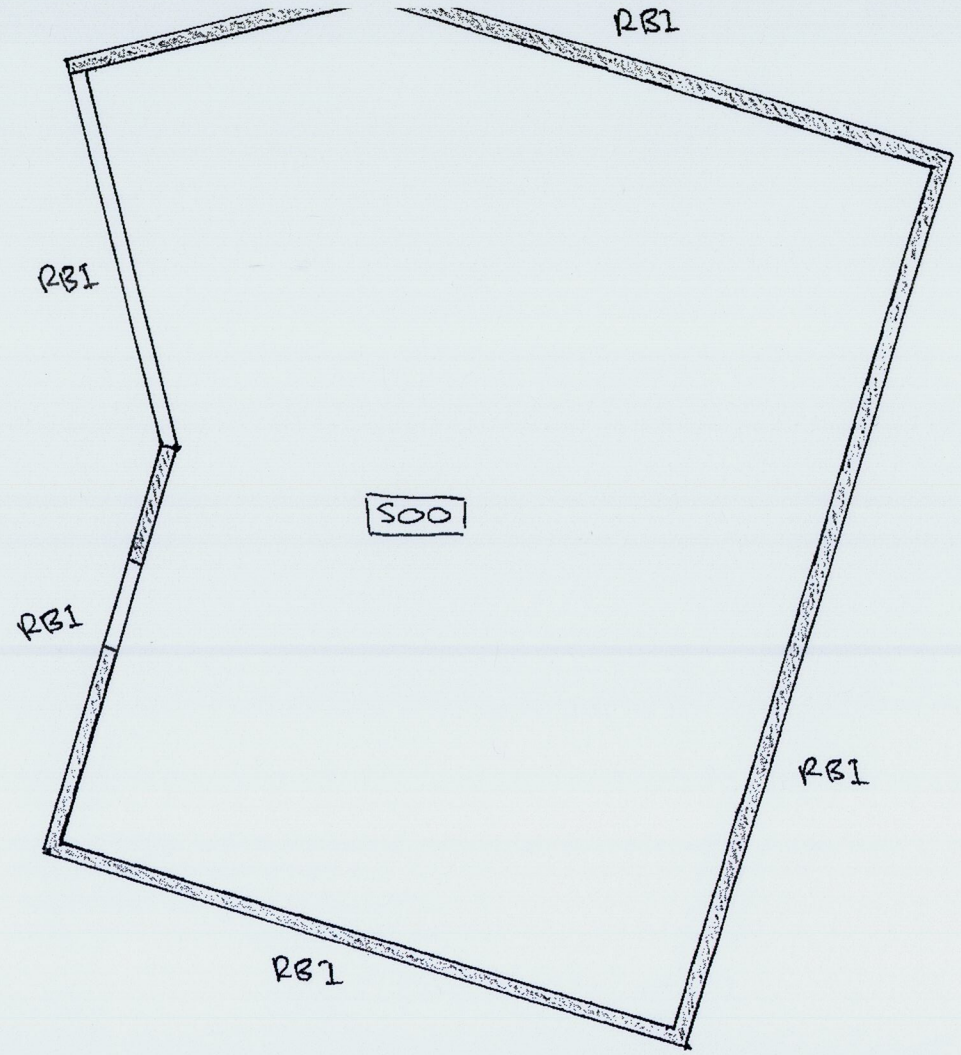
Garage Slab Plan

120 Denotes slab thickness
All slabs on ground to be min 120mm thick
All slabs on ground are to be poured onto a 300um waterproof membrane overlayng an 80mm layer of 20mm single sized free draining compacted granular material

slab to be reinforced with SL92 top

EB1: 450w x 300d 3N12 T&B R10-600 ties

denotes 190 corefilled blockwall
N16-400 each way



Garage Roof Plan

500 denotes suspened slab thickness
all slabs to be reinforced with N20-175 top & bottom, each way

void formers to be used to limit soil depth to maximum 1m depth

RB1: 1500h x 250w 3N28 bot, 2N24 top
N16-400 horizontal bars
N12-300 ties

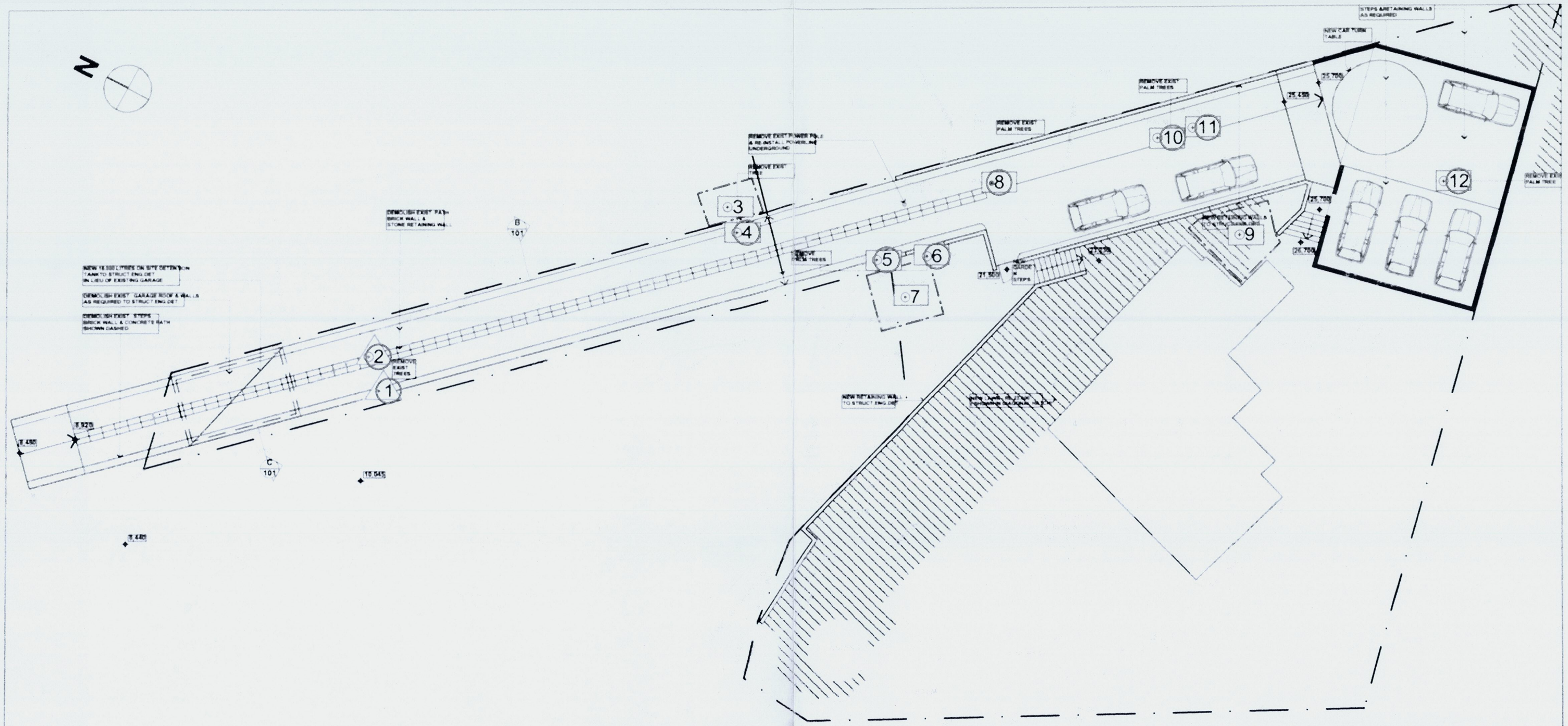
denotes 190 corefilled blockwall under

1174 Barrenjoey Rd, Palm Beach

SY11010I/SK1
17/8/2012

ANTHONY PROTAS CONSULTING PTY LTD
DETAILS NOTED

ACOR Consultants Pty Ltd
www.acor.com.au
Ph. (02) 9438 5098
Crows Nest NSW 2065



LEGEND:

X	Category AA	Trees worthy of being a constraint
X	Category A	
X	Category Z	Trees not worthy of being a constraint
X	Category ZZ	

- Existing layout
- Proposed layout
- Tree protection zone (TPZ) boundaries
- Protective fencing and TPZ area within
- Tree to be removed

0 5 10 M

ANTHONY PROTAS CONSULTING PTY LTD
DETAILS NOTED

NOTE: *This drawing to be reproduced in colour only*

PROJECT
1174 Barrenjoey Road, Palm Beach NSW

CLIENT
Winten (No 38) Pty Ltd

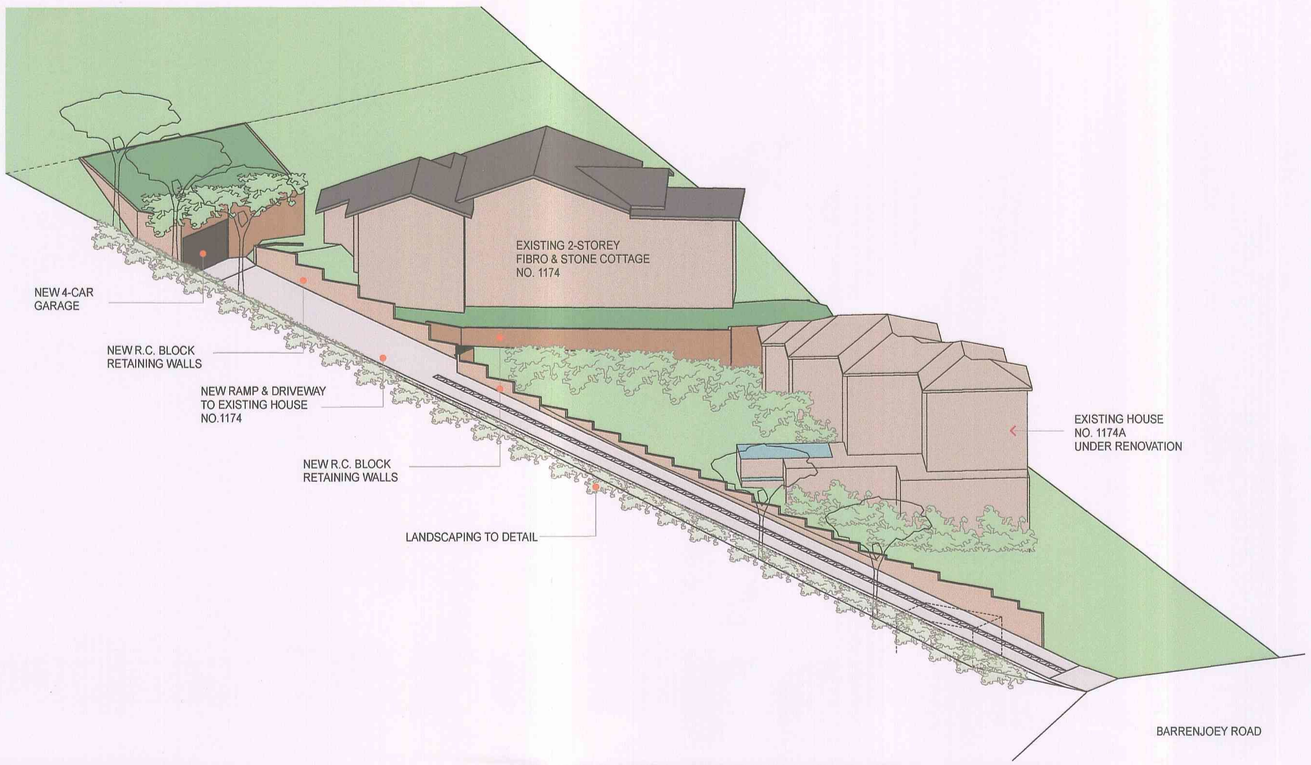
DRAWING
Tree Management Plan

DWG # REV

DATE 21/06/11
SCALE @ A1 1:200
DRAWN AS

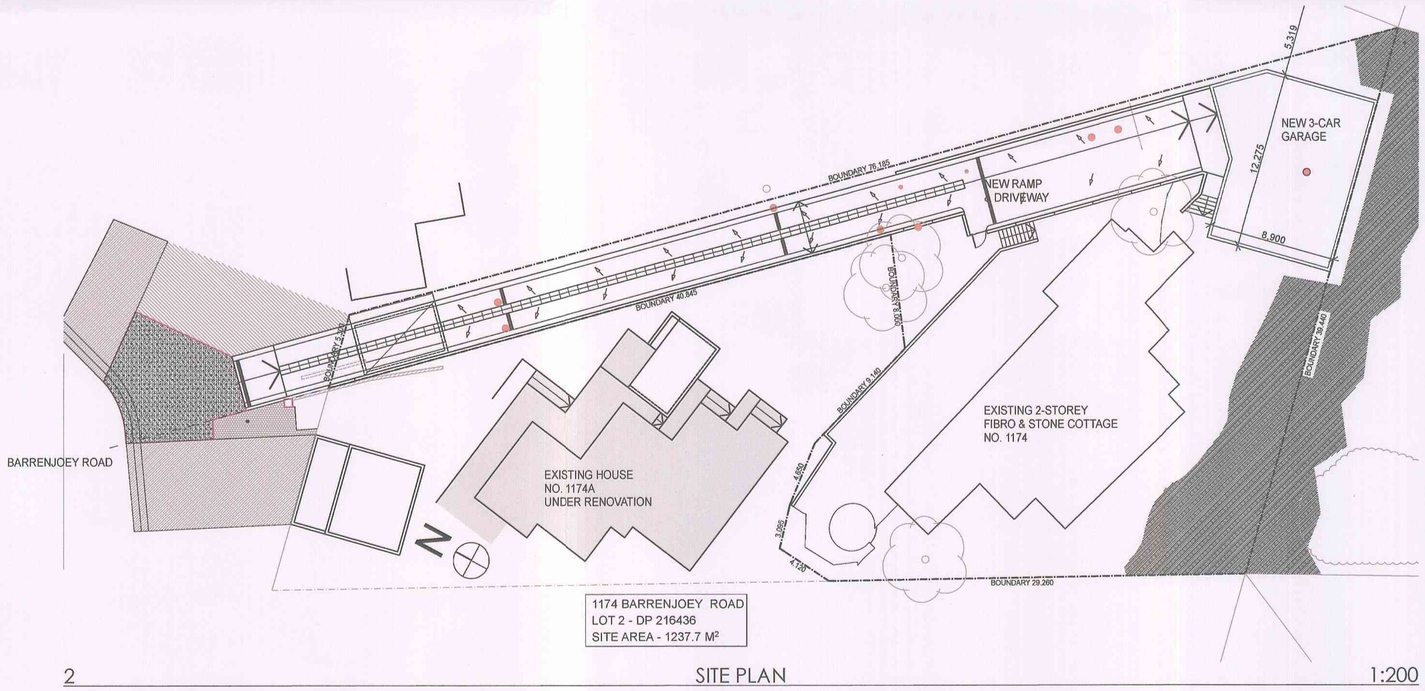
TMP01

Naturally Trees Arboricultural Consulting
28 Coolangatta Avenue, Elanora Heights NSW 2101
W: www.naturallytrees.com.au **E**: sales@naturallytrees.com.au

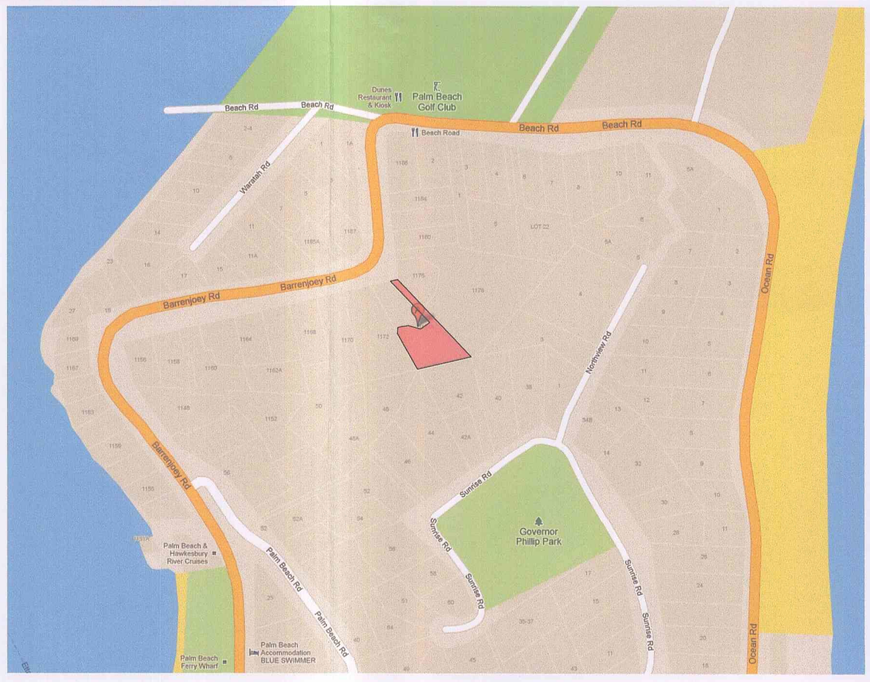


1 ISOMETRIC VIEW - DRIVEWAY & GARAGE 1:200

MATERIALS	
DRIVEWAY:	REINFORCED CONCRETE
COLOUR:	EXPOSED CONCRETE
GARAGE WALLS:	R.C. BLOCK RETAINING WALLS - RENDERED & PAINTED
COLOUR:	DULUX 'BOGART'
RETAINING WALLS:	R.C. BLOCK RETAINING WALLS - RENDERED & PAINTED
COLOUR:	DULUX 'BOGART'



2 SITE PLAN 1:200

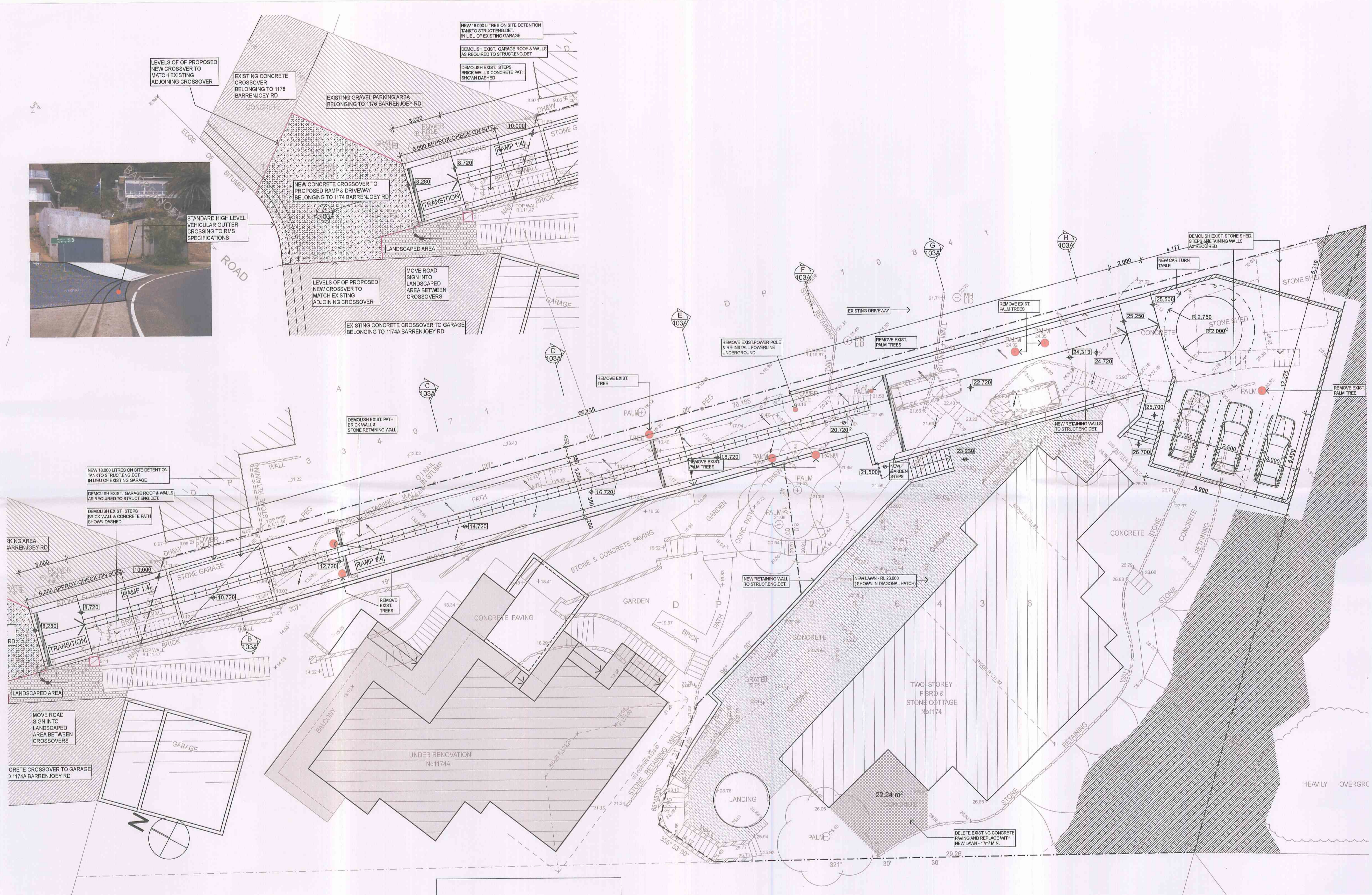


NEW DRIVEWAY
AT
1174 BARRENJOEY ROAD
PALM BEACH
FOR
SUSAN ROTHWELL

ISSUE
1 FOR CONSTRUCTION CERTIFICATE

APPROVED
12 OCT 2014
ANTHONY PROTAS CONSULTING PTY. LTD.

TITLE	SITE PLAN & ISOMETRIC VIEW
DATE	03/09/12
SCALE	1:100
DWG. NO.	srBR-101
ISSUE	D


NEW 18.000 LITRES ON SITE DETENTION TANK TO STRUCT.ENG.DET. IN LIEU OF EXISTING GARAGE
DEMOLISH EXIST. GARAGE ROOF & WALLS AS REQUIRED TO STRUCT.ENG.DET.
DEMOLISH EXIST. STEPS BRICK WALL & CONCRETE PATH SHOWN DASHED
LEVELS OF OF PROPOSED NEW CROSSVER TO MATCH EXISTING ADJOINING CROSSOVER
EXISTING CONCRETE CROSSOVER BELONGING TO 1178 BARRENJOEY RD
EXISTING GRAVEL PARKING AREA BELONGING TO 1178 BARRENJOEY RD
NEW CONCRETE CROSSOVER TO PROPOSED RAMP & DRIVEWAY BELONGING TO 1174 BARRENJOEY RD
STANDARD HIGH LEVEL VEHICULAR GUTTER CROSSING TO RMS SPECIFICATIONS
LANDSCAPED AREA
MOVE ROAD SIGN INTO LANDSCAPED AREA BETWEEN CROSSOVERS
EXISTING CONCRETE CROSSOVER TO GARAGE BELONGING TO 1174A BARRENJOEY RD
6.000 APPROX-CHECK ON SITE
RAMP 1:4
TRANSITION
DEMOLISH EXIST. PATH BRICK WALL & STONE RETAINING WALL
REMOVE EXIST. TREE
REMOVE EXIST. POWER POLE & RE-INSTALL POWERLINE UNDERGROUND
EXISTING DRIVEWAY
REMOVE EXIST. PALM TREES
DEMOLISH EXIST. STONE SHED, STEPS & RETAINING WALLS AS REQUIRED
NEW CAR TURN TABLE
REMOVE EXIST. PALM TREE
NEW RETAINING WALLS TO STRUCT.ENG.DET.
NEW GARDEN STEPS
NEW RETAINING WALL TO STRUCT.ENG.DET.
NEW LAWN - RL 23.000 (SHOWN IN DIAGONAL HATCH)
DELETE EXISTING CONCRETE PAVING AND REPLACE WITH NEW LAWN - 17m² MIN.
UNDER RENOVATION No1174A
TWO STOREY FIBRO & STONE COTTAGE No1174
GARAGE
LANDING
HEAVILY OVERGR

NEW DRIVEWAY
AT
1174 BARRENJOEY ROAD
PALM BEACH
FOR
SUSAN ROTHWELL

ISSUE
1 FOR CONSTRUCTION CERTIFICATE

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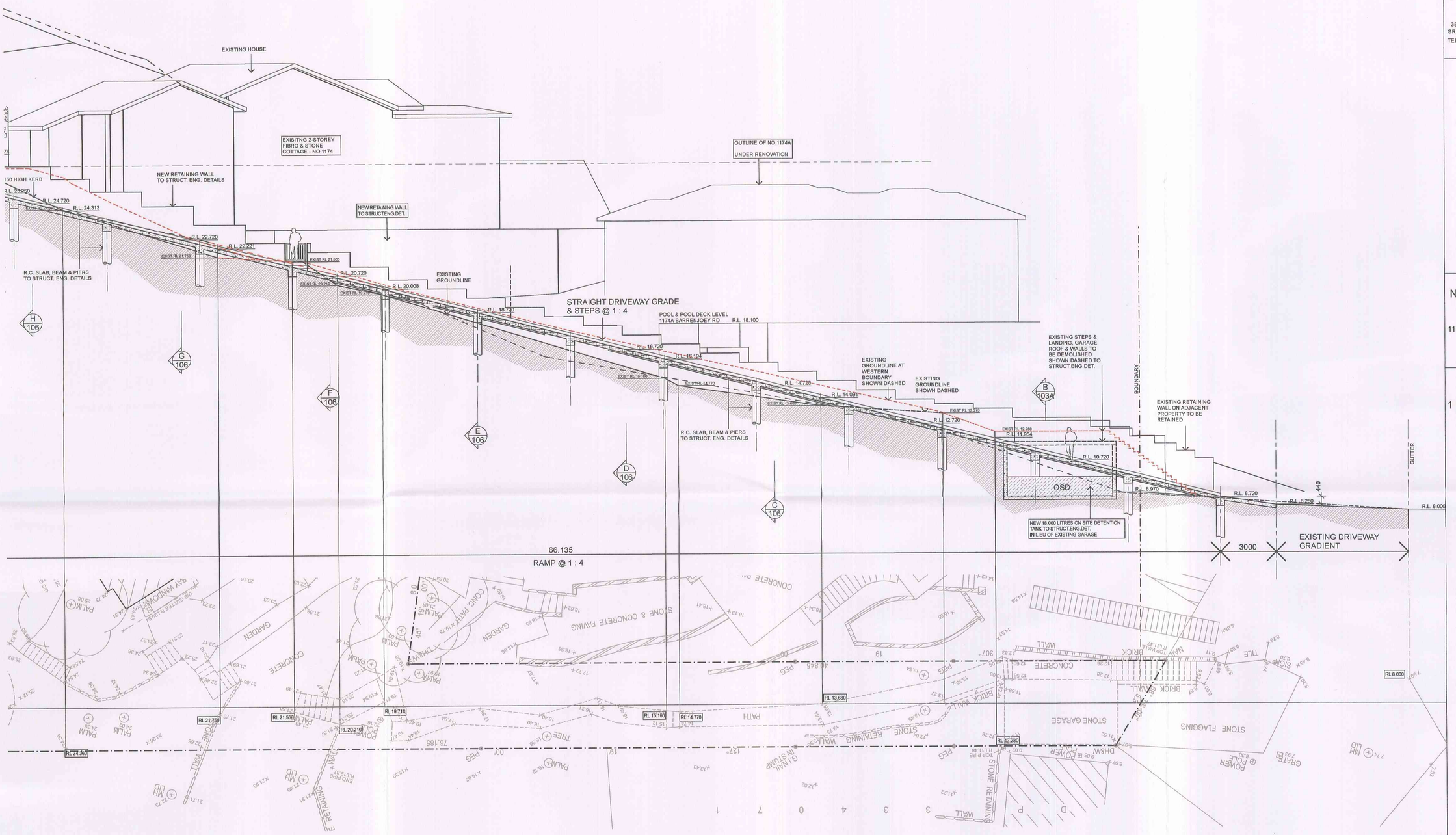
TITLE	PLAN DRIVEWAY
DATE	03/09/12
SCALE	1:100
DWG. NO.	srBR-102
ISSUE	1



1 SECTIONAL ELEVATION 1:100

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12 OCT 2014
ANTHONY PROTAS CONSULTING PTY. LTD.

SUSAN ROTHWELL
ARCHITECTS
38 SERPENTINE ROAD GREENWICH N.S.W. 2065
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PROPOSED NEW DRIVEWAY AT

1174 BARRENJOEY RD. PALM BEACH FOR SUSAN ROTHWELL

ISSUE

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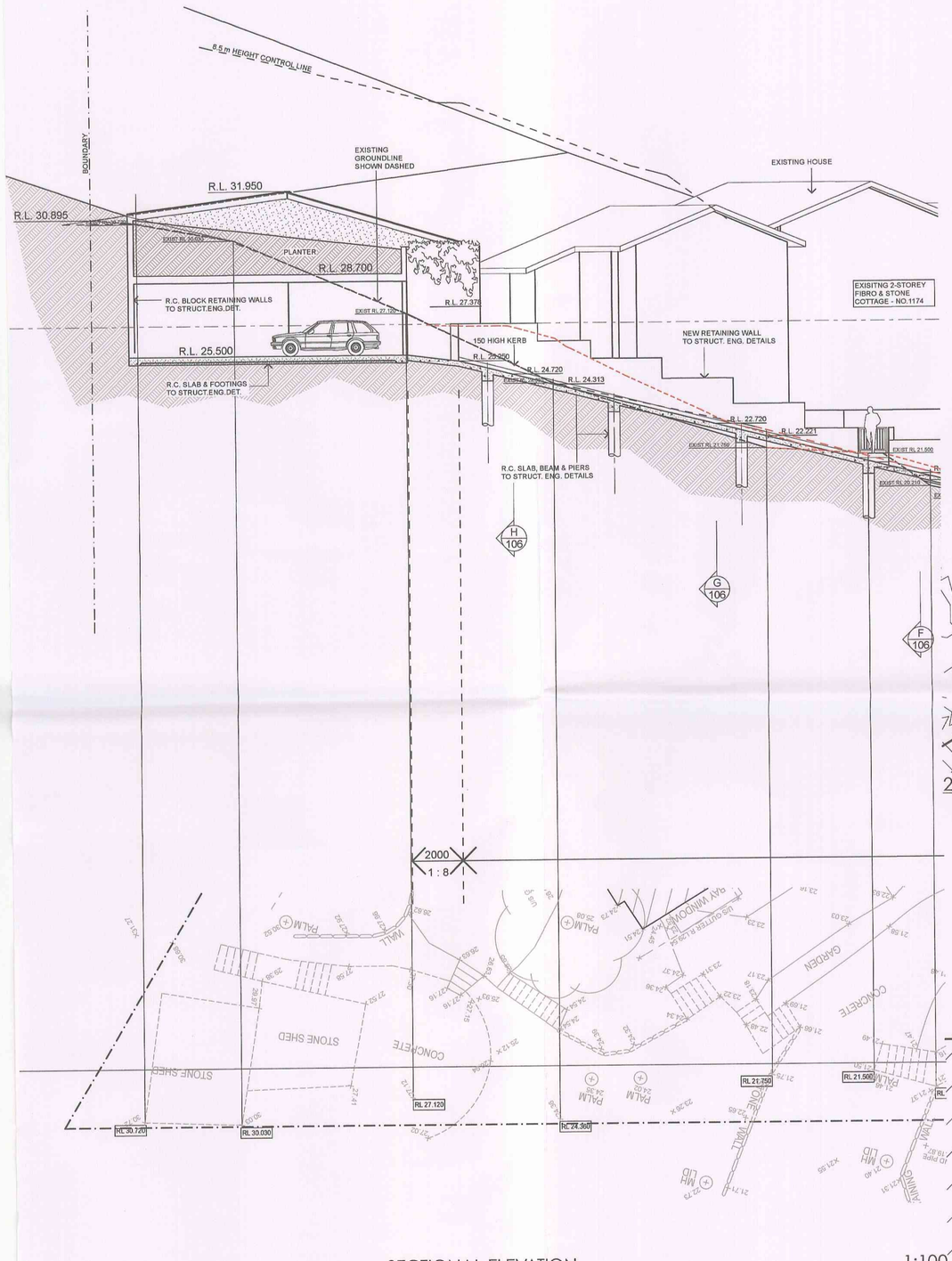
TITLE
DRIVEWAY SECTION

SCALE (ON A1)	1:100
DATE	03/09/12
JOB NO.	srWBA
DWG. NO.	ISSUE
srBR-103	1



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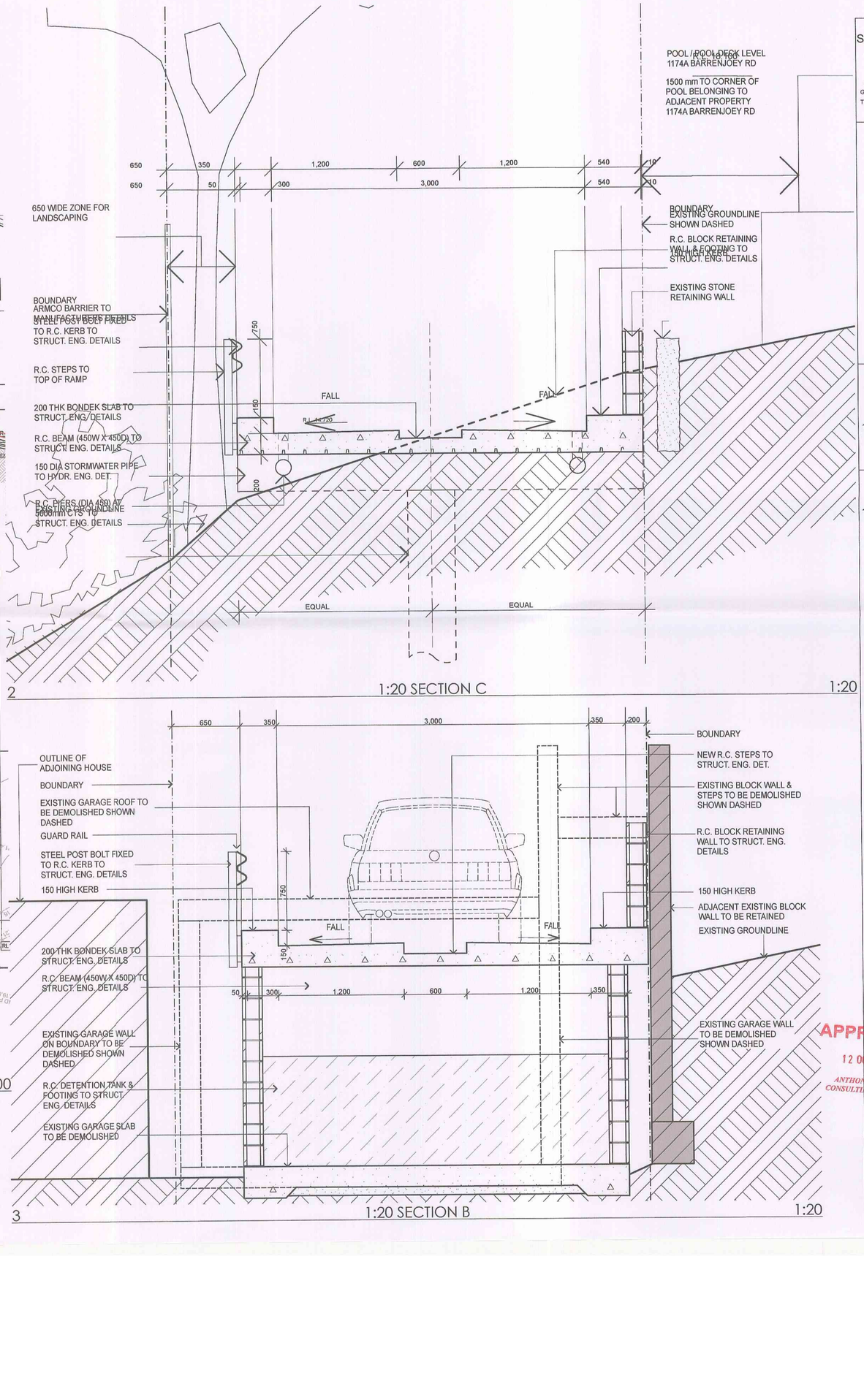

2 1:20 SECTION C 1:20

3 1:20 SECTION B 1:20

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12 OCT 2014
ANTHONY PROTAS CONSULTING PTY. LTD.

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PROPOSED NEW DRIVEWAY AT
1174 BARRENJOEY RD. PALM BEACH
FOR
SUSAN ROTHWELL

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TITLE
DRIVEWAY SECTION - CONT'D

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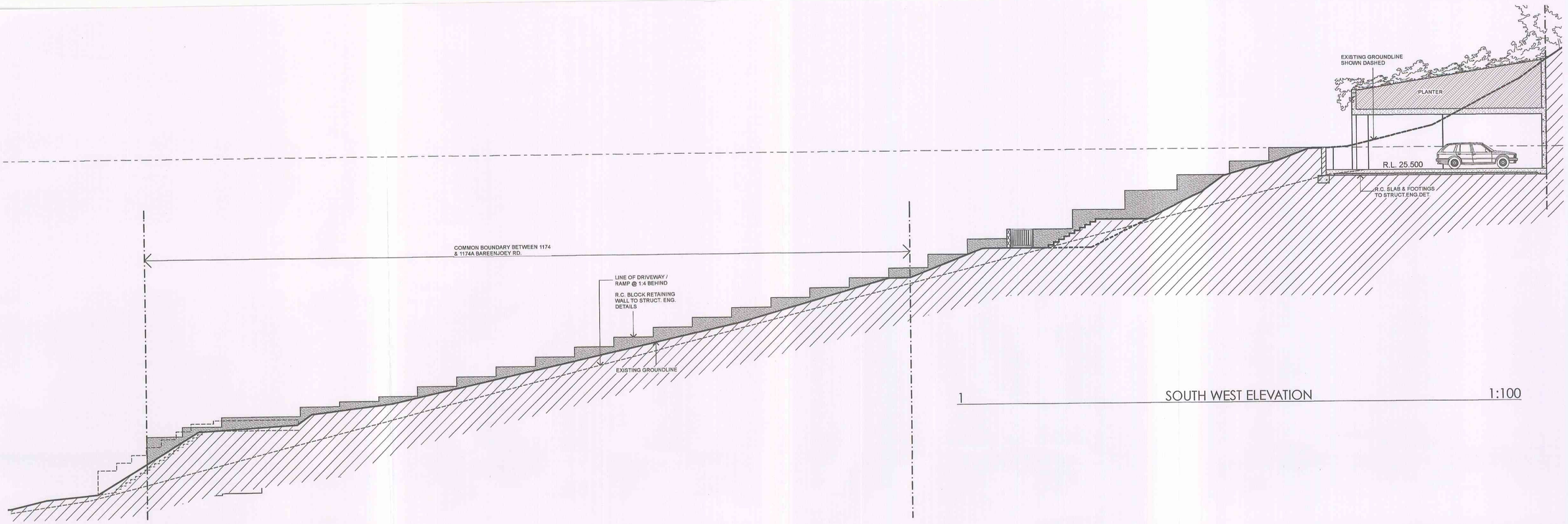
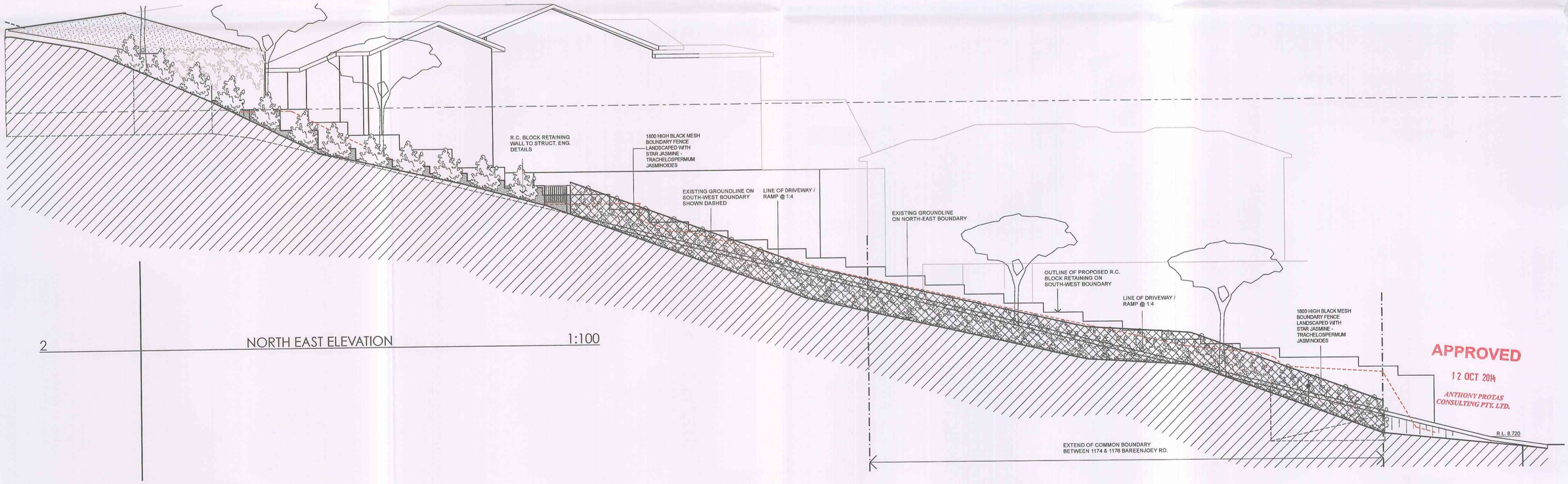
JOB NO.	srWBA
DWG. NO.	srBR-103A
ISSUE	1



1 SOUTH WEST ELEVATION 1:100



2 NORTH EAST ELEVATION 1:100

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12 OCT 2014
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NEW DRIVEWAY
AT
1174 BARRENJOEY ROAD
PALM BEACH
FOR
SUSAN ROTHWELL

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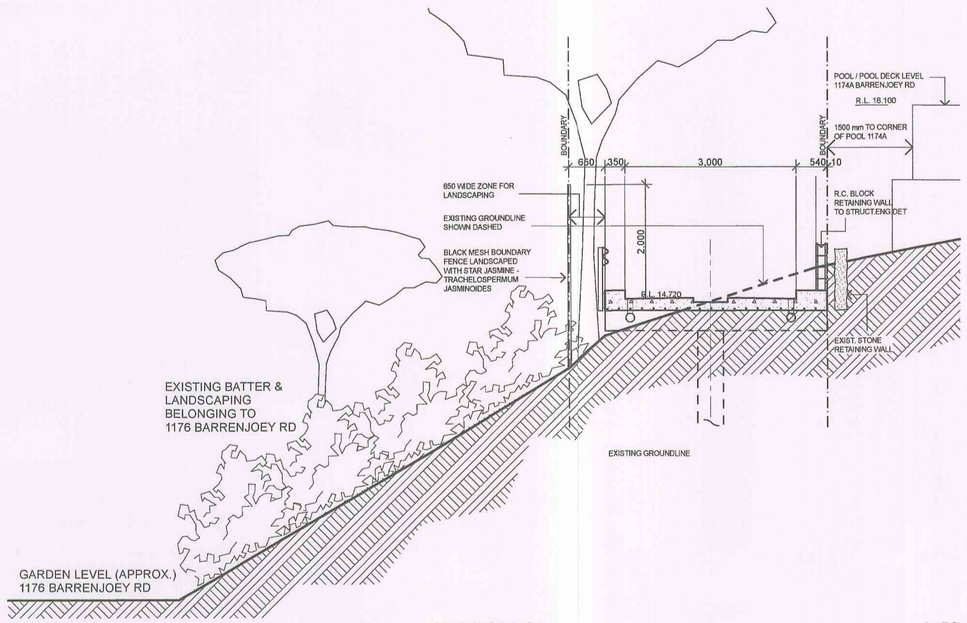
TITLE EAST & WEST ELEVATION

DATE	03/09/12
SCALE	1:100
DWG. NO.	srBR-105
ISSUE	1



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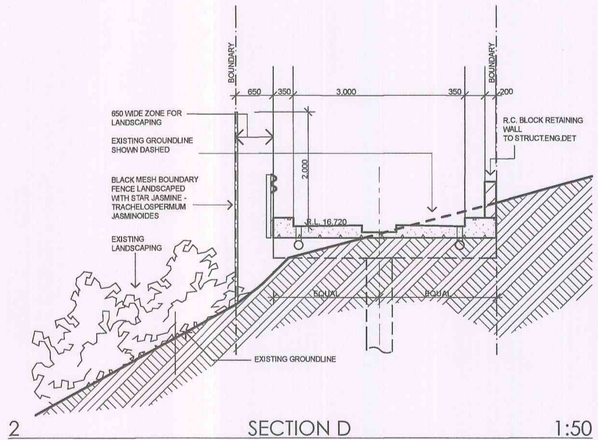

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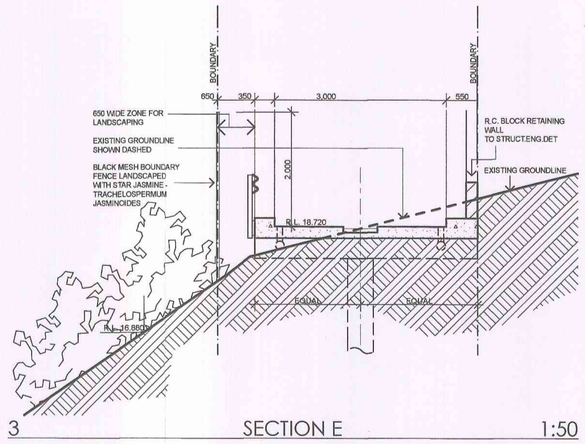

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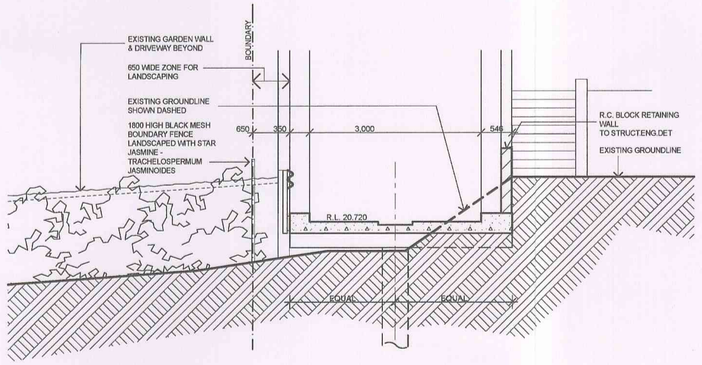

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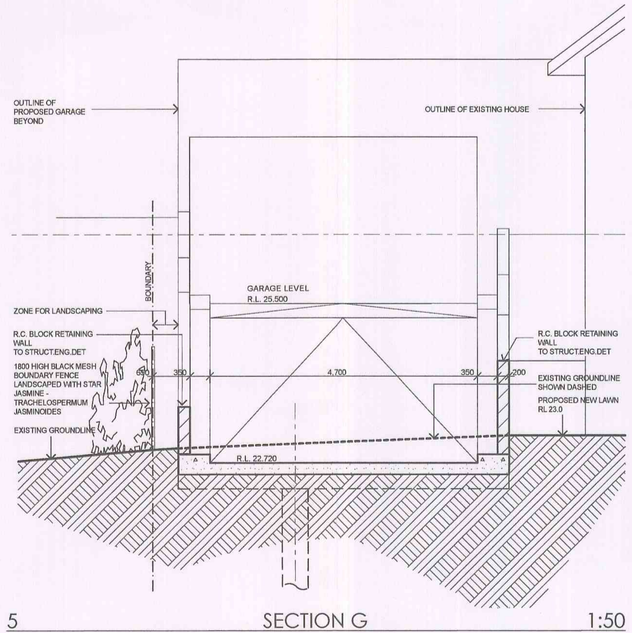

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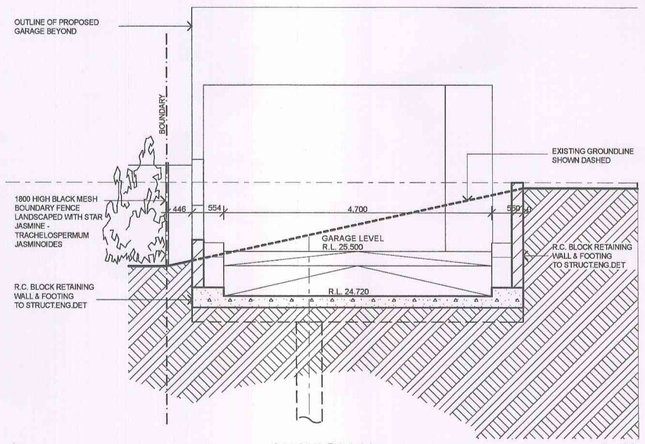


6 SECTION H 1:50

SUSAN ROTHWELL
ARCHITECTS
38 SERPENTINE ROAD
GREENWICH N.S.W. 2065
TEL: 9439 2380 FAX: 9901 3185

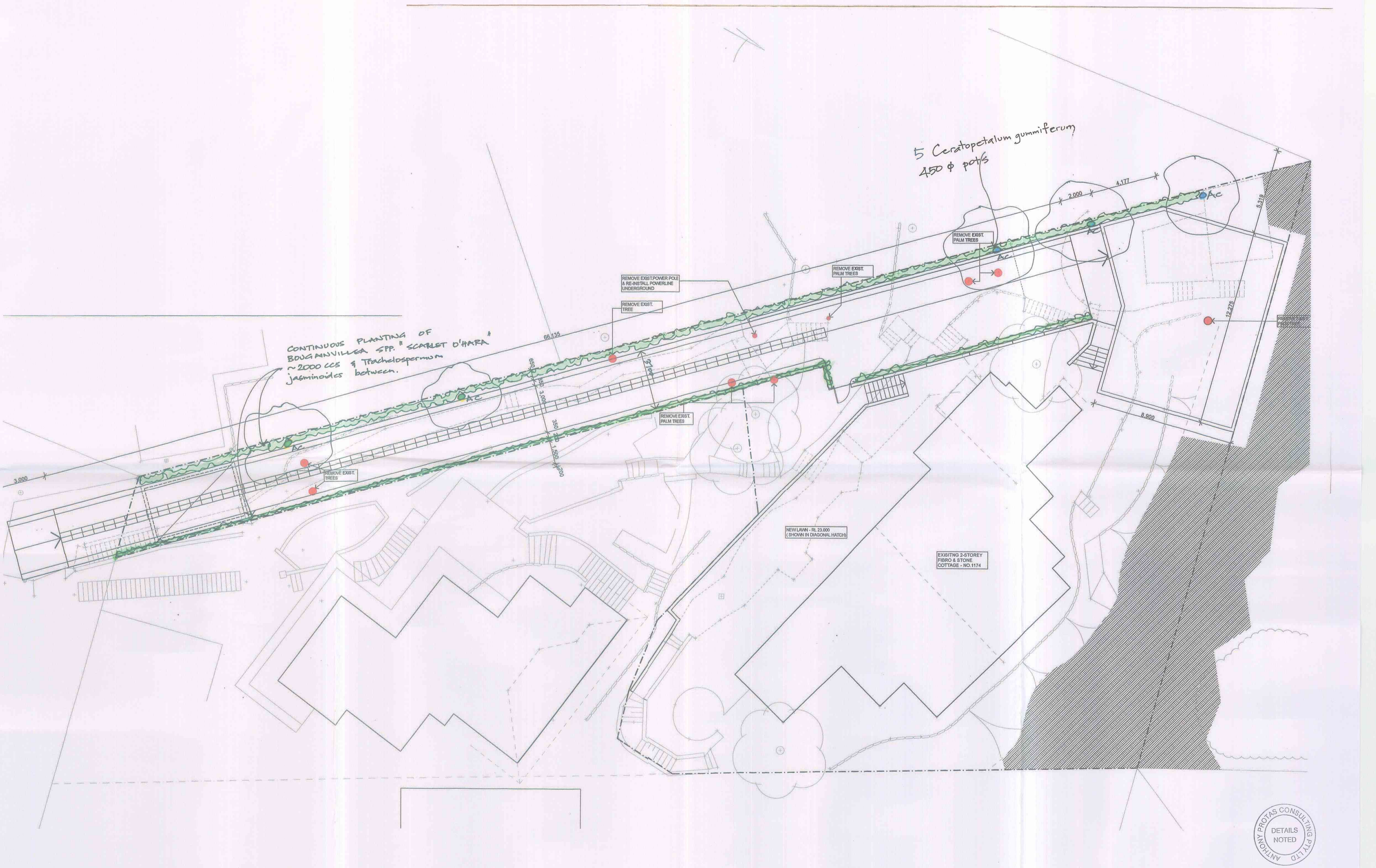
PROPOSED
NEW DRIVEWAY
AT
1174 BARRENJOEY RD.
PALM BEACH
FOR
SUSAN ROTHWELL

ISSUE
1 FOR CONSTRUCTION CERTIFICATE

APPROVED
12 OCT 2014
ANTHONY PROTAS
CONSULTING PTY. LTD.

TITLE
SECTIONS

SCALE (ON A1)	1:50
DATE	03/09/12
JOB NO.	srWBA
DWG. NO.	ISSUE
srBR-106	1


5 Ceratopetalum gummiferum
450 ϕ pots
CONTINUOUS PLANTING OF
BOUGAINVILLEA SPP. "SCARLET O'HARA"
~2000 ccs & Trachelospermum
jasminoides between.
REMOVE EXIST.POWER POLE
& RE-INSTALL POWERLINE
UNDERGROUND
REMOVE EXIST.
TREE
REMOVE EXIST.
PALM TREES
REMOVE EXIST.
PALM TREES
REMOVE EXIST.
PALM TREES
REMOVE EXIST.
TREES
Ac
NEW LAWN - RL 23.000
(SHOWN IN DIAGONAL HATCH)
EXISITNG 2-STOREY
FIBRO & STONE
COTTAGE - NO.1174
66.135
3.000
2.000
4.177
5.319
12.275
8.900
ANTHONY PROTAS CONSULTING PTY LTD
DETAILS
NOTED

NEW DRIVEWAY
AT
1174 BARRENJOEY ROAD
PALM BEACH
FOR
SUSAN ROTHWELL

ISSUE

1 FOR CONSTRUCTION CERTIFICATE

Susan Rothwell Architects P/L.
Susan Rothwell Cert. Urban Hort. (Ryde)
B. Arch (Syd)
FRAIA

TITLE	LANDSCAPING PLAN
DATE	6·2·12
SCALE	1:100
DWG. NO.	srBR-104
ISSUE	C

PLAN ON DRIVEWAY

SCALE 1:100

ALL SETOUT, FALLS, GRADES AND SETDOWNS ARE TO ARCHITECTS DETAILS U.N.O. - TYPICAL

[150] ALL SLABS ON GROUND ARE TO BE MIN 150mm THICK U.N.O. (AT THE STAIR THROAT)
ALL SLABS ON GROUND ARE TO BE POURED ONTO A 300um WATERPROOF MEMBRANE OVERLAYING AN 80mm LAYER OF 20mm SINGLE SIZED FREE DRAINING COMPACTED GRANULAR MATERIAL
SLAB TO BE REINFORCED WITH SL102 TOP AND BOTTOM (LAID 2ND AND 4TH), ANY ADDITIONAL REINFORCEMENT IS SHOWN ON PLAN AND SECTIONS.

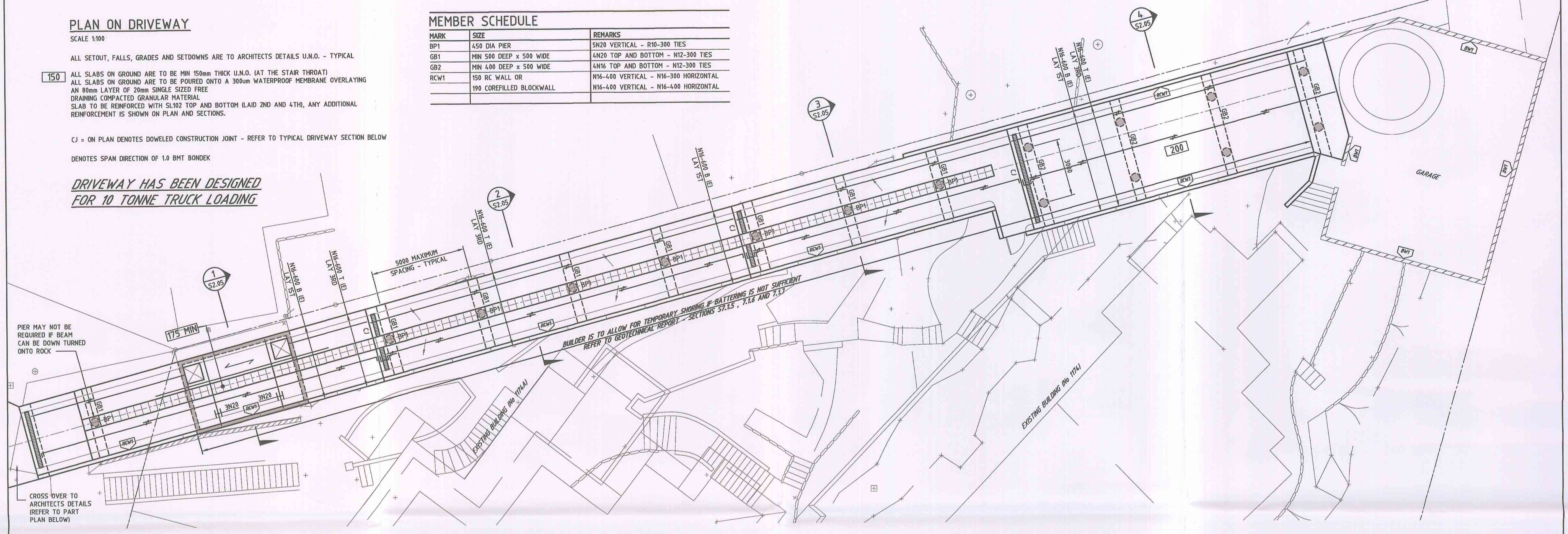
CJ = ON PLAN DENOTES DOWELED CONSTRUCTION JOINT - REFER TO TYPICAL DRIVEWAY SECTION BELOW

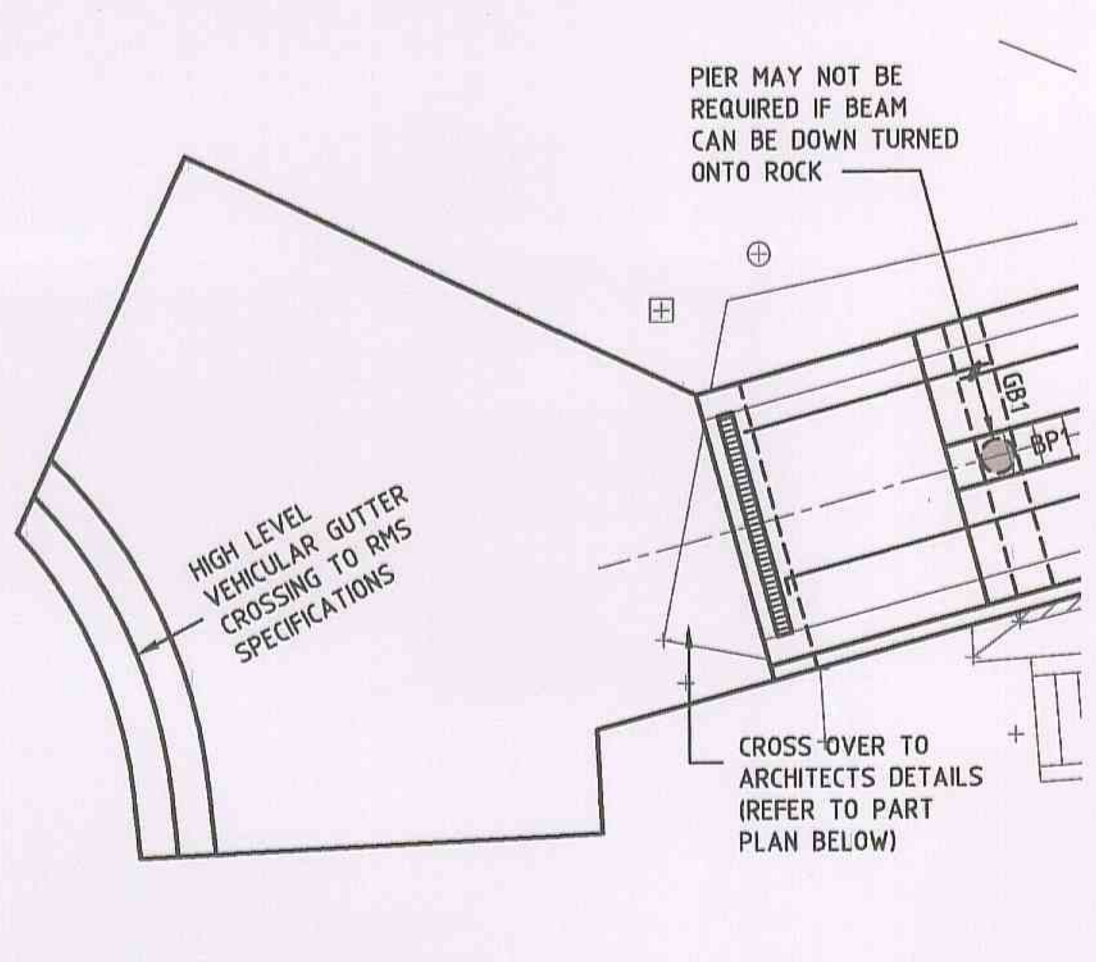
DENOTES SPAN DIRECTION OF 1.0 BMT BONDEK

DRIVEWAY HAS BEEN DESIGNED FOR 10 TONNE TRUCK LOADING

MEMBER SCHEDULE

MARK	SIZE	REMARKS
BP1	450 DIA PIER	5N20 VERTICAL - R10-300 TIES
GB1	MIN 500 DEEP x 500 WIDE	4N20 TOP AND BOTTOM - N12-300 TIES
GB2	MIN 400 DEEP x 500 WIDE	4N16 TOP AND BOTTOM - N12-300 TIES
RCW1	150 RC WALL OR	N16-400 VERTICAL - N16-300 HORIZONTAL
	190 COREFILLED BLOCKWALL	N16-400 VERTICAL - N16-400 HORIZONTAL



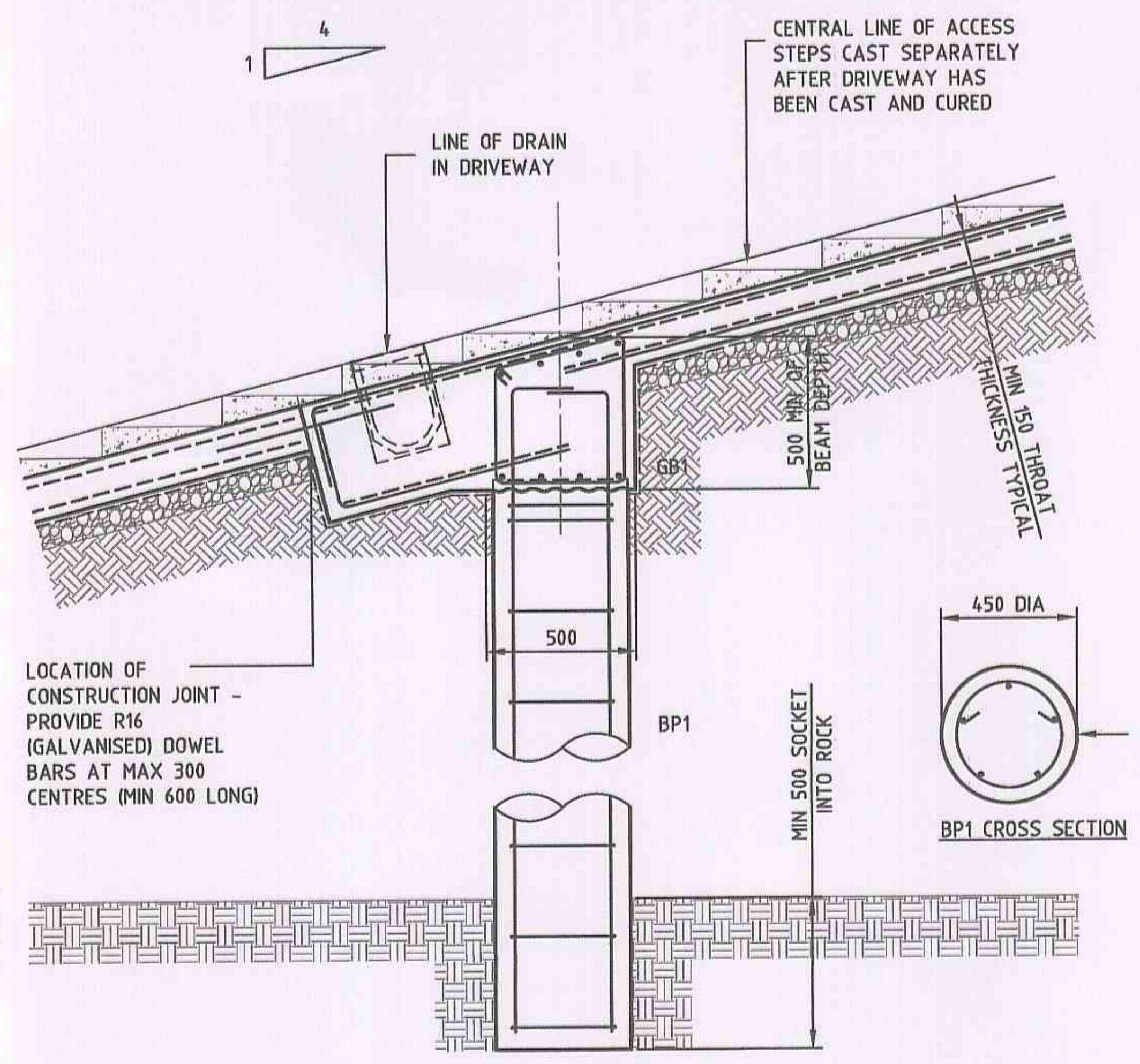


CROSSOVER - PART PLAN

SCALE 1:100

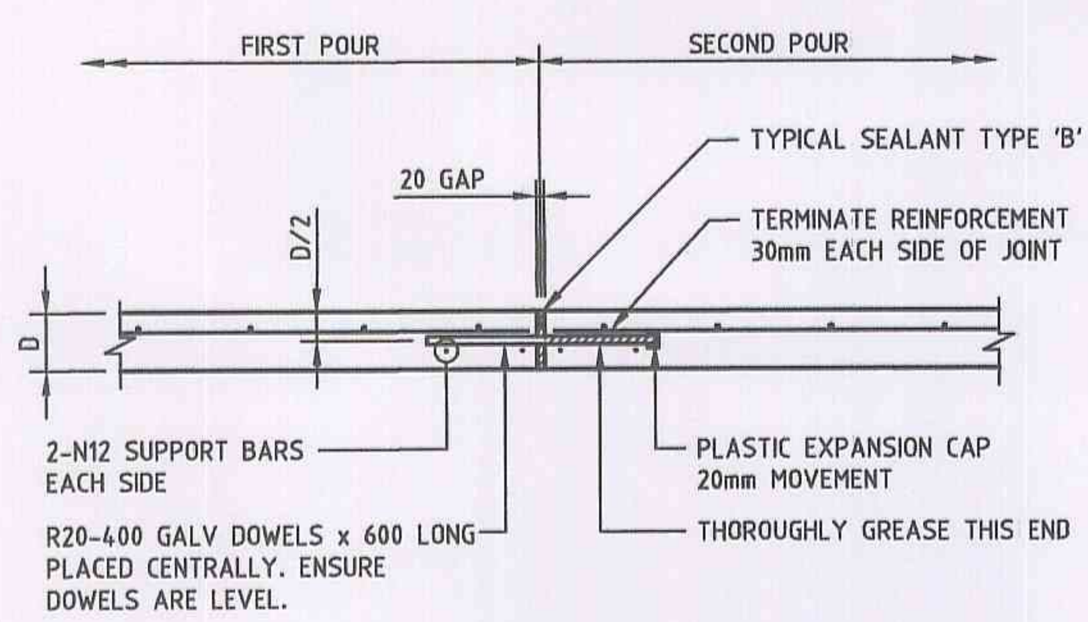
ALL SETOUT, FALLS, GRADES AND SETDOWNS ARE TO ARCHITECTS DETAILS U.N.O. - TYPICAL

[150] ALL SLABS ON GROUND ARE TO BE MIN 150mm THICK U.N.O. ALL SLABS ON GROUND ARE TO BE POURED ONTO A 300um WATERPROOF MEMBRANE OVERLAYING AN 80mm LAYER OF 20mm SINGLE SIZED FREE DRAINING COMPACTED GRANULAR MATERIAL
SLAB TO BE REINFORCED WITH SL102 TOP AND BOTTOM ANY ADDITIONAL REINFORCEMENT IS SHOWN ON PLAN AND SECTIONS.



TYPICAL SECTION THROUGH RAMPED DRIVEWAY

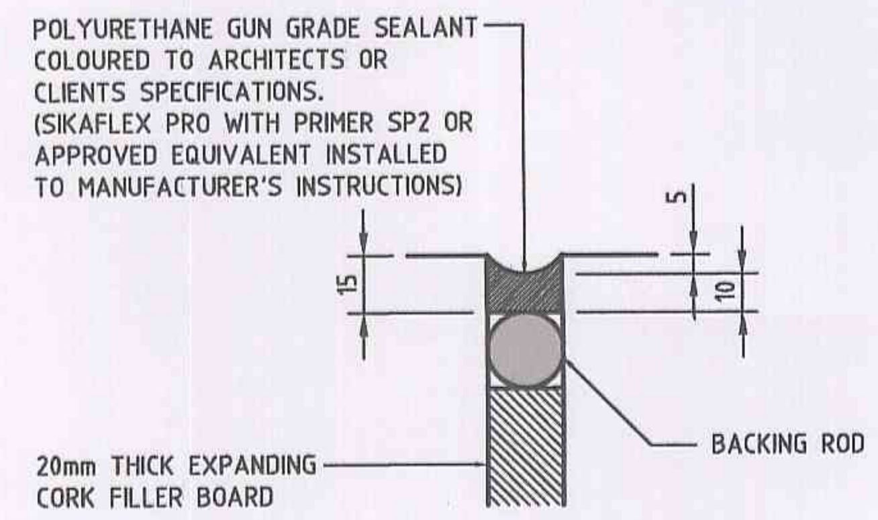
SCALE = 1:20



TYPICAL CONCRETE WALL EXPANSION JOINT

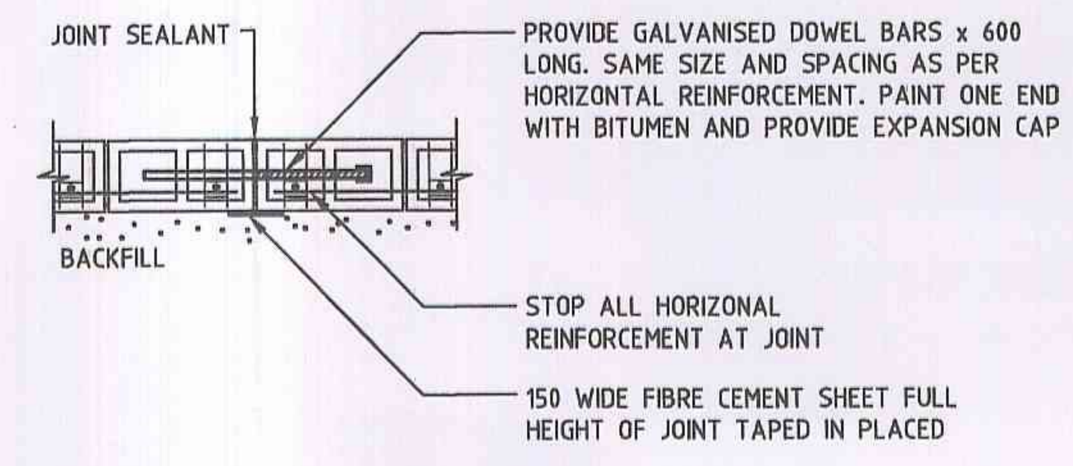
SCALE 1:20

JOINTS ARE TO BE LOCATED AT MAXIMUM 8000 CENTRES.



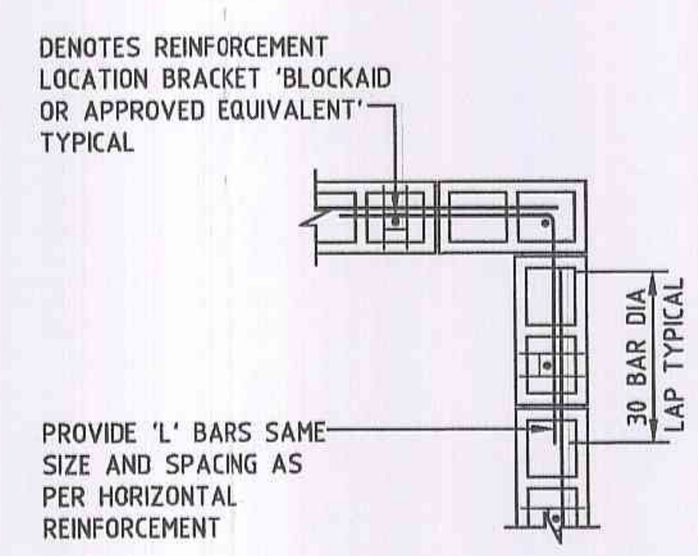
TYPICAL JOINT SEALANT TYPE 'B'

SCALE 1:2

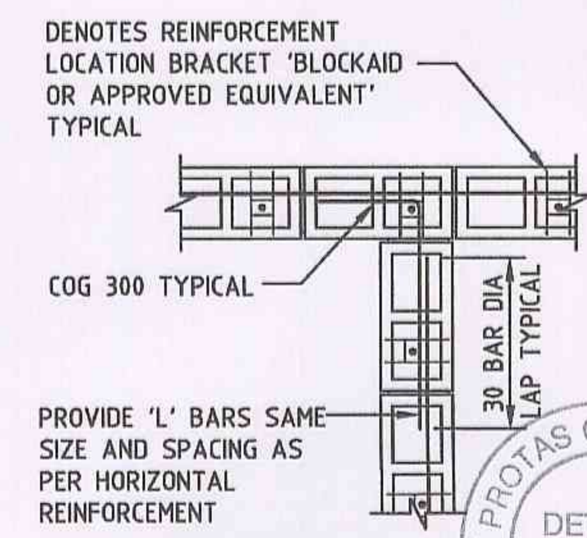


BLOCK RETAINING WALL CONTROL JOINT

SCALE 1:20



CORNER



INTERSECTION

BLOCK WALL JUNCTION DETAILS

SCALE 1:20

GROUT COVER TO REINFORCEMENT IN 190 BLOCK RETAINING WALLS SHALL BE MAINTAINED BY THE USE OF PLASTIC "BLOCKAID" REINFORCEMENT LOCATION BRACKETS (OR APPROVED EQUIVALENT) AT THE INTERSECTION OF ALL HORIZONTAL AND VERTICAL REINFORCEMENT.

ANTHONY PROTAS CONSULTING PTY LTD — DETAILS NOTED

NOT FOR CONSTRUCTION

THIS DRAWING HAS BEEN ASSIGNED AN ELECTRONIC CODE THAT SIGNIFIES THE DRAWING HAS BEEN CHECKED AND APPROVED BY: "INSERT NAME & CREDENTIALS HERE"

Issue.	Description	Date	Drawn	Approved
B	ISSUED FOR "CONSTRUCTION CERTIFICATE" PURPOSES ONLY	06.08.2012	DRW	CR
A	ISSUED FOR COMMENT	19.07.2012	DRW	CR

North

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Project: NEW DRIVEWAY AND GARAGE BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title: DRIVEWAY PLAN AND DETAILS

Drawn	Date	Scale A1	Q.A. Check	Date
DRW	JULY 2012	1:100		

Designed	Project No.	Dwg. No.	Issue
CR	SY11 0101	S2.01	B

Aug 08, 2012 - 9:37am

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED.

G2. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED.

G3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.

G4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
ALL LEVELS ARE EXPRESSED IN METRES.

G5. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVER STRESSED UNDER CONSTRUCTION ACTIVITIES.

G6. WORKMANSHIP AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RELEVANT CURRENT S.A.A. CODES INCLUDING ALL AMENDMENTS, AND THE LOCAL STATUTORY AUTHORITIES, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

G7. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER BUT IS NOT AN AUTHORISATION FOR A VARIATION.
ANY VARIATIONS INVOLVED MUST BE TAKEN UP WITH THE ARCHITECT OR PROJECT MANAGER BEFORE THE WORK COMMENCES.

G8. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE ENGINEER FOR A DECISION BEFORE PROCEEDING WITH THE WORK.

G9. THE BUILDER SHALL GIVE 48 HOURS NOTICE FOR ALL ENGINEERING INSPECTIONS.

G10. BUILDING FROM THESE DRAWINGS IS NOT TO COMMENCE UNTIL APPROVED BY THE LOCAL AUTHORITIES

G11. THE WORD 'ENGINEER' USED IN THESE NOTES REFER TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF **ACOR CONSULTANTS PTY.LTD.**

G12. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING SUPERIMPOSED LOADS:

WIND LOADS IN ACCORDANCE WITH AS1170 - PART 2:2002		
STRUCTURAL IMPORTANCE MULTIPLIER	**1.0**	
TERRAIN CATEGORY	**N/A**	
REGIONAL WIND SPEED		
REGION A : V 35	**N/A**	m/s
V 1000	**N/A**	m/s
LIVE LOADS		
DRIVEWAY	**5.0**	kPa

FOUNDATIONS

F1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING INTENSITY OF **800** kPa ON **SANDSTONE OR SHALE** IN ACCORDANCE WITH:

GEOTECHNICAL REPORT No. : **24787ZR**

PREPARED BY : **J + K**

IF A GEOTECHNICAL INVESTIGATION HAS NOT BEEN MADE, THE FOUNDATION CONDITIONS AND REACTIVITY CLASS ARE AN ASSUMPTION AND MUST BE CONFIRMED BY TRIAL EXCAVATIONS BY THE BUILDER.

FOUNDATION MATERIAL SHALL BE APPROVED FOR THIS BEARING PRESSURE BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.

F2. RESIDENTIAL SLABS AND FOOTINGS HAVE BEEN DESIGNED FOR A REACTIVITY CLASS **A** TO AS2870.

F3. BEARING MATERIAL AT BASES OF PIERS TO BE CONFIRMED BY AN EXPERIENCED GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST.

F4. EXCAVATION NEAR FOOTINGS SHALL NOT EXTEND BELOW FOUNDATION LEVEL WITHOUT THE ENGINEERS APPROVAL.

F5. ALL FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE

F6. DO NOT BACKFILL RETAINING WALLS (OTHER THAN CANTILEVER WALLS) UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED.

F7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ANY EXCAVATION IN A STABLE CONDITION WITHOUT ADVERSELY AFFECTING SURROUNDING PROPERTY INCLUDING SERVICES.
THIS INCLUDES OBTAINING ALL NECESSARY APPROVALS FOR SHORING AND ANCHOR SYSTEMS.

F8. ANY OVER EXCAVATION SHALL BE BACKFILLED WITH CONCRETE GRADE N15.

F9. FOUNDATIONS ADJACENT TO SERVICES ETC. SHALL BE EXTENDED DOWN SUCH THAT THE INFLUENCE LINE OF THE FOUNDATION IS BELOW THE ADJACENT SERVICE.

SUBGRADE PREPARATION

S1. STRIP ALL VEGETATION, TOPSOIL OR OTHER DELETERIOUS MATERIAL TO SPOIL OR STOCKPILE IF SUITABLE FOR REUSE AS LANDSCAPE. THIS SITE SHOULD THEN BE INSPECTED BY A GEOTECTNICAL ENGINEER OR EXPERIENCED TECHNICIAN AT THE CONTRACTORS EXPENSE TO ENSURE THAT THE STRIPPING IS SATISFACTORY.

S2. COMPACT THE STRIPPED SURFACE OVER THE PROPOSED FILL AREAS TO AT LEAST 98% STANDARD MAXIMUM DRY DENSITY (SMDD) AT A MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT (OMC) , SUITABLE TO BE USED AS FORMWORK PURPOSES ONLY.

S3. FILLING SHOULD COMPRISE EXCAVATED CLAY SOILS FROM THE SITE OR IMPORTED FILL AND SHOULD BE PLACED IN LAYERS NOT EXCEEDING 200mm² COMPACTED THICKNESS TO AT LEAST 98% SMDD WITH A MOISTURE CONTENT WITHIN 2% OF OMC.

S5. DENSITY TESTING AT THIS SITE (AREA GREATER THAN 1500sqm) SHOULD BE CARRIED OUT IN ACCORDANCE WITH AT LEAST THE MINIMUM FREQUENCY RECOMMENDED IN AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS", TABLE 8.1 (P.28), IE;

A) ONE TEST PER LAYER OR 200MM THICKNESS PER MATERIAL TYPE PER 2500m² ; OR

B) ONE TEST PER 500m³ DISTRIBUTE REASONABLY EVENLY THROUGHOUT DEPTH AND AREA; OR

C) THREE TESTS PER VISIT,

WHICHEVER REQUIRES THE MOST TESTS.

S6. THE LEVEL OF ENGAGEMENT FOR A GEOTECTNICAL TESTING AUTHORITY SHOULD BE LEVEL 2, AS THE FILLING OF THE SITE WILL BE USED AS FORMWORK PURPOSES ONLY.

S7. ADDITIONAL GEOTECHNICAL INSPECTION -
ADDITIONAL GEOTECHNICAL INSPECTIONS BY A GEOTECHNICAL ENGINEER WILL BE REQUIRED DURING AND FOLLOWING,

A) THE EXISTING GARAGE
B) EXISTING STACKED STONE RETAINING WALLS
C) EXPOSED DETACHED BLOCKS OF SANDSTONE

REFER TO SOLUTIONS 7.1.1, 7.1.2 AND 7.1.3 OF THE GEOTECHNICAL REPORT

ABBREVIATIONS

AB1.

ALT.	ALTERNATE BARS
C/S	BRICKWORK COURSE
BTM	BOTTOM
(BT)	BOTTOM
B.J.	BLOCK JOINT
CTS	CENTRES
D.J	DOWEL JOINT
E.F	EACH FACE
F'c=	CONCRETE STRENGTH
E.W	EACH WAY
F.F	FAR FACE
N.F	NEAR FACE
F.F.L	FINISH FLOOR LEVEL
GALV	GALVANISED
G.L	GROUND LINE
L.V	LENGTH VARIES
LVL	LAMINATED VENEER LUMBER
M.C	MASS CONCRETE
N.S.O.E	NOT SHOWN ON ELEVATION
N.S.O.P	NOT SHOWN ON PLAN
R.L	REDUCED LEVEL
R.C	REINFORCED CONCRETE
(1)	REINFORCEMENT LAID FIRST
(2)	REINFORCEMENT LAID SECOND
(3)	REINFORCEMENT LAID THIRD
(4)	REINFORCEMENT LAID FOURTH
S/S	STAINLESS STEEL
STAG	STAGGERED BARS
S.S.L	STRUCTURAL SLAB LEVEL
TYP.	TYPICAL
(T)	TOP
U/S	UNDERSIDE
U.N.O.	UNLESS NOTED OTHERWISE

REINFORCEMENT

R1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 2001 AND OTHER RELEVANT AUSTRALIAN CODES.

R2. REINFORCEMENT TYPE AND GRADE.

SYMBOL	TYPE	AUS. STAND.	GRADE
N	NORMAL DUCTILITY	4671	500
L	LOW DUCTILITY	4671	500
E	SEISMIC (EARTHQUAKE) DUCTILITY	4671	500
R	PLAIN (ROUND)	4671	250
SL	SQUARE MESH	4671	500
RL	RECTANGULAR MESH	4671	500
TM	TRENCH MESH	4671	500

R3. ALL REINFORCEMENT TO CONFORM TO AS4671, CURRENT EDITIONS WITH AMENDMENTS.

REINFORCEMENT SYMBOLS:

N DENOTES 500N GRADE DEFORMED BAR
S DENOTES 250S GRADE DEFORMED BAR
R DENOTES 250R GRADE ROUND BAR

THE NUMBER FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN mm.

R4. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.

R5. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

R6. ALL REINFORCEMENT SHALL BE SECURELY SUPPORTED IN ITS CORRECT POSITION DURING CONCRETING BY APPROVED BAR CHAIRS, SPACERS OR SUPPORT BARS.

R7. SITE BENDING OF N BARS SHALL BE DONE COLD WITH POWER OR MECHANICAL BENDING TOOLS. NOTE: IF N BARS ARE HEATED ABOVE 450°C (LESS THAN RED HEAT) THEY LOSE STRENGTH.

REINFORCEMENT LAPS

R8. LAP TOP BARS MIDSPAN. LAP BOTTOM BARS AT SUPPORTS. LAPS IN SLAB REINFORCEMENT (U.N.O.) ON PLAN OR DETAILS TO BE AS SHOWN BELOW:

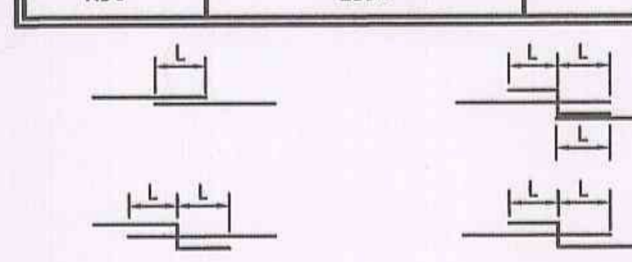
MINIMUM LAPS

BAR SIZE	L (CONCRETE DEPTH < 300)	L (CONCRETE DEPTH > 300)
N12	300	400
N16	400	500
N20	500	600
N24	600	800
N28	800	1000
N32	1000	1250
N36	1200	1500

WHERE LAPS OCCUR AWAY FROM MIDSPAN (TOP STEEL) OR SUPPORTS (BOTTOM STEEL) USE FULL MOMENT LAPS AS SHOWN BELOW. SUBJECT TO APPROVAL STOCK BAR LENGTHS AND FULL MOMENT LAPS MAY BE USED IN SLABS.

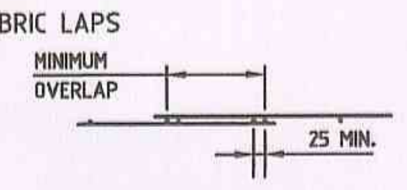
FULL MOMENT LAPS

BAR SIZE	L (CONCRETE DEPTH < 300)	L (CONCRETE DEPTH > 300)
N12	400	500
N16	650	850
N20	1000	1200
N24	1300	1650
N28	1700	2100
N32	2100	2600
N36	2550	3150

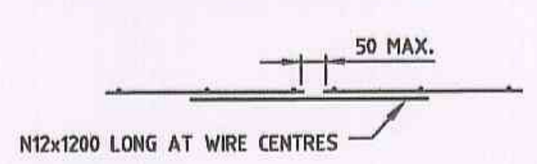


R9. FABRIC TO CONFORM TO AS1304.

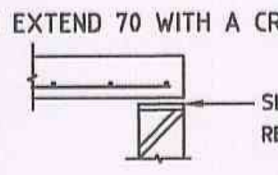
R10. FABRIC LAPS



ALTERNATIVE FABRIC SPLICE DETAIL



R11. FABRIC TO EXTEND 70 WITH A CROSSWIRE ONTO WALLS U.N.O.



R12. A MAXIMUM OF THREE SHEETS OF FABRIC SHALL BE LAPPED AT ANY POINT.

CONCRETE NOTES

C1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 CURRENT EDITIONS WITH AMENDMENTS, AND THE ACSE CONCRETE SPECIFICATION EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. CONCRETE COMPONENTS AND QUALITY SHALL BE AS FOLLOWS:-

ELEMENT	COMPRESSIVE STRENGTH F'c - 28 DAYS MPa	SLUMP mm	MAX. AGG. SIZE mm
FOOTINGS	25	80	20
COLUMNS	40	80	20
SLABS ON GRD.	25	80	20
SUSP. SLABS	40	80	20

C3. CEMENT TO BE TYPE SL TO AS 3972 UNLESS NOTED OTHERWISE THIS IS A MODIFIED TYPE 'GP' CEMENT. SEE ACSE CONCRETE SPECIFICATION.

C4. NO 'BRECCIA' TYPE AGGREGATE IS TO BE USED.

C5. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.

C6. A VIBRATOR IS TO BE USED FOR THE COMPACTION OF ALL CONCRETE.

C7. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS.

C8. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

C9. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

C10. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USE ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER.

C11. COVER TO REINFORCEMENT FOR CORROSION PROTECTION SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE COVER TO DOMESTIC FOOTINGS SHALL COMPLY WITH:

SURFACES IN CONTACT WITH GROUND		COVER
WITHOUT MEMBRANE		50mm
WITH MEMBRANE	- SLABS	30mm
	- FOOTINGS	50mm
SURFACES ABOVE GROUND	- INTERIOR	20mm
SURFACES ABOVE GROUND	- EXTERIOR	**45 MIN.**

COVER SHALL NOT BE LESS THAN THE SIZE OF THE AGGREGATE OR THE MAIN BARS.

C12. CONDUITS, PIPES AND THE LIKE SHALL NOT BE PLACED WITHIN THE CONCRETE COVER.

C13. CURE ALL CONCRETE USING AN APPROVED METHOD IN ACCORDANCE WITH ACSE SPECIFICATION. CURING COMPOUNDS TO COMPLY WITH AS 3799. PVA BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

C14. ALIPHATIC ALCOHOL:-
WHEN SHADE TEMPERATURE EXCEEDS 35° C SPRAY THE EXPOSED SURFACE OF CONCRETE SLAB DURING THE PLACING AND FINISHING OPERATION WITH A FINE FILM OF APPROVED ALIPHATIC ALCOHOL.
REPEAT THE SPRAY IF THE SPRAYED SURFACE HAS BEEN RE-WORKED.

C15. ENSURE ADEQUATE SUPPLY OF ALIPHATIC ALCOHOL ON SITE BEFORE COMMENCING CONCRETE WORK.

C16. ALL CONCRETE SLABS AND BEAMS TO BE PROPORTIONED TO LIMIT DRYING SHRINKAGE TO 500 MICROSTRAIN AT 56 DAYS.

C17. ALL CONCRETE COLUMNS GREATER THAN 12 METRES IN HEIGHT SHALL BE POURED A MINIMUM OF 4 HOURS PRIOR TO SLAB OR BEAM OVER.

C18. DRIP GROOVES ARE TO BE PROVIDED AT ALL EXPOSED EDGES. COVER TO REINFORCEMENT TO COMPLY WITH C11 ABOVE.

C19. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

C20. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS
BEAM NUMBERING SYSTEM

2-B10
- CONCRETE BEAM UNDER
- FLOOR NUMBER

WALL NUMBERING SYSTEM

W10 (250)
- WALL THICKNESS (IF SHOWN ON PLAN)
- WALL NUMBER

C21. TOP MESH FOR SLAB REINFORCEMENT TO BE CONTINUOUS OVER SLAB SUPPORTS

CONCRETE CONT'

TYPICAL OPENINGS IN SLABS

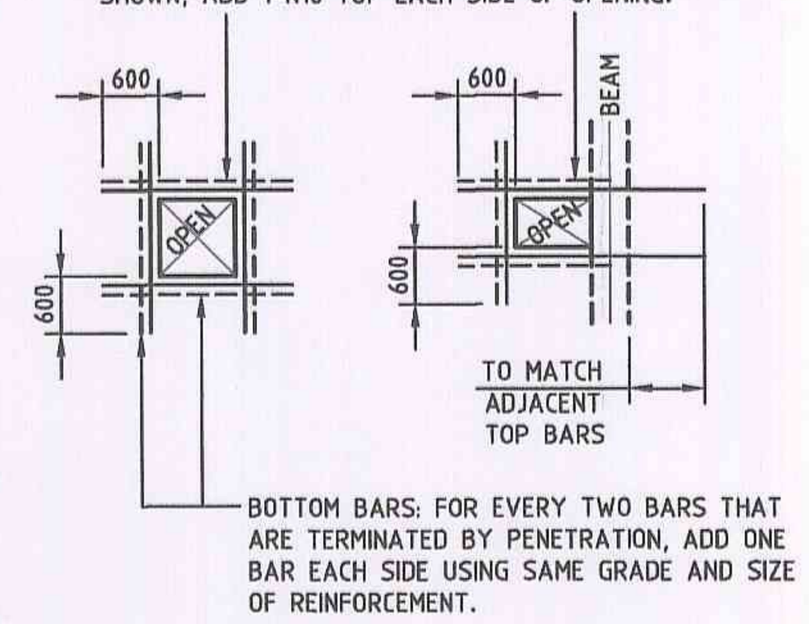
C22. FOR OPENINGS LESS THAN 300 x 300mm, BARS TO BE RE-ARRANGED AROUND HOLE.

C23. FOR PENETRATIONS GREATER THAN 300 x 300mm BUT LESS THAN 1000mm x 1000mm USE DETAILS BELOW.

C24. FOR PENETRATIONS GREATER THAN 1000 x 1000mm REFER TO ENGINEER'S PLANS. WHERE OPENINGS ARE NOT DETAILED, CONTACT ENGINEER IMMEDIATELY.

C25. LOCATION OF OPENINGS TO BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER.

TOP BARS: FOR EVERY TWO BARS THAT ARE TERMINATED BY OPENINGS, ADD ONE BAR EACH SIDE USING SAME GRADE AND SIZE OF REINFORCEMENT. WHERE NO TOP BARS ARE SHOWN, ADD 1-N16 TOP EACH SIDE OF OPENING.



PIPE PENETRATION THROUGH BEAM

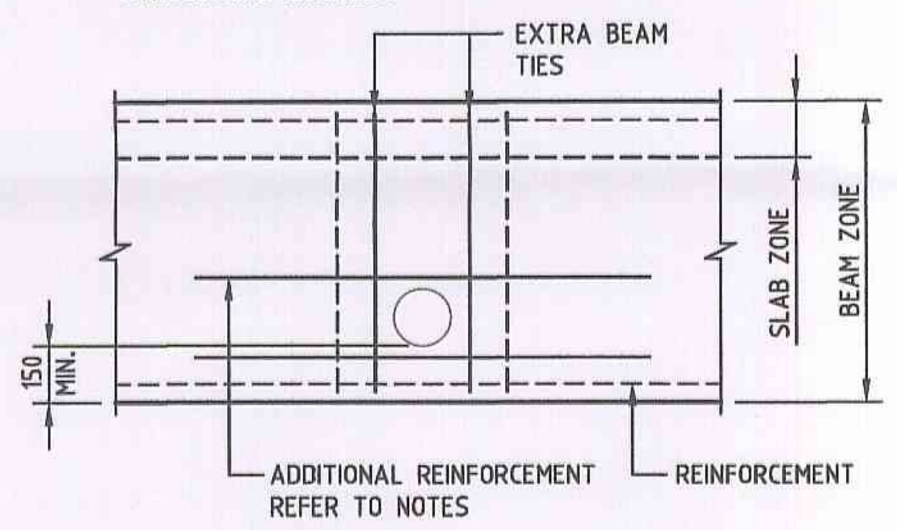
C26. MINIMUM DISTANCE FROM BEAM SOFFIT TO PIPE SOFFIT TO BE 150mm.

C27. FOR PIPES UP TO Ø90, ADD ONE ROW OF TIES EACH SIDE OF PIPE.

C28. FOR PIPES Ø91 TO Ø150, ADD TWO ROWS OF TIES EACH SIDE OF PIPE AND 1-N16 HORIZONTAL BAR 1200 LONG TOP AND BOTTOM OF PIPE AT EVERY VERTICAL TIE LEG.

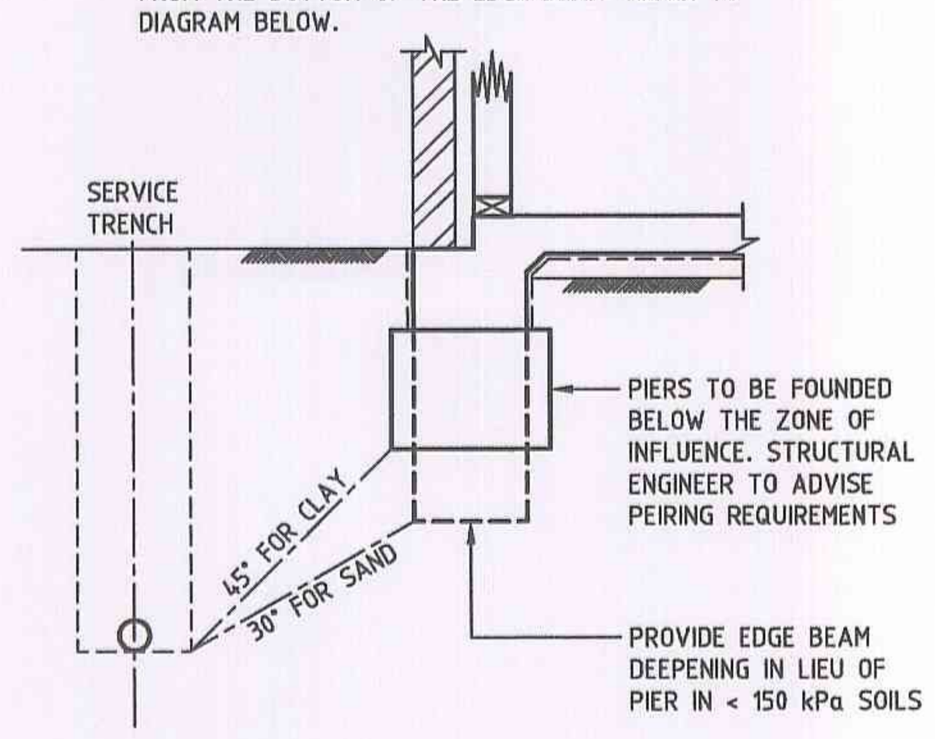
C29. FOR HOLES GREATER THAN Ø150 REFER TO ENGINEER'S DETAILS. WHERE PENETRATIONS ARE NOT DETAILED, CONTACT STRUCTURAL ENGINEER IMMEDIATELY.

C30. LOCATION OF HOLES TO BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER.



PIERING REQUIREMENT

C31. WHERE A SERVICE TRENCH IS PARALLEL TO A SIDE OF THE SLAB, WHETHER THE SLAB BE IN AN EXCAVATED OR FILLED AREA, THEN PIERING TO SUPPORT THE SLAB BESIDE THE SERVICE TRENCH IS ONLY REQUIRED IF THE SERVICE LINE IS BELOW A LINE OF INFLUENCE DRAWN FROM THE BOTTOM OF THE EDGE BEAM. REFER TO DIAGRAM BELOW.



C32. THESE NOTES ARE INTENDED AS A GUIDE. THERE IS ALWAYS A POSSIBILITY OF SITE CONDITIONS REQUIRING VARIATION TO THESE PROCEDURES. IN SUCH CASES, THE STRUCTURAL ENGINEER MUST BE CONSULTED.

REINFORCED CONCRETE BLOCKWORK

CB1. ALL WORKMANSHIP SHALL COMPLY WITH AS 3700, AND THE SPECIFICATIONS.

CB2. ALL BLOCKS SHALL CONFORM TO AS 2733.

CB3. THE DESIGN STRENGTH OF CONCRETE MASONRY SHALL BE AS FOLLOWS :-

ELEMENT	BLOCK STRENGTH GRADE	MORTAR MIX CEMENT:LIME:SAND
WALLS	12	M3 MORTAR (NORMAL) 1 : 1 : 6 M4 MORTAR (EXPOSURE GRADE) 1 : 0.5 : 0.45

CB4. LAY BOTTOM COURSE OF BLOCKS ON FULL MORTAR BED. ALL PERPENDS SHALL BE FULLY FILLED WITH MORTAR, EXCEPT WHERE REQUIRED FOR WEEPHOLES.

CB5. CLEAN OUT HOLES SHALL BE PROVIDED AT THE BASE OF ALL REINFORCED CORES. REINFORCED CORES SHALL BE CLEANED OF MORTAR PROTRUSIONS BEFORE GROUTING.

CB6. ALL REINFORCED CORES SHALL BE FILLED WITH GROUT. THE GROUT FILLING SHALL BE THOROUGHLY COMPACTED BY MECHANICAL VIBRATOR OR RODDING. UNREINFORCED CORES NEED NOT BE FILLED UNLESS OTHERWISE NOTED.

CB7. GROUT SHALL BE IN ACCORDANCE WITH AS 3600 AND COMPLY WITH THE FOLLOWING :-

CHARACTERISTIC STRENGTH f'c = 20 MPa AT 28 DAYS.
MAXIMUM AGGREGATE SIZE = 10 mm.
SLUMP = 230 mm.

CB8. MAXIMUM CONTINUOUS POUR HEIGHT SHALL BE 3600 mm, STOP POUR 50 mm BELOW TOP OF BLOCK TO PROVIDE KEY FOR THE FOLLOWING POUR.

CB9. PROVIDE WATERPROOFING AND DRAINAGE TO BACK OF WALLS AS REQUIRED BY THE ARCHITECT'S SPECIFICATIONS IF REQUIRED.

CB10. PROVIDE TEMPORARY PROPPING TO WALLS WHERE REQUIRED FOR STABILITY DURING CONSTRUCTION.

CB11. BACKFILL RETAINING WALLS, AFTER OBTAINING ENGINEER'S APPROVAL, WITH CLEAN GRANULAR FILLING, FREE FROM CLAY AND OTHER ORGANIC MATTER.

VERTICAL JOINTS

CB12. PROVIDE VERTICAL CONTROL JOINTS IN ALL WALLS AT A MAXIMUM OF 10 000 mm CENTRES OR AT SLAB JOINTS UNLESS INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS.

CB13. VERTICAL REINFORCEMENT TO BE POSITIONED 20 mm CLEAR FROM FACE OF BLOCKWORK UNLESS OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS.

HORIZONTAL JOINTS

CB14. PROVIDE HORIZONTAL JOINT REINFORCEMENT EVERY THIRD COURSE FOR SOLID OR CORE FILLED BLOCKS

ANTHONY PROTAS CONSULTING PTY LTD — DETAILS NOTED

NOT FOR CONSTRUCTION

THIS DRAWING HAS BEEN ASSIGNED AN ELECTRONIC CODE THAT SIGNIFIES THE DRAWING HAS BEEN CHECKED AND APPROVED BY: "INSERT NAME & CREDENTIALS HERE"

Issue	Description	Date	Drawn	Approved
B	ISSUED FOR "CONSTRUCTION CERTIFICATE" PURPOSES ONLY	06.08.2012	DRW	CR
A	ISSUED FOR COMMENT	19.07.2012	DRW	CR

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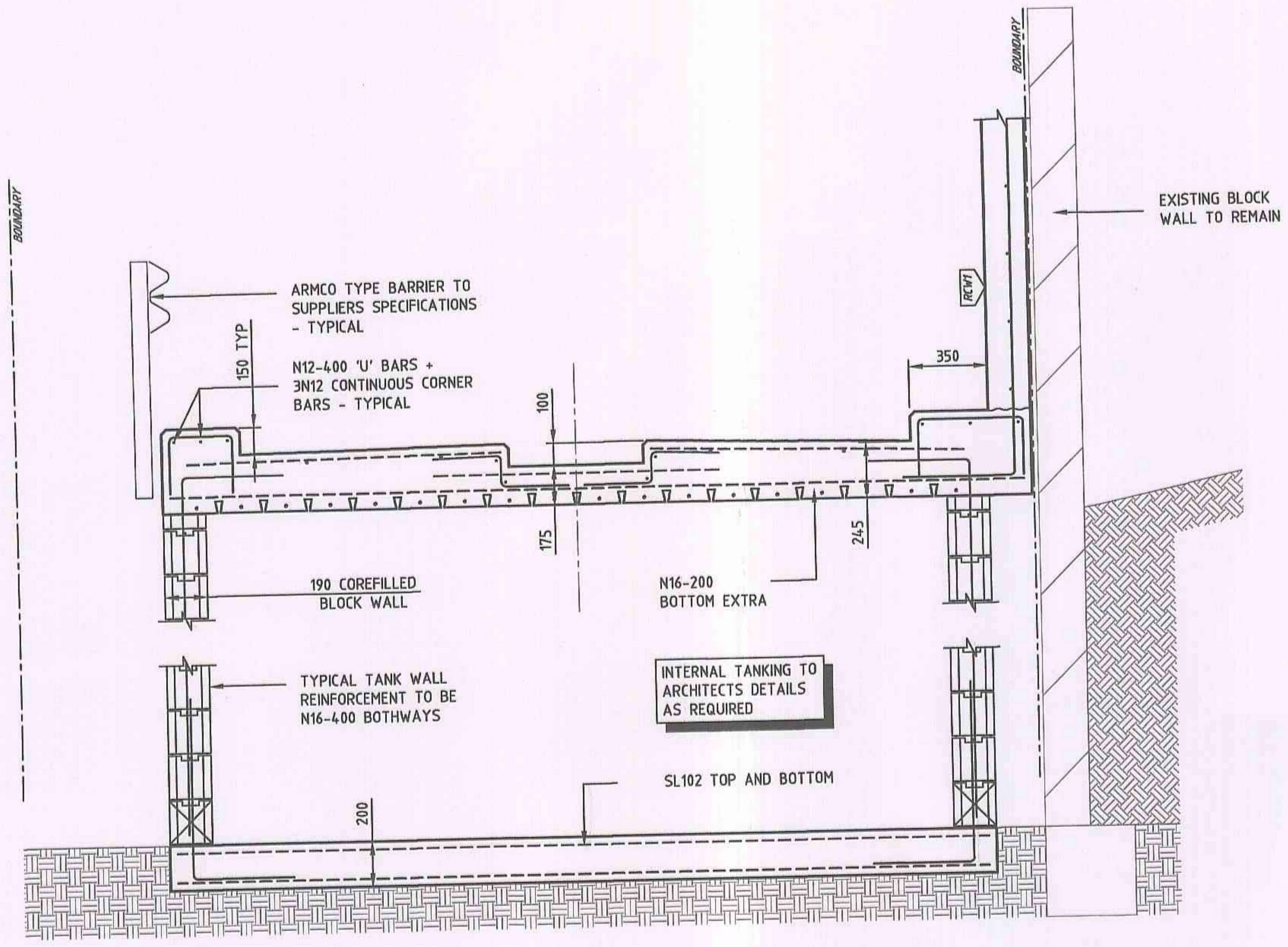
CONSULT AUSTRALIA Member Firm

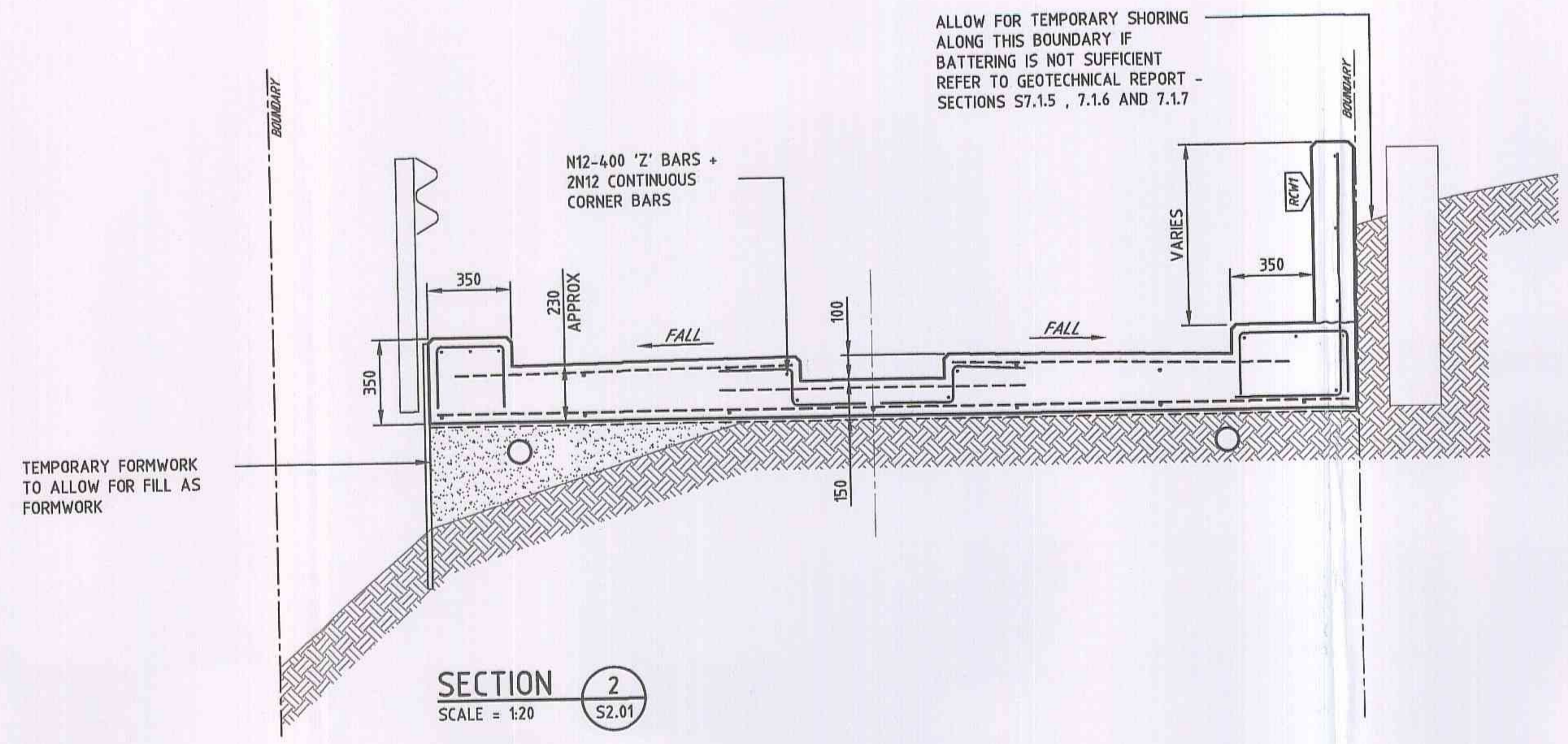
Project
NEW DRIVEWAY AND GARAGE BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title
GENERAL NOTES

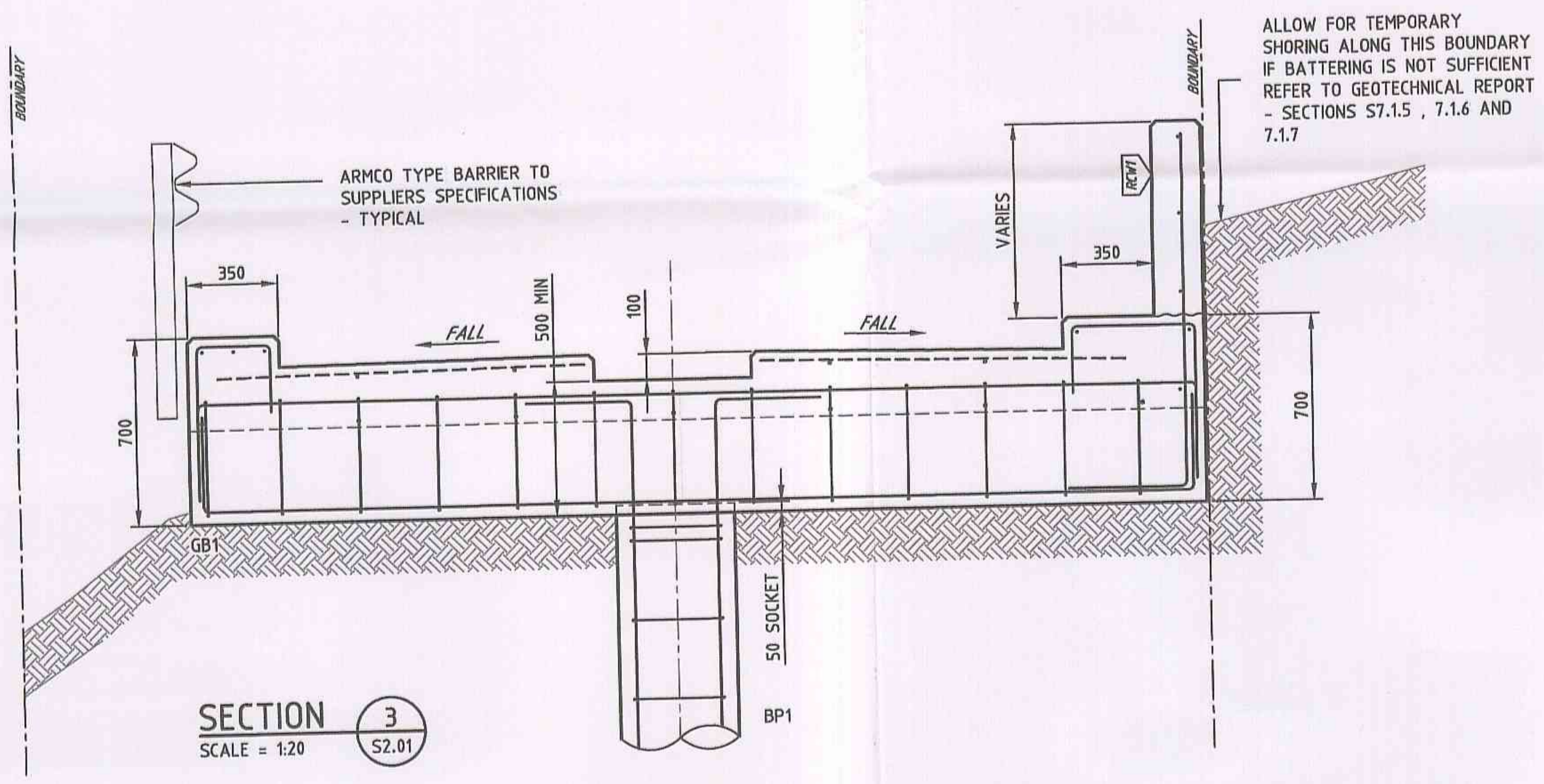
Drawn	Date	Scale	A1	Q.A. Check	Date
DRW	JULY				
Designed	Project No.			Dwg. No.	Issue
CR	SY11 0101			S1.01	B



SECTION 1 / S2.01
SCALE = 1:20



SECTION 2 / S2.01
SCALE = 1:20



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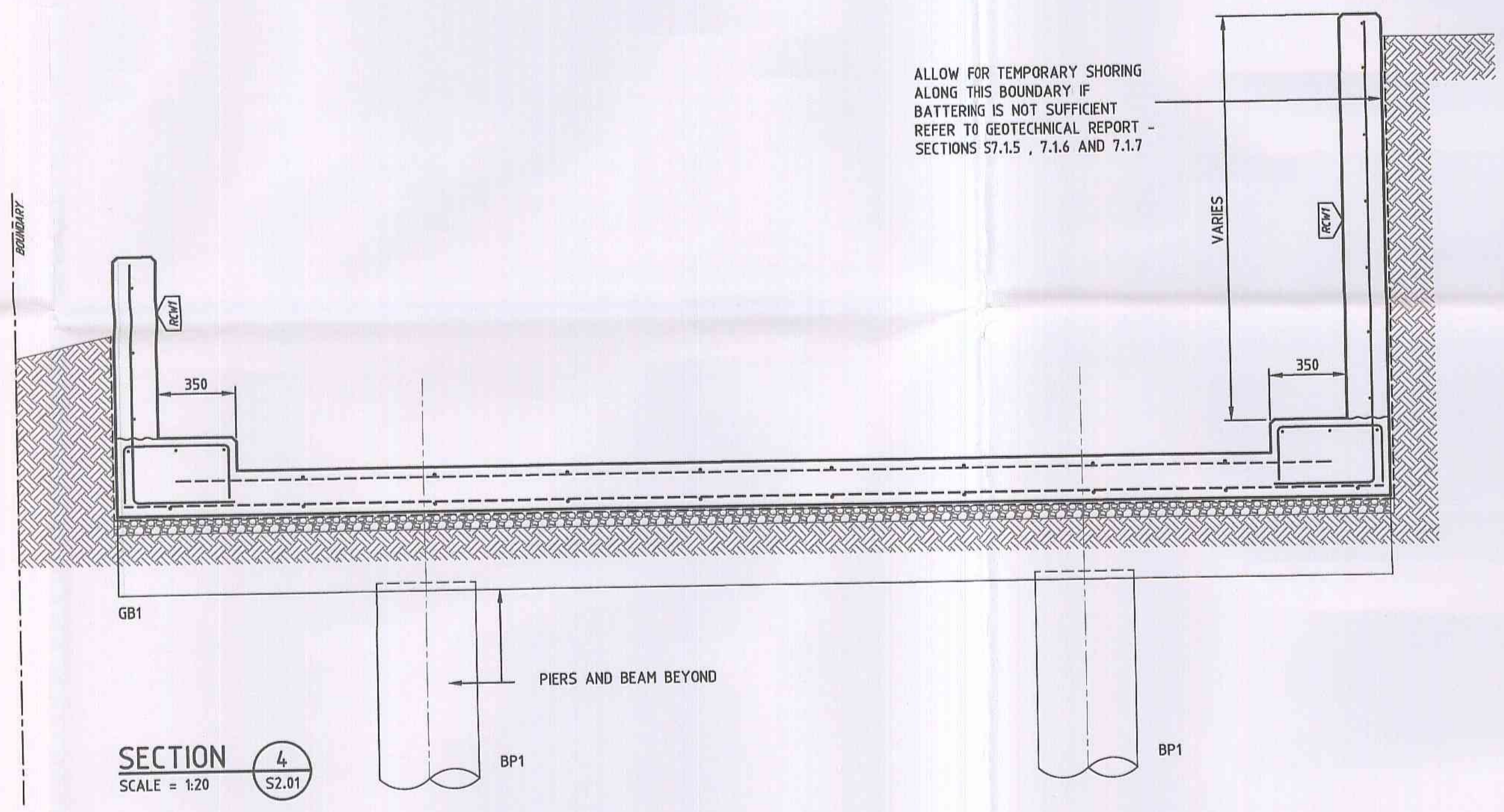

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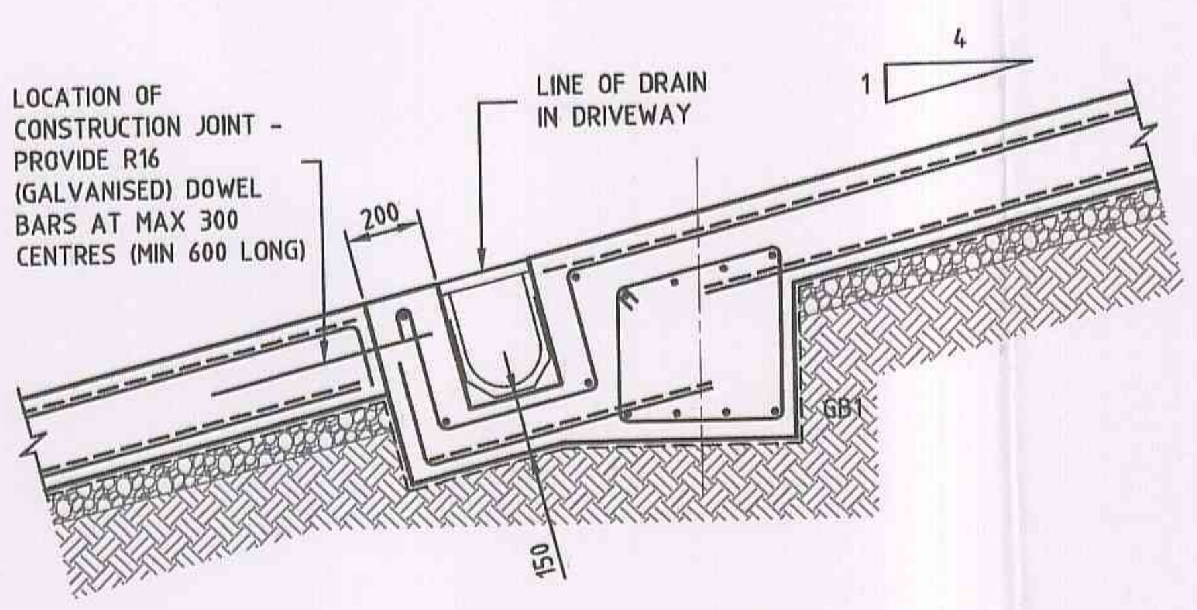

TYPICAL SECTION THROUGH GRATED DRAIN
SCALE = 1:20

ANTHONY PROTAS CONSULTING PTY LTD
DETAILS NOTED

NOT FOR CONSTRUCTION

THIS DRAWING HAS BEEN ASSIGNED AN ELECTRONIC CODE THAT SIGNIFIES THE DRAWING HAS BEEN CHECKED AND APPROVED BY: "INSERT NAME & CREDENTIALS HERE"

Issue.	Description	Date	Drawn	Approved
B	ISSUED FOR "CONSTRUCTION CERTIFICATE" PURPOSES ONLY	06.08.2012	DRW	CR
A	ISSUED FOR COMMENT	19.07.2012	DRW	CR

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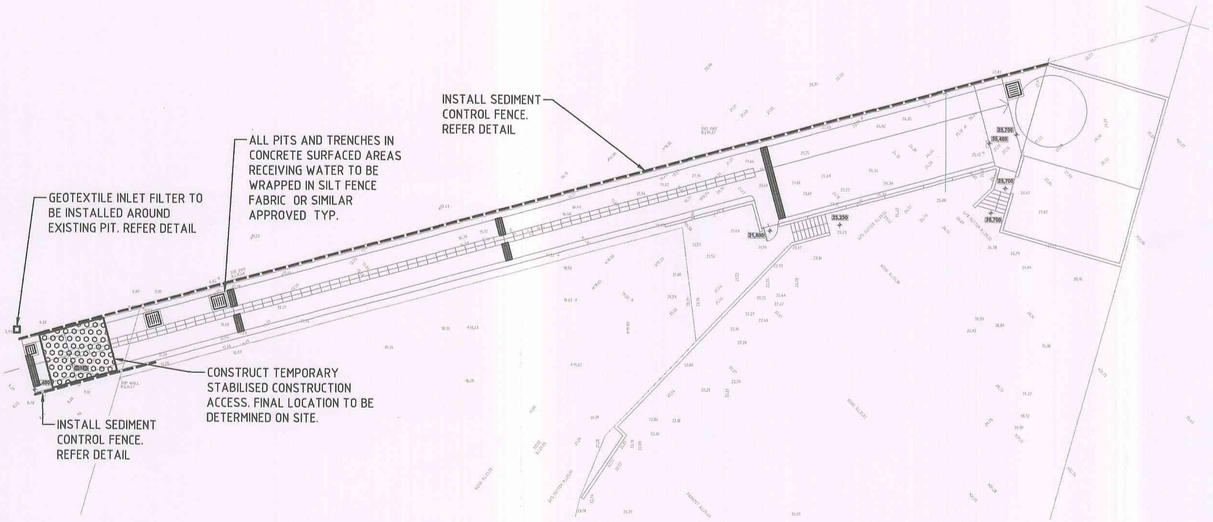
CONSULT AUSTRALIA Member Firm

Project
NEW DRIVEWAY AND GARAGE
BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

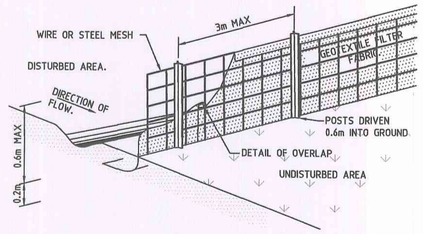
Drawing Title
DRIVEWAY CROSS SECTIONS

Drawn	Date	Scale A1	Q.A. Check	Date
DRW	JULY 2012	NOTED		

Designed	Project No.	Dwg. No.	Issue
CR	SY11 0101	S2.05	B



PLAN
SCALE 1:200



SEDIMENT CONTROL FENCE
NTS

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

E1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.

E2. THE SITE SUPERINTENDENT WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS INSTRUCTED IN THIS SPECIFICATION.

E3. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

CONSTRUCTION SEQUENCE

E4. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED. HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:

a. INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
b. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

E5. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

E6. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

FENCING

E7. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.

E8. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.

E9. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

E10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

OTHER MATTERS

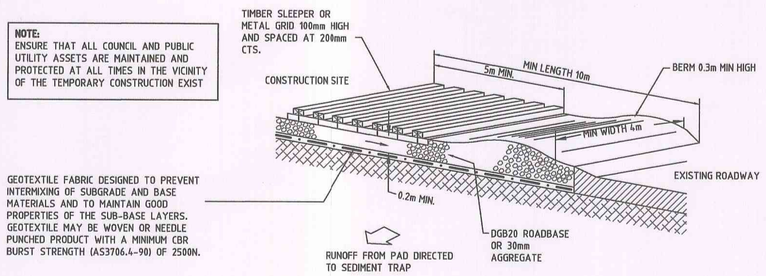
E11. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

E12. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.

SITE INSPECTION & MAINTENANCE

E13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.

NOTE:
ENSURE THAT ALL COUNCIL AND PUBLIC UTILITY ASSETS ARE MAINTAINED AND PROTECTED AT ALL TIMES IN THE VICINITY OF THE TEMPORARY CONSTRUCTION EXIST

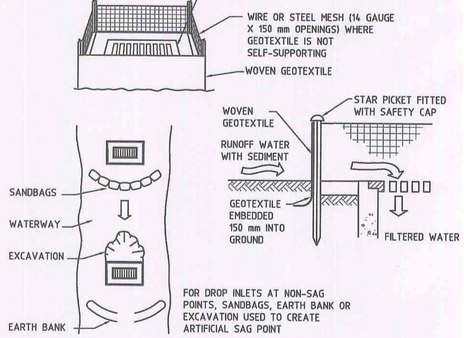


CONSTRUCTION NOTES
1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP WHERE THE SEDIMENT IS COLLECTED AND REMOVED.

MAINTENANCE NOTES
THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT OFF THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED OFF THE CONSTRUCTION SITE MUST BE REMOVED IMMEDIATELY.

TEMPORARY STABILISED CONSTRUCTION EXIT
NTS

SOURCE: MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION THIRD EDITION, AUGUST 1998 PRODUCED BY THE DEPARTMENT OF HOUSING



CONSTRUCTION NOTES
1. FABRICATE A SEDIMENT BARRIER FROM GEOTEXTILE OR STRAW BALES.
2. SUPPORT GEOTEXTILE WITH MESH TIED TO POSTS AT 1 METRE CENTRES.
3. DO NOT COVER INLET WITH GEOTEXTILE.
4. CONSTRUCTION DETAILS ARE SIMILAR TO TYPICAL SEDIMENT FENCING DETAIL.

GEOTEXTILE INLET FILTER
NTS

AUTHORISED PROTAS CONSULTING PTY LTD
DETAILS NOTED

DRAWING UNDER REVISION

NOT FOR CONSTRUCTION

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Issue.	Description	Date	Drawn	Approved
A	ISSUE FOR DA APPROVAL	26.08.11	RD	BHJ

1cm at full size

North

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Project
NEW DRIVEWAY AND GARAGE
BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title
BARRENJOEY ROAD
SOIL AND SEDIMENT PLAN

Drawn	Date	Scale	A1	Q.A. Check	Date
RD	AUG 2011	1:200		Q.A.	Q.A. DATE
Designed	Project No.			Dwg. No.	Issue
BHJ	SY110101			C1.03	A

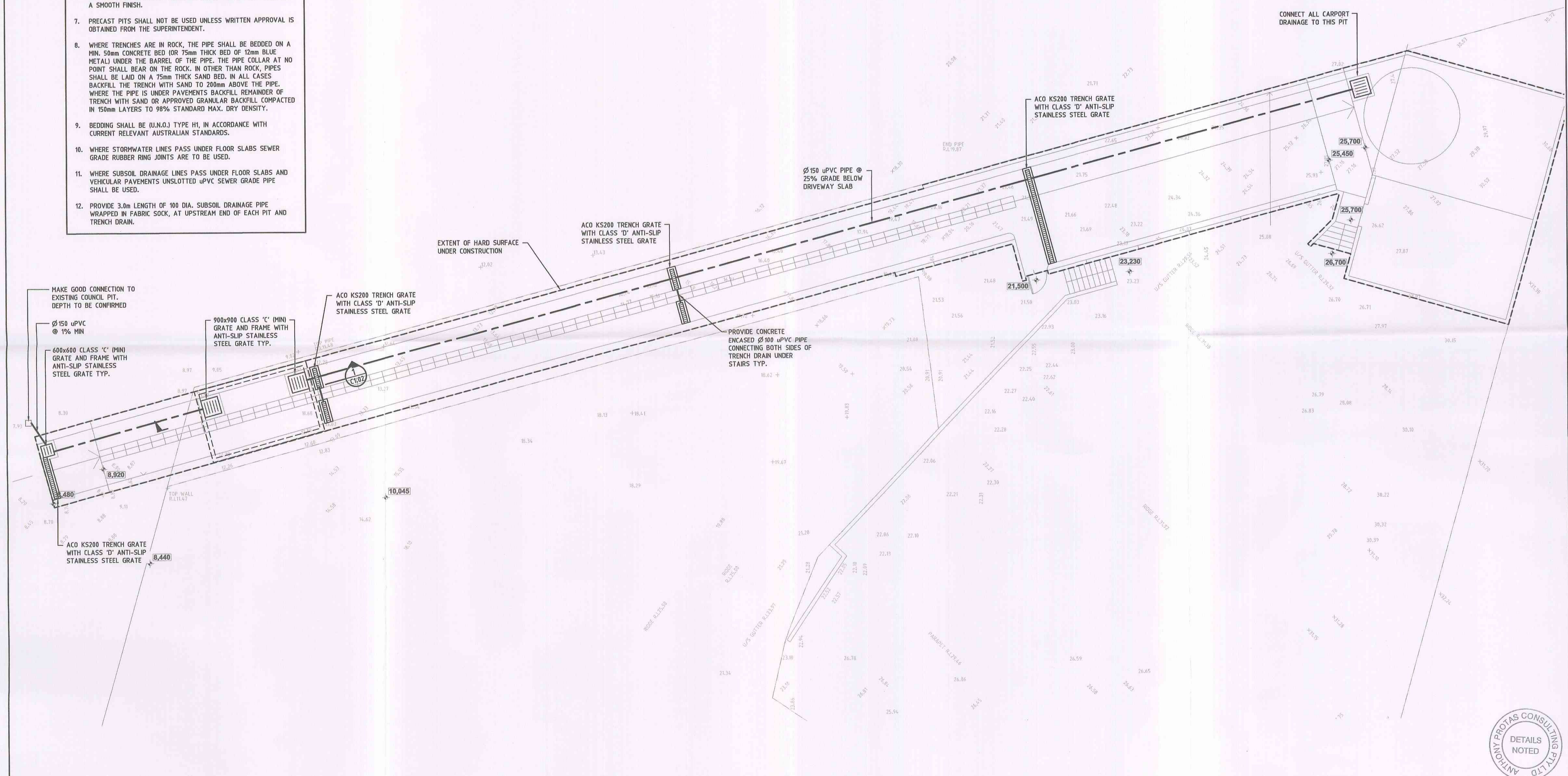
Aug 26, 2011 - 2:10pm

STORMWATER NOTES

1. ALL 225mm DIA. AND SMALLER PIPES SHALL BE SEWER GRADE uPVC WITH WELDED JOINTS OR PE WITH WELDED JOINTS. LARGER PIPES SHALL BE REINFORCED CONCRETE
2. EQUIVALENT STRENGTH REINFORCED CONCRETE PIPES MAY BE USED.
3. ALL PIPE JUNCTIONS UP TO AND INCLUDING 450 DIA. AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
4. MINIMUM GRADE TO STORMWATER LINES TO BE 1%. (U.N.O.)
5. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
6. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
7. PRECAST PITS SHALL NOT BE USED UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE SUPERINTENDENT.
8. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN. 50mm CONCRETE BED (OR 75mm THICK BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK. IN OTHER THAN ROCK, PIPES SHALL BE LAID ON A 75mm THICK SAND BED. IN ALL CASES BACKFILL THE TRENCH WITH SAND TO 200mm ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL COMPACTED IN 150mm LAYERS TO 98% STANDARD MAX. DRY DENSITY.
9. BEDDING SHALL BE (U.N.O.) TYPE H1, IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
10. WHERE STORMWATER LINES PASS UNDER FLOOR SLABS SEWER GRADE RUBBER RING JOINTS ARE TO BE USED.
11. WHERE SUBSOIL DRAINAGE LINES PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS UNSLOTTED uPVC SEWER GRADE PIPE SHALL BE USED.
12. PROVIDE 3.0m LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK, AT UPSTREAM END OF EACH PIT AND TRENCH DRAIN.

OSD INFORMATION

EXISTING HARD SURFACE = $222m^2$
NEW HARD SURFACE - $442m^2$
NET NEW HARD SURFACE - $220m^2$
MIN REQUIRED OSD VOL = 15,000L
PSD = 7l/s
OSD TANK DEPTH TO INVERT = 0.97m
ORIFICE DIAMETER = 60mm



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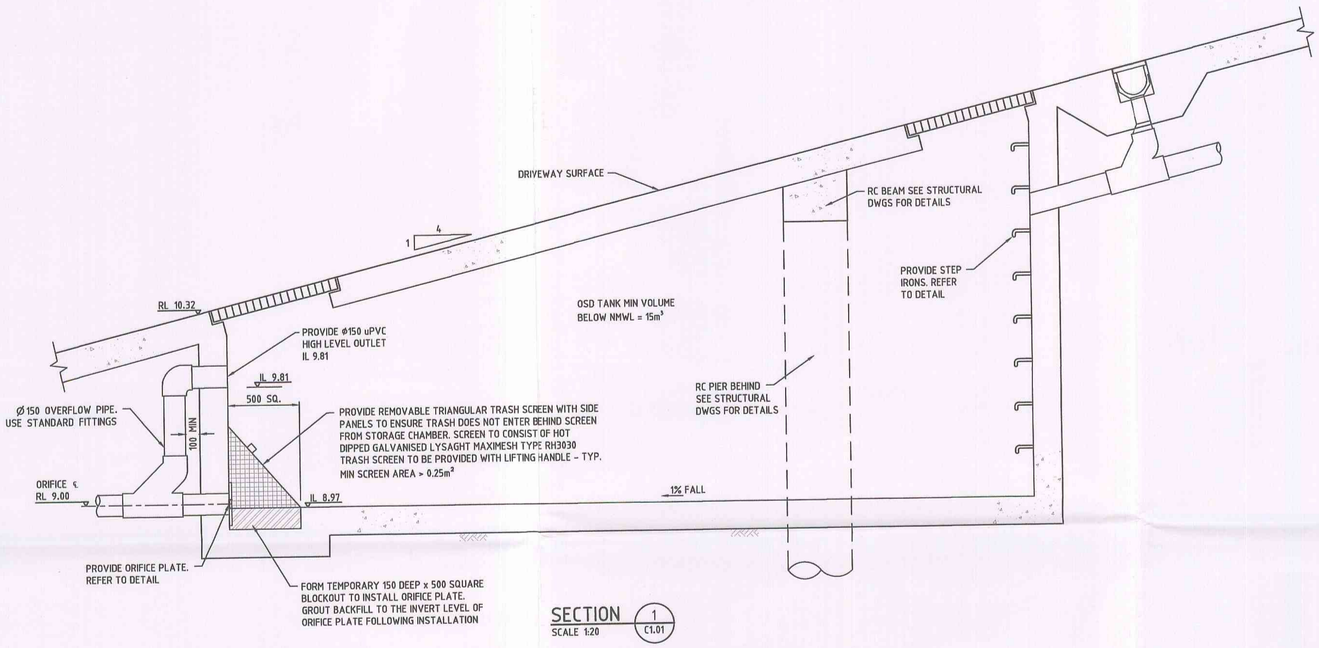
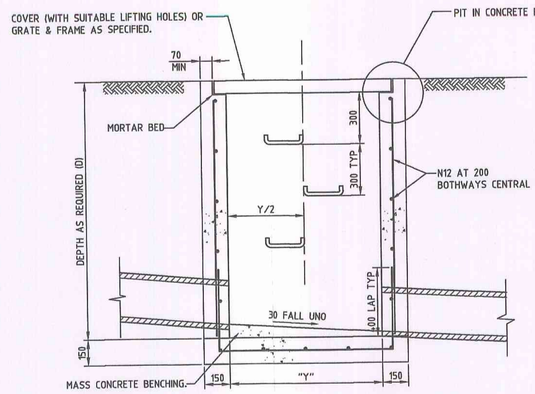
Project
NEW DRIVEWAY AND GARAGE BARRENJOEY ROAD
1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title
BARRENJOEY ROAD STORMWATER PLAN

Drawn	Date	Scale A1	Q.A. Check	Date
RD	AUG 2011	1:100	Q.A.	Q.A. DATE
Designed	Project No.		Dwg. No.	Issue
BHJ	SY110101		C1.01	A



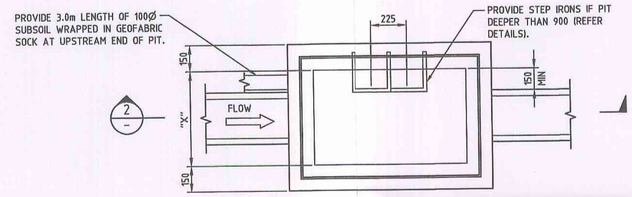
SECTION 1 / C1.01
SCALE 1:20



SECTION 2 / -
SCALE 1:20

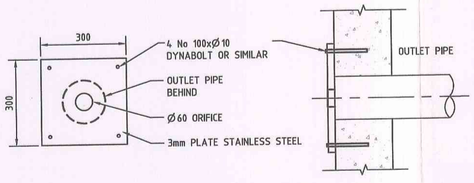
MINIMUM INTERNAL PIT DIMENSIONS		
"D"	"X"	"Y"
D ≤ 600	450	450*
D ≤ 900	600	600*
D ≤ 1200	600	900
D > 1200	900	900

NOTE: PITS DENOTED * SHALL BE USED ONLY WHERE SPECIFIED IN DRAINAGE SCHEDULE OR ON PLAN.



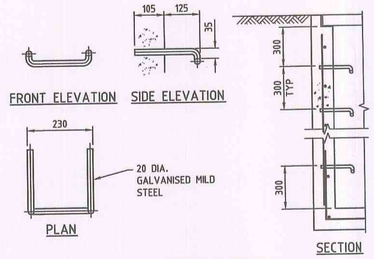
PLAN

SURFACE INLET/JUNCTION PIT PIT TYPE "A"
SCALE 1:20

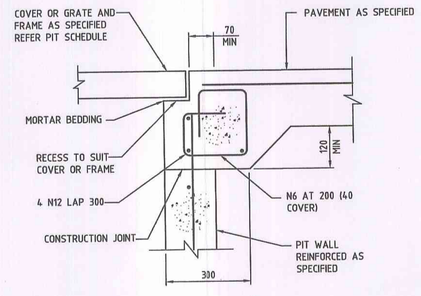


ORIFICE PLATE DETAIL
SCALE 1:10

NOTE:
ORIFICE PLATE SHALL BE SHARP EDGED AND WHEN INSTALLED BE FULLY SEALED WITH SILICONE ALL AROUND.



STEP IRON DETAIL
N.T.S.



PIT EDGE DETAIL "B"
SCALE 1:10

AUTHORITY PROTAS CONSULTING PTY LTD — DETAILS NOTED

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NEW DRIVEWAY AND GARAGE
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1174 BARRENJOEY ROAD
PALM BEACH

Drawing Title
BARRENJOEY ROAD STORMWATER DETAILS

Drawn	Date	Scale A1	Q.A. Check	Date
RD	AUG 2011	AS SHOWN	Q.A.	Q.A. DATE
Designed	Project No.		Dwg. No.	Issue
BHJ	SY110101		C1.02	A

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